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A Study on CSR Practices of Corporates in India

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ABSTRACT: Ministry of corporate Affairs through section 135 of the companies Act 2013, mandates every qualifying company to spend on CSR activities. CSR is a relative new term but dates back to history where activities were more of philanthropic in nature influenced by family values, traditions, culture and religion. According to report by KPMG, 2017 saw the highest number of CSR projects in the state of Maharashtra, UP, Tamil Nadu, Karnataka and Orissa. Corporate spending that fall under CSR activities are divided into 11 areas and specified in schedule VII of section 135 of the Companies Act 2013. 2015 was the first year of mandatory CSR reporting and according to Prime Database, only half of the 1708 companies listed on NSE have a CSR committee in place. According to India CSR outlook report, there are companies like Reliance, HDFC, TATA Steel, NTPC, Indian Oil Corporation and ONGC that has spent more than their prescribed budget allocated for CSR activities. The objective of this paper is to give an overview of CSR practices of corporates of India post the enactment of The Companies Act 2013.

Keywords: CSR, CSR Committee, Companies Act 2013, budget allocation.

Introduction To Corporate Social Responsibility

Social responsibility deals with legal, ethical, commercial and other expectation that business has towards society and maintaining a balance in claims for all key stakeholders. CSR is an act of continuous commitment of business to behave ethically and bring about economic development to the nation. This in turn improves the quality of life of people and society at large.

The concept of CSR dates back to the history and included philanthropy and was based on Gandhian trusteeship model. This model proposed a socio-economic philosophy that provides for wealthy people looking after the welfare of the people in general.

Due to liberalisation and India opening doors to large global players, a desire to compete and succeed in global market made Indian companies to integrate CSR into their business strategy. The major concern is to have positive impact on society and all stakeholders and not just shareholders.

Business cannot succeed without social progress. In India CSR has evolved as a strategic initiative. Corporate have started realizing that for long term viability, sustainability and growth fulfilling social responsibility is typical in this scenario.

According to the UNIDO, "Corporate social responsibility is a management concept whereby companies integrate social and environmental concerns in their business operations and interactions with their stakeholders. CSR is generally understood as being the way through which a company achieves a balance of economic, environmental and social imperatives (Triple-Bottom-Line Approach), while at the same time addressing the expectations of shareholders and stakeholders."

Objectives of Study

- To study an overview of CSR Law in India
- To review the CSR activities of few reputed corporate

Methodology

This paper is based on secondary data. The secondary data has been collected from different articles, conference paper and websites

Phases of CSR in India

Phase I: This phase was driven by religious values and industrialist set up temples and religious institutions, charitable foundation and educational and healthcare services were developed as part of community development activities.

Phase II: Trusteeship model was proposed by Gandhi which urged the industrialist to use their wealth to help society and bring about socio-economic growth

Phase III: This phase marked the emergence of PSU and strict laws described this as “era of command and control.” Major emphasis was on transparency and social accountability.

Phase IV: This phase was characterised by business houses coming up with sustainable strategies to create brand image by serving the society and uplifting the poor and needy. It was no longer considered as charity but regarded as responsibility.

CSR Law in India

India is the first country to have a legislation relating to CSR followed by UK. The Companies Act 2013, made CSR a compulsory act under section 135. CSR rules came into force on 1st April 2014 and include subsidiary companies, holdings and other foreign organisation involved in business activities in India. ¹The Ministry of Corporate Affairs through Section 135 of The Companies Act 2013 made it mandatory for every company, private limited or public limited having a net worth of Rs 500 crore or a turnover of Rs 1,000 crore or net profit of Rs 5 crore, needs to spend at least 2% of its average net profit for the immediately preceding three financial years on corporate social responsibility activities. The provisions of CSR are not only applicable to Indian companies, but also applicable to branch and project offices of a foreign company in India.

These activities should not fall under normal course of business but must fall under activities mentioned in Schedule VII of the 2013 Act. CSR activities have been defined to include those projects or programs relating to activities specified in Schedule VII and can be expandable in those specified areas but it cannot be any activities not listed Schedule VII.

Every company falling under CSR law have to form a CSR committee. Listed public Ltd companies must have at least 3 directors on the committee, of which at least one director must be an independent director. Unlisted companies and private companies are exempt from the requirement to have presence of one independent director and can operate with 2 directors.

Activities Under Schedule VII of the Companies Act 2013

Following are the activities included under Schedule VII:

1. ¹ Eradicating hunger, poverty and malnutrition, promoting preventive health care and sanitation;
3. Promoting gender equality, empowering women, setting up homes and hostels for women and orphans; setting up old age homes, day care centres and such other facilities for senior citizens and measures for reducing inequalities faced by socially and economically backward groups;
4. Ensuring environmental sustainability, ecological balance, protection of flora and fauna, animal welfare, agroforestry, conservation of natural resources and maintaining quality of soil, air and water;
6. Measures for the benefit of armed forces veterans, war widows and their dependents;
7. Training to promote sports;
8. Contribution to the Prime Minister’s National Relief Fund or any other fund(s) up by the Central Government for socio-economic development and relief and welfare of the Scheduled Castes, the Scheduled Tribes, other backward classes, minorities and women;
9. Contributions or funds provided to technology incubators located within academic institutions which are approved by the Central Government;
10. Rural development projects;
11. Slum area development.

Role of CSR in Education

Education is of utmost importance in all ages because it functions as an engine of development, progress and prosperity. Education not only develops individual intellectual skills and knowledge but also brings about positive and effective growth and development to the economy. Education is a powerful instruments in reducing social evils, poverty, unemployment and inequalities and sets the foundation for sustainable economic development.

The role of CSR in education is multifaceted. There has been remarkable change in the education sector since independence. Two important milestones in education was the introduction of The Sarva Shiksha Abhiyaan (SSA) and Right to Education Act (RTE). According to research carried out by CSRBOX and NGOBOX by 2019 education will be the most preferred area of CSR funding especially for companies with medium CSR budgets. In the last five years of operation of the CSR act, education and skill development has received the highest funding followed by healthcare, water and sanitation. Education and skill development are two areas that can go a long way in determining the future of a nation. Big business house like Reliance, Bharti Airtel

Group, Wipro Limited, TCS, Infosys, ONGC and NTPCL are few companies that have allocated funds majorly for bringing about development in the field of education and skill development. These companies invest in building capacities, providing necessary materials for learning, improving infrastructure, developing skills of youth, increasing employability.

According to PRIME Database in the previous year, education received the most funding (38% of the total), followed by healthcare (25%). CSR funding in skill development have helped in addressing the skill gaps in our country specifically in the rural area. Corporate have tied up with local NGOs or through their own foundations and addressing problem such as improving access to education, increasing enrolment, creating awareness programs, educating girl child, training the teachers, building infrastructure and the likes.

¹In the year 2015-16, out of 696 CSR projects, 253 were related to education and skill development. As per Ministry of Corporate Affairs Rs. 13,464 crore was spent on education in the year 2016-17 making it one of the most preferred area of CSR spending. Investment in education gives corporate instant good image in the society as it impacts social equity positively. Corporate realises that for sustainable economy, educational equity is of great significance. Education is one of the primary need of society and one of the preferred area of contribution by corporate. This is one sector that attracted corporate to invest huge funds and moreso after CSR becoming a mandate.

Why Education is A Preferred Area of CSR Programme

- Better public image
- Helps in creating brand awareness
- Gives a competitive edge over others
- Increases customer engagement
- Helps in retaining employees and ensuring employee engagement
- Ensure corporate partnership
- Encourage professional and individual growth

Some Example of Corporate Investing Majorly in Education

Reliance Industries Limited:

RIL invest in renovating and providing better school infrastructure, providing free study materials and study aids, providing scholarship to students and creating awareness about the need of ICT in rural India. In the state of Madhya Pradesh, Gujarat, Maharashtra, Delhi and Uttarkhand, RIL has launched digital learning van providing digital learning experience to thousands of under privileged students. In partnership with Eklavya Foundation through Shiksha Protsahan Kendras helped in improving the learning ability of children in 41 villages of Madhya Pradesh. It has various projects to support local school by providing financial support, capacity building of teachers and development of infrastructure in schools. It runs women and youth education programmes to empower them to employment. Dhirubhai Ambani Protsahan Scheme provides financial support to the topper for pursuing higher studies in Engineering and Medical education.

HDFC Bank

The project 'Learning made fun' has oriented 1047250 teachers in India. Other program under them are zero investment innovations for education initiative. Through project Katha Lab School, HDFC aims at providing holistic education to economically backward section of the society. At present the project covers over 400 beneficiaries in the state of Haryana. Another initiative in education is the introduction of MelJol to bring underprivileged children in mainstream education. With the help of Navjyoti India Foundation, the dropout rates of children from school are monitored and efforts are made to reduce the same. The bank has collaborated with Bodh Shiksha Samiti to help schools implement positive learning environment and democratic relationship between students and teachers. Pratham Education Foundation in association with HDFC Bank provides tutorials to strengthen the base subjects of a child. This program is run in the state of Maharashtra, Punjab, Haryana and Gujarat. In the state of Chhatisgarh, MP, Rajasthan and Maharashtra, project Magic Bus has been able to build capacity, parents awareness about the importance of education and improving calibre of both teacher and student.

L&T

They have come up with mobile toy library called the 'nanha munha exprss' which make learning fun for children through the introduction of educational toy. They have also set up community learning centers in partnership with NGOs to support children in coping up with their school curriculum.

Wipro

Wipro applying thoughts in schools (WATIS) have worked to build capacities in school education system across the country. Till date they have more than 67 education projects in more than 2300 schools in 17 states impacting more than one million students.

Mahendra & Mahendra

Project Nanhi Kali founded in 1996 aimed at educating girl child in remote and rural areas where girl education is a social taboo. Since 2005 this project is being managed by Nanhi Foundation and KC Mahindra Education Trust. Launched in 2007, Mahendra Pride School provides livelihood vocational training and employment to economical backward people. Mahendra Namaste was formed in 2012 and aims at providing professional skill training venture specialising in teachers' skill.

Case 1: ICICI Bank (Awarded the CSR Foundation of the year 2017-18 for Inclusive Growth)

ICICI Foundation is a CSR initiative by ICICI Bank. ICICI Foundation for inclusive growth was founded in 2008. It works in partnership with government, local NGO and adopts a direct intervention model for skill development. Majorly this foundation works in the area of promoting education, skill development and sustainable livelihood. ICICI Bank, both directly and through ICICI Foundation works with various bodies including state governments and other not-for-profit organisations to improve the quality of education in government and municipal schools.

The four major area of education initiative are:

- Quality education
- promoting a positive school and classroom environment
- improving classroom transaction
- Strengthening the School Management Committee

ICICI Foundation in the year 2013 launched, ICICI academy which is a skill development academy for providing job oriented vocational skills for improving the livelihood and quality of life of the underprivileged. ICICI Academy have centers in Jaipur, Chennai, Hyderabad, Bangalore, Pune, Coimbatore, Patna, Guwahati and Indore. The Academy provides placement assistance through industry partnership has been successful in providing 100% placement. The ICICI Academy have collaborated with over 1,300 industry partners. Few of their partner are Eureka Forbes, Karvy Data Management Services, Crompton Greaves Ltd., Voltas Ltd. Café Coffee Day (Retail Café Operations), Tally Solutions Pvt , Thyrocare Technologies Ltd, Apollo Hospitals, IFB, Havells India, Kotak Mahindra Bank,, Janalaxmi Financial Services and Reliance Retail and many more

An initiative of Ministry of Rural Development (MoRD) and ICICI Bank is setting up RSETIs for providing vocational training to rural youth. RSETI aims at creating demand based training curricula keeping in mind the requirements of local employers. Another initiative of this program is setting up of satellite centres in various blocks within the district for providing on-location 'training-at-doorstep' to youth. The RSETI's centres at Udaipur and Jodhpur have been recognised by the Ministry of Rural Development and the National Centre for Excellence of RSETI's for top performance in the country for six consecutive years.

The rural initiative of ICICI Foundation offers vocational training to villagers based on their local needs, arranging credit facilities for the villagers, linking markets and villagers. Digital Village program has also been launched to provide a digital platform for financial and commercial transactions. Till date over 1 lakh youth have been trained, 67200 women empowered and over 700 villages and 200 districts have benefitted through ICICI Foundation.

Case Study on Tata Steel: (Awarded CSR Project of the year 2017-18)

As on 31st March 2017, Tata Steel is one of the largest steel company with a production capacity of 27.5 million tonnes in India and top 10 steel manufacturer in the world. It operates in more than 26 countries and has commercial presence in over 50 countries. Sustainability is embodied in the culture of Tata Steel. Tata

steel believes that community is not just another stakeholders for their business but the organisation exist because of the community. Tata Steel foundation is a Non-Government company majorly into community, personal and social services Headquartered in Mumbai.

Tata Steel has spent on various CSR projects in the field of education spending on elementary school education to the high school level. The main aim of such spending was to bring about equitable and quality education. Two important fellowship programme run for economically challenged SC/ST students were: The Jyoti Fellowship and Moodie Fellowship. These programmes have benefitted over 2,800 meritorious SC/ST Students in Jharkhand and Odisha. Tata's preparatory coaching initiative was undertaken to provide guidance to secondary students who fall under the underprivileged category in subjects like English, Mathematics and Science.

Tata Steel has been awarded for its breakthrough educational initiative at New Delhi on April 27, 2018. Tata Steel in the year 2005 at Noamundi initiated a concept of Camp School to educate drop-out students and bring them to the mainline education system.

Tata Steel's project, 'Thousand School Program' was launched in 2015 to revive school education in its areas of operation. In 2018, the program has been awarded the "Most Impactful CSR Project, 2018" as part of the CSR awards of the Government of Odisha. The program aims to Universalise Elementary Education within the Right to Education (RTE) framework. The major focus of the program was increasing access of education and removing learning deficit. This program has already bagged another two awards in 2018: UN Global Compact India, Innovative Practices Award for Sustainable Development Goals, 2018 and 5th CSR Impact Awards NGOBOX - Project of the Year, 2018.

Conclusion

According to research conducted by NextGen, a Bengaluru-based CSR management firm, the annual reports of the top 100 companies listed on the National Stock Exchange of India (NSE) revealed that promoting education is one of the most preferred area of CSR spending. Investing in the fields of education helps companies define outcome and impact with visible results. Achievement in education sector can easily be attributed to a corporate. For other area of work the measurement criteria becomes challenging for companies. Education is considered one of the pillars of attaining a status of building better, equitable and just society.

Reference

1. Retrieved from <https://www.aubsp.com/schedule-vii-csr-activities/>
2. Bhuvaneshwari M, Chitra P, Arthi D. CSR Initiatives of ICICI Bank. International research journal on business and management. 2015.
3. Retrieved from <http://www.csrtimes.com/community-blogs/csr-in-education-in-india/vDziqCSXUj>
4. Education as Corporate Social responsibility (CSR) (2018) Retrieved from <http://www.cbgaIndia.org/blog/education-corporate-social-responsibility-csr-hype-hope/>
5. Retrieved from <https://www.hdfcbank.com/aboutus/csr/education.html>
6. Retrieved from <http://indiacr.in/education-skill-development-preferred-areas-csr-india/>
7. Retrieved from <https://www.livemint.com/Companies/ltYrOray6AN4InutGaMQ0M/Education-poverty-eradication-draw-most-firms-CSR-funds.html>
8. Retrieved from <https://www.mahindra.com/about-us/social-responsibility>
9. Ministry of Corporate Affairs (2014) Retrieved from <http://www.mca.gov.in/SearchableActs/Section135.htm>
10. Retrieved from <https://www.thehindubusinessline.com/companies/education-and-skill-development-the-most-preferred-areas-for-csr-funds/article24342946.ece>
11. Pooja Deshmukh., P (2017). Corporate social responsibility and education sector: issues and remedies. International Journal of Management (IJM), Vol. 8(1) pp. 137-144
12. Retrieved from <https://www.zeebiz.com/companies/news-education-favourite-csr-activity-among-indian-companies-4339>

Digital Education and Price Discovery For Effective Horticulture Marketing in West Bengal: A Study with Special Reference to E-Nam and Sufal Bangla

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ABSTRACT: *The effective agriculture marketing activities complement the agricultural production processes which in turn may increase farmers' income. The Government of India has launched National Agriculture Market (e-NAM), a unified web based agri-marketing portal in 14th April, 2016, to enhance transparency in transactions, price discovery and farmers' access to larger number of markets to sell their produce and to ensure cashless payments directly to their bank accounts. At present, a total of 585 wholesale regulated markets from 18 states are integrated in India. West Bengal has contributed to only 2.9 per cent (17 markets) of such enlisted number of Mandi in India. Recently, Government of West Bengal has adopted reform measures to encourage private enterprise and promote FPOs and FPCs for 'participatory farming in horticulture' to develop and promote contract farming, food processing, packaging and marketing of horticulture. "Sufal Bangla" is an innovative initiative of the Government of West Bengal towards effective marketing of horticulture products. In this context, the present study is a modest attempt to analyse role of digital education and agricultural training to influence price discovery system of horticultural products and to enhance farm income with special reference to e-NAM and Sufal Bangla in West Bengal. The study infers its empirical results and findings based on both aggregated and dis-aggregated data collected from different sources.*

West Bengal contributes 7.4 per cent of India's horticulture area and 10 per cent of horticulture production in 2016-17. West Bengal has occupied the first ranked in area of production of Brinjal, Cabbage, Cauliflower, Okra, Radish, and Watermelon and second in Potato, Sweet potato, and Beans among the leading vegetables producing states in India. It is one of the leading flowers producing states in India. West Bengal ranks top position in Indian cut flowers with a significant production share of 37% in Tube Rose, 30% in Gladiolus, 22% in Rose and 17% in Marigold in 2015-16. The positions of West Bengal in terms of different fruits production are: Pineapple (1st), Guava (4th), Banana (10th), Sapota (6th), Mango (8th), and Madarin (12th) among the major states. However, the performance of the West Bengal in terms of land productivity of these horticultural crops is not satisfactory in relation to other states. Production and productivity of these crops also vary greatly across districts as well as across blocks within the district in West Bengal. The marketing infrastructure and other support systems are not adequate in the state. There are limited horticultural exports also. The growth of modern horticulture practices and increasing access to both domestic and foreign markets are very much driven by knowledge and skill. Horticulture has potential employment opportunities and sources of earnings especially for small farming in West Bengal. NSS data reveal that nearly 6% of rural households in India possessed computer and the said figure for West Bengal is only 3% in 2014. In rural areas, the proportion of households having access to internet facility is 16.1% in India and 8.1% in West Bengal. Among the persons of age group of 14-29 years, only 13.5% are able to operate computer in West Bengal as against national average of 18.3% in rural areas. The regression results of Mincer earning function indicate that education and training positively promote earnings of the members of agricultural households in rural West Bengal. On an average, allocation of fund under National Horticulture Mission (NHM) to West Bengal is only 2.7 % of total allocation during 2012-13 to 2016-17. The percentage of release of such allocated fund is also not satisfactory (only 46.2%) for holistic growth of horticulture. The paper also suggests some innovative strategies/policies for expansion of digital marketing of horticulture products.

Keywords: Q13, Q16, I26, R15.

1. Introduction

Prices are the key signals that direct and coordinate the decisions of producers, consumers, and food marketing firms in the market economy (Kohls and Uhl, 2015). These prices are determined by the interaction of two broad market forces of supply and demand in a competitive environment. However, there is no guarantee that buyers and sellers will always or immediately discover the equilibrium price. Price discovery is the process by which sellers and buyers are arrived at a specific price for a given quantity of

commodity in the market. It is a human process, marked by errors in judgment and fact and subject to the relative bargaining powers of buyers and sellers to shop around among alternatives in order to make profitable trade and transactions. Today, knowledge and skill development initiatives are very important for effective farm marketing and job opportunities. The effective agriculture marketing activities complement the agricultural production processes which in turn may increase farmers' income. Horticulture is a subset of agriculture which has great potentiality to revitalize agricultural growth and provide as a source of livelihood especially for the small and marginal farmers in India. The Government of India has launched National Agriculture Market (e-NAM), a unified web based agri-marketing portal in 14th April, 2016, to enhance transparency in transactions, price discovery and farmers' access to larger number of markets to sell their produce and to ensure cashless payments directly to their bank accounts. Government of West Bengal has also adopted reform measures to encourage private enterprise and promote FPOs and FPCs for 'participatory farming in horticulture' to develop and promote contract farming, food processing, packaging and marketing of horticulture. "Sufal Bangla" is an innovative initiative of the Government of West Bengal towards effective marketing of horticulture products. It provides an interface between producers and consumers through extension services to benefit both farmers and consumers. The Sufal Bangla project is managing a value chain of commercial operation of perishables agricultural commodities with the front end static and mobile stores. Its principal mandate is to ensure Producers' maximum share in reasonable consumers' price. In some locations, where commercial operation is not feasible, operational supports are provided by the Government to run the stores in order to generate competitiveness in the consumers' market. The daily procurement price and consumer's price of more than 100 commodities relating to fruits and vegetables have been publishing regularly in the web portal of Sufal Bangla since February, 2015. The role of digital education among different stakeholders is very crucial to access such greater market opportunities and to improve smooth functioning of online trading of horticultural products.

I. Objectives of the Study

The major objectives of the study are as follows:

1. To assess the relative performance of West Bengal in Indian horticulture production and marketing.
2. To analyse role of digital education and agricultural training to influence price discovery system of farm products with special reference to e-NAM and Sufal Bangla in West Bengal.
3. To suggest some policies for effective marketing of horticultural products and to enhance income of farming community.

II. Data and Methodology

The relevant data and information are collected from different government publications and websites such as (i) <http://nhb.gov.in/> (for horticulture statistics), (ii) <https://www.enam.gov.in/enam/> (National level agri-marketing portal), and (iii) <https://sufalbanglaold.in/> (State's agri-marketing portal) to infer results of the study. To assess the impact of education and agricultural training on earnings of agricultural households in rural West Bengal we have used unit (individual) level NSS data from the 70th Round (2013) survey of Situation Assessment Survey of Agricultural Households. We have also considered (i) *NSS Report No. 575, Education in India*, and (ii) *NSS KI (71/25.2): Key Indicators of Social Consumption in India: Education* to understand different characteristics of access to Computer and Internet and the ability to operate it. The following Mincerian earning functions (basic and extended models) are used to estimate returns to education and analyse impact of education and training on earnings of members agricultural households in West Bengal.

Mincer (1974) has provided a model of semi-log earnings function to estimate returns to investment in education conveniently based on human capital theory. We have considered the following standard Mincer Earning function as: $\ln Y = \alpha + \beta S + \gamma_1 E + \gamma_2 E^2 + \sum \delta_k X_k + u$

where, Y= monthly earnings from wages & salary (Rs.), S= years of schooling, E=Experience is defined as (age minus years of schooling minus 6 yrs.), X_k are other socio-economic and demographic explanatory (dummy) variables (such as $X_1=1$ for male and =0 for female, $X_2=1$ for the persons who attended any formal training in agriculture and =0 for not attended persons, $X_3=1$ for the persons who stayed away from usual place of residence for 15 days or more for purpose of employment and =0 otherwise), and u is the error term. The estimated coefficient (β) of education (S) is the rate of return per year educational attainment.

In the extended model, the variable S is replaced by a series of dummy variables (for levels of education) referring to the completion of education level to estimate impact of different levels of education on earnings.

Extended or augmented Mincer earning function is as:

$$\ln Y = \alpha + \sum \beta_j S_j + \gamma_1 E + \gamma_2 E^2 + \sum \delta_k X_k + u$$

Where S_j denotes the j^{th} level of education (primary, middle, secondary, Higher secondary, graduate, post graduate and above) and it is defined as $S_j=1$ for the j^{th} level of education and $=0$ otherwise.

III. Discussion and Results

Horticulture covers wide varieties of crops from vegetables, fruits, and flowers to spices, honey and different plantation, aromatics and medicinal crops and plants. The International Society of Horticultural Science (ISHS) has released *Harvesting the Sun: A Profile of World Horticulture in July, 2012* which traces the scope of horticulture to economic growth and development as: "*Fruit, Vegetables, Flowers, and Ornamental Garden Plants supporting Life, providing Food, bringing Health and Wealth, and creating a Beautiful Planet*". Horticulture has several dimensions. It is not only promote agricultural growth and productivity but also it diversifies agriculture and enhance income of farming community, ensure food and livelihood security, increase export potentiality, and create employment opportunities. India is the 2nd largest producer of vegetables and fruits after China. Indian farming system is dominated by small holdings. Diversification of agriculture towards horticultural crops is an opportunity to revitalise agricultural growth in India (**Birthal et al, 2008**). Horticulture is a rapidly growing sector in the country. It has strong backward and forward linkages to other sectors of the economy. Horticulture sector has considerable potential to accelerate sustainable agricultural growth and it has an opportunity to small and marginal farmers to increase their farm income. The National Horticulture Mission scheme has been launched in 2005-06 for the holistic growth and development of horticulture sector.

Production Status and Marketing Infrastructure

The production of horticultural crops increases from 166.9 million MT in 2005-06 to 300.6 million MT in 2016-17 in India; with an impressive annual average compound growth rate of 6.7 per cent. The corresponding area under horticulture in India is increased from 18.5 million hectare to 24.9 million hectare during the same period, with a growth rate of 2.9 per cent per year. It is found that the growth rate of India's agri-exports is 2.37% per cent per year during 2011-12 to 2017-18 but the corresponding growth rates of exports of fresh vegetables, fresh fruits and floriculture are significantly 9.03%, 15.31% and 5.64% respectively.

India's presence in global horticulture market is also significant in terms of geographical coverage. India is exporting different horticultural products to several developed and developing countries. India's top export destinations of floriculture are USA, UK, Germany, Netherlands and UAE. United Arab Emirates is also an important market for Indian fresh Banana, Litchi, Fresh mango, papaya, pineapples, fresh sapota, cabbage, fresh onions, sweet potato etc. Bangladesh is an important export market of India's apple, oranges, fresh onions, and tomatoes. Pakistan is the main export destination of Indian tomato. Nepal plays an important role as one of the significant export destinations of India's vegetables and fruits. Netherland, Russia, United Kingdom, United Arab Emirates, and Germany are the important markets for Indian grapes. India is also imported fresh fruits and vegetables from China, Pakistan, Afghanistan, USA and Iraq. A significant portion of imported processed fruits and vegetables comes from Canada, Australia, Myanmar, and United States. India imports flowers mainly from Thailand, Egypt, Chile, Netherland and USA.

West Bengal has occupied a prime place in India in terms of production of multiple horticultural crops of flowers, vegetables and fruits (please see Appendix A). It has contributed 7.4 per cent of India's horticulture area and 10 per cent of total horticulture production in 2016-17. The distribution of area under horticulture crops in West Bengal (India) is estimated as: Vegetables-76% (41%), Fruits-13% (26%), Flowers-2% (1%), and Others- 9% (32%) in triennium crop year ending of 2016-17. West Bengal is ranked the first in Brinjal, Cabbage, Cauliflower, Okra, Radish, and Watermelon and second in Potato, Sweet potato, and Beans in terms of area under these crops in India during 2016-17. West Bengal is shared 14.6 per cent of vegetables, 4.00 per cent of fruits and 12.14 per cent of flowers production in India with rank of 2nd in vegetables, 9th in fruits and 3rd in flowers in 2016-17. The distribution of area under different important vegetables and fruits produced in West Bengal are shown in Figure 1 and Figure 2 respectively. The positions of West Bengal in terms of different fruits production are: Pineapple (first), Guava (4th), Banana (10th), Sapota (6th), Mango (8th), and Madarin (12th) across states. But the performance of the West Bengal in terms of land productivity of these horticultural crops is not satisfactory in relation to that of other states (Figure 3, 4). Thus, there is a great potentiality to improve productivity of fruits and vegetables by proper utilizing existing resources and technology in West Bengal.

Figure 1 Distribution of Area under different vegetables in West Bengal (TE 2014-15)

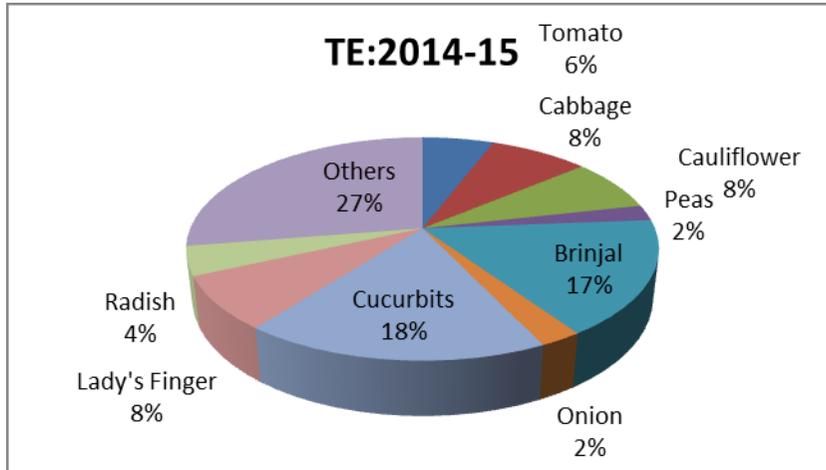
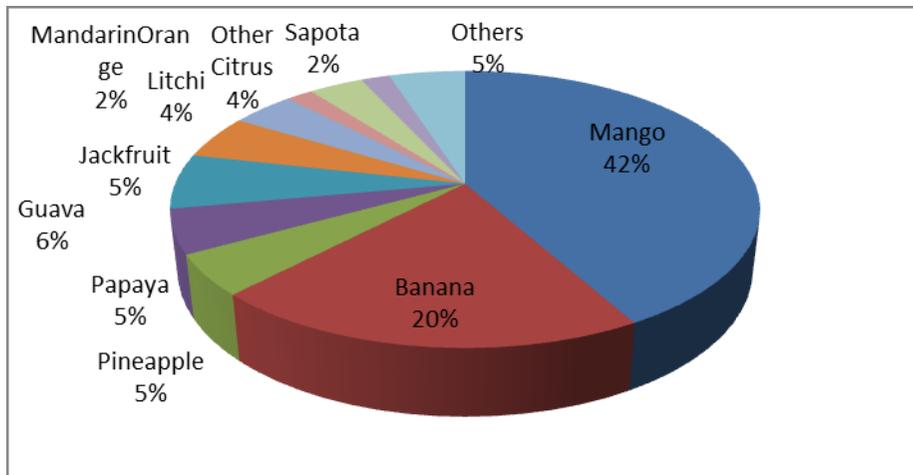


Figure 2 Distribution of Area under different fruits in West Bengal (TE: 2014-15)



West Bengal ranks top position in Indian cut flowers with a significant production share of 37% in Tube Rose, 30% in Gladiolus, 22% in Rose and 17% in Marigold in 2015-16. Production and productivity of these crops also varies across districts and blocks of West Bengal significantly. Thus, West Bengal has significant contribution to the development of Indian horticulture. But allocation of fund under National Horticulture Mission (NHM) to West Bengal is only 2.7 % of total allocation during 2012-13 to 2016-17. On an average, the percentage of release of such allocated fund is also poor; only 46.2 percent of allocated fund to the state during the same period of time.

Figure 3 Comparison of Yield of different Vegetables:

West Bengal-India-Highest Yield State, 2016-17

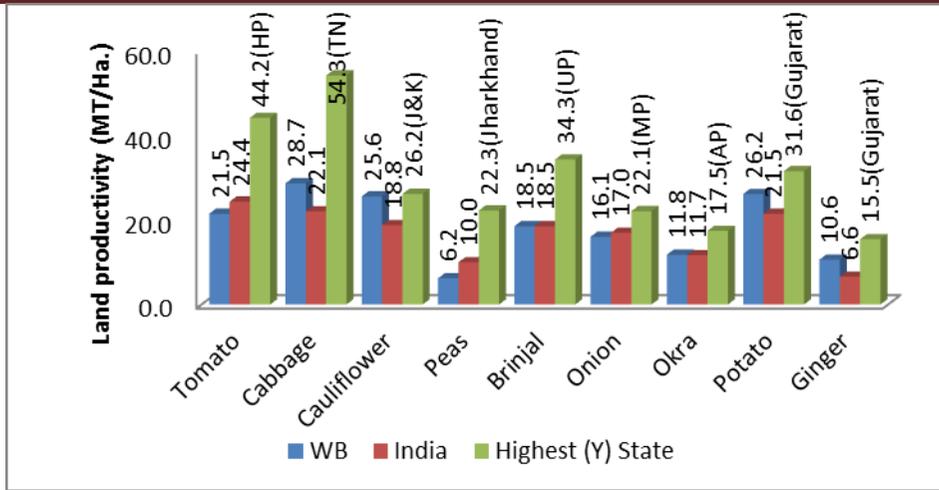
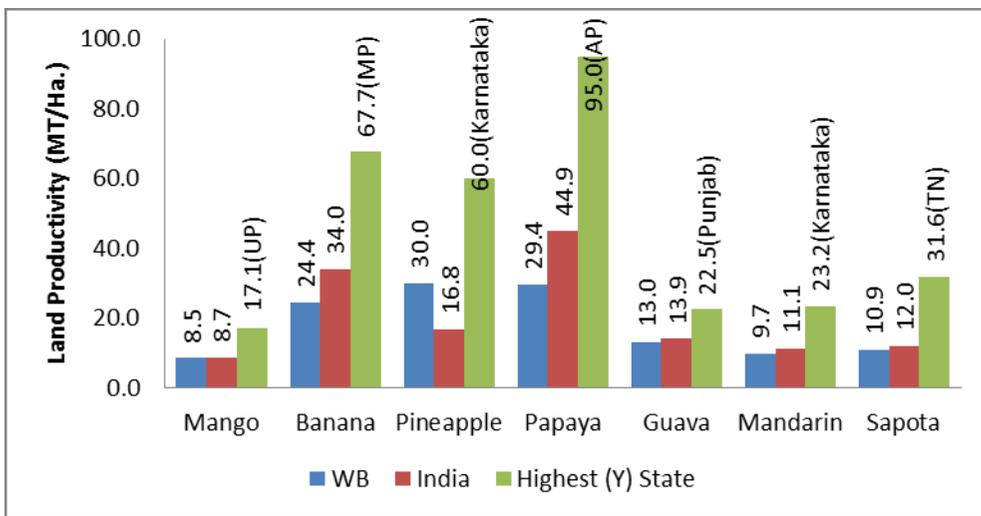


Figure 4 Comparison of Yield of different Fruits: West Bengal-India-Highest Yield State, 2016-17



The marketing infrastructure and support systems for the growth of horticulture are also not adequate in West Bengal. As on 31.03.2017, West Bengal ranks 5th in terms of number of cold storages but 2nd in terms of capacity of storages among major Indian states (Table 1). The number of cold storage is highest in Uttar Pradesh (2285) followed by Gujarat (753), Punjab (655), Maharashtra (581) and West Bengal (511). Most of the cold storages are used for potato storage and average capacity of each storage is 11625 MT in West Bengal, while in UP the corresponding figure is 20315 MT. There is a lack of effective multi-purpose cold storage in West Bengal. The multi-purpose cold storage should be created for other vegetables and fruits near the Krishak Bazra/Urban markets to match the demand-supply gaps, to reduce transaction costs and post harvest loss, and to ensure supply of raw materials to the processing industries and for exports.

Table 1: Number and capacity of Cold Storage in Major states as on 31.03.2017

	No	%	Ran k	Total Capacity (MT)	Ran k	Average capacity (MT/ cold storage)
Uttar Pradesh	2285	11.69	1	14139098	1	20315
Gujarat	753	12.65	2	2875713	3	3819
Punjab	655	11.00	3	2152003	4	3286
Maharashtra	581	9.76	4	896730	8	1543

West Bengal	511	8.58	5	5940511	2	11625
Andhra Pradesh & Telangana	432	7.26	6	1757785	5	4069
Haryana	336	5.64	7	741446	9	2207
Bihar	305	5.12	8	1416095	6	4643
Madhya Pradesh	294	4.94	9	1253715	7	4264
Kerala	196	3.29	10	78105	11	398
Karnataka	194	3.26	11	553401	10	2853
All India	5954	100.00		34673886		5824

Source: Horticulture Statistics at a glance, 2017, Govt. of India.

Table 2: State-Wise Estimated Number of Factories in Registered FPI Units for 2013-14

States	Number of Registered Units	%	Rank
Andhra Pradesh	5739	15.33	1
Tamil Nadu	5204	13.90	2
Telangana	3850	10.28	3
Maharashtra	3040	8.12	4
Punjab	2786	7.44	5
Uttar Pradesh	2037	5.44	6
Karnataka	2033	5.43	7
Gujarat	1904	5.08	8
West Bengal	1739	4.64	9
Kerala	1460	3.90	10
Assam	1294	3.46	11
All India	37445	100.00	

Source: Horticulture Statistics at a glance, 2017, Govt. of India.

The number of registered Food Processing Industries (FPI) units in West Bengal is 1739 and it shares about 5 per cent of total number of units (37445) in India (Table 2). The position of West Bengal is 9th among the major states in respect of FPI. One of the important aspects of marketing of horticulture products is the packaging and leveling of it. The performance of West Bengal in respect of system of packaging of horticultural products is very poor. There are only 9 integrated Pack House created under the Mission for Integrated Development of Horticulture (MIDH) in West Bengal (Table 3). Maharashtra and Karnataka are the important states in respect of number of Pack House created. Marketing infrastructure plays a critical role for effective and efficient marketing of horticultural products. Table 4 shows the Marketing Infrastructure Projects Sanctioned under NHM Scheme in some selected States in India. It is observed that a very negligible amount of assistance (Rs. 92.7 lakh which is only 1.12% of total assistance) for rural primary markets and wholesale markets infrastructure projects is sanctioned to West Bengal under NHM scheme. Thus, emphasis should be given on an appropriate allocation and disbursement of fund under NHM scheme, GOI and timely utilization of such fund for sustainable growth of horticulture in West Bengal. The suitable government intervention is urgently needed to harmonize conflicting interests of different players (farmers, traders, processors, exporters and consumers) in the farming and marketing systems of horticulture.

Table 3: State Wise Integrated Pack House Created under MIDH (upto 31.03.2017)

State	No of Pack House	No of Integrated Pack house	Total	%	Rank
Maharashtra	3805	0	3805	18.52	1
Karnataka	3274	52	3326	16.19	2
Chhattisgarh	2702	0	2702	13.15	3
Gujarat	1557	32	1589	7.73	4

Odisha	1535	0	1535	7.47	5
Andhra Pradesh	1353	1	1354	6.59	6
Madhya Pradesh	1202	1	1203	5.86	7
Jharkhand	1018	1	1019	4.96	8
Haryana	614	5	619	3.01	9
Punjab	505	1	506	2.46	10
West Bengal	9	0	9	0.04	27
All India	20437	106	20543	100.00	

Source: Horticulture Statistics at a glance, 2017, Govt. of India.

Table 4: Marketing Infrastructure Projects Sanctioned under NHM Scheme in some selected States (Upto 31.3.2017) (Rs. in Lakh)

	Rural Primary Markets		Wholesale Markets		All Markets Assistance	
	No. of projects	Assistance	No. of projects	Assistance	Total	%
Andhra Pradesh	16	60.0	17	745.0	805.0	9.75
Chhattisgarh	0	0.0	1	510.8	510.8	6.19
Haryana	0	0.0	11	1682.8	1682.8	20.38
Karnataka	9	52.7	19	1573.3	1626.0	19.69
Madhya Pradesh	8	33.3	1	918.6	951.9	11.53
Punjab	11	41.3	7	58.5	99.7	1.21
Uttar Pradesh	4	90.8	11	1599.2	1690.1	20.47
West Bengal	26	92.7	---	---	92.7	1.12
Total	215	1141.75	68	7115.67	8257.4	100.00

Source: Horticulture Statistics at a glance, 2017, Govt. of India.

Online Agri-marketing Services

In general, agriculture marketing has been regulated by the States as per their Agriculture Produce Marketing & Regulation Acts. Recently, Govt. of India has been taken an initiative to integrate selected 585 regulated wholesale agriculture markets spread over 16 states and 2 UTs through a common e-market platform, called e-NAM (Table 5). It is observed that West Bengal has contributed to only 2.9 per cent (17 markets) of such enlisted number of Mandi in India. Out of total 17 enlisted markets only 6 Mandis doing online trading in West Bengal. Uttar Pradesh, Gujarat, Maharashtra, Madhya Pradesh and Haryana are the top 5 states in e-NAMs. Online trading of agricultural commodities on e-NAM portal facilitates real time price discovery in a transparent and competitive manner. The major objectives of e-NAM are: (i) to integrate markets across states; (ii) to promote efficiency in functioning of the markets through an uniform licensing system, real time price discovery based on actual demand and supply of agri-commodities, transparency in auction process, quality assaying system, and online payments; (iii) to promote stable prices and availability of quality produce to the consumers. The e-NAM portal is managed centrally by the Agency of Small Farmers' Agribusiness Consortium (SFAC). It provides single window service for all APMC related information and services. More than 114 agricultural commodities are enlisted under e-NAM (Table 6). It achieves 200 crores online payments. Some of the states are providing different (trade related and payment related) incentives like prize, gift, rebate of Mandis fee etc to farmers and traders to attract and expand online trading of agricultural produce. An eNAM mobile APP is available in several languages. Farmers and traders can avail this APP to bid and complete trade transaction. There is provision of assistance to the states subject to certain reforms in the State APMC Acts and Regulations such as (i) a single license to be valid across states, (ii) single point levy of market fee, and (iii) provision of electronic auction as a mode for price discovery.

Table 5: Distribution of e-NAM enlisted markets across States/UTs.

Sl No.	State/UTs	APMC enlisted under e-NAM		Mandis doing Online Trade	
		(No.)	(%)	(No.)	(%)
1	Uttar Pradesh	100	17.09	87	27.10
2	Gujarat	79	13.50	45	14.02
3	Maharashtra	60	10.26	29	9.03

4	Madhya Pradesh	58	9.91	27	8.41
5	Haryana	54	9.23	32	9.97
6	Telangana	47	8.03	1	0.31
7	Rajasthan	25	4.27	24	7.48
8	Tamil Nadu	23	3.93	0	0.00
9	Andhra Pradesh	22	3.76	13	4.05
10	Himachal Pradesh	19	3.25	6	1.87
11	Jharkhand	19	3.25	7	2.18
12	Punjab	19	3.25	15	4.67
13	West Bengal	17	2.91	6	1.87
14	Uttarakhand	16	2.74	13	4.05
15	Chhattisgarh	14	2.39	12	3.74
16	Odisha	10	1.71	3	0.93
17	Puducherry	2	0.34	0	0.00
18	Chandigarh	1	0.17	1	0.31
	Total	585	100.00	321	100.00

Source: <https://www.enam.gov.in/enam/>

Table 6: Listed commodities under eNAM

Commodity Category	No. of Commodities
Food Grains/ Cereals	17
Oilseeds	12
Fruits	22
Vegetables	33
Spices	10
Misc	20
Total	114

Source: <https://www.enam.gov.in/enam/>

The Govt. of West Bengal regulates agricultural marketing practices by a comprehensive act of 'The West Bengal Agriculture Produce Marketing (Regulation) Act, 1972' and the APMC Rules, 1982 and the successive amendments of the same in 2014 and 2017. The Sufal Bangla project is an innovative initiative of the Department of Agricultural Marketing, Govt. of West Bengal towards effective agricultural marketing. The main aim of Sufal Bangla project is to benefit the farmers through extension services to provide an interface between producers and consumers which would benefit both of them. Initially, it started through selling of potato and onion in mobile van at 14 outlets around Kolkata in 2014. Presently, there are 72 Sufal Bangla stalls in Kolkata and 32 stalls in other districts. There are 12 collection centres in the districts of Hooghly, North & South 24 Parganas, Nadia, Birbhum, Bankura and Malda. Singur Tapasi Malik Krishak Bazar, Singur, Hooghly is the main Operation Hub of Sufal Bangla in West Bengal. Sufal Bangla provides market linkage or avenues to the farmers to sell the produce in the market. Sufal Bangla web-portal publishes *daily price list* of more than 100 horticultural products with specification of their quality without interruption since 2015. The basic objectives of this project are: (i) to help the farmer's get premium price and have rational share in consumer's price, (ii) to supply quality produce at less retail price and have rational share in consumer's price and (iii) to make fruit and vegetable producer's retail market be competitive.

According to Goutam Mukherjee, Project Director, Sufal Bangla the method of pricing policy is that a team of the Sufal Bangla project unit collects farm gate prices and producers' prices daily from primary markets as well as from the enrolled farmers. At the same time they also collect wholesale and retail prices from Kolkata and district level markets daily. As a policy, producers' price never exceed wholesale price and their notified producers' price is generally 10-15% higher than respective producers prices prevail in the markets. However, notified procurement prices are necessarily at least 10 % more than cost of cultivation of the crop. Consumers' prices are kept reasonable and producers' share in consumers' price ranges from 65% to 85%. In this pricing structure 22 stores out of 57 stores are being managed by the Farmers Producers' companies, selected on competitive basis and these stores are commercially viable. They are providing only stores, brand and pricing but FPCs are investing working capital as well as overhead. The exclusive phenomenon of

the model is notification of consumers' price before 16 hours of transaction and the prices are available in the public domain through Website of Sufal Bangla and mobile APP for social auditing. They even receive views of the farmers in regard to producers' price if farmers find it less remunerative and then they edit the price accordingly.

Role of Education and Access to Computer & Internet

It is increasingly realized that knowledge is an important input for modern horticulture and for efficient farming. But it is very unfortunate that the existing knowledge and information about how to use optimal combination of inputs, know-how, land management methods, and how to process, and market agricultural commodities remain inaccessible to a vast number of marginal and small farmers in India (Babu & Joshi, 2014). This is a matter of grave concern to the policy makers. Knowledge and Skill are essential for economic growth and social development. Effective and efficient agricultural marketing may enhance income of the Indian farmers. There should be an integrated approach to production and marketing of farm products. Today, expansion of digital education among the farming community and different other stakeholders involved in innovations in crop breeding, production, and handling, processing, packaging, storages, and marketing is very important for holistic growth and development of horticulture sector. Agricultural extension education and advisory services are a vital element of the array of market and non-market entities and agents that provide critical flows of information that can improve farmers' and other rural peoples' welfare (Anderson, 2007).

More than 96 per cent holdings in West Bengal are marginal and small farmers (below 2 hectare of land). Besides small holdings they have faced several other problems. Govt. of West Bengal has sorted out some major problems faced by the farmers in its notification regarding participatory farming in horticulture in West Bengal, dated 19th October, 2016. These are: (i) They do not have proper knowledge for use of pesticides, insecticides, chemical fertiliser etc. (ii) Use of modern technology is not possible by individual farmers who are particularly small and marginal. (iii) They do not have sufficient capital. (iv) Individually, they do not have much bargaining power on pricing. (v) They have to depend on local markets or middlemen to sell their produce which generally do not provide remunerative prices. (vi) In case of glut, they are not even sell their crops and have to throw it way. (vii) They do not have proper storage facilities. Therefore, without government intervention in the agri-markets, direct access to online trading of farm products by such poor and illiterate farmers is far from their present capacity. Proper education, training and support system are to be provided for smooth functioning of digital agri-marketing in favour of farmers. Strengthening their knowledge, skills and attitudes in both production and marketing of horticulture produce may enable them effective and efficient participation in different stages of horticulture development in India.

Impact of general education and formal agricultural training on earnings of rural agricultural households in West Bengal is assessed with help of semi-logarithmic Mincer earning function. The results of estimated earning function based on 70th round NSS unit level individual data are summarised in Table 7. All regression coefficients are statistically significant except the variable agricultural training in both the models.

Table 7: Regression results of estimated Mincer Earning Functions (Dependent variable= log of wages & salary)

Explanatory Variables	Extended Model		Basic Model	
	Coef.	p-value	Coef.	p-value
Years of schooling (S)	---	---	0.091	0.000
Primary (S1=1)	0.131	0.063	---	---
Middle (S2=1)	0.265	0.000	---	---
Secondary (S3=1)	0.499	0.000	---	---
HS (S4=1)	1.114	0.000	---	---
UG (S5=1)	1.461	0.000	---	---
PG (S6=1)	1.891	0.000	---	---
Experience	0.048	0.000	0.050	0.000
Experience ²	-0.001	0.000	-0.001	0.000
Gender (male=1)	0.342	0.000	0.258	0.000
Training (attended=1)	-0.185	0.218	-0.219	0.152

Stayed away (migrated=1)	0.131	0.065	0.102	0.159
Constant	6.402	0.000	6.248	0.000
R ²	0.245		0.211	
Prob>F	0.000		0.000	
Adj. R ²	0.240		0.208	
No. of Observations	1606		1606	

An analysis of regression results reveals some interesting observations: (i) The coefficient of years of schooling variable is significantly 0.091 which implies that on an average, the rate of returns to education on earnings of members of agricultural households in rural West Bengal is 9.1 per cent per year of educational attainment. (ii) The coefficients of different levels of education (dummy variables) are estimated to be positive and statistically significant and the values are monotonically increasing with levels of education which implies that there is a direct relationship between education and earnings and the level general education positively promote income of farming community. (iii) A positive sign on experience implies that income goes up with years of experience which is the proposition that skill increases dexterity and thereby productivity. Moreover, the squared experience negative implies that there is monotony in the same work and thereby productivity goes down. (iv) the coefficient of gender dummy variable (Male =1 and Female =0) is estimated significantly 0.432 which indicates that earnings of male members of agricultural households in rural West Bengal is about 40.7 per cent ($e^{0.432} - 1 = 0.407$) higher than that of female members. (v) The coefficient of training variable is found to be negative but statistically insignificant in case of all workers taken together. Out of total 1606 sample members of agricultural households only 2.4 per cent have attended formal training in agriculture. However, the impact of agricultural training is found to be positive on earnings (the coefficient is being 0.100 with p-value 0.683) of own account worker (principal activity status code=11) and earnings of (coefficient=0.071 and p-value= 0.741) casual wage labour (code=51). (vi) The impact of out migration (stayed away from usual place of residence for 15 days or more for purpose of employment) is found to be positive on earnings of rural households in West Bengal. The extent of out migration among casual wage labour is estimated 17.7 per cent which is greater than that of other workers (8.5 per cent); on an average it is 12.1 per cent in rural West Bengal.

Let us look into examine present status of technical knowledge and skills of rural people in West Bengal vis-a-vis All-India. NSS (71st Round, Survey on Education) data reveal that 6.1% of rural households in India possessed computer and the said figure for West Bengal is only 3.1% in 2014. The survey was considered any devices such as desktops/laptops/notebooks/smart phones etc as computers. The proportion of households having access to internet facility (for households with at least one member of aged 14 years and above) is 16.1% in rural India and 8.1% in rural West Bengal. There is wide variation in having computer and the ability to access internet across states and rural-urban divide in India (Table 8). Kerala, Punjab, Tamil Nadu, and Maharashtra performed better than other states. The rural-urban gap (disparity ratio) in having computer in West Bengal (7.5 times higher in urban area than rural area) is found to be greater than the National average of 4.7.

Table 9 depicts percentage of population access to computers and internet in West Bengal vis-à-vis India by gender, rural-urban divide and by types of ability to use computer. The maximum proficiency in operating computer is generally seen in the age group of 14-29 years. Among the persons of age group of 14-29 years, only 13.5% are able to operate computer in West Bengal as against national average of 18.3% in rural areas. It is found that males are more able than female in this regard in West Bengal as well as all-India level. The ability of population to use computer for word processing, internet searching and sending e-mails also varies greatly across gender and by rural-urban divide. Only 4.7 per cent rural population in West Bengal is able to use computer for internet searching desired information as compared to national average of 7.3 per cent.

Table 8: Proportion (%) of households having computer & access to internet facilities in Major States.

States	Rural	Urban	Total	Disparity ratio (U/R)	% of Rural HHs having access to internet facilities
Andhra Pradesh	2.5	23.2	9.1	9.3	33.5
Bihar	2.3	20.7	4.2	9.0	5.7
Gujarat	7.1	31.1	17.5	4.4	17.1
Haryana	7.8	31.6	16.1	4.1	21.4

Karnataka	5.7	29.4	15.5	5.2	15.8
Kerala	25.7	37.9	31.3	1.5	51.3
Madhya Pradesh	3.2	25.6	9.1	8.0	6.4
Maharashtra	11.3	40.7	24.9	3.6	21.4
Odisha	2.1	20.7	5.5	9.9	8.7
Punjab	13.1	38.0	22.9	2.9	23.0
Rajasthan	8.6	30.1	14.4	3.5	19.0
Tamil Nadu	13.0	26.2	19.7	2.0	34.2
Uttar Pradesh	5.0	26.7	10.3	5.3	14.3
West Bengal	3.1	23.2	9.5	7.5	8.1
All-India	6.2	29.2	13.7	4.7	16.1

Source: NSS Report No. KI (71/25.2): Education

Table 9: Population (in %) access to Computer & Internet in West Bengal vis-a-vis India

	Types of ability (14 yrs & above) to use computer/Internet:							
	able to operate computer (age 14-29 yrs)		for word processing/typing		for searching desired information		for sending e-mails	
	WB	India	WB	India	WB	India	WB	India
Rural								
Persons	13.5	18.3	5.8	7.8	4.7	7.3	3.9	6.5
Male	16.9	22.7	7.6	10.4	6.5	10.0	5.4	8.9
Female	10.2	13.5	3.9	5.2	2.9	4.5	2.4	3.9
Urban								
Persons	40.5	48.9	21.7	28.1	19.7	27.1	18.0	25.4
Male	46.3	53.6	26.4	33.4	24.8	33.1	22.8	31.1
Female	35.0	43.8	16.8	22.5	14.6	20.7	13.1	19.3

Source: NSS Report 575, Education in India.

IV. Conclusions & Policy prescriptions

West Bengal occupies a prime place in production of vegetables, fruits, and flowers in Indian horticulture but it is mainly constrained by lack of public investment and support system, lack of processing units, shortage of storage facilities and marketing infrastructure and inadequate extension services. Allocation of fund under National Horticulture Mission (NHM) to West Bengal is only 2.7 per cent of total allocation during 2012-13 to 2016-17. The percentage of release of such allocated fund is also poor. Further, it is observed that a very negligible amount of assistance (Rs. 92.7 lakh which is only 1.12% of total assistance) for rural primary markets and wholesale markets infrastructure projects is sanctioned to West Bengal under NHM scheme. There is a dearth of processing and packaging industries for horticultural products in West Bengal. Knowledge and skills are essential for holistic growth and development of modern horticulture which would accelerate agricultural productivity and growth. Impact of education on earnings of rural agricultural households is significant. On an average, the rate of returns to general education is estimated as 9.1 per cent per year of educational attainment and there is a positive relationship between level of earnings and level of education. Female members of agricultural households earn less than the earnings of male members in rural West Bengal. Only 2.4 percent workers have attended formal training in agriculture. Agricultural training positively promotes earnings of self employed (own account) workers and casual wage labour in rural areas. Out migration of rural workers for employment has positive impact on earnings of households in West Bengal.

The web-portal of E-NAM at the National level and Sufal Bangla at the state or regional level are experimenting online trading of agri-products and providing extension services to promote agri-business in the country and to benefit both producers and consumers. Access to such online trading facilities requires proper education and technical knowledge. An analysis of NSS data reveals that there is wide variation in having computer and the ability to access internet across states and rural-urban divide in India. It is observed that 6.1% of rural households in India possessed computer and the said figure for West Bengal is only 3.1% in 2014. The proportion of households having access to internet facility is 16.1% in rural India and 8.1% in rural West Bengal. Among the persons of age group of 14-29 years, only 13.5% are able to

operate computer in West Bengal as against national average of 18.3% in rural areas. It is found that males are more able than female in this regard in West Bengal as well as all-India level. The ability of population to use computer for word processing, internet searching and sending e-mails also varies greatly across gender and by rural-urban divide.

Policy prescriptions:

1. Proper education, training, agri-extension services and other support systems are to be provided immediately especially to the small and marginal farmers as horticulture is a potential sector to enhance their farm income in West Bengal.
2. Emphasis should be given on quality production, packaging, processing and storage industries to increase exports of horticulture products and to create employment opportunities for the vast number of educated unemployed.
3. An urgent reform in general education system is needed in West Bengal so that students are to be equipped with use of computer and internet facilities. Some basic concepts of agricultural education may be incorporated in the school curriculum to grow interest about the study of agriculture among the students because agriculture is the main support system in rural West Bengal.
4. Emphasis should be given on information and data management system, transparency in resource-allocation and disbursement of fund under NHM scheme and timely utilization of such fund for sustainable growth of horticulture.
5. Immediate action should be taken to enlist all Mandis/RMCs under e-NAM with their physical infrastructure, location, transport and insurance facilities, and connectivity (by rail, road, air, water etc) and other logistic details. All Mandis may be connected with CCTV system /live video conferencing (interactive mode) to display daily market arrivals/quality of products/prices etc for transparency and confidence building among stakeholders and make habits of online marketing. Reputed international online shopping company may be appointed as a strategic partner for effective implementation of online agricultural marketing and e-payments in India.
6. The suitable government intervention is urgently needed to harmonize conflicting interests of different players (farmers, traders, processors, exporters and consumers) in the farming and marketing systems of horticulture.

Appendix A: Rank of West Bengal in different (29) horticultural crops in India, 2016-17

Sl. No.	Name of crops	Rank of West Bengal in terms of			Top-3 States in production
		Area	Production	Productivity	
1	Banana	9	10	11	Guj., AP, TN
2	Guava	5	4	10	UP,MP, Bihar
3	Mango	10	8	11	UP, AP, Kar.
4	Mandarin	15	12	8	MP, Punjab, Maha.
5	Pineapple	6	1	3	WB, Assam, Kerala
6	Sapota	6	6	7	Kar. Guj., TN
7	Papaya	5	8	10	AP. Guj., TN
8	Beans	2	7	20	Guj., Kar., Jharkhand
9	Brinjal	1	1	12	WB, Orissa, Guj.
10	Cabbage	1	1	5	WB, Assam, Bihar
11	Cauliflower	1	1	3	WB, Bihar, UP
12	Onion	12	9	13	Maha., MP, Kar.
13	Peas	6	6	18	UP, MP, Punjab
14	Potato	2	2	3	UP, WB, Bihar
15	Radish	1	2	10	Haryana, WB, Punjab
16	Sweet Potato	2	3	10	Orissa, Kerala, WB
17	Tomato	4	7	16	MP, Kar, AP
18	Water melon	1	4	14	UP, Kar., AP
19	Chillies(dried)	5	4	9	AP, Telangana, MP

20	Termaric	3	7	20	Telangana, Maha., AP
21	Garlic	8	7	4	MP, Raj., UP
22	Ginger	4	2	5	Assam, WB, Maha.
23	Coriander	7	6	6	Raj., Guj., MP
24	Cumin	3	3	2	Guj., Raj., WB
25	Loose Flower	4	7	18	TN, Kar., MP
26	Plantation Crops	8	7	5	Kerala, TN, Kar.
27	Cashew nuts	10	8	2	Maha., AP, Orissa
28	Arecanut	5	15	4	Kar., Kerala, Assam
29	Coconut	6	15	5	Kerala, TN, Kar.

Source: Horticultural Statistics at a Glance, 2017, GOI.

References

1. Anderson JR. Background Paper for the World Development Report 2008: Agricultural Advisory Services, Agriculture and Rural Development Department, The World Bank, Washington DC, USA, 2007.
2. Babu S, Joshi PK. "Knowledge-Driven Agricultural Development: Policy Options for revitalizing Extension and Advisory Services in India", Inter Conference Symposium of International Association of Agricultural Economists (IAAE) on Revisiting Agriculture Policies in the light of Globalisation Experience: The Indian Context, 12-13 October, 2014 – MANAGE, Hyderabad, India, 2014.
3. BIRTHAL PS, JOSHI PK, CHAUHAN S, SINGH H. Can Horticulture Revitalize Agricultural Growth? *Indian Journal of Agricultural Economics*. 2008, 63(3), July-Sept., Mumbai.
4. Kohls RL, Uhl JN. Marketing of Agricultural Products. Pearson, 2015.
5. Mincer J. Schooling, Experience, and Earnings. New York, National Bureau of Economic Research, 1974.

Recent Trend in Inflation Rate and its Effect on Real GDP in India

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ABSTRACT: This paper examines the issue of the relationship between inflation rate and real GDP growth of India. A time series data used to check the relation between inflation and GDP for the period of 2000 to 2018. Trend of Inflation Rate and Real Gross Domestic Product (GDP) also shown over time period of 18 years in India. Simple Regression analysis method has been used to obtain the empirical evidence. The results of simple regression methods reveal that there is a positive relation between inflation and Real GDP of India. One percent increase in Inflation will raise Real GDP by 0.10%. At 5% significance level accepted that Inflation has significant relationship with Real GDP in India during study periods. Inflation encourages productivity and output level. The findings are consistent with a similar study. The study concluded that Inflation play positive role to increase Real GDP of country which means increases in welfare of National Income if other variables remains constant.

Keywords: Inflation, Real GDP, Trends, Simple Regression

1. Introduction

The basic aim of the paper is to investigate the relation between Inflation and Real GDP of India. Inflation means the rise in general price level in the economy and it leads to fall in currency value/purchasing power. But have positive relationship between inflation and Real GDP a controversial one in both theory and empirical findings. Originating in the Latin American context in the 1950s, the issue has generated an enduring debate between structuralists and monetarists. The structuralists believe that inflation is essential for economic growth, whereas the monetarists see inflation as detrimental to economic progress. There are two aspects to this debate: (a) the nature of the relationship if one exists and (b) the direction of causality. Friedman (1973: 41) succinctly summarized the inconclusive nature of the relationship between inflation and economic growth as follows: –historically, all possible combinations have occurred: inflation with and without development, no inflation with and without development|. The impact of inflation on growth, output and productivity has been one of the main issues examined in macroeconomics.

Theoretical models in the money and growth literature analyze the impact of inflation on growth focusing on the effects of inflation on the steady state equilibrium of capital per capita and output (e.g., Orphanides and Solow, 1990). There are three possible results regarding the impact of inflation on output and growth: i) none; ii) positive; and iii) negative. Sidrauski (1967) established the first result, showing that money is neutral and superneutral¹ in an optimal control framework considering real money balances (M/P) in the utility function. Tobin (1965), who assumed money as substitute to capital, established the positive impact of inflation on growth, his result being known as the Tobin effect. The Positive effects of inflation on Real GDP is associated mainly with cash in advance models (e.g., Stockman, 1981) which consider money as complementary to capital. Following Friedman's (1977) Nobel Lecture the theoretical and empirical research on the relationship between inflation and output growth has progresses along two distinct lines.

Macroeconomics has, focused on the positive short-term relationship between the rate of increase in prices, and output. Recently there has been an exploration into the nature of the long-term relationship between inflation and long-term growth in output. Developments in growth theory have resulted in both a theoretical and an empirical analysis of the effect of inflation on long term growth. Theoretically the relationship has been located in the effect of inflation on investment. If investment is assumed to be the engine of growth in a model of endogenous growth, an adverse impact of inflation on investment implies an inverse relationship between inflation and growth. Empirical evidence supports the hypothesis of an inverse relationship between inflation and long term growth. This is in contrast to the short-term experience, where inflation and Real GDP occur together.

Problem Statement

This study determine how much rate of inflation effects the Real GDP growth of India and also determine inflation rate significantly affect the Real GDP growth of India. GDP shows the economic performance of a

country so it is of most importance for concerned departments and economists of our Indian Economy. On the other hand rising inflation can have effects positive on Real GDP and the objectives that a country achieves can be demolished by rising inflation Rate in India.

Objectives

1. To show the trends of Inflation rate in India during periods of 2000-2018.
2. To determine the trends of Real GDP growth in India from 2000 to 2018.
3. To analysis the relationship between Inflation rate and Real GDP growth in India during study periods.

Hypotheses

H1: There is a positive relationship between the Inflation rate and Real GDP of India

H2: Inflation rate significantly effect on Real GDP of India.

Methods and Methodology

The study is based on secondary data only of Inflation Rate and Real GDP growth in India.

The Study periods would be taken annually year from 2000 to 2018. Sources of Secondary data: RBI Bulletin, Planning Commission, Economic Survey, IMF statistics.

Methods: Trends would be shown with the help of Excel line Graph over time periods in India, Simple Regression analysis would be shown between the relationship of Inflation and Real GDP of India.

Most of the theories imply that there is a positive relationship between inflation and Real GDP. In this section we will estimate empirically the effect of inflation on Real GDP using the following ad-hoc relationship:

$$RGDP = \beta_0 + \beta_1 INF + e_t \dots \dots \dots \text{Eqn 1}$$

Where, β_1 represents the long run elasticity with respect to inflation.

Inflation

Inflation is when prices continue to keep rising, typically as a result of overheated economic growth or extra capital in the market search for too few opportunities. Wages usually creep upwards, so that companies can retain good workers (Amadeo, 2008).

In India, the wholesale price index (WPI) is the main measure of inflation. The WPI measures the price of a representative basket of wholesale goods. It is an index that measures and tracks the changes in price of goods in the stages before the retail level. The CPI measures price changes from the perspective of the retail buyer. It is the real index for the common man. It reflects the actual inflation that is borne by the individual. CPI is designed to measure changes over time in the level of retail prices of selected goods and services on which consumers of a defined group spend their incomes.

In November, consumer prices rose 0.07% in November from the previous month, contrasting the revised 0.36% rise in October (previously reported: +0.29% month-on-month). Cheaper food and beverages weighed on the overall price increase in November, which was otherwise supported by higher energy prices. Inflation slowed notably to 2.3% in November from a revised 3.4% in October (previously reported: 3.3%) and came in below market analysts' expectations of 2.8%. This was primarily because prices for food and beverages declined. Core inflation, which excludes food and energy products, moderated to 5.8% in November from 6.3% in October.

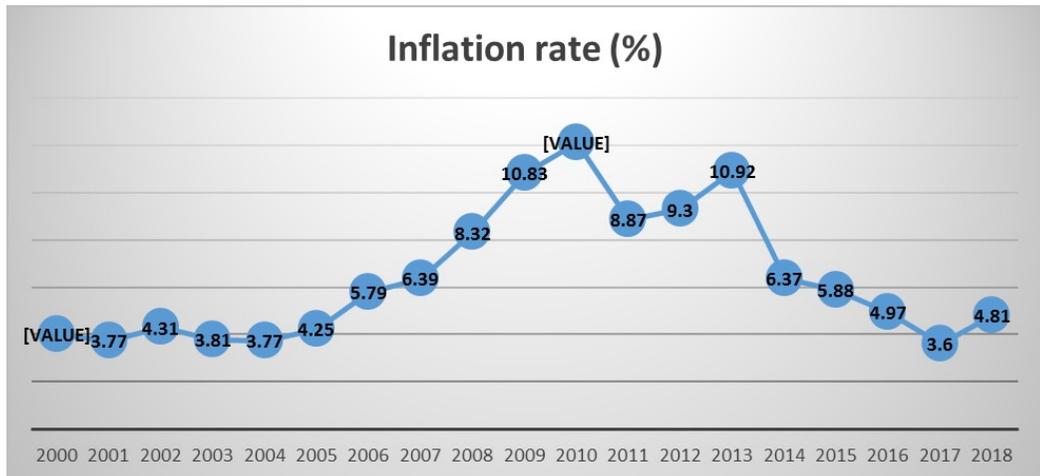
In November, the WPI rose 0.1% from the prior month, down from the revised 0.7% increase in October (previously reported: +0.8% month-on-month). The weaker price rise in November was due to a decrease in fuel and power prices. Wholesale price inflation decelerated to 4.6% in November from 5.3% in October. Annual average wholesale inflation accelerated to 4.3% in November from 4.2% in October.

India Inflation Forecast

Among the ways inflation can affect growth, an important avenue is the effect of inflation on investment. Low or moderate inflation is an indicator of macroeconomic stability and creates an environment conducive for investment. A review of the existing cross-country international evidence, as well as evidence from Asia, indicates a negative relationship between inflation and long-term growth. Countries with low or moderate rates of inflation have higher growth rates over the long-term compared with countries with high inflation rates. However, low inflation does not constitute a sufficient condition for growth. The Indian experience appears to support the above view. In India inflation has generally been kept under control. There have been

two episodes of high inflation since 1980 but price rise has been controlled by various fiscal, monetary and administrative measures. Also, evidence from investment behaviour in private manufacturing suggests that an increase in the rate of inflation has a negative impact on private investment in manufacturing. The regression for private investment in agriculture points towards complementarities between public and private investment. Taking economy-wide linkages into account, the analysis suggests that higher growth can be achieved by controlling inflation and raising public investment. Focus Economics Consensus Forecast panelists expect consumer price inflation to average 4.3% in FY 2018, which is down 0.4 percentage points from last month's forecast. In FY 2019, the panel expects consumer price inflation to average 4.7%. Meanwhile, our panel projects wholesale inflation of 4.5% for FY 2018, up 0.2 percentage points from last month's report. In FY 2019, our panel foresees wholesale inflation averaging 4.9%.

Graph 2. Trends of Inflation Rate in India



Source: RBI Bulletin, 2017-18

From the above graph it has been seen that Trends of Inflation Rate in 2010 maximum 12.11% and minimum in 2017 i.e is 3.6%. Inflation rate is fluctuate over time periods in India. Presently Inflation Rate is 4.81% which is moderate for our country. Inflation mostly effect the Consumer side but it has positive effect on Producer side of our country which increases Real GDP of India.

Indian Real GDP Growth

Overall, economic growth is expected to accelerate this fiscal year due to faster private consumption and investment growth. However, fiscal slippage in the run-up to the general elections next year, global trade protectionism and oil price volatility all cloud the outlook. Our panel expects GDP growth of 7.4% in FY 2018, which is unchanged from last month's estimate, and 7.4% again in FY 2019.

Real GDP

GDP indicates only currently produced goods and services. It is a flow measure of output per time period. For Example, per quarter or per year and indicates only goods and services produced during this interval. Such market transactions as exchange of previously produced houses, cars or factories do not enter into GDP. However, two types of goods used in the production process are counted in GDP. The first is Capital Goods and other type of goods is Intermediate Goods (Froyen, 2005).

Components of GDP

GDP is broken down into the components. The first component is Consumption component of GDP. Consumption consists of the household sectors. Consumption can be further broken down into consumer durable goods (e.g., automobiles, television), nondurable consumption goods (e.g., foods, beverage, and clothing) and consumer services (e.g., medical services, haircuts) (Froyen, 2005).

The second component of GDP is Investment. Investment is part of GNP (Gross National Product) purchased by the business sector in addition residential construction. Investment divided into three sub components.

First is business fixed investment, second is residential construction investment and final id inventory investment (Froyen, 2005).

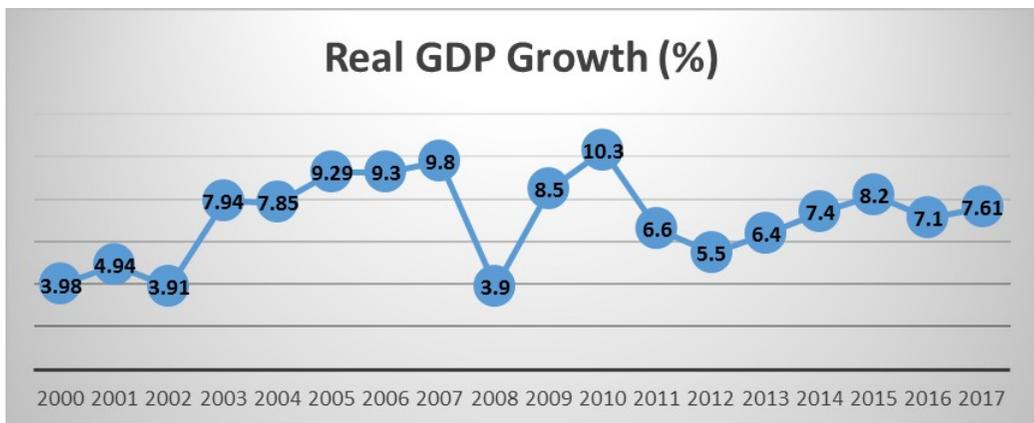
The third component of GDP is government purchases. It is goods and services that are the parts of recent output that goes to the government sector such as federal government, state and local government (Froyen, 2005).

The final component of GDP is Net exports. Net Exports equal total (gross) export minus imports. Gross exports are currently produced services & goods and sold to foreign buyers, should be counted in GDP. Imports are purchases by domestic buyers of goods and services produced abroad and should not be counted in GDP. Imported goods and services are, however, included in the consumption, investment and government spending totals in GDP. Therefore, need to subtract the value of imports to arrive at the total of domestically produced goods and services (Froyen, 2005).

India Real GDP Forecast

Focus Economics Consensus Forecast panelists see the economy picking up in FY 2019 and growing 8.2 %, which is unchanged from last month’s forecast. In FY 2020, our panel also expects GDP to expand 7.4%.

Graph 1.Trends of Real GDP in India



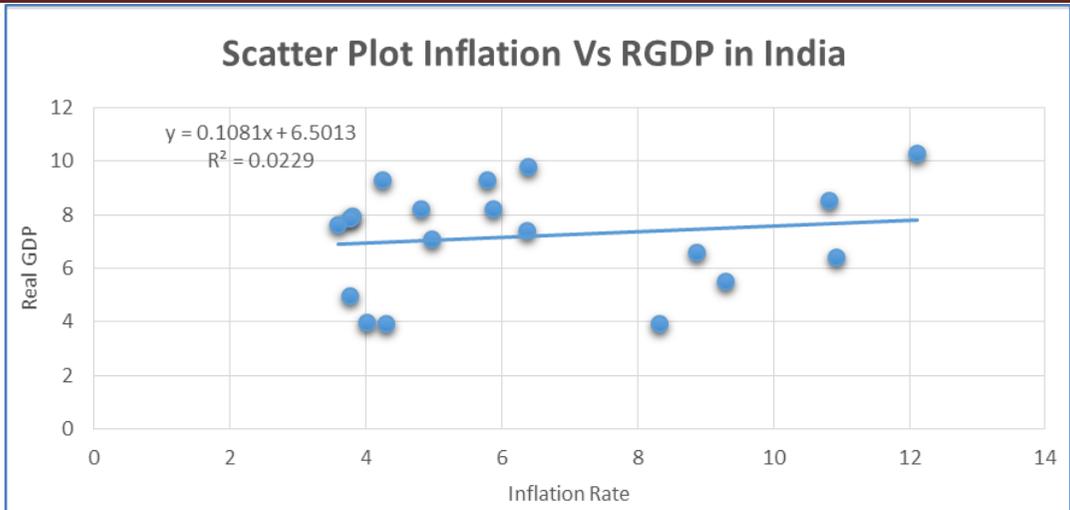
Source: Estimated by IMF , Planning Commission, GoI

From the above graph it has been seen that trends of Real GDP in India slightly changed over time periods. The Lowest Real GDP 3.9% shown in 2008 and highest 10.3 % in 2010.Many factors affecting Real GDP growth of India but taking all factors Constant only with Inflation effects we are showing in this paper which shows positive relationship with real GDP. Presently Real GDP of India has 7.61%.

Relationship between Inflation Rate and Real GDP growth in India

Real GDP and Inflation are the key macroeconomic indicators of the economic performance of any country. The relationship and cause & affects are very important for any economic performance of the country. Understanding the relationship between inflation and Real GDP growth has all along been a key concern in macro-economic research. According to Rangarajan (1998), the question, in essence, presupposes a possible trade-off between price stability and Real GDP growth either in the long or short run. The new endogenous growth theories, for instance, surmised that inflation has an adverse effect on Real growth because of its Positive effects on productivity and efficiency.

Graph 3:Scatter Plot of Inflation rate and Real GDP in India



Source: Author's calculation

The above Graph.3 shown the scatter plot of Simple Regression methods between Inflation Rate and Real GDP of India. With the help of last 18 years data of Inflation and Real GDP in India showing positive relationship between both the variables .If inflation increasing then real GDP also increasing which is good for producer side but not for consumer. In our study other variables has been constant only With Inflation effect calculated.

From above graph 3. It has been seen that intercept present that Real GDP increasing 6.50 % at constant (0% Inflation) level of prices. If Inflation increasing 1 % it indicates that Inflation has effect on Real GDP by 0.108 % .So above Information are shown that inflation has a positive effect on Real GDP in India.

Result and Data Interpretation

Dependent Variable= Real GDP
 Independent Variable = Inflation Rate
 Methods= Regression analysis
 Sample= 2000-2018
 Included observation= 18

Variable	Co-efficient	t-Statistics	Prob.
INF	0.108	0.690529	0.536734

R Square 0.022851837

The above table of Simple Regression result of inflation effect on Real GDP in India.

Another analysis also employed in the present available data in which RGDP has been taken as a dependent variable and inflation consider as an explanatory variable (independent variable). And the result of the model shows that 6.50% RGDP increased at constant prices (zero inflation) However, the 1 % inflation having effect on RGDP in positive relation. The result analysed showing Inflation Increasing 1 % the RGDP increasing 0.108%.

Estimated t-value is less that table value. At 5% significant level accepted. Both the Hypothesis are accepted. Inflation has significant effect on real GDP in India.

These findings have important policy implications – inflation has helpful to Real GDP growth. Inflation play positive role for Producer side but not for consumer side.

Significance of Research

If inflation rate growing fast then Real GDP also growing in same percentage. This is good for the economy. More money comes in India and financer invests more and more capital. GDP indicates all sectors such as agriculture, telecommunication, services, manufacturing and Per Capita Income. These all indicators represent the country's economy. If these sectors were growing fast, country's economy also grows faster.

This research is significant for monetary policies and domestic investor of stock market. If inflation is increasing, Real GDP also increasing which result in economy's growth of country. If any country's inflation rate is increasing, it is positive for producer side but not for consumer side.

Conclusion

This study has been motivated by the recent developments in the literature on the relationship between inflation and Real GDP growth and the apparent contradictory evidence provided for developing economies. In this paper, Simple Regression methods has been used to empirically examine short-run dynamics of the inflation-Real GDP growth relationship in India using annual data. The main objective was to examine whether a relationship exists between Real GDP growth and inflation and, if so, its nature. The positive results found in this exercise is that the, inflation and Real GDP growth are positively related. Second, the trends of inflation rates and Real GDP shown over time periods of 18 years with the help of time series data. These findings have important policy implications.

The important conclusion is that 1% increase in inflation from the previous period positively effects Real GDP 0.10% growth in India. Further, the policymakers should note that any increase in inflation from the previous period at any level has positive effect on Real GDP growth. However, the fact that the common people and the decision makers do not like inflation has enormous effects on the consumption pattern, which in turn affects the output demanded. Macroeconomic stability and the necessary infrastructure are among the preconditions for sustained growth.

References

1. Bhat SA, Laskar MR. *Interest Rate, Inflation Rate and Gross Domestic Product of India*. International Journal of Technical Research & Science. ISSN No. 2454-2024 (online). 2016, 284, www.ijtrs.com www.ijtrs.org Paper Id: IJTRS-V1-I10-001 .Volume 1 Issue 9, December 2016.@2016, IJTRS All Right
2. Kalsie. A, Shrivastav SM. *Inflation and Its Effects on the Indian Economy*. Research Gate. Management Perspective. 2017; 3(1), Oct-Mar 2017 <https://www.researchgate.net/publication/321904910>
3. Salian PS, kumar GK. *Inflation and Economic Growth in India –An Empirical Analysis*, 2004.
4. Abdel D, Rady M. *Price Inflation and GDP Growth-What Matters Most? Evidence from Egypt and India*. Journal of Economics and Economic Education Research. 2010; 11(3).
5. Reddy LV. *Impact of Inflation and GDP on stock market returns in India*. International Journal of Advanced Research in management and Social science (IJARMSS). ISSN 2278-6236. 2012; 1(6), December 2012. www.garph.co.uk.
6. Ball. L. Chari A, Mishra P. *Understanding Inflation in India*. India Policy Forum (July 14th –15th. 2015) National Council of applied Economic Research (NCAER). 2015. www.ncaer.org
7. Singh R. *Impact of GDP and Inflation on Unemployment Rate: "A Study of Indian Economy in 2011-2018*. International Journal of Management, IT & Engineering . 2018; 8(3). March 2018, ISSN: 2249 0558 Impact Factor: 7.119 Journal Homepage: <http://www.ijmra.us>, Email: Included in the International Serial Directories Indexed & Listed at: Ulrich's Periodicals Directory ©, U.S.A., Open J
8. Kapur M, Mohan R. *India's Recent Macroeconomics Performance: An Assessment and way forwarded*. IMF working Paper. WP/14/68. 2014.

Human Resource Management Practices in Telecommunication Companies of Bangladesh: A Conceptual Study

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ABSTRACT: Human resources are considered to be the most valuable input and the organizations desire their work force to be developed to a world class level. In present situation, companies can gain a strong competitive advantage through applying effective and efficient human resource practices. Telecommunication industry is considered to be the most competitive industry in Bangladesh. The main objective of the present study is to find out the Human Resource Management (HRM) Practices in Banglalink Digital Communications Limited. Secondary data has been used to achieve the objectives of the study. The study revealed that HRM is an important aspect for all types of organizations. The selected company has practiced the HRM elements like, human resource planning, recruiting, selection, training and development, motivation and maintenance, health and safety program effectively

Keywords: Human resource, Management, Telecommunication, Banglalink Digital and Bangladesh.

1. Introduction

Human resource management (HRM) refers to the policies and practices including human resource planning, job analysis, recruitment, selection, orientation, compensation, performance appraisal, training and development, and labor relations (Dessler, 2007). The purpose of human resource management is to improve the productive contributions of employees and provide competitive advantage to the organizations (Werther & Davis, 1996). Bangladesh is one of the developing countries in the world and its development depends on some important sectors. Telecommunication is one of them. Use of various means of telecommunication now has become an integrated part of society. Information is found to be one of the most important elements for the efficient growth of an economy. With the efficient use of telecommunication one can remove various constraints of all the sectors in the economy resulting in the increased productivity and better administration. However, the telecommunication business is not only a capital-intensive industry, in which accesses to capitals is a key factor to ensuring the development and expansion of a robust network, management skills, competencies and the capabilities of qualified people are solid drivers in accelerating the expansion and sustainability of the businesses (Guislain & Qiang, 2006). The present study is undertaken to assess the human resource management practices by the telecommunication companies in Bangladesh. Banglalink Digital Communications Limited (Bengali: **বাংলালিংক**) is the third largest cellular service provider in Bangladesh. Banglalink Digital Communications Ltd. (previously Orascom Telecom Bangladesh Ltd.) is fully owned by Telecom Ventures Ltd. As of September 2018, Banglalink has a subscriber base of 33.7 million with 21.88% market share. Banglalink as a brand dependably attempt to accept on potential results and consequently after ground propelling in February 2005, its effect was felt quickly. Overnight versatile telephony turned into a moderate choice for clients over an extensive variety of business sector fragments. The achievement of Banglalink depended on a straightforward mission: "Conveying portable telephony to the masses" This was the cornerstone of its methodology. With this mission available Banglalink adjusted the cellular telephone status from extravagance to a need prerequisite for the basic individuals of this nation and brought cellular phone to contribute in every last period of their job accordingly making a spot in their souls. The cellular telephone has turned into the image for the positive change in Bangladesh.

Significance of the Study

A good human resource management system brings consistency in human resource management practices and improves human relations in the organizations. An effective human resource management system is focused on a strategic objective and works by improving employee knowledge, skills, motivation and contributions. In Bangladesh, there have been a lot of complaints about proper practices in human resource management of organizations. At present, Telecommunication sector is an important service sector in

Bangladesh. Practicing HRM in Telecommunication sector to control their employees properly and run their company successfully is a must here. It is alleged that practicing human resource management is quite new in Bangladesh and there might be a few research works that have been carried out on human resource management practices in telecommunication industry in Bangladesh. Therefore, the purpose of this study appears to be an apt one towards determining the 'human resource management practices in Telecommunication Company in Bangladesh'.

Literature Review

Various researchers have conducted lots of research works on different aspects regarding the impact of human resource management factors on telecommunication companies. From among them some important empirical research findings have been taken into consideration. HRM practices have been researched in Bangladesh from different perspectives. Shelly (1994) examined the roles of human resources, and infrastructure in the industrialization process of Bangladesh. He observed that ineffective human resource management was one of the major problems faced by industrial sector of Bangladesh. Most of the HRM practices such as HR planning, recruitment, selection, promotion, performance appraisal, compensation, incentives, and industrial relations were not performed properly in industries. Mohiuddin and Mahmood (2001) studied the transformation of personnel management into human resource management. Based on different empirical and theoretical studies conducted in the western world, the authors distinguished between personnel and human resource management. Another researcher (Ahmed 2001) discussed about the linkage between human resource management and corporate strategy. He also revealed that corporate strategies developed by Michel Porter such as cost leadership, differentiation, and focus strategies had significant impact on HR strategies and practices. A research study (Mamun& Islam, 2001) examined the human resource management (HRM) practices of the readymade garments (RMG) enterprises. The study emphasized on improving productivity of the garments workers through proper HRM practices to face challenges of globalization. They found the reasons for the low productivity of laborers such as unsystematic recruitment and selection of workers, unavailability of training facilities, inadequate financial facilities, and low motivation level of workers. Huda, Karim and Ahmed (2007) made a study on the HRM practices of 20 NGOs of Bangladesh. It was identified from the study that the HR challenges faced by the NGOs were the shortage of qualified candidates, insufficiency of qualified female candidates, poor academic background of applicants in the suburban and rural areas, and the lack of training infrastructure and training need analysis. The above literature survey on different HRM practices demonstrates that like other developing countries, HRM as an area of research has not received adequate attention in Bangladesh. Moreover, a few in-depth comparative studies between the public and private sector in this context were conducted by the local researchers. The study is, therefore, an endeavor to fill up this obvious research gap.

Research questions

This study is set out to address the following questions:

- i. What is the human resource management system of Banglalink Digital Communications Limited?
- ii. Does Banglalink Digital Communications Limited use human resource management factors properly?

Objectives of the Study

The objectives of the Study are as follows:

- i. To find out the human resource management practices in Banglalink Digital Communications Limited in Bangladesh.
- ii) To determine the significance factors of human resource management.

Methodology of the Study

The study followed a qualitative approach to achieve the objectives of this study, which was descriptive in nature. Secondary data were collected for the purpose of the study. At present there are four mobile telecommunications companies in operation here, namely Grameenphone Limited, Banglalink Digital Communications Limited, RobiAxiata Limited, Teletalk Bangladesh Limited. Banglalink Digital Communications Limited has been chosen for the study as because it is one of the growing mobile telecommunication network in the country. To achieve the objectives of the study data were collected from Banglalink Digital Communications Limited. Secondary data are cheaper and more quickly obtainable than the primary data and also may be available when primary data cannot be obtained at all. However, the secondary data have been collected from the published annual reports of some selected companies, related

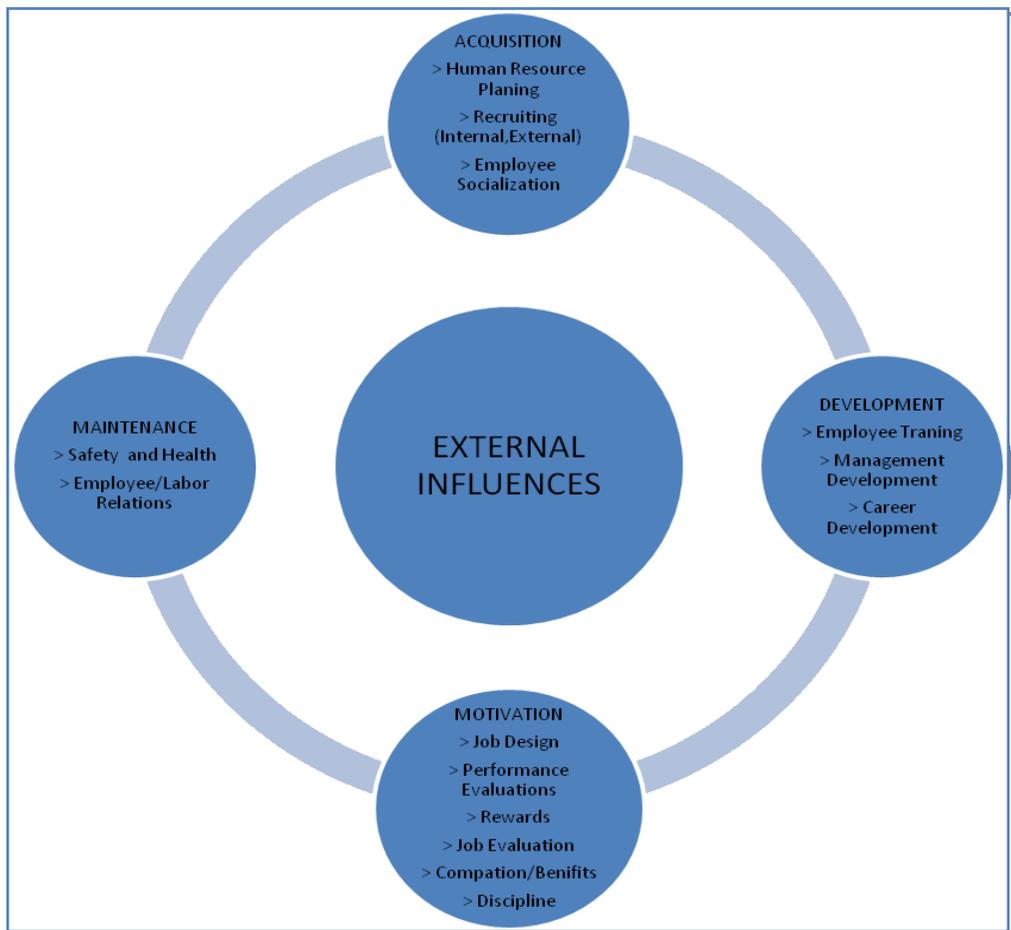
books, journals, articles, seminar paper, publications from national and international research institutions, report of different financial institutions, public records and statistics, different research reports etc.

Conceptual Framework

Human resource management

HRM can be defined as a process consisting of four functions - acquisitions (estimating of demands and supplies of labor. It includes the recruitment, selection, and socialization of employees), development (changing of attitudes among workers), motivation (i.e. performance appraisal, compensation and benefits administration), and maintenance (providing the working conditions to maintain the commitment of an organization). In less-academic terms, we might describe these four functions as getting people, preparing them, activating them, and keeping them. It is the result of many changes in management thought, society, and the workers themselves (DeCenzo and Robbins, 1999).

Figure 3: Components of Human Resource Management



Source: DeCenzo and Robbins, 1999

All major activities in the working life of a worker—from the time of his or her entry into an organization until he or she leaves — come under the purview of HRM. Specifically, the activities are—HR planning, job analysis and design, recruitment and selection, orientation and placement, training and development, performance appraisal and job evaluation, employee and executive remuneration, motivation and communication, welfare, safety and health, industrial relations (IR) and so on. All these functions can be categorized into seven sections as in the following figure (Aswathappa, 2005)

Figure 4: Scope of Human Resource Management



Staffing

Staffing ensures that the right people are available at the right time in the right place. This involves identifying the nature of the job and implementing a recruitment and selection process to ensure a correct match within the organization. In other words, the function of staffing involves hiring the required people, selection amongst the available pool the persons most suitable for the job in question, and sometimes retrenching or firing. When the people considered as fitting the required criteria are identified, HRM is required to arrange for and where needed conduct the interviews. Both selection and interviewing are performed in order to recruit the required personnel. One of the staffing objectives has always been and has been advocated for ensuring that people are recruited, they should be retained (Ghauri& Prasad, 1995) and this objective can be implemented with the right people in place.

Training and Development

This involves training and development of workforces and managers (Briscoe, 1995). Training and development are often used to close the gap between current performances and expected future performance. Training and development falls under HRD function which has been argued to be an important function of HRM (Weil & Woodall 2005).

Performance Appraisal

Performance appraisal is a process that is carried out to enable both the individual and the organization to analyze, examine and evaluate the performance of specified objectives over a period of time. This process can take up formal and informal forms (McCourt & Eldridge 2003).

Compensation and Benefits

This involves the designing and implementation of individuals and organizations pay and benefits schemes. Employee compensation and benefit practices differ across employment units (e.g., organizations, business units, and facilities) on several dimensions (see e.g. Gerhart, Milkovich& Murray 1992) and organizations.

Union, Employee Relations, Health and Safety

Trade Unions are organization of workers, acting collectively, seeking to protect and promote their mutual interests through collective bargaining. The role of trade unions is mainly to protect employees' interests and they tend to be the link between the organization management and employees. Therefore, there are a lot of negotiations between management and unions in either resolving dispute between employees and management or try to fight for the best interest to its members (employees).

Discussion and Analysis

Telecommunication Sector of Bangladesh

There is huge ups and down in the mobile phone industry in Bangladesh. According to the number of subscribers and profitability of Banglalink Digital Communications Limited is in the third position.

Information and Communication

Bangladesh Telecommunication Regulatory Commission (BTRC) has been functioning since 2002 with the view to providing reliable and affordable telecommunication services for the mass people irrespectively with the effective utilization of Telecommunication and ICTs infrastructure. Since the establishment of BTRC due to liberalization of telecom sector, the rate of subscribers (which was estimated 10 users per 100 people in next 10 years as per National Telecommunication Policy 1998) increased exponentially surpassing the estimation. Besides, effective management of BTRC has helped to introduce 3G technology, reduction of voice call and SMS tariff, reduction of tariff on international outgoing calls, increase in international incoming call volume including increased number of telephone and internet users. Above all coordination of strength of capabilities and frameworks of both the government and private sector were possible with the view to reaching the internet facilities up to all districts and Thana levels of the country. Presently the penetration of telephone users especially the number of mobile subscribers is increasing beyond prediction. The total number of Mobile Phone subscribers has reached 155.810 Million at the end of September, 2018. Table 1 shows the number of mobile and fixed phone subscribers, growth rate, internet users, teledensity etc., from 2007 to June 2016 and table 2 shows the total number of subscribers of different mobile operators during September 2018.

Table 1: Subscriber Number, Growth and Teledensity of Mobile and Fixed Phone

Subscriber Number, Growth Rate and Teledensity	2007	2008	2009	2010	2011	2012	2013	2014	2015	*2016
Mobile Subscriber	3.44	4.46	5.24	6.87	7.30	8.66	9.74	11.48	12.68	13.13
Fixed phone Subscriber	0.12	0.13	0.17	0.17	0.17	0.10	0.10	0.11	0.11	.08
Total Subscriber(Crore)	3.56	4.02	4.71	5.64	7.47	8.76	9.84	11.59	12.79	13.21
Internet User (Crore)	-	-	-	-	-	2.84	3.10	3.55	4.83	6.32
Yearly Teledensity (%)	24.71	27.91	31.95	38.05	44.6	60.9	63.91	76.44	81.93	84.43

Source: BTRC; * Up to June, 2016

Table 2: Number of Subscribers of Different Mobile Operators

S.L.	Operators	Subscribers (In millions)
1.	Grameen Phone Ltd (GP)	71.413
2.	RobiAxiata Limited (Robi)	46.753
3.	Banglalink Digital Communications Limited (Banglalink)	33.699
4.	Teletalk Bangladesh Ltd (Teletalk)	3.945
	Total	155.810

Source: Bangladesh Telecommunication Regulatory Commission (BTRC), September 2018.

Table 3: Share of Employed Labor Force above 15 Years by Sector

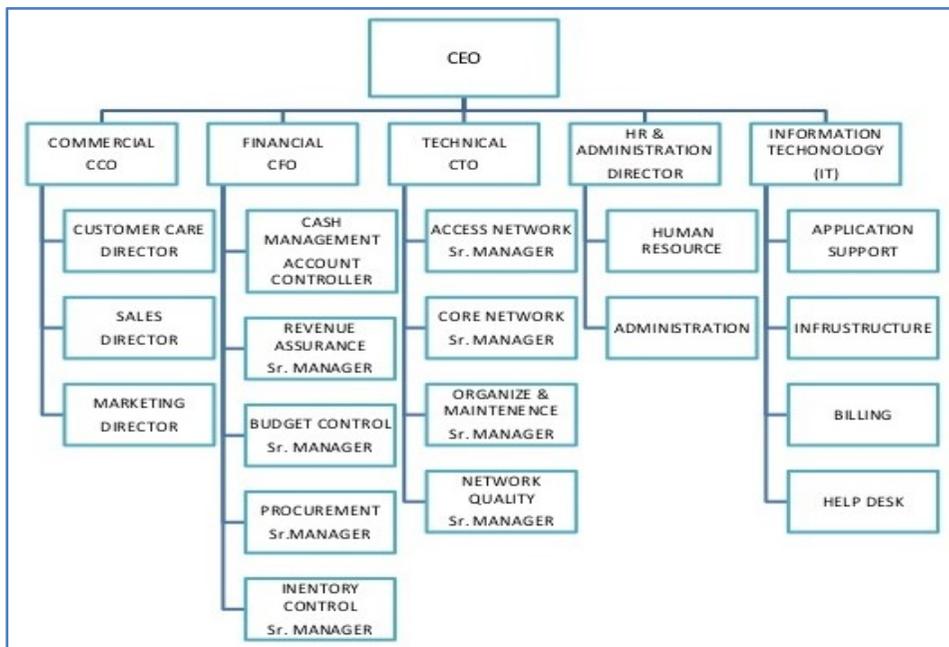
Sector LFS	LFS 1995-96	LFS1999-00	LFS 2002-03	LFS 2005-06	2010	2013
Transport, maintenance & communication	6.32	6.41	6.77	8.44	7.37	6.40

Source: BBS Labour Force Survey (LFS), 1995-96, 1999-00, 2002-03, 2005-06, 2010 & 2013.

List of HRM function of Banglalink Digital Communications Limited

- Workforce planning.
- Recruitment (sometimes separated into attraction and selection)
- Induction, orientation and on-boarding.
- Skills management.
- Training and development.
- HR personnel administration.
- Compensation in wage or salary.
- Payroll (sometimes assigned to accounting rather than HRM)
- Employee benefits administration.
- Personnel cost planning.
- Labor relation.

Organizational structure of Banglalink Digital Communications Limited



Source: Banglalink digitalnet

Findings of the Study

As one of the leading telecommunication companies in Bangladesh, Banglalink Digital Communications Limited is very much conscious of its Human Resource Management system and it practices following HRM systems:

- Conducting careful recruitment and selection process, for example, ‘total quality recruitment’, ‘zero defects recruitment’, ‘right first time recruitment’.
- Following widespread compensation systems for example, staff member with multiple skills are awarded with bonus.
- Designing team work activities and offering flexible job design, for example, appreciating a sense of integration and co-operation and designing authorized jobs.
- Providing training and learning opportunities which result in enhanced interpersonal and social skills.
- Monitoring employee participation, for instance, keeping staff intimated with major and important changes in the organization.
- Periodic performance appraisals with reward systems, for example, collecting feedback from customer to evaluate employee performance and their duties that may result in award of bonus for staff.
- The practice of HRM elements, Human Resource Management system of Banglalink Digital Communications Limited is good.

Conclusions

The telecommunication sector in Bangladesh has seen growth in mobile distribution that has exceeded all expectations with over 12.83 crores subscribers as of January 2017. The rapid growth in mobile telephone has undoubtedly had a transformative impact on the economy in terms of aggregate investment, FDI and productivity levels. There have also been substantial benefits from greater connectivity in terms of social consistency. Human resource is considered as the most important asset for any organization. Human resource management system of any organization needs to be backed up by sound human resource management practices to manage the human resources confirming that they are employed in the right manner to achieve competitive advantage leading towards organizational goals. Banglalink Digital Communications Limited practiced the HRM elements such as, human resource planning, recruiting, selection, training and development, motivation and maintenance, health and safety program effectively.

References

1. Ahmed, F. S strategic human resource management: Linking human resource management with corporate strategy. *Journal of Business Studies*.2001; 12(1):59-73.
2. Aswathappa K. *Human Resources and Personnel Management*, Tata McGraw-Hill Publishing Company Limited:New Delhi, 2005.
3. Briscoe DR. *International Human Resource Management*. New Jersey: Prentice Hall, 1995.
4. BTRC. *Annual Report 2014-2015*, Dhaka: Bangladesh Telecommunication Regulatory Commission, 2015.
5. BTRC. *Report Bulletin*, Dhaka: Bangladesh Telecommunication Regulatory Commission, 2017.
6. DeCenzo DA, Robbins SP. *Personnel/Human Resource Management*. Prentice-Hall of India: New Delhi, 1999.
7. Dessler G. *Human resource management*, New Delhi: Prentice Hall of India Private Limited, 2007.
8. Gerhart B, Milkovich GT, Murray B. Pay, performance, and participation. In D. Lewin, O. Mitchell, & P. Sherer (Eds.), *Research Frontiers in Industrial Relations*, 1992, 193-238. Madison, WI: Industrial Relations Research Association.
9. Ghauri PN, Prasad SB. A network approach to probing Asia's interfirm linkages. *Advances in International Comparative Management*. 1995; 10:63–77.
10. GOB, Bangladesh Bureau of Statistics 2007, *Statistical pocket book of Bangladesh 2006*, Dhaka
11. GOB, Ministry of Finance 2007, *Bangladesh economic review 2007*, Dhaka.
12. Guislain P, Qiang CZW. *Foreign direct investment in telecommunications in developing countries*. Washington, D.C. 2006.
13. Huda K, Karim M. Ahmed F. HRM practices & challenges of non-government development organizations: An empirical study on Bangladesh. *Journal of Management*. 2007; 9(1):35-49.
14. Mamun M, Islam M. Managing women work force: A case study of readymade garments (RMGs) in Bangladesh. *The Chittagong University Journal of Commerce*. 2001; 16(2):81-90.
15. McCourt W, Derek E. *Global Human Resource Management: Managing People in Developing and Transitional Countries*. Cheltenham, UK: Edward Elgar, 2003.
16. Mohiuddin M, Mahmood M. Recent developments in Japanese- style human resource management: An overview of the debate. *Dhaka University Journal of Business Studies*. 1999; 20(2):61-78.
17. Shelly M. Human resource, infrastructure, and industrialization in Bangladesh, Paper presented at the Seminar on Private Sector Growth: Creating Conducive Environment, Dhaka, Bangladesh, 1994.
18. Weil A, Woodall J. HRD in France: the corporate perspective. *Journal of European Industrial Training*. 2005; 29(7):529–540.
19. Werther W, Davis K. *Human resources and personnel management*, New York: McGraw-Hill, Inc, 1996.

Role of Compensation Factors on Teachers Job Satisfaction: A Comparative Study on Non-Government High School and College Teachers in Bangladesh

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ABSTRACT: Job satisfaction is one of the most widely discussed and enthusiastically studied constructs in such related disciplines as industrial psychology, organizational behavior, personnel and human resource management and organizational management. Compensation satisfaction represents an important construct to organizations and to the field of Human Resource Management because it serves as a critical mediator between an organization's compensation policy and relevant behavioral and attitudinal outcomes. Compensation plays a significant role in determining employees' job satisfaction. This study, therefore, seeks to establish the effects of compensation factors on job satisfaction among non-government high school and non-government college teachers in Bangladesh. The questionnaires prepared for this purpose are applied to 302 teachers who are currently working in various schools and colleges in Bangladesh. The collected data have been analyzed through several techniques by using SPSS 17.0 program. The Cronbach's alpha value (α) was found 0.889. Analyses of the study reveal that a significant relation is observed between the compensation factors and the job satisfaction of the teachers. Overall, the teachers' are not so satisfied about their compensation package. This study provides significant information for educational institutions regarding compensation factors of job satisfaction. The studies conclude that the non-government high school teachers are more satisfied than the non-government college teachers in Bangladesh.

Keywords: Job satisfaction, Compensation, Human Resource Management

1. Introduction

Bangladesh, officially the People's Republic of Bangladesh is a sovereign state in South Asia. It forms the largest and eastern portion the ethno-linguistic region of Bengal. Recently the literacy rate of Bangladesh has improved as it stands at 71% as of 2015 due to the modernization of schools and education funds. At present, 16,087 schools and 2,363 colleges were getting Monthly Pay Order (MPO) facilities. 27,558 madrasas, and technical and vocational institutions were enlisted for the facilities. 6036 educational institutions were outside the MPO coverage and that the ruling party enlisted 1,624 private schools for MPO in 2010(Wikipedia, the free encyclopedia). Education is the key to a nation's development. Education is the principal means to achieve the goal of poverty alleviation. A properly educated nation, which is modern in genius and intellect and forward-looking in thinking, can only put the country at the zenith of its development. That's why education is the backbone of a nation. Education in Bangladesh has three major stages-primary, secondary and higher educations. Primary education is a 5-year cycle while secondary education is a 7- year one with three sub-stages: 3 years of junior secondary, 2 years of secondary and 2 years of higher secondary. The entry age for primary is 6 years. The junior, secondary and higher stages are designed for age groups 11-13, 14-15 and 16-17 years. Higher secondary is followed by graduate level education in general, technical, engineering, agriculture, business studies, and medical streams requiring 5-6 years to obtain a Masters degree. In the general education stream, higher secondary is followed by college/university level education through the Pass/Honors Graduate Courses (4 years). The masters Degree is of one year's duration for holders of Bachelor Degree (Honors) and two years duration for holders of (Pass) Bachelor Degree. Higher education in the technical area also starts after higher secondary level. Engineering, agriculture, business, medical and information & communication technology are the major technical and technological education areas. In each of the courses of study, except for medical education, a 5- year course of study is required for the first degree (www.educationministry.com). Human resource management becomes a significant aspect for an organization's prosperity. Because it is the human who built up and develop the organization, to effectively and efficiently achieve its objectives. Today human acknowledged as the most valuable asset for an organization so they should be properly administered (Kabene et al, 2006). However it is not clear that the compensation has influenced on teachers job satisfaction to cause the many stand offs. In an organization, employees are the key resources through which all the other objectives are achieved. Compensation satisfaction represents an important construct to

organizations and to the field of Human Resource Management, because it serves as a critical mediator between an organization's compensation policy and relevant behavioral and attitudinal outcomes (Blau, 1994; Lawler, 1981; Sturman & Short, 2000). Teachers are the employees of the educational organizations, and their job satisfaction promotes teaching and learning. Employees will demonstrate pleasurable positive attitudes when they are satisfied with their job (Millan, J. M. et al, 2011). Thus, high job satisfaction will increase the productivity of an organization, in turn increasing the organizational overall performance. Compensation plays an important role in determining an employee's level of job satisfaction. According to Heathfield S.M. (2012), compensation is a fixed amount of money paid to an employee by an employer in exchange for a productive work performed. If individuals believe they are not compensated well, a state of emotional dissatisfaction develops. This emotional discrepancy grows and accumulates over time making employees to grumble as they render their service to the organization. Worse still, indicators such as absenteeism, turnover, go-slow and strikes are experienced. Compensation has long been considered one of the most important organizational rewards (Heneman & Judge, 2000) because it allows employees to obtain other rewards (Lawler, 1971). Frederick Taylor (1911) was one of the earliest to recognize the motivating effects of pay when he proposed that workers put forth extra effort on the job to maximize their economic gains. Although this premise lost favor in the late 1920s with the emergence of the human relations school (Wren, 1994), money remains the fundamental way that organizations reward employees. Yet, despite the longstanding importance of pay, its impact on employees' job satisfaction remains to be explained.

Literature Review

Many researchers have conducted research works on different aspects regarding the impact of compensation factors on teachers' job satisfaction. Several important empirical research findings have been taken into consideration.

Kumar, D. (2016) found that a significant relation is observed between the compensation factors and the job satisfaction of the teachers. Overall, the teachers' job satisfaction levels are not so elevated (mean value is 3.46 and a standard deviation is 0.982). Besides, the differences among the demographic variables (age, gender, monthly income level, job experience, and education) and the attitudes towards these factors and the levels of job satisfaction are also measured. This study provides significant information for educational institutions regarding compensation factors of job satisfaction.

Muguongo, et. al. (2015) concluded that insurance cover greatly affects job satisfaction among teachers. It was deduced that they are greatly satisfied with medical insurance. The bonuses only affect the job satisfaction of teachers slightly. The performance bonus makes teachers care more about teaching well, pay incentives motivate them and pay incentives schemes' objectives are achievable.

Bari, et. al. (2013) found that freedom, career development plan, valuation of employees, learning programs, open and comfortable work environment and good supervisory relations positively impact on employee attitude and performance in the workplace. They also suggested that focusing the factors that positively impacts employee attitudes and performance would enhance the performance of employee and create a positive work environment which will also help grow the institute and its productivity.

Yaseen, A. (2013) found that pay, recognition, promotion opportunities, and meaningful work are important factors of compensation management which have direct effect on job satisfaction on doctors. The main reason of doctor's dissatisfaction are not getting proper service structure and not finding their work meaningful. Government should increase satisfaction of doctors by providing this type of non financial compensation.

Mehta and Shaikh. (2012) conclude that compensation management system is good for all the organization operating in pharmaceutical industry. It offered more or similar components as their compensation structure, competitive compensation structure that will help them to attract the talent pool from the labor market. Researchers have identify that employee satisfaction towards compensation has a positive relationship with the employees productivity level & also identified that good compensation practices will help them in terms of attracting the employee as well as in terms of retaining the employees with the current organization.

Malik, et. al. (2012) examined the impact of pay and promotion upon job satisfaction at university level of Punjab. The findings reveal that pay has significant impact on job satisfaction but the promotion has significant or partial impact on the job satisfaction of educationalist. Other factors except pay and promotion can also be useful in the research. This research investigated the influence that pay and promotion has upon job satisfaction at university level only limited to province Punjab in Pakistan.

Liu. (2007) found increasing teacher compensation may help decrease teacher attrition since many studies have identified low salaries as the main predictor of teacher attrition.

Liu and Meyer. (2005) found that there was a direct link between teachers' job satisfaction and teacher turnover. Their findings further demonstrated that teachers' perceptions show varying degrees of satisfaction with different aspects of their jobs that eventually have an effect on their decision to stay in teaching, leave teaching, or move to another school.

Liu and Meyer. (2005) found that teachers' dissatisfaction level with student behavior was almost as strong as their dissatisfaction with their income. However, they found little relationship between teachers' satisfaction with their income and their perception of student discipline problems.

Rationale of the Study

Compensation has a great impact on productivity. To achieve effective work performance calls for job satisfaction among the workers. Teachers are termed as the human capital of school and college. So without proper compensation management, they can't be properly managed and retained. And we all know that hiring cost is much higher than retaining cost. Teachers are the corner stone of school and college. In Bangladesh, there have been a lot of complaints about poor compensation from the teachers. From time to time teachers also walk to the streets to demonstrate against poor compensation. This raises concerns on the effects of compensation on job satisfaction among the teachers. Although there are numerous studies on job satisfaction, no study concerning teachers' compensation has been recently done in this area. The purpose of this study is to determine the effects of compensation on job satisfaction among non-government secondary school teachers and non-government college teachers in Bangladesh. The study guided by the following specific objectives;

Objective of the Study

The main objective of the study is to assess the effect of compensation factors on teachers' job satisfaction. To achieve the main objective, the following sub objectives are set:

1. To study the relationship between compensation factors and teachers' job satisfaction.
2. To find out the most important compensation factors for teachers job satisfaction.
3. Compare job satisfaction level between the non-government school and college teachers in Bangladesh.

Hypothesis of the Study

In the light of the review of literature and objectives of the study stated earlier, the following null hypotheses were formulated:

- Ho : Non-Govt. College teachers tend to have higher job satisfaction than the Non-Govt. High School teachers.
- Ho : Specific compensation factors (salary, ability utilization, achievement etc.) tend to have significant influence on the overall job satisfaction.

Methodology

The study was followed a quantitative approach to achieve the objectives of this study, which was descriptive in nature. There are five demographic variables such as age, gender, monthly income, job experience and education, sixteen independent variables were considered for this study; achievement, job advancement, authority, organizations rules and regulations, bonus and other benefits, salary, medical allowances, transportation allowances, promotion facilities, cooperation, freedom for work, morale values, job security, social status, working environment, and retirement allowances in work to identify their impact over teachers' satisfaction. The dependent variable is teachers' satisfaction. Simple random sampling was used to collect the data. Both primary and secondary data were collected for the purpose of the study. A structured questionnaire in a five point scale (1= not satisfied, 2 = slightly satisfied, 3 = Satisfied 4= very satisfied, 5= extremely satisfied) was used in the survey. To achieve these objectives, Purposive Sampling technique was used to select the survey divisions. Two districts namely, Kushtia and Jhenidah are selected from Khulna division. 302 teachers were surveyed from four districts like Kushtia and Jhenidah in Bangladesh. Data were collected from non-government high school teachers and non-government college teachers. Sample included 151 non-government high school teachers and 151 non-government college teachers. All types of data was processed through computer based Statistical Package for Social Science (SPSS) developed by Nie et al., (1975). Before feeding the data into computer, all data were converted into numerical codes and the details of these coding are recorded in a code book. The descriptive statistics were based on frequency percentage, mean, standard deviation, correlation analysis and regression analysis.

Theoretical Framework

Education Management: Education System in Bangladesh is being managed and administered by two Ministries, Ministry of Education (MoE) and Ministry of Primary and Mass Education Division in association with the attached Departments and Directorates as well as a number of autonomous bodies. This Ministry is concerned with policy formulation, planning, monitoring, evaluation and execution of plans and programs related to post primary secondary and higher education including technical & madrasa education. The line directorates, viz. Directorate of Secondary and Higher Education and Directorate of Technical Education are responsible for management and supervision of institutions under their respective control.

Different Streams in Education: Primary level education is provided under two major institutional arrangements (stream)-general and madrasa, while secondary education has three major streams: general, technical-vocational and madrasa. Higher education, likewise, has 3 streams: general (inclusive of pure and applied science, arts, business and social science), madrasa and technology education. Technology education in its turn includes agriculture, engineering, medical, textile, leather technology and ICT. Madrasahs (Arabic for educational institution), functional parallel to the three major stages, have similar core courses as in the general stream (primary, secondary and post-secondary) but have additional emphasis on religious studies.

Kushtia District: Kushtia (Bengali: কুষ্টিয়া) is a district in the Khulna administrative division of western Bangladesh. Kushtia has existed as a separate district since the partition of India. Prior to that, Kushtia was a part of Nadia District under Bengal Province of British India. Kushtia was home of many famous people, especially authors and poets. Present day Kushtia is known for the Islamic University, Shilaidaha Kuthibari and Lalon’s shrine. Kushtia District has an area of 1608.80 square kilometres and is bounded by Rajshahi, Natore, Pabna districts to the North, by Chuadanga, Jhenaidah districts to the South, by Rajbari District to the East, and by West Bengal and Meherpur District to the West. Ganges, Gorai Modhumoati, Mathabhanga, Kaligônga, and Kumar are the main rivers flowing through the district. The average high temperature is 37.8 °C and the average low is 9.2 °C. Annual rainfall averages 1,467 millimetres. Kushtia was created as a district in 1947 with the partitioning of India. Initially, Kushtia consisted of the Kushtia, Chuadanga and Meherpur subdivisions. Each of these subdivisions was later converted to a separate district for ease of management. The Upazilas are: i. Bheramara, ii. Daulatpur, iii. Khoksa, iv. Kumarkhali, v. Kushtia Sdar and vi. Mirpur.

Table 1: Distribution of the schools and colleges in Kushtia district

District Name	Government College	Non-Government College	Government School	Non-Government School	Madrasa	Total
Kushtia	4	61	3	302	75	448

Source: District education office Kushtia

Jhenaidah (Bengali: ঝিনাইদহ) is a district in southwestern Bangladesh. It is a part of the Khulna Division. It is an area 1964.77 km. It is bordered by the Kushtia District to the north, to the south by Jessore District and West Bengal (India), to the east by Rajbari District and Magura District and to the west by Chuadanga District and West Bengal (India) on the west. There are six upazilas under this district: i. Jhenaidah Sadar Upazila, ii. Maheshpur Upazila, iii. Kaliganj Upazila, iv. Kotchandpur Upazila, v. Shailkupa Upazila and vi. Harinakunda Upazila.

Table 2: Distribution of the schools and colleges in Jhenaidah district

District Name	Government College	College Non-Government	Secondary School Junior	Secondary Government High School	Secondary Non-Government High School	Collegiate School	Madrasa	Total
Jhenaidah	7	47	28	4	254	7	111	458

Source: District education office Jhenaidah

Compensation: Compensation is a systematic approach to provide extrinsic and intrinsic benefits, monetary and non monetary benefits to the employees. It is also considered as measurement how employees are being treated in an organization. Each and every organization has their own compensation planning where they specify what facilities are going to provide their employees, how it should be provided and based on what category. Having the theoretical knowledge of compensation I feel interest to know about the real scenario of compensation practices and how it is being implemented in an organization of our country.

Components of compensation:

Basic wages/Salaries: These refer to the cash component of the wage structure based on which other elements of compensation may be structured. It is normally a fixed amount which is subject to changes based on annual increments or subject to periodical pay hikes. Wages represent hourly rates of pay, and salary refers to the monthly rate of pay, irrespective of the number of hours put in by the employee.

Dearness allowance: The payment of dearness allowance facilitates employees and workers to face the price increase or inflation of prices of goods and services consumed by him. The onslaught of price increase has a major bearing on the living conditions of the labour.

Incentives: Incentives are paid in addition to wages and salaries and are also called 'payments by results'. Incentives depend upon productivity, sales, profit, or cost reduction efforts. There are: (a) Individual incentive schemes, and (b) Group incentive programmes.

Bonus: The bonus can be paid in different ways. It can be fixed percentage on the basic wage paid annually or in proportion to the profitability. The Government also prescribes a minimum statutory bonus for all employees and workers. There is also a bonus plan which compensates the Managers and employees based on the sales revenue or Profit margin achieved.

Non-monetary benefits: These benefits give psychological satisfaction to employees even when financial benefit is not available. Such benefits are: (a) Recognition of merit through certificate, etc. (b) Offering challenging job responsibilities, (c) Promoting growth prospects, (d) Comfortable working conditions, (e) Competent supervision, and (f) Job sharing and flexi-time.

Commissions: Commission to Managers and employees may be based on the sales revenue or profits of the company. It is always a fixed percentage on the target achieved. For taxation purposes, commission is again a taxable component of compensation.

Mixed plans: Companies may also pay employees and others a combination of pay as well as commissions. This plan is called combination or mixed plan. Apart from the salaries paid, the employees may be eligible for a fixed percentage of commission upon achievement of fixed target of sales or profits or Performance objectives.

Piece rate wages: Piece rate wages are prevalent in the manufacturing wages. The laborers are paid wages for each of the Quantity produced by them. The gross earnings of the labour would be equivalent to number of goods produced by them. Piece rate wages improves productivity and is an absolute measurement of productivity to wage structure.

Fringe benefits: Fringe benefits may be defined as wide range of benefits and services that employees receive as an integral part of their total compensation package. They are based on critical job factors and performance. Fringe benefits constitute indirect compensation as they are usually extended as a condition of employment and not directly related to performance of concerned employee.

Profit Sharing: Profit-sharing is regarded as a stepping stone to industrial democracy. Profit-sharing is an agreement by which employees receive a share, fixed in advance of the profits. Profit-sharing usually involves the determination of an organisation's profit at the end of the fiscal year and the distribution of a percentage of the profits to the workers qualified to share in the earnings. The percentage to be shared by the workers is often predetermined at the beginning of the work period and is often communicated to the workers so that they have some knowledge of their potential gains.

Data Analysis and Interpretation

Table 3: Distribution of Respondents in terms of Overall level of Job Satisfaction

Satisfaction Level	Frequency	Percent	Cumulative Percent
Not Satisfied	29	9.6	9.6
Only Slightly Satisfied	137	45.4	55.0
Satisfied	92	30.5	85.4
Very Satisfied	30	9.9	95.4
Extremely Satisfied	14	4.6	100.0
Total	302	100.0	

Source: Field Survey

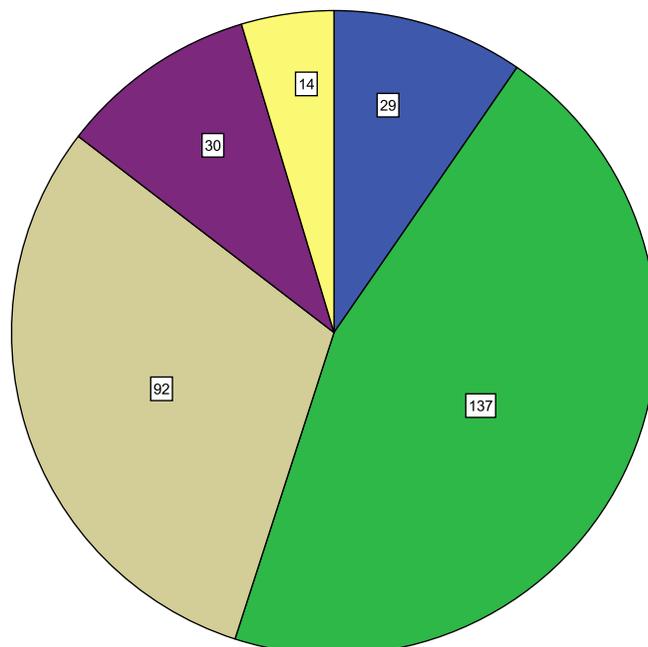


Figure: Overall Satisfaction Level

Source: Field Survey

The above table provides the general satisfaction level information. The table 3 shows that majority of respondents 137 or 45.4 % are only slightly satisfied, 30 or 9.9% respondents are very satisfied, 92 or 30.5% respondents are satisfied, 29 or 9.6% respondents are not satisfied and 14 or 4.6% respondents are extremely satisfied.

Table 4: Distribution of independent and dependent variables according to mean

Subject	Mean	Std. Deviation
Achievement	3.38	1.030
Advancement	2.96	1.042
Authority	3.05	1.167
Organizations Rules and Regulations	2.63	1.097
Salary	2.38	1.117
Bonus and Other Benefits	1.75	1.125

Medical Allowances	1.47	.928
Transportation Allowances	1.46	.945
Promotion Facilities	1.96	1.210
Cooperation among the Colleague	3.52	1.102
Freedom for Work	2.93	.986
Morale Values	3.23	1.099
Job Security	2.84	1.151
Social Status	3.22	1.187
Working Conditions	2.97	1.111
Retirement Allowances	1.89	1.096
Overall Satisfaction	2.55	.959

Source: Field Survey

The mean and standard deviation of the selected variables are given in 2nd and 3rd column of the table 4. Among the 17 variables, the Cooperation among the Colleague possesses the highest mean value (3.52) and the transportation allowances possess the lowest mean value (1.46).

Table 5: Correlations of Independent Variables and Dependent Variables

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
1	1	.219**	.396**	.373**	.496**	.486**	.476**	.395**	.332**	.481**	.292**	.359**	.253**	.469**	.474**	.457**	.430**
2		1	.549**	.639**	.396**	.216**	.031	-.012	-.077	.064	.327**	.387**	.319**	.223**	.140*	.290**	.008
3			1	.488**	.558**	.420**	.202**	.138*	.061	.281**	.265**	.473**	.280**	.355**	.264**	.335**	.192**
4				1	.603**	.355**	.156**	.070	-.015	.105	.373**	.517**	.501**	.451**	.311**	.460**	.108
5					1	.493**	.357**	.313**	.250**	.338**	.307**	.543**	.440**	.489**	.339**	.497**	.339**
6						1	.553**	.343**	.242**	.396**	.257**	.321**	.315**	.439**	.321**	.332**	.366**
7							1	.738**	.696**	.539**	.172**	.223**	.149**	.261**	.149**	.177**	.581**
8								1	.873**	.509**	.072	.172**	.053	.147*	.064	.096	.665**
9									1	.532**	.009	.136*	.033	.087	.043	.040	.590**
10										1	.136*	.298**	.147*	.310**	.284**	.231**	.430**
11											1	.396**	.437**	.362**	.275**	.424**	.099
12												1	.479**	.502**	.315**	.483**	.279**
13													1	.408**	.223**	.439**	.098
14														1	.418**	.502**	.310**
15															1	.507**	.210**
16																1	.213**
17																	1

Source: Field Survey

(N.B.-**Correlation is significant at the 0.01 level (2-tailed). *Correlation is significant at the 0.05 level (2-tailed).

1. Overall Satisfaction, 2. Achievement, 3. Advancement, 4. Authority, 5. Organizations Rules and Regulations, 6. Salary, 7. Bonus and Other Benefits, 8. Medical Allowances, 9. Transportation Allowances, 10. Promotional Facilities, 11. Cooperation, 12. Freedom for Work, 13. Morale Values, 14. Job Security, 15. Social Status, 16. Working Condition, 17. Retirement Allowances.)

Table-5 Correlations of Independent Variables and Dependent Variables are given below into the tables. The table shows the correlation between overall job satisfaction, achievement, advancement, authority, organization rules and regulations, salary, bonus and other benefits, medical allowances, transportation

allowances, promotion facilities, cooperation among the colleagues, freedom for work, job security, social status, and working conditions. The relationship is significant at α 0.01 and 0.05. All independent variables show the positive relationships between overall job satisfactions. . Organizations rules and regulations, shows the highest positive relationships between job satisfactions. Its value is 0.496. Achievement shows the lowest positive relationships between job satisfactions. Its value is 0.219. From the above discussion, we see that null hypothesis is accepted.

Table: 6(a) and 6(b) Linear Regression Analyses of Teachers job satisfaction with compensation factors

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.719 ^a	.517	.490	.685

a. Predictors: (Constant), Retirement Allowances, Achievement, Social Status, Morale Values, Promotion, Cooperation, Salary, Job Security, Advancement, Working Condition, Freedom, Transportation, Organizations Rules and Regulations, Authority, Bonus and Other Benefits, Medical Allowances

Coefficients^a

Model	Unstandardized Coefficients		Standardized Coefficients	T	Sig.
	B	Std. Error	Beta		
(Constant)	.225	.199		1.131	.259
Achievement	-.005	.056	-.005	-.087	.930
Advancement	.085	.053	.092	1.591	.113
Authority	.074	.056	.090	1.324	.186
Organizations Rules and Regulations	.068	.056	.077	1.208	.228
Salary	.052	.050	.061	1.038	.300
Bonus and Other Benefits	.118	.062	.139	1.899	.059
Medical Allowances	.084	.101	.082	.838	.403
1 Transportation	-.018	.094	-.018	-.196	.845
Promotion	.126	.044	.158	2.870	.004
Cooperation	.035	.043	.040	.807	.420
Freedom	-.071	.056	-.073	-1.268	.206
Morale Values	-.045	.047	-.052	-.968	.334
Job Security	.088	.047	.106	1.884	.061
Social Status	.166	.041	.205	4.022	.000
Working Condition	.109	.049	.126	2.213	.028
Retirement Allowances	.070	.052	.081	1.356	.176

a. Dependent Variable: Overall Satisfaction

Source: Field Survey

Tables 6(a) and 6(b) represent the regression analysis. The analysis shows that the R Square value is .517. It indicates that a good proportion of variation (51.70%) exists between the dependent variable (teachers' job satisfaction) is explained by the total variation of the 16 independent variables. From all the independent variables significant values of only three variables, like – social status, working conditions and promotional facilities are less than the P value 0.05. It indicates that the teachers think social status, working conditions and promotional facilities are the important factors for their profession.

Comparison of the Compensation Factors of the Respondents

This section makes comparison between the non-govt. high school and college teachers job satisfaction levels on the basis of cross tab analysis and mean. Table 13 and 14 presented below.

Table 7: Analysis of overall Job Satisfaction and Occupation

Overall Satisfaction	Non-Govt. College	Non-Govt. School	Total
Not Satisfied	14	15	29
Only Slightly Satisfied	66	71	137
Satisfied	58	34	92
Very Satisfied	9	21	30
Extremely Satisfied	4	10	14
Total	151	151	302

Source: Field Survey

Table 8: Description of overall Job Satisfaction and Compensation related Variables in terms of Mean and Standard Deviation

Subject	N	Non-Govt. College		Non Govt. School	
		Mean	Std. Deviation	Mean	Std. Deviation
Achievement	151	3.06	.975	3.70	.985
Advancement	151	2.65	1.001	3.28	.988
Authority	151	2.77	1.163	3.33	1.106
Organizations Rules and Regulations	151	2.40	1.084	2.85	1.067
Salary	151	2.18	1.138	2.59	1.060
Bonus and Other Benefits	151	1.72	1.102	1.77	1.150
Medical Allowances	151	1.52	.923	1.42	.934
Transportation Allowances	151	1.52	.986	1.40	.902
Promotion Facilities	151	1.85	1.057	2.07	1.340
Cooperation among the Colleagues	151	3.48	1.094	3.56	1.111
Freedom for Work	151	2.60	.967	3.26	.890
Morale Values	151	3.15	1.147	3.30	1.046
Job Security	151	2.56	1.181	3.11	1.055
Social Status	151	3.03	1.180	3.41	1.168
Working Condition	151	2.83	1.063	3.11	1.144
Retirement Allowances	151	1.83	1.038	1.95	1.151
Overall Satisfaction	151	2.49	.847	2.60	1.059

Source: Field Survey

A comparison was made to observe the level of satisfaction and dissatisfaction with specific aspects of compensation from among the non-government high school and college teachers. The result reveals that there are significant differences on achievement, advancement, authority, organization rules and regulations, salary, bonus and other benefits, medical allowances, transportation allowances, promotion facilities, cooperation among the colleagues, freedom for work, job security, social status, and working conditions. The differences across among the non-government high school and college teachers have also been identified in the job satisfaction variables. The comparisons of all the mean values highlight a higher level of job satisfaction in non-government high school teachers than those of the non-government college teachers in Bangladesh. So, null hypothesis is rejected in favor of alternative hypothesis.

Table 9: Reliability analysis of independent and dependent variables

Cronbach's Alpha	N of Items
.889	17

Source: Field Survey

From table-9 we see that the Cronbach's alpha value (α) was found 0.889 from 16 independent variables and 01 dependent variable, which was higher than the minimum acceptable level 0.70 suggested by Nunnally (1978).

MAJOR FINDINGS OF THE STUDY

The main findings of the study conducted on "Effect of Compensation Factors on Teachers Job Satisfaction: A Comparative Study on Non-Government High School and College Teachers in Bangladesh" are summarized below:

- Overall level of job satisfaction from 302 respondents 92 are satisfied, 30 are very satisfied , 14 are extremely satisfied, 29 are not satisfied and 137 are only slightly satisfied.
- Non-government high school teachers are more satisfied with their compensation factors than the non-government college teachers.
- There is a significant positive correlation between job satisfaction and compensation factors.
- Compensation factors have a significant influence on teacher's job satisfaction.
- Non-government high school and college teachers think that all compensation factors are very important for their job satisfaction but they provide more significant on the three factors like – social status, working conditions and promotional facilities.
- Teachers are not satisfied about bonus and other benefits, medical allowances, transportation allowances, promotion facilities and retirement allowances because these variables mean values are less than 2.0.
- From my observation method, non-govt. high school teachers are less ambitious, less fashionable than the non-govt. college teachers.
- Non-government college teachers' living standard and life style are higher than the non-government high school teachers'.

RECOMMENDATIONS OF THE STUDY

In the light of the findings of present study, the researcher recommends the following:

- Sound compensation system brings amicability and peace in the organizations. So, it is very important to ensure it for non-govt. high school and college teachers.
- Authority should provide a great significance for teachers' bonus, promotion facilities, medical, transportation and retirement allowances. .
- The institution is able to retain the best talent by providing them adequate compensation there by stopping them from switching over to another job.
- The sound Compensation system is hallmark of organization's success and prosperity. The success and stability of organization is measured with pay-package it provides to its employees.
- Authority provides them the congenial work environment to perform better and sets up for them the targets to be achieved.
- Training will be arranged for all the teachers of all subjects. Teachers' yet untrained need to undergo training immediately. Newly-appointed teachers will undergo primary training before they join their work. Priority will be given to the trained teachers while filling in vacancies.
- To build up skilled manpower at a fast pace to create opportunities of economic development and to increase dignity of labor.
- Qualified teachers are essential for proper and quality education. To ensure the quality of teachers, it is essential to recruit qualified teachers through scientific and transparent recruitment process on one hand, and on the other, quality teachers' education and repetitive demand-driven training is imperative to develop the professional excellence of the teachers.

- Promotion of teachers at all levels of education will depend on seniority and their teaching qualities. Methods to measure the teaching proficiency will be introduced. Training courses received by them will also be considered in case of their promotion at all levels of education.

CONCLUSION

Teaching is a noble profession. Teachers perform a noble duty in the country. From this study it can be argued that if teachers are compensated well, they will be encouraged, assured and will have positive feelings towards their job and this would result to job satisfaction. The findings imply that poor compensation is a major cause of teachers' job dissatisfaction. Teachers are dissatisfied about their compensation policy. Therefore, the authority should address teachers' compensation issues to enhance teacher's job satisfaction. Based on the findings of the study, it can be concluded that teachers in Bangladesh are not well compensated and as a result they are not so satisfied. This research can be good guidelines for human resource management practices in the education sector in Bangladesh.

REFERENCES

1. Abel MH, Sewell J. Stress and Burnout in Rural and Urban Secondary School Teachers. *Journal of Educational Research*. 1999; 92(5):287-295.
2. Alhazmi FA. *Job Satisfaction among Female Head Teachers in Saudi Arabian Secondary School: A Qualitative Perspective*, Unpublished Doctoral Dissertation, University of Southhampton, United Kingdom, 2010.
3. Bari N, Arif U, Shoaib A. Impact of Non-Financial Rewards on Employee Attitude and Performance in the Workplace. A Case Study of Business Institute of Karachi, *International Journal of Scientific and Engineering Research, Pakistan*. 2013; 4(7):2554-2559.
4. Blau, G. Testing the effect of level and importance of pay referents on pay level satisfaction. *Human Relations*. 1994; 47:1251-1268.
5. Bozeman B, Gaughan M. Job Satisfaction among University Faculty: Individual, Work, and Institutional Determinants. *Journal of Higher Education*. 2011;82(2):154-186
6. Cascio WF. *Managing human resources: Productivity, Quality of work, life, Profits*. 6th ed. New-York: McGraw Hill Higher Education Education Ministry, WWW. Education ministry in Bangladesh 2016].
7. Heathfield SM. Salary. Retrieved on 1 September 2012 from <http://humanresources.about.com/od/glossarys/g/salary.htm>
8. Heneman HG, Judge TA. *Compensation Attitudes*, Compensation in Organizations, Jossey-Bass, San Francisco, CA, 2000, 61-71.
9. Kabene SM, Orchard C., Howard JM, Soriano MA, Leduc R. *The importance of human resources management in health care: a global context*, 27 July 2006.
10. Kumar D. Impact of Compensation Factors on Teachers' Job Satisfaction: An Econometric Focus. *Global Disclosure of Economics and Business*. 2016; 5(2):67-76.
11. Kumar D. Job Satisfaction of Commercial Bank Employees in Bangladesh: An Empirical Study. *ABC Journal of Advanced Research*. 2016; 5(2):61-70. Retrieved from <http://iproclaim.my/archive/index.php/abcjar/article/view/214>
12. Kumar D, Hossain A, Gope M. Role of Micro Credit Program in Empowering Rural Women in Bangladesh: A Study on Grameen Bank Bangladesh Limited. *Asian Business Review*. 2015; 3(4):114-120.
13. Lawler EE. *Strategic Pay*, Jossey-Bass, San Francisco, CA, 2000.
14. Lawler EE. III *Pay and organizational development*. Reading, MA: Addison- Wesley, 1981.
15. Liu XS. The Effect of Teacher Influence at School on First-Year Teacher Attrition: A Multilevel Analysis of the Schools and Staffing Survey for 1999-2000. *Educational Research and Evaluation*. 2007; 13(1):1.
16. Liu XS, Meyer JP. Teachers' Perceptions of Their Jobs: A Multilevel Analysis of the Teacher Follow-Up Survey for 1994-95. *Teachers College Record*. 2005; 107(5):985.
17. Locke EA. *The nature and causes of job satisfaction*. Handbook of industrial and organizational psychology, 1976.
18. Luddy N. *Job Satisfaction amongst Employee at a Public Health Institution, in the Western Cape*. University of the Western Cape, 2005.
19. Malik ME, Danish RQ, Munir Y. The Impact of Pay and Promotion on Job Satisfaction: Evidence from Higher Education Institutes of Pakistan, *American Journal of Economics*, 2012, 6-9.
20. Masri M. *Job Satisfaction and Turnover Intention among the Skilled Personnel in TRIPIC berhad*. Unpublished Masters Dissertation, Human Resource Management, University Utara Malaysia, 2009.

21. Mehta MD, Shaikh MN. Study on Compensation Management System & its Impacts on Employees and Organisation Magnitudes in Pharmaceutical Industry at Ankleshwar Belt, *Global Research Analysis*, 2012; 1(7):76-77.
22. Milkovich GT, Newman JM. *Compensation*, New York: McGraw Hill, 2002.
23. Milkovic GT, JM Newman. *Compensation*, New York: Irwin McGraw-Hill, 1999
24. Millan et.al. *Determinants of Job Satisfaction across the EU-15: A Comparison of Self-Employed and Paid Employees*, Tinbergen Institute Discussion Paper, 2011,
25. Muguongo, et. al. Effects of Compensation on Job Satisfaction Among Secondary School Teachers in Maara Sub - County of Tharaka Nithi County, Kenya, *Journal of Human Resource Management*. 2015; 3(6):47-59.
26. Norman H Nie. *Statistical Package for the Social Sciences*. New York: McGraw-Hill International, 1975.
27. Olorunsola OE. Job Satisfaction and Gender Factor of Administrative Staff in South West Nigeria Universities, *EABR & ETLC Conference Proceedings*, Dublin, Ireland, 2010, 91-95.
28. Smith PL., Smits SJ, Hoy F. Employee work attitudes: The subtle influence of gender. *Human Relations*. 1998; 51(5):649-666.
29. Society for Human Resource Management (2012). *Employee Job Satisfaction and Engagement. A research report by SHRM*. Retrieved from www.shrmstore.shrm.org.
30. Sturman MC, Short JC. Lump-sum bonus satisfaction: Testing the construct validity of a new pay satisfaction dimension. *Personnel Psychology*. 2000; 53:673-700.
31. Tasnim S. *Job Satisfaction among Female Teachers: A Study on Primary Schools in Bangladesh*. Unpublished Master Dissertation, University of Norway, 2006.
32. Taylor FW. *The Principles of Scientific Management*, New York, NY, USA and London, UK: Harper & Brothers, 1911.
33. Tickle RB. *Public School Teachers' Perceptions of Administrative Support and its Mediating Effect on Their Job Satisfaction and Intent to Stay in Teaching*, An Unpublished Doctoral Dissertation, Virginia Polytechnic Institute and State University, Blacksburg, Virginia, 2008.
34. Wikipedia, the free encyclopedia, <https://en.wikipedia.org/wiki/Bangladesh#Education>
35. Wren DA. *The evolution of management thought*. (4th ed.) New York: Wiley, 1994.
36. Yaseen A. Effect of Compensation Factors on Employee Satisfaction - A Study of Doctor's Dissatisfaction in Punjab, *International Journal of Human Resource Studies*. 2013;3(1):142-157.

Work Environment of Rice Mill Women Workers and their Socio-Economic Conditions, “A case study of Jhenaidah district in Bangladesh”

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ABSTRACT: *The study was undertaken to examine the work environment and socio-economic profiles of women in rice mills activities. Harinakundu upazila and Jhenaidah sadar upazila under Jhenaidah district of Bangladesh were selected for the study on consideration of the availability of large number of rice mill women workers. Thirty samples of each category were selected by random sampling procedure and primary data collected by direct interview through a pre-tested survey schedule. Lots of problems were identified on their socio-economic, physical, health and gender related work environments. The work environment was not found conducive and favorable for workers' health. There was lack of knowledge and awareness regarding environmental pollution and safety of the rice mills workers. Major problems were related to the nature of their work and the variation in the salary level between male and female workers. The socio-economic status of the women workers should be improved by reducing the discrimination of wages between male and female workers, and ensuring their security in work places removing harassment caused by male ones. Practical measures are suggested for improvement of work environment by minimizing the work environmental pollution, increasing the working efficiency and reducing health hazards of the women workers.*

Keywords: *Rice mill, Work Environment, Women workers, Socio-economic, problems.*

1. Introduction

Bangladesh is mainly rice base agriculture country¹. Rice is the staple food of our population and more than 70 per cent of the total calorie intake comes from this food items. Bangladesh is now world's sixth largest producer of rice which accounts for 77% of agriculture land use¹. The FAO statistics show that each person in Bangladesh consumes 160 kilograms of rice in a year, which is more than three times higher than the average global consumption rate of 50 kilograms². The country's 76% people live in the rural areas and 90% of them are directly related to agriculture. 90% of rice produced in Bangladesh is processed by women in their home steads and in small custom mills located in the rural areas. when the paddy is harvested from fields, it needs to be processed for consumption. Parboiling, drying and milling are the different stages of getting rice from paddy². These are done both at home (small scale) and at rice mills (large scale). Processing at home, the non-commercial sector of milling is perhaps the oldest and almost obsolete form of rice processing method in Bangladesh³. In this method, paddy is processed is DHEKI after it is parboiled and dried. Paddy processing and milling in Bangladesh is mostly performed at the rice mills. These mills are called commercial milling center¹. There are three kinds of commercial mills available in Bangladesh⁴. They are husky, major and autocratic⁵.

Increasing trend in mechanical process unit in the market has gradually replaced the traditional method of rice processing⁴. These commercial-processing units have been playing a significant role in their rice marketing system. Approximately 40000 rice mills in the country, which have almost 5 millions of unorganized workers, more than 60% of them are female. Rice processing operations include parboiling (soaking and steaming), drying and milling⁸. Women workers have to take part in doing more laborious works than male workers such as drying and husking paddy and packing the husked rice into sacks. But the working environment is neither conducive nor favorable to their health⁶. Lives are also endangered in small-scale commercial rice mills due to use of risky, substandard and unrequited boilers furnaces⁸. There is lack of knowledge and awareness regarding safety issues of workers in rice mills. Hence, it is important to improve of working environment and health status of mill women workers through investigation of the environmental condition of rice processing system⁷. Against this backdrop, this paper examines the socio-economic profiles of the women working in selected rice mills⁶. So this study was carried out to assess the status of the women workers in rice processing activities at rice mills and to bring out problems and constraints which are confronted by women workers in rice par-boiling mills⁷.

Methodology

Jhenaidah sadar and Horinakundu upazilla are selected randomly among the six upazillas of Jhenaidah district of Bangladesh. Simple random sampling technique has been used to collect data with a view to executing the research procedure. Data mainly is collected from 120 respondents out of 920 enlisted population who are working in the rice mills in these selected two upazillas. A reserve list of 6 rice mills workers was also prepared when a respondent in the original list was not available for interview. In order to collect valid and reliable information from the women workers, an depth interview schedule containing both open and closed form questions was developed considering the objectives of the study. The researcher collected list of women workers from the managers and the owners of the selected rice mills. Data were collected through face to face interview method using pre-design and pre-tested interview schedules. Selected characteristics of the respondents such as age, education, properties, marital status, family size, earning members in the family, physical fitness, family type, working type relation with superiors or mill-owner, relation with colleague or fellow workers, contribution to the family were considered as the independent variables of the study and appropriate scores. The characteristics were measured either raw scores or through rated scores. Amount of time spent by women rice mill workers was the dependent variable of the study. It was measured by time calculating the actual time spent (in hour) in the rice mill by the respondent women. Total time spent by respondents in the different activities of rice mill was identified in hours per day.

Results and discussion

Work environment in the rice mills has been identified in terms of socio-economic environment, physical environment, health and gender related environment. A total of 420 respondents were interrogated. A number of problems have been identified against each category of work environment and the problems were ranked by the total number of respondents reported yes (more than 50%) for the problems (Table 1).

A) Socio-Economic Environment

As shown in the table 1, the first ranking economic environment problems were- the absence of society of workers to protect their rights and no allowances were paid other than the salary. Second ranking problems were –no salary/wage when in leave, no security for the job, no over time, no insurance for casualties during work and no financial help for sick workers. Other problems include-no loan and no bonus for festivals, very low salary/wages compared to wages in other occupations and no advance against salary wage given to the workers . Monthly wages of male labourers ranged from 6000 to 9000 Taka and of female labourers from 3000 to 4500 Taka. The wage earners particularly the female were unable to maintain their livelihood with this small amount of money, they were always in extreme poverty and mentally disturbed. Mrs.Raushonara, a women worker of Satata Rice Mill in Vatai Bazar, said, there are five members in their family. Her husband is unable to work because of his physical condition. She works in rice mill on account of her economic demand for family. But she has to face different problem in rice mill. People work for money. But she did not get fair salary though she is a regular worker. Every 15 days, she takes salary, but the authority gives her salary only for 8 to 10 days. Thus, she gets the salary of 20 days in every months. All the women workers in this rice mill do not get their festivals bonus fairly. Mrs. Shaery Khatun, a women worker of Al MamunRice Mill in Vatai Baza, said, they have to fall victim to sexual harassment and general people of this area try to disturb them but the owner of these mill do not take any preventive actions. They have to do here without getting any job and tolerate them silently. For this they have to be under estimated from their family and society.

Mrs. Khadeja khatun, a women worker of Bizoly Rice Mill in Dkakbangla, said, there social status is very low because they work in mill houses. People thought them as sexual workers. But they lead a real and beautiful life. Though they mention their different types of economic problems. If they get wage completely, they have no problems. But the authoritydo enough inhuman behavior in the perspective of fair wage or do not give fair wage. She mentions that she has worked in different mills in jhenaidah district but she faces same problems. All the rice mill owners do not give fair salary as they are women. Want is their daily companion because of their fair salary. Though they give labour completely. Shesaid, if they get fair salary, different types of problems will be solved.

B) Physical Work Environment

Fifteen physical work environment problems were identified and ranked as shown in table-1 Working in the mill house was difficult, because of excessive dusts in the mill house, in adequate aeration facility, and warm

atmosphere in the mill house due to closed windows and lighting bulbs (releasing heat). The windows were kept closed on security reason .Moreover therewas noise pollution from huller and separating units as well as the moving belts. Moving belts were not covered, for which severe accident could happen. Outside atmosphere surrounding the mills remained warm s because no trees were planted in the mill premises. There was no shed built for temporary resting of the workers engaged in sun drying of parboiled paddy and the workers found no place to take res during the scorching sun. Boilers made of oil drums were used in most of the rice mills , which could pose threat to lives of the mill workers. The mill workers reported many cases of deaths due to explosion of drum boilers. In most of the mills facilities for disposal of soaking water and other wastes was inadequate. Soaking water created bad smell in the mill premise. It was observed that the physical environment existing in the rice mills were not at all satisfactory and conducive to health.

C) Health-related work Environment:

The health-related work environment problems were- no health checkup facility provided by the mill, no physician appointed for the medical advice to workers, huller driver was over stressed due to restlesswork even in the night, excessive workload for other workers, no shifting duty, no recreation facilities, no sanitary latrines, no protective device against dusts and other pollutants and no first-aid box available in the mills for instantaneous first hand treatment for injuries.

D) Gender-related Work Environment:

Gender-related work environment problems include – female workers were paid lesser wages than male workers, no maternity leave with salary/wage was granted for female workers and no separate latrines were available for women workers.

Table 1 Ranking of the respondents

A) Socio Economic work environment problems	Rank
No society of workers to protect their rights	1
No allowance other than salary	1
No salary/ wage during leave	1
No security of job	1
No overtime	1
No insurancefor accidents/ casualties during work	1
No financial helpfor sick worker	1
No loan given to workers	2
No bonus for festivals	3
Low salary and wage	3
No advance against salary/ wage given to workers	4
Aerationfacility in the mill house in adequate	4
Soaking water smells bad	5
Inadequate facility for disposal of soaking water and other wastes	5
Windows kept closed in the mill house	6
Insufficient light	6
Sound pollution due to belt movement	6
Risk of accident in using drum boilers	6

B) Physical work environment	Rank
Unhealthy environment	1
Moving belt has no protective cover	1
No plantation in the mill premise	2
No sanitary latrine	2
No shed for temporary resting	2
Lighting of mill house is not appropriate	3
Frequent load shedding	3
Excessive dusts in the mill house	3

C) Health- related work environment	Rank
No health checkup facility provided by the mill	1
No physician appointed for medical advice to workers	1
Single operator for continuous driving of the huller	1
No protective device for dusts	1
No shifting duty	1
No sanitary latrines	1
No recreation	1
Excessive workload	1
No first aid box kept	2

D) Gender-related work environment	Rank
Female workers paid lesser wages than male workers	1
No maternity leave with salary/ wage granted for female worker	1
No separate latrine for women workers	1

Problems of the workers

A total of 40 rice mills in two different areas (vatoi bazar and dakbangla bazer) were investigated. In every rice mill, work environment was found to exist. These are discussed below-

A) Sound related

The engine or the moving belts of the power transmission system and the mechanical separator in the mill house were found to produce irritating noise. The noise level could not be measured due to lack of instrument.

Dusts from Mill House and Drying Floor Dusts from mill house and during floor and rice bran from mill house polluted air. The mill houses were not adequately ventilated and as a result the air in the mill houses contained fine particles of dusts and bran. The dusts are very dangerous for the workers' health. Dusts inhaled by the workers might affect the lungs and lung cancer might be developed due to prolonged exposure.

B) Ashes, Black Smoke And Fire

Ashes, black smoke and gases polluted the atmosphere affecting trees, people and livestock of surrounding houses and homes. Ashes were mixed and blown with air and made the trees and houses dirty. Some rice mills having short-length chimney were found to emit fire along with black smoke, the fire heated the atmospheric air and damaged the trees nearby.

C) Mills wastes; Ashes and Burnt husks

Mills wastes such as ashes and burnt husk polluted the surrounding environment, land and waterbeds. These wastes were dumped extravagantly on the mills premises and lot of spaces was wasted which could otherwise be utilized for productive purposes. MPCB-2005 reported closing down of some rice mills for keeping rice husk in open area giving rise to pollution nuisance for nearby residents and violating norms and regulations, these mills have no closed shed for rice husk storage.

D) Soaking water with Bad Smell

Most of the rice mills did not have adequate provision for disposal of soaking water. As such it made the mill premise very damp and dirty. Due to hampered the working environment of the workers.

Mollifying the Work Environment Issues

The following measures are suggested to mollify the problems related to work environment in the rice mills

1. Use of chimney of more than 12.2m (40 feet) must be mandatory for the rice mills.
2. Rice mills workers should be given service and social securities under the employment and wage rules for the industries.

3. Rice mill owners should have associations at the local and national level for coordinated effort in the overall improvement of the rice mills.
4. Rice mills should be given the status of industries with facilities and privileges given to other industries.
5. The use of appropriate procedures and personal protective equipment, for example, to reduce risk of product contamination or reduce employee inhalation of dust.
6. Washrooms and rest rooms should be provided for staff.
7. The millers should be advised to introduce mask or some other things like a thin piece of cloth for the workers. The workers should be motivated to realize the consequence of inhaling dusts and therefore, to use mask or thin layer of cloth to protect their nose and mouth.
8. East Bengal Rice mill control order-1943, the boiler act and the environmental pollution control act should be updated to cope up with the present need and to modernize the rice milling system.
9. The site should have good drainage and must be adequately maintained to facilitate run-off and minimize the likelihood of flooding.
10. Better coordination of concerned departments and institution such as Ministry of Food, Ministry of Environment, Ministry of Public Health, Bangladesh Rice Research Institute (BRRI) Bangladesh Agricultural University (BAU) and NGOs.
11. Rice mill owners should abide by the government rules and laws to ensure safety of the workers to improve the work environment and to reduce probable causes of occupational diseases.
12. Rice millers should be given financial support through bank loans and technical guidelines by the Government.
13. Adequate ventilation including windows, vents or fans should be provided so as to reduce the heat as well as the dust in the operations area. However, precautions should be taken to prevent dust pollution.
14. Engelburg type steel hullers and the drum boilers must be phased out and ultimately banned rubber roll huller with polisher and standard boilers should be introduced.
15. Potable water supply should be readily available.
16. Government approval of the mill layout including waste dumping arrangement must be made mandatory before construction.

Reducing Environmental pollution

The following measures are suggested to reduce the environmental pollution.

1. Rice husks generated should be stored in an enclosed area, the contents of which shall either be burnt or land filled at a suitable location that will not cause a public nuisance. Long-term solution for the disposal of this waste should be considered.
2. Exhaust fans may be installed in the mill house to expel air fine particles of dust and rice bran.
3. Design of chimney and vents of sufficient height and appropriate technology to avoid causing local nuisance through dust and smoke emissions. Long chimney of more than 12.2m/40ft height is to be installed to control the black smoke and fire. The Government of Bangladesh must make the provision of installing long chimney mandatory in the rice mill control rules/acts.
4. If the rice husk has to be transported to a landfill site then it should be covered during transportation.
5. The noise could be reduced to a safe level by maintaining the mechanical devices on regular basis.
6. Dumping of mill wastes into pits. Drains to dispose of wastewater are necessary.

Recommendations

The government should have an Environmental Management Plan for the rice mills. The Environmental Management Plan should include the following:

1. Clear roles and responsibilities for hygiene and environmental management among staff.
2. Plans and procedures for managing environmental issues including water abstraction, waste water discharge and waste management.
3. Training of the mill staff on environmental management.
4. Programme for environmental performance improvement to meet targets.
5. An emergency response plan.
6. Financial plan or budget for environmental management and performance improvement.
7. Knowledge, information and monitoring of hygiene and environmental performance. Management.
8. Setting of environmental performance targets to meet regulations and best practice.

Conclusion

In Bangladesh, women constitute nearly half of the total population of the country. Women contributed a small amount but a significant proportion of their total income. In the household female is the highest performer than male in rice processing activities. In the rice mill women are mostly involved in drying raw paddy, soaking, parboiling, cleaning and storing activities. Women played an important role in farm activities especially in post-harvest operations. But it is observed that overall performance of women workers was higher in both household and rice mill environment. If consideration can be made on the physical work environment, "No plantation in the mill yard, No good facility of aeration in mill house" were the immense problem. On the other hand in case of economical problem, "No security for holding job, No salary when leave taken. Moreover No facility for recreations, No health checkup facility, No facility for consulting with doctors, No insurance for accident" were the main problem regarding health issues. Women contributed a small amount but a significant proportion of their total family income. Poverty alleviation can hardly be achieved unless the women are directly being involved in income generating activities. The socio-economic status of the women in farm and rice mill labourers should be improved through their direct participation in income generating activities. Farm and rice parboiling activities are mostly of seasonal, the government should undertake appropriate policy for income generating activities of the rural poor, especially for rural women throughout the year. However, training and credit facilities should be offered to the rural women to improve and utilize their skill and efficiency for poverty alleviation in rural areas.

References

1. Harris B. Rice processing project in Bangladesh: an appraisal of a decade of proposal. *Bangladesh j. Agric. Econ.* 1978; 1(2):24-52.
2. Sultana N. Afrad MSI. Women's Participation in Rice Mills in Sherpur Sadar Upazila of Bangladesh. *Int. J. Agric. Res. Innov. Technol.* 2014; 4(1):36-39.
3. Zaman Z, Tokuzo M, Shuji H. The role of rice processing industries in Bangladesh: A case study of the Sherpur district. *The Review Agril. Econ.* 2003; 57:121-133.
4. BBS. Yearbook of Agricultural Statistics 2004. Bangladesh Bureau of Statistics. Ministry of Planning. Government of the People's Republic of Bangladesh, 2004.
5. Zaman MA, SM Farouk. Improvement of skill and work environment of the landless wage earners engaged in rice processing systems of Bangladesh. Survey Report. REFPI/DFID Project No.132. Dept. of Farm Power and Machinery, Bangladesh Agricultural University, Mymensingh, 2002.
6. Begum F. Contribution of farmwomen in post-harvest activities of boro rice, pulses and oilseed crops in Narsingdi district of Bangladesh. Ph.D Thesis. Department of Agricultural Extension and Rural Development. Banghabandhu Sheikh Mujibur Rahman Agricultural University, Gazipur, 2001.
7. Krishi D. Agricultural Information services (AIS). Khamarbari, Farmgate, Dhaka. At a glance Bangladesh. 2015, 2.
8. Anonymous. Development project in AGRO-BASED industry. Bangladesh Occupational Safety, Health and Environment Foundation, OSHE, 2003. Available at: <http://oshebd.org/grain.html>

Attitudes of Female Students towards Job and Profession: A Study on Islamic University, Bangladesh

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ABSTRACT: *In Bangladesh, about 50% of the population consists of women. Their participation in economic activities is essential for the economic prosperity of the country. This study is aim to find the outlook of female students towards profession and job. It is also investigate reasons behind not to work, preferred jobs and professions, propensity to be self-dependent. A sample of 200 female students was taken from selected institution (Islamic University). The Sample consists of the student of third/fourth-year of bachelor and masters degree. A semi-structured questionnaire was administrated as a research tool which is developed and pre-tested by the author. Collected data were analyzed through Statistical Package for Social Science (SPSS), version 20. The study have reveled positive attitudes of female students towards job and profession. About 89.5 percent of the respondent would like to engage in different jobs and professions. This study also showed that teaching is the most favorite profession of female students. It is found that education background and income of the guardians of the respondents has strong association with job interest of female students. Sexual harassment, low job security, social prejudices, lake of family support, early marriage, male-dominated culture, in-laws's restrictions, lake of ambitions, communication gap, absence of day care center in workplace, low cooperation from co-workers these lead to lower participation of female in workplace.*

Keywords: *Female Student, Job, Profession, Attitude, Economic Development*

1. Introduction

Females are the significant part of total population of Bangladesh. In this country 49.93 percent of total population is female (BBS, 2011). In many developing countries like Bangladesh the literacy rate is very low for female students. They are facing numerous problems both economically and socially. In this country most of families are dominated by male members. But in recent years, Bangladesh has been focusing attention on the most disadvantaged group in the society – the women. The employment status of women in Bangladesh is still lower than that of the expected level. Gender equality and empowerment of women are major targets of Millennium Development Goals (MDGs) as pursued by the government of Bangladesh. The mainstream economic activities of women can empower and reduce their inequality (Ali, 2013a). There are equal facilities for female students in every educational institutions and job sectors of Bangladesh. They possess capabilities to work with men in the workplace. Women have strong multitasking capabilities that allow them to collaborate effectively within various functions of the organization (Parvez, 2018). For getting balanced economic growth, participation of educated female in job and profession is inevitable. Business Dictionary (2018) defines profession as an Occupation, practice, or vocation requiring mastery of a complex set of knowledge and skills through formal education or practical experience. On the other hand jobs are activities that are performed in exchange of a monetary value. A job is often short-term and only done as a person requires money to live (Differencebetween.info, n.d.). According to the Bangladesh Education Statistics 2017, 279056 (32.57 % of total student) female students are studying in higher educational institutions in Bangladesh (both private and public). The government of Bangladesh is expending a huge amount of money with several educational facilities regardless male and female student in higher education. University Grants Commission (UGC) Bangladesh provides about 115960 (BDT) for each public university student to prepare them as a quality graduate (UGC, 2016) .But the participation of female graduates in employment is still lower than male. Trend of becoming housewife is still a matter of thinking. The participation of female in labour force is amounted 36.3 percent of total labour force of Bangladesh (BBS, 2018). For these reasons this study is undertaken to investigate the female students' attitudes regarding career orientation, figure out reasons behind females' backwardness in job and profession to exhibit clear picture of present thinking of female students towards job and profession.

Research Questions

What type of attitudes female students possess towards job and profession?

What are the reasons behind their preference?

What are the causes behind low participation of female in job and profession?

What type of measures should take to improve female participation in workforce?

Research Objectives

The main objective of the study is to examine the attitudes of university going female students towards jobs and professions. Specific objectives are as follows:

To find out the reasons behind female students' preferences of job and profession ;

To figure out the causes behind low participation of female in job and profession, and

To identify the necessary measures to improve female participation in workforce.

Literature Review

With respect to the research topic, foreign and national experts undertook some studies. Some of the notable concepts are:

Robbins and Judge (2013) define attitudes as evaluative statements—either favorable or unfavorable—about objects, people, or events. They reflect how we feel about something. When I say “I like my job,” I am expressing my positive attitude about work.

Kakkar (2018) identifies that in recent years, females are more conscious about their independence; economically and socially. Financial independence is not only a source of confidence but also gives women the credibility to participate in important matters of decision making, for themselves, their families and society. We need independent and empowered women. Supporting women to be financially independent is a key step towards that.

Ali (2013b) observed that, in Bangladesh, women are mainly involved in informal jobs compared to men. The reality of the informal economy for women is more severe. Moreover, low payment, social insecurity, lack of good working environment and scarcity of voice in decision, shortage of equal access to resources and services makes women vulnerable and leads to exploitation. The social and religious cultures of Bangladesh consider women to be ‘physically weaker’ than men.

Moore (1987) found that, in general, women may be deterred from pursuing higher education if it involves considerable indebtedness. Such a decision is viewed as prudent by women who foresee lower-paying job opportunities, family commitments, or both. Many women who desire higher education must pursue it on a part-time basis for the same reasons. This prolongs the period of education and delays full-time wage earning.

Amany (2013) stated that country is needed to improving the employment environment further to make the work place more comfortable for female worker. This could be done by providing baby seating facilities to employed mothers, time allowances to suckling mothers and extension of the maternity leave period. He also mentioned several factors those affect career choice. The main factors affecting women career choice are: the ability of women to work, social value and prestige, work environment and working hours, family and parents, discrimination against women, historical role of women, and culture.

Jeanette, (2010) have shown some factors that can influence career choice including the family's culture, their income and family resources, and the quality of the parent-child relationship.

Greenhalgh & Rosenblatt, (1984) found that job insecurity, in turn, is projected to affect a variety of individual organizational behaviors such as productivity, turnover, and resistance to change.

Teti et al. (1987) indicates, when the "normal" life cycle (finish high school, get a job, go to college, find a partner, get married, then have children) for adolescents gets disrupted other parts of the cycle such as education may be postponed or neglected.

Kalam et al. (2016) came into a conclusion that the gap in wages between men and women is still significant in all sectors, both formal and informal. However the impact of increasing women’s participation in economic activity correlates to a range of positive benefits to the family.

Hypotheses

On the basis of the previous discussion and literature review of the study the following hypotheses have been drawn:

- H₀1:** There is no relationship between Job Interest and Family Structure of the respondents.
- H₀2:** There is no relationship between Job Interest and Marital Status of the respondents.
- H₀3:** There is no relationship between Job Interest and Education Background of Guardian.
- H₀4:** There is no relationship between Job Interest and Occupation of Guardian.
- H₀5:** There is no relationship between Job Interest and Income of Guardian.

Methodology of the Study

This study is limited to Islamic University, Bangladesh. Two sources of data were used in this study e.g. primary and secondary. The selected institution has 33 departments under five faculties. For sampling female students, who are studying in post-graduation and third/fourth-year of graduation, were drawn from each of these faculties proportionally because such students have good knowledge about real situation of job and profession. Departments having such female students and the number of female students were of 25 and 1615 respectively. So the sample was collected from these 25 departments. Since the population was concerned about different subjects, faculties, a sample of 200 female students was selected using stratified random sampling method. Semi-structured questionnaires were prepared from the concept of literature review and administered. The respondents were taken into confidence that their comments would be used only for research purpose and would not be used for any other purpose. In case of secondary data several relevant publications, books, journals and websites were used. Data collected for this study were processed by using MS office and Statistical Package for Social Science (SPSS), version 20. Before putting the data into computer, all data were converted into numeric codes and the details of these coding were recorded in separate sheet.

Data Analysis and Interpretation:

In this section collected data are analyzed and interpreted. It includes two major phases. The first phase deals with frequency distribution to know the dimensions of the respondent to several variables and the last phase depicts association between variables.

Frequency Distribution:

Table 1: Demographic Statistics (N= 200)

Demographic variables	Number of Respondents
Marital Status:	
Single	85.5 %
Married	14.5 %
II. Formation of the Family:	
Nuclear	77.5 %
Traditional	22.5 %
III. Education Background of Guardian	
Bachelor & Above	40.0 %
Higher Secondary	27.5 %
Secondary	17.0 %
Below Secondary	15.5 %
IV. Occupation of Guardian	
Farming	30.5 %
Business	30.0 %
Service-holder	39.5 %
V. Monthly income of Guardian	
Low Income (5-20 Thousands BDT)	51.5 %

Middle Income (20-40 Thousands BDT)	39.5 %
High Income (Above 40 Thousands BDT)	9.0 %
VI. Enrolled degree:	
Honors (Bachelor)	58.0 %
Masters	42.0 %
VII. Studying under Faculty of:	
Theology & Islamic Studies	3.0 %
Humanities & Social Science	42.0 %
Law & Shariah	12.0 %
Business Administration	16.0 %
Applied Science & Technology	27.0 %

Source: The field survey of the study.

Result in table-1 shows that the majority of the respondents (85.5%) are single and only 15.5% are married. Table-1 also shows that the family formation of participant is 77.5% for nuclear and 22.5% for joint or traditional. It observed that 40% respondents' guardians had higher education, 27.5% for higher secondary, 17 % for secondary education, and remaining 15.5% belongs to below secondary education level. Occupational statistics of the respondents' guardians shows that, 30.5 % of the total respondents' guardians are engaged in farming, 30% in business, and majority of 39.5% in service-holder. It is also found that, 51.5 % respondents' guardians belongs to low income category (5 -20 thousands BDT), 39.5% to middle income (20-40 Thousands BDT) category and only 9% to high income (above 40 thousands BDT) category. Further 58% of the total participants are from honors (bachelor) degree and 42.0 % from masters degree. Area of education of the respondents indicate that out of 200 respondents 3% or the lowest number of respondents belong to Theology & Islamic Studies faculty, 42% or the highest number of respondents from Humanities & Social Science faculty, Law & Shariah and Business Administration faculty hold 12% and 32% respondents respectively. Rests of the respondents, 27%, are drawn from Faculty of Applied Science & Technology.

Table 2: Intention to Involve in Job and Profession

Statements	Yes	No	No Comments	Mean
I Would like be self-dependent	96.5 %	3.5 %		1.9650
I will engage in any job or profession	89.5 %	10.5%		1.8950
Career positively influence society	90.5 %	7.5 %	2.0 %	1.9235
My family support me to engage in job or profession	86.0 %	13.5 %	.5%	1.8643

Source: The field survey of the study.

As shown in the table-2 out of 200 respondents, 96.5% want to be self-dependent and only 3.5% don't. 89.5% answer that they will engage in any job or profession and only 10.5% will don't do it. Further, 90.5% participants believe that career positively influences the society where, 7.5% don't believe that statement and 2 % were not feel good interest to make comment in this regard. Finally, 86% participants are getting support from family concerning this issue while 13.5 % are discouraged.

Table 3: Distribution of Respondents by Reasons for Pursuing Higher Education

Reasons for Pursuing Higher Education	Frequency	Percent (%)	Mean
To get a good job	126	63.0	1.4900
Learning	61	30.5	
Forced by Family	2	1.0	
Others	11	5.5	
Total	200	100.0	

Source: The field survey of the study.

As shown in the table-3, out of 200 respondents 126 or 63% female students are pursuing higher education for getting a good job, 61 or 30.5% for learning. Only 2 or 1 % are forced by family, and 11 or 5.5 %

respondents pursuing higher education for other purposes including self-dependency and both learning and getting good job.

Table 4: Distribution of Respondents by Guardian Expectation

Guardian Expectation	Frequency	Percent (%)	Mean
Housewife	8	4.0	2.8500
Businessman	14	7.0	
Service -holder	178	89.0	
Total	200	100.0	

Source: The field survey of the study.

Table-4 reveals that 8 or 4% of the respondents' guardian expect them to be housewife, 14 or 7% want to see their children as businessman and 178 or 89% as service-holder. It is found that most of the guardians', whose daughter is continuing higher education, desire that their daughter will engage in job or profession.

Table 5: Distribution of Respondents by Preferred Job Sector

Preferred Job Sector	Frequency	Percent (%)	Mean
Private sector job and profession	15	7.5	2.0101
Government sector job and profession	167	83.5	
Self-owned Business	17	8.5	
Total	199	99.5	
No comment	1	0.5	
Total	200	100.0	

Source: The field survey of the study.

Table-5 exposes that 15 or 7.5% of the total participant of this study willing to engage in private sector job and profession, 167 or 83.5 in government job and profession, 17 or 8.5 % in self-owned business. It is found that maximum female students are much intended to involve in government job or profession. Out of 200 respondent 1 or 0.5 % wasn't feel good interest to make comment in this regard.

Table 6: Distribution of Respondents by Comments Regarding Reason for Preference

Reason for Preference	Frequency	Percent (%)	Mean
Job Security	134	67.0	1.5578
Creative	38	19.0	
Better Salary	16	8.0	
Low Work Pressure	3	1.5	
Others	8	4.0	
Total	199	99.5	
No comment	1	0.5	
Total	200	100.0	

Source: The field survey of the study.

Table-6 exhibits that 134 or 67% respondents identify their preference on the basis of job security. 38 or 19% of the respondents considered creativity for selecting a job and profession. 16 or 8% and 3 or 1.5% considered better salary and low work pressure respectively. 8 or 4% stated other reasons (including childhood dream, prestige) behind their preference. Out of 200 respondent 1 or 0.5 % wasn't feel good interest to make comment in this regard.

Table 7: Distribution of Respondents by Comments Regarding Reason for Engage in Job and Profession

Reason for Engage in job and profession	Frequency	Percent (%)	Mean
Self-dependent	158	79.0	

Financially Developed	15	7.5	1.4171
Recognition	13	6.5	
Develop Family	10	5.0	
Others	3	1.5	
Total	199	99.5	
No comment	1	0.5	
Total	200	100.0	

Source: The Field survey of the study.

As shown in the table-7, 158 or 79% respondent eager to choose a career for being self-dependent, 15 or 7.5% for being financially developed, 13 or 6.5% for getting social recognition, 10 or 5% for developing their own family, 3 or 1.5% for other issues. Out of 200 respondent 1 or 0.5 % wasn't feel good interest to make comment in this regard.

Table 8: Distribution of Respondents by Comments Regarding Influenced Factor

Influenced Factor	Frequency	Percent (%)	Mean
Family	172	86.0	1.4171
Friends	6	3.0	
Teachers	2	1.0	
Career Counseling	3	1.5	
Others	16	8.0	
Total	199	99.5	
No comment	1	0.5	
Total	200	100.0	

Source: The field survey of the study.

Table-8 shows that, maximum, 172 or 86% of the respondent are influenced by their family (including elder brother and sister, father, mother and husband) to involve in job or profession as their future career. 6 or 3% by friends, 2 or 1% by teachers, 3 or 1.5 % by career counseling, and 16 or 8% by others factor including self motivation. Out of 200 respondent 1 or 0.5 % wasn't feel good interest to make comment in this regard.

Table 9: Distribution of Respondents by Comments Regarding suitable Job and Profession for female in Bangladesh

Suitable job and profession for female in Bangladesh	Frequency	Percent (%)	Mean
Farming	1	.5	2.9296
Business	21	10.5	
Teaching	168	84.0	
Others	9	4.5	
Total	199	99.5	
No comment	1	.5	
Total	200	100.0	

Source: The field survey of the study.

The table-9 exhibits that only 1 or 0.5% respondent think that in Bangladesh farming is the best profession for female, 21 or 10.5% for business. Big share of the total respondent that means 168 or 84% believe that teaching is the suitable job for them, 9 or 4.5% for others profession including lawyer, civil service, self-owned craft business. Out of 200 respondent 1 or .0.5% wasn't feel good interest to make comment in this regard.

Table 10: Distribution of Respondents by Comments Regarding Job opportunities for Female in Bangladesh

Job opportunities for Female in Bangladesh	Frequency	Percent (%)	Mean
Not Good	44	22.0	2.4050
Limited	85	42.5	
Fair	21	10.5	
Good	46	23.0	
Excellent	4	2.0	
Total	200	100.0	

Source: The field survey of the study.

As shown in the table-10, out of 200 respondents, 44 or 22% think that the present job opportunities for female in Bangladesh is not good position, majority, 85 or 42.5 % believe that there is limited opportunities for them, another 21 or 10.5% reveal that there exist fair job opportunities for female student in job market, 46 or 23% respondents think that good job opportunities is prevailing in Bangladesh. Only 4 or 2% respondents mentioned the existence of excellent job opportunities for female person in Bangladesh.

II. Correlation Analysis:

Correlation is a statistical technique that can show whether and how strongly pairs of variables are related. In this study, there are nineteen variables. Among these some are directly related to the job preferences of respondents. Five variables are identified which have intimate relationship with job interest of female. In this study, Pearson correlation coefficient is used since it is the most commonly used measure of association. Correlation analysis and interpretations of these variables are discussed below:

Table 11: Correlation between Job Interest and Family Structure

		Job Interest	Family Structure
Job Interest	Pearson Correlation	1	.028
	Sig. (2-tailed)		.691
	N	200	200
Family Structure	Pearson Correlation	.028	1
	Sig. (2-tailed)	.691	
	N	200	200

Source: Field survey of the study

Table-11 shows that correlation analysis (*r*) revealed that there is no significant relationship between job interest and family structure, where, $r = .028, N = 200, p > .695$. There is not enough evidence to show the correlation is significant. As the value of *p* is greater than $\alpha = 0.05$ or 95% confidence level, then we can conclude that null hypothesis (H_01) is accepted. The result inferences that family formation doesn't impact on whether a female student will engage in a job or profession.

Table 12: Correlation between Job interest and Marital Status

		Job Interest	Marital Status
Job Interest	Pearson Correlation	1	.048
	Sig. (2-tailed)		.496
	N	200	200
Marital Status	Pearson Correlation	.048	1
	Sig. (2-tailed)	.496	
	N	200	200

Source: Field survey of the study

As shown in the table-12, A Pearson correlation analysis (*r*) revealed that there is no significant relationship between job interest and marital status ($r = .048, N = 200, p > .496$). As the value of *p* is greater than $\alpha = 0.05$ or 95% confidence level, then we can conclude that null hypothesis (H_02) is accepted. It is found that married female students also possess high intention to join a job.

Table 13: Correlation between Job interest and Education Background of Guardian

		Job Interest	Education Background of Guardian
Job Interest	Pearson Correlation	1	-.036
	Sig. (2-tailed)		.610
	N	200	200
Education Background of Guardian	Pearson Correlation	-.036	1
	Sig. (2-tailed)	.610	
	N	200	200

Source: Field survey of the study

As shown in the table-13, correlation analysis (r) revealed that there exist, moderately, negative relationship between job interest and education background of guardian ($r = -.036, N = 200, p > .610$). There is not enough evidence to show the correlation is significant. As the value of p is greater than $\alpha = 0.05$ or 95% confidence level, then we can conclude that null hypothesis (H_03) is accepted. It is occurred because of female students fix their goals depending on some other factors like guardian's occupation regardless educational background of their parents or guardians.

Table 14: Correlation between Job interest and Occupation of Guardian

		Job Interest	Education Background of Guardian
Job Interest	Pearson Correlation	1	.194**
	Sig. (2-tailed)		.006
	N	200	200
Occupation of Guardian	Pearson Correlation	.194**	1
	Sig. (2-tailed)	.006	
	N	200	200

** . Correlation is significant at the 0.01 level (2-tailed).

Source: Field survey of the study

In table 3.14 correlation analysis (r) revealed that there exist positive relationship between job interest and education background of guardian $r = .194, N = 200, p > .006$. There exists enough evidence to show the correlation is significant and the Correlation is significant at the 0.01 level. As the value of p is less than $\alpha = 0.05$ or 95% confidence level, then we can conclude that null hypothesis (H_04) is not accepted. So, parents or guardians' holding good occupation tends to impact on the employment choice of their daughter.

Table 15: Correlation between Job interest and Income of Guardian

		Job Interest	Education Background of Guardian
Job Interest	Pearson Correlation	1	.175*
	Sig. (2-tailed)		.013
	N	200	200
Income of Guardian	Pearson Correlation	.175*	1
	Sig. (2-tailed)	.013	
	N	200	200

** . Correlation is significant at the 0.05 level (2-tailed).

Source: Field survey of the study

As shown in the table 3.15 Pearson correlation analysis (r) revealed that there exist moderately positive relationship between job interest and monthly income of guardian $r = .175, N = 200, p > .013$. There exists enough evidence to show the correlation is significant and the Correlation is significant at the 0.05 level. As the value of p is less than $\alpha = 0.05$ or 95% confidence level, then we can conclude that null hypothesis (H_05) is

not accepted. The result implies that guardian income differences affect the intention of female students towards job or profession.

Findings

Female in Bangladesh are not much ambitious. They can't dream the best for them e. g being self dependent. Inadequate flow of information creates communication gap between the real world activities and females thinking which lead them stuck behind. In Bangladesh, the thinking of women or female is not wide and willingness to work with male in the workplace is meager.

Illiterate parents or guardians bring up their female child imposing several superstitions. That's why female or women are neglected and humiliated in our family and society. These ill concepts restrain females from getting quality work skill and proper education.

There is a momentous lack of social supports for female education and employment. Child marriage and dowry systems are common phenomenon which lead female to maintain family rather than working in organization. In case of married one, most of the husbands don't want to get involved their wife in job.

Female members are much dependent on male member of the family. Control of financial and others decision are centralized to male. This autocratic system restricts females to do anything freely. Freedom of choice for them is strongly absent in Bangladeshi society. These result in lower involvement of women in labor force.

In work place, female workers seek proper security such as not being harassed. But working females are the frequent victims of sexual harassment in their workplaces. That's why they get little bit cooperation and respect from other male co-workers.

Lack of women adopted working environment and long distance between workplace and home also act behind the low participation of female workers in labor force.

In rural areas of Bangladesh, still there prevail numbers of superstitions regarding female education and money earning activities. Belief in Superstitions within families and societies lead lower participation of female in education and job.

There are not much sufficient facilities for female worker who have child. Child day care provides facilities for preschoolers, infants and toddlers, and school-aged children as their own home.

Recommendations

To increase the participation of female in labor force, organizations should set up quality baby care center or child day care in their workplace so that these female can work soundly without having anxiety of their children. Respondents recommended for installing separate rest rooms and toilets for female workers, reducing sexual harassment and boosting materiality leave. Educational institution should support by arranging seminar, career counseling for motivating and informing female students about the importance of self dependency and women empowerment for economic and social development along with available information flow. They need enough cooperation and inspiration from family. Superstitions regarding female education and money earning activities must be abolished. Government should provide adequate support in this regard. Female rights should be protected and enforced by country's law.

Conclusion and Further Research

Participation of women in the labor-force is inevitable for a country. It enables the sustainable economic growth for emerging economy. The study shows that among the 200 respondents 89.5% of them would like to engage in any job or profession to become self-dependent as well as financially developed, earn social recognition and to develop their family. Most of the respondents were derived from educated family. Factors like family, friends, teacher, career counseling drive females to be self-dependent. 90.5% of the respondents said that being a self-dependent person they can make some positive changes in their society. They believe that teaching profession is the best one for them among others available job in the country. The study also shows that education background and income of the guardians of the respondents has strong correlation with job interest of female students. It's a matter of regret that majority of the respondents' motive of pursuing higher education is to get a good job. They inferred several problems regarding female education and work including lack of social support, much dependency on family, autocratic system in the family, male-dominated society, lake of cooperation in the workplace, sexual harassment, child marriage and dowry system, absence of quality work skills, communication gap, job insecurity etc. as shown by Teti et al., 1987; Greenhalgh and Rosenblatt, 1984. These shortcomings should be mitigated through taking necessary initiatives for improving female participation in labor-force. The result shows that female student have

positive outlook towards job or profession and they believe that they can make positive impact on society which support the statement of Mohammad et al., 2016.

Further research may be conducted from this issue. Important research would include a study on female perceptions, attitudes towards private or government profession.

References

1. Ali A. Women and employment. In M. Titumir (Eds.), *Institutions Matter: State of Women in Bangladesh* (2013a; 1st ed:83-112). Dhaka Bangladesh: Shrabon Prokashani.
2. Ali A. Women and employment. In M. Titumir (Eds.), *Institutions Matter: State of Women in Bangladesh* (2013b; 1st ed:83-112). Dhaka, Bangladesh: Shrabon Prokashani.
3. Amany MH. Factors affecting women career choice: comparison between civil engineering and other engineering disciplines , The Islamic University – Gaza, 2013.
4. BANBESI. *Bangladesh Education Statistics 2017*. Dhaka, Bangladesh: Ministry of Education.
5. Bangladesh Bureau of Statistics (BBS). *Population and Housing Census 2011*. Dhaka, Bangladesh: Ministry of Planning, 2011.
6. Bangladesh Bureau of Statistics (BBS). *Labour Force Survey (LFS) Bangladesh 2016-17*. Dhaka, Bangladesh: Ministry of Planning, 2018.
7. Difference between Job and Profession (n.d.). In *Differencebetween.info*. Retrieved from <http://www.differencebetween.info/difference-between-job-and-profession>
8. Greenhalgh L. Rosenblatt Z. Job insecurity: Toward Conceptual clarity. *The Academy of Management Review*. 1984;9(3):438-448. DOI: 10.5465/AMR.1984.4279673.
9. Jeanette M. Parents May Have Big Impact on Career Choices. 2010. "livescience.com. <https://www.livescience.com/9059-parents-big-impact-career-choices.html>
10. Kakkar A. WHY IS FINANCIAL INDEPENDENCE FOR WOMEN IMPORTANT?, 2018. [Blog post] Retrieved from: <https://www.jaagore.com/power-of-49/why-is-financial-independence-for-women-important>
11. Kalam I, Amin M. Trends of women's participation in economic activity of Bangladesh: Status and Disparity. *European Scientific Journal*, 2016, 12(35). <http://dx.doi.org/10.19044/esj.2016.v12n35p50>
12. Mahmud S. Is Bangladesh Experiencing a "Feminization" of the Labor Force? *The Bangladesh Development Studies*. 2003; 29 (1/2):1-37. Retrieved from <http://www.jstor.org/stable/40795670>
13. Moore K. Women's Access and Opportunity in Higher Education: Toward the Twenty-First Century. *Comparative Education*. 1987; 23(1):23-34. Retrieved from <http://www.jstor.org/stable/3099443>
14. Parvez S. (2018. March 8) Female graduates most unemployed. *The Daily Star*: Retrieved from <https://www.thedailystar.net/business/female-graduates-most-unemployed-1545148>
15. Profession. In *Business Dictionary online*. 2018. Retrieved from <http://www.businessdictionary.com/definition/profession.html>
16. Robbins S, Judge T. *Organizational Behavior* (15th ed). New Jersey: Prentice Hall, 2013, 70.
17. Teti DM, Lamb ME, Elster AB. Long-range socioeconomic and marital consequences of adolescent marriage in three cohorts of adult males. *Journal of Marriage and the Family*. 1987; 49(3):499-506. <http://dx.doi.org/10.2307/352195>
18. University Grants Commission (UGC) Bangladesh. 2017. *43th Annual Report 2016*. Dhaka, Bangladesh: Author.

Impact of Liberalization on Growth of Sugar Production and Instability in Sugarcane Cultivation in India

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ABSTRACT: *This paper attempts to measure the economic impact of Indian sugar sector under pre and post-liberalization period. Sugarcane is one of the most important commercial crops in India and it has the world's largest area of production among commercial crops. The main objectives of the study were to observe the trend and instability in area, production, productivity of sugarcane and trade in sugar in India. The results showed that trends in area and production is declining in post-liberalization as compared to pre-liberalization period and the Cuddy-Della Valle Index showed lesser instability was higher in trade when compared to production in the post liberalization period.*

Keywords: *Sugar sector, Sugarcane, Compound Growth Rate, Cuddy Della Valle Instability Index, Pre and Post-liberalization.*

1. Introduction

Sugarcane is one of the most important commercial crops in India both for its sugar and other by-products such as bagasse, molasses etc., It provides employment to over a 50 million peoples directly or indirectly besides contributing significantly to the exchequer. Sugarcane occupies a very prominent position on the agricultural map of India covering large areas in Sub-Tropics and Tropics. The Tropical regions comprising of Maharashtra, Karnataka, Gujarat, Tamil Nadu and the Sub-Tropical regions comprising of Uttar Pradesh, Punjab, Haryana and Bihar. With the economic liberalization took place in 1991, the import of sugar was freely allowed and exports were regulated to some extent while liberalization and reforms impacted sugar sector considerably.

India is presently a dominant player in the global sugar industry along with Brazil in terms of Area, Production and Productivity. In the year 2011, worldwide sugarcane occupied an area of 23.87 million hectare with a total production of 1711 million tonnes and the productivity of 71.66 tonnes/ha. Among the 123 countries producing sugar worldwide, 70 percentage of sugar is consumed domestically and the 30 percentage of sugar is traded in international market. Brazil occupied the highest area of 9.07 million hectare with a production of 717 million tonnes and productivity of 79 tonnes/ha. India ranked second next to Brazil in terms of area with 4.17 million hectare, producing 292.3 million tonnes with a productivity of 70 tonnes/ha. Brazil and India alone occupied two third of world sugarcane area in 2011.

In India area and production of sugarcane has been fluctuating due to pricing policy and climatic conditions. The Indian sugar market is one of the largest market in the world. Uttar Pradesh is the India's largest sugarcane states followed by Maharashtra. Compared to these two states the area and production of Tamil Nadu is low and the productivity is high. One of the problems that affect Sugarcane cultivation/yield in India is that in response to the decline in Sugar prices, quite a number of cane growers switched or diversified to other crops. Thus, there is a wide fluctuation for land committed to Sugarcane cultivation compared to in the past. The number of sugar factories in India during 2010-11 was 662 in India. The number of cooperative sectors operations in India was 252, public sector is 16 and private sector is 251 factories are functioned in India. Indian sugarcane performance is depicted in Figure 1.

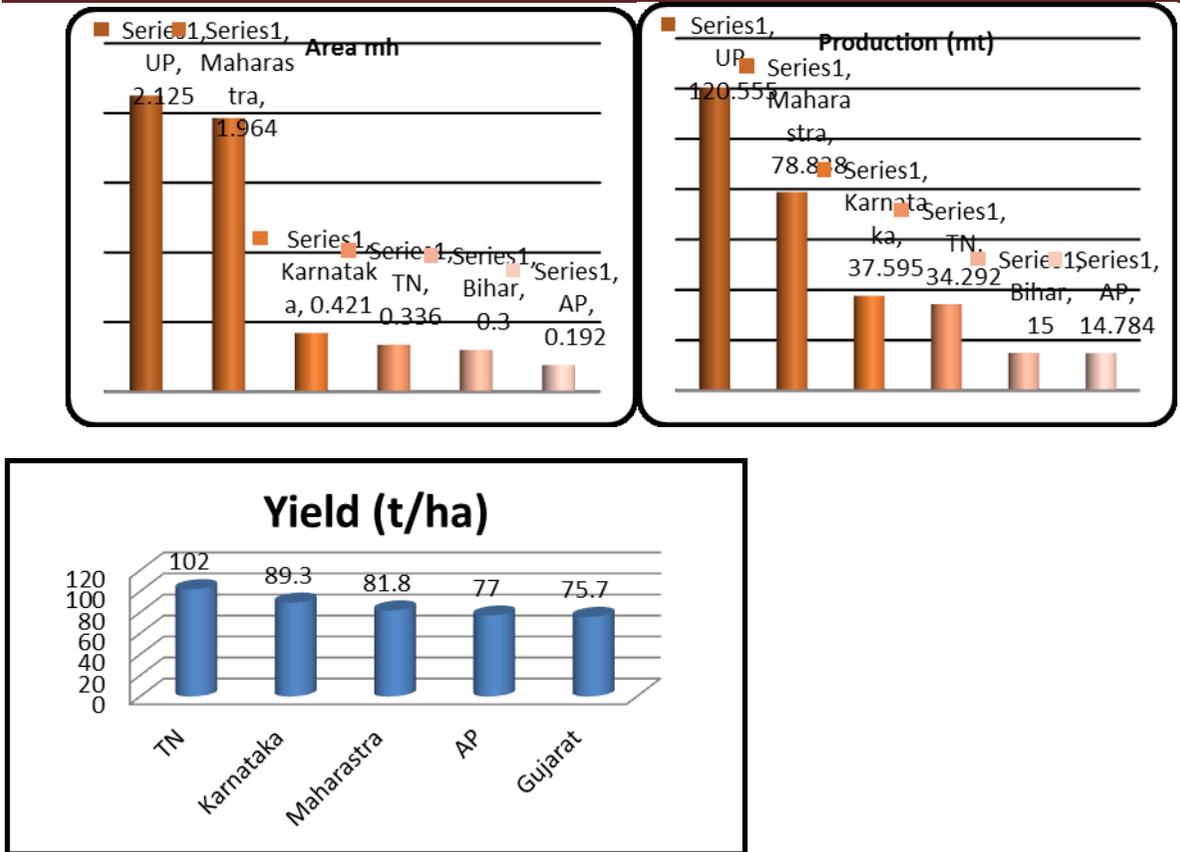


Fig 1: Sugarcane Scenario in India during 2010-11

Methodology

The present study is based on secondary data for 40 years period from 1970-2011. The entire period is subdivided into two phases as pre-liberalization period (1970-1991) and post-liberalization period is (1992-2011) and over-all period is 1970-2011. The data were collected from FAO STAT, Rome, Italy and Department of Economics and Statistics, Government of India, New Delhi. The trend and instability of area, production and trade in Indian sugarcane sector were analysed using the following tools.

Compound Growth Rate (CGR)

The Compound Growth Rate measures the annual growth of any variable over a period of time and it is expressed in percentage.

$Y_t = ab^t$

It is estimated by fitting a semi-log equation of the following form.

$\text{Log } Y_t = \text{Log } a + t \text{ log } b$

Where, Y= time series data of area, production and yield of sugarcane, t= number of years varies from the value 1,2,3...n, a= intercept or constant coefficient and b= regression coefficient.

The value of b is computed by using OLS method. Further the value of Compound Growth Rate was worked out as follows:

$\text{CGR} = (\text{antilog } b - 1) \times 100.$

Cuddy Della Valle Index (Instability index):

It is the index used to measure the instability in the time series data. Instability index is given by the following equation

$$I = CV \times \sqrt{1 - R^2}$$

Where, I= instability index, CV= coefficient of variation and R²=coefficient of determination.

The CV is calculated by using this formula: $CV = \frac{\sigma}{x}$

Where σ =Standard deviation and x =mean

Results and Discussion:

The trend in area, production and productivity of sugarcane is presented in the following Tables. Results revealed that the overall trend was a decline in these parameters during the post liberalisation period when compared to pre liberalization period.

Table 1. Compound Growth Rate of Area, Production and Productivity of Sugarcane (2010-11)

States	Area			Production			Yield		
	1970-1991	1992-2011	1970-2011	1970-1991	1992-2011	1970-2011	1970-1991	1992-2011	1970-2011
UP	1.46	0.69	1.21	30.92	0.59	11.84	-0.21	-0.10	0.44
Maharashtra	3.65	3.62	4.00	4.54	3.12	3.67	-0.10	1.49	0.19
Karnataka	4.25	0.29	3.14	4.58	3.12	3.55	0.39	-0.03	-1.73
TN	2.52	1.35	2.45	18.81	1.26	7.95	-1.21	0.15	-0.87
Bihar	-1.14	0.32	-0.21	-0.52	-0.22	0.51	4.70	-0.09	1.74
India	1.49	1.19	1.31	2.97	1.03	2.52	1.47	-0.16	0.89

More than 3- significant at 1 per cent level**, 2-3- significant at 5 per cent level*, <2-Non significant.

The results of analysis of the compound growth rate in area, production and productivity of sugarcane during the pre and post-liberalization periods are discussed. It may be observed from the Table 1 Compound Growth Rate of sugarcane area during pre-liberalization period (1970-91) revealed that India achieved 1.49 growth, while it was 1.19 percent during post liberalization (1992-2011). The decline in sugarcane area during post-liberalization was due to the diversification of land use pattern and cropping pattern.

The compound growth rate of sugarcane production in India during pre-liberalization period (1970-91) was 2.97 percent and it was 1.03 percent during post liberalization (1992-2011). The reasons for decline in sugarcane production were due to high cost of production and low prices of output. (Mohammad et al., 2010)

The Compound Growth Rate of sugarcane productivity during pre-liberalization period (1970-1991) was 1.47 percent and - 0.16 per cent during post liberalization (1992-2011). The negative growth in productivity was due to decline in soil fertility status, improper utilization of inputs and unfavourable climatic conditions. (Fasih et al., 2011)

Table 2.Compound Growth Rate of Sugar Trade of India

CGR-Export & Import		
Year	Import	Export
1971-80	-28.12	-45.11
1981-90	23.57	57.30
1991-00	94.64	-2.09
2001-10	135.43	5.22

More than 3- significant at 1 per cent level**

During 1971-80 both exports and imports of sugar recorded negative growth rates but started improving in 1981-90. After India started implementing economic reforms from 1991 onwards and being a member in the World Trade Organization (WTO) from 1995, sugar imports started flowing in to meet the domestic demand. The decline in sugarcane area, production and productivity further accelerated the sugar imports in the next decade also. Hence, due to economic liberalization, India started importing huge volume of sugar and thus export was lesser

Estimates of Cuddy Della Valle Index in area, production and productivity of Sugarcane of Pre, Post and Over-all period of India are presented in Table.

Table 3.Cuddy Della Valle Index of area, production and productivity of Sugarcane

States	Area			Production			Yield		
	1970-1991	1992-2011	1970-2011	1970-1991	1992-2011	1970-2011	1970-1991	1992-2011	1970-2011
UP	6.89	4.62	5.85	44.48	6.49	27.08	15.24	4.85	11.31
Maharashtra	11.32	26.54	28.48	14.98	30.67	30.90	16.3	10.36	13.66
Karnataka	11.78	20.15	22.28	12.23	26.84	29.37	5.46	10.23	8.76
TN	10.75	15.23	15.10	32.54	17.52	26.13	15.48	9.72	14.28
Bihar	6.42	34.04	25.24	19.10	42.23	35.23	13.07	4.06	14.28
India	6.85	8.00	7.85	8.82	10.50	11.13	4.00	4.41	6.28

More than 3- significant 1 per cent level***

In Table 3, the Cuddy Della Valle Index for pre liberalization (1970-1991) and post liberalization period (1992-2011) for instability in area, production and productivity revealed that instability was more in all these categories during the post liberalization period. The main reason attributed for the higher instability during post liberalization period was the crop diversification, high cost of production and vanishing comparative advantage for Indian sugar in the world market (Ramesh Chand, 2008).

Table 4. Cuddy Della Valle Index of Export and Import of Sugar

Year	Import	Export
1971-80	263.60	64.56
1981-90	311.42	140.58
1991-00	116.93	95.97
2001-10	111.86	128.19

More than 3- significant 1 per cent level***

During 2001-10 decades the import of sugar in over-all period is exceeding instability during the last decades (111.86).If the export of sugar has exceeding instability during last decades (128.19).Very high instability seen in export and import which is due to varying gap between demand and supply.

Conclusion

The findings of the study revealed that the trends in growth rate of area, production and productivity of sugarcane was low in post-liberalization when compared to pre-liberalization period.The Cuddy-Della Valle Index also indicated that instability was high in the post liberalization period for all the key variables when compared to pre liberalization period. Similarly, the increasing trend in growth of sugar imports and instability of sugar trade emphasized that Indian sugar sector should be addressed with suitable policy initiatives from all dimension starting from crop production to ultimate trade.

References

1. Fasih et.al. Estimating growth rates and decomposition analysis of agriculture production in Pakistan: Pre and Post SAP analysis, Sarhad J. Agric. 2011; 27:1.
2. Mohammad et.al. Estimation of Growth Rates and Analysis of its Components in the Gezira Scheme, Research Journal of Agriculture and Biological Sciences. 2010; 6(6):885-890.
3. Ramesh Chand, SS Raju. Instability in Andhra Pradesh Agriculture - A Disaggregate Analysis, Agricultural Economics Research Review. 2008; 21:283-288.

Assessment of Market Efficiency: A Case of Major Stock Indices of Emerging Asian Countries in Pre-Recessionary and Post Recessionary Phase

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ABSTRACT: Investors stock trading decision is based on the past price information. An investor predicts the price movement based on the historical data using some forecasting techniques. But many researchers argue that forecasting is not possible because the stock price movement is completely random in nature. However, the other school of thought says, we can forecast the stock return based on the technical analysis and fundamental analysis. They also say that prediction is possible for any stock or index provided the stock or index does not confirm to the efficient market hypotheses. As the strong form of efficiency is not practically possible, we need to check the semi strong and weak form of efficiency. This study is intended to examine empirically the efficiency of the market for the major stock indices of emerging Asian countries. The study will be undertaken in two different periods: pre-recessionary period (1998 to 2008) and post recessionary period (1999 to 2018) using Run Test and Residual Test to indicate if efficiency of the market has shown significant improvement in the post recessionary period. The proposed study is expected to show significant improvement in the informational efficiency of these stock indices in the post recessionary phase.

Keywords: Informational efficiency, run test, residual test, Asian stock market.

1. Introduction

Fama (1970) developed three broad categories of informational efficiency based on the information sets available to the players in the stock market. Those are weak-form, semi-strong-form and strong-form of market under the EMH. The weak-form hypothesis shows all information about market. This includes past price history with trading volume which are publicly available and fully reflected in the current stock prices. It means, future price prediction by trend analysis is not of any use. The public is supposed to encash all the publicly available company information as these past stock price data are almost costless to obtain because these are published in newspaper and internet, everyone can use them. Thus, trend calculation is meaningless.

The semi-strong form hypothesis is based on the company and industry fundamentals in addition to the past price data. The company and industry fundamentals like the profit loss statement, Balance-sheet statement and the cash flow statement, copy rights of the firm, product line and product mix, forecasted income, accounting practices followed by the company, etc., which are the core fundamentals of the company are accessible to the public. It is also expected that these would be reflected in the stock prices.

The strong-form hypothesis is the extreme version of efficient market hypothesis which is expected to reflect the insiders' information that is not available with public along with all other information applicable for the semi-strong form of Market. The logic behind this form of market is that some of the employees of the corporate have access to very sensitive information before they are made public. By exploiting these insiders' information in the stock trading activities, the investors can earn huge profit. The Security Exchange Commission Act, 1934 defines insiders of any corporate may be associated as corporate officers, directors, substantial owners or their relatives who know the in & out of the corporate and are the key persons in the decision-making process for the company. Like The Security Exchange Commission Act, 1934, The Security Exchange Board of India Act, 1992 has prohibited the insiders' trading in stock market of India too.

Review of Literature

Fama (1970) tested the three forms of market efficiency with empirical evidence. In his study, most attention was given to the weak-form of market efficiency with relatively less focus on the two other form of market efficiency, i.e., semi-strong-form and strong-form EMH. Using the tests of serial correlation tests and technical trading rules, he found that the stock markets are with weak form of efficiency. His result was very much in line with the previous empirical studies conducted prior to 1970.

After two decades, Fama (1991) conducted a second review of the literatures on market efficiency and here, he expanded his test of weak-form EMH to test the return predictability using other variables such as the dividend-price ratio, earnings-price ratio, book-to-market ratio and various measures of the interest rates. He renamed the tests for the semi-strong-form as "event studies" and strong-form EMH as "tests for private information". Based on the information of past return, dividend yields and a few term structure variables, with a good number of evidences, he concluded that the return prediction is possible. At the same time, he argued on the possibility of return prediction and commented that his verdicts might be invalid.

Yen and Lee (2008) surveyed and chronologically reviewed the empirical evidence of the EMH from 1951 to 2002 which clearly confirmed that for EMH, 1960s was the golden era when it was strongly acknowledged by the researchers of behavioral finance. But in the 1990s, the EMH no longer enjoys the level of strong backing as it faced persistent criticism from the school of behavioral finance. Even, Fama (1998) studied the events like dividend declaration on the shares, quarterly result of the companies, Bonus share issue, stock split, news on merger and take-overs, etc. to make an empirical report on the association of long-term stock return and reaction to the information based on events. He made a broad review of the papers, those report the anomalies of the stock return/profitability in long-run to the informational efficiency.

Similarly, Malkiel (2003) verified the predictability of the stock prices in short-run and long-run. He concluded that in the short-run, inefficiency exists in the stock market in both Semi-strong form and in the Strong form. Where as in the long-run the inefficiency is temporary and as the periodicity of the data increases the market gets the efficiency in the semi-strong form. As uncovering the unpublished information does not reward the insiders, the strong form of efficiency is not possible to achieve. In a similar study Schwert (2003) examined the research papers claiming the existence of market anomalies in the form of size effect, value effect, dividend yield effect, momentum effect, inflation effect and the weekend effect. He scrutinized those studies and found that post-documentation of those research reports, the evidence of size effect, value effect, dividend yield effect, momentum effect, inflation effect and the weekend effect, which were once statistically significant in providing predictable patterns in stock returns, now disappears.

Malkiel et al. (2005) specified that the two school of thoughts, ie., behavioural finance and the EMH completely different from each other. Behaviouralists claim that markets are always predictable and have some sort of inefficiency. They argue that most of the small investors lose money because of their "overconfidence" and the nature of "loss aversion". These are not the elements or the variables in the EMH. According to the school of behavioural finance, the rational investor rectify the irrational behaviour of the small day traders who shows over-confidence and loss aversion. For these irrational behaviour the small investors lose money and the rational or the professional investors book profit. The EMH school says that neither an individual investor nor an institutional investor like mutual fund can outperform the market and so paying fee for active fund management is a wastage of money.

Hamid, et.al. (2017) made an empirical study of the stock indices of 14 countries of Asia to test the presence of weak form of market efficiency. They have studied the national indices of Pakistan, India, Sri Lanka, China, Korea, Hong Kong, Indonesia, Malaysia, Philippine, Singapore, Thailand, Taiwan, Japan and Australia. Out of these 14 countries, they found nine countries with higher volatility and remained volatile for the studied period of 2004 to 2009. These are Pakistan, India, China, Sri Lanka, Hong Kong, Indonesia, Korea, Thailand and Taiwan. But ultimately, they found the stock index prices of all these 14 countries do not follow a random walk movement. Running the auto-correlation, Ljung-Box Q-statistic Test, Runs Test, Unit Root Test and the Variance Ratio test on the monthly stock indices data, they concluded that, none of these countries stock index is efficient at weak form of efficiency.

Shawn et al., (2012), tested the characteristics of the return of Mongolian equity market whether fitting to normal distribution. They used Jarque-Bera Test, Liung-Box Q test, Runs test, Auto-correlation test, the Augmented Dickey-Fuller Test and the Chow-Denning Multiple Variance Ratio (MVR) Test for equity return data over a period from January 1999 to July 2012. In their empirical analysis, they found the return from the Mongolian equity market is not normally distributed for the studied period as it has a positive skewness and has excess kurtosis too. After running all these tests, with necessary adjustment for heteroscedasticity in the MVR test, they found the return of the market did not follow a random walk hypothesis.

Nisar & Hanif (2012) have applied run tests and variance ratio test to check whether the weak form of efficiency is present in the stock markets of Asia-Pacific. They analysed the monthly, weekly and daily closing values of stock indices of Nikkei N225 (Japan), Shanghai Composite (China), Kospi Composite (Korea), Hang Seng Index HIS (Hong Kong), All Ordinaries ASX (Australia), KSE-100 (Pakistan) and BSE SENEX (India) from July 1997 to June 2011. They found weak form of market efficiency in Nikkei N225,

Kospi Composite, Hang Seng Index HIS and All Ordinaries ASX stock exchanges. The rest of the three from these seven indices do not follow a random walk.

Worthington & Higgs (2005) tested the weak form of market efficiency by studying the developed stock markets of Australia, Hong Kong, Japan, New Zealand and Singapore. They compared the market efficiency in the emerging stock markets of China, India, Indonesia, Korea, Malaysia, Pakistan, the Philippines, Sri Lanka, Taiwan and Thailand. The monthly closing value of these indices were taken into consideration from a period December 1987 to May 2003. Using serial correlation and runs tests, they found all the stock indices, irrespective of their status, whether developed or emerging stock exchanges, are inefficient. Using the variance ratio for testing whether the markets follow a random walk, they found not a single stock exchange in the group of emerging stock exchanges satisfies the test to tell that it follows a random walk. But only Hong Kong, New Zealand and Japan amongst the five developed stock markets, are consistent with the criteria of random walk.

Using multiple variance ratio and auto-regressive fractionally integrated moving-average tests on the monthly closing values of US-dollar-based national equity indices for the period of 1987-1997, Ojah & Karemera (1999) found that the equity prices of the stock markets in Argentina, Brazil, Chile and Mexico confirm the presence of random walk criteria and weak efficient form of market. In these markets, predicting the price movement and the profitability there after based on the historical price information of the indices and the equities is a remote possibility. Thus, they concluded that the past returns does not impact the future returns.

Xin et. al., investigated the existence of random walk condition and the market efficiency in the Chinese Metal futures market during 1999 - 2004. Especially, they examined whether the change in daily prices of the copper and aluminium commodity futures were dependent on the change in monthly prices of the same for the said period in Shanghai’s Futures Exchange of China. Using the Unit root test and Variance ratio test, they concluded that the daily price changes in the futures of copper and aluminium are independent of the changes in the monthly price changes in the two commodity futures. They found the absence of weak form of efficiency in the two metal commodity futures in Shanghai’s commodity exchange.

Objectives of the Study

1. The present study is to check the predictability of the emerging stock indices in the Asian market in their weak form of efficiency.
2. To study the change in efficiency in the post-recession period over the pre-recessionary phase.

Development of Hypothesis

H0₁ :Returns of the indices are random.

It means that all the markets in our study are efficient at weak form of efficiency.

H0₂ : There is no change in the market efficiency in the post recessionary phase over the pre recessionary phase.

Research Methodology

a) Research Design

The present study is a descriptive research intended to examine empirically the efficiency of the market for the major stock indices of the emerging Asian countries in pre and post recessionary phase.

b) Sample size

We have tested ten indices which belong to the major stock indices of the Asian stock market.

Each index has got a different data point based on the date of inception of the stock market. The indices of the respective stock market with the country name and the study period are mentioned in the following table:

Country	Stock market	Index	No. of data point	Study period
India	Bombay Stock Exchange	Sensex (BSE Sensex)	5,008	1998 to 2018
Hong Kong	Hong Kong & China	Hang Seng Index (HSI)	11,921	1969 to 2018
Indonesia	Jakarta Stock Exchange	Jakarta Composite Index (JCI)	8,276	1983 to 2018

Malaysia	Malaysia Stock Exchange	FTSE Kuala Lumpur Composite index (KLCI)	10,134	1977 to 2018
South Korea	South Korea Stock Market	Korea Composite Stock Price Index (KOSPI)	10,292	1980 to 2018
Japan	Tokyo Stock Market	NEKKEI	18,128	1914 to 2018
Philippine	Philippine Stock Exchange	Philippine Stock Exchange Index (PSEi)	8,076	1986 to 2018
Thailand	Stock Exchange of Thailand	Stock Exchange of Thailand (SET)	7,525	1987 to 2018
Singapore	Singapore Exchange Limited	Straits Times Index (STI), Singapore	7,551	1987 to 2018
China	Shanghai Stock Exchange	Shanghai Stock Exchange (SSE) Composite Index	6,665	1990 to 2018

c) Data Sources

To conduct the study, historical indices closing price data has been collected from yahoo finance.com which is a secondary source of data collection.

We segregated the closing index prices from 1st October 2008 onwards as the post recessionary phase for the purpose of the study.

d) Statistical Methods

To confirm the form of market efficiency, Runs test and Residual test (Durbin Watson Test) has been conducted on all stock indices.

Runs Test is used to check the randomness of occurrence of a series of data which is non-parametric test in statistics. Randomness means unpredictability. Thus, if the series of data doesn't confirm randomness, the future value of the series of data can be predicted from the past data.

Durbin Watson Test (Residual Test) – checks the pattern of the residuals whether they are serially correlated. For this purpose, we plot the standardized predicted values of the data against the standardized regression residuals and fit them in a scatter graph. It can be then verified whether the series of coordinates appear randomly, or they follow any pattern.

Data collected has been analysed with the help of SPSS software.

Run Test Using Median

Indices	Test Value ^a	Cases < Test Value	Cases >= Test Value	Total Cases	Number of Runs	Z	Asymp. Sig. (2-tailed)
Pre_Recession_BSE Sensex	.00	1338	1339	2677	1249	-3.499	.000
Post_Recession_BSE Sensex	.0006	1165	1166	2331	1126	-1.678	.093
Pre_Recession_Hang_Seng_Index_Hong Kong	.00	4789	4789	9578	4546	-4.987	.000
Post_Recession_Hang_Seng_Index_Hong Kong	.00	1171	1172	2343	1179	.269	.788
Pre_Recession_Jakarta_Composite_Index_Indonesia	.00	2982	2982	5964	2464	-13.442	.000
Post_Recession_Jakarta_Composite_Index_Indonesia	.00	1156	1156	2312	1160	.125	.901
Pre_Recession_KLCI_Malaysia	.00	3901	3901	7802	3405	-11.254	.000
Post_Recession_KLCI_Malaysia	.00	1166	1166	2332	1096	-2.941	.003
Pre_Recession_KOSPI_Korea	.00	3969	3970	7939	3644	-7.329	.000
Post_Recession_KOSPI_Korea	.00	1176	1177	2353	1188	.433	.665
Pre_Recession_NEKKEI_Index_Japan	.00	7901	7901	1580	7447	-7.239	.000

				2			
Post_Recession_NEKKEI_Index_Japan	.00	1163	1163	2326	1197	1.369	.171
Pre_Recession_PSEi_Index_Philippines	0.00	2743	3007	5750	2416	- 11.999	.000
Post_Recession_PSEi_Index_Philippines	.00	1163	1163	2326	1090	-3.069	.002
Pre_Recession_SET_Thailand	.00	2602	2603	5205	2366	-6.585	.000
Post_Recession_SET_Thailand	.00	1160	1160	2320	1142	-.789	.430
Pre_Recession_STI_Singapore	.00	2586	2586	5172	2449	-3.838	.000
Post_Recession_STI_Singapore	.00	1189	1190	2379	1179	-.472	.637
Pre_Recession_SSE_Shanghai_China	.00	2177	2178	4355	2040	-4.198	.000
Post_Recession_SSE_Shanghai_China	.00	1155	1155	2310	1122	-1.415	.157

* Run Test using Median

From the above table it can be seen that, in the pre-recessionary phase all the indices are predictable at 5% level of significance using median as the test value. As the p-value is less than 0.05 for the test statistic, it confirms the non-acceptance of the null hypothesis (said that the indices return are random). When randomness is not confirmed, prediction is possible.

In the post recessionary phase, it was found that only two indices viz. KLCI Malaysia and PSEi Philippines are not confirming randomness in the return data. Thus, return can be predicted using the technical analysis in both of these indices. If we look at the development in these financial market in terms of informational efficiency, we found eight out of ten indices have confirmed to randomness in the post recessionary phase.

Run Test Using Mean

Indices	Test Value a	Cases < Test Value	Cases >= Test Value	Total Cases	Number of Runs	Z	Asymp. Sig. (2-tailed)
Pre_Recession_BSE Sensex	.0005	1276	1401	2677	1233	-4.013	.000
Post_Recession_BSE Sensex	.0004	1149	1182	2331	1114	-2.166	.030
Pre_Recession_Hang_Seng_Index_Hong Kong	.0005	4738	4840	9578	4540	-5.099	.000
Post_Recession_Hang_Seng_Index_Hong Kong	.0002	1147	1196	2343	1171	-.041	.967
Pre_Recession_Jakarta_Composite_Index_Indonesia	.0005	3060	2904	5964	2460	- 13.502	.000
Post_Recession_Jakarta_Composite_Index_Indonesia	.0005	1091	1221	2312	1150	-.140	.889
Pre_Recession_KLCI_Malaysia	.0003	3813	3989	7802	3389	- 11.577	.000
Post_Recession_KLCI_Malaysia	.0003	1149	1183	2332	1092	-3.097	.002
Pre_Recession_KOSPI_Korea	.0003	4017	3922	7939	3626	-7.722	.000
Post_Recession_KOSPI_Korea	.0002	1148	1205	2353	1178	.049	.961
Pre_Recession_NEKKEI_Index_Japan	.0004	7781	8021	1580 2	7439	-7.339	.000
Post_Recession_NEKKEI_Index_Japan	.0003	1124	1202	2326	1187	1.009	.313
Pre_Recession_PSEi_Index_Philippines	.0005	3002	2748	5750	2454	- 11.005	.000
Post_Recession_PSEi_Index_Philippines	.0005	1135	1191	2326	1082	-3.375	.001
Pre_Recession_SET_Thailand	.0001	2596	2609	5205	2362	-6.695	.000
Post_Recession_SET_Thailand	.0005	1109	1211	2320	1134	-1.030	.303
Pre_Recession_STI_Singapore	.0002	2573	2599	5172	2443	-4.003	.000
Post_Recession_STI_Singapore	.0002	1179	1200	2379	1179	-.468	.640
Pre_Recession_SSE_Shanghai_China	.0007	2184	2171	4355	2038	-4.258	.000
Post_Recession_SSE_Shanghai_China	.0001	1079	1231	2310	1162	.460	.646

* Run Test using Mean

From the above table it can be observed that, in the pre-recessionary phase all the indices are predictable at 5% level of significance using mean as the test value. As the p-value is less than 0.05 for the test statistic, it confirms the non-acceptance of the null hypothesis (said that the indices return are random). When randomness is not confirmed, prediction is possible.

Whereas in the post recessionary phase using mean as the test value, only three indices viz. BSE Sensex, KLCI Malaysia and PSEi Philippines did not confirm randomness in the return data. Thus, in terms of informational efficiency, we found seven out of ten indices have confirmed to randomness in the post recessionary phase where mean was used as the test value.

Run Test Using Custom Value (User Specified Value)

Indices	Test Value ^a	Total Cases	Number of Runs	Z	Asymp. Sig. (2-tailed)
Pre_Recession_BSE Sensex	0.0000	2677	1223	-4.186	.000
Post_Recession_BSE Sensex	0.0000	2331	1106	-2.399	.016
Pre_Recession_Hang_Seng_Index_Hong Kong	0.0000	9578	4530	-5.132	.000
Post_Recession_Hang_Seng_Index_Hong Kong	0.0000	2343	1165	-.244	.808
Pre_Recession_Jakarta_Composite_Index_Indonesia	0.0000	5964	2474	-12.949	.000
Post_Recession_Jakarta_Composite_Index_Indonesia	0.0000	2312	1122	-.877	.380
Pre_Recession_KLCI_Malaysia	0.0000	7802	3355	-12.163	.000
Post_Recession_KLCI_Malaysia	0.0000	2332	1078	-3.486	.000
Pre_Recession_KOSPI_Korea	0.0000	7939	3640	-7.372	.000
Post_Recession_KOSPI_Korea	0.0000	2353	1172	-.111	.911
Pre_Recession_NEKKEI_Index_Japan	0.0000	15802	7404	-7.507	.000
Post_Recession_NEKKEI_Index_Japan	0.0000	2326	1183	.942	.346
Pre_Recession_PSEi_Index_Philippines	0.0000	5750	2416	-11.999	.000
Post_Recession_PSEi_Index_Philippines	0.0000	2326	1068	-3.703	.000
Pre_Recession_SET_Thailand	0.0000	5205	2362	-6.685	.000
Post_Recession_SET_Thailand	0.0000	2320	1114	-1.409	.159
Pre_Recession_STI_Singapore	0.0000	5172	2447	-3.845	.000
Post_Recession_STI_Singapore	0.0000	2379	1183	-.274	.784
Pre_Recession_SSE_Shanghai_China	0.0000	4355	2046	-3.835	.000
Post_Recession_SSE_Shanghai_China	0.0000	2310	1160	.455	.649

* Run Test using Custom Value (User Specified Value)

From the above table it can be observed that, in the pre-recessionary phase all the indices are predictable at 5% level of significance using zero as the test value (as market is a zero sum game). As the p-value is less than 0.05 for the test statistic, it confirms the non-acceptance of the null hypothesis (said that the indices return are random). When randomness is not confirmed, prediction is possible.

In the post recessionary phase, it was found that three indices viz. BSE Sensex, KLCI Malaysia and PSEi Philippines are not confirming randomness in the return data. Thus, return can be predicted for these three markets. Thus, in terms of informational efficiency, we found seven out of ten indices have confirmed to randomness in the post recessionary phase where zero was used as the user specified value.

Descriptive Statistics

	N	Mean	Std. Deviation	Minimum	Maximum
Pre_Recession_BSE_Sensex	2677	.0005	.01685	-.12	.08
Post_Recession_BSE_Sensex	2331	.0004	.01317	-.12	.16
Pre_Recession_Hang_Seng_Index_Hong Kong	9578	.0005	.01915	-.41	.18
Post_Recession_Hang_Seng_Index_Hong Kong	2343	.0002	.01488	-.14	.13
Pre_Recession_Jakarta_Composite_Index_Indonesia	5964	.0005	.01640	-.23	.40

Post_Recession_Jakarta_Composite_Index_Indonesia	2312	.0005	.01271	-.11	.07
Pre_Recession_KLCI_Malaysia	7802	.0003	.01462	-.24	.21
Post_Recession_KLCI_Malaysia	2332	.0003	.00635	-.04	.04
Pre_Recession_KOSPI_Korea	7939	.0003	.01544	-.13	.10
Post_Recession_KOSPI_Korea	2353	.0002	.01215	-.11	.11
Pre_Recession_NEKKEI_Index_Japan	15802	.0004	.02018	-.80	.94
Post_Recession_NEKKEI_Index_Japan	2326	.0003	.01602	-.12	.13
Pre_Recession_PSEi_Index_Philippines	5750	.0005	.01737	-.16	.16
Post_Recession_PSEi_Index_Philippines	2326	.0005	.01198	-.13	.07
Pre_Recession_SET_Thailand	5205	.0001	.01750	-.17	.11
Post_Recession_SET_Thailand	2320	.0005	.01201	-.11	.08
Pre_Recession_STI_Singapore	5172	.0002	.01264	-.11	.13
Post_Recession_STI_Singapore	2379	.0002	.01059	-.09	.08
Pre_Recession_SSE_Shanghai_China	4355	.0007	.02643	-.18	.72
Post_Recession_SSE_Shanghai_China	2310	.0001	.01511	-.09	.07

The above table shows the descriptive statistics for all the ten stock indices selected for the purpose of study.

Model Summary for Pre-Recessionary Phase (Durbin Watson Test)

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
BSE Sensex	.071 ^a	.005	.003	.01683	2.003
HSI Hong Kong	.090 ^a	.008	.008	.01908	2.000
JCI Indonesia	.258 ^a	.067	.066	.01586	2.001
KLCI Malaysia	.122 ^a	.015	.014	.01452	1.996
KOSPI South Korea	.115 ^a	.013	.013	.01534	2.001
NEKKEI Japan	.191 ^a	.036	.036	.01980	1.978
PSEi Philippine	.168 ^a	.028	.027	.01714	2.000
SET Thailand	.125 ^a	.016	.015	.01736	2.001
STI Singapore	.110 ^a	.012	.011	.01254	2.001
SSE China	.083 ^a	.007	.006	.02632	1.999

a. Predictor Variable

Model Summary for Post Recessionary Phase (Durbin Watson Test)

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
BSE Sensex	.104 ^a	.011	.009	.01302	1.999
HSI Hong Kong	.076 ^a	.006	.004	.01470	1.979
JCI Indonesia	.139 ^a	.019	.017	.01214	1.981
KLCI Malaysia	.148 ^a	.022	.020	.00626	1.985
KOSPI South Korea	.072 ^a	.005	.003	.01204	1.998
NEKKEI Japan	.070 ^a	.005	.003	.01596	1.994
PSEi Philippine	.159 ^a	.025	.023	.01177	2.001
SET Thailand	.075 ^a	.006	.003	.01188	2.005
STI Singapore	.088 ^a	.008	.006	.01040	1.977
SSE China	.072 ^a	.005	.003	.01508	1.997

a. Predictor Variable

In the pre-recessionary phase, the Durbin Watson Statistic for all the ten indices are very close to two. This signifies that the regression residuals are not correlated among themselves with different time lags.

In the post recessionary phase, we have seen a similar result where the Durbin Watson Statistic is also very close to two.

ANOVA Table for Pre-Recessionary Phase

Model		Sum of Squares	df	Mean Square	F	Sig.
BSE Sensex	Regression	.004	5	.001	2.676	.020 ^b
	Residual	.755	2666	.000		
	Total	.759	2671			
HSI Hong Kong	Regression	.028	5	.006	15.473	.000 ^b
	Residual	3.481	9567	.000		
	Total	3.509	9572			
JCI Indonesia	Regression	.107	5	.021	84.928	.000 ^b
	Residual	1.497	5953	.000		
	Total	1.603	5958			
KLCI Malaysia	Regression	.025	5	.005	23.445	.000 ^b
	Residual	1.642	7791	.000		
	Total	1.667	7796			
KOSPI South Korea	Regression	.025	5	.005	21.373	.000 ^b
	Residual	1.867	7928	.000		
	Total	1.892	7933			
NEKKEI Japan	Regression	.234	5	.047	119.120	.000 ^b
	Residual	6.192	15791	.000		
	Total	6.426	15796			
PSEi Philippine	Regression	.049	5	.010	33.282	.000 ^b
	Residual	1.686	5739	.000		
	Total	1.735	5744			
SET Thailand	Regression	.025	5	.005	16.379	.000 ^b
	Residual	1.566	5194	.000		
	Total	1.590	5199			
STI Singapore	Regression	.010	5	.002	12.696	.000 ^b
	Residual	.812	5161	.000		
	Total	.822	5166			
SSE China	Regression	.021	5	.004	6.072	.000 ^b
	Residual	3.010	4344	.001		
	Total	3.031	4349			

a. Predictor Variables

ANOVA Table for Post Recessionary Phase

Model		Sum of Squares	df	Mean Square	F	Sig.
BSE Sensex	Regression	.004	5	.001	5.100	.000 ^b
	Residual	.393	2320	.000		
	Total	.397	2325			
HSI Hong Kong	Regression	.003	5	.001	2.717	.019 ^b
	Residual	.504	2332	.000		
	Total	.507	2337			
JCI Indonesia	Regression	.007	5	.001	9.088	.000 ^b
	Residual	.339	2301	.000		
	Total	.346	2306			
KLCI Malaysia	Regression	.002	5	.000	10.461	.000 ^b
	Residual	.091	2321	.000		
	Total	.093	2326			

KOSPI South Korea	Regression	.002	5	.000	2.456	.031 ^b
	Residual	.339	2342	.000		
	Total	.341	2347			
NEKKEI Japan Post	Regression	.003	5	.001	2.268	.045 ^b
	Residual	.590	2315	.000		
	Total	.593	2320			
PSEi Philippine	Regression	.008	5	.002	12.002	.000 ^b
	Residual	.320	2315	.000		
	Total	.329	2320			
SET Thailand	Regression	.002	5	.000	2.625	.022 ^b
	Residual	.326	2309	.000		
	Total	.328	2314			
STI Singapore	Regression	.002	5	.000	3.678	.003 ^b
	Residual	.256	2368	.000		
	Total	.258	2373			
SSE China	Regression	.003	5	.001	2.393	.036 ^b
	Residual	.524	2304	.000		
	Total	.527	2309			

a. Predictor Variables

The ANOVA test confirms that one of the average from the variables Rt (Return for time period t), Rt-1 (Return with one time lag), Rt-2 (Return with two time lag), Rt-3 (Return with three time lag), Rt-3 (Return with three time lag), Rt-4 (Return with four time lag) and Rt-5 (Return with five time lag) is not matching to the overall average in both pre and post recessionary phase for all the indices.

Coefficients for Pre-Recessionary Phase

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.	
	B	Std. Error	Beta			
BSE Sensex	(Constant)	.000	.000		1.435	.151
	Pre_BSE_Rt1	.054	.019	.054	2.767	.006
	Pre_BSE_Rt2	-.019	.019	-.019	-.973	.330
	Pre_BSE_Rt3	-.003	.019	-.003	-.142	.887
	Pre_BSE_Rt4	.026	.019	.025	1.315	.189
	Pre_BSE_Rt5	-.038	.019	-.038	-1.938	.053
HSI Hong Kong	(Constant)	.000	.000		2.307	.021
	Pre_HSI_Rt1	.060	.010	.060	5.870	.000
	Pre_HSI_Rt2	-.022	.010	-.022	-2.139	.032
	Pre_HSI_Rt3	.061	.010	.061	6.010	.000
	Pre_HSI_Rt4	.012	.010	.012	1.203	.229
	Pre_HSI_Rt5	-.016	.010	-.016	-1.521	.128
JCI Indonesia	(Constant)	.000	.000		1.878	.060
	Pre_JCI_Rt1	.246	.013	.246	18.994	.000
	Pre_JCI_Rt2	.030	.013	.030	2.267	.023
	Pre_JCI_Rt3	-.030	.013	-.030	-2.279	.023
	Pre_JCI_Rt4	-.028	.013	-.028	-2.134	.033
	Pre_JCI_Rt5	-.015	.013	-.015	-1.177	.239
KLCI Malaysia	(Constant)	.000	.000		1.579	.114
	Pre_KLCI_Rt1	.095	.011	.095	8.434	.000
	Pre_KLCI_Rt2	.019	.011	.019	1.684	.092

	Pre_KLCI_Rt3	.029	.011	.029	2.557	.011
	Pre_KLCI_Rt4	-.048	.011	-.048	-4.230	.000
	Pre_KLCI_Rt5	.054	.011	.054	4.755	.000
KOSPI South Korea	(Constant)	.000	.000		1.871	.061
	Pre_KOSPI_Rt1	.101	.011	.101	8.954	.000
	Pre_KOSPI_Rt2	-.057	.011	-.057	-5.019	.000
	Pre_KOSPI_Rt3	.015	.011	.015	1.316	.188
	Pre_KOSPI_Rt4	-.008	.011	-.008	-.701	.484
	Pre_KOSPI_Rt5	-.032	.011	-.032	-2.819	.005
NEKKEI Japan	(Constant)	.000	.000		2.516	.012
	Pre_NEKKEI_Rt1	-.151	.008	-.151	-19.013	.000
	Pre_NEKKEI_Rt2	.040	.008	.040	5.022	.000
	Pre_NEKKEI_Rt3	.071	.008	.071	8.866	.000
	Pre_NEKKEI_Rt4	.077	.008	.077	9.630	.000
	Pre_NEKKEI_Rt5	-.044	.008	-.044	-5.525	.000
PSEi Philippine	(Constant)	.000	.000		1.933	.053
	Pre_PSEi_Rt1	.164	.013	.164	12.417	.000
	Pre_PSEi_Rt2	-.022	.013	-.022	-1.681	.093
	Pre_PSEi_Rt3	-.011	.013	-.011	-.793	.428
	Pre_PSEi_Rt4	.046	.013	.046	3.412	.001
	Pre_PSEi_Rt5	-.027	.013	-.027	-2.062	.039
SET Thailand	(Constant)	9.572E-05	.000		.398	.691
	Pre_SET_Rt1	.112	.014	.112	8.088	.000
	Pre_SET_Rt2	.026	.014	.026	1.861	.063
	Pre_SET_Rt3	.013	.014	.013	.948	.343
	Pre_SET_Rt4	.029	.014	.029	2.072	.038
	Pre_SET_Rt5	-.020	.014	-.020	-1.419	.156
STI Singapore	(Constant)	.000	.000		.951	.341
	Pre_STI_Rt1	.107	.014	.107	7.704	.000
	Pre_STI_Rt2	.004	.014	.004	.258	.796
	Pre_STI_Rt3	.002	.014	.002	.162	.872
	Pre_STI_Rt4	.010	.014	.010	.727	.467
	Pre_STI_Rt5	-.022	.014	-.023	-1.619	.106
SSE China	(Constant)	.001	.000		1.384	.166
	Pre_SSE_Rt1	.045	.015	.045	2.995	.003
	Pre_SSE_Rt2	.035	.015	.035	2.279	.023
	Pre_SSE_Rt3	.038	.015	.038	2.510	.012
	Pre_SSE_Rt4	.024	.015	.024	1.576	.115
	Pre_SSE_Rt5	.025	.015	.025	1.680	.093

Coefficients for Post-Recessionary Phase

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	.000	.000		1.733	.083
Post_BSE_Rt1	.080	.021	.080	3.874	.000
Post_BSE_Rt2	-.060	.021	-.060	-2.876	.004
Post_BSE_Rt3	-.004	.021	-.004	-.186	.853
Post_BSE_Rt4	-.039	.021	-.039	-1.872	.061

	Post_BSE_Rt5	-.005	.021	-.005	-.240	.811
	(Constant)	.000	.000		.946	.344
HSI Hong Kong	Post_HSI_Rt1	-.007	.021	-.007	-.346	.729
	Post_HSI_Rt2	.023	.021	.023	1.130	.259
	Post_HSI_Rt3	-.027	.020	-.027	-1.313	.189
	Post_HSI_Rt4	-.067	.020	-.067	-3.261	.001
	Post_HSI_Rt5	.003	.020	.003	.168	.867
		(Constant)	.001	.000		2.338
JCI Indonesia	Post_JCI_Rt1	.086	.021	.086	4.125	.000
	Post_JCI_Rt2	.029	.021	.030	1.413	.158
	Post_JCI_Rt3	-.093	.020	-.095	-4.568	.000
	Post_JCI_Rt4	-.034	.020	-.035	-1.685	.092
	Post_JCI_Rt5	.012	.020	.013	.616	.538
		(Constant)	.000	.000		1.922
KLCI Malaysia	Post_KLCI_Rt1	.136	.021	.136	6.574	.000
	Post_KLCI_Rt2	.020	.021	.020	.976	.329
	Post_KLCI_Rt3	-.054	.021	-.054	-2.589	.010
	Post_KLCI_Rt4	.021	.021	.021	1.022	.307
	Post_KLCI_Rt5	-.014	.021	-.014	-.696	.487
		(Constant)	.000	.000		1.157
KOSPI South Korea	Post_KOSPI_Rt1	.033	.021	.033	1.606	.109
	Post_KOSPI_Rt2	-.021	.021	-.021	-1.005	.315
	Post_KOSPI_Rt3	-.002	.020	-.002	-.079	.937
	Post_KOSPI_Rt4	-.056	.020	-.057	-2.750	.006
	Post_KOSPI_Rt5	-.019	.020	-.019	-.936	.349
		(Constant)	.000	.000		1.093
NEKKEI Japan	Post_NEKKEI_Rt1	-.051	.021	-.051	-2.472	.014
	Post_NEKKEI_Rt2	-.012	.021	-.012	-.555	.579
	Post_NEKKEI_Rt3	-.022	.021	-.022	-1.074	.283
	Post_NEKKEI_Rt4	-.041	.021	-.041	-1.989	.047
	Post_NEKKEI_Rt5	-.017	.021	-.017	-.840	.401
		(Constant)	.001	.000		2.371
PSEi Philippine	Post_PSEi_Rt1	.108	.021	.108	5.198	.000
	Post_PSEi_Rt2	-.048	.021	-.048	-2.312	.021
	Post_PSEi_Rt3	-.061	.021	-.061	-2.941	.003
	Post_PSEi_Rt4	-.057	.021	-.057	-2.747	.006
	Post_PSEi_Rt5	-.043	.021	-.043	-2.079	.038
		(Constant)	.001	.000		2.022
SET Thailand	Post_SET_Rt1	.041	.021	.041	1.989	.047
	Post_SET_Rt2	.054	.021	.054	2.609	.009
	Post_SET_Rt3	-.019	.021	-.019	-.910	.363
	Post_SET_Rt4	-.015	.021	-.016	-.746	.456
	Post_SET_Rt5	-.016	.021	-.017	-.796	.426
		(Constant)	.000	.000		.983
STI Singapore	Post_STI_Rt1	.037	.020	.037	1.805	.071
	Post_STI_Rt2	.047	.020	.048	2.313	.021
	Post_STI_Rt3	-.059	.020	-.060	-2.933	.003
	Post_STI_Rt4	-.009	.020	-.009	-.456	.649
	Post_STI_Rt5	.032	.020	.033	1.598	.110
	SSE China	(Constant)	.000	.000		.412

Post_SSE_Rt1	.031	.021	.031	1.475	.140
Post_SSE_Rt2	-.012	.021	-.012	-.562	.574
Post_SSE_Rt3	.004	.021	.004	.172	.864
Post_SSE_Rt4	.063	.021	.063	3.052	.002
Post_SSE_Rt5	-.009	.021	-.009	-.431	.666

From the coefficient table, it can be observed that the BSE Sensex can be predicted in one lag in the pre-recessionary phase. Whereas in the post recessionary phase, it can be predicted for two lags. In other words, in the pre-recessionary phase the information accommodation in the price data happens after one day. Although in the post recessionary phase it happens in the next two days on the arrival of the information/event. Post two days of any new information/event, it is very rare to book profits based on the past price movements.

Thus, the information pertaining to all the other indices can be summed up in a tabular form:

Countries	Pre-recessionary predictability	Post-recessionary predictability	Efficiency
India	1 lag	2 lags	
Hong Kong	3 lags	1 lag	
Indonesia	4 lags	2 lags	
Malaysia	4 lags	2 lags	
South Korea	3 lags	1 lag	
Japan	5 lags	2 lags	
Philippines	3 lags	5 lags	
Thailand	2 lags	2 lags	No Change
Singapore	1 lag	2 lags	
China	3 lags	1 lag	

Thus, it is clearly evident from the above table that in the post recessionary period, stock market of India, Philippine and Singapore witnessed reduction in efficiency in comparison to the pre-recessionary phase. But in case of economies like Hong Kong, Indonesia, Malaysia, South Korea, Japan and China, the efficiency in the post recessionary phase has increased. For Thailand stock market, we witnessed no change in terms of efficiency across the period.

Findings

Our result has got a mixed response when we compare with the literatures we studied. Our study gives the same result as Nisar & Hanif (2012) for the pre-recessionary phase. But in the post recessionary phase we found Japan, China, South Korea are confirming to weak efficiency through Runs Test. With a further test through D-W statistics, we get in the post recessionary phase, Hong Kong, Indonesia, Malaysia, South Korea, Japan and China have shown improvement in the weak form of efficiency. Whereas, the stock markets of Philippines, Singapore and India have shown deterioration in the weak form of efficiency.

Reference

- Malkiel BG. The efficient market hypothesis and its critics. Journal of Economic Perspectives. 2003; 17:59-82.

2. Schwert GW. 2003. Anomalies and market efficiency. In G.M. Constantinides, M. Harris and R.M. Stulz (eds), *Handbook of the Economics of Finance* (pp. 937–972). Amsterdam: North-Holland.
3. Fama, EF. 1970. “Efficient Capital Markets: A Review of Theory And Empirical Work”. *Journal of Finance* 25: 383–417.
4. Fama, EF. 1998 “Market Efficiency, Long-Term Returns, And Behavioural Finance”. *Journal of Financial Economics* 49: 283–306.
5. Xin, Yu., Chen, Gongmeng. & Firth, Michael. (2006). “The Efficiency of the Chinese Commodity Futures Markets: Development and Empirical Evidence”, *China & World Economy* / 79 – 92, Vol. 14, No. 2, 2006
6. Ojah, Kalu. & Karemera, David., 1999, “Random Walks and Market Efficiency Tests of Latin American Emerging Equity Markets: A Revisit”, *The Financial Review*, Vol. 34, 57-72
7. Nisar, Saqib and Hanif, Muhammad, “Testing Market Efficiency: Empirical Evidence from Developed Markets of Asia Pacific” (2012). SSRN: <https://ssrn.com/abstract=1983960> or <http://dx.doi.org/10.2139/ssrn.1983960>
8. Hamid, Kashif and Suleman, Muhammad Tahir and Ali Shah, Syed Zulfiqar and Imdad Akash, Rana Shahid, Testing the Weak Form of Efficient Market Hypothesis: Empirical Evidence from Asia-Pacific Markets (February 7, 2017). Available at SSRN: <https://ssrn.com/abstract=2912908> or <http://dx.doi.org/10.2139/ssrn.2912908>
9. Shawn, Lim Kai Jie., Chadha, Pavneet., Joshua, Lau and Potdar, Nishad, (2012)., “Is the Mongolian Equity Market Efficient? Empirical Evidence from Tests of Weak-Form Efficiency”. *Journal of Money, Investment and Banking*, Issue 25, pp.181-193, 2012. Available at SSRN: <https://ssrn.com/abstract=2142484>

A Study on the Financial Health of Selected Companies in the Commercial Vehicle Industry in India

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ABSTRACT: The present study is an attempt to analyze the financial health of 5 BSE listed selected commercial vehicle manufactures in India for the period of 5 years from 2013-14 to 2017-18. Commercial vehicle industry plays an important role in respect of goods and passenger carrier and its cyclical nature of growth is well known. In recent times the industry has faced de-growth from FY-2012-13 to 2014-15 due to slow demand by fleet owners, weak replacement demand etc and passing through a volatile situation. In this scenario continuous monitoring and periodical assessment of financial health becomes important to get the real picture of the financial status of commercial vehicle manufacturers. Financial health is analyzed in respect of liquidity, profitability, solvency and efficiency by financial ratios. Ranks are assigned according to the performance. Mahindra & Mahindra Ltd. is identified as the best performer. TATA Motors Ltd. and Ashok Leyland Ltd. show unsatisfactory financial performance. They are facing serious liquidity (negative working capital), low profitability, over debt burden problems, etc. Overall sound financial health is found in case of Force Motors Ltd, SML Isuzu Ltd. The study has also attempted to predict the chances of financial failure through Altman's financial distress prediction model and found that all the selected companies are in safe zone as their average Z scores are more than 2.99. Mahindra & Mahindra Ltd. shows the highest average Z- score 5.55 The Company has maintained a consistency in its Z- score during the period.

Keywords: Altman's Z-score, liquidity, profitability, solvency, efficiency

1. Introduction

Indian Commercial vehicle industry produces Medium & Heavy Commercial Vehicles (gross vehicle weight >7.5-49Ton) Light Commercial Vehicles (Gross vehicle weight <7.5Ton) plays an important role in respect of goods and passenger carrier. Two companies Hindustan Motors Ltd. (established in 1942) and Premier Automobiles Ltd. (established in 1944) produced 1891 (units) commercial vehicles in 1950. Before that vehicles were either imported or fully assembled in India and in 1928 General Motors assembled Completely Knocked Down (CKD) trucks in Bombay. (Kathuria, 1987). Commercial vehicle contributes around 3% (FY18) of the total domestic sales in volume terms in India and India was the 7th largest manufacturer of the Commercial vehicle in the world in 2017. (OICA, statistics 2017). The commercial vehicle industry's cyclical nature of growth is well known and in recent times the industry has faced de-growth from FY-2012-13 to 2014-15 due to slow demand by fleet owners, weak replacement demand etc. Table 1 shows the production and sales of last five years from 2013-14 to 2017-18. In 2013-14 and 2014-15 the industry's growth in production was -16.05% and -0.11% respectively. The total sales (domestic + export) growth was -18.70% and -1.13% respectively. A fluctuating trend in the growth is also observed from the 2015-16 to 2017-18. However, the industry has registered 10.40% growth in production and 15.93% growth in total sales in the 2017-18 due to favorable economic condition, positive business sentiments and infrastructure development and expected to continue this growth in the 2018-19.

Table 1: Production and Sales of Commercial Vehicles during the period of FY'14-FY'18

Year	Production (Units)	Growth YoY%	Domestic (Units)	Growth YoY%	Export (Units)	Growth YoY%	Total Sales (Units)	Growth YoY%
2013-14	699035	(16.05)	632851	(20.22)	77050	(3.72)	709901	(18.70)
2014-15	698298	(0.11)	614948	(2.83)	86939	12.83	701887	(1.13)
2015-16	786692	12.66	685704	11.51	103124	18.62	788828	12.39
2016-17	810253	2.99	714082	4.14	108271	4.99	822353	4.25
2017-18	894551	10.40	856453	19.94	96867	(10.53)	953320	15.93

Source: Society of Indian Automobile Manufacturers (SIAM) statistics, 2018.

Financial health analysis gives a clear picture about the performance of the commercial vehicle manufacturers in such volatile situation and predicts their future existence.

Literature Review

Various researchers, academicians, etc. have done financial analysis of the Indian automobile manufactures from time to time and some contemporary studies on financial performance and prediction of their future existence has reviewed.

Ray (2011) in his study has evaluated the financial health of Indian automobile industry from 2003 to 2010 using Altman's Z-score model and found the score lies within "Grey Zone". The study has indicated an alarming situation because score is declining after global recession hits Indian economy in 2007.

Gowri and Sekhar (2014) has attempted to study the Financial health of 4 BSE listed companies Maruti Suzuki India Ltd., Tata Motors Ltd., Mahindra & Mahindra Ltd. and Ashok Leyland Ltd. for the period of 10 years from 2002-03 to 2011-12 and found performance of them except MISL, are below industry average. However all companies falls under the "safe zone" as per their Z scores.

Bushra and Mishra (2015) have studied the soundness of financial health of 5 BSE listed automobile companies, Bajaj Auto Ltd., Mahindra & Mahindra Ltd., Maruti Suzuki India Ltd., TATA Motors Ltd and TVS Motors Ltd. for the period of 5 years from FY2010 to FY2014. The Study has observed overall good financial position of the selected companies with above 2.99 Z- score during the study period.

Santhiyavalli and Abirami (2015) have selected those automobile companies whose turnover was more than Rs.2000 crores and having positive net worth and conducted study based on Altman's Z- score on 5 companies for 15 years from 1999-2000 to 2013-14. The study found TVS Motors Ltd. as a best performer and Tata Motors Ltd. under grey zone. Other companies Ashok Leyland Ltd., Force Motors Ltd, Maruti Suzuki Ltd are found in safer zone.

Shilpa and Amulya (2017) in their Z- score study on automobile industry for the period of 10 years from 2007 to 2016 found that commercial vehicle manufactures falls under the intermediate area. The study has also observed that for Two wheelers manufactures are doing substantially well where as other manufactures are facing fluctuations in their operations however falls under "safe zone" during the study period.

Raj and Dinakar (2017) have attempted to analyze the financial health of 9 BSE listed automobile manufacturing companies (Passenger vehicle, Commercial Vehicle, Two and Three Wheelers) using Z score model from the FY'14 to FY'15 and found all companies are in safe zone.

Kannan and Monisha (2016) in their study of 7 selected BSE listed automobile companies (Passenger vehicle, Commercial Vehicle, Two and Three Wheelers) for the period of 5 years from 2010-2015 identified all companies are in safer zone not in danger zone.

Gopalakrishnan (2018) has studied the financial performance of Indian automobile companies by selecting 10 BSE listed automobile companies (Passenger vehicle, Commercial Vehicle, Two and Three Wheelers) for 5 years from 2011-12 to 2015-16. and found that two companies, Hindustan Motors Ltd. (Z score -1.03) and Ashok Leyland Ltd. (Z score 1.58) fall under the distress zone. All other companies are found in a good position according to the Z score model.

It is observed that very few studies have been conducted by the researchers on commercial vehicle manufactures to judge their financial health during the volatile situation in recent times. The present study attempted to fill this gap.

Statement of the Problem: Indian Commercial vehicle industry is passing through a volatile situation in recent times due to slow demand by fleet owners, weak replacement demand Demonetization in 2016, Supreme Court's ban on BS-III vehicle in 2017, etc. Industry has faced de-growth. In this scenario continuous monitoring and periodical assessment of financial health becomes important to get the real picture of the financial status of commercial vehicle manufacturers. The present study has made an attempt to study the

financial health and predict their future condition so that management takes necessary steps and investors can take right decision.

Objectives

1. To study the financial position of selected commercial vehicle manufactures in India
2. To predict the chances of financial failure of the selected companies.

Methodology

Selection of Samples: The study has selected 5 BSE listed commercial vehicles manufacturers out of 7 listed commercial vehicle manufacturers on purposive sampling method. Domestic market share of the selected companies for the financial year 2017-18 are shown in the table-2.

Table 2: Domestic Market share of commercial vehicle manufacturers in India in FY17-18

Sl.No.	Original Equipment Manufacturers(OEMs)	Domestic Market share (%)
1	Ashok Leyland Ltd.	16.08
2	Force Motors Ltd.	2.11
3	Mahindra & Mahindra Ltd.	25.23
4	SML Isuzu Ltd.	1.69
5	Tata Motors Ltd.	46.46
	Total	91.57

Source: SIAM sales report,2018

The study has excluded Maruti Suzuki India Ltd.(2.17%) as the company started production of commercial vehicles from FY16-17 and V. E. Commercial Vehicles Ltd.- Eicher (5.79%) as the company published their financial report taking financial year Jan –Dec up to the year 2016.

Period of Study: The study has considered 5 years from 2013-14 to 2017-18.

Data Collection and analysis method:

Financial data are collected from the Annual reports of the selected companies covering the study period of 2013-14 to2017-18. Articles published in various journals, industry reports, books etc are also considered for the purpose of the study. Financial performance of the selected companies are analyzed by liquidity (X_1), leverage (X_2), profitability(X_3),Solvency(X_4) and efficiency(X_5) ratios which were used by Altman in 1968 for evaluating the financial performance of publicly traded companies in developing his Z- score model. Ranks are assigned according to their performances. The study has used Altman's Z score model to predict the financial health and viability of the selected companies because it gives 80%-90% accuracy in predicting financial distress and Altman et al. (2016) re-examined the original version of the Z-Score model and found that Z score executes well at an international context till date.

Altman's Z- Score Model

Edward I. Altman had published Z- score model in the Journal of Finance in 1968. Out of 22 financial ratios he identified from the multiple discriminate analyses (MDA), 5 key ratios and developed Z score Model. He selected 33 publicly traded companies that went bankrupted during 1946-1965 and 33 that were good financial condition during that time and found 72% accurate in predicting bankruptcy. Later in next 31 years (1969-1999), Z score was found 80%-90% accurate. Z score model is as follows:

$$Z=1.2*X_1+1.4*X_2 +3.3*X_3+0.6*X_4+1*X_5$$

Table 3: Financial ratios used in the Altman's Z -score Model

Financial Ratios	Interpretations
X_1 =Working Capital / Total Assets	Measures the liquidity position to the total capitalization. Lower the value the higher the chance of bankruptcy
X_2 =Retained Earnings / Total Assets	Measures leverage. A low ratio indicates that growth may not be sustainable as it is financed by debt. increases the chances of bankruptcy

X_3 =EBIT / Total Assets.	Measures Profitability. An increasing ratio indicates the company is earning and increasing profit on each rupee of investment.
X_4 =Market value of Equity/ Total Liabilities	Measures Solvency. It shows how much the company's asset can decline in value (market value of equity) before liabilities exceed assets and the firm becomes insolvent.
X_5 =Net Sales / Total Assets	Measures efficiency. Low ratio reflects failure to grow market share

Table 4: Critical Values of Altman's Z- score Model

Score	Zone	Interpretations
Z<1.8	Distress Zone	High probability of bankruptcy within 2years
1.8<Z<2.99	Grey Zone	Financial position is distressing. May or may not fail.
Z>2.99	Safe Zone	Safe, No danger of bankruptcy

**Data Analysis and Interpretation:
Ashok Leyland Ltd.**

Table 5: Computation of Ratios and Z scores of Ashok Leyland Ltd. from the FY'14 - FY '18

Particulars	2013-14	2014-15	2015-16	2016-17	2017-18	Mean
Net Sales (Rs. In Cr.)	9,735.73	13,311.14	18,560.77	19,741.58	25,533.79	17,376.60
EBIT (Rs.in Cr.)	361.70	835.71	1,074.18	1,485.47	2,361.97	1,223.81
Retained Earnings (Rs. in Cr.)	3,007.89	3,812.30	5,122.56	5,841.48	6,872.09	4,931.26
Current Assets (Rs. In Cr.)	3,855.44	4,693.00	5,180.95	5,977.12	7,869.81	5,515.26
Current Liabilities (Rs. In Cr.)	4,586.60	5,035.52	4,890.18	6,421.75	8,246.98	5,836.21
Net Working Capital (Rs. In Cr)	(731.16)	(342.52)	290.77	(444.63)	(377.17)	(320.94)
Total Assets (Rs .in Cr.)	12,808.00	13,311.49	12,773.75	14,040.70	16,586.08	13,904.00
Total Liabilities (Rs .in Cr.)	8,360.11	8,192.80	7,366.61	7,914.01	9,421.28	8,250.96
Market value of Equity (Rs .in Cr.)	6,305.80	20,931.42	30,891.98	24,061.88	42,530.82	24,944.38
Financial Ratios: X1	(0.06)	(0.03)	0.02	(0.03)	(0.02)	(0.02)
X2	0.23	0.29	0.40	0.42	0.41	0.35
X3	0.03	0.06	0.08	0.11	0.14	0.09
X4	0.75	2.55	4.19	3.04	4.51	3.01
X5	0.76	1.00	1.45	1.41	1.54	1.25
Z score	1.56	3.10	4.83	4.11	5.26	3.77

Source: Computed from Annual reports of the company from FY'14-FY'18.

Inference

Ashok Leyland Ltd. is facing the liquidity problem as it shows negative working capital in most of the years during the period of study except in the FY'15-16. X1 ratios of the company also appear negative in most of period except in the FY'15-16.It increases the chances of bankruptcy. The average X1 ratio is (0.02). X2 ratios show an increasing trend up to FY16-17.Which indicates the company gradually decreases the dependency on debt fund and in most of years this ratio is found above the average ratio 0.35.From the FY17 onwards this ratio is maintained above the average ratio 0.08. X3 ratios show an increasing in earning trend. So, company is increasing profit on each rupee of investment. X4 ratio should be at least equal to 2. X4 ratios except in FY2013-14 have maintained this norms and the average ratio is 3.01 .X5 ratios show an improving trend during the period of study except in the FY2016-17. Z scores showing an improving tendency in most of years and average Z score during the period of Study is 3.77 and the company falls under the safe zone i.e.no danger of bankruptcy.

Force Motors Ltd.

Table 6: Computation of Ratios and Z scores of Force Motors Ltd. from the FY'14 - FY '18

Particulars	2013-14	2014-15	2015-16	2016-17	2017-18	Mean
Net Sales(Rs. in Cr.)	2,021.96	2,335.13	3,031.35	3,037.95	3,392.37	2,763.75
EBIT(Rs.in Cr.)	72.14	131.49	253.60	240.54	206.90	180.93
Retained Earnings (Rs.in Cr.)	1,212.84	1,303.70	1,467.26	1,652.23	1,785.61	1,484.33
Current Asset (Rs. In Cr.)	845.31	993.18	1,216.70	1,384.12	1,121.80	1,112.22
Current Liabilities (Rs. In Cr.)	494.23	594.28	716.69	901.33	682.98	677.90
Net Working Capital (Rs. In Cr.)	351.08	398.90	500.01	482.79	438.82	434.32
Total Asset (Rs.in Cr.)	1,771.88	1,971.68	2,293.86	2,600.16	2,519.03	2,231.32
Total Liabilities (Rs.in Cr.)	545.85	654.80	813.42	934.75	720.24	733.81
Market value of equity (Rs.in Cr.)	454.91	1,842.04	3,762.89	5,914.00	3,602.09	3,115.19
Financial Ratios: X1	0.20	0.20	0.22	0.19	0.17	0.20
X2	0.68	0.66	0.64	0.64	0.71	0.67
X3	0.04	0.07	0.11	0.09	0.08	0.08
X4	0.83	2.81	4.63	6.33	5.00	3.92
X5	1.14	1.18	1.32	1.17	1.35	1.23
Z score	2.97	4.26	5.62	6.38	5.82	5.01

Source: Computed from Annual reports of the company from FY'14-FY'18.

Inference

Force Motors Ltd. shows an increasing trend of working capital up to the FY2015-16 however working capital is reduced during the FY'17 to FY'18. X1 ratio of the company shows an decreasing trend from FY16-17 onwards. A lower ratio indicates the inability to pay immediate obligations. The average ratio is 0.20. X2 ratios are found in an around the average ratio 0.67 however in the FY 2017-18 this ratio is improved to .71.and it indicates less dependency on debt fund. X3 ratio shows an increasing trend up to the FY2015-16 however after that ratio has gradually decreased during the study period. So, the company is losing its earning and decreasing profit on each rupee of investment in the last two financial years. X4 ratios show an increasing trend and found above the average ratio 3.92 in most of the years which reduces the chances of insolvency. X5 ratios show an improving trend during the period of study except in the FY2016-17. Z scores an improving trend from 2.97 in FY'14 to 6.38 in the FY'17 however it has decreased to 5.82 in the FY'18.The average Z score during the period of Study is found as 5.01which indicates that the company falls in the safe zone and no danger of bankruptcy.

Mahindra & Mahindra Ltd.

Table 7: Computation of Ratios and Z cores of Mahindra & Mahindra Ltd from theFY'14 -FY'18

Particulars	2013-14	2014-15	2015-16	2016-17	2017-18	Mean
Net Sales(Rs. in Cr.)	39,963.36	38,391.61	40,386.75	43,378.93	48,112.32	42,046.59
EBIT(Rs. in Cr.)	4,628.65	4,383.19	4,470.51	4,882.20	6,214.57	4,915.82
Retained Earnings (Rs. in Cr.)	16,485.24	18,948.60	22,126.85	26,488.81	29,699.07	22,749.71
Current Asset (Rs. In Cr.)	11,288.92	10,128.21	11,635.68	12,608.00	16,364.37	12,405.04
Current Liabilities (Rs. In Cr.)	8,766.79	8,974.27	9,844.32	9,634.05	13,323.21	10,108.53
Net Working Capital (Rs. In Cr.)	2,522.13	1,153.94	1,791.36	2,973.95	3,041.16	2,296.51
Total Asset (Rs. in Cr.)	31,288.65	32,944.87	35,499.57	39,968.32	47,416.75	37,423.63
Total Liabilities (Rs. in Cr.)	14,497.46	13,689.78	13,076.40	13,182.70	17,122.71	14,313.81
Market value of equity (Rs. in Cr.)	57,889.73	70,208.05	71,688.70	76,262.36	88,079.36	72,825.64
Financial Ratios: X1	0.08	0.04	0.05	0.07	0.06	0.06
X2	0.53	0.58	0.62	0.66	0.63	0.60
X3	0.15	0.13	0.13	0.12	0.13	0.13
X4	3.99	5.13	5.48	5.79	5.14	5.11
X5	1.28	1.17	1.14	1.09	1.01	1.14
Z score	5.00	5.53	5.78	5.98	5.49	5.55

Source: Computed from Annual reports of the company from FY'14-FY'18

Inference

Mahindra & Mahindra Ltd. shows an increasing trend of working capital from FY2015-16 onwards however X1 ratios shows fluctuating trend during the study period. It indicates unstable liquidity position of the company. The average ratio is 0.06. X2 ratios have improved gradually except in the FY'18. However in most of the years ratios were above the average ratio 0.60 indicating less dependency on debt fund. X3 ratio shows remains same in most of the years except the FY'14. So, company has not improved its earning capacity and profit on each rupee of investment during the period of study. X4 ratios are quite satisfactory and have improved during the period of study except in the FY'18. However in most of the years ratios are found above the average ratio 5.11. X5 ratios show decreasing trend during the period of study which indicates the inefficiency of the company. Z scores are found good and it has improved from 5.00 to 5.98 during the FY'14 to FY'17. However the score is reduced to 5.49 in the FY'18. The average Z score is 5.55 and the company falls under the safe zone. So, there is no chance of bankruptcy.

Sml Isuzu Ltd.

Table 8: Computation of Ratios and Z scores of SML Isuzu Ltd. from the FY'14 - FY '18

Particulars	2013-14	2014-15	2015-16	2016-17	2017-18	Mean
Net Sales(Rs. in Cr.)	875.66	1,098.09	1,157.16	1,342.80	1,120.79	1,118.90
EBIT(Rs. in Cr.)	23.60	54.56	73.48	90.33	19.98	52.39
Retained Earnings (Rs. in Cr.)	261.93	288.42	325.65	389.32	383.58	329.78
Current Asset (Rs. In Cr.)	379.83	490.78	492.81	450.06	556.27	473.95
Current Liabilities (Rs. In Cr.)	225.43	314.24	321.50	280.69	407.70	309.91
Net Working Capital (Rs. In Cr.)	154.40	176.54	171.31	169.37	148.57	164.04
Total Asset (Rs. in Cr.)	550.61	675.08	726.69	785.35	986.66	744.88
Total Liabilities (Rs. in Cr.)	274.20	372.19	386.56	381.56	588.61	400.62
Market value of equity (Rs. in Cr.)	482.92	1,688.85	1,130.10	1,862.72	1,109.47	1,254.81
Financial Ratios: X1	0.28	0.26	0.24	0.22	0.15	0.23
X2	0.48	0.43	0.45	0.50	0.39	0.45
X3	0.04	0.08	0.10	0.12	0.02	0.07
X4	1.76	4.54	2.92	4.88	1.88	3.20
X5	1.59	1.63	1.59	1.71	1.14	1.53
Z score	3.79	5.53	4.59	5.97	3.06	4.59

Source: Computed from Annual reports of the company from FY'14-FY'18

Inference

SML Isuzu Ltd. shows a decreasing trend in the X1 ratios during the study period and average ratio is 0.23. The net working capital shows fluctuating trend during the study period. Instability in liquidity position indicates that it may face problem to pay immediate obligations in future and it increases the chances of bankruptcy. X2 ratios are also showing fluctuating trend and average ratio is 0.45 indicates more dependency on debt fund. X3 ratios show increasing trend up to FY16-17 but it has significantly reduced to 0.02 in the FY 17-18. So, the company has improved the earning capacity and profit on each rupee of investment in most of years of the study period except in the FY'18. X4 except FY2013-14 and FY'17-18 have maintained this standard. The average X4 ratio is 3.20. X5 ratios show a decreasing trend in most of the years which indicate the inefficiency of the company and hamper the growth of its market share. Z scores are satisfactory however it shows a fluctuating trend. The average Z score is 4.59 indicates that the company falls in the safe zone i.e.no danger of bankruptcy.

Tata Motors Ltd.

Table 9: Computation of Ratios and Z scores of TATA Motors Ltd. from the FY'14 - FY '18

Particulars	2013-14	2014-15	2015-16	2016-17	2017-18	Mean
Net Sales(Rs. in Cr.)	33,906.97	35,890.50	42,345.39	43,340.62	57,441.05	42,584.91
EBIT (Rs. in Cr.)	311.72	(2,363.04)	1,747.81	(784.26)	797.51	(58.05)

Retained Earnings (Rs. in Cr.)	18,510.00	14,195.94	22,582.93	20,483.39	19,491.76	19,052.80
Current Asset (Rs. In Cr.)	6,739.06	8,572.97	11,861.69	12,757.08	14,971.66	10,980.49
Current Liabilities (Rs. In Cr.)	18,797.53	20,370.63	18,701.74	21,538.75	24,218.95	20,725.52
Net Working Capital (Rs. In Cr.)	(12,058.47)	(11,797.66)	(6,840.05)	(8,781.67)	(9,247.29)	(9,745.03)
Total Asset (Rs. in Cr.)	49,734.42	49,943.17	56,676.00	58,878.28	59,212.30	54,888.83
Total Liabilities (Rs. in Cr.)	30,557.77	35,080.58	33,413.89	37,715.67	39,041.32	35,161.85
Market value of equity (Rs. in Cr.)	128,214.92	177,009.66	131,173.96	158,229.63	111,197.11	141,165.06
Financial Ratios: X1	(0.24)	(0.24)	(0.12)	(0.15)	(0.16)	(0.18)
X2	0.37	0.28	0.40	0.35	0.32	0.34
X3	0.01	(0.05)	0.03	(0.01)	0.01	(0.00)
X4	4.20	5.05	3.93	4.20	2.85	4.04
X5	0.68	0.72	0.75	0.74	0.97	0.77
Z score	3.45	3.70	3.62	3.52	3.00	3.46

Source: Computed from Annual reports of the company from FY'14-FY'18.

Inference

TATA Motors Ltd. shows negative working capital and X1 ratios show fluctuating trend during the study period. It indicates that the company is suffering from serious liquidity problem during the study period and increases the chances of bankruptcy. X2 ratios have also showing a fluctuating trend. The average ratio is 0.35 which indicate more dependency on debt fund during the study period. X3 ratio is very low and even negative in the year 2014-15 and 2016-17 due to negative EBIT in those periods. It indicates very poor profitability position and company is losing its earning capacity and profit on each rupee of investment in most of years of the study period. X4 ratios show a fluctuating trend but satisfactory. The average X4 ratio is 4.04. X5 ratios show an increasing trend in most of years during the period indicating the efficiency of using its assets to generate sales. Z scores show a fluctuating trend however the average score is 3.46 that the company falls in the safe zone and no danger of bankruptcy. Table 10: Assignment of Ranks on financial performances of selected companies

Table 10: Assignment of Ranks on financial performances of selected companies

Sl.No	Particulars	X1	X2	X3	X4	X5	Total	Rank on overall Financial performance
1	Ashok Leyland Ltd.	-0.02	0.35	0.09	3.01	1.25		
	Rank	4	4	2	5	2	17	4
2	Force Motors Ltd.	0.20	0.67	0.08	3.92	1.23		
	Rank	2	1	3	3	3	12	2
3	Mahindra & Mahindra Ltd.	0.06	0.60	0.13	5.11	1.14		
	Rank	3	2	1	1	4	11	1
4	SML Isuzu Ltd.	0.23	0.45	0.07	3.20	1.53		
	Rank	1	3	4	4	1	13	3
5	TATA Motors Ltd.	-0.18	0.34	0.00	4.04	0.77		
	Rank	5	5	5	2	5	22	5

Inference

Financial performance of Mahindra & Mahindra Ltd is the best among the selected companies followed by Force Motors Ltd, SML Isuzu Ltd., Ashok Leyland Ltd. and TATA Motors Ltd. TATA Motors Ltd. is facing serious liquidity, profitability, inefficiency and over debt burden problems. Performance of Ashok Leyland Ltd. is also unsatisfactory. Other companies have shown overall sound financial health.

Table 10: Z scores of selected commercial vehicle companies from 2013-14 to 2017-18

Sl.No	OEMs	FY 13-14	FY 14-15	FY 15-16	FY 16-17	FY 17-18	Average	Zone
1	Ashok Leyland Ltd	1.57	3.11	4.84	4.12	5.27	3.78	Safe
2	Force Motors Ltd.	2.97	4.26	5.62	6.38	5.82	5.01	safe
3	Mahindra & Mahindra Ltd.	5.00	5.53	5.78	5.98	5.49	5.55	Safe
4	SML Isuzu Ltd.	3.79	5.53	4.59	5.97	3.06	4.59	Safe
5	TATA Motors Ltd.	3.45	3.70	3.62	3.52	3.00	3.46	Safe

Inference

Z- Scores of all the selected commercial vehicle companies are above 2.99 during the study period. The exceptional cases are Ashok Leyland Ltd and Force Motors Ltd. whose Z scores were 1.57 and 2.97 respectively during the FY 2013-14. The average Z- scores of the selected commercial vehicle companies are also found satisfactory and above 2.99. All the selected companies are in safe zone and there is no chance of bankruptcy within next 2 years. The average Z score of Mahindra and Mahindra is maximum 5.55 followed by Force motors Ltd (Z- score 5.01), SML Isuzu Ltd (Z-score 4.59), and Ashok Leyland Ltd (Z-score 3.78). TATA Motors Ltd. Shows the lowest average Z score 3.46 during the study period.

Conclusions

The present study is an attempt to analyze the financial health of 5 selected commercial vehicle manufactures in India for the period of 5 years from 2013-14 to 2017-18. Financial performance of Mahindra & Mahindra Ltd is the best among the selected companies. Two market leaders TATA Motors Ltd. and Ashok Leyland Ltd. have shown unsatisfactory financial health. They are facing serious liquidity (negative working capital), low profitability, over debt burden problems, etc. Overall financial health of the other Companies is found sound. The study has used the Altman's Z score model to predict the chances of financial failure and found that all the selected companies are in safe zone as their average Z scores are more than 2.99. Mahindra & Mahindra Ltd., 2nd largest player with 25.23% market share, scored the highest average Z- score 5.55. The company has maintained a consistency in its Z- score during the period of study and identified as the best performer with sound financial health. TATA Motors Ltd. the market leader with 46.46% market share shows the lowest average Z score 3.46. Financial conditions of Force Motors Ltd, SML Isuzu Ltd. and Ashok Leyland Ltd. are found satisfactory with average Z- scores, 5.01 and 4.59, 3.78 respectively.

Reference

- Altman EI. Financial Ratios, Discriminate Analysis and prediction of Corporate Bankruptcy. The Journal of Finance. 1968; 23(4):589-609. <http://doi.org/10.2307/2978933>
<https://doi.org/10.1111/j.1540-6261.1968.tb00843.x>
- Altman EI, Iwanicz-Drozdowska, M., Laitinen, E. K., & Suvas, A. (2016). Financial distress prediction in an international context: a review and empirical analysis of altman's Z-score model. Journal of International Financial Management & Accounting. Retrieved from <http://onlinelibrary.wiley.com/doi/10.1111/jifm.12053/full>
- Ray S. Assessing Corporate Financial Distress in Automobile Industry of India: An Application of Altman's Model. Research Journal of Finance and Accounting. 2011; 2(3):155-168. Retrieved from <https://iiste.org/Journals/index.php/RJFA/article/view/335/224>
- Shilpa NC, Amulya M. Corporate Financial Distress: Analysis of Indian Automobile Industry. SDMIMD Journal of Management. 2017; 8(1):47-54. <https://doi.org/10.18311/sdmimd/2017/15726>
- Bushra M, Mishra K. Efficacy of Altman's Z -Score to predict Financial Unstability: A Multiple Discriminant Analysis (MDA) of select Automobile Companies in India. Golden Research Thoughts. 2015; 4(7):1 Retrieved from <http://oldgrt.lbp.world/colorArticles/4970.pdf>
- Gowri M, M Sekar. Assessing the Financial Health of Select Automobile companies in India: A Quantitative approach Using the Z-Score Multi-discriminant Financial Analysis Model. Great Lakes Herald. 2014; 8(1):32-43. Retrieved from <https://www.greatlakes.edu.in/herald/2014/pdfs/article-3.pdf>

7. Gopalakrishnan M. Financial performance and Bankruptcy Analysis of Automobile Industry in India Using Z score. International Journal of Research in Management. 2018; 8(2):272-279 Retrieved from http://www.indusedu.org/pdfs/IJRMEC/IJRMEC_1670_14492.pdf
8. Kathuria S. Commercial Vehicle Industry Industry in India-Acase History,1928-1987. Economic and Political Weekly. 1987; 12(24):1809-1813.
9. Kothari CR. Research Methodology(2nd ed.). New Delhi: New Age International (P) Ltd, 2004.
10. Pandey IM. Financial Management (9 ed.). New Delhi: Vikas Publishing House Pvt. Ltd, 2008.
11. Santhiyavalli G, Abirami K. Measuring Firms Financial Health-A Study on Select Indian Automobile Companies. International Research Journal of Business and Management. 2015;VIII(4):118-128. Retrieved from <http://irjbm.org/irjbm2013/march2015/Paper17.pdf>
12. www.ashokleyland.com
13. www.forcemotors.com
14. www.ibef.com
15. www.mahindra.com
16. www.OICA.net
17. www.siamindia.com
18. www.smlisuzu.com
19. www.tatamotors.com

Role of Microfinance in Farmers Income in Coimbatore District of TamilNadu

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ABSTRACT: Nowadays, financial service providers have developed with a better understanding of the wide range of financial needs of low-income people in both urban and rural areas. Agriculture has some unique characteristics which are different from other industry; dependence on natural resources, long production cycles and vulnerability to multiple risks. To deal with these characteristics, the accessibility of finance in rural areas is important. Microfinance has facilitated significant research into the provision of financial services for the poor and helped in building capacity at the SHG level. Self Help Group-Bank Linkage Project became one of the largest microfinance programs in the world because of its sheer size and population it touches. The main objective of this research is to study the impact of microfinance on income generation and employment of the farm households of SHG. The impact of microfinance on generation income and employment was studied by examining the household income and income from non-agriculture source. The annual income of the farmers in non-SHG was about 2.5 times higher than the farmers in SHG but the non-farm income in SHG group was around 1.6 times higher than it in non-SHG. It assumed that some big farmers were included in non-SHG members and their income increased the average of annual income of the non-SHG farmers. The distribution of the sample farmers across the source of loan reveals that in both SHG and non-SHG farmers, formal institutions like commercial banks and co-operative banks were the main sources of the loans. The results show that in all categories include all farmers, farmers except large farmers and paddy farmers, the non-SHG members' average annual income were higher than the SHG members' annual income. Some large farmers and vegetable farmers were included in the non-SHG members and due to the problem, the non-SHG members' annual income became much higher than non-SHG farmers' annual income. In both the SHG and non-SHG, most of the farmers use their loan for agriculture included cultivation and livestock. It shows that the loans were necessary for keeping their agriculture activities for both the SHG and non-SHG members. Almost all of the SHG members borrow loans from formal institutions and most of the non-SHG members borrow loans from formal institutions, though 10 per cent of the non-SHG members borrow loans from moneylenders. The SHGs support the rural farmers to access the formal financial institutions in the area. It was found that the SHG members were more interested in enhancing the loan amount and the non-SHG members were more interested in a reduction in the rate of interest of the loan. It was suggested that the state government and the banks linked SHGs could provide crop insurance or drought insurance for protecting the SHG farmers from damages caused by natural disasters.

Keywords: Micro finance, SHG, agriculture, farmers, income.

1. Introduction

One-third of the world's poor live in India and around 70 per cent of them live in rural areas (Amutha, 2013). The vast majority of people in the rural area in India are engaged in agriculture. Agriculture has some unique characteristics which are different from other industry; dependence on natural resources, long production cycles and vulnerability to multiple risks. To deal with these characteristics, the accessibility of finance in rural areas is important. Rural finance is a subset of agricultural finance dedicated to financing agricultural related activities such as input supply, production, distribution, wholesale, processing and marketing. Nowadays, the ambit of non- agricultural activities is getting wider and the need for non-agricultural rural finance also increases. Because of inadequate financial resources and absence of timely credit facilities, many of the farmers, are unable to introduce better methods or techniques in farming. For most of the farmers, own money is always inadequate and they need outside finance or credit. But it is difficult for rural people to lend loans from normal finance institutions because they think poor people have lack of ability to repay and the amount of loan is too much for rural people. According to Rajesh Chakrabarti and Shamika Ravi (2011), in rural areas, informal or non-institutional finance sources like local moneylenders have taken a role of the financial institution and lent loans to people in rural area. The interest rates of informal finance are higher but rural borrowers prefer to use informal rural credit because of quick availability of fund. Another reason is that informal sources do not insist on regular repayment like banks and it is possible to obtain loans for such purposes as marriage and attending to litigation only from informal sources and

without collaterals. Informal or non-institutional finance was gradually declined during the 1960s and it was nearly broken during 1970s with the institutional agencies venturing into the rural areas with the nationalization of major commercial banks and setting up of moneylenders reflects in part of the government's efforts to register and regulate professional moneylender. The informal credit has certainly declined as a percentage of total debt. Professional and agricultural moneylenders also have reduced. In all India, the co-operative societies and commercial banks were two most important agencies in the rural sector. Microfinance is one of the solutions to improve finance accessibility in rural areas and it provides several financial services to rural people. Micro finance has a significant role in bridging the gap between the formal financial institutions and the rural farmers. These financial institutions accesses financial resources from the banks and other mainstream financial institutions and provide financial and support services to the poor. Microfinance has proven to be an effective and powerful tool for poverty reduction.

The Evolution of Microfinance in India

In India, the history of microfinance started from the establishment of Syndicate Bank in 1921 in private sector (Padmalochan *et al.*, 2012). During the early 20th century, Syndicate Bank concentrated on raising microdeposits in the form of daily or weekly basis and sanctioned microloans to its clients for a shorter period of time. In 1980, Government of India started "Integrated Rural Development Program" (IRDP) to supplement the efforts of microfinance. This program involved the commercial banks in giving a loan of less than Rs.15000 to socially weaker section. Swarna Jayanti Gram Swarojgar Yojana (SGSY) in 1999 was a holistic program covering all aspects of self-employment such as the formation of Self Help Groups (SHGs), training, credit, technology, infrastructure and marketing. The movement of microfinance got a boost in India after the intervention of National Bank for Agriculture and Rural Development (NABARD). Self Help Groups – Bank Linkage Program (SHG-BLP) is conducted by NABARD. It started as a pilot to link around 500 SHGs of poor to the formal financial institutions during the year 1992-93. Now it became one of the largest microfinance programs in the world. In Tamil Nadu, Tamil Nadu Corporation for Development of Women Ltd (TNCDW) takes an important role in the microfinance sector. TNCDW was established in 1983 with the prime objective of bringing about socio-economic development and empowerment of women. In 1989, a Self Help Groups project was started by TNCDW in Dharmapuri district. This scheme was extended to the erstwhile South Arcot district in the year 1991-1992 and farther extended to Madurai and Ramanathapuram in the year 1992-93. After this program, Mahalir Thittam project which is a socio-economic empowerment program for women implemented by TNCDW was launched with state government funding from 1997-1998. The project was progressively introduced in all districts of the state. Now it has grown into a mammoth movement covering all districts of the state targeting poor families and the marginal section of the society. In 2005, the World Bank funded Pudu Vazhvu Project and the project was implemented over a six year period with World Bank assistance. The target of this project is poor households, the most vulnerable sections including the physically challenged and the marginalized communities. At the village Panchayat level, the implementation agency is an inclusive community organization by name Village Poverty Reduction Committee (VPRC).

SHG-Bank Linkage Project

NABARD started "SHG-Bank Linkage Project" in 1992. This program was an innovation harnessing the synergy of the flexibility of informal system with the strength and affordability of formal system. Through SHG, informal groups can be clients of banks both deposit and credit linkage. This is also the introduction of collateral free lending and this project allows informal groups to lend to groups without specification of purpose, activity, and project. Now SHG-BLP became one of the largest microfinance programs in the world because of its sheer size and population it touches. SHG-BLP became a strong intervention in economic enablement and financial inclusion for the bottom of the pyramid. Microfinance created several impacts on rural society. Microfinance reduced the incidence of poverty through an increase in income, enabled the poor to build assets and thereby reduce their vulnerability. Microfinance has empowered women by enhancing their contribution to household income, increasing the value of their assets and generally by giving them better control over a decision that affects lives.

Objectives

1. To identify the impact of microfinance on agricultural income in selected SHGfarmers in the district
2. To study the impact of microfinance on generation income and employment of the farm households of SHG

Methodology

Selection of study area

The research was conducted using primary information collected in a field survey. Coimbatore district was selected in Tamil Nadu state. 15 villages with ongoing microfinance programs were selected from South and North Coimbatore block. The total sample of 60 households categorized as 30 SHG members and 30 non-SHG members were selected from the 15 sample villages. 30 SHG members were selected from 20 SHGs. We conducted this research from January 2018 to March 2018 and we got data by interviewing farmers. The study period is July 2016 to June 2017.

Method of data collection

The primary data were collected by using well-structured questionnaire from January 2018 to March 2018. In the study area, SHGs were functioning till 2017. Hear, the data regarding SHG were collected for the period July 2016 to June 2017.

Analysis

The impact of microfinance on agriculture income was studied with the help of agricultural income which include income from crop cultivation and livestock income, cost of cultivation and accessibility to credit. The impact of microfinance on generation income and employment was studied by examining the household income and income from non-agriculture source. The farmers were divided into three categories; all farmers, farmers except large farmers which cultivate land more than 4.98 acre and paddy farmers to consider each characteristic. 30 SHG farmers and 26 non-SHG farmers were considered as farmers except large farmers. 14 SHG farmers and 7 non-SHG farmers were considered as paddy farmers. The constrains and suggest the suitable policy measures for efficient microfinance was studied by the loans details, the SHGs details, the reason to join the SHG, the difficulties to repaying the loan and the management of the SHGs.

The comparison of agriculture income between SHG and non-SHG

The cultivation income, the income from livestock and the agriculture income in the non-SHG members was higher than it in the SHG members and especially the agriculture income in the non-SHG member was around 2.4 times higher than that of SHG member (Table 1). In marginal farmers, the cultivation income and the agriculture income were found to be the same tendency and the agriculture income in the non-SHG member was around 2.7 times higher than the income generated by the SHG member (Table 2). The average of agriculture income in the non-SHG member is too high when compared to the SHG member and standard deviation of it is also larger than the SHG member. There is a probability that some large farmers' income in non-SHG member increased the average of agriculture income in the non-SHG member. It was considered that more non-SHG members cultivate vegetables but most of SHG farmers cultivated cereal crops. It also increased the average of non-SHG farmers' agricultural income. Even in marginal farmers, the same thing seems to happen in this sample. Among the paddy farmers, participation in SHG was observed to have an effect on cultivation income and agriculture income. In case of the paddy farmers, the cultivation income in SHG member was 1.8 higher than it in non-SHG member (Table 3).

Table 1: Average Annual agricultural income of total farmers (Rs)

Sl. no	Particulars		SHG	non-SHG
1	Cultivation income/acre	Average	21768.33	58316.45
		sd	39943.18	97179.20
2	Livestock income	Average	11281.63	15297.33
		sd	39453.60	71037.69
3	Agriculture income/acre	Average	33049.97	73613.78
		sd	67865.48	95666.56

Table 2: Average Annual agriculture income of the sample farmers except large farmers (Rs)

Sl.no	Particulars		SHG (30)	non-SHG (26)
1	Cultivation income/acre	Average	21768.33	59246.14
		sd	39943.18	95238.10

2	Livestock income	Average	11281.63	9762.31
		sd	39453.60	60594.79
3	Agriculture income/acre	Average	33049.97	69008.45
		sd	67865.48	89970.01

The comparison of annual income between SHG and non-SHG

The annual income of the farmers in non-SHG was about 2.5 times higher than the farmers in SHG but the non-farm income in SHG group was around 1.6 times higher than it in non-SHG (Table 4). Among the marginal farmers, the annual income of non-SHG farmers was

Table 3: Annual agricultural income of the paddy farmers (Rs)

Sl.no	Particulars		SHG (14)	non-SHG (7)
1	Cultivation income/acre	Average	29096.79	19515.85
		sd	19105.27	21011.23
2	Livestock income	Average	635.71	26857.14
		sd	1658.36	39337.97
3	Agriculture income/acre	Average	29732.50	46372.99
		sd	18945.26	57677.04

found approximately 1.17 times higher than that of SHG farmers (Table 5). The non-farm income of the farmers in non-SHG was around one third of it in SHG. The annual income of the paddy farmers shows that the annual income of non-SHG was about 1.7 times higher than it in SHG and the non-farming income was also around 2.6 times higher than it in SHG (Table 6). Among all categories, the annual income of non-SHG farmers was higher than SHG farmers. It

Table 4: Annual income of the farmers (Rs)

Sl. no	All farmers		SHG	non-SHG
1	Total Annual Income	Average	71254.63	177949.48
		Sd	80004.64	347410.38
2	Annual Non-farm Income	Average	37606.67	22840.00
		Sd	43423.61	41361.43

Table 5: Annual income of the marginal farmers (Rs)

Sl. no	Particulars		SHG (23)	non-SHG (15)
1	Total Annual Income	Average	75928.26	88881.429
		Sd	72013.31	161015.35
2	Annual Non-farm income	Average	29347.83	8571.43
		Sd	42800.39	22677.87

Table 6: Annual income of the paddy farmers (Rs)

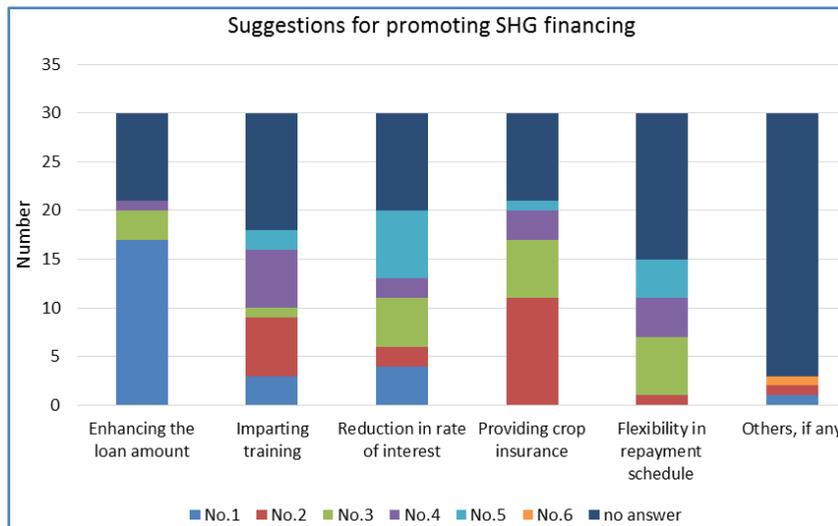
Sl. no	Paddy farmers		SHG (14)	non-SHG (7)
1	Annual Income	Average	57967.14	97590.61
		Sd	46324.02	99623.18
2	Non-farm income	Average	23071.43	59314.29
		Sd	31362.56	49218.81

assumed that some big farmers were included in non-SHG members and their income increased the average of annual income of the non-SHG farmers.

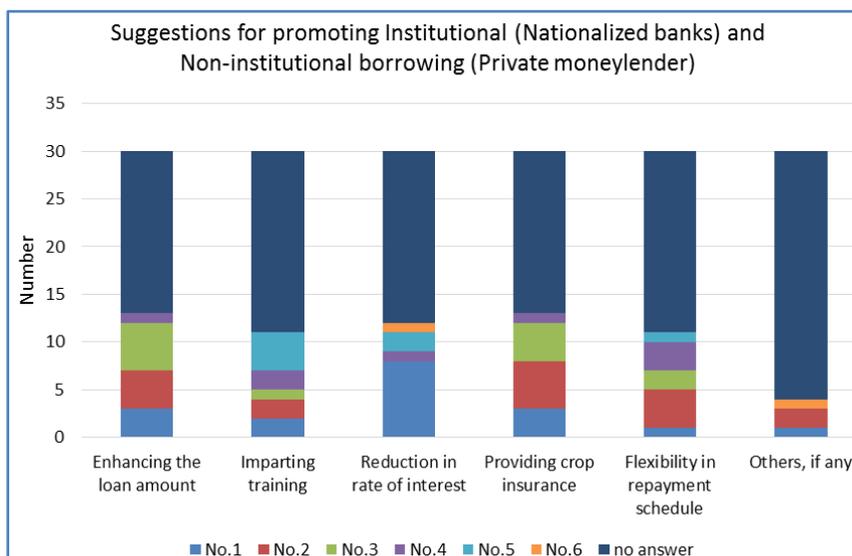
Suggestions for promoting SHG financing or Institutional (Nationalized banks) and Non-institutional borrowing (Private moneylender) of the sample farmers

The selected farmers were asked about suggestions for promoting SHG financing or Institutional (Nationalized banks) and Non-institutional borrowing (Private moneylender) and made an order of listed suggestions. The result shows a similar tendency to constraints for each financing. 17 (57 per cent) of the SHG farmers suggested that SHG financing should enhance the loan amount first (Graph 1). In the non-SHG farmers, eight people suggested “Reduction in rate of interest” for Institutional (Nationalized banks) and Non-institutional borrowing (Private moneylender) first (Graph 2). Eleven of the SHG members and nine of the non-SHG members chose “Providing insurance” as the first and second important suggestions (Graph 1 and 2). It shows that compare to other alternatives, the SHG farmers think enhancing loan is important and non-SHG farmers think the reduction in the rate of interest is important. Both the SHG and the non-SHG members are interested in crop insurance.

Graph 1: Suggestions for promoting SHG financing of the sample farmers



Graph 2: Suggestions for promoting Institutional (Nationalized banks) and Non-institutional borrowing (Private moneylender)



Conclusion

This study mainly based on consisting of borrower SHG member who borrowed for taking in doing agriculture. Results revealed that except large farmers, agriculture income and of the non-SHG farmers were

much higher than the SHG farmers. in all categories include all farmers, farmers except large farmers and paddy farmers, the non-SHG members' average annual income were higher than the SHG members' annual income. Some large farmers and vegetable farmers were included in the non-SGH members and due to the problem, the non-SHG members' annual income became much higher than non-SHG farmers' annual income. In paddy farmers, non-SHG farmers earned more non-Agricultural income and it made their annual income higher than SHG paddy farmers' annual income. It was found that the SHG members were more interested in enhancing the loan amount and the non-SHG members were more interested in a reduction in the rate of interest of the loan. Both the SHG and the non-SHG members were also suggesting "Providing crop insurance" to financial institutions. Compare to the non-SHG members, the SHG members were more interested in "Imparting training." Some SHGs provide job training which leads to increase farmer's non-agricultural income. It was observed that these trainings were required of the SHG farmers. It was suggested that flexible loan lending period and a flexible loan amount of the SHG loans are required to adjust the crop cultivation cycles of the farmers. The state government could provide technical support and training for capacity building. The state government and the banks linked SHGs could provide crop insurance or drought insurance for protecting the SHG farmers from damages caused by natural disasters.

Reference

1. Amutha. Present status of Indian agriculture. 2013, 2-6.
2. <http://tahdco.com/about-us/>
3. <http://www.dhan.org/aboutus.php>
4. http://www.grameen.com/wp-content/uploads/bsk-pdf-manager/GB-AR-2016_34.pdf
5. <http://www.tamilnadumahalir.org/sample-sites/mahalir/federation.html>
6. <http://www.tamilnadumahalir.org/sample-sites/mahalir/shgs.html>
7. <http://www.tamilnadumahalir.org/status-reports.html>
8. Padmalochan Mahanta. Status of microfinance in India - a review. International journal of marketing, financial services and management research. 2012; 1:143-145.
9. Rajesh Chakrabarti and Shamika Ravi. At the crossroads microfinance in India. 2011, 3-6.

Computation of Women’s Health Index in India -a suggestive framework

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1. General Background

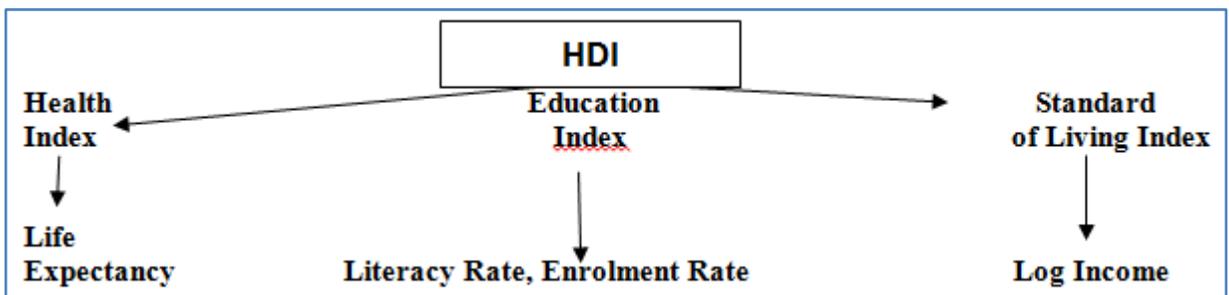
The determinants of health status are multiple, interrelated and complex. In addition to health status being linked to genetic and biological differences, social variables have been identified as a source of health difference, which are generally grouped into three categories: social structural, behavioural and psychosocial factors. Social structural and psychosocial determinants of health are generally more important for women and behavioral determinants are generally more important for men. We find that women report more distress and chronic conditions than men. Also all women are not same in terms of, caste, society, culture, economy etc are different for different women. Women belonging to different age group, different marital status, and different household condition face different socioeconomic, demographic and regional, environment in the society. Also the health status of women residing in different states of India differs significantly to each other. All females are not exposed equally to same factors in the society. As a result, their vulnerabilities become different subject to different factors. So it is needed to find out the differences in health status of women by constructing Women Health Index.

The basic purpose of computing Women Health Index is to know the health status of women in India. The WHI can be computed at different level of socio-economic, regional, demographic variables. The weights in the computation of a WHI are determined by using Factor Loadings and *Eigen Values* from Principal Component Analysis (PCA). This technique assigns weights according to the relationship between the variables, thus involving relatively low levels of subjectivity on part of the researcher, while preserving most of the information in the original.

2. Review of Literature:

2.1 Human Development Index (HDI)

The Human Development Index (HDI) was first released as part of the United Nation’s Human Development Report 1990. As such a capabilities based approach to development focusing on health and education as well as income was formed with the aim of expanding people’s choices. In its present format, the HDI consists of three composite indices, for health, education and standard of living, each with equal weight.



HDI is composed of three equally weighted indices for health education and income each of which is composed through measurement of various proxies for these factors.

$$HDI = 1/3 \text{ Health Index} + 1/3 \text{ Education Index} + 1/3 \text{ Standard of Living Index}$$

In turn these three component indices are composed as follows.

Health Index

The Health Index represents the extent to which life expectancy (LE) in the region analysed is greater than minimum life expectancy (Min LE) as a proportion of the maximum difference between possible life expectancies. Here Min LE is determined by the UN to be 25 and the maximum life expectancy (Max LE) in the world is set at 85 (roughly the life expectancy in Japan).

$$\text{Health Index} = \frac{(\text{LE} - \text{Min LE})}{(\text{Max LE} - \text{Min LE})}$$

$$(\text{LE} - 25) / (85 - 25)$$

Example

So, if life expectancy in the region analysed is 64 years then the Health Index would be 0.65 as using the above formula we see $(64-25)/(85-25) = 39/60 = 0.65$. Were the life expectancy of the region analysed to increase to 67 years then the Health Index would increase to 0.7.

Note: Calculating life expectancy is a complicated mathematical process but spreadsheets are provided online which conduct the process automatically provided you have the data;

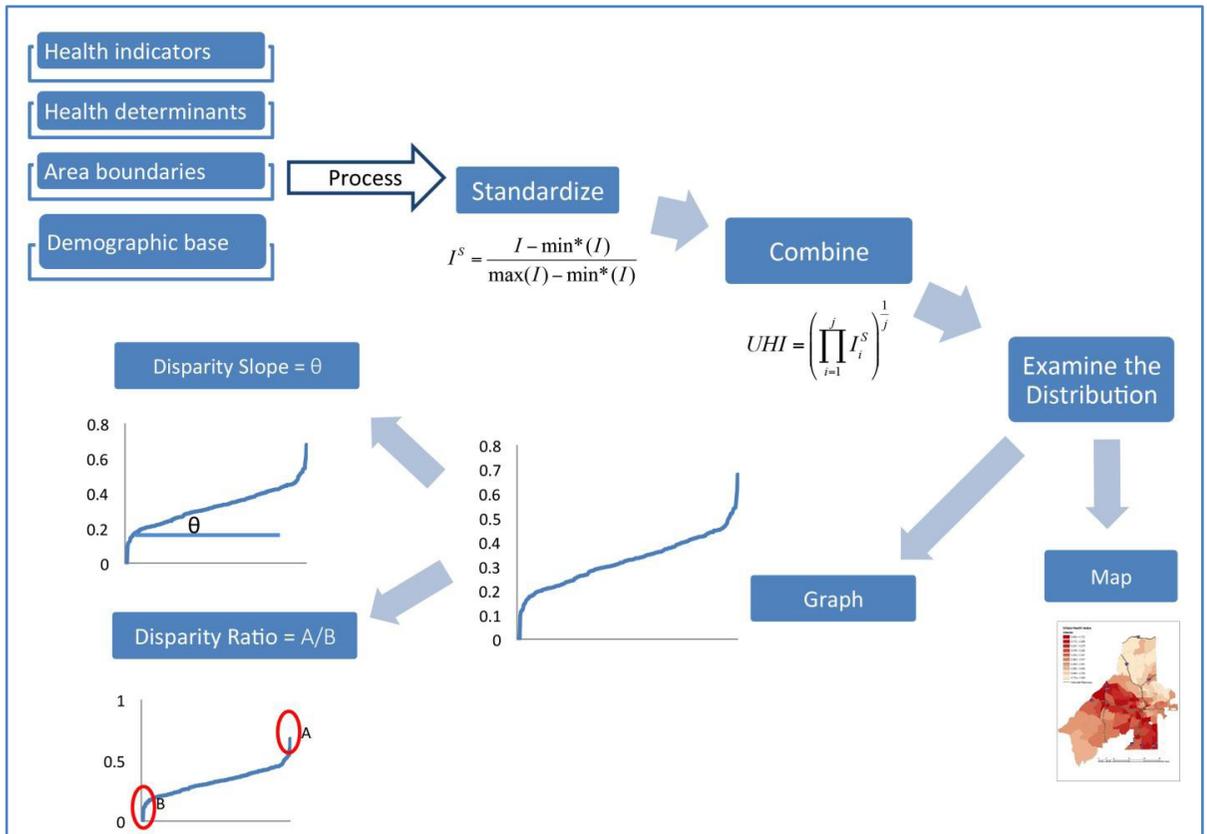
1. Number of deaths in each age group over last 5 years.
2. Number of people in that age group over last 5 years.

2.2 Urban Health Index:

The construction of the UHI involves standardizing and combining indicators of health determinants or outcomes by geographic area using simple formulae, and then characterizing their statistical and geographic distribution.

Figure 1 provides an overview of the required elements and their interrelationship for the construction of the UHI. Each step in the flow diagram will be discussed in detail in later sections. As shown in the figure, an unspecified set of health indicators or determinants can be standardized and combined. This aggregate is the UHI value for a given geographic area. When ranked and graphed, this set of UHI values often appear as a rising line with distorted tails (the low end drops off precipitously; the high end rises steeply). The slope of the line and the ratio of the tails constitute measures of health disparity or inequality. If the areas are contiguous, geovisualization is accomplished by dividing the distribution into deciles and coloring them by graded hues, with darker hues denoting increasing disadvantages. The map provides a direct visual comprehension of the distribution of disparities.

Fig.1:Flow Diagram for Construction of an Urban Health Index



Source:WHO,2014

2.3 Global Health Index:

The major purpose of this paper is to suggest possible weights for a global index of health status. The indicators for the global index are taken from the World Health Organization's definition of health as physical, mental and social well-being. These indicators are combined with mortality indicators to arrive at a finalized index. Survey methodology is used to make initial estimates of the weighting of appropriate indicators, based upon a sample of international health scholars. Preliminary results indicate that mortality is weighted 40%, physical health (morbidity and disability) 25%, mental health 15%, and social health 20%. These results are intended as a starting point for future research.

The major purpose of this paper is to suggest possible weights for a global index of health status. The indicators for the global index are taken from the World Health Organization's definition of health as physical, mental and social well-being. These indicators are combined with mortality indicators to arrive at a finalized index. Survey methodology is used to make initial estimates of the weighting of appropriate indicators, based upon a sample of international health scholars. Preliminary results indicate that mortality is weighted 40%, physical health (morbidity and disability) 25%, mental health 15%, and social health 20%. These results are intended as a starting point for future research.

3. Objectives

The main objectives of the present module are as follows:

- To demonstrate computation of an women Health Index (WHI) in India.
- To discuss different levels (socio-economic, regional, demographics) at which WHI can be computed
- To discuss and present a set of suggestive indicators for computing an WHI and also classification of indicators into different groups
- To discuss points for consideration while constructing an indicator in terms of data availability and nature of an indicator
- To demonstrate steps to compute normalized values towards computing an WHI
- To demonstrate step-by-step use of Statistical Package to use Principal Component Analysis to decide factor loadings and weights; and
- To analyse and interpret an WHI and its implications.

4. Suggestive Indicators

The variables presented below to compute an WHI are suggestive in the nature. As many as indicators have been suggested which are further get from NFHS-3 data.

- 1) Nutritional BMI (Nrbmi),
- 2) Antenatal care taken,
- 3) Delivery Place (dplace)
- 4) Having anemia
- 5) Having Diabetes
- 6) Having Asthma
- 7) Having Goitre/ Thyroid

The indicators can be modified in view of state-specific requirements. Depending upon the objective and availability of data, other variables/indicators can also be considered in compiling an index or a few of the proposed variables/indicators can also be dropped out.

Table I: Description of Dependant Variable

Dependant Variable	Value of Dependant variable	Variables involved in Dependant Variable &their Values
Composite Health Score of women	=1, good =2, bad	1)Nutritional BMI=0,normal, =1, not normal 2)Antenatal care taken =0, Yes =1,No 3)Delivery Place =0, Institutionalised =1, Home 4)Having Anemia = 0, No, = 1, Yes 5) Having Diabetes = 0, No,

		= 1, Yes 6) Having Asthma = 0, No, = 1, Yes 7) Having Thyroid = 0, No, = 1, Yes
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Type of Indicators

A set of 7 indicators (see Table I) reveals that they are in an order. Some of the indicators are directly related to health status of women (Nutritional BMI, Antenatal care taken, Delivery Place) and a few others indicators (such as Having Anemia, Diabetes, Asthma, Thyroid) focus on morbidity.

In view of this they are required to be first Normalized before any statistical tool is applied.

BMI is a simple index of weight- for- height. Nrbmi takes value =0 for normal and 1 for non-normal (i.e. underweight, overweight, obese). A BMI takes value 18.5-25kg/m², indicates normal weight, <18.5 kg/m² indicates underweight, 25-30 kg/m² indicates overweight and >30 kg/m² indicates obese. Antenatal care taken by a mother = 0, and not taken = 1. If the Delivery place of a mother is taken place in an institution i.e. in govt or private hospital then it is 0, and delivery takes place in home is 1. All three are arranged in a decreasing order. Morbidity defines the quality of being morbid. The rate of incidence of a disease. It determines a person's health status. It is noticeable that all the disease I have taken are chronic in nature. It takes value 1 for having the disease and 0 for not having the disease. Indian women mainly suffer from chronic disease.

5. Data

Demographic and health survey data from 29 states of India, which were collected during the Third National Family Health Survey 2005-06 by the International Institute of Population Sciences and ORC Macro, have been used for the present analysis. These data have been published and provided the sample for the present analysis. They include economic, regional, demographic and biosocial data on women aged 15 to 49 years.

6. Converting Raw Data into Normalized Values

The following procedure is adopted in converting raw data into normalized form. I have used all categorical variables. They usually take values 0, 1, 2 and so on. First the Best and Worst values in an indicator are identified. The *Best* and the *Worst* values will depend upon the nature of a particular indicator. Now all variables are converted into two options. More options are merged meaningfully into two. So all variables take value either 0 or 1. So they are treated as normalized.

7. Principal Component Analysis (PCA)

Once the Normalized Values are obtained for all the indicators for all individual across States, the next step is to assign *factor loadings* and *weights*. *Principal Component Analysis (PCA)* is used to compute the *factor loading* and *weights* of these indicators.

The objective of *Principal Component analysis* is to reduce the dimensionality (number of indicators) of the data set but retain most of the original variability in the data.

The first *Principal Component* accounts for as much of the variability in the data as possible and each succeeding component accounts for as much of the remaining variability as possible.

PCA can be performed by using a statistical package having provision for PCA. The illustrations, procedures and steps required for undertaking PCA have been demonstrated by using one such software, namely SPSS.

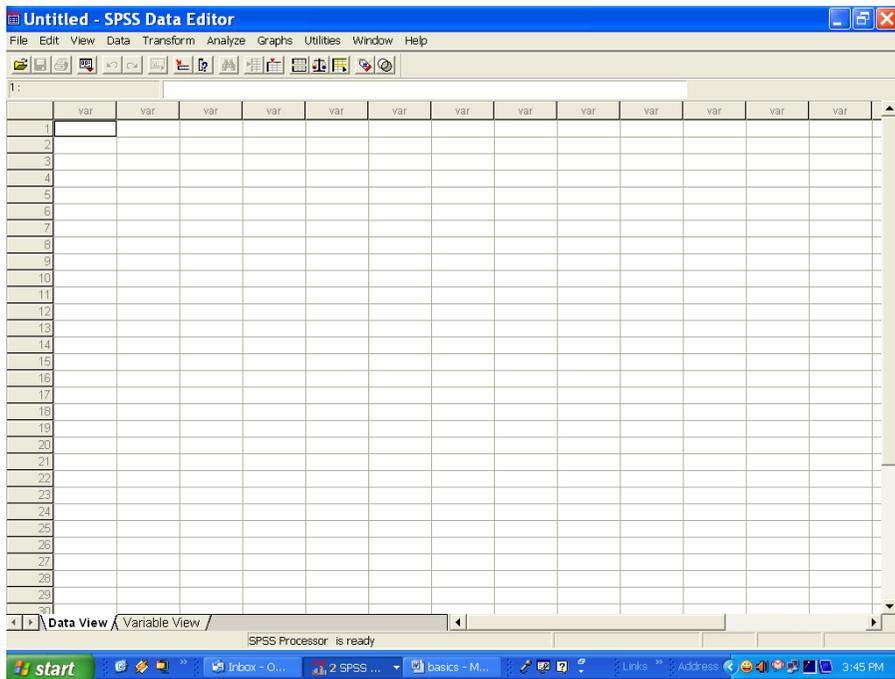
7.1 Step 1

Once the SPSS software is initialised on the Desktop from the *Menu Bar* select:

File \ New \ Data

Data Window will appear as shown below in Figure II.

Fig II: Data Window



STEP 2

From the *Excel File* containing Normalized Values created above, Select *Data Cells* carefully and *Paste* into the *Data Editor* as shown in the Figure 3.2 below. It is suggested to *Select* and *Copy* all the indicators simultaneously.

Fig. III

	state	diabetis	asthma	thyroid	newanemi a	nrBMI	antenatal	ndelplace	
1	28	0	1	0	1.00	.	1	2	
2	28	0	0	0	0.00	2	0	2	
3	28	0	0	0	1.00	1	1	2	
4	28	0	0	0	1.00	1	1	2	
5	28	0	0	0	0.00	2	1	2	
6	28	0	0	0	0.00	1	0	2	
7	28	0	0	0	1.00	0	1	2	
8	28	0	0	0	1.00	2	1	2	
9	28	0	0	0	1.00	2	0	2	
10	28	0	0	0	1.00	2	1	2	
11	28	0	0	0	1.00	2	0	2	
12	28	0	0	0	0.00	1	1	2	
13	28	0	0	0	1.00	1	1	2	
14	28	0	0	0	0.00	1	1	2	
15	28	0	0	0	1.00	2	0	0	
16	28	0	0	0	1.00	1	0	2	
17	28	0	0	0	0.00	2	1	2	
18	28	0	0	0	1.00	1	1	2	
19	28	0	0	0	1.00	0	1	2	
20	28	0	0	0	1.00	2	0	2	
21	28	0	0	0	1.00	1	0	1	

STEP 3.3

The next step is to define each indicator that has been copied from, MS Excel File.

Click *Variable View*, which is displayed below the left hand corner of the SPSS Window.

Name each variable one by one (up to 8 or less characters) and provide other requisite information as displayed in the top *Menu Bar* (Name, Type, Width, Decimals, Label, Values etc). The screen would look like as presented below in Figure IV.

Figure IV

	Name	Type	Width	Decimals	Label	Values	Missing	Columns	Align	Measure
1	state	Numeric	2	0	State	None	None	6	Right	Scale
2	diabetic	Numeric	1	0	Do you have di... (0, No)...	0, No	9	5	Right	Scale
3	asthma	Numeric	1	0	Do you have: a... (0, No)...	0, No	9	5	Right	Scale
4	thyroid	Numeric	1	0	Do you have: g... (0, No)...	0, No	9	5	Right	Scale
5	newanemia	Numeric	8	2		(0.00, no an...	None	6	Right	Scale
6	nBIM	Numeric	10	0		(0, normal)...	None	6	Right	Scale
7	antenatal	Numeric	8	0		(0, yes)...	None	6	Right	Nominal
8	ndelplace	Numeric	8	0		(0, institutio...	None	7	Right	Nominal

STEP 3.4

Go to the *Menu Bar* and select *Analyze \ data reduction \ Factor* and Click on *Factor*. Please see the screen below (Figure V).

Fig V

The screenshot shows the SPSS Data Editor interface. The 'Analyze' menu is open, and the path 'Data Reduction > Factor...' is highlighted. The background shows a data grid with variables 'var00001' and 'var00002' and their respective values.

STEP 3.5

The next important task is the Selection of the Variables.

You will see all the variables in the list (see Figures VI and VII).

From the list of variables, select all the variables for which you require to develop an Index. For example, if you need to develop an Index for, you need to select all the variables (say 7 variables) concerning health status of women.

This is to be repeated while developing Indices for other sub-groups, such if remain.

Figure VI

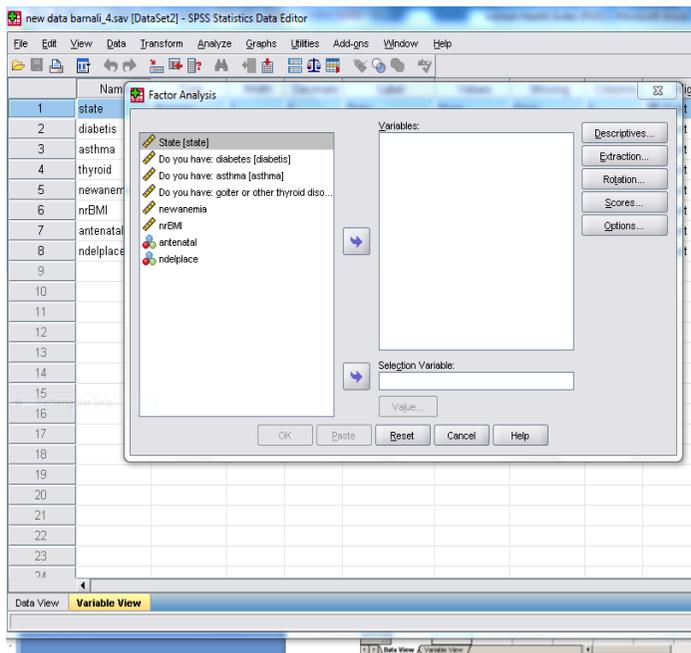
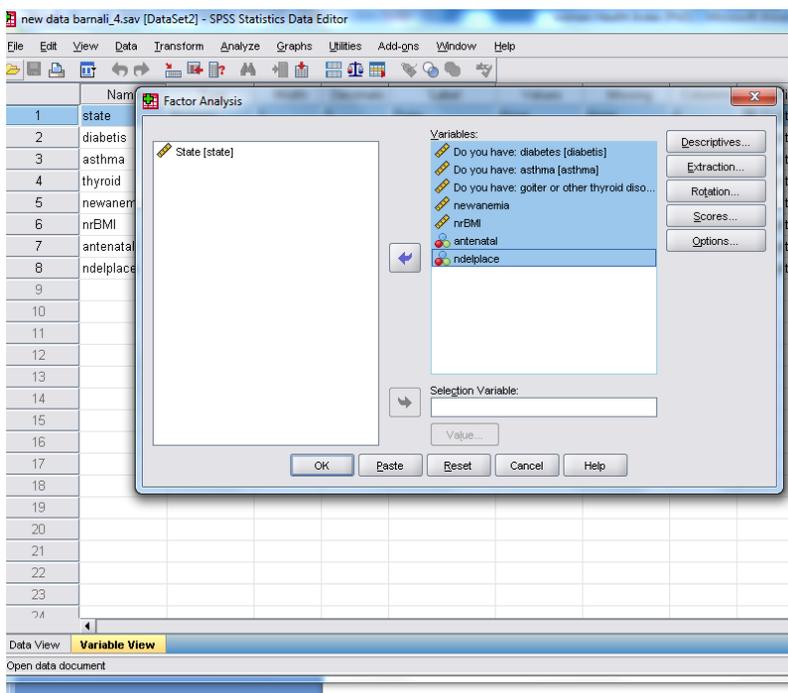


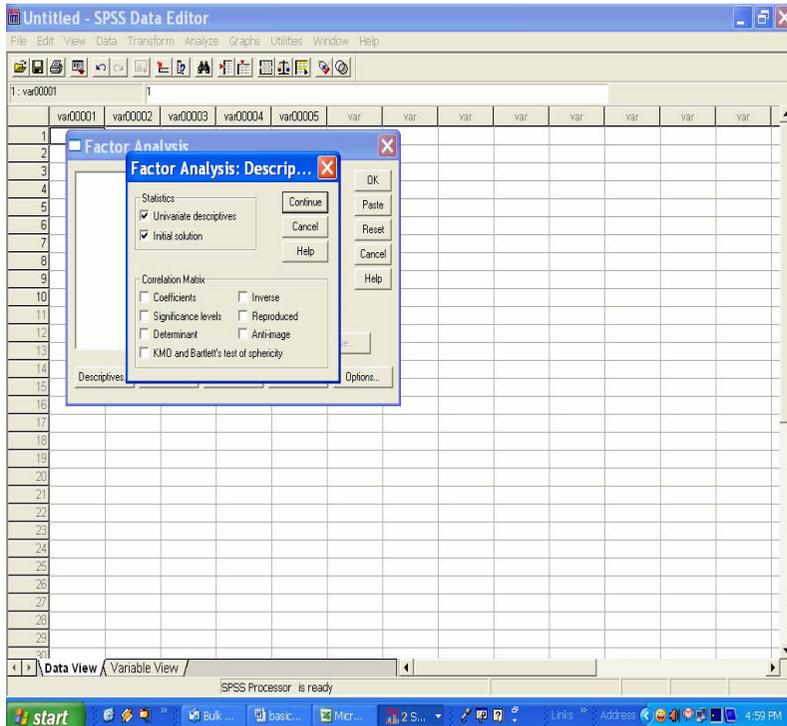
Fig VII



STEP 3.6

Select *Descriptives* and *Univariate Descriptives* and Click Continue (see Figure VIII)

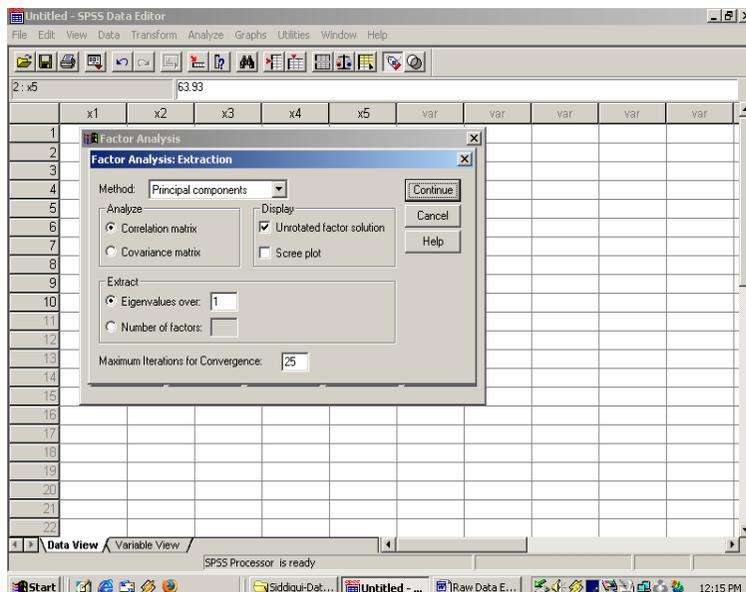
Fig VIII



STEP 3.7

Click *Extraction*. By default, Principal Components, Correlation Matrix, Un-rotated Factor Solution and *Eigen Values* over 1 are selected. The screen will appear as shown below in Figure IX. Click Continue.

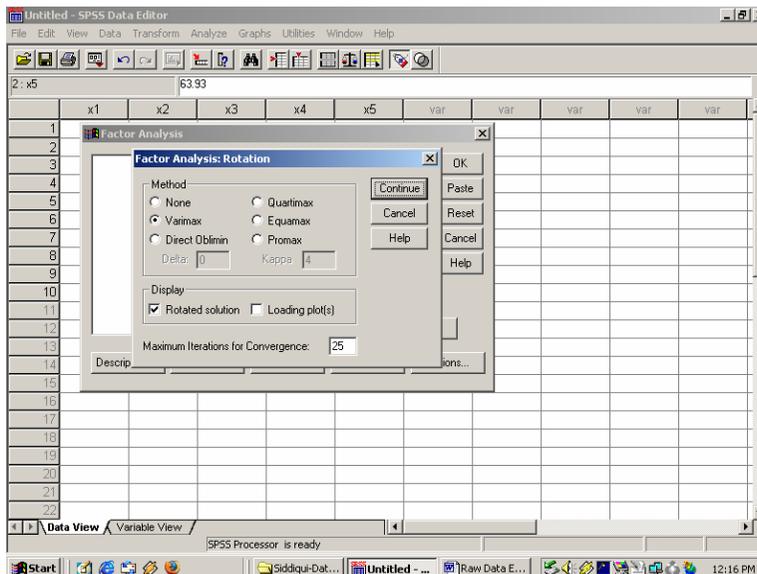
Figure IX



STEP 3.8

Click *Rotation*. Select *Varimax*. By default rotated solution and *Maximum Iterations for Convergence* will be enabled. Click *Continue* (see FigureX).

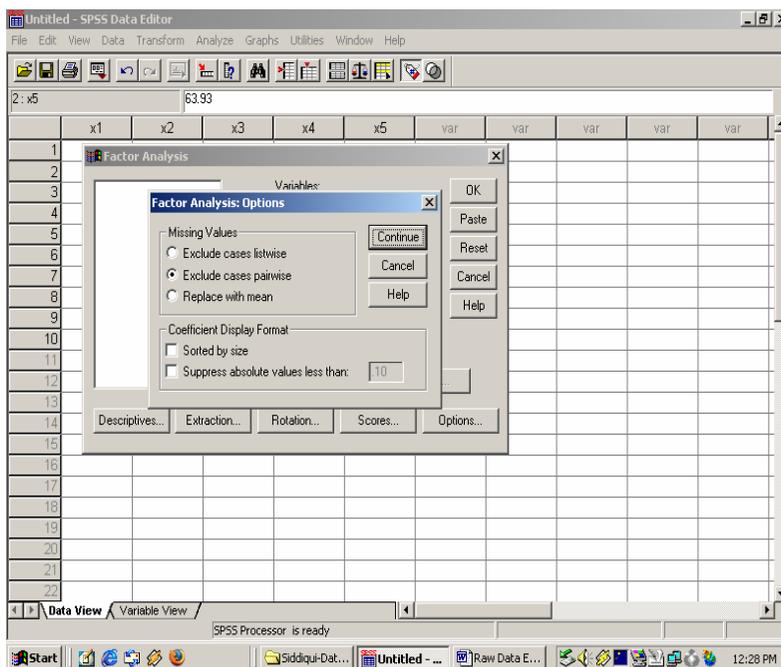
Fig X



STEP 3.9

Click *Option*: Option selection is optional. Use this step only when some values in the variables selected are missing (not available). Click *Continue* and then Click *OK* (see FigureXI). In case of No Missing Values, we finish the exercise at Step 3.8 and Click *OK* after the option *Rotation* is selected.

Fig X



Step 3.10

OUTPUT

- Through the *Descriptive Statistics* (table 3.1) total number of observations used in case of each variable can be known. In case of found missing values then the appropriate box as described above in the Step 3.9 should be checked.
- Next table that needs to be analysed is the *Total Variance Explained* presented in Output (Table 3.2).
- Identify Initial Eigen Values (Total) which is more than one. In this case, it is 1.690, 1.203, and 1.039. Number of Eigen Values having above 1 varies from data set to set.
- According to the number of Eigen Values above 1, the same number of Components will be extracted for each variable as shown in Rotational Component Matrix presented in Table 3.4 of. In the present example, since three Eigen Values are above 1, three Components have been extracted.
- Select the *Rotational Component Matrix* from Table 3.4 and *Eigen Values* from Table 3.2 and paste the same in the Excel Worksheet (see Figure 3.16)
- Multiply 1st *Eigen Value* (For example 1.690) with 1st *Extracted Component Row* (.042, .917, .917, -.045, .026, .007, -.007) and 2nd *Eigen Value* (1.203) with 2nd *Component Column* (.028, .001, -.083, .619, .631, .640) and 3rd *Eigen Value* (1.039) with 3rd *Component Column* (.712, -.020, .018, .729, .022, -.021, .009).
- Consider *Absolute Values* (irrespective of sign, Negative values are treated as Positive (Figure 3.14).
- Sum up the values obtained in case of each variable (For example for the first variable, the sum obtained is 0.92029.) Note that - 0.045 is considered as + 0.045). 0.92029 is treated as the weight for the first variable. Similarly, weights for other variables are obtained.
- Add all weights to obtain Grand Total of all weights. Thus, 0.92029, 1.603553, 1.568901, .93213, .812217, .793265, .79187 are added to obtain a total of 7.4229.

Table 3:1

Statistics								
		newdelplace	antenatal	nrBMI	newanemia	Do you have: goiter or other thyroid disorder	Do you have: asthma	Do you have: diabetes
N	Valid	125816	124385	116730	124385	125816	125816	125816
	Missing	41	1472	9127	1472	41	41	41
	Mean	.8540	.76	.52	.5340	.01	.02	.01
	Median	1.0000	1.00	1.00	1.0000	.00	.00	.00
	Variance	.125	.181	.249	.249	.011	.017	.011

Table 3.2 Total Variance Explained

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	1.690	24.150	24.150	1.690	24.150	24.150	1.685	24.077	24.077
2	1.203	17.185	41.335	1.203	17.185	41.335	1.207	17.249	41.327
3	1.039	14.841	56.176	1.039	14.841	56.176	1.039	14.849	56.176
4	.957	13.665	69.841						
5	.903	12.901	82.742						
6	.892	12.749	95.491						
7	.316	4.509	100.000						

Extraction Method: Principal Component Analysis.

Scree plot: 3.3

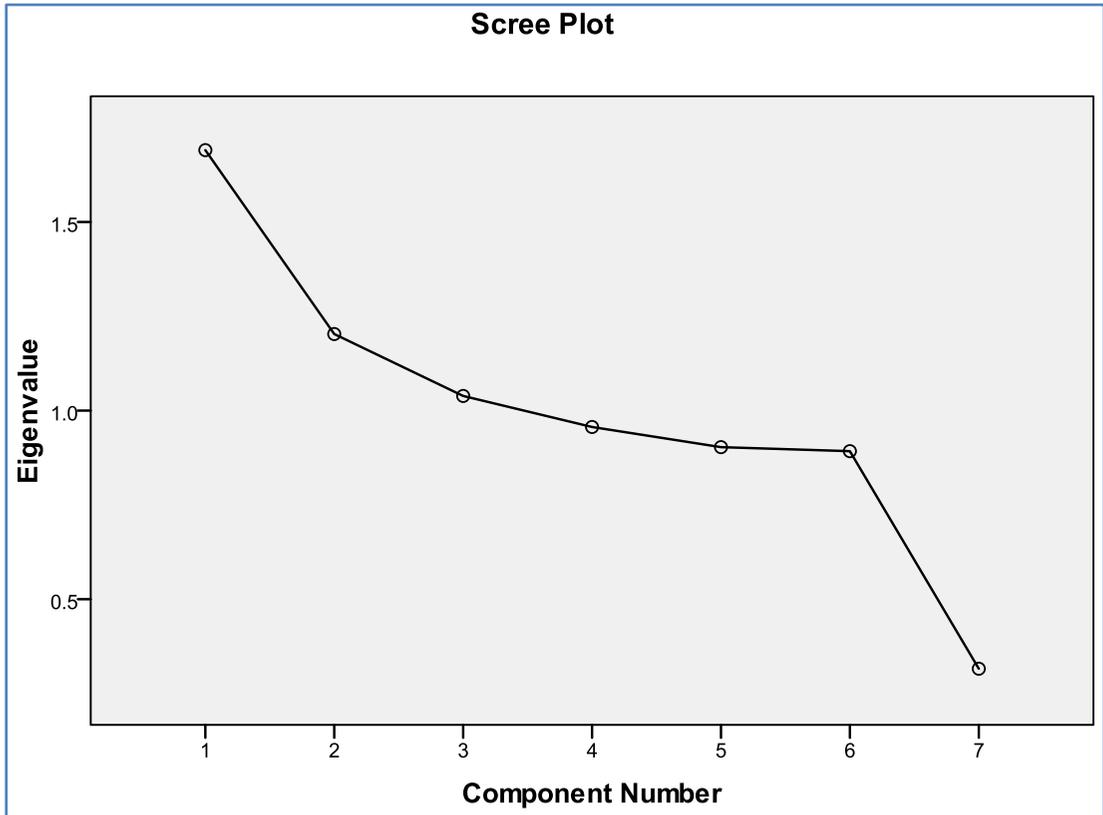


Table3.4

Rotated Component Matrix			
	Component		
	1	2	3
nrBMI	.042	.091	.712
antenatal	.917	.028	-.020
newdelplace	.917	.000	.018
newanemia	-.045	-.083	.729
Do you have: diabetes	.026	.619	.022
Do you have: asthma	.007	.631	-.021
Do you have: goiter or other thyroid disorder	-.007	.640	.009

Extraction Method: Principal Component Analysis.

Rotation Method: Varimax with Kaiser Normalization.

Rotation converged in 3 iterations.

Table 3:5

Rotated Component Matrix					
	Component				Wi
	1.69	1.203	1.039		
nrBMI	.042	.091	.712		0.92029
antenatal	.917	.028	.020		1.603553
Newdelplace	.917	.001	.018		1.568907

newanemia	.045	.083	.729		0.932813
Do you have: diabetes	.026	.619	.022		0.812217
Do you have: asthma	.007	.631	.021		0.793265
Do you have: goiter or other thyroid disorder	.007	.640	.009		0.79187
				∑ Wi =	7.4229

STEP: 3.11

- Copy Normalized Values from (Fig 3.2) along with the Variable Names into the *Excel Worksheet* Table 3.6.
- Copy the Weights obtained in the previous step (see Table 3.5) and copy the same on top of the column as shown in the Table 3.6.
- Multiply each value in different columns by the respective Weights presented on the top of the column and obtain the sum of each multiplication which is then divided by the total Weights presented above in the column to obtain an Health Index.

The following formula is used to determine the Index

Where I is the Index, X_i is the ith Indicator; L_{ij} is the factor loading value of the ith variable on the jth factor; E_j is the Eigen value of the jth factor

$$I = \frac{\sum X_i (\sum_{j=1}^n |L_{ij}| E_j)}{\sum_{i=1}^n (\sum_{j=1}^n |L_{ij}| E_j)}$$

Where I is the Index, X_i is the ith Indicator ; L_{ij} is the factor loading value of the ith variable on the jth factor; E_j is the Eigen value of the jth factor

- For example for State 28(Andhra Pradesh), each woman health index is calculated. It is calculated as follows:

(.92029 x 0 + 1.60355 x 1 + 1.56691 x 1 + .93281 x 1 + .81222 x 0+ .79327 x 1 +.79187 x 0)/ 7.4229 = .659923. This is an Index for a set of indicators for individual woman 1 of state 28. The procedure is repeated to obtain Indices for all individual woman the remaining all states (Figure 3.16)

Weight	.92029	1.60355	1.5691	.93281	.81222	.79327	.79187
State 28, individual woman 1,	0	1.00	1	1	0	1	0

Table 3.6

	0.92029	1.60355	1.5691	0.93281	0.81222	0.79327	0.79187		
State	nrbmi	antenatal care	delplace	havinganemia	diabetes	asthma	thyroid	∑ WiPi	$\frac{\sum WiPi}{\sum Wi}$
28	0	1	1	1	0	1	0	4.89854	0.659923
28	1	0	1	0	0	0	0	2.4892	0.335341
28	0	1	1	1	0	0	0	4.10527	0.553055
28	0	1	1	1	0	0	0	4.10527	0.553055
28	1	1	1	0	0	0	0	4.09275	0.551368
28	0	0	1	0	0	0	0	1.56891	0.211361
28	1	1	1	1	0	0	0	5.02556	0.677035
28	1	1	1	1	0	0	0	5.02556	0.677035
28	1	0	1	1	0	0	0	3.42201	0.461007
28	1	1	1	1	0	0	0	5.02556	0.677035
28	1	0	1	1	0	0	0	3.42201	0.461007

Based on the WHIs, Rank in ascending order can be assigned as shown in Table 3.6. The Highest Index with Rank One will be treated as the Best and the Lowest Index, with last rank will be treated as the Worst so far as the Health status of women is concerned among 29 states used in computation of WHI.

Compare individual WHI separately in case of each state as well as whole country with the maximum 1 and identify the states that need improvement.

References

1. Arber S. Comparing inequalities in women's and men's, 1997.
2. Arber S. Comparing inequalities in women's and men's, 1997.
3. Arber S, Cooper H. Gender differences in health in, 1999.
4. Bice T. " comments on health indicators: methodological perspectives", International Journal of Health Services. 1976; 6:509-520
5. Breslow L..'A quantitative approach to the world health organization definition of health: physical, mental and social well-being', International Journal of Epidemiology. 1972; 1:347-355.
6. health: Britain in the 1990s. Social Science & Medicine, 66(6):773-787.
7. health: Britain in the 1990s. Social Science & Medicine, 66(6):773-787 .
8. later life: The new paradox? Social Science & Medicine, 48:61-76
9. Principal Components and Factor Analysis, <http://www.statsoft.com/textbook/stfacan.html#basic>
10. Rothenberg Rchard, Stauber Christine,etal."Urban health indicator and indices- current status"BMC Public Health, 2015.
11. UNDP Human Development Report Office, occasional paper, March 2015.

Marketing of Intimate Hygiene Products over Social Media: An Analysis

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ABSTRACT: Sex education and the sexual health of both men and women play a pivotal role in shaping our modern world. Over the years, with the advent of social media a plethora of marketing strategies has evolved covering a wide range of products and services. Intimate hygiene products for both men and women have found a prominence in modern day to day lifestyle. Various pages have come up on social media where marketing of intimate hygiene products has received a strong response and a positive feedback from the audience. This paper is a critical analysis of the strategies applied by various companies while marketing intimate hygiene products for both men and women over social media. The methodology that was adapted to draw an analysis of the marketing strategy is based on the case study research of specific companies like Cora, Procter and Gamble, Saforelle and others that actively use social media as an essential platform for marketing their products. To list some of the major findings, a key marketing strategy that has developed is the association of a product (intimate hygiene) pertaining to a specific gender that would help in overcoming the social taboo associated with it. For example, Cora is marketing its sanitary napkins over social media by raging a war against poverty, unemployment and limited access to sex education. Another essential finding highlights how a product is being marketed by various pages on social media, having adequate amount of subscribers, simply with the usage of videos that have mirthful and informative content as its key ingredients.

Keywords: Social Media Marketing, Gender Equality, Intimate Hygiene, Sexual Health, Sexual Identity

1. Introduction

The concept of 'Marketing' finds a wide variety of definitions based on varying perspectives of marketers. In brief, marketing refers to engaging a target market of consumers to sell a product and maintain a relationship beyond the purchase. Marketing strategies are continuously evolving according to the changing dynamics of the world. Traditional marketing methods like print marketing, broadcast marketing, telephone marketing and direct mail marketing form an integral part of marketing strategies applied by companies as part of their overall marketing strategy. Over time, with the widespread growth and popularity of social media and the total amount of active users of this platform, marketing on social media has become the modern trend of companies.

Intimate Hygiene Products and Social Media:

Hygiene may be defined as the practice of keeping oneself and other associated surroundings clean, in order to prevent illness or spread of diseases. Basically there are two types of hygiene – personal and environmental. Personal hygiene aims to promote standards of personal cleanliness. It includes bathing, washing hands, taking care of nails, feet, hand and others to name a few whereas, environmental hygiene relates to proper disposal of waste, safe disposal of human excreta, avoidance of household pests and others. A very important segment that comes under personal hygiene is intimate hygiene. The maintenance of hygiene concerning intimate body parts of both male and female is known as intimate hygiene. For example, the need to change sanitary napkins at the time of menstruation every 2 – 3 hours, washing intimate parts before and after sexual intercourse, etc, form an essential part under personal hygiene. Unfortunately, intimate hygiene rarely finds a place in any day to day conversation or discussion. The maintenance of intimate hygiene is a basic requirement irrespective of one's gender.

Since the inception of social media and its ever growing popularity, it has proven itself as a promising platform for marketing of products to a pre determined target audience. All the four types of consumer products - convenience, shopping, speciality and unsought products have been successfully marketed on social media platforms like Facebook, Twitter, Instagram, Quora, Snapchat and others. Hygiene related products have fared well across nations, especially in developing nations like India, Bangladesh, and Nepal. The marketing of intimate hygiene products, irrespective of their demand and dire need of the society, has been very challenging. Any discussion pertaining to intimate hygiene and its related products is still considered as a taboo and attempts to build awareness bridge has received negligible amount of success.

With the advent of social media, marketing of intimate hygiene products has received a revamp from its earlier strategies of marketing adopted for various platforms. Social media has spread its wings all over the world and is expected to soon penetrate the remotest of places. Intimate hygiene is a prime matter of concern for every global citizen irrespective of caste, creed, sex, religion and other factors.

Critical Analysis of the Marketing Strategies Adopted:

This paper focuses on the critical analysis drawn with the help of case study research of the marketing strategies adopted for their products on intimate hygiene over social media by four companies namely, Cora, Procter & Gamble, and Saforelle and how various channels on social media with adequate amount of subscribers like iDIVA, VWomen and others are helping in this new trend.

Cora, a California based company that sells products related to feminine intimate hygiene and marching ahead with the motto "Empower Women" has come up with marketing strategies that not only help push their product for sale but also help in fighting against social menaces like poverty, unemployment and limited access to sex education. Talking about Cora's presence in India, it partners with Aakar Innovations, an enterprise with their prime focus on providing affordable sustainable sanitary pads for India's most vulnerable girls and women. The opportunities provided by Cora and Aakar in India allow women and girls to empower themselves in such a way that they not only look forward to improving their sexual health with the use of these intimate hygiene products but also uplift their economic status by playing an active role in the production of sanitary napkins. Cora, actively uses social media in marketing their products. They are present in social networking sites like pinterest, facebook, instagram and twitter. Their key strategy lies in associating a product of intimate hygiene with a social issue. This strategy not only invokes emotions but also helps in the successful run of the product.

Procter & Gamble, established in 1837 and headquartered in Ohio, USA is one of the largest MNC goods corporation and specialises in wide range of personal care and hygiene products. P&G India, markets its feminine care and adult continence products with the tagline "Comfort and Confidence". Over social media they promote their intimate hygiene products advocating gender equality. Apart from this, celebrating International Women's Day, Mother's Day and Menstrual Hygiene Day with trending hashtags on social media is another key strategy they employ. 'Always #LikeAGirl' is an initiative by P&G, 'Always' brand where the campaign aimed at improving the confidence of girls when their confidence surges at its lowest, the first time they hit puberty. The phrase 'like a girl' has been around forever and is often used in derogatory ways. The entire motif of the campaign was to change the way like a girl was used in day to day conversations. Well, this campaign was able to grab the eye balls of the masses and yes, it did change the way the phrase like a girl was perceived and used in regular conversations. This marketing strategy also resulted in positive response from consumers across the world.

Saforelle, another company established in 1989, with the sole objective of taking care of a women's intimate area. Saforelle sells a wide range of products related to intimate hygiene like soothing cream, mild cleansing foam, florgynal probiotic tampons and others. Saforelle shares a lot of sexual health related advices over social media as well as on their websites. Articles posted relate to a wide variety of topics like intimate hygiene after sport, menopause and intimate hygiene, pregnancy and intimate hygiene, vaginal flora, irritation in intimate areas, dryness in intimate areas and other health advices. Every product up for marketing by saforelle, is accompanied by health advices and why one must use it.

Talking about channels that are famous on various social media platforms, special mention must be made of how iDIVA and VWomen are contributing as a driving agent in marketing of products related to intimate hygiene.

'iDIVA', a facebook based channel that identifies with 'A women's brand inspired by real women.' iDiva, is presently promoting products pertaining to intimate hygiene on their channel with use of informative and mirthful content. Their videos employ ample amount of informative and humorous content that not only make the video a great delight to watch but also the product very attractive for all its subscribers.

VWoman, another page that operates on facebook defines itself as the dynamic community for woman of today. It has developed to be a place where women can discuss, express, learn, and also get inspired and motivated about their own self. VWoman, proudly organises a marathon - 'Pinkathon - India's Biggest Women run!'. This marathon also promotes one of the most vital products related to feminine intimate hygiene, vaginal wash. Apart from this event, they have come out with trending hashtags like #WomenOfWisdom, which is related to the stories and achievements of inspiring women who make this world a better place to live irrespective of the barriers they face on a regular basis.

Conclusion

Marketing on social media is a prevalent trend across the globe. Although, marketing of intimate hygiene products is an evolving genre, recent trends show that it has been quite successful in the initial stage. With the support of channels based on social media, the marketing of intimate hygiene products has penetrated the minds of millions of netizens across the world. People have not only reacted to these products with likes and comments but also opted for purchasing the product online. What still remains critical is the amount of money the companies are willing to spend for the marketing of intimate hygiene products on social media. Well, intimate hygiene products have a very strong market across the world, especially in developing countries. They cannot be rendered valueless as they hold a vital position not only under hygiene and other related segments but also making this world a much more sustainable place to live in.

References

1. Zarrella Dan. *The Social Media Marketing Book*, 2010.
2. Evans, Dave. *Social Media Marketing: An Hour a Day*. John Wiley & Sons. 2010.
3. Ashley, Christy, Tuten Tracy. *Creative Strategies in Social Media Marketing: An Exploratory Study of Branded Social Content and Consumer Engagement*. Psychology & Marketing. Wiley Online Library.
4. Evans, Dave and Mckee, Jake. *Social Media Marketing: The Next Generation of Business Engagement*, 2015.
5. Mangold, Glynn, Faulds, David. *Social Media: The new hybrid element of the promotion mix*. Business Horizons, 2009.
6. Barker Valerie. *Older Adolescents' Motivations for Social Network Site Use: The Influence of Gender, Group Identity and Collective Self Esteem*. CyberPsychology and Behavior, 2009.
7. Weiser Eric. *Gender Differences in Internet Use Patterns and Internet Application Preferences: A Two-Sample Comparison*. CyberPsychology and Behavior, 2000.
8. Katsanis, Lea. *Do Unmentionable Products Still Exist? An Empirical Investigation*. Journal of Product & Brand Management, 1994.
9. Shao Alan T, Hill John. *Advertising Sensitive Products in Magazines: Legal and Social Restrictions*. Multinational Business Review, 1994.
10. Wilson A, West C. *Commentary: permissive marketing—the effects of the AIDS crisis on marketing practices and messages*. Journal of Product & Brand Management, 1995.
11. Fischman SL. *The history of oral hygiene products: how far have we come in 6000 years?*. Periodontology, 1997, 2000.
12. Chen Y, Bruning E, Rubino J, Eder SE. *Role of female intimate hygiene in vulvovaginal health: Global hygiene practices and product usage*. Women's Health, 2017.
13. Jacob I, Khanna, M, Yadav N. *Beyond Poverty: A Study of Diffusion & Adoption of Feminine Hygiene Products Among Low Income Group Women in Mumbai*. Procedia-Social and Behavioral Sciences, 2014.
14. Alwagait E, Shahzad B. *When are Tweets Better Valued? An Empirical Study*. J. UCS, 2015.
15. www.saforelle.com
16. www.pg.com
17. www.cora.life
18. www.aakarinnovations.com
19. www.idiva.com

Start-up India – A Step towards Prosperity

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ABSTRACT: *Innovations are indispensable for the development of a nation and so the importance of start-ups cannot be denied. To encourage innovation and to promote entrepreneurship, the Start-up India programme was launched by the honourable Prime Minister of India, Shri Narendra Modi. This paper briefly discusses the various action plans and schemes which the government has initiated through the scheme of Start-up India. The paper throws light on some of the important statistics related to start-ups in India and makes a study of how successful the Start-up programme has been so far in encouraging entrepreneurship and its contribution towards the development of the country. Examples of a few successful start-ups have been given. The reasons why Start-ups fail in India or why there is a lack of innovation among the people along with the ways the Start-up India programme can cope with it, have also been discussed.*

1. Introduction

A nation cannot prosper without entrepreneurs and India, being a country of young minds, can be a hub of innovation. The future of India lies in innovation and creativity. In a country of INR 1.32 crores, it is impossible for government alone to provide jobs to every individual, hence people must come forward to become job creators rather than job seekers. A ‘start-up’ is basically an idea, a thought that might knock anyone, anywhere, anytime and it is making a revolution from that idea. It is important to identify the needs of the society and then bring new ideas to fulfil the societal needs through technology and innovation and this leads to the birth of start-ups.

According to Nasscom-Zinnov Start-up report, India stood third in the world, next to USA and Britain in start-ups in 2015, and with an ambition to make India at no. 1 in ‘Start ups’ and to encourage innovation in India, Prime Minister Shri Narendra Modi, made a call of “Start-up India, Stand up India” on 15 Aug, 2015. On January, 2016, the government launched the Start-up India action plans and announced the list of benefits and various schemes to promote start-up ecosystem in India.

Start-up India is an initiative of the Government of India to build a strong ecosystem for nurturing innovation and start-ups in the nation. Start-up India has brought the entire start-ups from the world under one roof thereby making them one community.

Objective of the Study

The Study aims towards attaining the following objectives:

1. To briefly discuss the various plans and schemes introduced and implemented by the Government of India under Start-up India programme.
2. To study the impact of the Start-up India programme on the growth of entrepreneurship and Start-ups in India.
3. To find out the challenges faced by the start-ups in India
4. To analyze how the different plans and schemes under the start-up India programme can help the start-up companies / firms face various challenges.
5. To discuss various steps that should be taken by the start-ups to become successful and profitable.

Methodology

The study uses qualitative approach of research and a study of various plans and programmes introduced under the start-up India programme is made and its impact on promoting start-up companies / firms has been analyzed.

Secondary data collected from different sources like internet, newspapers, magazines, publications, etc. has been used in the study.

Key Plans and Schemes under the Start-up India Programme

Firstly, the definition of Start-ups have been amended where an entity shall be considered as a Start-up for 7 years, which was previously 5 years and a Biotechnology Start-up for upto 10 years from the date of its incorporation due to the long gestation period for Start-ups. The key points of the Prime Minister's action plan for Start-up India programme includes:

- *Compliance regime based on self certification* – Self certification has been introduced in respect of nine labour and environment laws, such as payment of gratuity, contract labour, employees provident fund, water and air pollution acts, etc. and there would be no inspection during the first five years of launch of the venture to reduce regulatory burden on start-ups.
- *Start-up India hub* – A start-up India hub has been created as a single point of contact for entire start-up ecosystem to enable sharing of knowledge and creation of knowledge and experience pool and provide access to funding.
- *Simplification of the Start-up process* – The process for starting a business has been simplified. No letter of recommendation is required from an incubator or industry association to be recognised as a Start-up.
- *Patent Protection* - Government has simplified patent application and registration process for the start-ups. Patent applicants would receive free of cost legal services and 80% rebate in patent application fees vis-à-vis other companies for fast-tracking filing of patent application. Under start-up India programme, to enable start-ups to reduce costs in their crucial formative years, government has also amended the the Trademark Rules, 2017 to provide 50% rebate in Trademarks filing fee to start-ups.
- *Easy Exit process* – The Insolvency and Bankruptcy Board of India has been constituted and the provisions regarding insolvency resolution have been implemented. Section 55 to 58 of the Insolvency and Bankruptcy code, 2016 pertains to the fast track process of liquidation and winding up of Start-ups within 90 days from making an application for the same.
- *Funds of funds with a corpus of Rs 10,000 crore* - To provide funding support to the innovation driven enterprises, government has set up a fund of funds with a total corpus of INR 10,000 crore, which is being managed by SIDBI.
- *A credit guarantee fund for the start-ups* – To encourage entrepreneurship through credit to innovators across all sections of the society, credit guarantee mechanism shall be started through National Credit Guarantee Trust Company (NGTC) / SIDBI with a budgetary corpus of INR 500 crore per year for the next four years.
- *Exemption from Capital Gains Tax* - Section 54 EE has been introduced under the Finance Act, 2016 and Section 54 GB of Income-Tax Act, 1961 has been amended to provide exemption from capital gains if the sale proceeds are invested in the funds recognized by the government.
- *Tax exemption to start-ups for 3 years* – To provide support to the start-ups in the initial years of operation, profits of start-ups set up after April 1, 2016, for a period of 3 years in a block of 7 years are exempted from income tax.
- *Investments of venture capital funds* in start-ups above Fair Market Value have been exempted from tax.
- To promote innovation, *Atal Innovation Mission (AIM) has been launched*, wherein awards for innovations would be provided. There has also been a launch of Grand Innovation Challenge Awards for finding low cost solution to India's intractable problems.
- *Setting up of new research Parks* modelled on research park at IIT Madras, where more than 100 companies are working, to propel innovation through incubators and joint R&D efforts of industry and academia - Construction of 7 new research parks in 6 IITs and 1 in IISc Bangalore with an initial investment of INR 100 crore each has already been started.
- *Innovation core programs* will be started in 5 lakhs schools across India with a focus on 10 lakhs students to encourage innovations across India.
- To recognize incubators who have potential to become world class, the Government of India has started *Annual Incubator Grand challenge* and would award them with INR 10 crores each as financial assistance which may be used for ramping up the quality of service offerings.
- Different award schemes like UCCHATAR AAVISHKAR YOJANA (UAY), MILLION MINDS AUGMENTING NATIONAL ASPIRATIONS AND KNOWLEDGE (MANAK) SCHEME, SMART INDIA HACKATHON have already been started and have seen active participation from active minds across the nation. In 2017, around 1 lakh INSPIRE-MANAK awardees competed at district and State levels, while 7500 teams

including more than 40000 students participated in the 36 hour non stop digital programming event, Smart India Hackathon, 2017.

Need for Innovation

New thoughts are required for the development of the nation. Though there exists a number of examples of start-ups which has become an icon and a big name later, such as flipkart, paytm, Ola, Uber, etc., start-ups does not only mean innovation related to Information Technology. It should be in other fields too. For example, entrepreneurs can think of ways preserve fruits coming from hilly areas which gets perished or dried up by the time they reach the markets. Aerated water companies can think of using some percentage of pure fruit juice in their products so that the sale of fruits can be increased. Scientists are thinking of using atomic energy to preserve onions for a longer period of time to prevent inflation of onion prices from time to time, but it is very expensive. Some alternative but cost effective ways of preserving onions can be thought of. Even in health sectors, it is the technology which detects the problem before it is being treated. Innovators should come forward to develop better technology at cost effective rates so that the society can be benefited at large.

Start-ups need a thought, a good motive to help society at large and not just making money. It is important to identify the gap between what is needed and what is available to the society, money follows automatically. Amazon India, flipkart, snapdeal, all are making losses, but they have identified the gap and have made a strong position in the market before they start making profits. For example, to help society and provide cab services at minimal cost with maximum comfort, Uber launched its app and profits reaped in naturally. Vaccination, once innovated and introduced, helped millions and millions of people across the world and gave humanity a new dimension.

Has Start-up programme boosted Entrepreneurship in India?

With the introduction of Start up India programme, there were an upsurge in the investor activity in 2016. According to the start-up report published by Nasscom-Zinnov, over 1400 new start ups emerged in 2016 alone with the launching of the Start Up India programme. Impetus from the government resulted in a 40% increase in the number of active incubators and accelerators in 2016 and 25% increase in start-ups. The year witnessed a substantial increase in young entrepreneurs thereby reducing the median age of entrepreneurs from 32 years in 2015 to 31 years in 2016. India showed a shining rank of being third, when it came to tech innovation globally. The Start up India programme launched by the government of India which has resulted in a prioritisation of government support for entrepreneurship and growing culture of innovation has really worked in favour of these high tech start-ups.

The Advanced Manufacturing and in particular IoT (The Internet of Things) has also seen growth in particular. With around 1000 companies operating in the wider IoT space, this sub- sector has witnessed an appreciable growth of 100 percent from 2016 to 2017.

While there had been an increase of 40% compared to 37% in 2017 and 2016 respectively in the B2B sector in the overall Start-up base, share of B2B start-ups in new incorporated start-ups had been 47% in 2017 compared to 34% in 2016.

There were nearly 5200 Start-ups as of 2017, among which the health-tech sector showed an increase of 28%, Fintech start-ups attained a growth of 31% and e-commerce showed 13% growth YoY in overall numbers.

Start-up India programme – Moving India a Step forward

TABLE I. According to the World Bank Report on the ease of doing business, which takes into account ten indicators covering different aspects of business cycle, India showed significant improvement in 2017-18 and for the first time joined the list of top 10 improvers in the world. It is also the only South Asian nation this year to be a part of the global list of top 10 improved economies compared to the previous year. The persistent efforts from the Indian government has helped India make it to top 100 for the first time and improve significantly from a dismal position of 130 in the last edition. Even the Vice President of the World Bank of the South Asian region admits that the significant jump is due to the consistent efforts and strong reform agenda to improve the business environment made by the Indian government.

Table 1 below shows details of the different areas where India has made significant improvement.

Table 1

Topics	DB 2018 Rank	DB 2018 DTF	DB 2017 DTF ⁽¹⁾	Change in DTF (% points)
Overall	100	60.76	56.05	↑4.71
Starting a Business✓	156	75.40	73.69	↑1.71
Dealing with Construction Permits✓	181	38.80	36.17	↑2.63
Getting Electricity	29	85.21	85.17	↑0.04
Registering Property	154	47.08	46.83	↑0.25
Getting Credit✓	29	75.00	65.00	↑10.00
Protecting Minority Investors✓	4	80.00	76.67	↑3.33
Paying Taxes✓	119	66.06	47.67	↑18.39
Trading across Borders✓	146	58.56	57.61	↑0.95
Enforcing Contracts✓	164	40.76	38.90	↑1.86
Resolving Insolvency✓	103	40.75	32.75	↑8.00

Note: The DTF means 'Distance to Frontier' and shows the distance of each economy from the "frontier", which is the best performance observed on each indicators of doing business since 2005 across all economies. It is measured on a 0 to 100 scale where 100 represents the frontier, i.e. the best performance and 0 represents the lowest performance.

The India has also made the highest number of business regulation reforms in 2016-17 with a significant reform in eight different areas. Table 2 shows India among the top 10 improved economies in 2017-18.

Table 2

The 10 economies improving the most across three or more areas measured by <i>Doing Business</i> in 2016/17												
Economy	Ease of doing business rank	Change in DTF score	Reforms making it easier to do business									
			Starting a business	Dealing with construction permits	Getting electricity	Registering property	Getting credit	Protecting minority investors	Paying taxes	Trading across borders	Enforcing contracts	Resolving insolvency
Brunei Darussalam	56	5.77	✓	✓		✓	✓	✓	✓	✓	✓	
Thailand	26	5.65	✓		✓	✓	✓	✓	✓		✓	✓
Malawi	110	5.42		✓			✓			✓		✓
Kosovo	40	4.94	✓				✓					✓
India	100	4.66	✓	✓			✓	✓	✓	✓	✓	✓
Uzbekistan	74	4.50	✓	✓	✓			✓	✓			
Zambia	85	3.94					✓		✓	✓		
Nigeria	145	3.82	✓	✓			✓	✓	✓			
Djibouti	154	3.79	✓	✓			✓	✓	✓			
El Salvador	73	3.56		✓	✓				✓	✓		

Source: Doing Business database.

One of the aspects which needs special mention is the protection of minority investors where India stands fourth in the world and has the highest score (80 out of 100) within South Asia. Also the constitution of the

Insolvency and Bankruptcy Board of India and implementation of the provision regarding corporate insolvency resolution in Dec 2016 has contributed significantly in resolving insolvency.

[1] **NASSCOM** report of October 2015 started that 80,000 jobs have been generated through Start ups. Infact, start-ups have been among the recruiters offering highest pay packages in IITs and IIMs. The movement of Rushil Goel from Boston Consulting to Ola Cabs, Peeyush Ranjan from Google to Flipkart, Namita Gupta to Zomato as chief product officer from Facebook, Niket Desai from Motorola Mobility to Flipkart, Gaurav Gupta from ScaleArc to Snapdeal are some of the examples of this change.

The United Nations World Employment and Social Outlook 2017 report acknowledged that India created maximum number of jobs 2016 in the Asia and Pacific region, still the growth of employment opportunity fails to meet the growing population and hence there is a stagnation in job creation.

Table 3

Rank	Country	2027 Population ages 15-64, Mil	10Y Chg Headcount, Mil	2027 Population ages 15-64, % Global population ages 15-64	Cumulative share	M-to-F Ratio
1	India* **	1,002.8	115.9 ▲	18.6	18.6	1.08
2	China* **	989.4	-21.0 ▼	18.3	36.9	1.08
3	U.S.*	217.0	3.9 ▲	4.0	40.9	1.01
4	Indonesia* **	197.1	19.4 ▲	3.6	44.5	1.01
5	Brazil*	153.4	7.5 ▲	2.8	47.3	0.98
6	Pakistan**	147.1	27.5 ▲	2.7	50.0	1.05

Source: Bloomberg

Table 3 shows that India's working age population is projected to surpass 1 billion population by 2027, and to meet the employment needs of this hugely growing young population, job creators play a very major role. The Start-up India programme was initiated by our Prime Minister Narendra Modi with the optimism to nurture job creators rather than job seekers. In a survey made by the global recruitment firm Randstad, it was noted that out of the 400 employees surveyed, 56 percent considered quitting their jobs to start their own business. The survey found that 83 percent of the Indian employees wanted to be an entrepreneur as against world average of 53 percent, thereby clearly indicating how a little push up and encouragement can go a long way in creating job opportunities and reducing the problem of employment.

Further, the government in its recent announcement declared its plans to announce the new definition of Start-ups wherein an entity would have to declare its job creation targets as well along with certain level of innovation in its products or services to qualify as a Start-up for availing the benefits under Start-up programme.

[2] Six Start-ups have joined the Unicorn club with a valuation of \$ 1 billion or more , making India the country of third highest number of Unicorn Start-ups after US and China. India's Unicorns in 2018 are PolicyBazaar, Swiggy, Zomato, Byju's, Paytm Mall and Freshworks.

[3] According to data from Venture Intelligence, Foreign Private Equity and Venture Capital firms investing in Indian start-ups have increased by 96 per cent to \$16,728 million in 2017 compared to \$8,497 million in 2016, clearly indicating that the friendly policies, innovative products and tax benefits have played a major role in attracting foreign investments.

Few Examples of Successful start-ups:

Fig. 1. One of the world class example of start-up from India is BYJU (Bangalore), which provides supplemental classes from class 6 to 10 and provides test preparation training for various competitive exams like CAT, has made a student base of around 10 million, thereby becoming one of the largest

EdTech companies in the world. Byju Raveendran hailing from a village in Kerala started his company way back in 2011 with only INR 2 lakh that he made from taking classes offline, which is now worth INR 3300 crores. Byju's company, Think and Learn Private Limited, became online after he launched Byju's learning app in 2015. The idea appealed many investors and in 2016 alone an investment of \$75 million was made by venture capital firm Sequoia Capital and Belgian investment firm Sofina, followed by an investment of \$50 million by the Chan Zuckerberg Initiative in September, 2016.

Fig. 2. Paytm, founded by Vijay Shekhar Sharma, was incubated by the mobile internet company One97 Communications in 2010 as a prepaid mobile recharge website. It slowly added bill payment, booking bus tickets and e-commerce activities selling different consumer products. Today it is largest mobile payment service platform in India.

Fig. 3. Kunal Bahl took Snapdeal from mere selling coupons to a famous icon in India and took his business to a new height.

Fig. 4. Prestogifts.com was started in June 2014 by Sameer Prasad from self financed sources which has made a huge market now and a company known to everyone.

Fig. 5. Urban Ladder, an online market for home decor and furnitures, founded by Ashish Goel and Rajiv Srivatsya in 2012 is a well known company today. It was also the first company to start the practice of initiating trials of sofas in customers' homes for the first time in India. In an interview, Rajiv Srivatsya speaks of the four main problems, i.e. *infrastructure, regulation, funding and people (talent)*, which he faced which starting his company and how he thinks it would be resolved with the start-up India programme.

Fig. 6. freshfalsabzi.com CEO and founder Rajesh Gupta developed the idea of selling fruits and vegetables online observing that fruits and vegetables are bought in large quantities because people do not have time to go out and shop, which many a times get wasted and perished. He started accepting orders for online fruits and vegetables and ensured delivery of fresh products the very next day creating not only ease for the customers but also reducing wastage.

Challenges faced by start-ups and how Start-up India Programme can help?

The major challenges faced by the start-ups are:

1) **Culture** – Indian society is not receptive to failures and start-ups have high possibilities to fail. It might take years for a start-up to actually start making profit and reach break-even. Researches have shown that while children are highly creative at their earlier stages of life, their creativity reduces drastically when they grow up, probably because parents do not encourage creativity in them, destroy their confidence to take the risk of doing something new and force them to follow the stereotype already set pattern of the society. Society which do not encourage failures and frown upon them curb innovation and creativity even before it starts.

Under the start-up India programme, *Innovation core programs* like MANAK have been started in 5 lakh schools across India with a target of getting 10 lakh ideas to encourage innovations across India. It would nurture creativity among students from their childhood and groom them to accept failure as a challenge and a lesson. Various prizes and awards for innovations have also been introduced which would definitely prove to be an inspiration to those who have a spark of doing or making something new.

2) **Mentoring** – A person may have an idea but converting it into a successful business is not that easy. For this, proper mentoring and guidance from the experienced ones who can provide valuable inputs is required.

Under the start-up India programme, a formal mechanism to support, train and mentor start-ups have been introduced. Based on the model research park of IIT Madras, 7 new research parks in 6 IITs and 1 in IISC Bangalore with an initial investment of INR 100 crore each has already been started. The parks shall act as incubators and support companies with research focus so that they can leverage expertise of these academic / research institutions.

3) **Policies** – The policies of government, laws, regulations, play a major role in creating an environment for the development of entrepreneurial ecosystem. In India, for starting a business, compliance with all the laws, rules and procedures used to take a lot of time.

With the start-up India programme, the rules and regulations have been simplified to a great extent. Government has also initiated self certified compliance reports in respect of six labour law and three environment related laws, and there will be no inspection during the first five years of launch of the venture to reduce regulatory burden on start-ups. Additionally, even a letter of recommendation is not required from an incubator or industry association to be recognized as a 'Start-up' or for availing tax benefits.

4) **Financing** – Arranging investors and funds have always been a perennial problem for the start-ups. While of late, private equity firms, venture capital and investors have shown fair interest in the the start-ups, still a lot many of them struggle with raising finance.

In the Start-up India Programme, a fund with a total corpus of INR 10,000 crore has been set up to support start-ups. Further, to encourage entrepreneurship through credit to innovators, credit guarantee mechanism is proposed to be started through National Credit Guarantee Trust Company (NGTC) / SIDBI with a budgetary corpus of INR 500 crore per year for the next four years. To encourage investment in start-ups, investments of venture capital funds in start-ups above its Fair Market Value have been exempted from tax. Also, to encourage funding of projects out of profits, the profits of three years of the start-ups set after 1st April, 2016, have been exempted from tax have been exempted in a block of 7 years.

5) **Hiring** – According to National Skill Development Corporation (NSDC), there would be a requirement of 150 million skilled Indians to match the growth by 2022. For start-ups, it becomes all the more difficult to match the salaries offered by large companies, as they themselves run the risk of uncertainty of market conditions. Besides, uncertainty in economy generally affects start-ups more than the already established large organizations. In such a volatile situation, getting the right talent becomes a challenge. The instance of the IITs blacklisting six start-ups in 2016-17 as these start-ups went back on their words to hire the graduates shows the apparent difficulty of the start-ups to make the right estimate of the manpower requirement in an unstable market condition. The defer in the joining dates by four to six months by start-ups like Flipkart, CarDekho and Hopscotch have also raised frowns of the placement committee of these IITs.

Under the start-up India programme, the government is providing multiple benefits to the start-ups like exemption in the tax on the profits earned for the three years, setting up of research parks which can provide them constant guidance and help them attain stability, compliance based on self regime so that Start-ups can focus on core activities, etc. The government is also going to make it mandatory for the Start-ups to declare its job creation targets to qualify as a Start-up for availing the benefits under Start-up programme. This would certainly help the Start-ups make better assessment of the human resources required in advance and ensure better planning.

Additional Factors contributing to the success of start-ups

There are a number of additional things which can help a start-up to succeed:

- **Developing a proper organizational structure and hierarchy** – At the start-up phase, the founders almost do all the work themselves and lack any formal organizational structure as people are lesser in number and fully under the control of the founders. But as they grow, new complexities arise and defining specialized roles becomes very important. Different function like sales, R&D, marketing, human resource, finance, should be separated and people specialized in these functions should be allocated the task.
- **Planning and Forecasting** – Systematic planning acts as a framework to guide the organization in achieving their goals. Improvisation might be integral to the new venture, but lack of planning to achieve the objective in course of time might actually lead to haphazard and unnecessary riffling.
- **Sustaining Culture** - Culture is an important factor which binds people working together and imbibes a feeling of belonging and friendship. During the initial phases, almost everyone embraces it, but as organization grows, maintaining a strong organization culture becomes difficult. To keep it alive, cultural values must be articulated in the mission and vision statement. Regular get-together, informal meetings should be arranged to maintain cultural values and keep the feeling of belonging going.

Will start-up India Programme actually encourage innovation?

Though innovation is strongly related with the word ‘entrepreneurship’, which start-up India is aiming to bring into, innovation is often misrepresented with building prototypes. Infact, e-commerce and payment wallets have actually not been conceptualised in India. They have been copied and re-branded from the ideas already pioneered abroad and just have been launched in the Indian domestic market.

There is a need to bring a psychological change in the mindset of people. They have to be made innovators, developing their own new ideas rather than just replicating it from the existing successful ones. Here, institutions play a very important role and there is a need to invest in these universities which can encourage entrepreneurs to take risk of doing and thinking something new. Government should embrace the role of ‘creative first user’. The establishment of innovation core programmes in schools under start-up India programme and introduction of various award schemes and ignition grants, including NIDHI (NATIONAL

INITIATIVE FOR DEVELOPMENT AND HARNESSING INNOVATIONS) which provides funding support to start-ups from idea to market is a very positive step towards this. The corruption at various levels should also be curbed to promote fair and healthy growth of the start-ups.

Conclusion

It is easier to dream, but converting it into business is a difficult job. P.M Narendra Modi is striving to make it easier through his 'Start-up India' concept. Development of technology and connecting more and more people and their businesses to it can certainly help fulfilling their aspirations. Though the government has already initiated efforts to nurture innovation, there still remains a need to bring a *psychological change* among people to do something new, specially the new generation, so that real innovations and not just re-launching of already existing ideas are made. More investments in educational institutions at school level is required so that innovation can be encouraged among children and research parks set in academic institutions like IITs and IIMs can act as incubators to the start-ups. The steps taken by the government through start-up India programme is a welcome change and it should help the start-ups to overcome the challenges faced by them. However, to achieve the objective of encouraging entrepreneurship and innovation, other factors like infrastructure building, easy availability of electricity, curbing corruption at various levels also needs to be taken care of. With the supportive government attitude and assistance through the Start-up India programme, it is indeed the time for India's young generation to do something new for the welfare of humanity, for the welfare of the nation!

References

1. <http://indiatoday.intoday.in/story/start-up-india-19-key-points-of-pm-modis-action-plan/1/572651.html>
2. <https://www.thehindubusinessline.com/economy/policy/foreign-investments-in-indian-start-ups-doubled-to-16728-million-in-2017/article23952857.ece>
3. <https://yourstory.com/2018/04/india-ranks-third-top-global-tech-innovation-leaders/>
4. <https://timesofindia.indiatimes.com/business/india-business/India-retains-position-as-worlds-third-largest-start-up-base/articleshow/55067654.cms>
5. <https://yourstory.com/2018/03/indian-start-up-ecosystem-ranked-at-number-37/>
6. <http://techstory.in/start-up-india/>
7. <https://startupgenome.com/reports/2018/GSER-2018-v1.1.pdf>
8. <https://economictimes.indiatimes.com/small-biz/startups/companies-will-have-to-declare-job-creation-estimates-to-avail-benefits-under-startup-india/articleshow/58674483.cms>
9. <http://www.doingbusiness.org/~media/WBG/DoingBusiness/Documents/Annual-Reports/English/DB2018-Full-Report.pdf>
10. http://articles.economictimes.indiatimes.com/2014-11-25/news/56455404_1_failures-189-economies-business-success
11. <https://www.nasscom.in/knowledge-center/publications/indian-start-ecosystem-%E2%80%93-traversing-maturity-cycle-edition-2017>
12. <https://hbr.org/2016/03/start-ups-that-last>
13. <http://www.internetlivestats.com/internet-users/>
14. http://articles.economictimes.indiatimes.com/2014-11-25/news/56455404_1_failures-189-economies-business-success
15. <http://www.iamwire.com/2015/10/nasscom-start-up-ecosystem-report-2015-india-the-next-tech-hotbed/124497>
16. <https://yourstory.com/2018/02/nasscom-startup-product-series/>
17. <http://economictimes.indiatimes.com/small-biz/start-ups/economic-survey-2016-19000-start-ups-in-india-but-exit-options-remain-bleak/articleshow/51161562.cms>
18. <https://yourstory.com/2017/09/startups-jobs-1-billion-millennials-india/>
19. <https://timesofindia.indiatimes.com/business/why-2018-is-special-for-unicorns-in-india/articleshow/65254275.cms>
20. <http://www.thehindu.com/business/2015-was-the-biggest-year-for-indian-start-ups/article8114039.ece>
21. <http://www.doingbusiness.org/data/exploreconomies/india>
22. <http://www.narendramodi.in/india-s-future-is-in-innovation-creativity-pm-modi-at-the-launch-of-start-up-india-initiative-399648>

23. <http://indianexpress.com/article/business/business-others/e-commerce-firms-face-new-challenge-as-losses-force-reality-check/>
24. <http://www.businessinsider.in/Alibaba-Makes-Profit-In-India-Flipkart-Remains-In-Loss-Even-After-6-Years-Of-Operation/articleshow/43217108.cms>
25. <http://successstory.com/companies/snapdeal>
26. <http://www.rediff.com/money/interview/two-lakh-to-330-crore-the-byjus-classes-success-story/20161007.htm>
27. <file:///D:/Publications/Start%20up%20India/loopholes.pdf>
28. <https://www.startupindia.gov.in/>
29. <http://thewire.in/19500/start-up-india-right-intention-misplaced-efforts/>
30. <https://www.youtube.com/watch?v=tGu3kqOF7z8>
31. <https://en.wikipedia.org/wiki/Paytm>

Customer Satisfaction about Restaurant Industry: A Study on Selected Restaurants of Kolkata City

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ABSTRACT: *This research is focused to find out the key success factors for Restaurant industry in region of Kolkata whereas restaurants are operating in an increasingly tough environment. Customer satisfaction and loyalty plays a pivotal role in success of every business organization whether it is meant for a product or a service. Every business needs not only to retain its current customers but also to expand customer's base significantly and it is possible only when target customer is fully satisfied from company on some parameters. Fast food concepts developed very rapidly in last few years in Kolkata. The objective of the study is to find out the essential factors or determinants of customers' satisfaction in the restaurant industry of Kolkata City, West Bengal. There are two variables discussed in this study, i.e. independent and dependent variables. Customer satisfaction in fast food industry showing dependency on Service quality, Product Quality, Physical Design, Price, Customer satisfaction, Physical Environment, Taste and Promotion. The statistical tool used was SPSS. Findings of the study show that service quality and physical design are the key factors for satisfaction in fast food industry in Kolkata.*

Keywords: *Customer satisfaction, customer loyalty, competitive advantage, service quality, Restuarants.*

1. Introduction

The restaurant industry has become one of the most profitable industries in the world. International and local restaurant chains are satisfying the demand of customers in variety of range of products and services. The ready to eat segment (fast Food) has given a new dimension to the industry so that Fast food restaurants like Pizza Hut, KFC, are taking very good business in most of the part of world as well as in many cities of India, and they are spreading their branches very successfully.

Challenges on the other hand are that for much of the past decade various entrepreneurs sought to tap a growing appetite countrywide for eating out. Restaurant As an industry, F&B is overregulated and overtaxed.

Despite the glamour associated with it, restaurant business is notoriously tough the world over. Its seasonality, dependence on local markets and local tastes, intense competition and constant involvement required of entrepreneurs are just some factors that contribute to an absurdly high mortality rate. In India, these problems are compounded. The lack of well-planned and well-priced rental spaces, overregulation and licensing anomalies are factors complicating the recipe. These combined with an combined with an oversupply in at least three metros — Delhi, Mumbai, Bengaluru and kolkata — and a populace that is not just price sensitive but also more reluctant to take to newer ideas and foods than previously believed are impacting bottomlines.

Food costs are very high and not just due to inflation. The cost of importing ingredients, compounded by a lack of clarity on labelling laws, has made sourcing a challenge for even seasoned chefs. For restaurants that use top quality or imported products, food costs could spiral. Even for tightly run operations with Indian food, they are in the 20-25% bracket. Indian Accent, the top Indian restaurant that could also be a case study in efficiency, runs at a 20% food cost.

Then there are sudden horror news emerged like Mutton and chicken in large parts of Kolkata the carcass racket surfaced after reports of meat from carcass being picked up from dump yards and sold. The sale of meat has dropped in restaurants, markets and outlets selling frozen products. A city of passionate carnivores is turning to vegetarian meals and fish.

Even in some famous wholesale chicken outlet in KOLKATA, rotting chicken was found in freezers inside the shop by the police. Police raids unliddd tonnes of packaged meat of suspicious origin and transporting meat from a dead animal dump revealed an illegal network of rotten meat being sold alongside the fresh version, in and around Kolkata - a city known for its roadside chicken rolls and mutton biryani. A wholesale chicken outlet was raided and was found full of sickly birds and, worse, and even freezers full of rotting meat and

also apparently for sale to local eateries. More cases came tumbling out as a whole organized enterprise emerged in stages. Even it was clear that a full-scale market of rotting or carcass meat was thriving and big operators may be involved.

Some customers felt queasy as it dawned on them and suspect of getting cheaper chicken from the shop where the market price at the market say suppose was Rs. 150 a kilo but Rs. 140 or 145 was the retail price. At wholesale rates, price was Rs. 50 less than market price due to which customers queued up.

Basically, this is the era of globalization and due to advancement of media world is shrinking in terms of culture and habits so the fashions as well as eating patterns are also being opted among all over the world and this the reason for such a huge spread of restaurant industry in the world but in Kolkata after the meat scandal, the Scam leaves restaurants cautious, customers sceptical.

Customer satisfaction is very important for every organization; either they are service sector or the private sector. Customers are the actual agents or stakeholders for determining or best judging the success of any product or service. The purpose of this study is to investigate the factors or determinants which are making significant impact on customer satisfaction and loyalty in this industry in reference to our focus area of Kolkata. For this we studied the behavior of customers of some big Restaurant outlets in Kolkata city. The methodology used was data collection through structured questionnaire from sample of target population and then this data was statistically analyzed via SPSS.

Problem Statement

1. Due to the fast-growing environment the trends are changing continuously and people are trying to follow the western culture rapidly.
2. Fast food has its own impact on life of common people. These circumstances motivated the researcher to study the customer satisfaction about fast food outlets. The researcher is more focus on the service quality of the staff, whether they can satisfy customer or not. This research will, in other words find out the expectation and perception of customers about the service quality of staff there.

Objective of the research

1. The objective of the study is to find out the essential factors or determinants of customers satisfaction in the restaurant service of Kolkata.
2. To understand weather the services showing impact on customer satisfaction and customer loyalty.

Scope of study

1. The report made will be useful to Management students as well as for the Restaurant service industry, even for Entrepreneurs who are willing to start a restaurant business.
2. The report will benefit the present restaurant owners to map the future need and growth.
3. It will help the restaurant owners / managers / Marketing team to improve the business / sales, they will be able to understand their drawbacks and competitors. It would help them to attract new customers.

Data collection method

1. Primary data (Interview with restaurants managers, owners, customers, questionnaire)
2. Secondary data (Magazines, journals, blogs, ads, websites, reviews)

Research Questions

Reference to the research objective following research questions are to be addressed by this study:

1. What are the determinants of customer satisfaction in full service restaurant industry?
2. What is impact of service quality, product reliability, price and physical design on customer satisfaction in restaurant industry?

Methodology

Sample and data collection

Convenience sampling technique was used to collect the data from a sample of 130 customers on same point of purchase and consumption inside the restaurant. A structured questionnaire on Five Point Likert scale was used to collect the data.

Development of Instrument

The survey questionnaire measured four dimensions or determinants and their effect on central concept customer satisfaction. The reliability of instrument was checked first through pilot testing by using Cronbach alpha. The data was collected on 5-point Likert scale.

Significance of the study

A thorough understanding and knowledge of the factors that have impact on customer satisfaction are very useful in guiding restaurant owners and managers to design and deliver the right offering and strategies. Also, research has many future implications. It has potential to check the moderating effect of culture sensitivity and also it can determine the mediating role of customer satisfaction and its impact on brand or customer loyalty in further. This will be of unique in terms of local environment and will have many implications for restaurant owners, managers and researchers of particular community.

About the Industry

- Indian fast food market is expected to grow at a CAGR of 18% by 2020 due to changing consumer behavior and demography.
- Fast food market in India is expected to be worth US\$ 27.57 billion by 2020.
- About 10% of the fast food market in India is organized. NOVONOUS estimates that the organized fast food market in India is expected to grow at a CAGR of 27% by 2020.
- Vegetarian fast food constitutes of around 45% of the whole fast food market in India and is expected to grow at a CAGR of 18% by 2020.
- Fast food Casual dining restaurants (CDRs) market in organized fast food sector in India is projected to grow at a CAGR of 27% by 2019-20.
- Non casual dining restaurants (NCDR) or fast casual dining restaurants have gained tremendous market share in the last 10-15 years. Non-Casual dining restaurants (CDRs) market in organized fast food sector in India is also projected to grow at a CAGR of 27% in next 5 years.
- Quick Service Restaurants (QSRs) market in organized fast food sector in India is projected to grow at a CAGR of 20% by 2019-20.
- Millions of people eat ethnic fast food every-day from pani-puri to vada pav to dosa. To leverage the growth of ethnic fast food market many players are entering this market in an organised way.
- Ethnic fast food market in India is projected to grow at a CAGR of 31.95% by 2019-20.

Literature Review

Customer Satisfaction

According to Zairi (2000) the feeling of pleasure and expectation fulfillment is known as Satisfaction. If the product will not satisfied customer feelings they will be dissatisfied, and if product satisfied them after the use customer will be satisfied and become loyal to that product or brand. In other words customer satisfaction is goods or services which fulfill the customer expectation in terms of quality and service for which he paid. If Customer satisfaction develops they will become loyal to that product or brand and their loyalty will be good for the company in sense as a Profit. Customer satisfaction is the part of marketing and play important role in the market. In any organization satisfaction of customer is more important, because if your customer is satisfied with your services or products, your position will be good in the market. Oliver (1981) describe in his study that customer satisfaction is the part of marketing and play important role in the market. In any organization satisfaction of customer is more important, because if your customer is satisfied with your services or products, your position will be good in the market. In old times customer satisfaction was not too much important and people were not focused on quality. But now a days competition is taught and customer is aware of all the products and companies due to education and learning environment and this is the reason that every business is concern to fulfill properly customers need and wants. Huang (2011) promotions is different form of activities for attracting and getting attention of customer to purchase the product or service through personal selling, public relations, sales promotions and advertising. According to Kurniawan (2010) promotion of product or service helps in the best way to builds relationship with customers, because everyone is looking for the best suitable deal for them. Zeithaml (1985) it is a scale with multiple items good validity and reliability, many researchers use this instrument to understand and find the service expectation and consumer's perception for improving the service quality. The expectation of a customer is an important factor. The more service quality is near to customer

expectation more satisfaction and vice versa AyseOzferOzcelik (1988). Kurniawan (2010) branding is one of the factors which has been identified repeatedly customer choice in the selected product. Branding has impact on purchase decision of consumers. The more a brand is succeeded in their earlier period the more value for its brand can be generated. Lim (2010) Customer's ultimate satisfaction may have significant affect of atmosphere. Physical surroundings are helpful to create image in the mind of customer and to influence their behavior. Physical atmosphere of the restaurants have the significant impacts on the customers satisfaction. Lightning, furnishing, sent, music and different other atmospheric factors among them influence on customer satisfaction. Lim (2010) for the customer it is not necessary that a better quality can be a better taste, if customer like the taste of food he/she will be willing to pay for the it. Based on previous researches, in customer satisfaction and taste, there is a significant correlation found between them. Researchers found that Good taste of food has positive influence on customer's satisfaction and it also increase the customer's retention rate which is also depends upon customer's satisfaction. Therefore, restaurants focus is on taste of the food and services that has influence on customer's satisfaction

Service Quality

Ayse (2007) Top quality includes 2 main factors: (1) the merchandise fulfils wants or even (2) around that levels it truly is free from insufficiencies (Juran, 1988). Service is kind of performance that's proposed by 1 get together to an alternative and also within corporeality can be a ought to part of it (Kotler & Keller, 2006). Through acknowledged the necessity associated with methods associated with program excellent quite a few scientists most often make use of program excellent in order to measure customer satisfaction Zeithaml (1985).The researcher found that greater you give service as per customer requirement or need, greater will be the level of satisfaction and vice versa. Analysts described the direct positive relationship of service quality with customer satisfaction (Parasuraman et al., 1988). Athanassopoulos (2000) identified development, responsiveness, price, and program excellence as centre measurement associated with customers' satisfaction. Service quality is not an easy task to quantify and being evaluated, because it is not a product to quantify but it is customer's evaluation and subjective perception about something (George & Jones, 1991). Takeuchi (1983) quality is such an important characteristic or feature of something that make some differentiation in your product and stands you remarkable in terms of competitive advantage. Service quality is evaluated when the user of service compare his perception with actual experience. Gronroos (1984) Satisfaction is wide concept and is impacted by many factors and service quality is one of the major determinants of customer satisfaction (Zeithaml & Bitner, 2003). Bitner and Hubbert (1994) give two options of explaining the phenomena: satisfaction as result of some particular experience or event combined effect of satisfaction.

Product Quality and Reliability

Product quality has same importance in full service restaurant industry as like service quality. More you are reliable in terms of your product quality more customers will be satisfied with your product. It is the part of Customer relationship management (CRM) that how much your customer depends upon reliability of your core product. Once customer is satisfied on reliability of full service restaurant, he would not only become loyal customer but also will become brand ambassador and will add in customer equity of the restaurant. In different organization business we will discover all 5 most critical measurements which make a very good organization and also these are generally program excellent, perceptible, trustworthiness, responsiveness assurance and etc. (Azadavaret al., 2011). Satya (2011) identified it is compulsory for corporations to maintain their own excellence in quality mainly because everyone is a lot more attentive to quality excellence as compared to price. The consumers someday buy better brand in terms of quality instead of thinking about of the price issue (Rajput et al., 2012). Tsiatso (2006) identified a good primary influence associated with perceived quality upon acquire intentions.

Physical Design

On the view associated with actual physical layout, environment psychologists declare that people answer areas along with two general, and also opposite, types of actions: strategy or even prevention (Mehrabian & Russell, 1974). It is advised of which besides the actual physical measurements of the organization attracting or even deterring assortment, actual physical layout of the organization can also influence the amount associated with accomplishment consumers attain after within (Darley & also Gilbert, 1985).

Price

Price has a significant role in selecting a product. For company point of view price is reward or value given in return of need fulfilment to company. Perceived customer expectations and price should be in accordance with each other. Skindaras (2009) we can discover a lot of merchandise on this planet possessing different price ranges. Price is one of the four P's of Marketing Mix that has significant role in implementation of marketing strategy. (Kotler & Armstrong 2012). Han (2009) claim that one of the most adaptable factors which improved quickly is the pricing (Andaleeb & Conway, 2006) the costs associated with restaurant merchandise furthermore vary according to style of restaurant. If your price is large, clients may very well expect premium quality. " Also, in the event the price is minimal, clients may perhaps believe that restaurant is poor in terms of merchandise and also program excellent. Furthermore, because of the competition within of the restaurant industry, clients will be able to identify interior reference point price ranges inside their head plus they constantly evaluate and also analyze the values in terms of many characteristics associated with restaurant upon every acquire, an inside reference point price is understood to be an expense within potential buyers „memory of which acts as a criteria intended for contrasting precise price ranges (Grewal et al., 1998). Besides previously mentioned variables preference associated with merchandise, campaign, within aspect actual physical environment and also program excellent also have major romantic relationship toward customer satisfaction within fast food industry associated with chosen human population. Andaleeb and Conway (2006) researched of which price or cost associated with restaurant furthermore varies as outlined by style of restaurant. Shoppers may very well understand price associated with restaurant in terms of its merchandise and also program excellent. In accordance with Chang & Wildt (1998) the value provides its major influence upon customer perception about quality if it's really the only details indicated available. In respect the study associated with buyer want to undertake a price and also quality instead of complex elements within sturdy items (Chui et al., 2006).

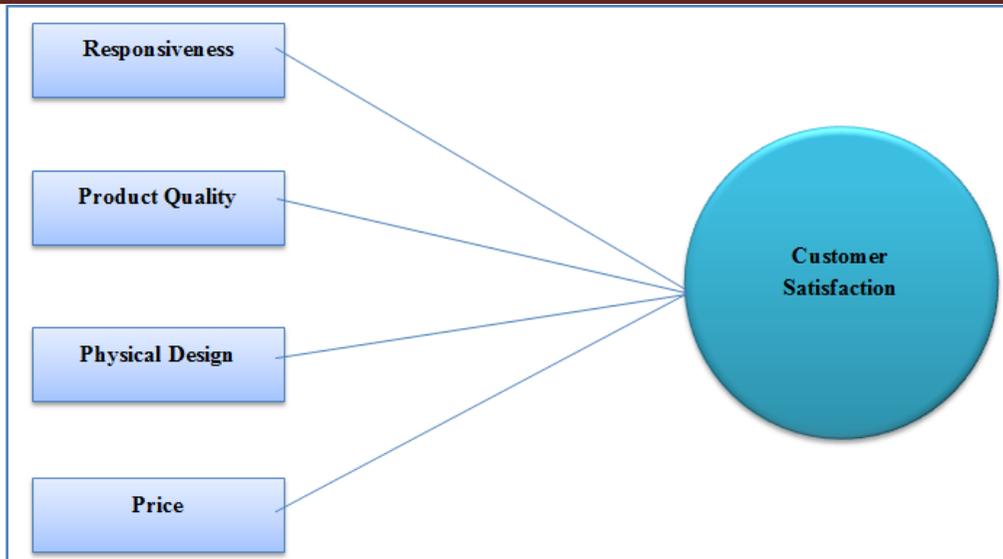
Theoretical Framework and Hypothesis

Research has found that there are a no of factors which are contributing towards customer satisfaction in restaurant industry. Many researchers have done lot of work on the concept and many elaborated it in different dimensions like taste of product, Sales promotion, brand image, brand trust , physical location of the restaurant product and service quality, physical atmosphere or design and pricing etc. All variables have their relative impact on customer satisfaction but the core variables that are chosen in this study are included in theoretical framework and their hypothesis are made accordingly for further research.

Model Diagram

Following diagram shows the relationship of variables both dependent and independent variables, customer satisfaction is dependent variable and Responsiveness, Reliability or Product quality, Physical design and price are few of the major independent variables in our study.

Independent variable Dependent Variable



Hypothesis

- H1a. The more reliable the service provided by the restaurant, the greater the level of customer satisfaction. Within Responsiveness (service quality) we can also propose below mentioned hypothesis;
- H2. The responsiveness is positively related with customer satisfaction.
- H3: The food quality is positively related with customer satisfaction.
- H4. The physical design and appearance of the restaurant, is positively related with customer satisfaction.
- H5: The negative deviation in price, is negatively related with customer satisfaction

Data Analysis Section:

Demographic Summary:

To check the reliability of instrument, reliability analysis and the value of cronbach alpha for each individual variable in SPSS was found out.

Demography	Count	Proportion
Gender		
Male	64	64%
Female	36	36%
Age		
Below 15 years	1	1%
15years but below 30 years	81	81%
30years but below 45 years	9	9%
45years and above	9	9%
Income		
Below 15000	40	40%
From 15000 to 29999	29	29%
From 30000 to 44999	17	17%
From 45000 to 59999	6	6%
60000 and above	7	7%
Occupation		
Teacher	19	19%
Banker	29	29%
Lawyer	12	12%
Business Person	30	30%
Other	10	10%

Note: Mean and standard deviation of each item under heading of item statistics of each variable is also given in table A in Annexure

Correlation Coefficients

Variable	Chronbach Alpha	No of Items
Responsiveness(Service Quality)	<u>0.730</u>	<u>10</u>
Reliability(Product Quality)	<u>0.55</u>	<u>2</u>
Physical Design	<u>0.60</u>	<u>4</u>
Price	<u>0.60</u>	<u>2</u>
Customer Satisfaction	<u>0.70</u>	<u>3</u>

Interpretation

The above table shows that data collected from respondents from selected restaurants in Kolkata city is reliable and consistent with the scale.

Table 3: Multiple Regression Analysis

		SQ	PQ	PRICE	CS	DESIGN
SQ	PearsonCorrelation	1	.593**	0.019	0.340**	0.533**
	Sig. (2-tailed)		0	0.83	0	0
	N	130	130	130	130	130
PQ	PearsonCorrelation	.593**	1	0.056	0.425**	0.409**
	Sig. (2-tailed)	0		0.525	0.005	0
	N	130	130	130	130	130
PRICE	PearsonCorrelation	0.019**	0.056**	1	-.351**	-0.046**
	Sig. (2-tailed)	0.83	0.525		0	0.602
	N	130	130	130	130	130
CS	PearsonCorrelation	.340**	0.245**	-0.351**	1	0.341**
	Sig. (2-tailed)	0	0.005	0		0
	N	130	130	130	130	130
DESIGN	PearsonCorrelation	0.533**	0.409**	-0.406**	0.341**	1
	Sig. (2-tailed)	0	0	0.602	0	
	N	130	130	130	130	130

P<0.01

Interpretation

Correlation is a technique which measure the strength of association between two variables the results show there is positive correlation among the variables of study but price has negative correlation with customer satisfaction and physical design. As, Correlation is significant at 0.01 level(2-tailed), here result shows there is low significance b/w price and other variables like customer satisfaction and physical design and strong level of significance exists among all other variables of study.

When we find the relationship between one dependent variable and one or more independent variables we go for regression analysis. Correlations only find association between variables but regression measures how much there are variation in dependent variable due to change in one or more independent variables. When there are two or more independent variables in study we go for multiple regressions.

Model summary

Model	R	R Square	Adjusted R Square	Std.Error of the Estimate
1	0.523 ^a	0.274	0.25	0.76936

a. Predictors :(Constant), Design, PRICE, PQ, SQ

Interpretation of adjusted R square

The value of adjusted R square shows that customer satisfaction is affected by 25% due to price, product quality, service quality and physical design as a whole and remaining 75% is due to other factors that are being held constant in this study but they have their impact on the concept. Goodness of fit is also checked in Anova table. The value of F statistic shows the overall Fitness in model.

Multiple regression coefficients

	Model	Unstandardized Coefficients		Standardised Coefficients		Beta	T	Sig.
		B	Std. Error					
1	Constant	2.313	0.543				4.257	0
	SQ	0.35	0.172	0.21		0.21	2.032	0.044
	PQ	0.067	0.101	0.064		0.064	0.666	0.507
	PRICE	-0.31	0.068	-0.35		-0.35	-4.575	0
	DESIGN	0.236	0.115	0.187		0.187	2.047	0.043

a. Dependent Variable: CS P<0.01

Interpretation

Multiple regression analysis was used to test the model with four independent variable and customer satisfaction as one dependent variable.

The results show that variables under heading of un standardized coefficients shows how much dependent variables is caused or effected by independent variables. Here value shows all independent variables positively affect the customer satisfaction except price with negative value. The values of Beta (Standardized coefficient) shows that service quality has much positive impact on customer satisfaction with (B: 0.210), Physical design has 2nd largest importance as (B; 0. 187) and Product quality or reliability has weak relationship as (B: 0.064). On the other hand Price has negative relationship with customer satisfaction as (B: -0. 350)

Conclusion

This study tested the model of customer satisfaction in full service restaurant industry. Top restaurants in Kolkata have asserted that there has been no decline in footfall in view of a carcass racket unearthed and even as foodies showed scepticism in ordering meat-based dishes.

The results show that restaurant owners should focus more on these four factors of service quality, physical design, product quality and price if they think customer satisfaction as part of their marketing strategy yet among all these four variables they should take service quality as the most important tool of customer satisfaction. All of the major elements of service quality in SERVQUAL MODEL are being used under heading of responsiveness to check the service quality that is contributing maximum towards customer satisfaction in full service restaurant industry. From managerial perspective it is important to develop training programs to build up the responsiveness of employees, their attitude, knowledge and all other dimensions of Servqual model. The negative beta value of price in multiple regression models indicates that when price is not in accordance with the expectations of customers their satisfaction level declines. As per Secondary research customer have reference prices in their minds and memories when they go to buy something (Grewal et al., 1998). So, full service restaurants should reposition their prices to take the confidence of customers. Based on the regression coefficients, the beta value for Product quality or reliability is very low. Initially it looks surprising but in modern and high growing restaurant food industry, it is not as much important tool to differentiate the positioning on basis of quality as it is presumed by customers that all restaurants of almost equal levels are giving same food quality. So, the point of differentiation is not food quality now. As per results physical design or atmosphere has 2nd largest contributing effect towards Journal of Asian Business Strategy, 4(1)2014: 18-31 28 customer satisfaction. Now in this age only atmosphere is not the criteria of satisfaction but it should be blended with other factors like service quality also.

Discussion

Top restaurants in Kolkata have asserted that there has been no decline in footfall in view of a carcass racket unearthed by the police earlier this week, even as foodies showed scepticism in ordering meat-based dishes. People here have resorted to fish, prawn and even vegetarian items amid a chaos over carcass meat sales statement by the Association of Eastern India (HRAEI). Roughly, there has been a certain per cent fall in order of meat items across our member restaurants. But there is no decline in the profit margin in the restaurants of Kolkata as people have replaced chicken and mutton items on their plates with fish and prawn delicacies. But it is observed that the customers have also been asking about the meat quality and the supply source before ordering in popular restaurants of kolkata.

Restaurants owner or top Quality manager need to adopt stricter measures to check the quality of raw materials that come into kitchens as it can drastically affect the footfall of customers and sustainability of restaurants in Kolkata and surrounding areas as customer satisfaction is a top priority in any service industry. However based on research it seemed confident that such scams “won’t affect the sale of items” at

his restaurants as his patrons had faith in the quality of food served to customers and no such compromises on quality to lure more customers. It is found that loyal customers have not changed their preferences. Research also found that Customers generally know which eateries serve meat items at low prices and quite obviously, the roadside stalls are facing the heat as customers are suspicious at their offerings at present.

Future Research

To explain customer satisfaction in a better way, it is important to look at additional factors or seek better measures of the constructs (Divide the dimension or variables of construct into all possible elements). The value of adjusted R square indicates that there is limitation and need of more in depth study in this field. As, apart from these four variables discussed in this study there are some other variables also which affects customer satisfaction. Second assumption to be studied is what the primary reason customer is going to restaurants either for meal or for social gatherings and as symbol of their prestige and social status.

References

1. Andaleeb SS, Conway C. Customer satisfaction in the restaurant industry: an examination of the transaction-specific model. *Journal of Services Marketing*. 2006; 20(1):3-11. Athanassopoulos,
2. D. Customer satisfaction cues to support market segmentation and explain switching behavior. *Journal of Business Research*. 2000;47(3):191-207.
3. Ayse Ozfer Ozcelik, L.S.A.M.S.S. An Evaluation of Fast-Food Preferences According to Gender. *Humanity & Social Sciences Journal*. 2007; 2(1):43-50.
4. Azadavar R, Shahbazi D, Teimouri E. The role of security as a customer perception of customers'online purchasing behavior, International conference on software and computer applications IPCSIT, 2011, 9.
5. Bearden WO, Teel JE. Selected determinants of consumer satisfaction and complaints reports. *Journal of Marketing Research*. 1983;20:21-28.
6. Bitner MJ. Servicescapes: the impact of physical surroundings on customers and employees, *Journal of Marketing*. 1992; 56:57-71.
7. Bitner MJ, Hubert AR. Encounter satisfaction versus overall satisfaction versus quality in Rust, R. T. and Oliver, R. L. (Eds), *Service Quality: New Directions in Theory and Practice*, Sage, Thousand Oaks, CA, pp.Kotler, P., & Armstrong, G. 2012.
8. *Principles of Marketing 14th ed*, New Jersey: Prentice Hall. Kotler, P., & Keller, K. L. (2006). *Marketing Management*. New Delhi, India: Prentice-Hall. Lim, H. 2010, 402.
9. Lin J SC, Wu CY. The role of expected future use in relationship-based service retention. *Managing Service Quality*. 2011;21(5):535-551.
10. Malik E, Ghaffor M. Impact of brand image, service quality and price on customer satisfaction in Pakistan telecommunication sector, 2012.
11. Mehrabian A, James R. An approach to environmental psychology, Cambridge, Mass.: MIT press. *International Journal of Business and Social Science*. 1974; 3(2):123.
12. Mittal B, Walfried M Lassar. Why do customers switch? The dynamics of satisfaction versus loyalty. *Journal of Services Marketing*. 1998; 12(3):177-194.
13. Neal WD. Satisfaction is nice, but value drives loyalty. *Marketing Research*. 1999; 11(1):20-23.
14. Oliver RL. Measurement and evaluation of satisfaction process in retail settings. *Journal of Retailing*. 1981; 57:25-48.
15. Oliver RL. A conceptual model of service quality and service satisfaction: Compatible goals and different concepts, In Swart, T. A., Bowen, D. E., and Brown, S. W. (eds.) *advances in service marketing and management*, 3, JAI press, Greenwich, CT, 1993, 65-86.
16. Oliver RL. *Satisfaction a behavioural perspective on the customer*, New York: McGraw-Hill, 1997.
17. Cronin J, Joseph J, Taylor, Steven A. SERVPERF versus SERVQUAL: Reconciling performance-based and perceptions-minus-expectations measurement of service quality. *Journal of Marketing*. 1994; 58(1):125.

FDI inflows and role of governance indicators: some evidence from emerging economies

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ABSTRACT: *This paper attempts to investigate the role of six governance indicators, defined by the World Bank, on Foreign Direct Investment (FDI) inflows across the fifteen emerging countries during the period 2002 to 2014 along with macroeconomic fundamentals such as real rate of interest, per capita GDP at constant price, trade openness and per capita electric consumption, by applying both the static panel method and dynamic panel method. We also examined the status of static panel by applying the poolability test and Wu-Hausman specification test. We have found from the analysis that the two-governance indicators viz., rule of law and control of corruption are statistically significant in explaining variation FDI inflows across these countries over the period 2002 to 2014. The macroeconomic variables, real rate of interest and per capita real GDP have been found to be significant. We have also obtained two other governance factors as significant for BRICS countries.*

Keywords: *FDI inflows, emerging economies, governance indicators, macroeconomic fundamentals, static panel Approach, dynamic panel model.*

1. Introduction

An engine of growth for emerging market economies¹, capital flows are crucial, typically of two types: foreign portfolio investment (FPI) and foreign direct investment (FDI). Foreign Direct Investment (FDI) inflows plays pivotal role in the development process of the emerging countries in several ways such as development of infrastructure, industrial development, development of transport and communication, poverty eradication, and creating employment opportunity etc. According to the Organization for Economic Co-operation and Development (OECD, 2008), FDI inflow is a key element for rapidly evolving international economic integration, i.e., globalizations. Under the right policy environment, it can serve as an important vehicle for local enterprise development, and it may help to improve the competitive position of both the recipient and the investing countries. In particular, FDI encourages the transfer of technology to the recipient country from the developed country. It also provides an opportunity for the host economy to promote its products more widely in international markets. However, in actual practice, most of the emerging economies suffer from lack of capital formation because there is low industrial productivity, technological backlog as a result there must be required huge investment for capacity building. Deutsche Bundesbank, (2003) has shown that the single largest component of net capital inflows to emerging market countries is foreign direct investment (FDI). There must be required long-term investment from institutional investors, MNCs (Multinational Corporations) and other bodies outside of the emerging countries. Moreover, multinational corporations (MNCs) that conduct FDI are to be considered an engine of competition, innovation and managerial skills, thus they are able to improve the productivity and performance of local firms in FDI recipient economies. Therefore, FDI inflow is necessary for structural development in the emerging economies. It also encourages the economic capacity building in the countries. FDI inflows can eliminate thus, to some extent as poverty, unemployment, low physical productivity, technological drawbacks exhibited in the developing economies.

Infrastructure, knowledge and investment in productive assets are necessary pre- requisite for economic growth and sustainable development in developing countries. In that context, FDI plays important role in financing and development in the emerging countries. Apart from economic infrastructure in terms of skill of infrastructure, governance now plays a determining role for inviting FDI inflows. In case of the emerging market economies, it is possible that there is good impact of governance factors on FDI inflows besides some other macroeconomic fundamentals such as infrastructure, real rate of interest, trade openness, per capita electric consumption, GDP per capita at constant price are also crucial.

¹The term 'emerging market economy' was first coined by Antoine W. Van Agtmoel of the International Finance Corporation of the World Bank in the year 1981 where it was defined as an economy with low to middle per capita income and it constitutes 80 percent of the global population and represent about 20 percent of the world economies.

United Nations Conference on Trade and Development (UNCTAD) has defined governance as "the manner in which the main actors in society, governments, businesses and civil society working together to improve society". The World Bank governance indicator defined by Kaufmann et al. (1999) has been widely used in the literature. Here the governance is a way of exercising power in the management of economic and social structures of a country's resources. The conventional macroeconomic variables such as trade openness², infrastructure, per capita GDP, are all important for FDI inflows in the emerging countries.

Fan et al., (2007) found that the FDI has a positive correlation with governance indicators. Saidi Y et al. (2013) has explained that only two indicators of governance namely political stability and regulatory quality have significant impact on FDI inflows. They have also shown some positive impact of macroeconomic variables on the FDI inflows in the developing countries. Indeed, market size, trade openness, infrastructure and the current account deficit etc have significant effect on FDI inflows in developing countries.

In this study, we address role of governance indicators on FDI inflows across the emerging countries during the period 2002 to 2014 along with the macroeconomic variables such as real rate of interest, per capita GDP at constant price, trade openness and per capita electric consumption, by applying both the static panel method and dynamic panel method. We also examined the status of static panel by applying the poolability test and Wu-Hausman specification test. For this study, we have selected fifteen emerging economies³ from the UNCTADlist that are having at least one percent share in FDI inflows among the all developing countries.

1.1 Brief dimension of governance indicators:

1. The six dimensions of governance indicator developed by the World Bank are described as follows-
2. Voice and Accountability (VA): It means that the peoples of the countries are able to decide to select freely their government and freedom to vocal independence or freedom of speech, freedom of associations, and responsible of civil rights of the country. All such factors indicate voice and accountability of the countries.
3. Political Stability and absence of terrorism/violence (PA): Political stability and absence of violence is necessary for every country and that are responsible of the peoples. The possibility of destabilization or unconstitutional overthrow of the government, including domestic violence and terrorism are measures by the several indicators in the country such as fake administration, bad law etc.
4. Government Effectiveness (GE): It means that the any decisions of the government such as government policies and implications, and the credibility of the authority's commitment to implement various policies how much response by the government. To explain the degree of responses by the government on quality of public service, civil service, independence of political pressure etc.
5. Regulatory Quality (RQ): Encouraging the foreign business and protect for the private sector by eliminating all the unfriendly policies such as price control, banking supervision and restriction of capital movement.
6. Rule of Law (RL): Every citizens of the country has confidence on their social rules and in particular the quality of contract enforcement, property rights, the police, and the courts. Effectiveness of judiciary systems of the country may give the protection of the foreign investors.
7. Control of Corruption (CC): Public power or bureaucratic regulation exercised for private gain from which it creates corruption in the country and which may hinders for the foreign investors. Massive corruption leads to inefficient plans for the foreign party due to uncertainty and ambiguity creates in return.

All the governance indicators used in our research purposes developed and measured by World Bank. The estimated values of each governance indicators lies between - 2.5 to +2.5 approximately. The minimum value of any indicators - 2.5 indicates weak governance performances of each country. Besides the maximum value + 2.5 explains strong governance performances of each countries.

1.2 Literature review:

²We have defined the trade openness as ratio of sum of exports and imports of goods and services measured to the gross domestic product.

³These economies are Brazil, Chile, China, Colombia, Hong Kong SAR, India, Indonesia, Korea Rep, Malaysia, Mexico, Peru, Russian Federation, Singapore, South Africa, and Vietnam.

Globerman and Shapiro (2002) has found that better governance leads to significant FDI inflows in case of underdeveloped countries and also governance can lead to outward FDI in case of large country controlling by controlling by GDP, human development, environment quality.

Karakaplan et al. (2005) has examined that FDI inflows increases as in good governance. For this purpose, they considered 97 countries during the period 1960 to 2004 by using panel data analysis.

Adeoye, A. (2009) has shown that determinants of inwards FDI into emerging market countries in order to find out that the importance of macro level of corporate governance. The results showed that macro level corporate governance indicators are significant factor in determining the inwards FDI flows in emerging market countries. He has also found that the good macro level governance increase inwards FDI flows.

Arbatli (2011) has shown that one of the important determinants of FDI was interest rate in emerging market economies, and relation between rate of interest and FDI inflows is positive.

Mukherjee et al. (2011) found that there are two ways relationship between investment in governance and FDI inflows in the backward countries. Thus, an increase an investment in governance leads to increase in FDI inflows. Therefore, investment in investment in governance is an incentive to increase inward FDI flows.

Sajit et al. (2011) examined the relation between good governance and knowledge base economy in East Asia is positive, and they found it intact in East Asia, good governance of the economies play an important role in FDI inflows. They also suggested that if China had higher quality of good governance across all the regions the country could attract more FDI inflows.

Cavallari (2012) in his study has shown that there are negative relations between rate of interest and FDI inflows by applying the baseline regression method and used dynamic panel regression method, which gets the two-step system GMM, estimates.

Dixit (2012) has found that a FDI inflow in the underdeveloped and transition economies was hampering by weak governance structure. According to Dixit, governance structure is combining of insecurity of property rights and contracts. He has described how the defective governance structure in southern countries affects the volume and form of their inward FDI.

Saidi, et al. (2013) has found that among all the governance indicator only two indicators such as political stability and regulatory quality has significant impact on FDI inflows. For the purpose they have taken 20 developed and underdeveloped countries during 1980- 2010 by using fixed effect panel data methodology.

Amusa et al. (2016) have examined that the relation between foreign aid and FDI inflows in 31 SSA countries. Poor infrastructure development and inflation rate the FDI inflows stagnant, while population size and trade openness enhance the FDI inflows in the countries. This empirical study explained that enhancing impact of productive infrastructure aid on FDI inflows in 31 SSA countries.

Zidi, Ali et al. (2016) have shown that the positive impact of governance indicator on FDI in MENA (Middle East and North Africa countries) region during 1996- 2014 using the random effect model. They have shown only four governance indicators have positive impact on FDI inflows in the region such as freedom of speech and responsibility, the quality of regulation, the functioning of states and rule of law.

This study is organized as follows. Section 2 discusses data, methodology and empirical results analysis details in section 3. The paper ends with Summary and Conclusion in section 4.

2. Data and Methodology

This section addresses the issue of the role of the governance factors on FDI inflows in the fifteen emerging economies during 2002 to 2014 following a static panel approach as well as dynamic panel approach. We also discuss for the results to the BRICS countries apart from these fifteen emerging countries in this study. We have also taken the BRICS in order to understand the FDI inflows within an important regional block. This empirical study focuses on the impact of six governance indicators and some macroeconomic variables on FDI inflows in fifteen emerging economies.

We have organized this section as follows – the next phase deals with the issue of sources of data and in part 2.2 and part 2.3 we have explain the econometric methodology and model formation. The next dynamic panel approach is analyses in part 2.4.

2.1 Data:

The data covers fifteen emerging countries during the period 2002 to 2014. Total number of observations in static panel with fixed effect model and dynamic panel model is 195. The data has been taken from the different sources such as World Investment Report (2015) Annex, tables, the United Nations Conference on Trade and Development (UNCTAD) report, etc. The type of the data is secondary in nature. For the estimation of coefficients of the variables in the static panel regression model and dynamic panel model, we have used the Eviews 7 software and STATA 12 software.

To the formation of the panel regression model, we have considered the FDI inflows (FDII) across the fifteen developing countries as dependent variable over the year 2002 to 2014. The six governance indicators, considered as independent variables such as Voice and Accountability (VA), Political Stability and Absence of terrorism/violence (PA), Government Effectiveness (GE), Regulatory Quality (RQ), Rule of Law (RL) and Control of Corruption (CC). The data on FDI inflows in the emerging countries are taken from UNCTAD. The data on six governance indicators have been collected from the World Bank. On the other explanatory variables such as Real Rate of Interest (RINT), figures have been taken from IMF and International Financial Statistics. The data on Per Capita Gross Domestic Products at constant price (PGDP) have been collected from World Bank Report. On the other, the Trade Openness in the emerging economies (TOE) is available in World Bank national accounts data and OECD national accounts data files. The institutional factor as Per capita Electric Consumption (PEC) figures are taken from the OECD and IEA report in the year 2014.

We now explain the rationality behind the selection of our variables. The GDP per capita at constant price is the measurement of size of the economy. Greater volume of GDP per capita is expected to have positive effect on the FDI inflows. Real rate of interest is also a factor of the country in case of investment process. Here expected-relation between real rate of interest and FDI inflows is negative or positive both are possible. Arbalti (2011) has shown in his study that there is a positive relationship between rate of interest and FDI inflows. On the other, in another study, Onyeiwu (2004) and Cavallari (2012) has shown rate of interest negatively affects FDI inflows in the economy.

Another factor is trade openness, which influences the FDI inflows and it is positively related to the FDI inflows in the emerging economies. Trade openness is measured by the economies trade intensity, which is the ratio of the sum of exports and imports to GDP. Trade openness relates to the trade restrictions by which foreign investors invest or not in the countries. Existence of trade barrier in the country can influence the entry to the horizontal FDI inflows. MNCs prefer to invest relatively to open economies. Good infrastructure system is also attractive to the foreign investor for FDI. Here, it is considered the infrastructure variable as per capita electric consumption in the countries. Expected assumption is that the Per capita electric consumptions negatively correlated with the FDI inflows in the countries.

Among all the governance indicators stated above VA is expected to have more influenced on FDI inflows in the emerging countries. On the other, it is expected that governance factor like PA, has similar effect on the FDI inflows like VA. An effective government can help to facilitate the FDI inflows in the emerging economies. RQ is a factor of governance indicators effective and regulatory environment can improve business practices in the countries, which help to facilitate the FDI inflows. RL indicator measures whether a country has developed rules and institutions that help the basis of social and economic transactions. Business will be more willing to operate in the countries where such rules are fair and transparent as this reduces the risks as they faced. CC is the most important indicators in case of FDI inflows in the emerging countries and it is expected that the correlation between CC and FDI inflows is negative. Before conducting the empirical analysis from the static panel data approach, we have carried out the poolability test for determining the suitability of panel data analysis.

2.2 Methodology:

The general static panel data regression is usually taken in the following form –

$$Y_{it} = \alpha_i + \beta X_{it} + V_{it} \quad 1$$

In the above panel regression equation 1, Y_{it} represents the dependent variable and the explanatory variable X_{it} along with the cross-sectional dimension i and time series dimension of t . The disturbance or error term V_{it} takes into account both the unobservable unit of observation specific effects and the remainder of the disturbance. Where, α_i denotes intercept term and β denotes a vector of coefficients.

To estimates, the group specific intercepts without imposing the distribution there are necessary the Fixed Effect model. Fixed effect methods control for all stable characteristics of the groups and it controls the time invariant characteristics of each variable. On the other, random effect model viewed as a regression model with a random constant term. We have pointed out that the random effects assumption, or conditional independence between the covariates and group-specific components, may be unrealistic. In case of fixed effect model it is follows that the group-specific components to be correlated with the covariates. Panel data can help to reduce the collinearity among the variables.

This study is carried out by static panel data analysis under fixed effect (FE) model. Static Panel data analysis considers time series data and cross sectional data simultaneously. There are two type approaches for static panel data models variation such as fixed effects and random effects. In the fixed effects approached, some unobservable variables correlated with the explanatory variables. In order to decide whether fixed effect model or the random effect model is suitable, we consider the Wu Hausman test (1978).

In this context, the independent variables considered is of two types, viz., governance indicators (X_i) and conventional macroeconomic variables (Z_j).

2.3 General model formation:

The static panel regression used for our study is as follows:-

$$y_{it} = \alpha_i + \beta_1 x_{1it} + \beta_2 x_{2it} + \beta_3 x_{3it} + \beta_4 x_{4it} + \beta_5 x_{5it} + \beta_6 x_{6it} + \gamma_1 z_{1it} + \gamma_2 z_{2it} + \gamma_3 z_{3it} + \gamma_4 z_{4it} + v_{it} \quad 2$$

Where,

y_{it} : FDI inflows of the i^{th} country are in the t^{th} year.

α_i : intercept term.

x_{1it} : The Voice and Accountability (VA) vectors of the i^{th} country in the t^{th} year.

x_{2it} : The Political Stability and absence of terrorism/violence (PA) vectors of the i^{th} country in the t^{th} year.

x_{3it} : The Government Effectiveness (GE) vectors of the i^{th} country are in the t^{th} year.

x_{4it} : The Regulatory Quality (RQ) vectors of the i^{th} country are in the t^{th} year.

x_{5it} : The Rule of Law (RL) vectors of the i^{th} country are in the t^{th} year.

x_{6it} : The Control of Corruption (CC) vectors of the i^{th} country are in the t^{th} year.

z_{1it} : The real interest rate (RINT) vectors of the i^{th} country are in the t^{th} year.

z_{2it} : The per capita gross domestic products at constant price (PGDP) vectors of the i^{th} country are in the t^{th} year.

z_{3it} : The trade openness in the emerging economy (TOE) vectors of the i^{th} country is in the t^{th} year.

z_{4it} : The per capita electric consumption (PEC) vectors of the i^{th} country are in the t^{th} year.

v_{it} : The error terms.

$i = 1, 2, 3, \dots, 15.$

$t = 2002, 2003, \dots, 2014.$

2.3.1 Wu Hausman test:

The Wu Housman specification test compares the fixed effect and random effect model and it is thus decides which model will be follow in our analysis. The null hypothesis of the test states that the random effect model is true. The Wu Hausman test statistic H is a measure of the difference between the two estimates.

$$H = (\hat{\beta}_{RE} - \hat{\beta}_{FE})' [VAR(\hat{\beta}_{FE}) - VAR(\hat{\beta}_{RE})]^{-1} (\hat{\beta}_{RE} - \hat{\beta}_{FE})$$

Where, $\hat{\beta}$ denotes a vector of estimated coefficients, VAR denotes a variance-covariance matrix of estimators, and the subscripts RE and FE denote the random or fixed effect estimator as the source of the estimates. If the value of H statistic is large, the difference between estimates is significant, so null hypothesis that random effect model is consistent and it is rejected then the fixed effect estimators are used. If the value of H statistics is small then random effect estimators is more appropriate.

2.3.2 Poolability test:

The poolability test is important for the test of poolability of the data. Whether the regression equation is poolable, i.e., we have used the poolability test to decide that our data is suitable for panel regression. This test is used whether or not slopes are the same across the groups and over the time (Baltagi 2001: 51-57). The null hypothesis of the poolability test is that the slopes remain the constant. When the null hypothesis is accepted then we conclude that the panel data are poolable.

The poolability test is measured by the F statistic as follows-

(1) Across the groups:

$$F = \frac{(e'e - \sum e'_i e_i)/(n-1)K}{\sum e'_i e_i / n(T-K)} \sim F [(n-1) K, n (T-K)],$$

Where, $e'e$ denotes the residual sum of square of pooled OLS (Ordinary Least Square) and $e'_i e_i$ is the residual Sum Square under the alternative (SSE) of the OLS regression for group i . n denotes number of groups or emerging countries. T is the total number of periods. K is the number of regressors including the intercept.

However,

(2) In case of over the time:

$$F = \frac{(e'e - \sum e'_t e_t)/(T-1)K}{\sum e'_t e_t / T(n-K)} \sim F [(T-1) K, T (n-K)],$$

Here $e'_t e_t$ denotes SSE of the OLS regression for group t .

For the estimation of F statistic, first we have needed to the run group-by-group regressions OLS or time-by-time OLS regressions by applying the software STATA 2012. In that context if null hypothesis is accepted, therefore the panel data are poolable.

2.4 Dynamic Panel Approach:

This phase involves the role of governance factors and macroeconomic variables on FDI inflows following a dynamic panel approach. This phase also deals with the formation of dynamic panel data approach. There are two types of dynamic approach such as Arellando- Bond estimation (1991) and Bond - Blundell estimation (1998) method. The basic problem in static panel regression model is the inclusion of lagged dependent variables that are correlated with the error term. However, Arellando- Bond derived the consistent estimator for dynamic panel data model based on the Generalized Moment Method (GMM). Although the GMM estimator has been used widely in the empirical literature. It has been considered that Bond - Blundell known as system GMM, subsequently develops the standard GMM estimator. The system GMM gives us the reasonable results and more precise estimates to the dynamic panel approach.

The dynamic model with one lagged dependent without exogenous variables, $|j| < 1$, is

$$y_{it} = \gamma y_{i,t-1} + \alpha_i + u_{it} \tag{3}$$

The Arellano-Bond (also Arellano-Bover) method of moments estimator is consistent and it is to be uncorrelated with the future errors u_{it} and $u_{i,t-1}$. However, the Arellando- Bond estimator of dynamic panel data approach is based on General Moment Method (GMM) in the first difference values. However, as the GMM estimator based on first differenced suffers from the weak correlation between the variables. The Bond - Blundell represents a significant improvement over the former has subsequently developed the system GMM estimator.

3. Empirical results

This section discusses the empirical results obtained by following the econometric methodology stated in the previous section. Before that, we have represented the brief description of the basic macroeconomic conditions of the fifteen emerging economies selected from UNCTAD list in our study and each emerging country is having at least one percent share in FDI inflows among the all-emerging countries. The basic

macroeconomic structure of emerging countries have been explained by such variables as per capita income, inflation rate, literacy rate, population growth rate etc. Now we present some basic descriptive charts and diagrams for this purpose.

3.1 Emerging market economies: some relevant issues:

Among the all-emerging countries, most of them have been selected from the Asia continent⁴ and few have been taken from the continent of South America⁵, remaining has been came from the North America continent⁶. The Russian Federations belongs to Eurasia and one country is from the Africa⁷ continent. Moreover, in recent years these emerging countries are attractive environment for FDI inflows to the MNCs. According to the International Monetary Fund (IMF), source of growth of the emerging market economy in the complex global system are increasingly emerging markets. During the last few years, the literacy rate was highest in the emerging countries, (shown in table 1 below) especially in Korea it was 100 percent and it was lowest as 72 percent in India. High literacy rate means it was reflexes to the skilled labour in the countries and it is favorable environment to the MNCs for investment. Not only high literacy rate, but market size, trade share are also important to the foreign investors. Average trade share of the emerging countries during the year 2002 to 2014 is highest level in the country Hong Kong (table 2). It was below fifty percent of their respective total GDP to the countries Brazil, Colombia, Peru and India. However, the average trade share in all other countries was more than 50 percentages. The double-digit growth of emerging countries is another crucial concept to the MNCs for investment and China was acquired this double-digit growth during the last few decades. The average growth rate was maintaining 10 percent in the China over the last 30 years. It has been noticed that inflation rate was highest level in the country Russia Federation in the year 2014 and it was lowest in the country Singapore in the year 2014. In case of highest FDI recipient country, China the rate of inflation was 1.99. Population growth is a macroeconomic indicator of the emerging market economies. It was highest level in the country South Africa and it was lowest in Russia Federation.

In recent practice, inward FDI in the developing countries reached to their highest level at US \$ 681 billion with a two per cent rises as its previous year. Table 2 shows the FDI inflows of the emerging countries in the year 2014. In that year, China was the highest FDI recipient country among the all-emerging countries in the world. The second highest FDI recipient country was Hong Kong. In case of China, the amount of FDI inflows was 114054.7 million US \$. It is demonstrate in the figure 1 by the bar diagram. FDI inflows was lowest in South Africa and it was 5770.6 million US \$. However, it is obtained the average FDI growth during the period 2002 to 2014 in emerging countries by applying the simple growth formula. Its value less than one in all the country except it is negative in Indonesia, Korea republic, South Africa respectively. Column 5 has two parts, which indicates average value of two significant governance indicators (RL and CC) during the period 2002 to 2014 in emerging countries. The average values of both the governance indicators were sound in the country Hong Kong and Singapore because the value of the governance indicators is nearly its optimum levels. However, on the other its values are lowest in reaming countries.

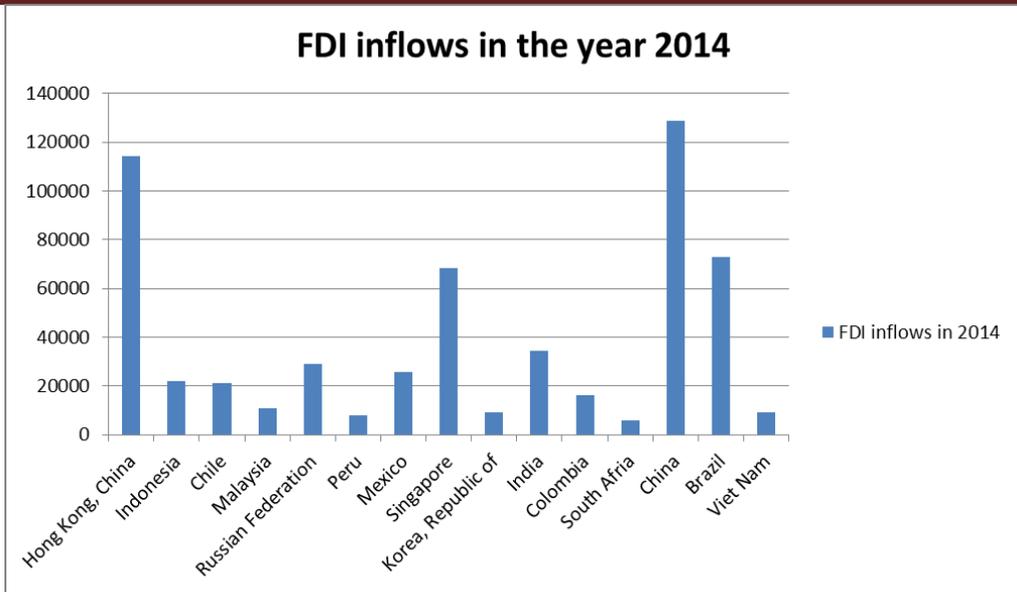
Figure 1: FDI inflows of the fifteen emerging countries in the year 2014.

⁴China, Hong Kong SAR, Korea Rep, Indonesia, India, Malaysia, Singapore and Vietnam

⁵Brazil, Chile, Peru, Colombia.

⁶Mexico.

⁷Russian Federation, South Africa respectively.



Source: UNCTAD report

Besides the emerging countries pointed out above, we have also considered the regional block of the BRICS countries with reference to the effect of governance indicator on FDI inflows over the year 2002 to 2014. In recent years, the BRICS⁸ countries have been increasing their share of global trade and investment and likely to become even more significant in future. Among the BRICS countries, Brazil has even increased the global trade share in recent times. According to the Goldman Sachs, the investment report (2003) pointed out not only the importance of South Africa as the biggest economy in the African continent but it is also an emerging economy in the World. Goldman Sachs has predicted that China and India are likely to emerge as dominant global suppliers of manufactured goods and services while Brazil and Russian Federation to dominate in supply of raw materials.

Table 1: Summary of statistics in emerging countries

Country	Average trade openness/ % of trade of GDP	Literacy rate (%) in the year 2014	Per capita GDP(market size)* (2014)	Infrastructure** (2014)	Inflation rate*** (2014)	Annual Population growth rate**** (2014)
Brazil	25.769	92.6	15162.42	2529.30	6.33	0.88
Chile	69.51	97.3	21923.39	3878.9	4.395	1.057
China	52.71	96.4	12599.19	3762.076	1.996	0.506
Colombia	36.42	94.7	12715.14	1177.106	2.877	0.944
Hong Kong	396.2	95.7	52609.61	5933.634	4.43	0.75
India	45.17	72.1	5391.69	765.003	6.35	1.226
Indonesia	53.47	93.9	10031.32	787.68	6.394	1.26
Korea, repub	86.326	100	33639.61	10427.88	1.27	0.4
Malaysia	175.68	94.6	24459.78	4511.97	3.14	1.47
Mexico	58.25	94.4	16301.47	2056.96	4.018	1.32
Peru	47.67	94.5	11451.25	1269.76	3.226	1.32

⁸BRICS was first coined by Goldman Sachs and Jim O'Neill in 2001. Its first formal summit was held on 2009 in Yekaterinburg. BRIC was renamed in BRICS when South Africa was joined in 2010. In short Brazil, Russian Federation, India, China, South Africa is constituted as BRICS.

Russia federation	52.89	99.7	24873.89	6539.2	7.81	0.217
Singapore	387.115	96.8	5370.21	8839.7	1.01	1.298
South Africa	59.459	94.3	12436.24	4325.5	4.39	2.747
Vietnam	143.52	94.4	79550.9	1305.57	4.085	1.07

Source: UNESCO report, World Bank national accounts data and OECD national accounts data,

* Market size explained by amount of per capita GDP at constant price measures in dollar (\$US).

** In that respect, we consider per capita electric consumption as an infrastructure variable. It is measures by unit KWH per capita.

*** Inflation rate measured by consumer price index reflects the annual percentage change in the cost to the average consumer of acquiring a basket of goods and services that may be fixes by the IMF.

**** It has been measure for the present year and it is the exponential rate of growth of midyear population from year previous year to current year. It was expressed as percentage.

Table 2: Summary of statistics on FDI inflows countries

Country	FDI inflows in the year 2014 (millions of US \$)	Average of FDI growth ⁹	s. d of FDI growth ¹⁰	Significant governance indicators ¹¹	
				RL	CC
Hong Kong	114054.7	0.407	1.108	1.54	1.72
Indonesia	21865.66	-0.36	2.21	-0.68	-0.70
Chile	21231.14	0.187	0.367	1.30	1.35
Malaysia	10877.35	0.83	1.9	0.52	0.24
Russia federation	29151.66	0.40	0.728	-0.84	-0.85
Peru	7884.53	0.218	0.38	-0.64	-0.28
Mexico	25675.44	0.046	0.388	-0.51	-0.30
Singapore	68495.56	0.339	0.749	1.68	2.07
Korea, republic	9273.6	-0.24	0.318	0.94	0.43
India	34582.1	0.24	0.539	0.02	-0.42
Colombia	16325.5	0.296	0.75	-0.51	-0.23
South Africa	5770.638	-0.47	4.018	0.10	0.19
China	128500	0.086	0.112	-0.42	-0.47
Brazil	73085.51	0.237	0.72	-0.26	-0.05
Vietnam	9200	0.226	0.52	-0.45	-0.57

Source: UNCTAD, FDI/TNC database (www.unctad.org/fdistatistics), World Bank Report.

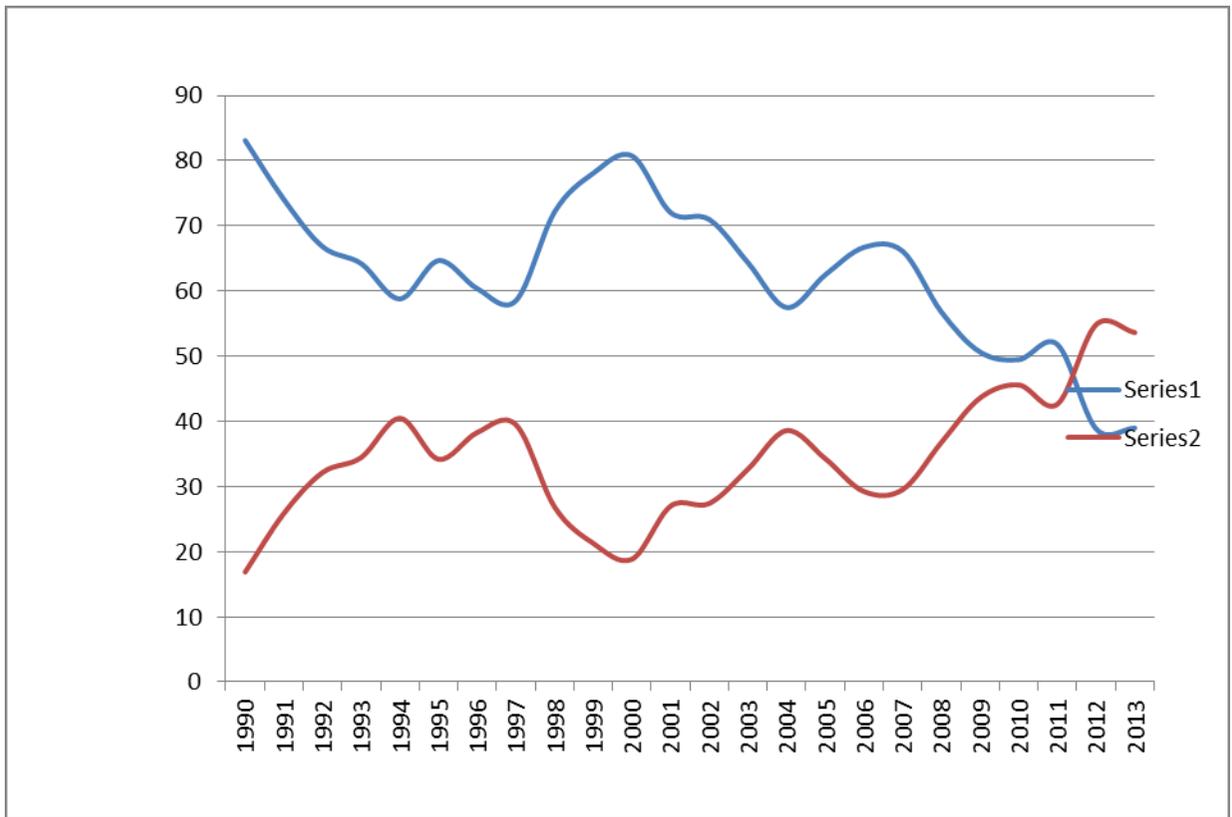
⁹FDI growth has been explained that the every year change of FDI inflows in the country to the previous year, which is defined by simple growth formula i.e. $\frac{x_t - x_{t-1}}{x_{t-1}}$. However, the average

of FDI growth rate has explained average of growth of the FDI inflows in each year in the particular country and it is determined in each country over the year 2002 to 2014.

¹⁰Standard deviation of FDI growth has been determined throughout the year 2002-2014 in each country.

¹¹There are twocrucial governance indicators like those that RL and CC take into average over the year 2002- 2014 in each emerging country separately.

Figure 2: Trend of FDI inflows of the developed and developing countries of the world share for the year 2002- 2013.



Footnote: Series 1 represents the FDI inflows share in percentage of the developed countries in reference to the whole world.

Footnote: Series 2 represents the FDI inflows share in percentage to the global economy.

In the figure 2, series 1 refers FDI inflows share in percentage of the developed countries in reference to the whole world. On the other hand, series 2 refers the FDI inflows in percentage of developing countries of global share. In that figure it is shown that the trend of the FDI inflows of the developed countries gradually declined over the year 1990 to 2013 and it is noticed that FDI inflows of the developing countries continuously increases. Except that in the year 2000, it was inverted in nature i.e. the share of FDI inflows in developed countries of global economy was lowest in position and on the other FDI inflows in developing countries of global share was lies its optimum level. It is notice that two series intersect in the year 2011 and after that period trend of two series is inverse.

From the figures 3 and 4 we have shown the plots of the trend of governance indicators such as RL and CC over the period 2002 to 2014. Among all the selected emerging countries, we have taken only two countries for plotting trend. The trend of these indicators stated above was declined in the countries Peru, Russian Federation, China and Colombia during the year 2002 to 2014. The performances of these two factors in the countries were very poor. Here we have shown only two figures in case of countries Hong Kong and Colombia.

3.2 Static Panel results:

In table 3 given below, we have presented the results on static panel analysis. We have from these results of the static panel data analysis with fixed effect method that the governance indicators along with the macroeconomic fundamentals are highly significant in explains variation in FDI inflows across the major emerging economies. This is also indicated by the high value of R^2 (0.86). Now we describe these results in details, first the governance indicators such as rule of law (RL) and control of corruption (CC) are statistically significant at 10 % and 5 % levels, respectively. The coefficients for these governance indicators are positively significant indicating that if rule of law and control of corruption are properly established then

the emerging countries will be able to attract more FDI inflows. On the other hand, the macroeconomic fundamentals namely real rate of interest (RINT) and per capita GDP at constant price (PGDP) are also highly significant at 1 % level. The per capita GDP, which indicates the market size of an economy, is significant with a positive sign and it is expected that the size of market play a very significant role in determining the destination foreign direct investment. Largest PGDP is more attractive to the MNCs for investment in the emerging countries. The sign of the coefficient associated with RINT is negative¹² which explains that these emerging countries are passing through a down ward trend in its rate of interest. However, over the long period of time FDI, inflows in such emerging counties were decreased because it is, maintain that the rate of interest was administered in emerging countries and it does not depends on market rate of interest. In order to take care of the heterocedasticity problem we used the white diagonal standard errors & covariance, which makes the estimates, are consistence.

Table 3: Panel regression results for 15 emerging countries.

Variables	Coefficient	Std. Error	t-Statistic	p- value
RL	9767.075	5295.071	1.84	0.0668
CC	9963.969	5034.085	1.979	0.0493
RINT	-948.29	225.45	-4.206	0.0000
PGDP	3.277	0.358	9.141	0.0000
No. of observations	195			
Log likelihood	-2079.156			
Durbin-Watson statistics	0.96			
F test	64.51			0.0000
Adjusted R ²	0.85			
R ²	0.868			

3.2.1 Hausman test result:

We have also estimated the Hausman test statistic where the null hypothesis is that the random effect is true. The chi square test statistic value being 40.38 is statistically significant at 1 % level indicating the alternative hypothesis is true i.e. fixed effect is appropriate for our model. In the context of Hausman test, our results have been shown below in the two consecutive tables 4 and 5.

Table 4: Test cross section random effects, Hausman test

Test summary	Chi-Sq. Statistic	Chi-Sq. d.f	p- value
Cross section random	40.382	4	0.000

Table 5: Test cross section random effects test comparisons

Variables	Fixed effects	Random effects	Var (Diff.)	p- value
RL	9767.07	-176.55	5045667.52 (23)	0.0000
CC	9963.96	-8139.116	10835940.43 (176)	0.0000
RINT	-948.29	-903.368	2288.13	0.3476
PGDP	3.27	2.59	0.0139	0.0000

3.2.2 Poolability test for group- by- group and over the time:

In case of over the time, the sum of $e_t'e_t$ computed from the 13-time regression is 115052000000. The F statistics is 0.106, which is small then the null hypothesis is accepted and conclusion is the panel data are poolable in case of over the time.

¹²The results are mixed with respect to the sign of real rate of interest i.e. most of the studies have found positive sign involving in developed and emerging countries.

However, in case of emerging countries the poolability test for group- by group regressions, the $e'e$ is 1418000000 and $e_1'e_1 = 4768176626$. The value of F statistics is 16.74, which is large then the null hypothesis is rejected. We conclude that the panel data are not poolable for group-by-group regression.

3.3 Empirical results in special case of BRICS countries:

This phase discusses the empirical results obtained by static panel approach with fixed effect method in special reference BRICS countries. The table 6 below shows that as special case for BRICS that affect of governance indicators and macroeconomic variables on FDI inflows in five emerging countries i.e. BRICS. Here two additional factors such as Voice and Accountability (VA) and per capita electric consumption (PCE) are significantly important on FDI inflows. The coefficient of the VA is negative that indicates too much restriction in the country may affect negatively to the foreign investors. On the other hand, estimated sign of the variable PCE is negative, which explains foreign investors are disinterested to invest to the highly electricity consumed countries. Because sources of power in BRICS countries was mainly in thermal power as it creates more pollution and environmental hazards in the BRICS countries. On the other hand, the coefficient of the governance indicators such as RL and CC are positively significant with positive sign indicating that if role of RL and CC are properly established, then the BRICS countries will able to attract more FDI inflows.

In comparative discussion, one more governance indicator and one more macroeconomic fundamental has been significant in BRICS countries than the emerging countries. P- Values of the all significant governance indicators and macro economic variables are significant at 1 % level. The value of R^2 is shows by 79 %. In that respect high value of R^2 , explains highly goodness of fit. In that context, we have used White diagonal standard errors & covariance for avoidance of the heteroscedasticity problem and it makes the estimates is consistent.

Table 6: Panel regression results for BRICS country

Variables	Coefficient	Std. Error	t-Statistic	p- value
constant	50198.48	7540.8	6.65	0.0000
VA	-53175.32	4813.166	-11.04	0.0000
RL	50450.37	13175.12	3.82	0.0003
CC	49587.64	12447.32	3.98	0.0002
RINT	-918.29	329.84	-2.78	0.0072
PGDP	9.50	1.57	6.02	0.0000
PCE	-29.004	4.63	-6.25	0.0000
No. of observations	65			
Log likelihood	-723.5			
Durbin-Watson statistics	0.79			
F test	37.03			0.0000
Adjusted R^2	0.77			
R^2	0.79			

3.4 Dynamic Panel Results Analysis:

In this section, we discuss the empirical results obtained by dynamic panel approach on FDI inflows across the fifteen emerging countries over the period 2002 to 2014. In this context, two types of methods have been applied Arellano- Bond dynamic panel estimation and system dynamic panel-data estimation method.

The standard GMM results based on the Arellando- Bond estimation shows the value of coefficient of the dependent variable is .078, which is statistically significant at 5% level, and it is positive less than one show in table 7. Therefore, FDI inflows in the emerging countries are sound for the foreign investors. Therefore, the GMM estimator identified the robust determinants of FDI inflows in emerging countries are control of corruption as governance indicators and real rate of interest, per capita GDP at constant price. In Arellano-Bond dynamic panel estimation CC, and PGDP are significant at 1 % level with positive sign. On the other, the macroeconomic fundamental RINT is significant at 1 % level with negative sign. The result is also shows that insignificant governance indicator rule of laws.

Table 7: Arellano- Bond dynamic panel data estimation

variable	coefficient	Standard error	Test statistic	P> z
FDI Inflows	.078	.04	1.93	0.053
RL	-469.88	1951.96	-0.24	0.810
CC	10518.65	2223.3	4.73	0.000
RINT	-400.31	71.93	-5.56	0.000
PGDP	4.3	.12	35.66	0.000
CONSTANT	-50807.97	6936.59	-7.32	0.000

The GMM system based results show only the PGDP is statistically significant at 1 percent level with positive sign. The estimated coefficient value is 0.76 shows below in table 8. Since the GMM, system improves the precision, reduces the bias, and overcomes many disappointing features of the first standard GMM. Therefore, the system GMM results are more reasonable and valid estimators in the model.

Table 8:System dynamic panel-data estimation

variable	coefficient	Standard error	Test statistic	P> z
FDI Inflows	.76	.017	43.68	0.000
RL	-6919.57	1528.23	-4.53	0.000
CC	-1503.98	2412.5	-0.62	0.533
RINT	-303.56	44.55	-6.81	0.000
PGDP	.75	.086	8.68	0.000
CONSTANT	-3437.7	1446.93	-2.38	0.018

4. Summary and Conclusion

The main objective of this section is to examine the influence of governance indicators and macroeconomic variables on foreign direct investment inflows across the 15 emerging countries over the period 2002 to 2014 by using a static panel regression with fixed effect approach and dynamic panel data approach. We have also followed the testing for suitability of fixed effect model and poolability of data by using the Wu Hausman test and poolability test. We have examined that dynamic panel results in order to take care of problems in static panel regression model.

The first finding on static panel regression has been derived with White diagonal standard error and covariance method for avoiding of heterocedasticity problem. The regression results show that among the selected six governance indicators, only two indicators of governance namely RL and CC have a significant impact on FDI inflows. This indicates that among all the governance indicators these two indicators (RL and CC) are the significant to MNCs for investment in emerging countries. Our empirical results show that other governance indicators such as VA, GE, PA and RQ are not significant on FDI inflows across the 15 emerging countries. Therefore, in the light of the results obtained from the study it can be concluded that rule of law and control of corruption are the most essential factors in FDI inflows to the emerging economies.

In the next phase, we have found that Hausman test for fixed effect model is statistically significant. Moreover, cross-sectional random effect among the independent variable is significant. We have also examined the impact of macroeconomic variables on the attractiveness of FDI. Indeed real rate of interest and per capita GDP at constant price have significant effect on FDI inflows to the emerging countries. Apart from real rate of interest and per capita GDP, all other factors like trade openness and per capita electricity consumption are also considered as explanatory variables in the panel regression model but not found to have statistically significant role in FDI inflows for these fifteen emerging countries. Foreign investors may not be more concerned with trade openness, per capita electric consumption in the emerging countries for their investment. In recent times, BRICS has been performing as a major group of the emerging market economies with a significant presence in the global trade and investment. We have also examined the nature of dependency of FDI inflows on governance indicators with special reference to BRICS countries during the period 2002 to 2014. We have found in addition to the variables obtained for fifteen emerging economies one additional governance factor i.e. VA and one additional macroeconomic factor PCE as significant on FDI inflows in BRICS countries.

We have also found the first difference GMM and system method in dynamic panel framework in the fifteen emerging countries over the period 2002 - 2014. The GMM estimates are empirically significant. Although the GMM estimator identified the robust determinants of FDI inflows in emerging countries are rule of laws and control of corruption as governance indicators and real rate of interest, per capita GDP at constant price. FDI inflows will not be sustainable in these countries by only improving the physical infrastructure or increasing economic growth but it also needs to concentrate on the improvement of governance indicators to move towards good governance. Some of these countries namely China, Indonesia, Vietnam, India, Brazil, Colombia, Peru, Russian federation will require high improvement in RL and CC although these problems are deep rooted and institutional. These issues have now become significant in the public forum in the context of emerging countries. Strong institutional framework should be designed to control the corruption as it has the consequence of generating a parallel economy. It is undesirable has becoming a threat to the formal economic system.

Bibliography

1. Adeoye A. Macro-economic level corporate governance and FDI in emerging markets: Is there a close relationship? *Journal of Economics and International Finance*, 2009; 1(2):030-043
2. Adhikary BK. Foreign Direct Investment, Governance, and Economic Growth: A Panel Analysis of Asian Economies. *Asia Pacific World*, 2011; 2:72-94
3. Alshammari MA. Governance, Regulations, Trade Openness and FDI Inflows: Empirical Study. *International Journal of Economics and Finance*. 2015; 7(12).
4. Amusa K, Nara M, Viegli N. Foreign aid and Foreign direct investment in Sub-Saharan Africa: A panel data analysis. *ERSA working paper*, 2016,612
5. Arbatli EC. Economic policies and FDI inflows to emerging market economies, *International Monetary Fund*, 2011.
6. Arellano M, Bond S. Some tests of specification for panel data: Monte Carlo evidence and an application to employment equations. *Review of Economic Studies*. 1991; 58:277-97
7. Baltagi BH. Econometric Analysis of Panel Data. *Wiley, John & Sons*, 2001.
8. Bevan AA, Estrin S. The Determinants of Foreign Direct Investment into European Transition Economies, *Journal of Comparative Economics*, 2004; 32(4):775-87.
9. Chaib B, Siham M. The Impact of Institutional Quality in Attracting Foreign Direct Investment in Algeria. *Topics in Middle Eastern and African Economies*. 2014; 16(2).
10. Cavallari, Lilia, d'Addona, S. Nominal and real volatility as determinants of FDI. *Applied Economics*. 2013; 45(18):2603-2610
11. Bundesbank D. The role of FDI in emerging market economies compared to other forms of financing: *Past Developments and implications for financial stability*, 2003, 34-42
12. De Mello L. Foreign Direct Investment Led Growth: Evidence from Time Series and Panel Data, *Oxford Economic Papers*. 1999; 51:133-151
13. Avinash D. *Lawlessness and Economics: Alternative Modes of Governance*. Princeton, N J and Oxford, UK: Princeton University Press. 2009. Governance Institutions and Economic Activity. *American Economic Review*. 2004; 99(1):5-24
14. Fedderke JW, Romm AT. Growth impact and determinants of foreign direct investment into South Africa, 1956-2003. *Economic Modeling*. 2006; 23:738-760
15. Globerman S, Shapiro D. Global Foreign Direct Investment Flows: The Role of Governance Infrastructure. *World Development*. 2002; 30:1899-1919
16. Globerman S, Shapiro D. Global foreign direct investment flows: The role of governance infrastructure. *World Development*. 2002; 30(11):1899-1919
17. Hausman J. Specifications tests in econometrics. *Econometrica*. 1978; 46 (6):1251-1271
18. Kaufmann D, Kraay A. Growth without governance. *World Bank Policy Research Working Paper*. 2002; 2928
19. La Porta R., Lopez-De-Silanes, F, Shleifer A, Vishny RW. Legal Determinants of External Finance, *J. Finance*. 1997; 52(3):1131-1150
20. Mishra DA, Daly K. Effect of quality of institutions on outward foreign direct Investment. *The Journal of International Trade & Economic Development*. 2007; 16(2):231-244
21. Onyeiwu Steve, Shrestha M. Determinants of foreign direct investment in Africa. *Journal of Developing Societies*. 2004; 20(1-2):89-106

22. Quazi RM. Corruption and Foreign Direct Investment in East Asia and South Asia: An Econometric Study. *International Journal of Economics and Financial Issues*. 2014; 4(2):231-242
23. Saidi Y, Ochi A, Ghadri H. Governance and FDI Attractiveness: Some Evidence from Developing and Developed Countries. *Global Journal of Management and Business Research, Finance*. 2013; 13 Issue six Versions 1.0
24. Wang ZQ, Swain NJ. The determinants of foreign direct investment in transforming economies: Empirical evidence from Hungary and China. *Review of World Economics*. 1995;131:359-382
25. Zidi A, Ali BT. Foreign Direct Investment (FDI) and Governance: The Case of MENA. *Journal of Research in Business, Economics and Management (JRBEM)* ISSN: 2395-2210. 2016; 5(3).
26. Zurawicki L, Habib M. Corruption and foreign direct investment: What have we learned?. *International Business and Economics Research Journal*. 2010; 9(7):1-9
27. www.unctad.org/fdistatistics
28. www.govindicators.org.
29. [http://dx.doi.org/10.1016/S0305-750X\(02\)00110-9](http://dx.doi.org/10.1016/S0305-750X(02)00110-9).

Assessing Consumers' Satisfaction Through Analyzing Product Review and Rating

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ABSTRACT: Day by day, buying patterns of the consumers' are changing, it is not because of market structure but also invention and application of technology and their usability. The roles of the marketers are not playing the game against the will of the consumers' but to facilitate them in an extreme way. In this context online marketing play a huge role for fulfilling the need and demands of the present consumers'. Consumers are also getting benefit and they are also giving feedback in terms of review and rating about the products or services through online and which relay helps the marketers for development of strategic decision. The present paper the researched try to find out the impact of online review on buying behavior / intention of the consumers' in India. The analysis has been done on secondary database provided by Datafiniti's Product Database. The list has over 71,045 reviews from 1,000 different products. Sentiments analysis indicates that there are some factors like joy, trust and anticipation are most important factors raised from consumers and high level of intensity being observed with some specific products like movies, personal care etc. it is a new dimension of the marketers to assess the consumer trends towards their offering specially in entertainment and personal care product. Study also highlights that when the length of review is longer, then the chance of having a positive recommendation goes down (Predictive Modeling). The correlation diagram indicates when people write lengthy reviews they will definitely not recommend. Present paper will help the marketers to judge the market condition and also analyze the consumer mind. This can help them to design more customized products.

Keywords: Consumer satisfaction, product review, ratings, sentiment analysis, predictive model.

1. Introduction

Present market run as a buyer market and the role of marketers is to supply the right information to the industry. Industries make correction on the basis of feedback given by the consumers. If we look into the market trend, the modern market is inclined on digital technology. Modern consumers' prefer to do a lot of purchasing activities through digital platform. Using the digital platform consumers give their feedback in terms of review or rating about the products or brands. Markets have considered response from digital platform an important parameter of customer satisfaction. Multiple factors of satisfaction are considered for academic purpose like quality of the products, price index, supply process, transaction system, CRM process, packaging and post purchase review by the company. As consumers give their open comments about the product, marketers' try to make a projection on the comments and understand the behavioral pattern of the consumers' and their level of satisfaction. In consumer behavior, the Elaboration Likelihood Model suggests that identifying the impact of variables on the motivation is necessary. But the model is not sufficient for predicting the effects of arguments presented in a message. Managers and researchers try to identify consumer motivation. The ability to process the message will help to predict the effects of messages on attitudes. According to the above mentioned model consumer follow two route of persuasion namely central and peripheral route. The process of information processing has a huge role in predicting the behavior of the consumers'.

The two main types of reviews in online platforms are expert-written reviews and customer-written reviews. Expert-written reviews refer to those written by expert reviewers often hired by popular e-commerce vendors or portals [Amblee, Bui 2007] whereas customer-written reviews typically refer to those posted by buyers turned consumers who have used or experienced a focal product [Schindler & Bickart, 2012]. Psychologists and behavior researchers argue that the source of information significantly influences the customers' attitude toward the information. Experts and customers typically play different roles in the transmission of different signals to consumers [Chaiken 1980, Petty & Cacioppo, 1986]. Other than the important role of review source, review content can also influence consumers because they typically learn about products from what the reviewers said [Zhu et al 2010]

Consumers today are largely comfortable with reading online reviews when considering a purchase. They learnt to spot fake reviews, and many of them leverage multiple online sources before making a decision.

When laying out hard-earned cash for an online purchase, it seems that consumers will rely more on the quality, and availability of reviews provide that timely insight. Occasionally shoppers may reach out on social media fraternity to members of their networks. But physical contact although provide the instant feedback it require time for them to make their purchase. It's for this reason online product reviews is so critical for sellers. Trust plays a deciding factor whether or not to make a purchase online. Viewers rely on the volume and consistency of reviews to help us paint a mental picture of the brand. Although getting firsthand information from people we actually know and would allow us to apply our perception. Recommendation helps to make a decision based on the sum of that information (Neil Parker, Online Product Reviews: Trust is More Important Than Ever, <http://sumo.ly/VK8S> via @rewardstream 26-10-2015).

Literature Review

Product Reviews help marketers with branding, marketing and evaluate the advertising strategy of the Ecommerce store as well as the product in question. With the right push at the correct angle, an Ecommerce store can very easily advertise its prospects in the market via the customer feedbacks. For instance a product that has a number of good reviews on a certain Ecommerce store raises general user interest. The raised level of interest leads consumers to talk more about the product among themselves. Even when users meet in personal group meetings they talk about products reviews which had received rave reviews thereby directly or indirectly advertising and marketing the product. This is the reason why brands like Samsung, Levis, etc. have gained a huge market in a very short time. It is to be noted that companies cannot compromise on quality of the products they sell. Positive Product Reviews help establish a favorable image of the product which actually persists long after the product has already been launched. Also, for the serious marketer, Product Reviews are a great way to interact with the consumer directly and know the details of their product through the eyes of the consumer and make developments wherever necessary. With proper follow up of Product Reviews, the seller can accurately know the loopholes of its own products and the areas in which it can improve its product to meet the needs of the end consumer. This leads to a positive experience among the consumer which ultimately helps the business in the future. (Importance of Product Reviews in Ecommerce, <https://www.appseconnect.com/importance-of-product-reviews-in-ecommerce>)

Keser (2002) documented that the presence of a feedback mechanism significantly increases the levels of trust and trustworthiness. Information provided by sellers is perceived less trustworthy to buyers. This is because the perceived notion is that seller will focus on good aspects of a product and will lack or will not disclose information on inferior aspects. In General buyers rely more on consumer created information, compared to seller created information. Seller created information is product orientated and objective, focusing mainly on product attributes (Park et al., 2007). Bonabeau (2004) states that people imitate others, not only to be accepted, but also to be safe. Prospective buyers generally do believe that other consumers have better information on the product, because they have already bought and used it. The reviews provide usage situations, advantages and feedback from people. Consumer reviews have a dual role, they inform and recommend. Reviews help to identify buyers with consumers. On one hand it provides user generated information about the product; on the other hand it provides recommendations by users in the form of electronic word of mouth. Petty and Cacioppo (1984) did research on the effect of strong and weak arguments on the purchase decision of people with low and high involvement. High involvement products are products for which consumers are prepared to spend more time and effort in searching for the right one. Low involvement products are products that consumers buy more frequently and will take less time to search. For high involvement products quality is more important. When looking at the search process of high involvement products, it can be compared with the search process of experience goods.

Experience goods have attributes that cannot be acquired before purchase or use and for those attributes information search is more costly or difficult. Consumers are willing to do long and difficult research for a product, when it is an experience good. This is the same for high involvement products. Because the information search for high involvement products and experience goods looks alike, it could be true that quality is more important for experience goods (compared to search goods) as well. To find out if this influence of review quality on Consumers' online purchase decision (COPD) really is stronger for experience goods, the following hypothesis is tested.

According to Huang and Chen (2006) consumers are influenced in their online purchase decision by the number of positive vis- à-vis negative consumer reviews. When the quantity of positive reviews is sufficiently large, they can overcome the negative attitudes of negative reviews and have a positive influence on COPD.

Park et al. (2007) and Petty and Cacioppo (1984) showed that the effect of review quantity on purchase decision is stronger for consumers with low expertise than for those with high expertise. Observing consumers in general, Petty and Cacioppo (1984) and Chen and Xie (2008) stated that the number of reviews can be a signal of the popularity of a product and the number of reviews is related to an increase in the amount of product information. It is very likely that the number of reviews will lead to risk reduction for consumers, because many others have bought the product as well. Purchase intention increases when review quantity increases, so in this case, purchase intention will be positively influenced by review quantity.

Research Questions:

In present era, information can be spread in different modes. Consumers' generally follow the most interactive media like digital and social media. They prefer to give their feedback about the product over online platform. The important task of marketers is to analyze the consumer response for development of product and market. In this regards present study will analyze the trend of consumer response about their product or services. Hence we will try to answer two research questions from our study

- 1) How consumer perception has changed over the years for different categories of product?
- 2) Does the review pattern have any impact on review rating?
- 3) How likely are the customers ready to recommend their purchased product?

Methodology

The analysis has been done on secondary database provided by Datafiniti's Product Database. The list has over 71,045 reviews from 1,000 different products. The dataset includes the text and title of the review, the name and manufacturer of the product, reviewer metadata, and more. Data have been collected based on following fields where we have tried to assess how writing quality impacts positive and negative online product reviews.

- 1) Id
- 2) Brand
- 3) categories
- 4) date added
- 5) date updated
- 6) manufacturer name
- 7) manufacturer id
- 8) review's date
- 9) review's date added
- 10) review's date seen
- 11) review's did purchase
- 12) review's do recommend
- 13) review id
- 14) review's source
- 15) review's rating
- 16) review's text
- 17) review's title
- 18) review's user city
- 19) review's user name
- 20) review number

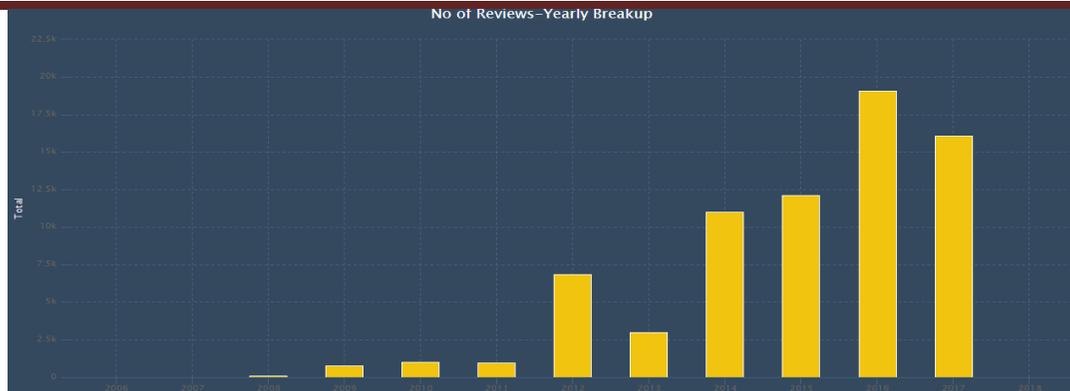
Upon further analysis of the data the following questions can also be answered. This paper had attempted to answer the following questions.

- Do reviewers use punctuation correctly?
- Does the number of spelling errors differ by rating?
- What is the distribution of star ratings across products?
- How does review length differ by rating?
- How long is the typical review?
- What is the frequency of words with spelling errors by rating?
- What is the number of reviews that don't end sentences with punctuation?
- What is the proportion of reviews with spelling errors?

Basic exploratory analysis ran on the data for correlation between different observations. We predominantly ran sentiment analysis on the data and tried to associate sentiment with product categories over a time period. Word-cloud was formed to find the most significant words. To further narrow our search we identified list of users who have at least posted 20 reviews and categorized which product received maximum reviews. Finding correlation between reviews, length of reviews and given ratings is the core of this paper.

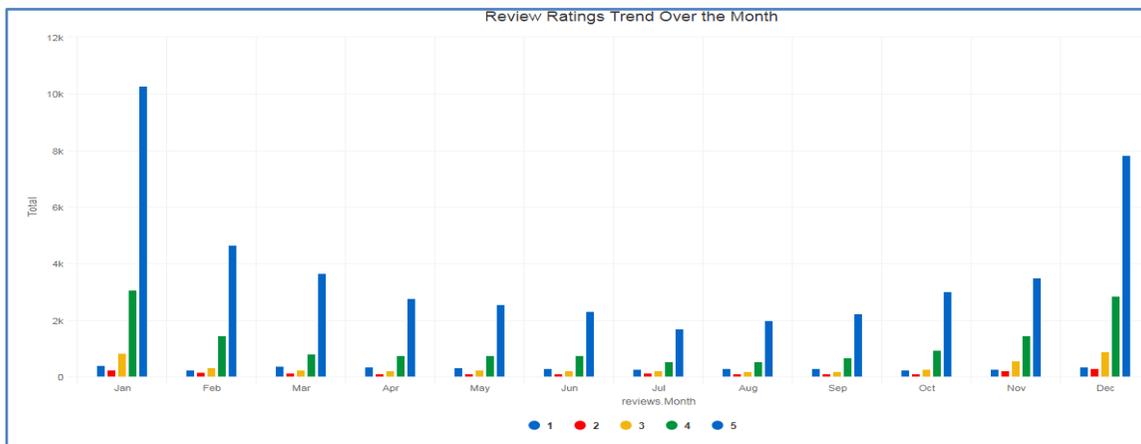
To further our research we have conducted predictive analysis to predict ratings given by users based on their purchase behavior. We ran logistic regression model to find the accuracy of our model. We have also identified individual weights given to each independent variable to predict the outcome.

Result and discussion



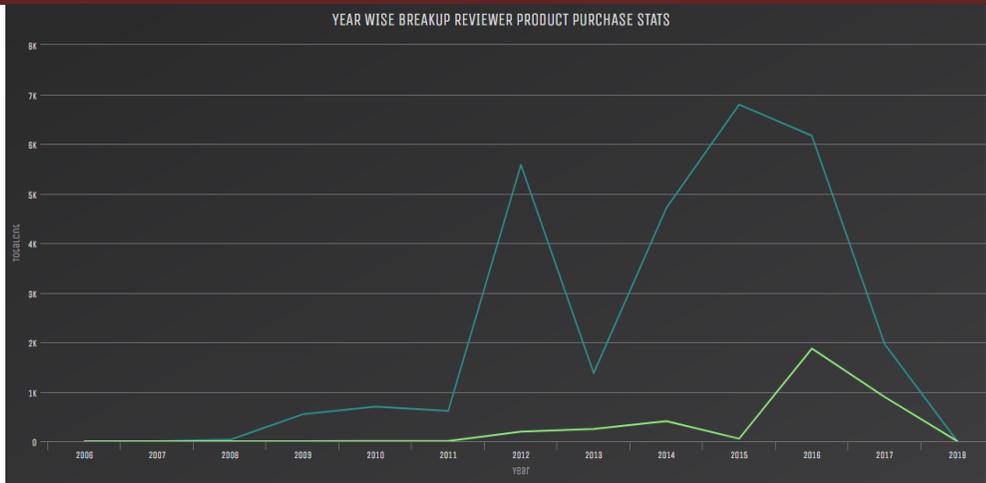
Graph 1:Year wise reviews break up

The above data analyze the review trend of last 10 year. Graph indicates that people are engaging themselves in giving review about the products and brands. The graph clearly point out that the number of reviews increased in the year 2016.But the trend of posting reviews reduced after year 2016. It may be that consumers are following buying process for same product time and again. It can be stated that marketers should showcase product in digital space for getting more exposure which in turn may develop product and brand loyalty. Online marketing can help marketer to segment their product and place their product for better market coverage.



Graph 2:Month wise reviews trend

The above graphical representation indicates that the review rate is more in the month of December, January and February in comparison to other months of the year. This trend has been observed over a period 10 years. During winter in India people’s purchase intentions are generally high in area of personal care, household care and movies tickets. It is a good hint for brands to campaign relevant product in these months and offer more design. Graph 2 calls for development of the diversification strategy for the new customers in Indian market.Weather plays a crucial role in the choice for consumer’s channel of purchases. One study found that on wet or cold days there was a 12% increase in website traffic for retailers in the home & furniture, wholesale, and clothing verticals - compared to that on warm and sunny days.(weather ads 2014, <http://www.weatherads.io/blog/2014/june/how-weather-affects-consumer-behaviour-and-purchase-decisions>. Quite simply, user reviews increase conversions. They can eliminate any doubts potential customers may have about a product, or can help product selection.



Graph 3: Review and product purchase status

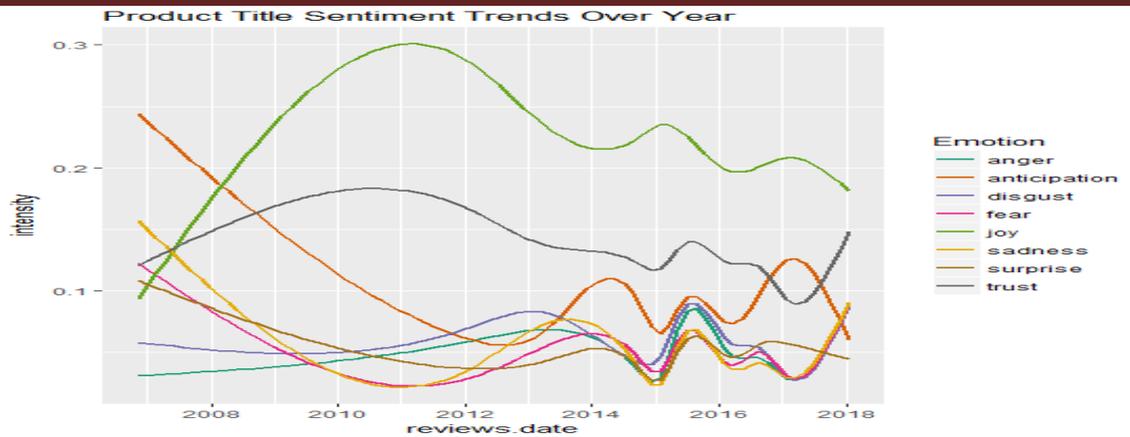
Graph 3 represent the cycle between product review and purchase. The graph shows that after year 2011 the number of reviews went up. Following year the purchase graph increases except year 2016 when reviews and purchase have shown a positive relation. Therefore we can correlate that people as more and more people are sharing their views online it got translated into purchasing process. The reviews not only act as a tool of communication but also aid real purchase. Marketers’ challenges are design of product preview in a manner which may work in a positive way, i.e. to boost the process of purchasing process of consumers. The other assumption from above graph indicates that people purchase the product from other sources but giving an online review about their positive or negative response, which may help marketer to design more customer centric market strategy.

Table 1: Category wise review trends

Category wise	Count	Total reviews	Category wise	Percentage
Movies	63/290	1700	564	33
Personal care	32/290	1700	347	20
Household essentials	33/290	1700	268	16
Featured brand	36/290	1700	188	11
Food & beverage	41/290	1700	106	6

(Source research data)

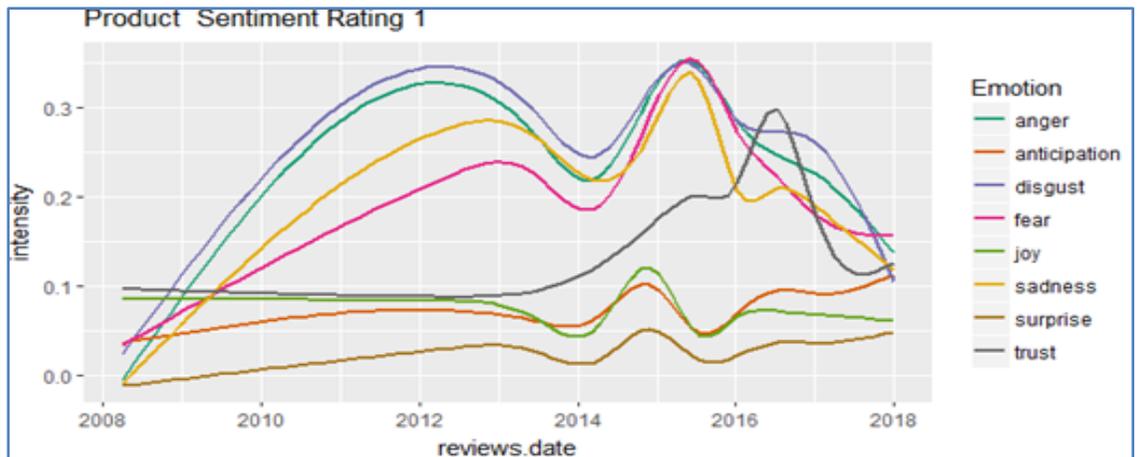
In the present study we have analyzed the review pattern for different product category/ type. There are total 290 unique reviewers considered (who have given more than 20 reviews in a year) with different product category. Total 1700 reviews have been considered in between 2014-2017. If we look into the product category, it is seen that movies have given highest percentage of review i.e. 33 percent. It indicates higher trend in reviews for movies and movie shows. Reviews observed in the personal care and household essential category are for 20 and 16 percent respectively. If we examine Table 1 results, it shows that online review trend is increasing not because of the product category, but because people start trusting online reviews more than ever. The data is supported by graph 4



Graph 5: Product title sentiment trends over year

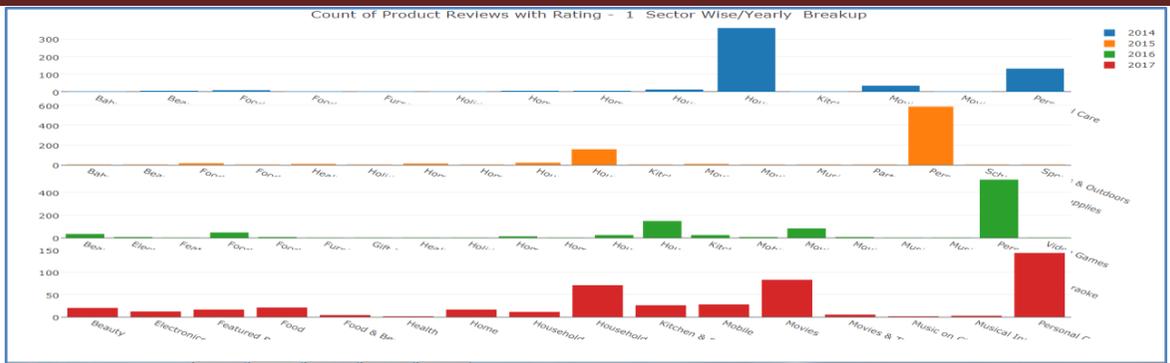
Sentiment Rating 1

We ran sentiment analysis using Natural language Processing algorithm on the actual review and categorized by review rating. It is quite evident that when people give 1 Star they are either very angry or demonstrate disgust. According to the graph disgust is the most prevalent feeling among all shortly followed by anger. But the surprising aspect of the graph is trust factor. Post 2016 the trust factor has seen a sharp spike. Let’s look at the individual product category to identify why the trust factor goes up and in year 2014 the level of anger and disgust at the lowest.



Graph 6: Product sentiment rating-1

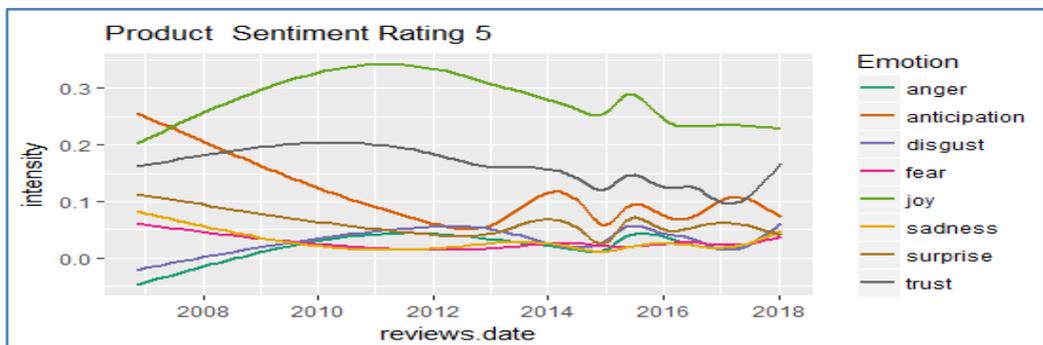
In year 2014 Household product primarily has received lowest rating. As household products is something which do not bother a consumer much w.r.t. quality, the level of anger and disgust have gone down. Whereas when the product is related to personal care emotions are pretty high thereby leading to extreme condition like either high on trust and sadness. Year 2015 onwards emotions runs high in favor of personal care. Data for year 2017 showed that products those featured with the lowest rating are predominantly household care, movies category. The reason maybe that customers are not satisfied and are getting more exposure towards the online buying and thereby giving online rating of product. Therefore it is a vital task of the market researcher is to constantly look into the market trend to take care about their demonstration of the product or brand.



Graph 7: Year wise rating position product category wise

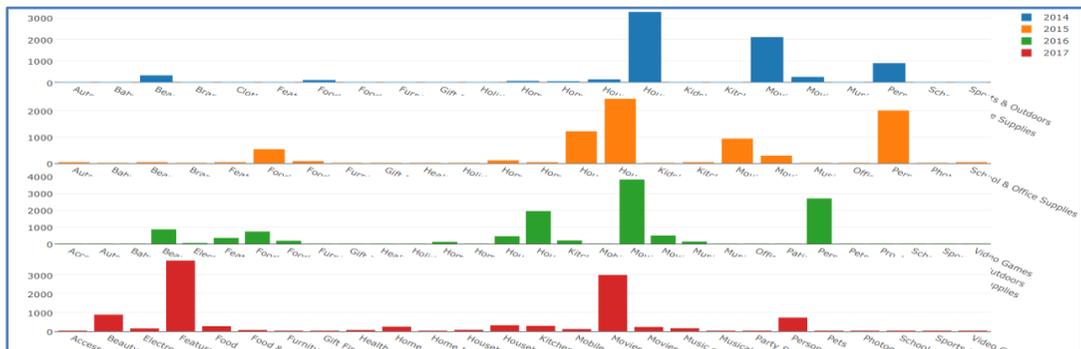
Sentiment Rating 5

As expected when the rating is high the Joy is the predominant feeling. In spite of that joy and trust is progressively decreasing.



Graph 7: Product sentiment rating- 5

Analyzing further it has been found that 5 star rating was initially for household items but as time progress movies stated getting more 5 star rating than anything else and the fan favorite from 2014 i.e. household items were not anything close to the movies. This clearly explains the loss of trust and joy as movies are momentary but personal care and household items are more close to personal sentiments. Therefore market has to develop more structural market substance for the household and personal care product for which the feeling within the customer mind should enhance. Because the growth of the online business are increasing in the Indian market, if we go through the market share point of view than personal care and household care has a big market coverage. But the high rating shows the entertainment industry and the inner meaning is than young mass target specific. In this connection, I market can convert the young mass from movies to other product than it will be good sign for market growth and development



Graph 8: Year wise rating position product category wise (highest rating)

Correlation Diagram

Now let's analyze the correlation between parameters like Did the customer purchase the item, did they recommend and what bearing do ratings and length do have on repeat purchase and recommendation. If customers purchase an item there is a weak positive correlation that they are likely to recommend as the value comes to 0.07. But the relation is pretty strong when the rating is high. It is also but normal when customer is dissatisfied they will write lengthy reviews and will not recommend nor will purchase. The strength of relation is negatively strongest with recommendation. This means when people write lengthy reviews they will definitely not recommend.

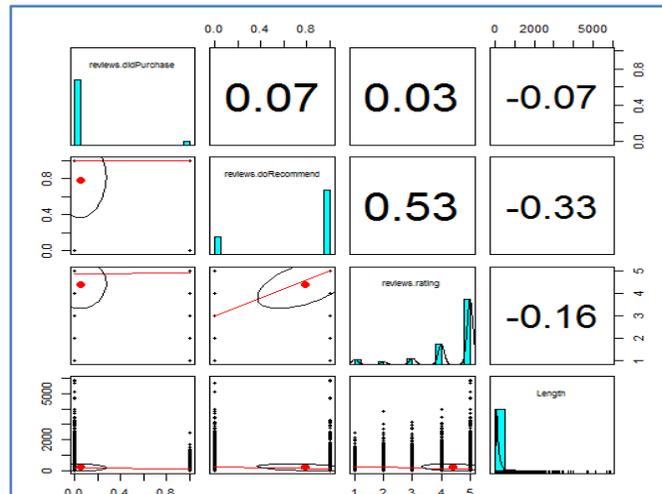


Diagram 2: Correlational Diagram

Predictive Model

In the model we tried to predict if the customer is going to recommend other for the product based on variable like 1) Has the reviewer purchased the item 2) What is the length of the Survey 3) What is the kind of rating has the customer has given to the product

We ran Logistics regression on our model and got the following results

```

Coefficients:
                Estimate Std. Error z value Pr(>|z|)
(Intercept)    -2.716e+00  5.648e-02  -48.09  <2e-16 ***
reviews.didPurchase  9.255e-01  7.942e-02   11.65  <2e-16 ***
reviews.rating    1.136e+00  1.291e-02   87.97  <2e-16 ***
Length          -3.381e-03  6.126e-05  -55.18  <2e-16 ***
---
Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1

(Dispersion parameter for binomial family taken to be 1)

Null deviance: 55821  on 53282  degrees of freedom
Residual deviance: 38665  on 53279  degrees of freedom
AIC: 38673
    
```

Misclassification Accuracy – 86%

The results shows that whether a reviewer purchased a product or not and the kind of rating it has provided has a direct effect on whether the reviewer will recommend the product or not. But when the length of review is longer, then the chance of having a positive recommendation goes down. The AIC value shows that the model is a moderate fit and will fit the data even when there are covariates in the model.

The misclassification accuracy tells that out of 100 the model will correctly predict recommendation 86 times. This assumption is also supported by AUC curve which shows that a large part of the area is under curve the number of positive assumption is more.

Area under curve

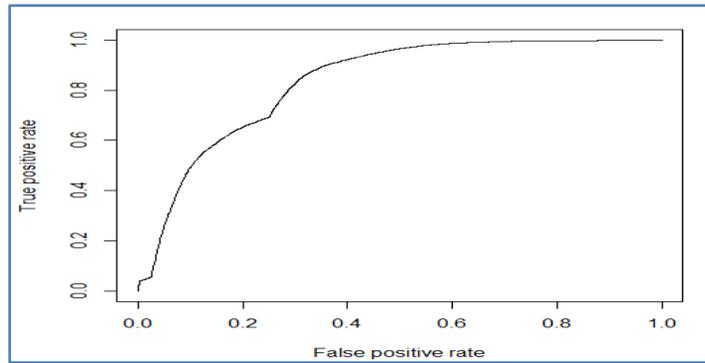


Diagram 3: AUC Curve

Conclusion

The present study is an attempt taken by the researchers to assess the consumer perception and preference by looking into the tendency of their online review and ratings of the products. From the analysis, it indicates that trends towards online reviews are increasing and higher trend observed in the month of December, January and February. As per product category is concerned, Movies, personal care and household essentials gave a significant identification in term of product review (report based on collected data). The research finds a growth potential between review and purchase behavior, the tendency increases year wise. Sentiments analysis indicates that there are some factors like joy, trust and anticipation are most important factors raised from consumers and high level of intensity being observed with some specific products like movies, personal care etc. it is a new dimension of the marketers to assess the consumer trends towards their offering specially in entertainment and personal care product. Study also highlights that when the length of review is longer, then the chance of having a positive recommendation goes down (Predictive Modeling). The correlation diagram indicates when people write lengthy reviews they will definitely not recommend. Present paper will help the marketers to judge the market condition and also analyze the consumer mind. This can help them to design more customized products.

References

1. Amblee, N. and Bui, T. Freeware downloads: An empirical investigation into the impact of expert and user review on demand for digital goods. In 13th Americas Conference on Information Systems, Colorado, USA, 2007.
2. Bonabeau E. The Perils of the Imitation Age. *Harvard Business Review*, June, 2004.
3. Chaiken S. Heuristic versus systematic information processing and the use of source versus message cues in persuasion. *Journal of Personality and Social Psychology*, 1980; 39(5):752-766.
4. Chatterjee P. Online Reviews: Do Consumers Use Them? *Advances in Consumer Research*. 2001; 28:129-133.
5. Chen Y, Xie J. Online Consumer Review: Word-of-Mouth as a New Element of Marketing Communication Mix. *Management Science*. 2008; 54(3):477-491.
6. Huang and Chen. Herding in online product choice, *Psychology & Marketing*, 2006; 23(5):413-428.
7. Keser C. Trust and Reputation Building in e-Commerce. *IBM Research Report*, July, 2002.
8. Neil Parker, Online Product Reviews: Trust is More Important Than Ever <http://sumo.ly/VK8S> via @reward stream retrieve on 26-10-2015.
9. Park et al, The Effect of On-Line Consumer Reviews on Consumer Purchasing Intention: The Moderating Role of Involvement, *International Journal of Electronic Commerce*. 2002; 11(4):125-148.
10. Petty RE, Cacioppo JT. The elaboration likelihood model of persuasion. *Advances in Experimental Social Psychology*. 1986; 19(1):123-205.
11. Petty RE, Cacioppo JT. The Effects of Involvement on Responses to Argument Quantity and Quality: Central and Peripheral Routes to Persuasion. *Journal of Personality and Social Psychology*. 1984; 46(1):69-81.

12. Schindler RM, Bickart B. Perceived helpfulness of online consumer reviews: The role of message content and style. *Journal of Consumer Behavior*. 2012; 11(3):234-243
13. Zhu L., Benbasat I, Jiang Z. Let's shop online together: An empirical investigation of collaborative online shopping support. *Information Systems Research*. 2010; 21(4): 872-891.

Impact of Stress Among the Employee Working in Casting Companies With Reference to Ors (Organizational Role Stress) Scale

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ABSTRACT: *The workplace had become a high stress environment in many organizations cutting across industries. Employees are experiencing high level of stress due to various factors such as high workload, tight deadlines, high targets, type of work, lack of job satisfaction, long working hours, pressure to perform, etc. Interpersonal conflicts at the workplace, such as boss-subordinate relationships and relationships with peers, are also a source of stress. Stress is the effects on ourselves that we experience as a result of interacting with our environment, example, our supervisors, our workplace, others in the organization, etc; there can be positive and negative stress. Experts believed that the dysfunctional aspects of stress could directly impact an organization's performance and also affect the well-being of its employees. Stress at the workplace was linked to absenteeism, higher attrition, and decreased productivity. The first step in the study is to find out the type of organizational role stress affecting the employees in the organization, to find out the causes of stress among the employees and to suggest measures to reduce stress in the organization. The second step was the data collection; were both the primary data and secondary data is used for the study. Primary data was collected through survey and personal interview, whereas for secondary data certain reports like the company manual is made use. The secondary data also includes textbooks, internet. The analysis of the questionnaire was carried out through which the purpose of the study was served. This study gives a detailed idea as to what type of roll stress an individual is facing, and what is the stress level in the organization. Therefore through the analysis the study could be interpreted that the stress level is medium in the organization. And the major types of stress which the employees are undergoing are the Role Overload, Inter Role Distance, Role Erosion, Role Ambiguity and Role Stagnation.*

Keywords: ORS, Stress, Human Resource, Human Capital

1. Introduction

Stress is the general term applied to the pressures people feel in life. The presence of stress at work is almost inevitable in many jobs. However, individual differences account for a wide range of reactions to stress, a task viewed as challenging by one person may produce high levels of anxiety in another. When pressure begins to build up, it can cause adverse strain on person's emotions, thought processes, and physical condition. When stress becomes excessive, employees develop various symptoms of stress that can harm their job performance and health, and even threaten their ability to cope with the environment. Stress also leads to physical disorders, because the internal body system changes to try to cope with stress. It is important that stress, both on and off the job, be kept at a level low enough for most people to tolerate without developing either emotional or physical disorders. Stress is the effects on ourselves that we experience as a result of interacting with our environment, example, our supervisors, our workplace, others in the organization, etc. There can be positive and negative stress. Positive stress can result in our taking action to successfully solve problems in our life and work and can result in feelings of excitement and fulfillment. Negative stress can result in our feeling frustration, resentment and anger and even burnout and despair, along with a myriad of physical problems. Stress can be either temporary or long-term, either mild or severe. The effects on an employee depend mostly on how long its causes continue, how powerful they are, and how strong the employee's recovery powers are. If stress is temporary and mild, most people can handle it or at least recover from its effects rather quickly. Stress can be effectively recognized and managed. The key is to understand our own signs of stress, select a few techniques to manage stress, and then consistently use those techniques.

Role: Role is the position one occupies in a social system, and is defined by the functions one performs in response to the expectations of the significant members of a social system and one's own expectations from that position or office. The concept of role is Vital for the integration of the individual with an organization.

Role Space Conflicts: Role space is the dynamic relationship amongst the various roles an individual occupies and his self. Role space has three main variables: self, the role under Question, and the other roles

he occupies. Any conflicts amongst these are referred to as role space conflicts or stress. These conflicts may take the forms mentioned below.

Self-Role Distance (SRD): This stress arises out of the conflict between the self-concept and the expectations from the role, as perceived by the role occupant. If a person occupies a role which he may subsequently find as conflicting with the self concept, he feels stressed. For example, an introvert who is fond of studying and writing may develop a self- role distance if he accepts the role of a salesman in an organization, and comes to realize that the expectations from the role would include his meeting people and being social. Such conflicts are common, although they may not be so severe.

Role Stagnation (RS): As the individual grows older, he also grows in the role that he occupies in an organization. With the advancement of the individual the role changes, and with this change in role, the need for taking up a new role becomes crucial. This problem of role growth becomes acute especially when an individual who has occupied a role for a long time enters another role in which he may feel less secure. However, the new role demands that an individual outgrow the previous one and take charge of the new role effectively. This is bound to produce some stress. In organizations which are fast expanding, and which do not have any systematic strategy of manpower development, managers are likely to experience this stress of role stagnation when they are promoted.

Inter-Role Distance (IRD): When an individual occupies more than one role there is bound to be conflicts between the different roles that he occupies. For example, a lady executive often faces the conflict between her organizational role as an executive and her familiar role as a wife and a mother. The demands of her husband and children for sharing her time may be incompatible with the organizational demands. Such inter-role conflicts are quite frequent in a modern society, where an individual is increasingly occupying multiple roles in various organizations and groups

Role Set Conflicts: The other field which is important vis-à-vis an individual's role, is the role set which consists of important persons who have varying expectations from the role that he occupies. The conflicts that arise as a result of incompatibility amongst these expectations by the significant others (and by the individual himself) are referred to as role set conflicts. These conflicts may take the forms mentioned below.

Role Ambiguity (RA): When the individual is not clear about the various expectations that people have from his role, the conflict that he faces is called role ambiguity. This may be due to lack of information available to role occupant, or lack of understanding of the cues available to him. Role ambiguity may be in relation to the activities, responsibilities, priorities, or norms. Generally role ambiguity may be experienced by persons occupying roles which are newly created in the organization, roles in organizations which are undergoing change, or process roles (with less clear and concrete activities).

Role Overload (RO): When the role occupant feels that there are too many expectations from the significant others in his role set, he experiences role overload. Role overload is measured by asking questions about people's feelings on whether they could possibly finish work given to them during a modified work day and whether they felt that the amount of work they do might interfere with how well it was done. Most of the executive role occupants experience role overload. Role overload is more likely to occur where role occupants lack power, where there are large variations in the expected output, and when delegation or assistance cannot procure more time.

Role Expectation Conflict (REC): When there are conflicting expectations or demands by different role senders, the role occupant may experience this stress. There may be conflicting expectations from the boss, subordinates, peers or clients.

Role Erosion (RE): A role occupant may feel that the functions, which he would like to perform, are being performed by some other role. The stress felt may be called role erosion. Role erosion is the subjective feeling of an individual that some important role expectations he has from the role are shared by other roles within the role set. Role erosion is likely to be experienced in an organization, which is redefining its role and creating new roles.

Resource Inadequacy (RIn): Resource Inadequacy stress is experienced when the resources required by the role occupant for performing the role effectively are not available, these may be information, people, materials, finance or facilities.

Personal Inadequacy (PIn): When a role occupant feels that he is not prepared to undertake the role effectively, he may experience this stress. The role occupant may feel that he does not have enough knowledge, skills, or training, or he/she has not had time to prepare for the assigned role. Persons who are assigned new roles without enough preparation or orientation are likely to experience this type of stress

Role Isolation (RI): In a role set, the role occupant may feel that certain roles are psychologically closer to him, while others are at a much greater distance. The main criterion of distance is the frequency and ease of interaction. The gap between the desired and the existing linkages will indicate the amount the role isolation.

To sum up, in relation to organizational roles, the following, ten stresses are worth considering:

1. Self-Role Distance (SRD)
2. Inter-Role Distance (IRD)
3. Role Stagnation (RS)
4. Role Isolation (RI)
5. Role Ambiguity (RA)
6. Role Expectation Conflict (REC)
7. Role Overload (RO)
8. Role Erosion (RE)
9. Resource Inadequacy (RIn)
10. Personal Inadequacy (PIn)

Coping with Role Stress: Research has shown that social and emotional support helps a person to effectively cope with stress; Persons maintaining close interpersonal relationships with friends and family are able to use more approach strategies. Social support includes material support and emotional support (listening to the person and encouraging). However, studies have shown that unsolicited support may have a negative consequence. The absence of coping strategy may lead to ineffectiveness. Coping is also related to the quality and intensity of emotional reactions.

Review of Literature

According to Christina L. Stampet, Mark C. Johlke (2003) done a study on impact of perceived organizational support (POS) on the relationship between boundary spanner role stressors i.e., conflicts and both work attitudes i.e., job satisfaction and behavior i.e., task performance. Results indicate that POS has strong effects on role ambiguity and role conflict, as well as job satisfaction and intent to remain. However, POS is not related to task performance in our sample. POS also has moderating effects on several role stress—outcome relations. The paper discusses the implication of these findings for managers, along with recommendations for future research.

According to AP Chauhan (2014) explains about Role stress in organizations is widespread. About half of all American workers feel the pressures of Role-related stress. Extensive research shows that excessive Role stress can adversely affect the emotional and physical health of workers. The result is decreased productivity, less satisfied, and less healthy workers. This paper will first discuss the symptoms and causes of stress, and then explore ways in which managers might reduce stress in themselves and their subordinates.

Statement of the Problem: Managing organizational role stress is an important aspect which directly affect on the performance of employees. The study is conducted to find out the overall impact and the type of stress on the employees working in the company.

Objectives of the Project

- ❖ To find out the type of organizational role stress affecting the employees.
- ❖ To find out the causes of stress among the employees.
- ❖ To suggest measures to reduce stress in the organization.

Data collection: The data was collect in the Casting Companies near Tirupati

Primary Data: The sources of primary data are: Questionnaire, Personal interviews, Observation

Secondary Data: Thesources of secondary data are: Internet, Company broacher, documents and company website.

Instrument used: This particular project has been developed by using Organizational Role Stress Scale (ORS Scale). It can be used to measure the role stresses. The ORS scale contains five items for each role stress (a total of 50 statements). It uses a 5-point scale (0 to 4) thus the total range from 0 to 20. To get the total score for each role stress, the ratings given should be totaled horizontally and entered in the space given for this purpose.

Sample Size: The Total number of employees is 70 out of which 28 employees were chosen for the purpose of the study.

Sampling Method: From the total number of 70 employees of Sound Cast Pvt. Ltd. the samples (employees) were randomly picked up.

Limitations of Study

- Some of the workers hesitated to express the facts due to fear of any adverse action that may be taken by the Management.
- Level of accuracy of the results of research is restricted to accuracy level with which the employees have given their answers and accuracy level of the answers cannot be predicted.
- Due to the busy schedule of the workers, sufficient interaction was not possible

Data Analysis

The Stress rating scale was explain in the table no. 1

Interpretation: The table no. 2 & 3 indicates, the overall level of role stress on production department is 47% medium. The major type of stress which is observed in this department is the Role Overload (RO), Inter Role Distance (IRD) Role Ambiguity (RA), Role stagnation (RS), and Role erosion (RE). Under Role Overload (RO),The employee feels that although the expectation by various members of his role set are logical, reasonable and consistent but he cannot complete all of them due to lack of time and energy. The employee is in the state of conflict of priorities, that is which of the expectations he should fulfill and which he should hold off. For example: Should the employee go for a farewell party of a retiring colleague or do a review of his subordinates work, all between 5 PM to 6 PM on the same day. This type of stress is more likely to occur where the role occupant lacks power and when delegation is not possible.

Interpretation: The table 4 & 5 indicates the level of role stress in purchase department. The overall stress level in purchase department fall under medium level of stress which is 60%; The major types of stress which is observed in this department is the Role Erosion (RE), Inter Role Distance (IRD), Role Ambiguity (RA) and Role Stagnation (RS). Under Role Erosion (RE) Employees often feel that the functions important to their roles are being performed by an individual in another role. The employee may also suffer role stress when he is given a job which in his opinion is below his capacities. Many employees mainly do not enjoy feeling underutilized. The main reason for this type of stress is that some of the employees are feeling that their role is being reduced in importance. The solution to this type of stress is making structural clarification and job enrichment by analyzing the role systematically and helping the employees to see the various strengths and challenges in the role which was not clear earlier.

Interpretation: The table 6 & 7 indicates the overall level of role stress on the Accounts department. The stress level on this department is medium which 35%. The major type of stress which is observed in this department is the Role Overload (RO), Inter Role Distance (IRD) Role stagnation (RS), Role erosion (RE) and Role Ambiguity (RA). Under Role Overload (RO),The employee feels that although the expectation by various members of his role set are logical, reasonable and consistent but he cannot complete all of them due to lack of time. The employee is in the state of conflict of priorities, that is which of the expectations he should fulfill

and which he should hold off. This department has too much to do and too many responsibilities to do everything well. The solution to this type of stress is delegation of certain roles to others.

Interpretation: The table 8 & 9 indicates the level of role stress in stores department. The overall stress level in stores department is low which is about 57%; The major types of stress which is observed in this department is Inter Role Distance (IRD), Role Stagnation (RS) and Role Erosion (RE). Inter Role Distance (IRD): Where a person is required to play two conflicting roles, one of which is organizational and the other non organizational. For example: A career women may find conflict between her role and as wife. In her formal role she may be required to stay overtime in the office whereas in her latter role she may be required to reach home early to share time with her children and husband. The solution to this problem is role negotiation which is the process of establishing the mutuality of roles and getting the necessary help to play the roles more effectively. For example: During Sundays the employee can devote the entire day to his family members and friends.

Interpretation: table 10 & 11 shows the overall stress level in stores department is 10% high, 47% medium and 43% low. The major type of stress which is observed in this department is Role erosion (RE), Inter Role Distance (IRD), Personal Inadequacy (PI) Role Stagnation (RS) and Role Expectation Conflict (REC). Under Role Erosion (RE) Employees often feel that the functions important to their roles are being performed by an individual in another role. Role Erosion results when the employee feels that some functions which should properly belong to his role are being performed by other role occupants. The employee may also suffer role stress when he is given a job which in his opinion is below his capacities and the employee may feel a decrease in his level of responsibility or a feeling of not being fully utilized. As many employees mainly do not enjoy feeling underutilized.

Findings

- The major types of stress which employees are facing are Roll Overload, Inter Roll Distance, Role Erosion, Role Ambiguity and Roll Stagnation.
- Under Production department the major type of stress is Role Overload and Inter Role Distance. Role Overload because the employees have to meet the orders as per the quality standards and within the time duration. The stress level in this department is 18% high, 47% medium, and 37% low.
- The type of stress in purchase Department is Role erosion, Inter Role Distance and Role Ambiguity. In this department some important role expectations of the employee are shared by other roles within the role set. The stress level in this department is 23% high, 60% medium, and 17% low.
- The type of stress in Accounts Department is Role overload, Inter Role Distance and Role Stagnation. The stress level in this department is 32% high, 35% medium, and 33% low.
- The type of stress in quality control department is the Role Erosion, Inter Role Distance. Role Erosion can be due to a decrease in one's level of responsibility or a feeling of not being fully utilized. The stress level in this department is 10% high, 47% medium, and 43% low.

Suggestions

- **Clear Organizational Structure:** The employees should be provided with clear information about the structure, purpose and practices of the organization.
- **Appropriate selection, training and staff development:** Each employee's skills, knowledge and abilities should be matched as much possible to the needs of each job. Where necessary, suitable training should be provided; Effective supervision and guidance is very important and can help protect the employees from stress.
- **Job description has to be clear:** It is important an employee's manager and other key staff are aware of the relevant details of the job. The better employees understand their job, the more they will be able to do their job well.
- **Communication:** Establish effective formal and informal communication within the organization to ensure that managers, supervisors and workers have a clear understanding of all workplace issues and processes.
- **Priorities the work:** Clearly define priorities so that workers can avoid wasting their time.
- **Recreational Activities:** The organization should try to improve the facilities for leisure and recreation. The organization should arrange programs for entertainment, and also a place where employees can go during their break to sit quietly and relax. Encourage social and sporting activity within the

organization, where staff from all levels can get to know each other and develop positive relationships. This can reduce the incidence of misunderstandings during work.

- **Get enough sleep:** Adequate sleep fuels your mind, as well as your body. Feeling tired will increase your stress because it may cause you to think irrationally. A sound sleep of 8 hours will reduce stress for a large extent. Researchers have proved that people who don't sleep for 8 hours have problems such as less intellectual abilities, less patience levels and are preys of depressions and stress.
- **Manage your time better:** Poor time management can cause a lot of stress. But if you plan ahead and make sure you don't overextend yourself, you can alter the amount of stress.
- **Humor:** Humor is one of the greatest and quickest devices for reducing stress. Humor works because laughter produces helpful chemicals in the brain. Humor also gets your brain thinking and working in a different way - it distracts you from having a stressed mindset. Distraction is a simple effective de-stressor. Therefore most people will feel quite different and notice a change in mindset after laughing and being distracted by something humorous.
- **Learn how to say "no":** If you find that you are being asked to do more than you can manage- whether physically, emotionally or financially; Learn to set boundaries and remember that no is a complete answer.
- **Apply stress reduction techniques:** Reduce physical tension by taking deep breaths, calming self through meditation, walking mindfully, etc. Use time off for reading, listening to music, taking a bath, or getting a special meal to recharge batteries. Talk about emotions and reactions with coworkers during appropriate times.

Conclusion

Stress is something that has to be managed or it can lead to both physical and mental difficulties in your life. Everyone has stress; it is just handled differently in everyone. So that you do not allow stress to ruin your life; Stress management refers to any program that reduces stress by helping people understand the stress response, recognize stressors, and use coping techniques to minimize the negative impact of stress. Role stress is the stress experienced by the persons because of their role (job) in the organization. Role stress is a real challenge to the employees and also to the organization. It is important that the organization continuously monitor for the stress problem. Further it is not only important to identify the stress problem and to deal with it but also to provide healthy work environment. According to the study we can conclude that majority employees are under medium level of role stress. The major types of stress which employees are facing are Role Overload, Inter Role Distance, Role Erosion, Role Ambiguity and Role Stagnation. The company should plan ahead and practice good time management. It should also have clear organizational structure and job description and provide recreational facilities to the employees. The organization should also help the employees to develop a sound way of life and maintain a positive attitude.

Reference

1. Chauhan AP. Organizational role stress. *International Journal of Advanced Research in Management and Social Sciences*. 2014; 3(2):154-171.
2. Beehr TA, Glazer S. Organizational role stress. *Handbook of work stress*. 2005, 7-33.
3. Stamper CL, Johlke MC. The impact of perceived organizational support on the relationship between boundary spanner role stress and work outcomes. *Journal of Management*. 2003; 29(4):569-588.
4. Ahmady S, Changiz T, Masiello I, Brommels M. Organizational role stress among medical school faculty members in Iran: dealing with role conflict. *BMC Medical education*. 2007; 7(1):14.
5. Keaveney SM, Nelson JE. Coping with organizational role stress: Intrinsic motivational orientation, perceived role benefits, and psychological withdrawal. *Journal of the Academy of Marketing Science*. 1993; 21(2):113-124.
6. Boshoff C, Mels G. A causal model to evaluate the relationships among supervision, role stress, organizational commitment and internal service quality. *European Journal of marketing*. 1995; 29(2):23-42.
7. Bano B, Jha RK. Organizational role stress among public and private sector employees: a comparative study, 2012.
8. Kim BP, Murrmann SK, Lee G. Moderating effects of gender and organizational level between role stress and job satisfaction among hotel employees. *International Journal of Hospitality Management*. 2009; 28(4):612-619.

9. Ho WH, Chang CS, Shih YL, Liang RD. Effects of job rotation and role stress among nurses on job satisfaction and organizational commitment. BMC health services research. 2009; 9(1):8.
10. Dale K, Fox ML. Leadership style and organizational commitment: Mediating effect of role stress. Journal of Managerial issues. 2008; 109-130.
11. Bhattacharya S, Basu J. Distress, wellness and organizational role stress among IT professionals: Role of life events and coping resources. Journal of the Indian Academy of Applied Psychology. 2007; 33(2):169-178.
12. Tarafdar M., Tu Q, Ragu-Nathan BS, Ragu-Nathan TS. The impact of technostress on role stress and productivity. Journal of Management Information Systems. 2007; 24(1):301-328.

List of Tables

Note: The range used for ORS Scale

Stress	High	Medium	Low
SRD	9	5	3
IRD	8	5	2
RS	8	5	2
RI	9	6	3
RA	7	3	1
REC	7	4	2
RO	6	3	1
RE	12	9	7
RIn	8	5	2
PIn	8	4	2

- Self-Role Distance (SRD)
- Inter-Role Distance (IRD)
- Role Stagnation (RS)
- Role Isolation (RI)
- Role Ambiguity (RA)
- Role Expectation Conflict (REC)
- Role Overload (RO)
- Role Erosion (RE)
- Resource Inadequacy (RIn)
- Personal Inadequacy (PIn)

Table No.2: Analysis of stress level in the Production Department

	IRD	RS	REC	RE	RO	RI	PI	SRD	RA	RIn
Emp1	8	6	5	6	9	2	4	2	6	3
Emp2	6	7	6	8	8	7	3	5	7	2
Emp3	7	7	2	3	9	6	4	2	7	1
Emp4	5	5	6	0	6	0	7	6	2	0
Emp5	6	7	5	5	9	9	0	7	6	4
Emp6	8	2	4	8	8	4	7	3	5	4
Emp7	7	7	6	2	7	6	3	5	3	6
Emp8	7	2	4	9	4	7	6	4	7	3
Emp9	5	5	4	8	7	0	4	3	8	4
Emp10	6	6	3	4	9	3	6	5	2	4
Emp11	9	5	8	9	4	4	4	7	6	1
Emp12	2	6	6	3	4	2	2	3	7	2
Total	76	65	60	65	84	50	50	52	66	34

Table No.3: Level of stress among the employee at Production Department

High	Medium	Low
2	4	4
2	5	3
2	4	4
1	5	4
2	5	3
2	3	5
1	7	2
1	6	3
2	4	4
1	5	4
2	6	2
1	3	6
20	59	43

Table No.4: Analysis of stress level in the Purchase Department

	IRD	RS	REC	RE	RO	RI	PI	SRD	RA	RIn
Emp1	7	5	6	11	8	0	6	8	6	0
Emp2	12	9	7	10	4	3	5	5	8	4
Emp3	7	6	4	9	4	7	6	4	7	9
Total	26	20	17	30	16	10	17	17	21	13

Table No.5: Level of Stress among the employees at Purchase Department

High	Medium	Low
1	7	2
4	4	2
2	7	1
7	18	5

Table No.6: Analysis of stress level in the Accounts Department

	IRD	RS	REC	RE	RO	RI	PI	SRD	RA	RIn
Emp1	8	9	7	4	10	3	6	5	8	4
Emp2	9	3	5	6	9	6	4	4	3	3
Emp3	7	5	6	8	6	0	6	3	2	0
Emp4	6	6	3	4	7	3	6	5	8	4
Emp5	4	9	5	11	8	9	0	7	8	6
Emp6	7	7	8	5	6	8	5	6	7	4
Total	41	39	34	38	46	29	27	30	36	21

Table No.7: Level of Stress among the employees at Accounts Department

High	Medium	Low
5	2	3
3	2	5
1	4	5
3	4	3
4	4	2
3	5	2
19	21	20

Table No.8: Analysis of stress level in the Stores Department

	IRD	RS	REC	RE	RO	RI	PI	SRD	RA	RIn
Emp1	10	6	2	8	3	4	2	4	3	0
Emp2	7	8	4	6	6	3	1	2	4	1
Emp3	7	9	3	9	2	4	0	4	3	3
Emp4	11	8	2	7	2	6	1	4	2	2
Total	35	31	11	30	13	17	4	14	12	6

Table No.9: Level of Stress among the employees at Stores Department

High	Medium	Low
2	3	5
2	3	5
1	3	6
2	1	7
6	10	23

Table No.10: Analysis of stress level in the Quality Control Department

	IRD	RS	REC	RE	RO	RI	PI	SRD	RA	RIn
Emp1	5	6	5	8	0	6	8	2	0	3
Emp2	7	5	6	16	8	0	6	6	2	0
Emp3	8	5	5	6	4	3	4	2	3	2
Total	20	16	16	30	12	9	18	10	5	5

Table No.11: Level of Stress among the employees at Quality Control Department

High	Medium	Low
0	5	5
2	5	3
1	4	5
3	14	13

Analysis of Expenditure on Healthcare Schemes in Kinwat Block of Maharashtra State

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ABSTRACT: *Indian Tribal's are traditional, conservation and under-privileged people. They are socially and economically weaker and also under abject poverty and live in a subsistence economy and general backwardness. This is because of their ill-health which is a cause and consequence of poverty. The major impediments to good health are inequity in health system and radical poverty of the masses. Illness lowers learning ability, reduces productivity, income and savings and it leads to poor quality of life and thus perpetuating poverty. According to World Health Organization (WHO), "The primary objective of health system that to provide well-medical facilities with rational economic co-operation; has important that to provide public medical facilities where a private facility has been inadequate. There are public medical facilities is the responsibility of central and state government. There has mentioned that in U N Charter' Human Right (1948) that the primary health diagnosis is human right. Hence there is responsibility of government that to provide primary health or medical facility, and the more important responsibility pertain to social and economic backwards.*

India has the largest tribal population in the world. Over 84.3 million people belonging to 698 communities are identified as members of scheduled tribes, constituting of the total Indian population and is a larger than that of any other country in the world. The proportion of individual of scheduled tribes in the total Indian population has that of any other country in the world. The proportion of individual of scheduled tribes in the total Indian population has increased from 5.3 percent (1951) to 8.60 percent (2011), out of which the health facilities are not reached the mass of 1.89 percent. This paper attempt to study expenditure on health care schemes in tribal area of Maharashtra especially in Kinwat Block.

It is observed that there are almost changes in the expenditure on health care scheme in the Kinwat Block for the period of 2008-09 to 2017-18. This expenditure spends on various schemes i.e. Janani Suraksha Yojana, Family welfare programme, Immunization fortification, Asha and NRHM. According to the Government Health expenditure is increase every year in the study period. But it is not sufficient as per World Health Organization. As well as their expenditure health are not properly utilized. The provision expenditure and actual health expenditure different of same schemes. In order to increase the expenditure on health as per World Health Organization norms. As well as this scheme are directly provided to tribal people.

Keywords: *Health Care, Tribal, Public Expenditure, medical facilities*

1. Introduction

According to studies that, there has the human revolution has before five to one lack years after earth generation. There is no agreement between anthropologists; biologist and human geographer pertain to human genesis. There have been number of societies inhabited from genesis of earth and human have been made different type of equipments and implements for fulfill their necessities has developed languages to swap their thoughts and converse; but all humanities has been not stay with a level of development. "Tribal' have staying at all around the world approximately. Normally, this group has been staying at dense forest, mountainous, inaccessible area and at island area.

In India after independence there has planed of different policy and implementation pertain to extensive development of tribal; but has no radical changes in their life. Several scheduled tribes are living in primary phase.

According to Takkar Bappa "Comparatively there is more poverty in tribal communities than rural and urban area has only one class that port". There has several problems' tertian to tribal those most notable problems as: Economic, Social and Cultural, Regional and Health problem.

According to World Health Organization (WHO), "The primary objective of health system that to provide well-medical facilities with rational economic co-operation; has important that to provide public medical facilities where a private facilities has been inadequate. There are public medical facilities is the responsibility of central and state government. There has mentioned that in U N Charter' Human Right (1948) that the primary health diagnosis is human right. Hence there is responsibility of government that to

provide primary health or media facility and the more important responsibility pertain to social and economic backwards.

Almost more than half of the world tribal population is present in India. Over 84.3 million people belonging to 698 communities are identified as members of scheduled tribes, constituting of the total Indian population and is a larger than that of any other country in the world. The proportion of individual of scheduled tribes in the total Indian population has increased from 5.3 per cent (1951) to 8.60 per cent (2011), out of which the health facilities are not reached the mass of 1.89 per cent. Due to which recently, people in one tribal block of Maharashtra have organized 'Health March' for their proper health treatment and this event inspired, stimulated us to undertake this study. This paper attempts to study expenditure on health care schemes in tribal area of Maharashtra especially in Kinwat Block.

Objectives of Study

1. To study the healthcare schemes in Kinwat Block.
2. To study the expenditure on healthcare schemes in Kinwat Block
3. To suggest the policy for effective implementation for Healthcare schemes in Kinwat Block.

Research Methodology

Kinwat is the backward and tribal area in Maharashtra state as well as India. Where several healthcare schemes for Economic upliftment of the tribal people have been implemented in this area and therefore Kinwat Block are chosen for the study. This study is depending on secondary data. This data are collected from Block Health Office, five years plan report, Govt. of India, Annual Tribal Sub Plan, Govt. of Maharashtra. This data is collected from 2008-09 to 2017-18 for this study. Statistical tools such as percentage, average, are use the analyzed the data.

Review of Literature

According to Nobel Prize winner Prof. Amartya Sen that "Education and social health is playing very important role in development, good health is very important to people, society and country."

White K. L. (1977): studied that, there is important the response of society with provision of medical facilities. There is need to take care of tradition, habits with health services. This study has based on secondary data. And occur that there is response of people is important with health service pertain to health service. There should take care of health with the need of customs and habits of tribal community. According to international research, because of social behavior, social features have affected all kind of methods easily. As White that rural area has been responding to available medical services.

Mujumdar and Upadhyay (2004): has study on 'An analysis of the primary health care system in India'. It is observed that, the negative coefficient of education, poor concern for health, lower status of women, distance to rich health facilities and equipment category, hospital bed has become insignificant in this study area.

Deshmukh Prashant (2008): has focus on study of health expenditure by local government. And the result is there is maximum proportion of expenditure on salary to servant as 82.17 percent. There is 3.60 percent health expenditure of Zillah parishad in Marathwada to total health expenditure. According to give year plan the share of medical expenditure is low. There are 2.56 percent in six plans which have reduce in nine plan as 1.55 percent.

Result and Discussion

Expenditure in the Period of Five Year Plan in India Government of India has established planning commission in the year to 1950. This planning commission has run various health schemes and spend massive amount to implement it. According to WHO guidelines (41.40) there should 5 percent expenditure share to GDP on healthcare services. But has not pertain to GDP due to revenue expenditure and there has showing decreasing trend on public healthcare expenditure.

Table 1: Plan-wise Expenditure on Public Healthcare in India(1951-2002)(figure in Crore)

Sr. No.	Period of Plan	Total Public Expenditure	Public Health Expenditure	Percentage to public expenditure
1	1951-56	1960	65	3.33
2	1956-61	4672	140	3.01
3	1961-66	8576	225	2.63
4	1966-69	6625	140	2.12
5	1969-74	15778	325	2.06
6	1974-79	39426	760	1.93
7	1980-85	109291	2025	1.85
8	1985-90	218729	3688	1.69
9	1992-97	434100	5782	1.33
10	1997-02	489361	5118	1.05
11	2002-07	1484131	31020	2.09
12	2007-12	3246178	102254	3.15
	Total	6058827	151542	
	Average	504902.3	12628.5	2.18

Source: Five Year Plan Report (1st to 11th Plan) Government of India, Ministry of Information, New Delhi.

Table 1 show that plan wise total public expenditure and public health expenditure in the period of 1951 to 2012. There is 3.33 percent expenditure on healthcare to total public expenditure in first plan. After that this percentage has been decrease in next each plan. (except 2002-07 and 2007-12)

There are 65 crore public health expenditure in 1951-56. It has been increased in next each plan. As there has 3246178 crore in 2007-2012 and 102254 crore public health expenditure on healthcare. There are average expenditure is 2.18 percent on public healthcare expenditure.

If we think about five year plan-wise public expenditure in 1951 to 2012 that the average percentage of public health expenditure has only 2.18 percent to total public expenditure it means that on public health expenditure is very low in India.

Tribal Sub Plan

Since 1975-76 has implement the concept of tribal sub plan to distribution fund from all ways to Integrated Tribal Development Programme (ITDP). From 1992-93 provide fund to planning department to implement and start tribal sub plan. But there has some difficulties to implement various schemes in tribal sub plan. Hence planning commission has established sub-committee under Mr. D. M. Sukthankar in 1991 to study. State government has accepted their recommendations. According to recommendation of committee that planning department has provided fund to tribal sub plan. Hence there has think about programme which has beneficiary to tribal and due expenditure on programme. This fund has provided to education, health, rural water supply and road development etc.

Table 2: Expenditure on Plan and Tribal Sub Plan in Maharashtra (in Crore)

Sr. No.	Annual Plan	Plan Expenditure of Maharashtra	Tribal Sub Plan Expenditure	% Plan to Tribal Sub Plan
1	2005-2006	11000	990	9.00
2	2006-2007	14829	1389	9.37
3	2007-2008	20200	1789	8.86
4	2008-2009	25000	2238	8.95
5	2009-2010	26000	2314	8.90
6	2010-2011	37917	3374	8.90
7	2011-2012	41000	3693	9.01
8	2012-2013	45000	4005	8.90
9	2013-2014	46838	4177	8.92
10	2014-2015	51223	4815	9.40
	Total	319007	28784	
	Average	31900	2878	9.02

Source: Annual Tribal Sub-plan 2012-13 Government of Maharashtra Tribal Development Department, p.4

Table 2 shows that expenditure under Tribal Development programme in Maharashtra. There are 11000 crore planned expenditure of Maharashtra and spend 990 crore (9.00 percent) to tribal sub plan in 2005-06. Plan expenditure has been increased in the period of 2005-06 to 2014-15, has 51223 crore and 4815 crore tribal sub plan expenditure. Total expenditure under Tribal Development Programme through Plan Expenditure of Maharashtra State and Tribal sub plan Expenditure is varied. It has noticed that the plan expenditure has been increase in state in the period of 2005-06 to 2014-15. The total plan expenditure of Maharashtra state from 2005-06 to 2014-15 is 51223 crore and average plan expenditure is 4815 crore. On other hand Tribal sub plan Expenditure form 2005-06 to 2014-15 is 28784 crore in average 2878 crore. The minimum proportion of tribal sub plan was 8.86 percent to total plan expenditure in the year 2007-08 and maximum proportion as 9.40 percent in 2014-15 and average tribal sub plan expenditure has 9.02 percent, in the study period.

Expenditure on Various Healthcare Schemes in Kinwat Block

There are various healthcare scheme has implement in Kinwat Block as Janani Suraksha Yojna, family welfare programme, immunization fortification, ASHA and National Rural Health Mission. We should study those schemes to understood tribal healthcare condition in Kinwat Block.

Jajani Suraksha Yojana

Since 2005 has implement Janani Suraksha Yojna through National Rural Health Mission and since 2007-08 provided Rs. 500 after delivery in seven days who's delivery have at home and Rs. 700 who's delivery have at government hospital and Rs. 1500 subsidy to seizer.

Table 3: Expenditure on Janani Suraksha Yojna in Kinwat Block (Rs. In lakhs)

Sr. No.	Years	Provisional Expenditure	Actual Expenditure	Percentage to provisional Expenditure	Beneficiary
1	2008-2009	12.83	10.00	77.93	1531
2	2009-2010	22.55	19.59	86.86	1441
3	2010-2011	21.21	19.92	93.94	1775
4	2011-2012	20.25	19.05	94.07	1323
5	2012-2013	19.18	18.40	95.92	1760
6	2013-2014	15.50	15.23	98.29	1885
7	2014-2015	15.00	14.86	99.11	1879
8	2015-2016	15.00	14.87	99.19	1951
9	2016-2017	15.00	11.41	76.11	1633
10	2017-2018	15.00	12.14	80.96	1657
	Total	171.53	155.52	-----	16835
	Average	17.15	15.55	90.23	1683

Source: Taluka Health Office, Kinwat.

Table 3 shows that the provisional expenditure and actual expenditure for Janani Suraksha Yojana from 2008-09 to 2017-18. In 2008-09 the provisional expenditure is Rs. 12.83lakhs and actual expenditure is Rs. 10.00lakhs Table also shows that the difference between provisional expenditure and actual expenditure is less. The provisional expenditure under Janani Suraksha Yojna compared to actual expenditure is higher but actual expenditure is increase from 2010-11 to 2015-16 and average in percentage to actual expenditure is 90.23 to provision expenditure. The percentage of actual expenditure is increased from 2008-09 to 2017-18 are regularly except 2016-17 and 2017-18. It means that the actual expenditure is fully utilized for those schemes. Notable points are there has average beneficiaries in those years are 1683. There have total 16835 beneficiaries in those ten years.

Family Welfare Programme

There has very important scheme of family welfare programme to control population, has provide Rs. 250 to ordinary and Rs. 600 to scheduled cast and scheduled tribal beneficiaries to do family welfare operation under this programme.

Table 4:Expenditure on Family Welfare Programme in Kinwat Block (Rs. In lakhs)

Sr. No.	Years	Provisional Expenditure	Actual Expenditure	Percentage to provisional Expenditure	Beneficiary
1	2008-2009	10.63	10.75	101.1	1314
2	2009-2010	11.31	11.52	101.9	1355
3	2010-2011	12.62	11.36	90.03	1563
4	2011-2012	12.07	12.06	99.91	1520
5	2012-2013	12.97	12.94	99.80	1482
6	2013-2014	13.50	12.61	93.41	1388
7	2014-2015	12.00	11.65	97.13	1340
8	2015-2016	13.00	12.76	98.18	1335
9	2016-2017	12.00	11.59	96.62	1251
10	2017-2018	12.00	11.44	95.38	1120
	Total	122.10	118.71		13668
	Average	12.21	11.87	97.46	1366.8

Source: Taluka Health Office, Kinwat.

Table 4 shows that the details of expenditure under family welfare programme in Kinwat Block from 2008-09 to 2017-18. Total provisional expenditure is Rs. 122.10 lakhs and average Rs. 12.21 lakhs in 2008-09 to 2017-18. Percentage to provisional expenditure is less than actual expenditure in 2008-09 and 2009-10 but 2011-12 and 2012-13 approximate is same provisional and actual expenditure. It means that expenditure on family welfare programme is fully utilized. The highest (1563) beneficiaries of family welfare in 2010-11 and total 13668 have operations in the study period and averagely 1366 operation in that period.

Immunization fortification

Immunization Fortification is the process whereby person is made immune or resistant to an infectious disease, typically by the administration of vaccine. Vaccines stimulate the body's own immune system to protect the person against subsequent infection or disease.

Immunization schedule implementing at villages, Anganwadi, on certain day, place and time, government have provide subsidy to transit vaccine and to help immunization.

Table 5 shows that expenditure on implemented terms of immunization in Kinwat Block in the period of 2008-09 to 2017-18. The average annual provisional expenditure is Rs. 5.12 lakhs in 2008-09 to 2017-18 and actual expenditure is Rs. 50.22 lakhs. The provisional and actual expenditure is minor different between them that is percentage to actual expenditure is less than provision expenditure (except 2013-14 to 2015-16). In other hand the actual expenditure on Immunization in Kinwat Block is utilization in study period.

Table 5: Expenditure on Immunization in Kinwat Block (Rs.in lakhs)

Sr. No.	Year	Provisional Expenditure	Actual Expenditure	Percentage to provisional Expenditure
1	2008-2009	4.28	4.11	95.92
2	2009-2010	5.42	5.14	94.84
3	2010-2011	4.85	4.50	92.76
4	2011-2012	3.77	3.77	100.00
5	2012-2013	7.67	7.67	99.98
6	2013-2014	4.60	4.60	100.00
7	2014-2015	5.50	5.49	100.00
8	2015-2016	5.10	5.10	100.06
9	2016-2017	5.00	4.90	98.01
10	2017-2018	5.00	4.90	98.01
	Total	51.22	50.22	
	Average	5.12	5.02	97.958

Source: Taluka Health Office, Kinwat.

Asha

There has chosen female health volunteer as part of mission under National Rural Health Mission at rural level. Particular female has not government or regular salaried workers get their remuneration by government.

Table 6:Expenditure on ASHA Scheme in Kinwat Block (Rs. in lakhs.)

Sr. No	Years	Provision	Actual Expenditure	Percentage to provisional Expenditure	Beneficiary
1	2008-2009	8.30	7.51	90.54	1625
2	2009-2010	12.61	7.62	60.46	1551
3	2010-2011	10.68	9.92	92.85	1400
4	2011-2012	10.58	10.88	102.8	1398
5	2012-2013	14.81	14.80	99.98	1391
6	2013-2014	15.00	14.54	96.96	1666
7	2014-2015	25.55	25.56	100.07	1762
8	2015-2016	28.00	27.72	99.02	1711
9	2016-2017	30.00	29.28	97.61	1757
10	2017-2018	35.50	35.52	100.08	1802
	Total	191.04	183.40		16063
	Average	19.10	18.34	94.37	1606.3

Source: Taluka Health Office, Kinwat.

Table 6 shows that expenditure on ASHA scheme in Kinwat Block in 2008-09 to 2017-2018. The provisional average expenditure on this scheme is Rs. 19.10 lakhs and actual average expenditure is Rs. 18.34 lakhs. The percentage of average actual expenditure is 94.37% in 2008-09 to 2017-18 but the percentage of expenditure have been fluctuated every year. In the year 2009-10 the actual expenditure on ASHA Schemes is utilized is very less (60.46 percent) and 2011-12 actual expenditure is higher than provisional expenditure (i.e. 102.8). Therefore the expenditure on ASHA scheme in Kinwat Block is varying in 2008-09 to 2017-18. The number of beneficiaries has been fluctuation since 2008-09. There are 1625 beneficiaries in 2008-09 and 1802 beneficiaries in 2017-18.



Dr. Subhash Takle is giving the speech for ASHA workers.

National Rural Health Mission

Government of India has began National Rural Health Mission (NRHM) on 12th April, 2005 has implement this mission since 2007-08 in Kinwat Block.

Table 7:Total Expenditure under National Rural Health Mission in Kinwat Block (Rs. in lakhs)

Sr. No.	Years	Provisional Expenditure	Actual Expenditure	Percentage to provisional Expenditure
1	2008-2009	108.09	93.56	86.56
2	2009-2010	150.42	131.82	87.63
3	2010-2011	153.09	153.56	100.34
4	2011-2012	191.90	188.96	98.46
5	2012-2013	201.41	199.17	98.89
6	2013-2014	203.00	198.99	98.02
7	2014-2015	225.00	222.62	98.94
8	2015-2016	230.01	225.86	98.19
9	2016-2017	235.00	235.54	98.82
10	2017-2018	229.00	227.55	99.37
	Total	1926.88	1877.6	-----
	Average	192.68	187.76	94.376

Source: Taluka Health Office, Kinwat.

Table 7 shows expenditure on NRHM in Kinwat Block. There has trend of provision and actual expenditure in 2008-09 to 2017-18. The provisional average expenditure is Rs. 192.68lakhs provision and actual expenditure is Rs. 187.76lakhs. The difference between provision and actual expenditure average is 5 percent. It means that percentage to provisional expenditure to actual expenditure is higher (expect 2010-11). There are proportion of actual expenditure to actual expenditure has low in beginning two years but has increased since 2010-11, has average expenditure amount is 94 percent. But the expenditure under the NRHM is fully utilized from 2010-11 to 2017-18. There is Rs. 108.09lakhs expenditure provision in 2008-09 and 229.00 lakhs in 2017-18; has almost double provision and has equal condition of actual expenditure.

Findings

1. According to five years plan, the total expenditure of public Healthcare Scheme during 1951-52 to 2007-12, where 2.18 percent out of total expenditure of Public Healthcare Scheme. As per World Health Organization, total Expenditure is expected almost 5 percent of GD
2. Plan expenditure of Maharashtra are related to tribal sub plan expenditure is 9.02. The relation of total population and tribal population near about 9% in Maharashtra state therefore the population and tribal sub plan expenditure is equally.
3. Janani Suraksha Scheme has been benefited to 16835 peoples during the 2008-09 to 2017-18. In other hand provisional expenditure has been higher than Actual expenditure (90.23). It means that provisional expenditure is not utilized in every year.
4. The study period, total beneficiary of Family Welfare Scheme is 13668 peoples. Actual average expenditure on Family Welfare Scheme is 11.87 lachs in the of 2008-19 to 2017-18.
5. Expenditure on Immunization Scheme, actual average expenditure is 5 lacks and it is lower than provisional expenditure, so it is not utilized properly.
6. Similarly, the expenditure on ASHA Scheme, There has average more than 19 lacks expenditure on their scheme has 102 percent highest expenditure in 2011-2012 and 60.46 percent lowest expenditure in 2009-10 as well as the number of beneficiaries has been increase since 2013-14.
7. The expenditure of National Rural Health Mission, proportion of expenditure has low in beginning two years but has increased since 2010-11, average expenditure amount is 94.37 percent.

Policy Measures

1. Central Government makes special provision in annual budget for the healthcare scheme of Tribal peoples and also implements numerous schemes for them.
2. For improve the healthcare scheme facilities in the tribal area, there is need of increasing the health facilities.
3. The entire grant should reach directly to the concerned agency for the effective implementation of the healthcare scheme in the study area.

4. Creating an institution basis for the improvement of health and overall development, penetrating to the smallest level of settlements and integrating plans and actions initiated beneficiary groups.
5. Provision for healthcare expenditure in district planning board as well as tribal development department and welfare department at the state level minimum five percent of total budget for tribal department.
6. Income in tribal area is lowest. Health condition has been affected by the income of family. Most of tribal family has below poverty line; consequently there should provide employment opportunity is necessary; and where by their daily needs will complete and consequently their health will well and increase the standard of living.
7. There has low level of literacy in tribal area as evidence there are 57% beneficiary. Hence there is need to special efforts to increase literacy proportion in study area.

References

1. White KL., Health Services concept and information for National Planning and Management, WHO, Geneva, Public Health Paper No. 1977; 67:8-9.
2. Govind Gare, Socio-culture Dynamics of Tribal Development, Tribal Research and Training Institute, Pune, 1990, 11-15.
3. Kapoor AK., Environment, Health and Development in a Primatene of Rajasthan, Edited by S. C. Ray, Institute of Anthropological Studies, Ranchi, 2000.
4. Mujumdar and Upadhyaya, An Analysis of the Primary Healthcare system in India with focus on reproductive healthcare services, Appeared in: Artha Beekshan, 2004, Vol. 12, No. 4, P. 29-38.
5. Deshmukh Prashant, A Study of Health Services in Marathwada, unpublished Thesis, Dr. BAMU, Aurangabad. 2008, 167-168.
6. Annual Tribal Sub-plan Report, Tribal Development Department, Government of Maharashtra, 2012-13.
7. NS. Tekale, Health and Nutrition Status of Warli Tribal Children in Thane District of Maharastra, Proceeding of National Symposium on Tribal Health, 221-225.
8. Tribal Public Health Profile, National Indian Health Board, 2010.

The Cotton Industry of West Bengal : Crisis and Management

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ABSTRACT: Handloom industry provides widest employment opportunities in West Bengal, where 5.8% of the households involved have been found to be silk handloom weavers, which bears a rich legacy. Nadia, Hooghly, Bankura, Midnapur, Birbhum district are the major handloom concentrated areas in West Bengal. The main objective of this paper is to make a situational analysis of the handloom workers by focusing on the problems of the handloom weavers. The paper briefly elaborates the historical perspective of handloom clusters over this region at the backdrop of the Bengal. It also analyzes the present crisis faced by the weavers of West Bengal. It makes a SWOT analysis of the handloom industry where strength, weakness, opportunity and threat of the handlooms sector has been analyzed. The paper recommends several measures like awareness campaign, financial literacy programme, SHG and consortium formation, common facility centre, dye house, market exposure to upgrade the present situation of the handloom industry.

Keywords: Handloom industry, productivity, Mahajani system, co-operative societies, marketing.

1. Introduction

The cotton weaving industry plays an important and imperative role in India's economy. In case of employment, it is the second largest sector next to agriculture. A strong and diverse raw material base, cheap labor, an ever growing domestic market and relatively better technologies are the key strengths of the Indian handloom sector that have resulted prominence of the industry ¹. From the early 19th century, handloom industry has been started to decline and lost its market due to deindustrialization. This paper tries to focus about the main problems of the weaving industry as well as how manage these challenges.

The cotton industry of India has its heritage. The archaeological surveys and studies found that the people of Harappan civilisation knew weaving and the spinning of cotton four thousand years ago ². During the Maurya period, the state was coordinated through an official named "Sutradhaksya". Therefore the product generated by the cotton textile industry was highly famous all over the world which was mainly done by the rural people. During the British period, there was no of marts at Shantipur, Dacca, Dhaniakhali and different parts of Bengal and it was the centre of trade and commerce at that time. The traders from far off countries used to come here for trade and commerce and much wealth (Dhan in Bengali language) were accumulated in these places ³. So Bengal became a flourishing centre of trade and commerce in the 18th century or even earlier. In the middle of the 18th century the East India Company had a large 'aurang' or weaving factory at 'Dacca' and also in Shantipur ⁴. During the late 17th and 18th century at the time of Industrial Revolution in Europe, India became the chief source of raw material and at the same time market place for the power loom generated products of England ⁵. Thus the colonial ruler ruined age old traditional process of spinning of yarn and weaving cloths. But this industry rejuvenated at the time of Swadeshi Movement which was headed by Aurobindo Ghosh ⁶.

After independence, withstanding the trauma of partition, weaver families have migrated from East Pakistan to West Bengal in the 1950s and 1960s. The handloom industry in eastern region has had its ups and downs as well, but Bengal handlooms have survived the jerks better to become a household name among connoisseurs of textiles ⁷. In the annals of Indian handloom sarees are made at Shantipur, Fulia, Dhaniakhali, Haripal of Hooghly district, Bankura. 'Tangail', 'Jamdani', 'Baluchori', 'Daccai' are the main sarees of weaving production. At present Santipur, Fulia in Nadia district, Dhaniakhali Begampur in Hooghly district, Samudragarh, Dhatrigram, Katwa, Ketugram in Burdwan district, Bishnupur in Bankura district are the mainly handloom concentrated areas in the state of West Bengal ⁸.

Types of Weavers:

All the weavers who participate in the weaving programme of the handloom clusters in West Bengal are not from the cooperative societies, many of them work through Mahajans and some are individual workers but also members of cooperative societies; these weavers are much richer than the others and consisted 63% of the weavers who joined with cooperatives but on the other side around 30% of the weavers were associated

with Local Mahajans. Local Mahajans were producing low price saree while the cooperative produced high price saree and if the cooperative found any dispute in the making of saree, the weavers were bound to refund the whole money. 7% were found to be individual weavers who weaved themselves and sold the product in the local market. These are the poor weavers. Market observers commented that all the workers who work here are mostly young people. It has been found that 65% of weavers are within 20-40 years and only 20% of people belong to 40-60 years and another 15% are senior citizen people. But only male weavers have been migrated here ⁹.

Types of weavers. A.Type I (Entrepreneur weavers): They buy raw material on their own, work on their own designs and then market their product through a variety of local channels, traders etc.

B.Type II (Labourer weavers) – These weavers are linked to master weavers, who receive the raw material and design brief from the master weaver and pass on the final product to them and receive their weaving wages in return.

C.Type III (Cooperative fold weavers): These weavers are linked to the primary cooperative societies which procure raw material, pass it on to the attached weavers and pay them wages.

Promotional Production: The main production of original style are being changed slowly in design, pattern as per customers' likings i.e. a) on pure basic gharana, b) modernized and ornamented saree on basic gharana, c) newly inclusion of light weight and feather-feeling saree of modern style with antic touch for the customers of good taste – namely, Ambari, Panchali, Gandhari, Nayansukh, Kadambari etc. which may be called 'Non-Traditional Tangail'. In order to promote exportable, cloth production was diversified to satisfy the need of the abroad customers and for the betterment of marketing in the niche market and also more wages earning for the weavers. This export oriented weaving started first with the encouragement of the Handicrafts and Handlooms Export Corporations of India Limited and one of their Japanese customer and well-known Textile Designer of Japan, Mr. Yurgen Lahl ¹⁰. Types of exportable cloths are scarves, stoles, made-ups etc. dress materials etc. Saree was sold directly to the customer through retail showroom, exhibitions and to whole-sellers of all over India. So far as exportable products are concerned, the Societies doesn't sale directly to the aboard market; they export their production through various merchant exporters to the market of Japan, Italy, USA, UK, Australia, Germany and Middle East countries. All yarn of natural fibre like cotton, silk, wool, linen, muga, tussar, matka etc. are used as raw materials. The societies has its own dye-house where both natural and chemical dyeing methods can be used. All the dyes are ensured eco-friendly according to international standard ¹¹. Steps are taken to modernize the dyeing units. Installation work of modern Hankdyeing machines, Boiler and Effluent Treatment Plant started.

Structure of the Cluster

The Core actors of the cluster are the weavers, master weavers. The evolution of the weavers into the Master Weavers tells about the organic relation that these core cluster actors enjoy amongst themselves. This further shows how the growth of the cluster has provided opportunities to a weaver to develop into a master weaver.

Master Weavers: Previously this category of weavers were engaged in weaving only, but today they undertake the overall responsibility of supplying the raw material to the weavers, provide the design and pay wages to the grass root level weavers; and then supply the sarees to Mahajans. Mahajans provide design and colour information and a better price realisation for the saree, but on the other hand make the transactions on credit.. The modal unit size of the master weavers is 4 looms. There are few master weavers having 10, 20, 30, 40, 50, 60 looms under one shed. The master weavers apart from the weaving earning of one loom earn profit margins from the products weaved on the loom engaged by the labour ¹².

Weavers: Not only the male weavers, women basically undertake the preparatory works like separation of hanks, sizing, pirn winding. There are around 111 different weaving communities namely the "Pramanik", "Kastha", "Dalal", "Khan" etc. Majority of the weavers belong to Tantuvay community. All the weavers have good weaving skills for weaving saree on Jacquard looms. The average earning of the weaver family is in the range of Rs. 1500 – Rs. 2000 per month.

Dyers: Dyeing is basically carried out in the dyeing unit. There are about 90 units doing dyeing as a commercial activity. These units, based on the quantity of yarn dyed are categorized into large, medium and small units. 60% of the total yarn sales are in the coloured yarn form, and the remaining 40% is in the grey

form. The yarn traders employ the large and medium scale for dyeing where as the small-scale unit does the job work for the master weavers.

Designers: There are about 100 small designers in the cluster, who do designing work on their own creativity and imagination. They neither have a formal education nor a mechanism to update their knowledge skills. Lack of exposure has made their skill only tradition based. Their main role in the cluster is to do costing for the master weaver, and supply them the punch cards for the Jacquard ¹³.

Exports:

India is a major exporter of cotton textiles. Cotton yarn, cloth and readymade garments form important items of Indian exports. Indian garments are well known throughout the world for their quality and design and are readily accepted in the world of fashion.

The main destinations of our exports are the USA, Russia, U.K., France, East European countries, Australia, New Zealand, Nepal, Singapore, Sri Lanka and some African countries ¹⁴.

But despite of various Government schemes this industry suffers from various aspects. The surprising fact that though there are enough demand the productivity and also the number of weavers are decreasing day by day. Forty to fifty years ago a weaver earned double than a teacher or government employee but the situation has completely changed at the present time. So the new generation are totally unwilling to accept weaving as a profession. 90% of the working weavers are at the age of 45 or more which is one of the main cause for low productivity ¹⁵. According to the weavers they realised that it is more profitable to join in 'Hundred days work scheme' under MGNREGA rather than weaving cloths.

The Cotton Textile industry in West Bengal is declining, especially in the recent years. Many of the textile mills in the state of West Bengal are sick. However, sickness in this industry is not confined to West Bengal alone. The textile industry in the country has been facing various problems. Some major problems in general terms in this industry are government controls and heavy excise duties, problem of supply of quality raw cotton, problem of power, obsolete machinery and hence high cost of production, increased competition from foreign countries, etc. The organized textile industry is uncompetitive visa-vis the decentralized sector, especially the power-loom sector. Further, the internal market of the textile products has not expanded because of low purchasing power of the common people ¹⁶. This is one of the major problems in the cotton textile industry. Further, there have been imports of cheap textile products. This has also adversely affected certain segments of the cotton textile industry. West Bengal mills are also facing all these problems.

Specific problems of the textile mills of the state are increased competition from the decentralized sector, low growth in purchasing power of the common public, higher freight charges for raw cotton, steep rise in raw cotton prices, etc. For all these reasons, production of yarn and cloth fell drastically. Industry circles complain of higher power costs compared to other states. Mill owners also complain of low labour productivity in the industry of the state. However, productivity can be increased through modernization and upgradation of technology. Most of the mills in the state are not in a position to carry out such modernization programmes. The Central Government is reluctant to even finance the working capital needs of the sick textile mills. The state government has been trying to persuade BIFR and the Central Government to sanction revival packages for these mills. It has also requested to release funds from the Textile Modernization / Up gradation Fund set up by the Central Government. But nothing tangible has been done so far to save the textile mills from sickness ¹⁷.

Major Problems of Cotton Textile Industry:

Although cotton textile is one of the most important industries of West Bengal as well as India, it suffers from many problems. Indian cotton textile industry suffered a lot as a result of partition because most of the long staple cotton growing areas went to Pakistan.

1. Production: In India, as per rules, it is punishable offence to weave 11 items in power loom and mill. But few of these reserved items are being woven very openly in power loom. So many power looms are illegally running in Aishtala, Birnagar, Ranaghat, Swarupgonj and Nabadwip in Nadia district and other parts of West Bengal and easily producing ditto copy of Tangail and Santipuri saree in very large quantity and flooded the handloom market by these cheaper-price cloths. Handloom products are unable to compete with them. There exists a Government department to protect this illegal weaving, but their activity is hardly felt ¹⁸.

2. Marketing: For marketing the products, most of the weavers and cooperative societies depend on the private traders and do not able to get responsible price of their products. There are no large sized central

whole sales organizations for boldly marketing of handloom goods. Direct retail and exhibition sales are not only solution of marketing problems of handloom industry. However, very recently Department of Micro, Small and Medium Enterprises and Textiles of the Government of West Bengal have promoted Biswa Bangla Marketing Corporation to improve the quality of life of Bengal's handloom weavers through selling their products around the corner of the countries and world. The organisation's unique business proposition is to plough the operating profit back to the artisans and weavers whose entrepreneurship has been pivotal to Biswa Bangla's success ¹⁹.

3. Finance: The commercial Banks are less interested to give finance to the weavers. Unorganized artisans cannot think, even in dream, to have bank loans. The master weavers are also refused by the banks, when they badly call for capital and ultimately getting no other alternatives, they are bound to take loan from the village money lenders at the highest rate of interest which in turn results into deterioration of their economic position.

4. Export Import: At the time of September, 2011, an undesirable deal has been signed and started its execution officially between India and Bangladesh. As per deal, 47 types of ready markets can be imported from Bangladesh under duty free and quota free scenario. This ultimately made a cloth-flood in domestic market. This came as a major blow to Shantipur handloom clusters.

5. Obsolete Machinery: Most of the textile mills are old with obsolete machinery. This results in low productivity and inferior quality. In the developed countries, the textile machinery installed even 10-15 years ago has become outdated and obsolete, whereas in India about 60-75 per cent machinery is 25-30 years old. Only 18-20 percent of the looms are automatic ²⁰.

6. Strikes: Labour strikes are common in the industrial sector but cotton textile industry suffers a lot due to frequent strikes by a labour force. The long drawn strike in 1980 dealt a severe blow to the organised sector. It took almost 23 years for the Government to realise this and introduce legislation for encouraging the organised sector.

7. Stiff Competition: The cotton mill industry has to face stiff competition from powerloom and handloom sector, synthetic fibres and from products of other countries.

8. Increased raw material cost: One of the major problems of weaving industry is the increasing rate of raw material cost in recent years. It has been found that the costs of raw material first increased at a high rate then decreases and then started increasing again and remain static. But it has been stated by the co-operatives that with the increasing transport cost raw material cost will again increase.

9. Decreasing production: it has been found that the weavers are not getting satisfactory profit as much as they are giving their labour to weave one sari. Thus increasing labour lead to decreasing production.

10. Low wage level: In all parts of West Bengal, the condition of weavers is better as they are now using modern method of weaving but since the all weavers do not have the same income it fails. c) **Wages:** The weaving wage rate of these handloom workers is so low that weavers are not being able to maintain their living and as a result a large number of handloom workers are going outside the state in search of other jobs ²¹.

11. Innovation in design: One of the major problems of this industry is that in the co-operatives traditional designs are mainly prevalent. No incentives have been taken to innovate new designs so that they can be competed with saris of other region.

12. Misuse of Brand name: In Dhanekhali, Shantipur and Fulia, the misuse of brand name is a major problem. Many other weavers though they are not part of society are selling their products by using the name of cooperatives. Again some machine made products from other region are often being sold to the customers in the name of this brand and if their quality is poor then in return the weavers of Dhanekhali are suffering as their demand falls.

13. Shifting to 100 days work: Another major problem in recent days is that the industry is suffering from draining out of weavers to 100 days work as they are getting more wages from such work. While in weaving profession if they give 10-12 hours labours then only they can weave one full sari and then also they will get much less wage such as Rs 50 for 1 sari. Thus most of the upcoming generation of weaver's family are getting diverted from this profession.

Major Weakness

Major weakness of the industry is lack of awareness of weavers and artisans connected with this industry regarding several institutional facilities. They fail to avail different concessional credit advantages and welfare scheme facilities due to their own ignorance and financial illiteracy ²².

Lack of education is also another reason why the weavers avoid paper work in different banks and financial loans. Village money lenders take the advantage of financial illiteracy of poor weavers and artisans and extract the pay off of the weavers' class. The farm size is also fragmented which hinders the textile companies to reap the benefit of the foreign market. The machines are also outdated. Most of the handlooms in West Bengal are pit-looms.

Only those weavers who are under co-operatives are been benefitted as the co-operatives supply them necessary thread and designs and in return they have to supply the saris according to the agreement. Weavers who are not under the co-operatives their income is uncertain as their income depends upon production, moreover they have face the problem of middlemen. Production is high during Durga puja and low productivity in lean season.

Majority of the weavers are male, female are only engaged in spinning the thread.

Demand decreasing, as modern machine made product dominates the market. Unhygienic environment for working as most of the rooms are small and machines occupy majority portion of room leaving very little space. The Co-operatives provides various incentives and facilities to the only weavers who are members of it. The societies is highly interested to develop design with the help of CAD centre (Government of West Bengal). Building loan, pension, provident fund, education loan have been provided by co-operatives are very small amount.]Besides local sale, the societies are interested to participate in exhibitions organised at district level. Under co-operatives, sarees are exported to other states but gradually it is decreasing as upcoming generation is not interested to engage in this industry thus leading to declination.

Management

With the passage of time, as revealed from the above study, the weavers are facing the problems of low output, technological stagnation and subsistence level of income. These problems, if not looked after, may wipe out the entire industry to oblivion, plunging several families into the wreck of financial breakdown and robbing the Bengal of one of its rich traditional weaving heritage. Thus it comes to our way to help this industry to move on. Given below are some of the suggestions and management for its betterment ²³.

1. Controlling parallel economic activities by co-operative societies and government.
2. Implementation of proper plan, policies for the weavers so that next generation is attracted to accept this.
3. Innovation of designs by CAD trained designers.
4. Introduction of new types of dressing material.
5. Involvement of more women.
6. Eradication of communication gap regarding marketing and huge production and marketing development are needed for renovation and innovation of industry. Domestic market as well as export market should be developed.
7. To undertake a technology mapping of handloom/handicraft clusters and to devise technological improvements that enhances productivity, quality and reduces drudgery.
8. The training of weavers and innovation in the improvement of looms and designs of products needs to be undertaken to encourage the production of highly value-added products in order to improve the socioeconomic conditions.
9. Organising fairs where buyers and sellers can directly communicate and more infrastructure facilities should be provided by the co-operatives to weavers.
10. Insurance scheme, medical allowances, leaves, wages, loan facilities education grant, festival allowances should be provided to weavers.
11. Measures should be taken to make dyers conscious about discharging the colour mix water into the nearby water bodies. Alternative place should be chosen to reduce pollution.

12. Increase wage level and early increment for weavers to improve their economic condition and well maintenance of houses by providing house cum work-shed scheme and building quarters for weavers.

Apart from the weaving of traditional Bengal handloom sarees, new products like yardage, scarves and stoles for export started and the weavers began to understand the tastes and preferences of foreign markets. The adaptability of the silk weavers with the change in time and preference pattern can only make the handloom industry resilient with the forth coming situation. The weavers of West Bengal succeeded to understand the ongoing change in style trend and the colours became more muted and the designs understated. Various complex and esoteric weaves had been abandoned for their complicated techniques and high labour cost were revived as weavers began to get remunerative prices for their products. New experiments were carried out with yarn combinations like silk, wool and cotton. Natural and artificial yarn combinations were also used. Phulia, Dhaniakhali in fact led the way in the export of high end handloom stoles and scarves. These were exported in large volumes. Phulia and Shantipur are today home to weavers from different economic strata. The Government should take emergent steps to fill up these lacunae. On the other hand, there exists large number of self-help groups attached in this sector. They are almost marginal with few or no assets to their names and what unites them is their fabulous weaving skill. The Integrated Handloom Cluster Development Programme promoted by the Ministry of Textiles, Government of India is expected to fulfill the hope for those struggling weavers. With objectives like SHG and Consortium formation, common facility centre, dye house, market exposure and so on, things would definitely look up for the Bengal handloom sarees of West Bengal.

References

1. Niranjana S. Thinking of Handlooms: Perspectives from Andhra Pradesh, *Economic and Political Weekly*. 2004; 39(6):553-563.
2. Mitra Debendra Bijoy. *The Cotton Weavers of Bengal 1757 - 1833*, Farma KLM, Kolkata 1978, 37-39.
3. Mitra Sudhir Kr. *Hooghly Zellar Itihas O Banga Samaj*, Mondal Book House, Calcutta, 1991, 794.
4. Barterji Amia Kr. *West Bengal District Gazetteers, Hooghly, 1972, 672.*
5. Das Sujit Kumar. *THE WARP AND WOOF : An Enquiry into the Handloom Industry of West Bengal*, K.P.Bagchi & Co, Kolkata, Introduction part. Oppo. Cit.
6. Tirthankar Roy, *Economic Reforms and Textile Industry in India*, *Economic and Political Weekly*. 1998; 33(32):2173-2182.
7. Directorate of Textiles, Handloom, Spinning Mills, Weaving and Handloom Based Handicrafts Divison, Govt. Of West Bengal, 2017.
8. Das C, Roy M, Mandal P. Handloom cluster of India: A Case Study of Shantipur Handloom Cluster, *International Journal of Humanities and Social Science Intervention*. 2016; 5(1):27-35. Ibid
9. A Choudhury AK, Mukherjee A. A diagnostic report on cluster development programme of Shantipur handloom cluster, Nadia, West Bengal. *Indian Journal of Traditional Knowledge*. 2009; 8(4):502-509.
10. Bhattacharya D, Bhadra T, Choudhury S. Training Need Assessment of Weaving Community in Phulia, West Bengal, India, *The International Journal of Humanities & Social Studies*. 2016; 4(11):207- 212.
11. De, Arup., Diagnostic Report of Santipur Handloom Cluster, Nadia; available on www.indiahandloomclusterdchl.net/DiagnosisStudy.asp accessed on 1st June, 2016.
12. Basak H. Tantsilper Dashdosha, *Proceedings, Customer Unity and Trust Society (CUTS)*, New Delhi, 2010.
13. Hossain Hameeda. *The Company Weavers of Bengal : The East India Company & The Organization of Textile Production in Bengal. 1750 – 1813*, Oxford University Press, 1988, 54-65.
14. Chaudhury S. 'International Trade in Bengal Silk and the Comparative Role of Asians and Europeans circa 1700-1757', *Modern Asian Studies*. 1995; 29(2):373-386.
15. Das R. Marketing channels of the silk cooperative societies in Murshidabad of West Bengal- A Socioeconomic Scenario, *Remarking*, 1(1995), and Das,C.. Co-operative Based Economic Development in Phulia, *ISOR Journal of Humanities and Social Science*. 2015; 20(9):133-139.
16. Basak, N.K. and Pal,P. ,Origin and Evolution of the Handloom Industry of Phulia and Its Present Scenario, *Economics*. 2015; 4(6):132-138.
17. Saha, Pradip. How Phulia went from Boom to Bust, *Live Mint E-Paper*, last modified on 26th August, 2016.
18. <http://www.livemint.com/Leisure/aCt3UOff9OSLrvV4S0yejJ/How-the-Phulia-Tangail-went-fromboom-to-bust.html> Government of India, Ministry of Textiles www.texamin.gov.in
19. Gov. of India ,Primary Handloom Census Abstract, Ministry of Textiles-Gov. of India, 2010. NCAER.

20. Opportunity Recognition in the Globalisation Era, published in International Journal of Emerging Research in Management & Technology, 2015, 4(4).
21. Sarkar. Sharmistha : An overview of Cotton Textile Industry at Dhaniakhali Block of Hooghly District,IOSR Journal Of Humanities And Social Science (IOSR-JHSS). 2015; 20(11):50-56.

Efficiency Measurement of Public and Private Sector General Insurance Companies in India Using Dea

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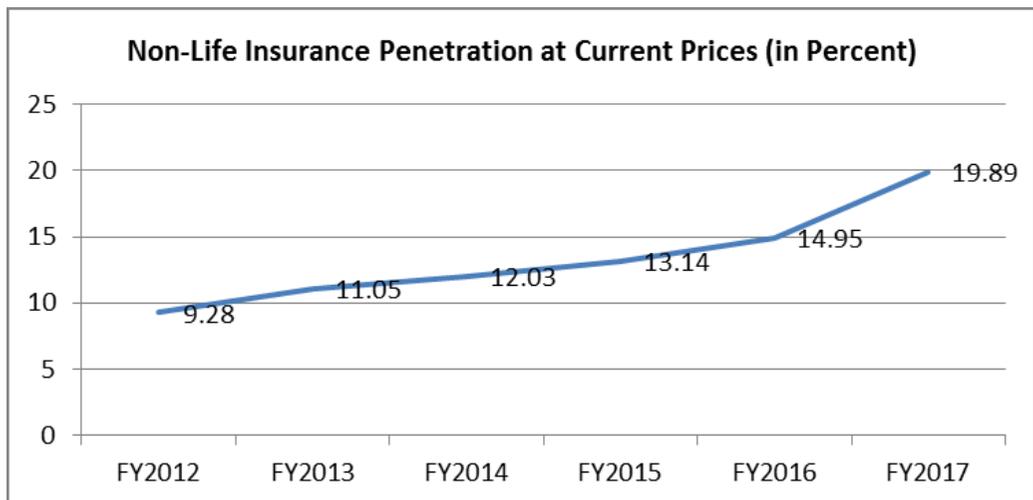
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ABSTRACT: This paper investigates the efficiency of the general insurance companies operating in India during the period 2011 to 2017. Data Envelope Analysis has been applied to estimate the efficiency of these insurance companies using publicly available financial data of different parameters related to their financial health. The top ten general insurance companies operating in India have been selected for the study. The value-added approach has been used which is the most appropriate method for studying insurance efficiency (Cummins and Weiss, 1998). The value-added approach is closely related to the traditional measure of financial performance. The efficiency of each company in comparison with other companies of the general insurance sector is estimated. Efficiency score derived using the DEA contributes significant information towards identifying the scope for improvement. The study has further attempted to identify the most efficient general insurance firms in the public sector and the private sector respectively.

Keywords: General insurance; insurance efficiency; technical efficiency; DEA; value-added approach

1. Introduction

Prior to liberalization, there were only four public sector companies in the general insurance sector. In 1994 the Government accepted the recommendations of RN Malhotra committee and opened up the sector for private sector. As at March 2017, there are 63 licensed insurers, with a number of life and non-life insurers, domestic reinsurers, and foreign reinsurance company. While private insurers are more in number, public insurers account for about 55 percent in non-life, and about 60 percent in reinsurance and their business extended beyond India. In recent years, most of the new entrants have been to the non-life sector, stand-alone health, and reinsurance (since 2016), including the foreign reinsurer branches (IMF Report, 2018). Insurance has been strongly associated in India with savings and investments and less with protection (life or non-life). Most domestic property remains uninsured. For example, it is estimated that 40 percent of drivers have no motor insurance. Crop and health insurance penetration is low. Moreover, most public non-life insurers rely on individual agents for product sales and level of digital outreach is also low.



Source: India Brand Equity Foundation at www.ibef.org

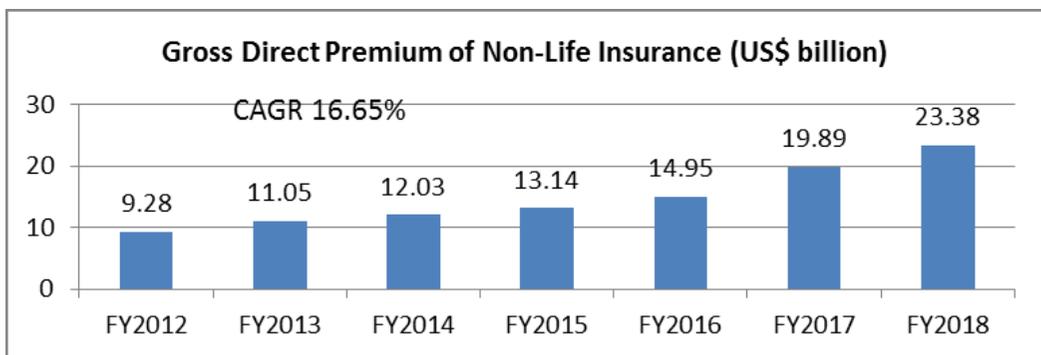
Figure no. 1: Low Penetration of Non-Life Insurance

However, recent regulatory changes and new delivery channels improved the standards of customer service. Now the focus is on developing simple products that can be sold at low cost through the online channel. Government initiatives in cooperation with insurers have also contributed significantly to this increased penetration. As per IRDA, in order to increase market penetration in health insurance, people are needed to be educated about the benefits of health insurance along with providing incentives and free check-ups.

I. Statement of Problem

Insurance companies as financial institutions have two fold contribution for the growth and efficient functioning of the economy. Insurance companies not only facilitate risky businesses through transferring risk from insured to insurer but also act as financial intermediaries to mitigate the transaction costs by bringing savers and borrowers together. The need for insurance as a risk transfer mechanism is even more imperative in the developing countries like India as India's economy is characterized by a large population of low income groups. This low income group lacks access to social security systems, healthcare, education, sanitation, and employment opportunities.

As documented above, the non-life insurance segment has registered a consistent growth in terms of business size and premium over the decades. Gross Direct Premiums of non-life insurer in India reached Rs.1.51 Trillion (US\$ 23.38 billion) in the year 2017-18. Over the years 2011-12 to 2017-18, non-life insurance premium increased at a Cumulative Annual Growth Rate (CAGR) of 16.65%.



Source: India Brand Equity Foundation at www.ibef.org

Figure no. 2: Strong Growth in Non-Life Insurance CAGR

Many new companies entered the insurance market which led to intense competition in the sector. Thus, efficiency measurement is viewed as a coherent aspect of the business performance analysis in both the life insurance and non-life insurance sector. Due to the prevalence of high risk the need for analyzing the performance of the non-life insurer is immensely critical.

In analyzing performance of a company, apart from window analysis it is important to measure their performance relative to other companies in that sector. So measurement of insurers' efficiency in comparison to its peer companies is very relevant. In the non-parametric regime data envelopment analysis (DEA) gained momentum due to a number of factors like efficiency and simplicity.

The primary objective of the study is to measure the efficiency score of the top ten non-life insurance companies operating in India. The study will also compare the efficiency score of the public and private sector non-life insurance companies.

II. Literature Review

A number of empirical studies have focused on efficiency of insurance companies and have examined many issues related to efficiency of insurance companies. For instance, some studies have investigated the impact of risk management on the efficiency of insurers (Cummins et al, 2006; Cummins & Nini, 2002) whereas, some others have analyzed the impact of organizational form and corporate governance issues on the efficiency of insurers (Erhemjamts & Leverty, 2007). The general level of efficiency in both developed and developing countries has been examined by many researchers but the results are mixed in both types of insurance markets. For instance; Kessner and Polborn (1999) applied Data Envelopment Analysis (DEA) to measure the efficiency of 110 life insurers of Germany over the period 1990 to 1993 and found that most of

the insurers in the insurance market of Germany were inefficient. Another study by Weiss (1991) applied Stochastic Frontier Approach (SFA) to compute the efficiency of 100 US property & liability insurance companies over the period 1980 to 1984. The estimated results indicated cost inefficiency of around 12 to 33 percent amongst the US insurers. Moreover, Cummins (1999) applied DEA to compute the efficiency of 750 life insurers of U.S. for the period 1988 to 1995 and found lower efficiency scores amongst the insurance firms as compared to other financial institutions. Cummins et al (1996) investigated the general level of technical efficiency over time in the 94 life and non-life insurers of Italy over the period 1985-1993. This study used the DEA technique to compute the efficiency scores and found that the efficiency amongst the insurers remain around 70% to 78% over the study period.

Another study by Hussels and Ward (2006) investigated the efficiency level of 78 German and U.K. life insurers over the period 1991-2002. The study used DEA and DFA to compute the efficiency scores and found that the insurers of German insurance market were more efficient as compared to U.K. insurance market.

Empirical researchers have also investigated the general level of efficiency in the insurance markets of developing economies. For instance, Tone and Sahoo (2005) investigated the general level of efficiency over time in the Indian life insurers using DEA over the period 1982-2001. The estimated results indicated that the allocative inefficiencies amongst the life insurers of India increased after 1994 whereas the cost efficiency also increased after 2000. In another study by Qiu & Chen (2006) measured the efficiency of 32 life insurers of China over the period 2000 to 2003 and reported a decline in the efficiency of insurance companies. Moreover, another study by Mansoor and Radam (2000) examined the general level of technical efficiency and productivity for 12 Malaysian life insurers using DEA approach over the period 1987-1997. Afza and Ali Asghar (2008) followed the value added approach to determine the output variables and input variables. They estimated the Technical efficiency, allocative efficiency and cost efficiency of the insurance companies to determine the real contributors of efficiency in the insurance industry of Pakistan.

III. Methodology

This study applies the Data Envelopment Analysis (DEA) approach for the computation of efficiency scores in the insurance companies of India. DEA is a 'data-oriented' approach for evaluating the performance of a set of peer entities called Decision Making Units (DMUs). By means of DEA relative efficiency of each DMU's can be calculated in order to make a comparison. As a result, this method also provides reference units for inefficient ones. As a general rule of thumb, in competitive markets, DMUs are output-oriented, since we assume that inputs are under the control of the DMU, which aims to maximize its output subject to market demand (something that is outside the control of the DMU).

Charnes, Cooper and Rhodes (1978) first introduced the term DEA to describe a mathematical programming approach to the construction of production frontiers and efficiency measurements corresponding to the constructed frontiers. The latter authors proposed a model that had an input orientation and assumed constant returns-to-scale (CRS). This model is known in the literature as the CCR model. Later studies have considered alternative sets of assumptions. Banker, Charnes and Cooper (1984) were the first to introduce the assumption of variable returns- to-scale (VRS). This model is known in the literature as the BCC model.

The VRS model takes into account the variation of efficiency with respect to the scale of operation, and hence measures pure Technical Efficiency. The output-oriented measure of technical efficiency of any firm under VRS requires the solution of the following LP problem due to Banker, Charnes, Cooper, 1978:

Max θ

$$\text{Subject to } \sum_{j=1}^n w_j x_i^j \leq x_i^t; i = 1,2,3 \dots m$$

$$\sum_{j=1}^n w_j y_r^j \geq \theta y_r^t; r = 1,2,3 \dots s$$

$$\sum_{j=1}^n w_j = 1;$$

$$w_j \geq 0 (j = 1,2,3, \dots, n);$$

where:

w_j = the weight of the j th DMU,

x_i^j = value of the i th input variables for j th DMU,

y_r^j = value of the r th output variables for j th DMU and

x_i^t = the value of i th input variable for t th DMU.

m = number of inputs

s = number of outputs

n = number of DMU

θ = the efficiency of t th DMU.

With respect to Input and Output Variables, Berger and Humphrey (1992) has described three different approaches namely, the intermediation approach, the user cost approach and the value added approach to determine output variables. This study has followed the value added approach to determine the output variables because it judges all categories of financial reports to have some output characteristics in place of differentiating inputs from outputs in a mutually exclusive way. If a financial product contributes considerably based on its operational cost allocation method then it will be taken into account as output variable (Berger et al, 2000). According to value added approach, insurers provide three key services; risk pooling & risk bearing, financial services relating to insured losses and financial intermediation services.

- a) Risk-pooling and risk-bearing. Insurers collect premiums from their customers and redistribute most of the funds to those policyholders who sustain losses. The actuarial, underwriting, and related expenses incurred in operating the risk pool are a major component of value added in insurance.
- b) "Real" financial services relating to insured losses. Insurers provide a variety of real services for policyholders. In life insurance, these services include financial planning, counseling for individuals, pension and benefit plan administration for businesses. By contracting with insurers to provide these services, policyholders can take advantage of insurers' extensive experience and specialized expertise to reduce costs associated with insurable risks.
- c) Intermediation. Insurers issue debt contracts (insurance policies and annuities) and invest the funds until they are withdrawn by policyholders (in the case of asset accumulation products sold by life insurers) or are needed to pay claims. The borrowed funds are invested primarily in marketable securities.

The present study has adopted premiums as output variable because it represents the risk pooling and risk bearing function of insurance companies. The income from investment is the second output as insurance companies can be considered as financial institutions seeking to maximize income from investments.

Insurer inputs can be classified into three principal groups: labor, business services & materials and capital. Insurance is a labor intensive industry, with agents' commission accounting for a major proportion of such labor costs. Operating expenses and other personnel costs related to insurance business are summarized under the head business services and materials. The rationale for the use of equity capital is that insurers must maintain equity capital to back the promise to pay claims even if losses are higher than expected and to satisfy regulatory requirements. Hence, equity to total asset ratio has been incorporated as the third input. The choice of inputs and outputs is guided by choices made in previous studies as well as the availability of data.

IV. Data

The present study concentrates on non life insurance companies in India. The top ten non-life insurance companies operating in India have been identified based on their market share. The information has been collected from the insurance sector reports for the financial year 2017-18. The study measures performance of all the companies over the last seven years ending 31.3.2011 to 31.3.2017. All relevant data have been collected from the annual reports of the respective insurance companies as publicized by them in their websites.

The top ten general insurance companies included in the study are as follows:

New India Assurance Company Limited, United India Insurance Company Limited, National Insurance Company Limited, Oriental Insurance Company Limited, ICICI Lombard General Insurance Company Limited, Bajaj Allianz General Insurance Company Limited, HDFC ERGO General Insurance Company Limited, Iffko Tokio General Insurance Company Limited, Reliance General Insurance Company Limited, Tata AIG General Insurance Company Limited

The Data Envelopment Analysis (DEA) approach for the computation of efficiency scores in the general insurance companies of India has been applied as DEA is a linear programming technique for building an

efficient frontier. The optimization problems to calculate efficiencies have been solved using the LINGO statistical software and the results derived have been analyzed accordingly.

V. Results and Discussion

The efficiency score of a DMU states the efficiency of the DMU in utilizing the inputs to generate the outputs in comparison with other DMUs. Since we are using an output oriented model, the major aim is to increase outputs as much as possible, keeping the inputs either constant or decreasing it, if possible. The companies with an efficiency score of 1 indicate that the outputs cannot be further increased in their case and if it is increased, it will only be possible by increasing the inputs. The companies with an efficiency score of more than 1 indicate that even if all current inputs were used efficiently, output is less than potential output.

Table no. 1: Efficiency Score of General Insurance Companies

Year	New India	United India	National	Oriental	ICICI	Bajaj	HDFC	Iffco Tokio	Reliance	Tata
2017	1	1	1	1.453	1	1	1.406	1	1	1
2016	1	1	1	1	1	1	1.297	1	1	1.140
2015	1	1	1	1	1	1	1.320	1	1	1.173
2014	1	1	1	1	1	1.007	1.085	1	1	1.182
2013	1	1	1	1	1	1	1.109	1	1	1.207
2012	1	1	1	1	1	1	1.000	1	1	1.255
2011	1	1	1	1.113	1	1.696	7.432	1	1	2.223

Source: Computed by the Authors using LINGO software

The output oriented technical efficiency of the different non-life insurance companies is depicted in Table no.1. An efficiency score of more than 1 indicates that there is still scope for improvement and keeping the inputs constant the outputs can be further increased thus the efficiency of the firm can be increased.

The analysis of a 7 year time-horizon, that we considered shows that New India Insurance, United India Insurance, National Insurance, ICICI Lombard, Iffco-Tokio and Reliance Insurance have proved to be efficient over all the years as compared to the other companies included in the study. Oriental Insurance has been efficient in all years under the study except the years, 2010-11 and 2016-17. According to insurance regulator Insurance Regulatory and Development Authority of India (IRDAI) annual report 2015-16, market share of Oriental declined to 8.63 per cent in 2015-16 from 8.75 per cent in the previous year.

The performance of Bajaj Allianz has also been praiseworthy except for 2010-11 and 2013-14. All of them have been able to make the optimal utilization of the input consistently throughout the period. They have set examples for others to replicate. They have been able to generate substantial premium and ensure investment in marketable securities of the idle funds not used for claim settlements. They have also achieved an optimal output without change in the commission to premium ratio or investment in fixed assets or operating expenses.

HDFC ERGO and Tata AIG have not been able to match their competitors in any of the years included in the study. They have not been able to maximize the outputs to their fullest. These companies need to replicate the strategies adopted by the other efficient companies so as to increase their efficiency. Fortunately, both the companies have been trying to improve efficiency through different measures. Post merger with L&T General Insurance, HDFC Ergo has become the third largest private non-life company with a market share of 4.9%, before the merger, HDFC Ergo was the fourth largest in terms of market share. To fund expansion post acquisition, HDFC Ergo has raised Rs.350 crores through Non-Convertible Debentures in January 2017. In July, 2016, Tata AIG General Insurance Company Limited has entered into corporate agency (non-life insurance) agreement with Bank of Baroda. The bank has one of the largest distribution networks in India which will be used by Tata AIG to build customized general insurance solutions for Bank of Baroda customers. The efficiency of Tata AIG has improved through these steps as envisaged by the efficiency score of 1 attained in the year 2017-18

Among the private players Reliance General Insurance, Iffco-Tokio General Insurance, ICICI Lombard and to some extent, Bajaj Allianz have been able to match the performance of the public sector general insurers.

The years 2010-11 seemed to be the worst of the lot wherein 4 general insurance companies have failed to attain an efficiency score of 1. The year 2011-12, 2012-13, 2014-15, 2015-16 and 2016-17 proved to be the best years out of the 7 years included in the study wherein a total of 8 companies out of the 10 companies attend an efficiency score of 1 respectively.

Table no.2: Efficiency Score of Public Sector General Insurance Companies

Year	New India	United India	National	Oriental
2017	1	1	1	1
2016	1	1	1	1
2015	1	1	1	1
2014	1	1	1	1
2013	1	1	1	1
2012	1	1	1	1
2011	1	1	1	1.115

Source: Computed by the Authors using LINGO software

Further, we segregate the companies sector wise into public sector and private sector. We calculate the efficiency score of the companies by comparing them with their peers in each of the sectors. Interestingly, all the 4 public sector general insurance companies included in the study have been efficient in almost all the years of study (Table no.2). No wonder that the government proposes to merge National Insurance, United India Insurance and Oriental India Insurance into one company. Currently, these three major players contribute around 30% to the market of non-life-insurance. The synergies will bring in further efficiency in operations, claims management and technology platforms. The merger will reduce competition among the public sector general insurers and will shift their focus to reaching maximum number of uninsured people and assets. But subsequently, this will also create a monopolistic situation and private insurers must be cautious of it.

Table no. 3: Efficiency Score of Private Sector General Insurance Companies

Year	ICICI	Bajaj	HDFC	Iffco Tokio	Reliance	Tata
2017	1	1	1.426	1	1	1.27
2016	1	1	1.265	1	1	1.148
2015	1	1	1.189	1	1	1.149
2014	1	1	1	1	1	1.157
2013	1	1	1.099	1	1	1.197
2012	1	1	1	1	1	1.21
2011	1	1	1	1	1	1

Source: Computed by the Authors using LINGO software

On comparison between private sector general insurance companies (Table no.3), ICICI Lombard, Bajaj Allianz, Iffco-Tokio General Insurance and Reliance General Insurance exhibit outstanding performance in each of the years included in the study. There is slight improvement in the efficiency score of HDFC Ergo when compared with its peers in the private sector. There is still room for improvement in efficiency of HDFC Ergo and Tata AIG. Hopefully, the corrective measures adopted by them will help them to achieve a more competitive position in the subsequent years.

Table no. 4: Super-Efficiency Score of Public Sector General Insurance Companies

Year	New India	United India	National	Oriental
2017	0.11238	0.62068	1.36161	1.58652
2016	0.23732	0.83729	0.91518	1.56453
2015	0.28603	1.05290	0.86966	1.53340
2014	0.29167	0.94871	0.83114	1.28624
2013	0.30961	0.84001	0.99930	1.20694
2012	0.32509	0.87536	1.00601	1.07101
2011	0.31087	0.06884	0.80027	1.11548

Source: Computed by the Authors using LINGO software

We had computed the super efficiency scores (Table no.4) from the four public companies, which have proved to be efficient each year. New India Assurance has emerged as the best performer in all the years (except 2010-11) included in the study. United India had outperformed the other public sector peers in the year 2010-11. New India Assurance Co. Ltd. operates in 28 countries and headquartered at Mumbai, India. They have been market leaders in India in Non-Life business for more than 40 years. They have been leading the market, apart from premium, in reserves & net worth for many years, indicating that the company has the highest degree of financial strength to honour its policyholder's obligations. It is the only direct insurer in India rated A-(Excellent) by AM BEST Company since 2007.

Table no. 5: Super-Efficiency Score of Private Sector General Insurance Companies

Year	ICICI	Bajaj	HDFC	Iffco_Tokio	Reliance	Tata
2017	2.72E-02	0.13277	1.52110	0.51767	0.88079	1.38520
2016	2.44E-02	0.16998	1.31594	0.45635	0.56525	1.25257
2015	3.95E-02	0.36585	1.21354	0.51709	0.37886	1.19915
2014	6.99E-02	0.47011	1.09132	0.80817	0.24420	1.18258
2013	0.117015	0.43773	1.13887	0.74438	0.15097	1.20828
2012	8.78E-02	0.44457	1.09800	0.78020	0.20806	1.21095
2011	5.35E-02	0.60224	1.24082	0.81955	0.28715	1.27746

Source: Computed by the Authors using LINGO software

Out of the multiple private companies, which have been proved to be efficient each year, we had computed the super efficiency scores (Table no.5). The scores highlight that ICICI Lombard has emerged as the best performer in all the 7 years included in the study. ICICI Lombard has extensive product portfolio, targeting both individual and corporate clients. It has been consistently recognized for its innovative solutions and customer centric approach. The company endeavours to provide customised insurance product to their customers. It is also the first non-life insurer to go public.

VI. Limitation

In this study we have restricted the number of insurance companies to top ten. The period of study is also restricted to the last seven years. The study also includes only three inputs and two outputs. The study has concentrated on Indian general insurance companies only.

VII. Scope for further research

DEA can be applied to Indian insurance companies only. Further research could be done on the insurance companies of different countries. Keeping in mind the constraints of DEA choice of input and output variables, further research and analysis have to be carried out to assess the impact of variables on efficiency. Year wise comparative analysis of each company considering each year as a separate DMU can be carried out in future.

Reference

1. IMF Report, (2018), "INDIA: Technical Note on Insurance Sector Regulation and Supervision".
2. Cummins JD, Maria Rubio-Misas. Deregulation, Consolidation, and Efficiency: Evidence from the Spanish Insurance Industry. *Journal of Money, Credit and Banking*. 2006; 38(No. 2): 323-355.
3. Cummins JD, Nini G. Optimal Capital Utilization by Financial Firms: Evidence from the Property-Liability Insurance Industry. *Journal of Financial Services Research* 2002; 2: 15-53.
4. Erhemjants O, Leverty JT. The demise of the mutual organizational form: An investigation of the life insurance industry. *Journal of Money, Credit, and Banking*. 2007; 42:1011-1036.
5. Kessner E, Polborn M. Eine Effizienzanalyse der deutschen Lebensversicherer—die Best Practice Methode. *Zeitschrift für die gesamte Versicherungswissenschaft*. 1999; 88(2):469-488.
6. Weiss MA 1991. International P/L insurance output, input, and productivity comparisons. *Geneva Papers on Risk and Insurance Theory*. 1991; 16(2):179-200.
7. Cummins J D, Tennyson S, Weiss MA. Consolidation and Efficiency in US Life Insurance Industry. *Journal of Banking and Finance*. 1999; 23:325-357.
8. Cummins JD, Turchetti G, Weiss MA. Productivity and Technical Efficiency in the Italian Insurance Industry. Working Paper 96-10. Wharton School 1996.

9. Hussels S, Ward DR. The impact of deregulation on the German and UK life insurance markets: an analysis of efficiency and productivity between 1991-2002. RP 4/07, Cranfield University School of Management, 2007.
10. Tone K, Sahoo BK. Evaluating cost efficiency and returns to scale in the Life Insurance Corporation of India using data envelopment analysis. *Socio-Economic Planning Sciences*. 2005; 39(4):261-285.
11. Qiu S, Chen B. Efficiencies of Life Insurers in China: An Application of Data Envelopment Analysis.2006.<http://www.cicfr.org.cn/cicf2006/cicf2006paper/20060130033345.pdf>
12. Mansoor S, Radam A. Productivity and efficiency performance of the Malaysian life insurance industry. *Journal Ekonomi Malaysia*. 2000; 34:93-105.
13. Afza T, Ali Asghar MJ. Efficiency Of The Insurance Industry In Pakistan: An Application of Non-Parametric Approach. *Interdisciplinary Journal of Contemporary Research In Business*, 2008, 2(8).
14. Charnes A, Cooper W, Rhodes E. Measuring the Efficiency of Decision Making Units. *European Journal of Operational Research*. 1978; 2:429-444.
15. Banker R, Charnes A, Cooper W. Some models for estimating technical and scale inefficiencies in data envelopment analysis. *Management Science*. 1984; 30:1078-1092.
16. Berger AN, Humphrey DB. Measurement and efficiency issues in commercial banking in Z. Griliches (ed.), *Output Measurement in the Service Sector*, National Bureau of Economic Research 1992, *Studies in Income and Wealth*, 56, University of Chicago Press, IL:245-279.
17. Berger A, DeYoung R, Genay H, Udell G. Globalisation of financial institutions: evidence from cross-border banking performance. *BrookingsWharton Papers on Financial Services*. 2000; 3:23-158.
18. Borges MR, Nektarios M, Barros CP. Analysing The Efficiency Of The Greek Life Insurance Industry. *European Research Studies*, 2008,XI(3).
19. Cummins JD, Weiss MA. Analyzing Company Performance in the Insurance Industry, using Frontier Efficiency Methods. In Dionne, G. (ed.), *Handbook of Insurance 2000*. Boston, Kluwer,Ch. 24.
20. Cummins JD, Weiss MA, Xie X, Zi H. Economies of scope in financial services: A DEA efficiency analysis of the US insurance industry. *Journal of Banking & Finance*. 2010; 34(7):1525-1539.
21. Sabet RJ, Fadavi A. Performance measurement of insurance firms using a two-stage DEA method. *Management Science Letters*. 2013; 3:303-308.
22. Yang Z. A two-stage DEA model to evaluate the overall performance of Canadian life and health insurance companies. *Mathematical and Computer Modelling*. 2006; 43(7-8):910-919.

Impact of Health Expenditure on GDP, HDI & Unemployment Rate in ASEAN-7

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ABSTRACT: In this paper author endeavours to relate the health expenditure of ASEAN-7 with GDP, HDI and unemployment rate of ASEAN-7 from 1990-2016 using panel data through the econometric models of fixed effect regression, panel cointegration and panel vector error correction model. The paper concludes that fixed effect panel regression among health expenditure % of GDP, HDI, unemployment rate and GDP of ASEAN-7 during 1990-2016 showed that one per cent increase in health expenditure per year led to 0.719% decrease in GDP per year but one per cent increase in HDI and unemployment rate per year led to step up 2.985% and 0.292% in GDP per year significantly. Johansen-Fisher panel cointegration confirmed that Trace and Max Eigen statistic showed two cointegrating equations where one cointegrating equation tends to equilibrium which implies that there is long run causality from GDP, HDI and unemployment rate of ASEAN-7 to the health expenditure as per cent of GDP during 1990-2016 where residuals VECM is stable, nonstationary, non-normal and serially correlated. Moreover, the Wald test suggests that there is short run causality running from health expenditure % of GDP of ASEAN-7 of previous periods to the change of GDP of ASEAN-7.

Keywords: Health expenditure, human development index, unemployment rate, gross domestic product, fixed effect panel regression, cointegration, vector error correction, short run causality, long run causality.

JEL Classification code-C22, E24, F15, H15, I10, I18, J24, J64, O15, O40

1. Introduction

Health is an important determinant of economic development. A healthy population indicates higher productivity, thus higher income per head. Uzawa(1965), Lucas(1998) and Romer(1990) emphasized that human capital development which is the key factor of economic plan is positively associated with economic growth. Thus investment in human capital education, health and training play an important role as an incentive for them to increase their earnings in future (Becker, 1994). Investment in health can lead to an increase in productivity which imply increase in income and this incentive develops new skill and knowledge to higher level. A higher expenditure in health leads to reduce in infant mortality rate which implied to hike literacy rate and per capita GDP and leads to higher human development index. Generally, the more the Disability –Adjusted Life years the less is the wage earnings which imply the less per capita GDP in an aggregate level. So, the more is the expenditure in health the less is the DALYS and the more is the GDP per capita via higher human development index. But, the cost of health care is an important issue now-a-days. It was verified that a change in technology is one of the major reasons for increase in health expenditure. However, in low income economies, the marginal product of labour is low, the production benefit of extended working life is expected to be small. The increase in productivity resulting from improvement in health, the qualitative effects of health expenditure are difficult to measure and it is difficult to identify the productive benefits of health expenditure. Apart from increasing the quality and quantity of human resources, expenditure on health can also increase the availability and/or productivity of such non-human resources as larger tracts of land previously rendered non-useable by endemic diseases (Gillies et al, 1992).

In analyzing the Millennium Development Goals World Bank Report(2001) concluded that monetary cost of preventable diseases, when considered high and these diseases reduce the annual incomes of individuals affecting their families and also when taken in long term values it do affect negatively the lifetime incomes of the individuals of the population. That causes negative prospects in economic growth. The fact is that ill health impairs productivity, hinders job prospects and adversely affects human capital development. There the policy of increasing health care expenditure improves social security, tranquility, safety and welfare all of which improve labour efficiency. It also helps to rise in labour supply and productivity which imply increase in income. Thus, health care expenditures have significant impact both for current value of human capital and for the long run sustainable growth. Health is a principal determinant of economic growth since

healthy populations are the foundations of sustainable economies and healthier workforce is more productive and generates higher returns for their employers. By living healthier lives, communities nurture virtuous cycles of health-recurring cycles of events-that fuel both health and growth. Healthy life years help drive continuous economic growth.

In establishing the relation between health and sustainable development, Rio Convention in 1992 declared that human beings as the central concern of sustainable development should live healthy and productive life in harmony with nature. Johannesburg Summit, in maintaining relation of health care and sustainable development considered [i] health as a contributor to the achievement of sustainability goals,[ii] health as a potential beneficiary of sustainable development and [iii] health as way of measuring progress across all three of sustainable development policy. So, UN Report(2012) rightly emphasized that action of health ,both for poor and for the entire population, is important to create inclusive ,equitable ,economically productive and healthy societies. WHO facilitates investment for health and wellbeing as a driver and enable of social, economic and environmental sustainability and prosperity for all. Thus, WHO focus on three pathways where investment on health enables sustainable and inclusive economic growth, i.e.[i]the health and security pathway,[ii]the social and equity pathway and [iii] the economic and innovation pathway. WHO(2016) formulated the objectives for linking between investments in the health workforce and improvements in health outcomes, social welfare, employment creation and economic growth and argued that the investment in human resources for health can deliver a triple return of improved health outcomes, global health security and economic growth. On the other hand, Squires et al(2016) pointed out that the capacity of countries to produce health workers is influenced and determined by socio-economic factors, such as income levels, education attainments, emigration rates and availability of health infrastructure.

The Global Health Investment Fund equipped with 108 million US\$ usually sanctions advances to intervene against diseases such as malaria, cholera, HIV, river blindness, infectious diseases and maternal/infant health issues in low middle income countries. Its investment structures include debt, convertible debt, equity and project financing. It can solve the supply of funds to save millions of lives each year and faced with the challenges of the Global Health issues. UNCTAD also provides technical assistance to developing countries to sanction investment in domestic public health systems to ensure Sustainable Development Goal 3, through its Investment and Public Health Programme. In recent years, a significant proportion of global healthcare is delivered by private providers-a diverse group including large hospital groups and small clinics, formal and informal, non-profit and for-profit business models. If innovative private sector-driven approaches are to complement UHC, then there must be a concerted effort to achieve sustained growth.

II.Review of literature

Health is multi-dimensional. It can be used as both dependent and independent variable although causality runs in both directions. As a dependent variable it can be studied as a function of medical care, income, education, age, sex, race, marital status, environmental function and personal behaviours such as smoking, diet and exercise etc.(Auster,Leverson & Sarachek, 1969).By applying GMM in OECD countries during 1990-2009, Wang(2015) observed that when the ratio of health spending to GDP is less than the optimal level of 7.55%,an increase in health spending effectively lead to better economic performance. Wilson(1995) enquired into the relationship between medical care expenditure and GDP growth in OECD countries and reported a bidirectional causality between them. Devlin and Hansen(2001) examined Granger causality between aggregate health care spending and GDP in 20 OECD countries .In some countries health care expenditure was found to Granger cause GDP, while for the others Granger causality from GDP to health care expenditure was noticed. Maitra and Mukherjee (2012) examined the relation between the spending in education and health care with GDP in Asia Pacific region during 1981-2011 by econometric tests and confirmed that there is cointegrating relationship and causal effect in promoting GDP. But the impact is not uniform. Impact is positive and significant in Bangladesh, Nepal, Philippines, Singapore and Sri Lanka and in other countries it is negative. Rao, Jani and Sanjivee(2008) found that there is unidirectional Granger causality between health expenditure per capita and better quality of life in Malaysia and Singapore, bidirectional causality in Thailand and Indonesia during 1981-2005 but there is no causality in Philippines during 1995-2003.Tekabe(2012) studied 47 African South of Saharan countries during 1970-2009 using panel data in Granger causality test.He found that there is a causal relationship between per capita income and health expenditure in Ethiopia, Kenya, Rwanda, Tanzania and Uganda. They have unidirectional causality .Health expenditure has a positive impact on productivity, income and increase in consumption which imply improvement on living standard and per capita income. Hashmati(2001) studied conditional convergence of OECD countries in GDP and health care expenditure per capita which is an extension of

Sollow model and considered the existence of causality between GDP and health care expenditure and is found unidirectional. The results indicate that OECD countries converge at 3.7% per year to their steady state level of income per capita suggesting that health care expenditure has positive effect on economic growth and speed of convergence. Rivera and Currais(1999) estimated the relationship between health and growth of OECD member countries during 1960-1990.They showed that countries having more health expenditure have higher economic growth. Mirasani(2016) examined the relationship between human development index and health expenditure as a ratio of GDP in 25 South West Asian countries during 2000-2009 through OLS method with F test and found the relationship is significant and positive. Ali,Ullah and Asghar(2017) studied the nexus between health expenditure and GDP growth in Pakistan, China, India and Bangladesh during 1995-2014 using panel data and fixed effect regression model and found the relation as positive and insignificant. Razmi, Abbasian and Mohammadi (2012) tried to show the relationship between government health expenditure and human development index in Iran during 1990-2009 by OLS method and showed the positive and significant relation. Minoglou, Gerassimidou and Komilis(2017) fitted linear multiple regression using Pearson and Spearman correlation coefficient with the help of Berthonex and Brown (2002) model in 42 countries in Europe, USA ,Canada and Africa and found a positive correlation between health care waste generation rate, and 7 of 12 indices (GDP,health expenditure, human development index, inequality adjusted HDI, life expectancy, mean years of schooling and carbon dioxide emission). Elmi and Sadeghi(2012) ,using panel data from 1990 to 2009 of the developing countries and applying cointegration, causality and vector error correction model,showed that there is short run causality running from GDP to health expenditure and bi-directional relationship in the long run.Using panel data from 1978 to 2005 in the provinces of China,Li and Huang(2009) studied the relationship between per capita real GDP growth and the physical capital, human capital and health investment in the production function and found that both health and education have positive significant effects on economic growth. David et al(2004)tried to show that better health can contribute to more rapid growth of GDP per capita through (i) altering decisions about expenditures and savings over life cycles and (ii) by increasing FDI.Countries with high levels of health but low levels of income experience relatively faster economic growth as their income adjust.Cross country growth regression suggests that contribution of health on growth is large.The well-established influences are :initial level of income per capita,geographic location,institutional environment,economic policy,initial level of education and investment in education.The causal effect of health on economic performance is difficult but usually identified by the effects through timing.Two way causality can give rise to cumulative causality with health improvements leading to economic growth which can facilitate further health improvement and so on. This virtuous cycle reach top and started to decline and demographic change leads to an aging population.

Drury et al(2018) studied that many developed and developing countries began to invest in digital health to meet sustainable development goals,which show how to access costs,benefits, timescales,manage expectations and ensure affordable strategies.Here the key points are,[i] leadership to establish and implement a digital health agenda,[ii] it is supported by digital technologies,[iii] it requires data management to achieve health targets,[iv]government ensures stakeholders to invest in digital health,[v] government has responsibility in enabling digital infrastructure both technical and managerial,[vi] most digital health investment decisions culminate in optimizing net socioeconomic benefit with financial affordability.Finally,digital health systems lead to healthier population which can support inclusive economic growth.It requires a supportive digital health governance and technical issues, i.e.it should be supported by egovernance and e government services.People then create social capital and economic growth through their work and that growth must be inclusive recognizing sustainable development goals.

III.Objective of the Study

In this paper author endeavours to relate the health expenditure of ASEAN-7 with Gross Domestic Product , Human Development Index and unemployment rate of ASEAN-7 using panel data from 1990-2016 .Author applied various econometric models such as fixed effect panel regression after verifying Hausman Test. To know the co-integration and long run relationship ,Johansen –Fisher panel cointegration and panel vector error correction were applied .This study may help policy makers on health economics and economic development in the offing in ASEAN.

IV.Methodology and data

To show the impact of health expenditure as percent of GDP of ASEAN-7 on the Human Development Index ,unemployment rate and gross domestic product of ASEAN-7 during 1990-2016,author took panel data and used random effect model which was justified by Hausman test (1978) where the value of Chi-Square test

was rejected for 5% significant level and then author used fixed effect multiple regression model and tried to show long run cointegrating relationships among them with the help of Johansen-Fisher cointegration model and vector error correction model (1988,1991).The short run causality of the variables were examined through the Wald Test(1943). The Hansen-Doornik Vector Error Correction residual test (1994) for normality has also been done. The data on Human Development Index for ASEAN-7: Brunei, Cambodia, Indonesia, Malaysia, Philippines, Singapore and Thailand have been collected from *hdr.undp.org/en/data*. Health expenditure as per cent of GDP, unemployment rate (% of total labour force) and GDP in current US billion Dollars have been collected from the World Bank from 1990 to 2016.Assume x =health expenditure per cent of GDP, x_1 = Human Development Index , x_2 = GDP and x_3 =unemployment rate.

V.Observations from the econometric models

At the beginning Random Effect Panel Regression model is estimated for acceptance or rejection which is stated below.

$$\text{Log}(x_2)=5.677-0.6692\text{log}(x)+4.0452\text{log}(x_1)+0.05185\text{log}(x_3)$$

$$(17.46)^* (-3.53)^* (6.64)^* (0.39)$$

$R^2=0.213,F=16.76^*,DW=0.036$, cross section=7,Observations=189,period=1990-2016

In Hausman test the value of Chi-square $\chi^2(3)=25.856(p=0.000)$,*=significant at 5% level.

The random effect regression model states that health expenditure and GDP is negatively related, HDI and GDP is positively related in ASEAN-7.Both of them are significant. But, GDP and unemployment is positively related insignificantly. The Chi-Square value of the Hausman test for random effect model is rejected since its probability is less than 5%. Therefore, the fixed effect panel regression model is tested subsequently.

Fixed effect panel regression model states that GDP of ASEAN-7 is inversely related with health expenditure (per cent of GDP) and positively related with HDI and unemployment rate of ASEAN-7 during 1990-2016 where cross sections=7,panel observations=189, periods=27.

Fixed Effect Regression estimate is shown below:

$$\text{Log}(x_2)=5.021606-0.7199\text{log}(x)+2.9854\text{log}(x_1)+0.292297\text{log}(x_3)$$

$$(14.22)^* (-3.71)^* (4.59)^* (2.065)^*$$

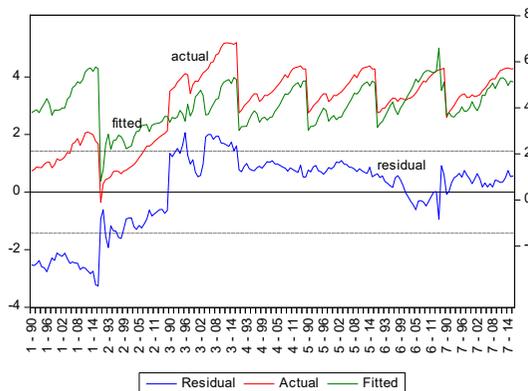
$R^2=0.32,F=2.64^*,DW=0.039,x_2$ =GDP of ASEAN (7 countries), x =health expenditure of ASEAN % of

GDP, x_1 =HDI of ASEAN countries, x_3 =unemployment rate of ASEAN countries, *=significant at 5% level..

According to the regression equation, one percent increase in health expenditure led to 0.719% decrease in GDP per year in ASEAN but one per cent increase in HDI and unemployment rate per year led to step up 2.985% and 0.292% in GDP per year in ASEAN during 1990-2016.All the coefficients are significant at 5% level. This estimate suffers from auto correlation since DW is very low and it is not good fit because R^2 is less than 50%.

The actual and fitted paths move on the same directions and they are cyclically upward which is shown in Figure 1.

Figure 1: Health expenditure,HDI,unemployment rate and GDP of ASEAN-7



Source- Plotted by author

Johansen-Fisher Panel unrestricted cointegration rank test among health expenditure, GDP, unemployment rate and HDI of ASEAN from 1990 to 2016 showed two cointegrating equations which are significant at 5% level in Trace test and Max Eigen test in the first difference series with assumption of linear deterministic trend. This result confirmed that there is long run association among those stated variables in the ASEAN-7. It is shown in Table 1.

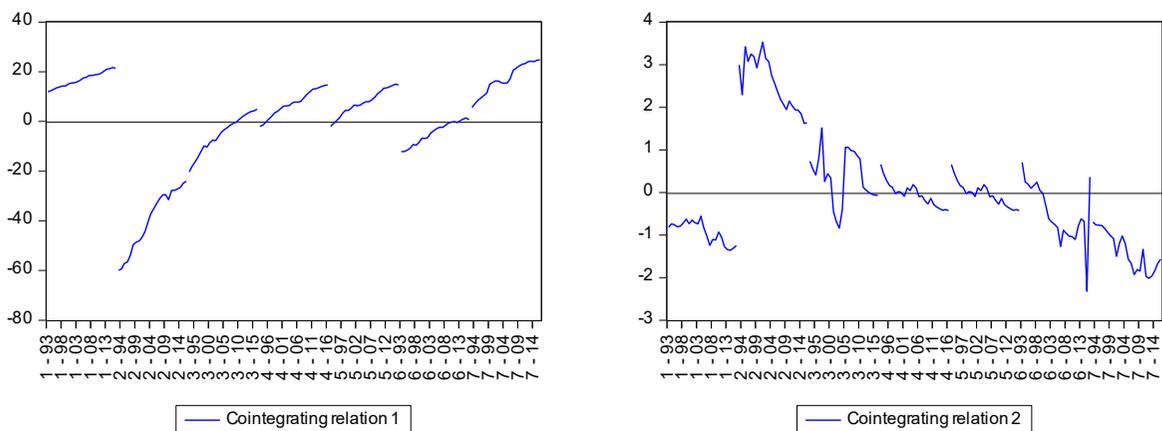
Table 1: Panel cointegration test

Hypothesized No. of CE(s)	Fisher Stat.* (from Trace test)	Probabilities**.	Fisher Stat.* (from Max-Eigen test)	Probabilities**.
None	79.40	0.0000	63.04	0.0000
At most 1	31.22	0.0052	28.50	0.0122
At most 2	14.19	0.4354	9.407	0.8041
At most 3	29.08	0.0102	29.08	0.0102

* Probabilities are computed using asymptotic Chi-square distribution, **MacKinnon-Haug-Michelis (1999) p-values; Source- Calculated by author

In the Figure 2, the two cointegrating graphs have been plotted where seven cross sections are clearly visible but they are not converging to equilibrium.

Figure 2: Cointegrating graphs



Source-Plotted by author

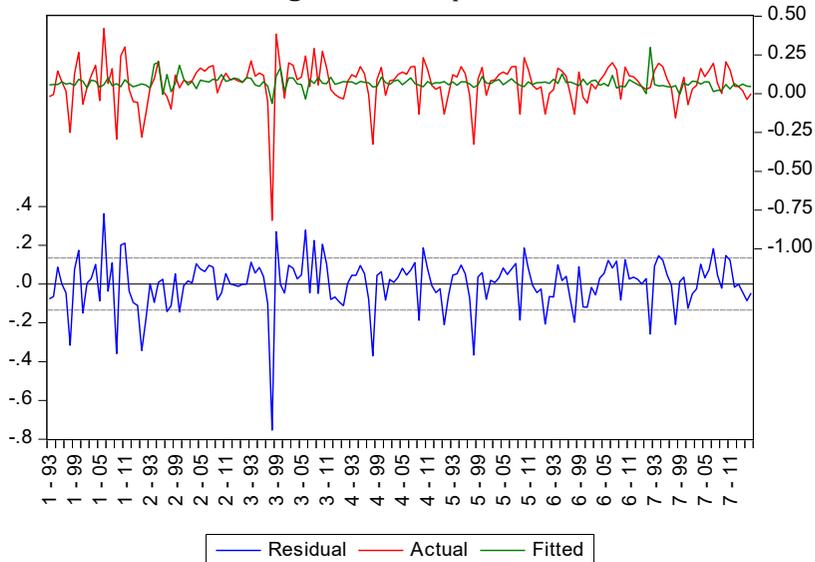
The estimated vector error correction model consisting of four equations are given below

$$\begin{aligned}
 [1] \Delta \log x_{2t} = & -3.01E-05 EC_1 + 0.0129 EC_2 + 0.0587 \Delta \log x_{2t-1} - 0.0973 \Delta \log x_{2t-2} + 0.0261 \Delta \log x_{t-1} \\
 & (-0.021) (0.604) (0.698) (-1.22) (0.829) \\
 & -0.0788 \Delta \log x_{t-2} - 0.6306 \Delta \log x_{1t-1} - 1.0136 \Delta \log x_{1t-2} - 0.0348 \Delta \log x_{3t-1} \\
 & (-2.12)^* (-0.38) (-0.64) (-0.78) \\
 & -0.0086 \Delta \log x_{3t-2} + 0.0884 \\
 & (-0.19) (4.23)^*
 \end{aligned}$$

$$R^2=0.073, F=1.24, AIC=-1.109, SC=-0.905$$

The estimate of the VEC equation-1 is not a good fit where all coefficients are insignificant except $\Delta \log x_{t-2}$ which is negatively related with $\Delta \log x_{2t}$ significantly where R^2 is low and F is insignificant. The coefficients of error correction terms EC_1 and EC_2 are also insignificant. In Figure 3, the estimated equation is shown in plotted where fitted and actual lines did not converge to zero.

Figure 3: VEC equation-1



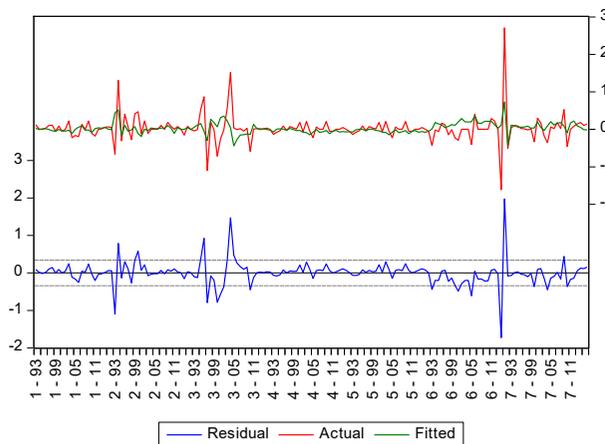
Source- Plotted by author

$$\begin{aligned}
 [2]\Delta\log x_t = & -0.01075EC_1 - 0.1754EC_2 - 0.0159\Delta\log x_{2t-1} - 0.068\Delta\log x_{2t-2} - 0.1945\Delta\log x_{t-1} \\
 & (-3.002)^* (-3.22)^* (-0.07) (-0.33) (-2.43)^* \\
 & -0.0799\Delta\log x_{t-2} - 0.578\Delta\log x_{1t-1} + 3.417\Delta\log x_{1t-2} - 0.037\Delta\log x_{3t-1} \\
 & (-0.85) (-0.14) (0.85) (-0.33) \\
 & -0.0210\Delta\log x_{3t-2} + 0.010419 \\
 & (-0.18) (0.19)
 \end{aligned}$$

$$R^2=0.154, F=2.86, AIC=0.74, SC=0.95$$

The second estimated VEC equation is not a good fit where R^2 and F are low and the coefficient of $\Delta\log x_{t-1}$ is significant and negatively related with $\Delta\log x_t$ but the coefficients of two error correction terms EC_1 and EC_2 are negative and significant which imply that the fitted and actual lines have been converging to equilibrium which is seen in Figure 4. It also implies that there is a long run causality running from GDP, HDI, and unemployment rate of ASEAN-7 to the health expenditure of ASEAN-7 as per cent of GDP of ASEAN-7 during 1990-2016.

Figure 4: VEC equation-2



Source- Plotted by author

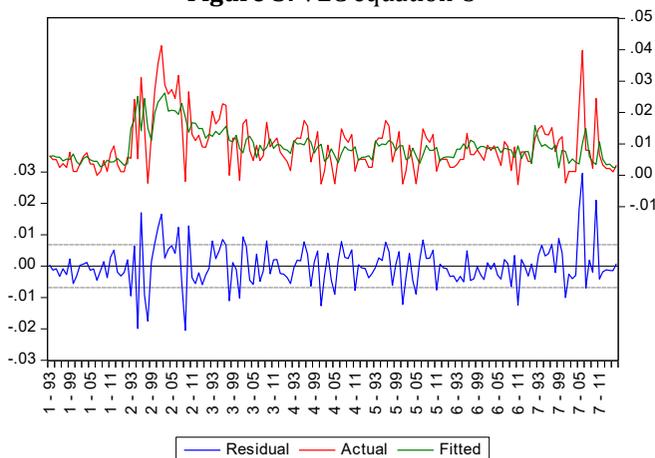
$$\begin{aligned}
[3] \Delta \log x_{1t} = & -0.000118EC_1 + 0.000619EC_2 - 0.000454\Delta \log x_{2t-1} + 0.00328\Delta \log x_{2t-2} - 0.00139\Delta \log x_{t-1} \\
& (-1.63) (0.56) (-0.106) (-0.61) (0.86) \\
& -0.0017\Delta \log x_{t-2} + 0.295\Delta \log x_{1t-1} + 0.0303\Delta \log x_{1t-2} - 0.00309\Delta \log x_{3t-1} \\
& (-0.90) (3.56)^* (0.37) (-1.37) \\
& -0.00024\Delta \log x_{3t-2} + 0.00634 \\
& (-0.108) (5.98)^*
\end{aligned}$$

R²=0.356.F=8.68,AIC=-7.089,SC=-6.86

The third estimated VEC equation is not also a good fit where all coefficients are insignificant except $\Delta \log x_{1t-1}$ which is positively related with $\Delta \log x_{1t}$.The values of R² and F are very low.The coefficients of two error correction terms are also insignificant.

Therefore the fitted and actual lines have been moving away from the equilibrium which is observed in the Figure 5.

Figure 5: VEC equation-3



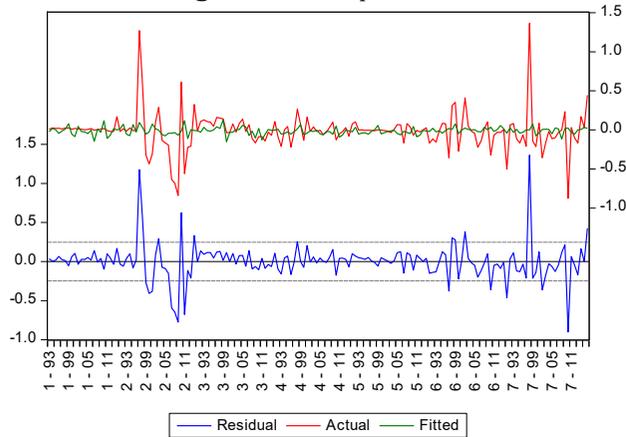
Source-Plotted by author

$$\begin{aligned}
[4] \Delta \log x_{3t} = & -0.00168EC_1 - 0.0229EC_2 - 0.293\Delta \log x_{2t-1} - 0.1045\Delta \log x_{2t-2} + 0.0522\Delta \log x_{t-1} \\
& (-0.64) (-0.58) (-1.89) (-0.61) (0.90) \\
& + 0.0553\Delta \log x_{t-2} + 2.1519\Delta \log x_{1t-1} - 2.961\Delta \log x_{1t-2} + 0.0297\Delta \log x_{3t-1} \\
& (0.81) (0.71) (-1.02) (0.36) \\
& -0.0439\Delta \log x_{3t-2} + 0.00684 \\
& (-0.53) (0.17)
\end{aligned}$$

R²=0.037.F=0.603,AIC=0.105,SC=0.31

The estimated fourth VEC equation is quite a bad fit where no coefficients are significant and R² and F are very low. In Figure 6 it is shown that the fitted and actual lines are diverging away from equilibrium.

Figure 6: VEC equation-4



Source- Plotted by author

The two cointegrating equations in the system equation-1 are as follows:

- 1] $Z_{t-1} = -3.01E-05 \log x_{2t-1} + 87.01672 \log x_{1t-1} + 2.3213 \log x_{3t-1} + 27.629$
 (-0.021) (4.47)* (0.501)
- 2] $Z_{t-1} = 0.0129 \log x_{t-1} - 7.302 \log x_{1t-1} - 0.00846 \log x_{3t-1} - 2.837$
 (0.604) (-5.64)* (-0.027)

The first cointegrating equation moves towards equilibrium but it is insignificant and the second cointegrating equation is quite divergent and insignificant.

The two cointegrating equations in the system equation-2 are given below.

- 1] $Z_{t-1} = -0.0107 \log x_{2t-1} + 87.01672 \log x_{1t-1} + 2.3213 \log x_{3t-1} + 27.629$
 (-3.002)* (4.47)* (0.501)
- 2] $Z_{t-1} = -0.1754 \log x_{t-1} - 7.302 \log x_{1t-1} - 0.00846 \log x_{3t-1} - 2.837$
 (-3.22)* (-5.64)* (-0.027)

Both the cointegrating equations have been converging towards equilibrium significantly which state that there is long run causality from GDP, HDI, and unemployment rate of ASEAN to the health expenditure of ASEAN during 1990-2016.

The two cointegrating equations in the system equation-3 are shown below.

- 1] $Z_{t-1} = -0.000118 \log x_{2t-1} + 87.01672 \log x_{1t-1} + 2.3213 \log x_{3t-1} + 27.629$
 (-1.637) (4.47)* (0.501)
- 2] $Z_{t-1} = 0.000619 \log x_{t-1} - 7.302 \log x_{1t-1} - 0.00846 \log x_{3t-1} - 2.837$
 (0.566) (-5.64)* (-0.027)

The first cointegrating equation moves towards equilibrium but it is insignificant and the second cointegrating equation is quite divergent and insignificant.

The two cointegrating equations in the system equation-4 are as follows.

- 1] $Z_{t-1} = -0.00168 \log x_{2t-1} + 87.01672 \log x_{1t-1} + 2.3213 \log x_{3t-1} + 27.629$
 (-0.648) (4.47)* (0.501)
- 2] $Z_{t-1} = -0.0229 \log x_{t-1} - 7.302 \log x_{1t-1} - 0.00846 \log x_{3t-1} - 2.837$
 (-0.581) (-5.64)* (-0.027)

The first and second cointegrating equations have been moving towards equilibrium but they are insignificant. (Z_{t-1} represents the symbol of cointegrating equation)

Now, to find out the short run causality among the variables in all the system equations, The Wald test has been applied whose observations are shown in the Table 2.

Table 2: Wald test for short run causality

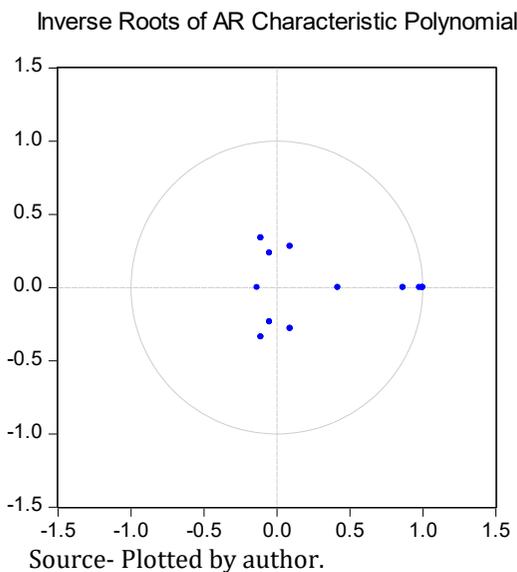
	causality	Chi-square	P value	No causality
If $C(5)=c(6)=0$ Causality from x_{t-1} and x_{t-2} to $\Delta \log x_{2t}$	Negative	6.897	0.031	Rejected
If $C(16)=c(17)=0$ Causality from x_{t-1} and x_{t-2} to $\Delta \log x_t$	Negative	5.94	0.05	Rejected
If $C(29)=c(30)=0$ Causality from x_{1t-1} and x_{1t-2} to $\Delta \log x_{1t}$	positive	15.85	0.00	rejected

Source-Calculate by author: $C(5),C(6),C(16),C(17),C(29),C(30)$ are the values of coefficients of the system equations

The observations from the Wald test suggest that [i] there is negative short run causality from the health expenditure of ASEAN of earlier periods to the change of GDP in ASEAN,[ii] there is negative short run causality from the health expenditure of previous periods of ASEAN to the change of health expenditure of ASEAN,[iii] there is positive short run causality from HDI of previous periods to the change of HDI of ASEAN. From the cointegrating equations of the system equations, in brief, it can be said that there is a long run causality from HDI, unemployment rate , and GDP of ASEAN to the health expenditure of ASEAN and from the Wald test it can be concluded that there is a short run causality from health expenditure of ASEAN of earlier periods to the change of GDP in ASEAN during the survey period 1990-2016.

In general, the VECM is a stable model since all roots lie inside the unit circle as shown in the Figure7.

Figure 7: Unit circle



The values of the roots are given in the Table 3 where 2 roots are equal to 1 ,4 roots are less than unity, one root is less than zero and 6 roots are imaginary .Therefore, the VECM is non-stationary.

Table 3: Values of roots

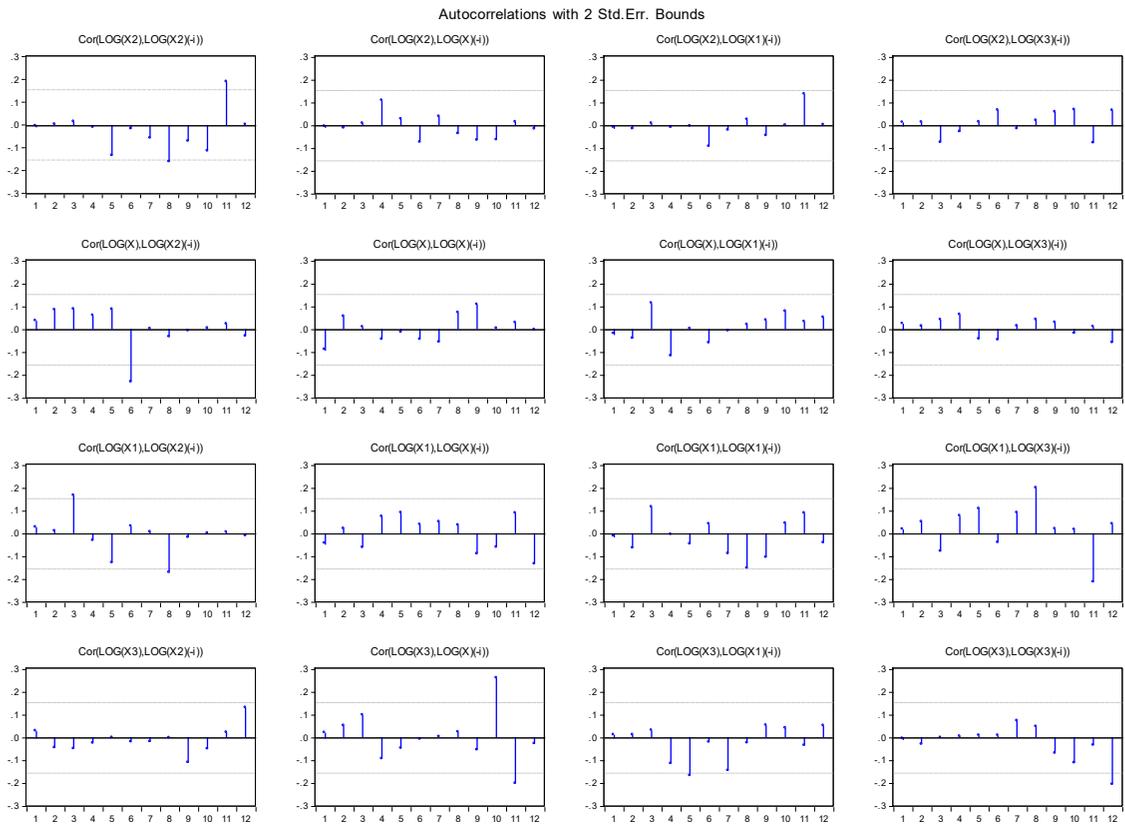
Root	Modulus
1.000000	1.000000
1.000000	1.000000
0.979432	0.979432
0.865408	0.865408
0.419545	0.419545
-0.109120 - 0.339181i	0.356301

$-0.109120 + 0.339181i$	0.356301
$0.091541 - 0.280209i$	0.294782
$0.091541 + 0.280209i$	0.294782
$-0.049687 - 0.235346i$	0.240534
$-0.049687 + 0.235346i$	0.240534
-0.134778	0.134778

Source- Calculated by author

The residual test assures that VECM suffers from autocorrelation problems which are shown in the Figure 8 where vertical line bars are asymmetric in all figures.

Figure 8: Auto-correlation problem



Source- Plotted by author

The Hansen-Doornik VEC residual test (1994) for normality confirms that the Chi-square values of skewness and kurtosis and the Jarque Berra of all components rejected its normality which is shown below in Table 4.

Table 4: Normality test Null Hypothesis: residuals are multivariate normal

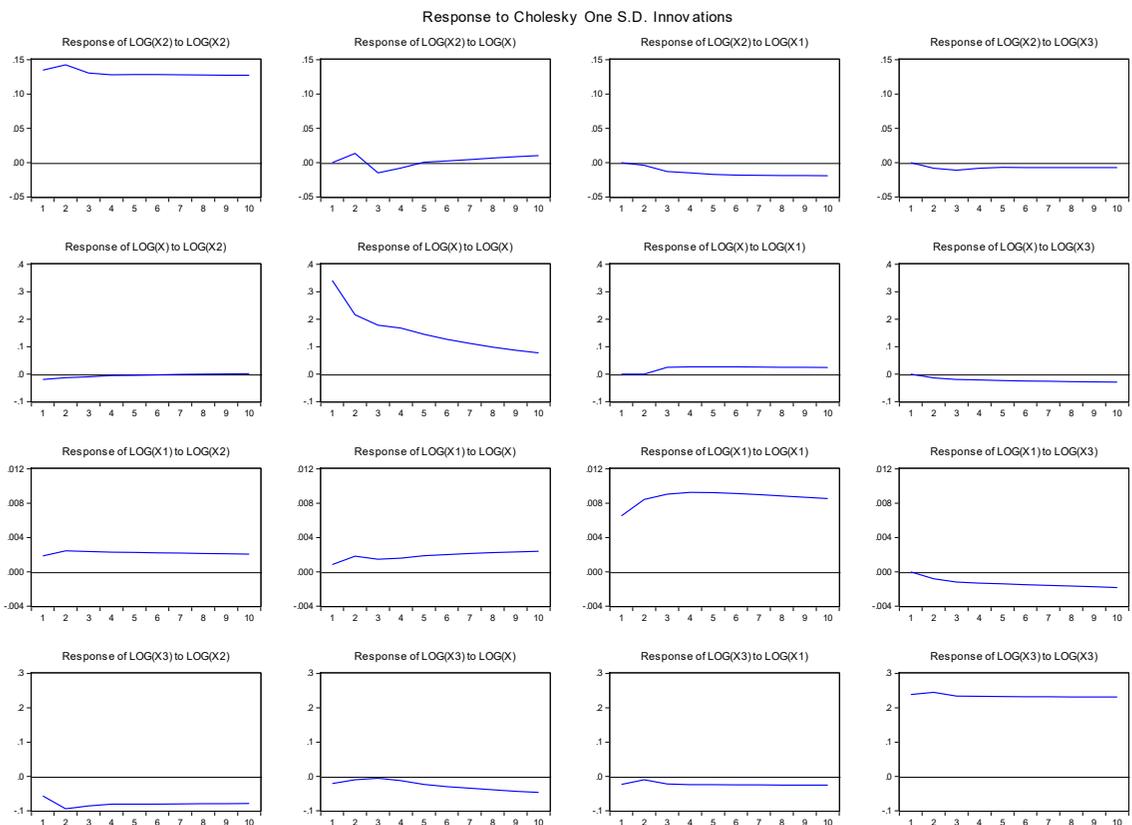
Component	Skewness	Chi-square	Degree of freedom	Probability.
1	-1.457445	38.09223	1	0.0000
2	0.718135	12.99257	1	0.0003
3	0.529006	7.606298	1	0.0058
4	0.973885	21.29999	1	0.0000
Joint		79.99108	4	0.0000
Component	Kurtosis	Chi-square	Degree of freedom	Probability.
1	9.787790	5.674632	1	0.0172
2	16.73844	253.5429	1	0.0000

3	6.428812	33.57086	1	0.0000
4	13.26356	128.3606	1	0.0000
Joint		421.1489	4	0.0000
Component	Jarque-Bera	Degree of freedom	Prob.	
1	43.76686	2	0.0000	
2	266.5354	2	0.0000	
3	41.17716	2	0.0000	
4	149.6606	2	0.0000	
Joint	501.1400	8	0.0000	

Source- Calculated by author

The Impulse Response Functions of Choleski one standard deviation innovations showed that external shocks did not turn the system into equilibrium and thus why the VECM is non-stationary which was shown in the Figure 9. In other words, response of one SD innovations from log(health expenditure),log(HDI),log(GDP) and log(unemployment rate) to log(GDP), log(health expenditure),log(HDI) and log(unemployment rate) respectively make the system into disequilibrium. The non-stationary had already been verified by the existence of two unit roots which was shown in the Table 4.

Figure 9: Nonstationary VECM



Source- Plotted by author

VI. Limitations and the future scope of research

One fundamental limitation is that the long periods of time might give better results especially on the relationship between GDP and health expenditure and unemployment rate with health expenditure. There is no convergence of health expenditures among the member states of ASEAN-7. Even, there is heterogeneity in the indices of human development of ASEAN. Due to non-availability of data in ASEAN-7 during 1990-2016, the relation between mortality rate and DALY index with health expenditure could not be build up. Nutritional effects on productivity through health expenditure in ASEAN are left for future research. Comparative study between ASEAN and SAARC might be done but it is also left for forthcoming papers. This

study would be able to give clear highlights on Asia as a whole. Lastly investment on health consists of many forms. The paper excluded FDI on health, equity and bonds on health and insurance on health security which are important in both private and government sector investment on health.

VII. Policy considerations

The most diversified ASEAN consists of 9% of world population. Its life expectancy and age group of 5-14 and 15-59 population have been increasing which affect social, economic, cultural and political development that ultimately diminished the burden of diseases which implied to enhance national wealth. The last financial crises distorted labor intensive production and distribution of health workers in ASEAN. The following attempts of ASEAN in health care are appreciating.

- [i] Pro-poor Health Equity Fund has been implemented
- [ii] Effective control by health agencies to overcome inequity problems were exercised by government
- [iii] Public-private health services are an innovative attempt.
- [iv] ASEAN emphasized decentralized health care system
- [v] Pro-poor infrastructure of health sector must be exercised by high dose home and foreign investment
- [vi] Regional economic cooperation with ASEAN is needed in promoting equitable access to health care
- [vii] To promote medical tourism and travel is a good option
- [viii] Through the mechanism of accountability, leadership, operational and resource efficiency, capacity building and positioning ASEAN in global health, ASEAN formulated post 2015 Health Development Agenda in 4 clusters for 2020: (1) promoting health life style, (2) responding to hazards and emerging threats, (3) strengthening health system and excess to care and (4) ensuring food security.
- [ix] ASEAN has been confronting with financial constraints, i.e. low level of government expenditure on health, supply side constraints i.e. inadequate health workers, and increasing burden of non-communicable diseases. Higher economic integration can improve this inequity.
- [x] ASEAN is far behind the full implementation of Universal Health Coverage through MDGs as proposed by WHO.
- [xi] A significant progress has been achieved in UHC through health insurance, health equity funds, where political commitments were strong.
- [xii] National Health Security Act should be revamped
- [xiii] 11th ASEAN Ministers Meeting in Thailand in 2012 emphasised 5 main health topics including UHC but failed to balance growing private sector profit with public sector.
- [xiv] There is a weak co-ordination between production of health workers and capacity for employment.
- [xv] ASEAN has 12 doctors, 10 nurses, 4 pharmacists and 6 bed per 10000 population but immunization rate was not fully covered although followed by 25% reduction in premature mortality by 2025.
- [xvi] ASEAN must improve Health Information System.
- [xvii] Service sector integration goal must be speedier.
- [xviii] ASEAN encouraged medical tourism catalyzed by Medical Tourism Association
- [xix] Mutual Recognition Arrangement of AEC has set up. It needs more funds.
- [xx] Border health service is a good attempt between Thailand and Cambodia.
- [xxi] Bilateral Cooperation of technical experts between Thailand, Cambodia, Laos and Myanmar showed good potentiality.
- [xxii] ASEAN attempts to take advantage of digital health, collaborative approaches to eliminate silos, and establish system Informed Patients on own Health Care.
- [xxiii] ASEAN declares on ending all forms of Malnutrition using "One Health" approach to ensure a holistic, multilateral, and multi-disciplinary approach in dealing with Antimicrobial Resistance (AMR).

VIII. Conclusions

The paper concludes that fixed effect panel regression among health expenditure % of GDP, Human Development Index, unemployment rate and GDP of ASEAN-7 during 1990-2016 showed that one per cent increase in health expenditure per year led to 0.719% decrease in GDP per year but one per cent increase in HDI and unemployment rate per year led to step up 2.985% and 0.292% in GDP per year significantly. Johansen-Fisher panel cointegration confirmed that Trace and Max Eigen statistic showed two cointegrating equations where one cointegrating equation tends to equilibrium which implies that there is long run causality from GDP, HDI and unemployment rate of ASEAN-7 to the health expenditure of ASEAN-7 as per cent of GDP during 1990-2016 where the residual test of VECM is stable, nonstationary, non-normal and serially correlated. Moreover, the Wald test suggests that there is short run causality running from health

expenditure % of GDP of ASEAN-7 of previous periods to the change of GDP of ASEAN-7. The paper also showed some limitations and discussed policy recommendations.

References

1. Ali Amir Muhammad, Ullah Ismat Muhammad, Asghar Afzal Muhammad. Effect of Health Expenditure on GDP ,A Panel Study Based on Pakistan,China,India and Bangladesh, *International Journal of Health Economics and Policy*. 2017; 2(2):57-62.
2. Auster R, Levenson I, Saracheck D. The Production of Health:An Exploratory Study, *Journal of Human Resources*. 1969; 4:411-436.
3. Becker GS. *Human Capital Revisited*.In *Human Capital:A Theoretical and Empirical Analysis with Special Preference to Education*(3rd Edition) The University of Chicago Press, 1994, 15-28.
4. Berthouex PM, Brown L. *Statistics for Environmental Engineers*, New York:Lewis Publishers (2nd Edition), 2002.
5. David E Bloom, David Canning, Dean T. Jamison. Health, Wealth and Welfare, *Finance and Development*, 2004, March.
6. Devlin N, Hansen P. Health care spending and economic output:Granger Causality. *Applied Economic Letters*. 2001; 8(8):561-564.
7. Elmi ZM, Sadeghis. Health expenditures and economic growth in developing countries:Panel cointegration and causality, *Middle East Journal of Science Research*. 2012; 12(1):88-91.
8. Fisher R.A.*Statistical Methods for Research Workers*,(12th Edition). Edinburg:Oliver&Boyd, 1932.
9. Gillies M, Perkins DH, Roemer R, Snodgrass DR. *Economics of Development*, NewYork: Norton, 1992.
10. Hansen H, Doornik JA. An omnibus test for univariate and multivariate normality. *Discussion Paper*, Nuffield College, Oxford University, 1994.
11. Hashmati A. On the causality between GDP and Health care expenditure in Augmented Sollow Model .Stockholm, Department of Economic Statistics, Stockholm School of Economics, 2001
12. Hausman J. Specification Tests in Econometrics,*Econometrica*. 1978; 46:1251-1271.
13. Johansen S. Statistical Analysis of Cointegrating Vectors, *Journal of Economic Dynamics and Control*. 1988; 12:231-254
14. Johansen S. Estimation and Hypothesis Testing of Cointegration Vectors in Gaussian Vector Autoregressive Models, *Econometrica*. 1991; 59(6):1551-1580.
15. Li H.,& Huang L.Health,education and economic growth in China:Empirical findings and implications,*China Economic Review*. 2009; 20:374-387.
16. Lucas,Robert.On the Mechanics of Economic Development *Journal of Monetary Economics*. 1988; 22(1):3-42.
17. Mackinnon JG, Haug AA, Michelis L. Numerical Distribution Functions of Likelihood Ratio Test for Cointegration,*Journal of Applied Econometrics*. 1999; 14:563-577.
18. Maitra Biswajit, Mukhopadhyay CK. Public Spending on Education,Health Care and Economic Growth in selected countries of Asia and the Pacific, *Asia Pacific Development Journal*. 2012; 19(2):19-48.
19. Minoglou Minas, Gerassimidou Spyridoula, Komilis Dimitrios. Health Care Waste Generation WorldWide and its Dependence on SocioEconomic and Environmental Factors, *Sustainability*, 2017, 9(2).
20. Mirahsani Zahra. The Relationship between health expenditure and human development index,*Journal of Research and Health*. 2016; 6(3):373-377
21. Razmi Javad Mohammad, Abbasian Ezatollah, Mohammadi Sahar. Investigating the effect of government health expenditure on human development index in Iran,*Journal of Knowledge Management,Economics and Information Technology*. 2012; 2(5):1-8.
22. Rivera B, Currais L. Income Variation and Health Expenditure:Evidence for OECD Countries, *Review of Development Economics*,1999.
23. Rao R Ramesh, Jani Rohana, Sanjeev Puvanesvaram. Health,Quality of Life and GDP:An ASEAN Experience,*Asian Social Science*. 2008; 4(4):70-76.
24. Romer Paul M. Human Capital and Growth:Theory and Evidence,Carnegie-Rochester Conference Series on Public Policy, *Elsevier*. 1990; 32(1):251-286.
25. Squires A, Uyei J, Beltrán-Sánchez H, Jones S. Examining the influence of country level and health system factors on nursing and physician personnel production. *Human Resource Health*. 2016, doi: [10.1186/s12960-016-0145-4](https://doi.org/10.1186/s12960-016-0145-4)
26. Tekabe Liya Frew. Health and Long Run Economic Growth in selected Low Income Countries of Africa South of the Sahara:Cross Country Panel Data Analysis,Sodertorn University,Department of Social Science,Economics, 2012.

27. U.N. System Task Team on Post 2015 ,U.N.Development Agenda.Report of the United Nations Conference on Sustainable Development,*A/CONF.216/XX*,Rio de Janerio,Brazil,2012,20-22 June.
28. Uzawa Hirofumi.Optimum Technical Change in An Aggregate Model of Economic Growth,*International Economic Review*. 1965; 6(1):18-31.
29. Wald Abraham.Test of Statistical Hypothesis concerning several parameters when the number of observations is large,*Transactions of American Mathematical Society*. 1943; 54:426-82
30. Wang Fuhmei.More Health Expenditure, Better Economic Performance?Empirical Evidence from OECD Countries,*Inquiry*,2005,doi:10.1177/0046958015602666
31. Wilson Mark R. Medical care expenditure and GDP growth in OECD nations,*Social Science and Medicine*. 1995; 14:25-32.
32. World Bank. *Health,Nutrition and Population Development Goals:Measuring Progress Using the Poverty Reduction Strategy Framework*,Report of a World Bank Consultation, Washington D.C. 2001.
33. WHO. *Global Strategy on Human Resources for Health: Workforce 2030*.<http://who.int/hrh/resources/globstrathrh-2030/en/>. Accessed 9 June 2016.Google Scholar

An Attitudinal Analysis on Consumer Behavior towards Durable Products

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ABSTRACT: Consumer behavior can be defined as the behavior that consumers display in searching for purchasing, using, evaluating and disposing of products and services that they expect will satisfy their needs (Schiffman and Kanuk, 2004). The beliefs, views, attitudes, mental state, specific needs, characteristics etc. work behind the rostrum as a motivating factor to make any purchase decision. Consumers' attitude and behaviour is predominantly associated to the situation which they encounter. Consumers' behaviours are co-related with their attitude and its formation which acts as a guide in the exertion of particular behaviour. Attitudes can be formed from direct as well as indirect experience with the product. Pre- determined opinions, judgments from personal experiences; word of mouth etc. can have an influence in the formation of attitude of consumers. Such attitude gives a strong impetus to identify and measure consumers' pre-purchase cognitive processes which are influenced by the processing of information at prior received significantly through stimuli that modify consumers' attitudes and purchase intentions by yielding change in the buying behaviour. Thrust will be on consumer's need arousal related to durable goods, attitudes towards store choice, mode of payment for durable products, tendency to insist on proof of purchase for durable products, attitudes towards online shopping for durable products, attributes of online shopping of durable products and intention to switch brands for durable products. This research has been conducted in eight districts of Tripura, a small North eastern state of India.

Keywords: Attitude, store choice, insist, need arousal, product attribute

1. Introduction

The Expectancy Value Model, exerts a person's overall attitude to an object is perpetually determined by the subjective values or evaluations of the attributes associated with the object as well by the strength of their association (Feather, quoted by Ajzen and Fishbein, 2000). Attitude is a learned predisposition to respond to stimuli available. It is closely associated with involvement of the consumers with the products as low, medium and high involvement information. It includes knowledge, feelings and intended action for the given spur. Customer builds a favorable attitude if the person is satisfied with the functions or performance of the products (Khan, 2006).

Consumers' attitude and behaviour is predominantly associated to the situation which they encounter. Consumers' behaviours are co-related with their attitude and its formation which acts as a guide in the exertion of particular behaviour. Even the degrees of direction of behaviour by attitudes are powered by attitude formation. Thus attitude has a positive co-relation with the purchase behaviour of the consumers. Studies on attitudes are expected to predict and explain human behaviour.

Attitudes can be formed from direct as well as indirect experience with the product. Pre- determined opinions, judgments from personal experiences; word of mouth etc. can have an influence in the formation of attitude of consumers. Such attitude gives a strong impetus to identify and measure consumers' pre-purchase cognitive processes which are influenced by the processing of information at prior received significantly through stimuli that modify consumers' attitudes and purchase intentions by yielding change in the buying behaviour. Consumer decision making is invariably influenced by pre-purchase as well as post purchase cognitive judgments (Foxall, 2005).

1.2 Research methodology:

- 1.2.1 **Type of the Study:** The study is descriptive in nature as the study aims at focusing on determinants of purchase decisions for consumer durables products in India. An attempt has been made to identify the determinants with respect to select fast moving consumer goods in Agartala city. The study also tries to find the inter-relations between demographic factors and purchase decisions.
- 1.2.2 **Sampling:** A total of 300 consumer durables consumers were selected from Agartala city. Convenience sampling technique was used and the respondents were chosen from a variety of professions including students, government and private service workers, businessman, housewives and others.
- 1.2.3 **Data collection and Analysis:** Primary data were collected by distributing a self-administered questionnaire to 300 consumers of Agartala city. In the questionnaire, items related to demographic

variables and statements for categories of consumer durables products were given to be ranked in the choice of 1st, 2nd, 3rd and so on. Further, secondary data from research related documents, published books, article, newspapers, published, and unpublished research work of various institutions were used extensively. Altogether 256 were found to be suitable for enumeration. The questionnaires were coded and transformed into numerical data using a software application SPSS ver. 20. Further, all the questionnaires were entered as values and different statistical tools like percentage analysis, mean score, Kendall's W, Pearson Chi-Square were used to draw inferences from the data.

2.1 DATA ANALYSIS AND INTERPRETATION

Agartala, the state capital of Tripura having a population of more than 4,38,408 approx. is populated by people from different regions of the state along with original denizens of Agartala. They are varied in terms of age, occupation, qualification, income etc. The sample respondents of the population will represent the socio-economic profile of the people of Agartala.

Table 1: Profile of the respondents

Sl. No.	Particulars	Classification	Frequency	Percentage
1	Marital Status	Single	111	43.4
		Married	145	56.6
		Total	256	100
2	Age Group	18-25	15	5.86
		26-35	153	59.77
		36-45	63	24.61
		46-55	20	7.81
		56-65	5	1.95
		Total	256	100
3	Educational Qualification	Non-matriculate	12	4.7
		Matriculate	15	5.9
		Undergraduate	29	11.3
		Graduate	126	49.2
		Post graduate	67	26.2
		Above Post graduate	7	2.7
		Total	256	100
4	Occupation	Unemployed /House-wife / Retired	26	10.2
		Agriculture	2	0.8
		Own-self business	41	16
		Clerical	20	7.8
		Officer	26	10.2
		Skilled Worker	11	4.3
		Private sector employee	25	9.8
		Unskilled worker	2	0.8
		Student	10	3.9
		Teaching	50	19.5
		Professional service	25	9.8
		Others	18	7
Total	256	100		

Source: Primary Data

The above table shows the profile of the respondents in terms of marital status, age-group, educational qualification and their occupation. It was found that 56.60 percent were married while the remaining 43.40 percent were single. It also finds that the majority of the respondents were from young age group of 26-35 representing 59.77 percent followed by 24.61 percent. In terms of educational qualifications, highest category belongs to having a graduate degree represented by 49.2 percent followed by post graduation by

26.2 percent. Tripura has a high literacy rate is reflected by the data that almost everyone of the respondents are literate. The occupations of the respondents shows that teachers are the largest among the respondents representing 19.50 percent, followed by 16.00 percent who owns business and followed equally by unemployed/house-wife /retired and officers at10.20 percent each. So it can be inferred that the respondents of Agartala city are from a varied cross section of the society and represents the different social sections.

Table 2.Income level of the Respondents

Income	Total	Percentage
Below Rs. 10,000	49	19.22
Rs. 10,000-20,000	97	38.04
Rs. 20,000-30,000	49	19.22
Rs. 30,000-40,000	32	12.55
Rs. 40,000-60,000	24	9.41
Above Rs. 60,000	4	1.57
Total	255	100.00

Source: Primary Data

The above table 2 shows the income pattern of the respondents. The highest group is in the income group of Rs. 10,000-20,000 represented by 97 respondents (38.04 percent). The second group belongs equally to Below Rs. 10,000 group and Rs. 20,000-30,000 group represented 19.22 percent respectively. The data shows that the respondents are widely distributed and represents the wider sections of the state in terms of income.

2.2 Attitudinal Attributes:

The study has attempted to examine the determinants of purchase decisions for select durable products. The selected durables contain TV, refrigerator, washing machine, computer, mobile, clock, oven, juicer, two and four wheeler, camera, LPG, jewellery, home appliances, kitchen care and apparels. Several other products have been missed out purposely, in order to focus on the personal and household needs of the individual and family. Let us examine the attitudinal attributes for selected products and their determinants.

2.2.1 Need Arousal Related to Durable Goods

Product innovation as well as advancement, germinates among consumers a kind of motivation to purchase a new product or replace the old products (Grewal et al. 2004).There are several factors which play behind the rostrum of igniting the needs of having durable goods in the possession of the consumers. Consumers are being exposed to different stimuli that yield a feeling of need of a durable item. The following tables display the factors relating to the awakening of needs.

Table 3.Ranking of Need Arousal of Durable Products

Rank s	Not Working	New Product Introduced	New Brand	New Size	Surplu s Stock	Out of Curiosity	Change to New Products	Peer Suggesti on	Know From Media
1	190	6	12	-	5	4	5	7	27
	74.2%	2.3%	4.7%	-	2%	1.6%	2%	2.7%	10.5%
2	23	52	21	18	15	24	29	31	47
	9%	20.3%	8.2%	7%	5.9%	9.4%	11.3%	12.1%	18.4%
3	16	44	26	14	13	31	16	33	63
	6.3%	17.2%	10.2 %	5.5%	5.1%	12.1%	6.3%	12.9%	24.6%
4	10	88	140	24	11	33	33	37	49
	3.9%	34.4%	54.7 %	9.4%	4.3%	12.9%	12.9%	14.5%	19.1%
5	8	24	20	134	14	73	94	62	25

	3.1%	9.4%	7.8%	52.3%	5.5%	28.5%	36.7%	24.2%	9.8%
6	1	21	11	26	150	31	31	24	19
	.4%	8.2%	4.3%	10.2%	58.6%	12.1%	12.1%	9.4%	7.4%
7	2	14	10	19	15	27	27	28	5
	.8%	5.5%	3.9%	7.4%	5.9%	10.5%	10.5%	10.9%	2%
8	5	3	13	14	11	15	13	15	13
	2%	1.2%	5.1%	5.5%	4.3%	5.9%	5.1%	5.9%	5.1%
9	1	4	3	7	22	18	8	19	8
	0.4%	1.6%	1.2%	2.7%	8.6%	7%	3.1%	7.4%	3.1%
Total	256	256	256	256	256	256	256	256	256
Percentage	100	100	100	100	100	100	100	100	100

Source: Field survey

From the table 3, it can be viewed that highest priority is given to not working or does not work with rank 1 which means most of the consumers purchase durable goods when these are not working. It is followed by launching of new products in the market with rank 2; come to know from media received rank 3 and new brand with rank 4. Consumers also showed their preferences with rank 5 when a new size of an old product or new size of a new product comes to the market. However, rank 6 is given to surplus stock where consumers prefer to keep more than one product of the same category at their home and a number of consumers listen and get influenced by the suggestion of their peers or friends so it is ranked with 7. Least preferences are found in the case of trying new products and buying out of curiosity. As the durable products are costly by nature purchasing only for curiosity and for trial and error basis is found least significant and with low ranks like 8 and 9.

Table 4. Descriptive Statistics of Need Arousal of Durable Products

Factors Responsible for Need Arousal	N	Mean	Std. Deviation	Minimum	Maximum	Assigned Ranks
Out of Stock	256	1.689	1.5191	1	9	1
New Product	256	3.869	1.6385	1	9	3
New Brand	256	4.241	1.5923	1	9	4
New Size	256	5.187	1.5039	2	9	8
Surplus stock	256	5.544	1.7388	1	9	9
Curiosity	256	5.091	1.9776	1	9	7
Try New Product	256	4.92	1.794	1	9	6
Friend Suggestions	256	4.9	2.1076	1	9	5
Know Media	256	3.721	2.0089	1	9	2

Source: Field survey

From the table 4, after analysing the mean value, it can be inferred that most of the consumers shop durable goods when they do not have it or does not work in due course time. The consumers are well exposed to mass media and they come to know about different products or their features. They are also found preferring to purchase durable goods which are newly launched and most of them consider peer suggestions and they do consult before purchasing the goods. As durable goods are little costly so purchasing consumer durables for out of curiosity and for trying new products is found to be least significant. Marginal consumers prefer to buy durable goods when these are launched in the market with new sizes. Lowest importance is found in the case of keeping surplus stocks.

Null Hypothesis: H₀: There is no significant difference in need arousal of durable products by the respondents.

Table 5. Test Statistics of Need Arousal of Durable Products

N	256
Kendall's W	0.324
Chi-Square	664.438
df	8
Asymp. Sig.	0.000

Source: Field survey

The Table 5 with total number of respondents (N) 256 and Kendall's W (0.324) suggest that there is a low degree of concordance meaning low agreement among the stimulating variables in terms of purchasing consumer durables. The chi-square calculated value is 664.438 and found to be more than the critical value (15.51) for 8 degrees of freedom at 5% level of significance. Since the P value (0.000) is found to be less than 0.05, so the null hypothesis (H₀) is rejected and therefore, it can be inferred that there is significant difference among the need arousal of consumer durables with respect to the purchase attitude of respondents. Hence, it can be concluded that different consumers express as well as feel the need of having durable goods for different reason and these are significantly varied from person to person.

2.2.2 Attitudes towards Store Choice

Decision making in terms of purchasing durable products is influenced by several factors. In it, purchasing from an outlet or store is also important to relate because if the consumers are satisfied with the service of the particular store or satisfied with the product purchased from that particular shop. There is a possibility that such consumers become re-purchaser from same stores or shops or outlets. But if the consumers are not completely satisfied with the store or outlet, the chance is very less in terms of purchasing from that outlet. Durable goods are infrequently bought and store choice depends on several factors. There are a number of factors which propel the consumers to take a purchase decision. The following table focused on the factors which justify the reasons that form the attitude of the consumers towards a particular store.

Table 6. Ranking of Attitudes towards Store Choice

Ranks	Readily Available	Easy Accessible	User Friendly	After Sales	Payment Facility	Brand Image	Budget Price	Other Reason
1	50	20	25	21	47	60	30	5
	19.5%	7.8%	9.8%	8.2%	18.4%	23.4%	11.7%	2%
2	48	24	21	33	35	52	42	-
	18.8%	9.4%	8.2%	12.9%	13.7%	20.3%	16.4%	-
3	58	62	19	43	32	38	27	2
	22.7%	24.2%	7.4%	16.8%	12.5%	14.8%	10.5%	0.8%
4	36	77	104	52	39	26	46	3
	14.1%	30.1%	40.6%	20.3%	15.2%	10.2%	18%	1.2%
5	19	35	44	56	27	33	20	8
	7.4%	13.7%	17.2%	21.9%	10.5%	12.9%	7.8%	3.1%
6	25	26	27	32	42	28	36	5
	9.8%	10.2%	10.5%	12.5%	16.4%	10.9%	14.1%	2%
7	18	11	15	18	34	19	54	180
	7%	4.3%	5.9%	7%	13.3%	7.4%	21.1%	70.3%
8	2	1	1	1	-	-	1	53
	0.8%	0.4%	.4%	0.4%	-	-	.4%	20.7%
Total	256	256	256	256	256	256	256	256
Percent	100	100	100	100	100	100	100	100

Source: Field survey.

The table 6 shows that the consumers expressed their highest preference in the market image or brand image of the retail stores by giving it highest rank. They liked to purchase consumer durables from a store where these goods are readily available and can be easily accessible and these are ranked with 2 and 3. Rank 4 and 5 are given to user friendliness of the stores and after sales facility given to customers. It is followed by

payment facility given to customers and some other unknown reason to be considered by the consumers as expressed by rank 6 and 7. But budget price is ranked with 8 as shown in the table signifying least choice by the consumers in terms of durable products.

Table 7. Descriptive Statistics of Attitudes towards Store Choice

Factors of Store Choice	N	Mean	Std. Deviation	Minimum	Maximum	Assigned Ranks
Readily Available	256	3.337	1.8734	1	8	2
Easy Accessible	256	3.798	1.5117	1	8	3
User Friendly	256	4.054	1.5723	1	8	6
After Sales Service	256	4.025	1.6871	1	8	5
Payment Facility	256	3.874	2.0696	1	7	4
Brand Image	256	3.336	1.9595	1	7	1
Budget Price	256	4.238	2.0933	1	8	7
Other Reason	256	6.819	1.1312	1	8	8

Source: Field survey.

The table 7 represents consumers' preferences in store patronage according to their choice. Highest preference is observed in shopping form a retail store which is having a good reputation in the market or which has been dealing in durable goods for a long time and earned a good name in the market. Branded retail stores are also having an impetus in the durable market of Tripura. Followed by readily available and easily accessible where consumer think that any kind of products which are sought after, are available at any time in that stores of their choice and these goods are easily accessible to them. Subsequent emphasis is given to payment facility like installments, discounts, bargaining etc., followed by after sales service. As these goods are of expensive items so consumers enquire post sales services provided by the retail stores to them. Budget price is also found weighted because consumers prefer to purchase products which are of affordable price. However, user friendliness, and other unknown reason are given least emphasis which can be interpreted that these factors are comparatively found least significant to the consumers. For further analysis hypotheses are formed below:

H₀: There is no significant difference in the store choice of the respondents regarding purchase of consumer durables.

Table 8: Test Statistics of Attitudes towards Store Choice

N	256
Kendall's W	0.252
Chi-Square	451.666
df	7
Asymp. Sig.	0.000

Source: Field survey.

The table 8 shows Kendall's W(0.252) and chi-square (451.666) value with total number of responses (256) and it suggests that there is a low degree of concordance meaning low agreement among the retail store selectors of durable products. The chi-square calculated value (451.666) is found to be greater than the critical value (14.07) for 7 degrees of freedom at 5% level of significance and since the P value (0.000) is found to be less than 0.05, hence the null hypothesis is rejected. Therefore, it can be stated that there is significant difference in selection of store by the respondents regarding the purchase of consumer durables goods. A significant difference can be noticed among the respondents pertaining to purchase of durable products. Thus, consumer selects a store based on different factors. Buyers prefer brand image of the stores as one of the determining factor in purchase of consumer durables.

2.2.3 Mode of Payment for Durable Products

There are a few modes of payment undertaken by the consumers while dealing in durable products. As consumer durables are expensive, when consumers determine to make a purchase, they want to have sufficient amount of money with them so that they would not be denied to be provided the goods. People

from different districts are having different mode of payments. However, the following table displays the overall payment system by the consumers.

Table 9: Mode of Payments for Purchase of Durable Products

Districts	West Tripura	Khowai	Dhalai	Unokoti	North Tripura	Sipahijala	Gomati	South Tripura	Total
Cash	27	18	18	9	6	11	10	16	115
	44.3%	66.7%	54.5%	36%	30%	42.3%	37%	43.2%	44.9%
Credit	3	4	8	10	6	7	6	10	54
	4.9%	14.8%	24.2%	40%	30%	26.9%	22.2%	27%	21.1%
Cards	14	1	--	--	1	1	3	2	22
	23%	3.7%	--	--	5%	3.8%	11.1%	5.4%	8.6%
Online	1	--	--	--	--	--	--	--	1
	1.6%	--	--	--	--	--	--	--	.4%
Others	16	4	7	6	7	7	8	9	64
	26.2%	14.8%	21.2%	24%	35%	26.9%	29.6%	24.3%	25%
Total	61	27	33	25	20	26	27	37	256
Percent	100	100	100	100	100	100	100	100	100

Source: Field survey.

The table 9 shows an overall pattern of the payment system undertaken by the consumers in all districts together. It can be noticed that in term of purchasing durable products, consumers are found to be engaged in cash payments (44.9%) maximally, followed by other mode of payment (25%). Here 'other' stands for cash and credit mode of payments together. After cash mode, most of the consumers are found to make payments by cash-credit mode of payments. The consumers in rural areas or suburban areas are seemed inclined towards preferring to pay half cash and keep the rest as credit and gradually make payments as instalments. Mostly it depends on the familiarity or the relation between retailers and the consumers. However, buying consumer durables on credit seems to be more significant (21.1%) to the consumers. Least responses are found in case of payments through cards and internet payment.

Highest responses are found in West Tripura district, i.e. capital city where retailers are having swapping machines at their retail outlets and people are more exposed to use internet. Payment through cards is found prominent in West Tripura district. Consumers belonged to South Tripura and Unokoti district are found engaged more in credit transaction.

2.2.4 Tendency to Insist on Proof of Purchase for Durable Products

Asking for proof of purchase like bills, cash memo, receipt etc., is not that much prevalent in the purchase of consumer durables goods. Not only the consumers but the retailers also are not having an inclination to provide bills to the customers in terms of purchasing consumer durables products. But as consumer durables are of high priced than consumer durables and infrequently bought, consumers tend to insist proof of purchase while purchasing them. These proofs can be considered as warranty or guarantee associated with the products. Sometimes familiarity of the customers with the retailers may lead to non production of proof of purchase. However, the following table shows the intensity of the consumers in terms of asking proof of purchase while buying consumer durables.

Table 10: Tendency to Insist Proof of Purchase for Durable Products

Districts	West Tripura	Khowai	Dhalai	Unokoti	North Tripura	Sipahijala	Gomati	South Tripura	Total
Yes	26	11	21	9	7	13	12	18	117
	42.6%	40.7%	63.6%	36%	35%	50%	44.4%	48.6%	45.7%
No	5	1	--	3	1	2	4	3	19
	8.2%	3.7%	--	12%	5%	7.7%	14.8%	8.1%	7.4%
Sometimes	30	15	12	13	12	11	11	16	120
	49.2%	55.6%	36.4%	52%	60%	42.3%	40.7%	43.2%	46.9%
Total	61	27	33	25	20	26	27	37	256
Percent	100	100	100	100	100	100	100	100	100

Source: Field survey.

From the table 10, it can be seen that most of the consumers (45.7%) are in favor of insisting proof of purchase from the retailers. These papers are required because consumer want after sales service in terms of consumer durables. They are investing their resources so they want complete service after the purchase. Warranty, guarantee or service centers are highly sought after by the customers and for that proofs of purchase are required. Almost similar responses (46.9%) can be observed in terms of asking these proofs sometimes. And the frequency of asking proofs of purchase throughout all the districts deems quite in close proximity. It could mean that most of the consumers are in support of asking bills, receipts or memo from the retailers. Very few consumers (7.4%) showed interest in asking such from the retailers. Sometimes ignorance or unwillingness may lead to non recipient of such proofs of purchase. With respect to proof of purchase, it can be noticed that consumers (42.6%) of West Tripura, are keener to ask for proof of purchase. Consumers of rest of the districts are found least interested to ask for proof of purchase. It could mean that consumers of these districts are least aware of the post purchase services.

2.2.5 Attitudes towards Online Shopping for Durable Products

Today digital marketing is developing rapidly. Not only the urban cities but suburban or rural consumers are also involved in buying online. Increasing number of internet users or smart phones, gradual increase of computers or laptop users gave an impetus to digital shopping. Online trading is increasing in a faster rate. Though internet shopping is not a new format but in case of Tripura, it's a new phase of retailing that brings a new change in consumers' purchase behaviour. The following table tables gives a snap shots of the favorable attitudes of the consumers of Tripura whether they perform online shopping.

Table 11:Attitudes towards Online Shopping for Durable Products

Districts	West Tripura	Khowai	Dhalai	Unokoti	North Tripura	Sipahijala	Gomati	South Tripura	Total
Yes	7	--	1	--	--	4	1	2	15
	11.5%	--	3%	--	--	15.4%	3.7%	5.4%	5.9%
No	21	17	25	14	11	16	15	25	144
	34.4%	63%	75.8%	56%	55%	61.5%	55.6%	67.6%	56.3%
Undecided	33	10	7	11	9	6	11	10	97
	54.1%	37.0%	21.2%	44%	45%	23.1%	40.7%	27%	37.9%
Total	61	27	33	25	20	26	27	37	256
Percent	100	100	100	100	100	100	100	100	100

Source: Field survey.

From the table 11, it can be understood that the consumers are maximally devoid of undertaking e-commerce (56.3%). A substantial number of consumers are not found to be familiar to the use of internet as well. Most of the consumers still in the belief of 'touch and feel' shopping. Virtual illiteracy hinders the use of internet, though the growing generation is found to be more exposed to this digital world and observed today's generation started to deal in internet shopping (5.9%) as well. A number of respondents (37.9%) remained undecided in terms of online shopping. Lack of relevant information, lack of computer knowledge, lack of interest and knowledge in using smart devices, inhibit the growth of digital marketing in Tripura. Consumers of West Tripura district (54.4%) are found more interested in doing online shopping sometimes. Consumers of other district are found least interested in online shopping in compared to West Tripura district.

Table 12:Test Statistics of the Attitudes of Consumers towards Online Shopping for Durable Products

Test Statistics	
N	256
Chi-Square	99.898
df	2
Asymp. Sig.	0.000

Source: Field survey

H₀: There is no significant difference among the attitudes of the respondents regarding online purchase decision of durable goods.

Explanation: The table 12 shows total number of respondents i.e. N (256) with chi-square value 99.898. Since the calculated value (99.898) is greater than the critical value (5.99) for 2 degrees of freedom at 5% level of significance and the P value (0.000) is less than 0.05, hence the null hypothesis is rejected. Therefore, it can be inferred that there is significant difference among the attitudes of the respondents regarding online purchase decision of durable goods.

2.2.6 Attributes of Online Shopping of Durable Products

Recent exposure to internet and its use usher a change in growing consumerism. A section of consumers especially the young generation is becoming more prone to virtual transaction. In such online dealing in different items like apparels and leather items, including electronics are becoming more popular in recent times. A number of determining attributes associated with online shopping gives a momentum to its popularity. The following table irrespective of districts displays the preference of aspects in terms of online shopping.

Table 13: Attributes of Online Shopping of Durable Products

Attributes	West Tripura	Khowai	Dhalai	Unokoti	North Tripura	Sipahijala	Gomati	South Tripura	Total
Quality	18	2	2	9	1	2	7	6	47
	29.5%	7.4%	6.1%	36%	5%	7.7%	25.9%	16.2%	18.4%
Discount	37	10	8	11	9	9	9	11	104
	60.7%	37%	24.2%	44%	45%	34.6%	33.3%	29.7%	40.6%
Status	9	4	1	10	2	5	3	10	44
	14.8%	14.8%	3%	40%	10%	19.2%	11.1%	27%	17.2%
Variety	38	10	7	10	9	10	12	12	108
	62.3%	37%	21.2%	40%	45%	38.5%	44.4%	32.4%	42.2%
Availability	37	10	7	11	9	8	7	11	100
	60.7%	37%	21.2%	44%	45%	30.8%	25.9%	29.7%	39.1%
After sales	4	--	--	2	--	1	--	--	7
	6.6%	--	--	8%	--	3.8%	--	--	2.7%
Home Delivery	36	7	5	11	9	7	12	11	98
	59%	25.9%	15.2%	44%	45%	26.9%	44.4%	29.7%	38.3%
Avoid Crowd	30	2	4	--	3	7	8	2	56
	49.2%	7.4%	12.1%	--	15%	26.9%	29.6%	5.4%	21.9%
Short of Time	33	3	3	3	2	6	6	3	59
	54.1%	11.1%	9.1%	12%	10%	23.1%	22.2%	8.1%	23%
Deep Assortment	30	8	5	11	4	4	4	12	78
	49.2%	29.6%	15.2%	44%	20%	15.4%	14.8%	32.4%	30.5%
Various Products	37	10	8	11	9	9	8	12	104
	60.7%	37%	24.2%	44%	45%	34.6%	29.6%	32.4%	40.6%
Other	3	2	--	11	--	3	5	6	30
	4.9%	7.4%	--	44%	--	11.5%	18.5%	16.2%	11.7%

Source: Field survey.

Web based transaction became in vogue especially to present day generation. From the table 13, it can be noticed that it is discounts (40.6%) and various products (40.6%) represents the second most sought attributes by the online consumers. Variety is the highest (42.2%) attribute sought after by the consumers regarding buying goods online. Consumers look for variety in the product category and different websites provide an array of variety of products that is why this attribute seemed to be more attractive to the consumers. Online products are also bought due to the availability of the products. Through internet, varied products with their availability and ease to access them are also an important attribute in buying decision. So it is observed that consumers (39.1%) are found to be dealing in mouse-click shopping by considering availability. Online companies provide home delivery facility for which a substantial portion of consumers (38.3%) found to have an inclination towards online shopping. Home delivery of products purchased online,

is a matter almost new in Tripura and people are found showing their interest in such. However, rest of the facets deemed to be significant but marginal in comparison to the attributes discussed prior.

From the table, it can be seen that consumers belonged to the West Tripura district are more influenced by various product available online, discounts, product variety and availability.

2.2.7 Intention to Switch Brands for Durable Products

Consumers' mind is unpredictable likewise their buying behaviour. Inclination towards a particular brand keeps them loyal to that brand. This feeling may lead to satisfaction. But sometimes loyalty to a particular brand can be found shifted to other brands. For a single product, a number of brands available in the market with varied product attribute. The chances of shifting brands are high and keeping a loyal consumer is a challenge to the companies. The following table displays the nature of consumers' intention in terms of brand.

Table 14: Intention to Switch Brands in spite of Satisfaction

Districts	West Tripura	Khowai	Dhalai	Unokoti	North Tripura	Sepahijala	Gomati	South Tripura	Total
Strong Disagree	4	--	4	--	--	1	2	--	11
	6.6%	--	12.1%	--	--	3.8%	7.4%	--	4.3%
Disagree	24	13	10	4	6	17	4	9	87
	39.3%	48.1%	30.3%	16%	30%	65.4%	14.8%	24.3%	34%
No Problem	16	10	16	20	2	3	9	20	96
	26.2%	37%	48.5%	80%	10%	11.5%	33.3%	54.1%	37.5%
Agree	17	4	2	--	11	3	11	7	55
	27.9%	14.8%	6.1%	--	55%	11.5%	40.7%	18.9%	21.5%
Strong Agree	--	--	1	1	1	2	1	1	7
	--	--	3%	4%	5%	7.7%	3.7%	2.7%	2.7%
Total	61	27	33	25	20	26	27	37	256
Percent	100	100	100	100	100	100	100	100	100

Source: Field survey.

From the table 14, it can be noticed that most of the respondents (consumers) are not having any problem even though they are satisfied with the present brands. These consumers (37.5%) cannot be considered as brand loyal. But contrary to this outcome, a few of consumers (34%) are not having such notion to change their brands as they are satisfied with the present brands. These brand loyal consumers feel convinced and satisfied with the service or attributes of the products presented by the current brands.

However, there are consumers (21.5%) who feel agreed towards the notion that they can change their brands in spite of satisfaction from the present brand. The consumers might be looking for variety or change of taste or trying to new attributes of the products given by other brands.

While studying the intention of consumers to switch brands in spite of being satisfied with the current brands, it is found that consumers of Sepahijala district are not willing to switch brands, where as consumers of Unokoti and south Tripura district are not having any problem to switch brands. It could mean that the consumers want to try new brands.

H₀: There are no significant differences in the intention to switch brands regarding consumer durables goods.

Table 15: Descriptive Statistics of Intention to Switch Brands for Durable Products

	N	Mean	Std. Deviation	Minimum	Maximum
Scale	256	3.156	.9026	1.0	5.0
Chi-Square	134.234	Asymp. Sig.	.000	df	4

Source: Field survey

The table 15 shows that the total number of respondents (256) and mean value 3.156 with standard deviation of 0.9026, and calculated chi-square value 134.234. The calculated chi-square value is found to be

more than the critical value (9.488) for 4 degrees of freedom at 5% level of significance. Moreover, the P value is found to be less than 0.05, so, the null hypothesis is rejected. From this analysis, it can be interpreted that differences exist in consumer's intention to switch brands. In terms of satisfaction, consumers are inclined towards the propensity to shift other brands; consumers do not feel hesitation in trying to new brands or new products or services in spite of being satisfied with present brand.

3.1 Findings and Conclusion

The study finds that the overall analysis of the socio economic profile of the respondents belongs to married, educated and middle income group who have the major amenities for comfort and recreation. Most of the consumers shop durable goods when they do not have it or does not work in due course time. The consumers are well exposed to mass media and they come to know about different products or their features. They are also found preferring to purchase durable goods which are newly launched and most of them consider peer suggestions and they do consult before purchasing the goods. As durable goods are little costly so purchasing consumer durables for out of curiosity and for trying new products is found to be least significant. In case of need arousal, there is significant difference among the need arousal of consumer durables with respect to the purchase attitude of respondents. Hence, it can be concluded that different consumers express as well as feel the need of having durable goods for different reason and these are significantly varied from person to person. For consumers, selection of stores is very important and it can be stated that there is significant difference in selection of store by the respondents regarding the purchase of consumer durables goods. A significant difference can be noticed among the respondents pertaining to purchase of durable products. Thus, consumer selects a store based on different factors. Buyers prefer brand image of the stores as one of the determining factor in purchase of consumer durables. Regarding mode of payments, it has been found that buying consumer durables on credit seems to be more significant along with cash payments. Still online financial transaction is far reach to the rural people of Tripura. More infrastructural facilities with e- education is required for such endeavour. Durables purchasers are found to be keener to ask for proof of purchase because they ask for warranty services as these goods are not frequently purchased. Online shopping became a boom everywhere and consumers of Tripura are also in alignment with this trend and for durable goods, it can be inferred that there is significant difference among the attitudes of the respondents regarding online purchase decision of durable goods. A considerable amount of people are found to be engaged on online shopping of durable goods which are light weight. Regarding switching attitudes of consumers of durables, it can be concluded that it can be interpreted that differences exist in consumer's intention to switch brands. In terms of satisfaction, consumers are inclined towards the propensity to shift other brands; consumers do not feel hesitation in trying to new brands or new products or services in spite of being satisfied with present brand.

3.2 References

1. Ajzen I, Fishbein M. Attitudes and the Attitude-Behaviour Relation: Reasoned and Automatic Process. *European Review of Social Psychology*. 2000; 11(1):1-33.
2. Foxall, GR. *Understanding Consumer Choice*. Basingstoke,, Hampshire RG21 6XS, New York: Palgrave Macmillan Houndmills, 2005.
3. Khan M. *Consumer Behaviour and Advertising Management*. New Delhi: New Age international (P) Ltd, 2006.
4. Schiffman Leon G, Kanuk. *Consumer Behaviour*, Leslie Lazar Pearson Education Pvt Ltd., New York, 2004
5. *Census*. Government of Tripura, 2011.
6. *Economic Review of Tripura*, 2014-15.

Factors Associated with the Health and Nutritional Status of Children in Rural West Bengal: Role of Mothers Attitudes and Other Factors

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1. Introduction

Malnutrition is a key public health issue in India. The NFHS, 2005-06, states that young children in India suffer from some of the highest levels of stunting, underweight, and wasting, observed in any country in the world. It also states that 7 out of every 10 young children in India are anaemic. The percentage of children under age five years who are underweight is almost 20 times as high in India as would be expected in a healthy, well-nourished population. This is reflected by the fact that the prevalence of under-weight children in India is among the highest in the world, and is nearly double that of Sub-Saharan Africa. Data on anaemia show that 56 percent of young girls and 30 percent of young boys in the age group of 15-19 years are anaemic. The burden of under-nutrition has not changed much even though various intervention programs are in operation in India. Although poverty is an important factor in the poor nutrition situation, nutritional deficiencies are widespread even in households that are economically well off. It is also observed that the malnutrition problem in India is a concentrated phenomenon that is, a relatively small number of states, districts, and villages account for a large share of the malnutrition burden — only 5 states and 50% of villages account for about 80% of the malnutrition burden. Moreover in a particular state it is the rural areas which fare much badly when undernutrition is considered

Based on the above premise, the present study attempts to look into the nutritional status of rural school going children and find out the possible factors which are affecting their health status and nutritional intake. A number of studies show intra household resource allocation focus on differences in entitlements of either women or children. Awasti (1999, 2003) have shown the poor status of children as regards to nutrition. It also reveals the gender aspect where girls fare worse than boys. Studies of Kapil U (1999), Preja N (2014) focused on the primary school going children and looked into the nutritional attainment of the same and found the girls intake to be significantly lower than that of the boys regarding micro nutrients. A similar study by Garg (1997) focused on the nutritional intake of slum children. Pande (2003, 2006, and 2007) have shown that the neglect of children was directly correlated to their gender and their order of birth and their likelihood of being immunized against disease or their likelihood of receiving a nutritious diet increased for boys than girls. Behram (1988) studied the Indian households and how boys were favoured to girls through differential attitudes of the parents. Tisdell (2000) in his study on rural Bengal on the intra household resource allocation reveal disparity in resource allocation as regards to gender. However the santhal families seem to perform well in comparison to the general population. Another study by Choudhary (2007) dealt with the issue of work allocation within the family and looked into the role of gender. Studies by Falkner (1999) have shown the impact of malnutrition on the health of the children in form of stunting and wasting. Felson (1989) showed the impact of parental care on the self-esteem of the children. Some studies like by Bonds (2012) Mehrotra et al (2011) looked specifically into the role of midday meal (MDM) on educational attainment and nutrition of primary school going children. Chattopadhyay (2016, 2017) looked into impact of the mother's attitude on the nutritional attainment of their children. (Story, 2002) showed how individual decision regarding nutrition affected the community nutrition.

Based on the above analysis of few select literature in the area, we find that one possible explanation of the incongruity in child health or nutritional outcomes pertains to gender discrimination in the intra-household allocation of resources. Households are important decision-making units throughout the world. The dynamics and power play within the household has serious consequences on the well-being of not only the

immediate members but also generations to come. The immediate consequence of gender dynamics within a household is perhaps best reflected towards the attitudes of the mothers who are the primary care giver towards their children.

In this regard the present paper would try to look into the gender attitudes of the mothers and their self-esteem scores. The paper further would probe into the possible consequence of the same on variables like food intake, vaccination coverage and access to formal health care facilities of the children. Thus, the paper primarily would enquire into the nutritional intake and health of the rural children and will try to analyze the psycho-social foundations of the mother's attitude towards their children.

The NFHS-4 data for 2015-16 also show that 50 per cent children under five years of age are anaemic in West Bengal. The nutritional status of children in West Bengal is found to have improved only marginally, in comparison to that of the previous NFHS data published almost a decade ago. Therefore, it is considered pertinent to look into the gender aspects, and its possible consequence on the nutritional intake or health outcome of the children belonging to farm based rural households of West Bengal. For this the paper is based on an empirical study conducted in 2015 where the target population of this study was all the farm based rural households having school going children in the age group 5 to 15 years in West Bengal.

Objectives of the Study

(a) To look into the role of mothers with respect to nutrition and health entitlements of children belonging to farm based household in rural West Bengal.

(b) To look into the gender perception of mothers and examine the asymmetric effect by gender upon children with positive effect for boys' and negative effect on girls' in rural West Bengal.

Methodology

In this study SPSS-20 was used for the descriptive statistics, t-test, χ^2 for association and odd ratio calculation. The tools used in the study were a gender attitude questionnaire was developed and standardized with reliability 0.81 and validity 0.72. Cronbach's alpha for internal consistency came at 0.76. This questionnaire was based on FAO questionnaire to measure gender outlook of mothers of the household. The questions were translated in Bengali and validated through a pilot study on 70 households. For the women's autonomy, all the household women were consulted. As regards to autonomy a simple questionnaire consisting of 10 questions on various aspects of decision making regarding own health and child health were asked. The questionnaire was validated through a pilot study. In this study, the method of two stage random sampling was used in collecting the data. The sample was drawn randomly by two stage sampling technique. 300 households farm based household were randomly from 10 villages from 2 blocks of the district of Birbhum. From these 10 villages, 15 households were selected with mothers in the age group 20 to 35 years. From these households 480 school going children in the age group 5 to 15 years were interviewed, among them 250 were boys and 230 were girls. Prior to the interview the consent was taken from each subject explaining the motive of the study. Further for analytical clarity Kuppaswamy's SES scale was administered to assess the socioeconomic status of the subjects. Rosenbergs (1965) self-esteem scale was used to measure the self-esteem of the mothers. It, comprised of 10 items, all the items were translated into Bengali and checked by two experts. The internal consistency for RSES range from 0.77 to 0.88. Test-retest reliability for it range from 0.82 to 0.85 and the criteria for validity is 0.55.

To assess the nutritional health status of the children 24-hr recall method, Food frequency questionnaire was used. In 24-hr recall method, the actual food and drink consumed in the immediate past 24 hours is recorded. Sometimes, a longer period may be used. The recorded food consumed in the last 24 hours is then converted to the nutrients available in each food item used in preparing it and then compared with the RDA Food Frequency Questionnaire was interviewer administered. A detailed questionnaire includes the list of foods and the subject answers as to how often and in what quantity each food is eaten per day, per week and per month. The collected information of the food consumed is then checked with the RDA. It gave an estimate of the amount and frequency of the various nutrients consumed by the individual. Further, follow-up's and cross checking were done with each household from which the child was coming. Anthropometric measures of children were collected regarding height and weight. Immunization records were verified and crosschecked from the mother who in most of the cases was the primary care giver. Further a rough estimate of the expenditure on the child (like schooling, tutors and stationaries etc.) were collected. Further the mothers of the children who were the primary care givers were comprehensively interviewed to look into their perceived gender outlook.

Operational definitions

For the purpose of the present study the following are the list of operational definitions of the terms or variables used.

Gender Attitudes: Differential socialization among boys and girls embed gendered roles among individuals whereby society encourages certain ways and patterns of behaviours, attitudes, attributes and expects their compliance. Gender attitudes is conceptualized here as attitudes toward the sexes related to the evaluative meaning of the corresponding gender or specific stereo-types related to ones gender. Gender attitudes are people's beliefs about the culturally ascribed appropriate role-related behaviors for women and men, and girls and boys. Here, the term focuses on the gender attitudes of the mothers in the sample.

Autonomy: Autonomy is the ability to obtain information and make decisions about one's own concerns. It facilitates access to material resources such as food, land, income and other forms of wealth, and social resources such as knowledge, power, prestige within the family and community. Women's autonomy in health-care decision making is extremely important for better maternal and child health outcomes and it can be taken as an indicator of women's empowerment.

Self Esteem: In sociology and psychology, self-esteem reflects a person's overall subjective emotional evaluation of his or her own worth in terms of the perception of the perception of significant-others. It is a judgment of oneself as well as attitude toward the self in terms of understanding of others perception. The "self" part is self-explanatory meaning yourself. So, here self-esteem refers as how one values oneself by contextualizing themselves within the household enabling to look into the perceived self-worth of the mothers of the sample.

SES: Socioeconomic status (SES) is the economic and social components, combined as total measure of a person's background in relation to others, comprising ones social position, based on income, education, and occupation. Socioeconomic status (SES) encompasses not just income but also educational attainment, financial security, and subjective perceptions of social status and social class. Socioeconomic status can also include quality of life attributes as well as the opportunities and privileges afforded to people within the community and greater society. In the present study, as stated earlier Kuppaswamy's SES scale was administered to assess the socioeconomic status of the subjects, and two SES were observed.

Nutritional Intake: There is a plurality of common understanding of self-conscious, habitual, conventionally defined menus and cuisine that one entertains in their daily life, therefore, one need not necessarily be conscious about the nutrient intakes for a healthy life. Since out food intake is essentially culturally patterned therefore, to gauge nutritional intake one has to take into consideration the nutritional composition of the food consumed by a person. For the present work, nutrition is the intake of food, considered in relation to the body's dietary needs. Nutritional intake shall refer to the daily eating patterns of an individual, including specific foods and calories consumed, their relative quantities, and its breakup as nutritional composition of the food consumed.

Health Status: This refers to the health status of an individual, group or population. In our study we have considered only three aspect of the health status of the children: their immunization, their BMI and their access to formal health care for countering common diseases.

Results and discussions

Descriptive Statistics

The mean age of the women was 24.5 ± 5.8 (s.d) while the average years of education of the mothers were 17.96 ± 2.1 (s.d). The average gross monthly income of the families were $\text{Rs}12107.65 \pm 508.51$ (s.d). The further details of the descriptive statistics are summarized in Table I where the demographic variables like age, age at marriage, levels of education, number of children, socio economic status, religion and caste are summarized.

Table I: Demographic Variables (Mothers)

Variables	Range	Percentage
Age	20-25	43.07
	25-30	32.09
	30-35	24.84
Age at Marriage	<18	64.9
	18 or above	35.1

Education	illiterate	6
	Some education(literate)	55
	HS or above	39
No. of children	1-2	41.05
	3-4	40.72
	5 and above	18.23
SES	SES-I	40.22
	SES-II	59.78
Religion	Hindu	72
	Muslim	28
Caste	Upper	42.9
	Backward	56.1
Family type	Joint	88.67
	Nuclear	11.33

The Table I shows the demographic profile of the sample. As can be seen more than 60 % of the women got married at an early age (<18 years). It reveals that majority of women in the study 55% were literate and approximately 39% percent had more than higher secondary levels of school education only 6 % of the mothers were illiterate. The women had an average number of 2.9 children. About 23% percent of women had experienced infant mortality. The average monthly household expenditure on durables reported by the sample participants was Rupees 6,688. A majority of women in the study sample reported belonging to the Hindu religion 72% and 28% were Muslims. Most participants belonged to backward castes 56% and about 43% percent belonged to upper castes. Further it is seen that the sample is mostly belongs to the joint families about 89%.

Next in table II the demographic variables of the children are summarized.

Table II:Demographic Variables (Children)

Variables	Range	Percentage
Age	5-10	65
	10-15	35
Sex	Male	51
	Female	49
Education	Going to school	88
	Drop outs	12
Immunization	Fully covered	72
	Not covered	28
BMI	Stunted/Wasted/both	65
	Normal	35
No. of Siblings	1-2	53
	3 and above	47

The Table II, summarizes the demographic variables pertaining to the children. As can be seen the sample comprises about 65% of primary school going children. The drop outs are about 12% and 47% of the children have three or more siblings. Most of the children that is about 72% have received the basic vaccination. However stunting, wasting or both were prevalent in about 65% of the sample. Next we look into the facilitating variables regarding health status or nutritional intake:

Table III:Enabling Variables

Variables	Response	Percentage
Autonomy of mothers	Yes	37.8
	No	62.2
Self -esteem of mothers	Yes	23.7
	No	76.3

Distance from formal health care center	Near (within 5 km)	47.5
	Far (more than 5 km)	52.5
Working status of mothers	Unpaid	89.2
	Paid	10.8
Presence of ASHA workers	Yes	87.4
	No	12.6
Distance from School	Near (within 5 km)	67.5
	Far (more than 5 km)	32.5

As can be seen from table III most of the mothers of the sample had lesser levels of autonomy(62%), this autonomy is a crucial variable as it is not only detrimental to the entitlement of the woman in question but also is crucial to the entitlements of the child of that woman. While dealing with the autonomy variable an interesting finding was the restrictions on the free movement of the woman. Further self-esteem is an important psychological variable which is crucial in the functioning of the mother in the given socio-cultural makeup of a society having crucial ramifications on human capital formation in shaping up the entitlements of her child. In the present sample only 23% of the sample had higher self- esteem. Also, the survey reveals that although women play a crucial role in the family as well as supporting the farm activities only about 11% of the women do some kind of paid work. As far as the infrastructural facilities are concerned all the villages under the purview of this study had road connectivity as well as were electrified. The distance from formal health care facilities or schools were 47% and 67% respectively. The ASHA workers were actively present in 87% of the villages.

Inferential Statistics:

A pilot study of the women of the households was first undertaken in one village to look into the gender outlook of the women (mothers). This is a crucial variable as it is the outlook of the mothers which would be detrimental to the food and basic resource entitlement of the children who are totally dependent on the primary care giver in the initial period of their lives. To access the mother’s position in the household her autonomy to take decisions and command over the resources were also questioned. This was then extended to the other two villages

Table IV:Gender outlook of rural mothers

	Mean Scores	S.D	t _{cal}	t _{tab}	Conclusion
Mothers with at most one girl child	39.07	1.28	19.34	1.62*	t _{cal} >t _{tab} ; Null Hypothesis rejected
Mothers with two or more girl child	17.86	1.76			

The gender outlook scores of the mothers with boy child or with at most one girl child are significantly different than the mothers with two or more girl child so the null hypothesis is rejected and alternative hypothesis accepted. It can be seen that gender discrimination was less visible in families with one girl child than that for families with more than two girl child. Thus, the gender outlook of the prime care giver of the children varied with the sex of the child. Next the self –esteem scores were calculated using the Rosenberg’s SES. In this scale higher scores indicate higher self-esteem.

Table V:Self-esteem of rural mothers- with one to two girl child and three or more girl child

	Mean Scores	S.D	t _{cal}	t _{tab}	Conclusion
Mothers with at most one girl child	29.8	1.2	74.34	1.6552*	t _{cal} >t _{tab} ; Null Hypothesis rejected
Mothers with two or more girl child	10.5	1.8			

Relatively higher self-esteem was seen among women in families with lesser number of girl child. From the Table 3 it can be concluded that there is significant difference in the self-esteem scores of the women with at most one girl child hence the null hypothesis is rejected and alternative hypothesis accepted at 0.05% level of significance. Further it was found that that positive nondiscriminatory gender attitudes were positively correlated to the self-esteem scores (r=+0.79) at p=0.05.

Next we try to look into the nutritional, health and educational entitlements of the primary school going children of the mothers discussed above using 24 hour recall method.

Table VI:Percentage distribution of children according to deficient nutrient intake within last 24 hours (5-15 years)

Nutrients Groups	RDA	t test for difference in means between boys and girls at 5%level of significance	
		t-value	Significance
<i>Protein(g/day)</i>	41	2.89*	S($t_{cal}>t_{tab}$)
<i>Fat</i>	25	1.05*	NS
<i>Carbohydrates</i>	390	0.98*	NS
<i>Energy</i>	1950	1.06*	NS
<i>Calcium</i>	400	3.08*	S($t_{cal}>t_{tab}$)
<i>Iron</i>	26	1.06*	NS

*p=0.05

From the above table it can be seen that with regard to the difference between the nutrient intakes in most of the cases there is no significant difference between each nutrient groups for both boys and girls, for both groups. However for families with more than two girl child, we can see that there lies a significant difference between boys and girls for protein and calcium intake. Reported discrimination was evident when particular food like fish, meat or milk were considered. The care givers were directly practicing discrimination regards to certain food groups. Also, it should be noted that in the above sample no child reported of hunger as such especially carbohydrate intake was sufficient for all the children due to the provision of food in the schools through midday meal scheme. Only the mothers are practicing discriminatory behaviour but also they consider it to be justifiable. Thus, a mere increase in income is not ensuring the well-being for a group of children. In most of the families with two or more girl child the mother supplements the boy’s meal by providing milk or protein rich items like fish or poultry.

Next, we will look into the effect of undernourishment in form of stunting and wasting.

Table VII:Distribution of Stunting (Height for age)

Age (in years)	χ^2 for age wise association for stunting		χ^2 for significant difference between boys and girls at 5% level	
	χ^2 -value	Significance	χ^2 -value	Significance
5-10	2.89*	NS	2.65*	NS
10-15	4.02*	S($t_{cal}>t_{tab}$)	5.86*	S($t_{cal}>t_{tab}$)

*p=0.05

Data (Table VII) reveals that moderate to severe stunting exists in all age groups as well as for both the groups of children. However no significant association was found between the age groups and stunting for children aged 5-10years. However, for the higher age group the difference is significant. It has to be noted that the higher age group children do not come under the purview of ICDS-MDM scheme.

Next we look into the wasting as observed in the sample.

Table VIII:Distribution of wasting (weight for age)

Age (in years)	χ^2 for age wise association for wasting		χ^2 for significant difference between boys and girls at 5% level	
	χ^2 -value	Significance	χ^2 -value	Significance
5 - 10	2.09*	NS	1.08*	NS
10-15	5.99*	S($t_{cal}>t_{tab}$)	8.43*	S($t_{cal}>t_{tab}$)

*p=0.05

Data reveals that moderate to severe wasting exists in all age groups as well as for both the groups of children. However, no significant association was found between the age groups and stunting for the lower

age group. The plausible explanation of such insignificant result is that the effects of micronutrient deficiencies manifests itself in the teens and adolescent period. Which is manifested in the older age groups where the difference between the girl and the boys are significant as regards to wasting. Also the positive effect of ICDS-MDM are evident.

Next, bivariate regression analyses were carried out to test associations between variables. The random effects model was used as it allows for variability within groups. The random effects model controls for factors influencing the outcome that have been omitted from the model, or factors that cannot be quantified in a large-scale social survey; it provides a mechanism for estimating the degrees of correlation in the outcome that exists at the household or community level (Stephenson and Tsui, 2003). The models were based on the formula:

$$\ln [x_{ij} / (1-x_{ij})] = a_0 + a_1 * X^1_{ij} + \dots + a_n * X^n_{ij} + e_j$$

Where, x is the probability of assessing formal health care, nutritional entitlements or education. a0 is the intercept. a1... an denote the regression coefficients which represent the change in the log-odds of the outcome variable associated with a unit change in each corresponding independent variable $X^1_{ij} \dots X^n_{ij}$ (while controlling for other independent variables) where j is the index for the groups at the community level and i is the index for individuals within the groups. e_j denotes the error term. Here, the variables are categorized as *Dependent variables* and *Independent variables*. In this study the children's health and nutritional intake is considered as the dependent variable. This is measured by the wasting and stunting of the child, access to formal health care and immunization (health) and nutritional intake of the child (nutrition). *Independent variables* included controls for demographic characteristics and psycho-social makeup of mothers in the sample. Mother's age was defined by a continuous variable. A categorical variable was created to measure a woman's education level, with illiterate women being the reference category. A continuous variable was created for measuring socioeconomic status. Religion (Hindu and Muslims) and caste (Upper and Backward) were considered as dichotomous variables. Socioeconomic status was measured through Kuppaswamy's SES scale. The survey further categorized the enabling or facilitating factors that means, factors that have a positive effect on child health/nutrition as women's autonomy and power to take decisions, her working status and her self-esteem were taken into account. A self-constructed scale to measure women's autonomy was used to measure the autonomy where valuable inputs from the household members were incorporated. So women with autonomy were assigned the score 1 while those without it were assigned the score 0.

Table IX:Odds Ratios (95% Confidence Intervals for Effect of Mothers Characteristics)

Variables	Range	Child Health	Child Nutrition
Age at marriage	>18	1.98*** (1.36-3.18)	2.01* (1.15 - 3.69)
	<18	1.00	1.00
Self esteem	Low	1.00	1.00
	High	2.17*** (1.37-3.13)	2.05** (1.15 - 3.66)
Education	Illiterate	1.00	1.00
	Primary Level	2.17* (1.37-3.13)	2.05 (1.15 - 3.66)
	HS or above	2.69* (1.68 - 4.31)	2.95 (1.65 - 5.29)
No. of children	1-2	1.00	1.00
	3-4	0.74 (0.50 - 1.10)	1.67 (0.99 - 2.80)
	5 and above	0.72 (0.48 - 1.07)	0.86 (0.45 - 1.62)
Autonomy	Yes	1.80*** (1.35 - 2.41)	1.61** (1.06 - 2.44)
	No	1.00	1.00

*p<.10, **p<.05, *** p<.01

Table IX shows that a higher level of autonomy in women significantly increased child's odds of having better health (OR 1.80, 95% CI 1.35 - 2.41) and nutrition (OR 1.61, 95% CI 1.06 - 2.44). It also shows that a higher level of self -esteem in women in movement significantly increased child's odds of receiving better health (OR 2.17, 95% CI 1.37 - 3.13) and nutrition (OR 2.05, 95% CI 1.15 - 3.66). Higher age at marriage had a greater odds of the child receiving health care (OR 1.98, 95% CI 1.37 - 3.13) and nutritional entitlement (OR 2.01, 95% CI 1.15 - 3.66) as compared to women who got married before attaining the age of 18. The health status was significantly associated with higher levels of education among women. As compared to the children of women who were illiterate or uneducated, those who were literate or had primary school education had a higher odds of receiving health care (OR 2.07, 95% CI 1.37 - 3.13), The associations were stronger for women who had a higher level of education (HS or above). Thus, the result shows that women's autonomy and self -esteem was significantly and positively related to all child health/nutrition outcomes. Women with high autonomy had a higher odds of seeking child health/nutrition, as compared to women with low autonomy, when the effects of demographic and community variables were controlled.

Table X:Odds Ratios (95% Confidence Intervals for Effect of Child's Characteristics)

Variables	Range	Child Health	Child Nutrition
Gender	Boys	1.97*** (1.37-3.13)	2.11** (1.15 - 3.66)
	Girls	1.00	1.00
Birth Order	3 rd or more	1.00	1.00
	1 st or 2 nd	2.17*** (1.37-3.13)	2.05** (1.15 - 3.66)
Sex of siblings	No brother	1.00	1.00
	At least one brother	2.67*** (1.37-3.13)	2.05** (1.15 - 3.66)
Age of the child	5-10	1.00	1.00
	10-15	0.74 (0.50 - 1.10)	1.67 (0.99 - 2.80)
Families with	2 girl child	1.80*** (1.35 - 2.41)	1.61** (1.06 - 2.44)
	More than two girl child.	1.00	1.00

*p<.10, **p<.05, *** p<.01

Table X shows that a being a boy significantly increased child's odds of having better health (OR 1.97, 95% CI 1.37 - 3.13) and nutrition (OR 2.11, 95% CI 1.15 - 3.66). It also shows that being the first born or second born significantly increased a child's odds of receiving better health (OR 2.17, 95% CI 1.37 - 3.13) and nutrition (OR 2.05, 95% CI 1.15 - 3.66). Having at least one brother significantly increased a child's odds of receiving better health (OR 2.67, 95% CI 1.37 - 3.13), nutrition (OR 2.05, 95% CI 1.15 - 3.66) rather than those children having no brothers. Also it was seen that families with at most two girl child were more egalitarian in their attitude towards the health or nutritional allotments of the children. Thus, families with at most two girl child significantly increased a child's odds of receiving better health (OR 1.80, 95% CI 1.35 - 2.41) and nutrition (OR 1.61, 95% CI 1.06 - 2.44). This shows that apart from the gender of the child it is the sex of the siblings and the birth order of the child which is crucial determinant of the probability of his / her having health/ nutritional entitlements.

Table XI:Odds Ratios (95% Confidence Intervals for effect of other variables {infrastructural or other})

Variables	Range	Child Health	Child Nutrition
Monthly Household expenditure	SES II	1.16*** (1.10 - 1.23)	1.14*** (1.05 - 1.23)
	SES I	1.00	1.00
Type of Family	Nuclear	0.96*** (0.45 - 1.67)	1.17** (1.05 - 2.01)
	Joint	1.00	1.00
Religion		0.92	2.43

	Hindu	(0.56 - 1.52)	(0.98 - 6.04)
	Muslim	1.00	1.00
<i>Caste</i>	Upper	1.69*	1.80
		(1.13 - 2.53)	(1.09 - 3.28)
	Backward	1.00	1.00
<i>Schools</i>	Yes	1.44	1.61**
		(1.35 - 2.41)	(1.06 - 2.44)
	No	1.00	1.00
<i>ASHA/formal health care</i>	Yes	1.93**	1.01
		(1.14 - 3.29)	(0.45 - 2.28)
	No	1.00	1.00

*p<.10, **p<.05, *** p<.01

Table XI discusses the effect of other infrastructural facilities on the enabling variables in human capital formation. It shows that higher socioeconomic status of the household increased child's odds of having entitlement for all outcomes. Every percentile increase in the socioeconomic index, as approximated by household expenditure, was associated with an increased odds of a child receiving health care (OR 1.16, 95% CI 1.10 - 1.23), nutritional security (OR 1.14, 95% CI 1.05 - 1.23). It is observed that the health outcome and nutrition both improves when the child belongs to a nuclear family health (OR 0.96, 95% CI 0.45 - 1.67), nutritional security (OR 1.17, 95% CI 1.05 - 2.01). Upper caste children had a greater odds of receiving health care (OR 1.69, 95% CI 1.05 - 2.53) as compared to children who belonged to backward castes. Children who belonged to the Hindu religion had a higher odds of receiving education relative to Muslim women (OR 2.43, 95% CI 0.98 - 6.04). The presence of an active ASHA worker in the village increased child's odds of receiving health care (OR 1.01, 95% CI .45 - 2.28) but was not associated with the nutritional entitlement. This specially reflects upon the immunization drive by the government. The presence of the formal institution for education increased the odd ratio of the nutritional entitlements (OR1.61, 95% CI 1.06-2.44) it specifically reflects upon the MDM scheme.

Conclusions

The study began with the intention of looking into the factors which are determinant of the nutritional intake and health outcomes of rural children of West Bengal. The study revealed the complex nature of the process of human capital formation by indicating the factors influencing the entitlements to nutrition, health and education of the rural children.

First, it came to light from the above that mother, the primary care giver of the child within a household, has a crucial role in determining the entitlements of the child which in turn is determinant to the kind of resources the child has command over. It was found that apart from the mother's age at marriage or her status of educational attainment, it is the psychological variable, like self-esteem, and socio-economic variable, like autonomy, which have a positive effect on all the three aspects of human capital formation that are under consideration here. The positive impact of mother's educational attainment on the education and health aspect of the child is neutralized to a great extent by the cultural patterns and belief system.

Second, the study exhibits that apart from the pattern of behaviour of the mother, there are some external factors operating playing a crucial role in shaping the entitlements of the child. The said external factors affecting are like the sex of the child, the birth order of the child, the sex of the siblings of the child, and even the age of the child. It is seen that the probability of having better entitlements increases if the child is a boy rather than a girl. The likelihood of being micronutrient deficient increases if the child is a girl. Also, a child more down in sequence in the birth order, it was observed the child is expected more to have deprived of resources. For example the likelihood of being stunted, wasted or being micronutrient deficient increases for a girl child if she has two or more siblings of the same sex. Similarly, the likelihood of being stunted wasted or being micronutrient deficient increases if the child is a girl child who is third or more in the birth order. For that matter, the likelihood of being immunized and taken proper care of in case of diseases decreases if a girl child has two or more siblings of the same sex or is third or more in the order of birth. It is also seen that in families with one boy and one girl child the distribution of resources is effectively more egalitarian than in families with more than two girl child without any boy child. In the last part we saw that factors like the socio-economic status of the families do have a positive effect on both dimension namely, nutrition and health. Children belonging to upper caste families have higher probability of having better access to formal health care or education. Religion has a significant role in case of educational attainment. Whereas, presence

of nearby schools or health centers or active presence of the ASHA workers increases the probability of having access to nutrition in the former case and health for the later.

While devising policies to tackle malnutrition, the outlook and attitudes of the people in question should be taken into account. Government intervention in case of primary vaccination has been successful in counterbalancing the gendered skewness. Further, ICDS-MDM scheme has been a success story to tackle gross hunger so to say. Similarly for specific micro nutrient intervention in the diet of the children of specific age groups may have significant positive impact on the health/nutritional and educational entitlement of the child, and will reduce the gendered negativity, as practiced within the households and will have significant bearings on the human capital formation.

We may conclude finally due to gendered inequity and exclusion, health and nutrition of generations to come gets jeopardized and thus their children especially girls become more vulnerable than boys. Further, there is significant correlation between gender attitudes and self-esteem of rural mothers has a major role in this.

References

1. Awasthi, S, Das R, Verma, T, Vir, S. Anaemia and under nutrition among pre-school children in Uttar Pradesh, India. *Indian Paediatrics*, 2003; 40(10):985-990.
2. Bamji, M S, Rao N P, Reddy V Textbook of Human Nutrition, Oxford and IBH Publishing Co. Pvt. Ltd New Delhi, 1996, 153-167.
3. Basu AM. Culture, the Status of Women and Demographic Behavior. Oxford: Clarendon.
4. Behrman JR Intrahousehold Allocation of Nutrients in Rural India: Are Boys Favored? Do Parents Exhibit Inequality Aversion? *Oxford Economic Papers*. 1988; 40(1):32-54
5. Bloom SS, Wypij D, Das GM. Dimensions of women's autonomy and the influence on maternal health care utilization in a north Indian city. *Demography*. 2001; 38:67-78.
6. Bonu S, Bhushan I, Rani M, Anderson I. Incidence and correlates of 'catastrophic' maternal health care expenditure in India. *Health Policy Plan*. 2009; 24(6):445-456.
7. Census data (16 June, 2014) <http://www.census2011.co.in/>
8. Chattopadhyay P. Impact of Mothers Self Esteem and Attitude Towards Gender on the Nutritional and Health Entitlements of the Primary School Going Children –A Study in West Bengal, *International Journal Of Home Science*. 2016; 2(2):171-176
9. Chattopadhyay P. Looking Beyond Gender Attitudes of Rural Mothers on the Nutrition and Health of their Children: A Comparative Study among Santhals and Non-Santhals in West Bengal. *The Indian Journal of Nutrition and Dietetics*. 2017; 54(1):83-92.
10. Choudhary N, Parthasarathy D. Gender, Work and Household Food Security, *Economic and Political Weekly*. 2007; 42 (6):523-531
11. Cleland JG, Van Ginneken JK. Maternal education and child survival in developing countries: the search for pathways of influence. *Soc.Sci.Med*. 1988; 27:1357- 1368.
12. Desai S. Maternal Education and Child Health: Is There a Strong Causal Relationship? *Demography*. 1998; 35:71-81.
13. Felson RB, Zielinski MA Children's Self-Esteem and Parental Support. *Journal of Marriage and Family*. 1989; 51(3):727-735
14. Garg SK, Singh JV, Bhatnagar M, Chopra H. Nutritional status of children (1-6 years) in slums of Ghaziabad city, *Indian Journal of Community Medicine*. 1997; 22(2):70-73.
15. Garza C. The nutrition situation: An overview. *Food and Nutrition Bulletin*, 2007; 23 (4):343-345.
16. Heck RH, Thomas SL. An Introduction to Multilevel Modeling Techniques. Mahwah NJ: Lawrence Erlbaum Associates, 2000.
17. http://mdm.nic.in/Files/Initiatives%20&%20Case%20Studies/Nutritional_Health.pdf, Aug, 2014
18. <http://prof.chicanas.com/readings/SenInequality.pdf> 11 Aug, 2014
19. <http://www.census2011.co.in/> 16 June, 2014
20. https://www.unfpa.org/sites/default/files/resource-pdf/UNFPA_Publication-39764.pdf 24 Dec, 2014
21. ICMR. Nutrient requirement and RDA for Indians. Hyderabad: National Institute of Nutrition, 1990, 83.
22. Jejeebhoy SJ. Women's autonomy in rural India: Its dimensions, determinants, and the influence of context. In H. Presser & G. Sen (Eds.), *Women's Empowerment and Demographic Processes: Moving Beyond Cairo*, 2000, 204-238. New York: Oxford University Press.
23. Kapil U, Pradhan R. Integrated Child Development Services scheme (ICDS) and its impact on nutritional status of children in India and recent initiatives. *Indian Journal of Public Health*, 1999; 43(1): 21-5.
24. NFHS 4 report, http://rchiips.org/nfhs/nutrition_report_for_website_18sep09.pdf

25. Pande RP. Selective Gender Differentials in Childhood Nutrition and Immunization in Rural India: The Role of Siblings. *Demography*. 2003; 40(3): 395-418.
26. Rosenberg A. 23may, 2014. Retrieved from www.statisticssolutions.com/rosenberg-self-esteem-scales/
27. Sen A. *Gender and Cooperative Conflicts, Persistent Inequalities*, Tinker, I. (ed.) Oxford University Press New Delhi, 1990.
28. Sen, A. The Many Faces of Gender Inequality, Retrieved from <http://prof.chicanas.com/readings/SenInequality.pdf>. 2001.
29. Tisdell, C. Gender inequality in India: evidence from a rural survey in West Bengal *Social Economics Policy and Development*, Working Paper, 13, 2000.

Customer online shopping behaviour with the help of Unified Theory of Acceptance and Use Technology (UTAUT) framework

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ABSTRACT: Online shopping is also growing tremendously, as Internet is becoming more widely used. As many businesses are attempting to globalize their sales, Internet becomes the primary means of advertising and selling their products or services worldwide. Many businesses are creating web pages in addition to their retail stores, and many start their businesses with online stores alone. Online store is one of the remote shopping method that consumers are using nowadays, on top of phone orders, mailing, etc. There are so many factors that contribute to customer satisfaction when they are shopping through online.

The purpose of this study is to analyze factors affecting on online shopping behaviour of consumers that might be one of the most important issues of e-commerce and marketing field. However, this is very limited knowledge about online consumer behaviour because it is a complicated socio-technical phenomenon and involves too many factors. Over the last decade maximum business organizations are running with technological change. Online shopping or marketing is the use of technology for better marketing performance. The population selected for the research is kolkata, and the sample size selected for this research is 100 and we have used convenience sampling technique. A series of exploratory and confirmatory factor analyses were used to assess the research constructs, validity, and composite reliability (CR). Structural Equation Model (SEM) also used to test the proposed research model and hypotheses.

Keywords: Internet, online shopping, webpages, factors affecting, use of technology

1. Introduction

Various theoretical models have been used to explain and predict user acceptance of information and communication technology (ICT). The most representative of these models are the technology acceptance model (TAM; Im, Kim, & Han, 2008; Lee, Kozar, & Larsen, 2003; Lucas & Spittler, 1999; Venkatesh & Davis, 2000), and, most recently, the unified theory of acceptance and use of technology (UTAUT; Venkatesh, Morris, Davis, & Davis, 2003). UTAUT is an extended TAM in which the eight prominent theoretical models are integrated; namely, theory of reasoned action (TRA; Davis, Bagozzi, & Warshaw, 1989), theory of planned behavior (TPB; Mathieson, 1991), model of PC utilization (MPCU; Thompson, Higgins, & Howell, 1991), motivation model (MM; Davis, Bagozzi, & Warshaw, 1992), combined TAM and TPB (Taylor & Todd, 1995), innovation diffusion theory (IDT; Moore & Benbasat, 1991), and social cognitive theory (SCT; Compeau & Higgins, 1995). Although the TAM has been found to explain approximately 40% of the variance in user

acceptance of ICT (Al-Gahtani, Hubona, & Wang, 2007; Lee et al., 2003; Sun & Zhang, 2006), the UTAUT (Venkatesh et al., 2003) has been found to provide an explanation for as much as 70% of intention to use ICT (Anderson, Schwager, & Kerns, 2006; Bandyopadhyay & Fraccastoro, 2007; Venkatesh et al., 2003). Since the UTAUT was proposed in 2003, the focus in studies about the UTAUT has been on validation, extension through addition of new external variables, and combination with other theoretical models along with respecification of the causal relationships of those other models with key UTAUT variables. The variables trust and perceived risk were overlooked in the original UTAUT (Im et al., 2008) and researchers have paid particular attention to studies that have incorporated these variables. Researchers have shown that trust and perceived risk are critical factors in explaining users' acceptance of ICT in the e-business environment (Featherman & Pavlou, 2003). However, to date, rather than empirical testing in field studies, attempts to integrate trust and perceived risk into the UTAUT have been limited to proposals related to conceptual frameworks (Cody-Allen & Kishore, 2006; Guo & Barnes, 2007) or validation of certain aspects of their causal relationships (McLeod, Pippin, & Mason, 2008; Schaupp, Carter, & McBride, 2010; Shin, 2009). On the other hand, over the past 20 years, researchers (Lui & Jamieson, 2003; Pavlou, 2003; Thiesse, 2007) have empirically and rigorously explored the impacts of trust and perceived risk on the key constructs of TAM.

Our research primarily focuses on popularity of online shopping platforms amongst Urban & semi urban masses. To achieve this objective we are visit Technology Acceptance Model (TAM) as proposed by Fred Davis in the year 1986.

Our research primarily focuses on the popularity of online shopping platform like flipkart ,Amazon , snapdeal etc.

Literature Review

Predicting technology adoption A number of models have been developed to help explain processes of consumer adoption of new technologies. TAM and UTAUT are probably the most widely applied and validated models evident in many empirical studies of consumers' uptake of new technologies (Kim, Mirusmonov, & Lee, 2010; Liu, Huang, & Chiou, 2011). In particular, these models have been extended to various contexts involving the acceptance of e-commerce (Koufaris,2002) and mobile commerce (Koivumaki, Ristola, & Kesti, 2006). Innovation Diffusion Theory emphasizes innovation as an agent of behavior change with innovation being defined as 'an idea, practice, or object perceived as new' (Rogers, 2003, p. 12). According to Innovation Diffusion Theory, the adoption rate of a new technology depends on its perceived relative advantage, compatibility, complexity, trialability and observability (Rogers, 2003). However, only relative advantage, complexity and compatibility have been consistently identified as key indicators of adoption in previous research (Agarwal & Prasa, 1998; Lee, McGoldrick, Keeling, & Doherty, 2003). In addition, there is a substantial overlap between the TAM constructs of perceived usefulness perceived ease of use and the Innovation Diffusion Theory constructs of relative advantage and complexity, and it has been proposed that these may be used interchangeably (Venkatesh, Morris, Davis, & Davis,2003). Several studies have thus adopted only some of these attributes, for example compatibility, into other frameworks, such as TAM (Koenig-Lewis, Palmer, & Moll, 2010; Schierz et al., 2010).

If modified appropriately, TAM and UTAUT may provide a good theoretical foundation for understanding m-payment adoption (Shin, 2009), as they go beyond the technology aspect and focus on social and individual factors that influence consumers' decision The Service Industries Journal 539 process. For example, TAM can be extended by considering relevant factors, for example, antecedents or moderators of both perceived usefulness and perceived ease of use (Eze, Gan, Ademu, & Tella, 2008). TAM and UTAUT therefore appear to fit the purpose of the current research, as other frameworks tend to focus on different levels of analysis or different topics of emphasis (e.g. diffusion mechanisms – Shin, 2009) and thus show a relatively limited scope for discussion. TAM is an adaptation of the Theory of Reasoned Action, which suggests that behaviour is a direct consequence of behavioral intention (Fishbein & Ajzen, 1975). According to TAM, behavioral intention is influenced by a user's attitudes toward a product or a new technology; this attitude in turn is affected by its perceived usefulness and ease of use (Davis, Bagozzi, & Warshaw, 1989). Research has suggested that perceived usefulness is a significant predictor of acceptance of mobile services (Koivumaki et al., 2006). One criticism of TAM is that intention to use a new technology, rather than actual use, is the principal outcome variable. Intentions mirror the motivational factors that affect users' behaviour and thus it will lead us to understand how willing users are to commit to a behaviour (Ajzen, 1991), meaning that the stronger one's intention to engage in a behavior, the more likely he or she will actually do it. It is suggested that TAM typically explains approximately 40% of variance in usage intentions and behavior (Venkatesh & Davis, 2000). After years of 'confusion and chaos' (Benbasat & Barki, 2007), Venkatesh, Morris, Davis, and Davis (2003) conducted an extensive review of the user acceptance literature. To maintain relatively consistent explanatory power, the researchers took a unified view incorporating consistent attributes from eight prominent theories. From this, they proposed the UTAUT model with four constructs – performance expectancy, effort expectancy, social influence and facilitating conditions. These constructs are suggested to be direct antecedents of behavioral intention and ultimately behavior. Also, they can be moderated by gender, age, experience and voluntariness. It should be noted that the original UTAUT model was developed to predict adoption and use of technology in an organizational context and therefore some factors in relation to consumer adoption processes were not included in this model. Thus, UTAUT2 was developed and three constructs – hedonic motivation, price/value and habit – were added to the original UTAUT making it more relevant to consumer contexts. UTAUT2 claims superior predictive ability compared to TAM with the direct effects model explaining 44% of the variance in behavioral intention and 35% in technology use (Venkatesh, Thong, & Xu, 2012).

A few studies have employed UTAUT to investigate m-payment adoption and found the model useful (Chen & Chang, 2013; Shin, 2009, 2010; Wang & Yi, 2012). Chen and Chang (2013) identified a positive significant link between performance expectancy and social influence on attitude toward use of Near Field Communication technology. In addition, they found that anxiety is a negative indicator of attitude. Whilst their study adopted the UTAUT model, a shortcoming was a focus on the antecedents of attitudes rather than behavioral intention or usage. The key drivers of consumer acceptance of mobile wallets were explored by Shin (2009) in their study of 296 experienced users.

Shin's study extended UTAUT and found consistent with prior research that security and trust are the main predictors of behavioural intention. In addition, social influence had a strong influence on intention, suggesting the opinion of peers plays a significant role in the acceptance of mobile wallet services. In the context of m-payment, Shin (2010) confirmed the main predictors of intention – perceived risk and trust. However, social influence did not have a direct relationship with behavioural intention, but a moderating effect on perceived

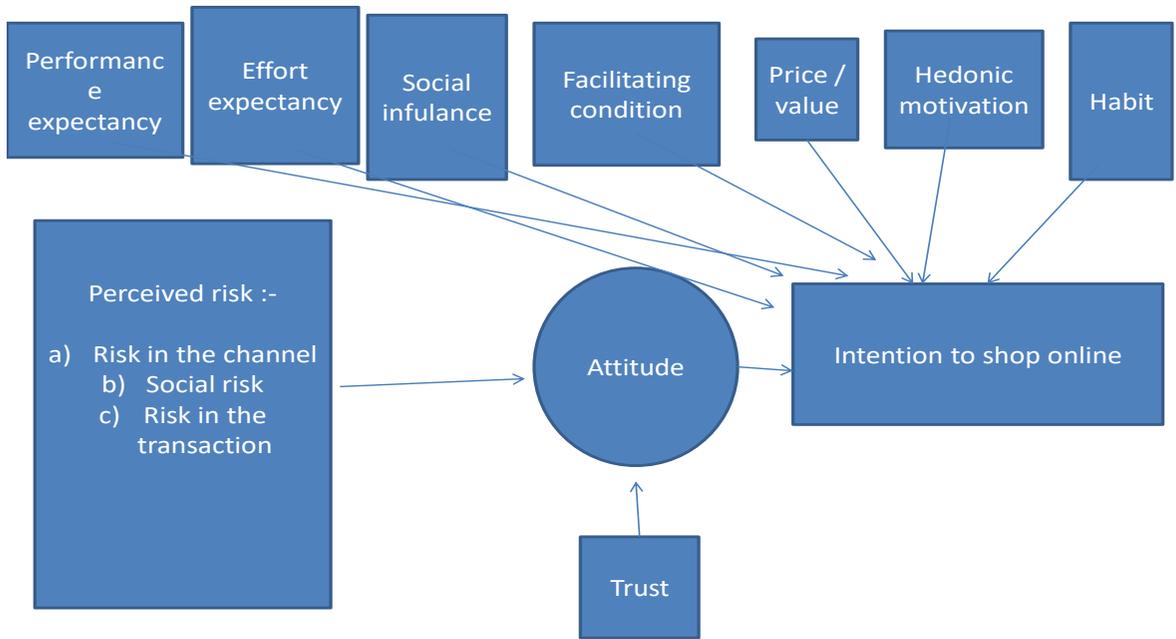
risk. Similarly, no significant relationship between social influence and intention has been found by Wang and Yi (2012) in their study of m-payment usage based on the 540 N. Koenig-Lewis et al. UTAUT model, though they identified a non-significant influence of perceived risk on behavioural intention. In line with previous studies, the results indicated that performance expectancy and effort expectancy were the key determinants of m-payment adoption (Wang & Yi, 2012). The empirical findings above regarding the role of perceived risk and social influence in the context of m-payment provide conflicting results. Our study thus provides further replication. Studies adopting the more recent UTAUT2 are still very limited. We advance theory by empirically testing an extended UTAUT2 model in the context of m-payment adoption. In the following discussion, we will scrutinize this further by focusing on five constructs (i.e. perceived ease of use, perceived usefulness, perceived enjoyment, social influence and knowledge) as foundations of UTAUT2. Perceived price/value and habit were excluded as these are less applicable in the m-payments context which usually causes no or very little additional financial cost to users, and habit as m-payment services are not yet well established in the markets studied. Furthermore, perceived risk was incorporated in our framework. By examining not only the direct effects on m- payment adoption but also the relationships between these antecedents, our paper contributes to the understanding of these factors, which have been largely neglected in previous studies.

Research Objectives:- This paper is basically working paper & not a final research paper. Our research primarily focuses on the popularity of online shopping platform like flipkart ,Amazon , snapdeal etc. Though TAM is the most cited model to understand buyers' intention to adopt new or latest innovative technologies & its actual usage. Keeping in mind we have broad objectives :-

- To determine the intention of consumers' towards online shopping.
- To identify the major constructs on factors that influences consumers' intention towards online shopping
- To identify & analyze appropriate segmentation of online shopping users based on demographics as moderating variables.
- To examine the role of Attitude & Trust as a mediating variable influencing buyers' intention.
- To compare consumers' inclination towards dedicated generic online shopping sites vis - a - vis online mega stores.

Conceptual or Proposed Model

Our Conceptual or proposed model is based on modified UTAUT 2 in the year 2012. New constructs which we have included i.e., Trust , This , we have added based on content analysis through extensive literature review .



Proposed Model

Constructs Are Proposed in Research Model

- **Performance expectancy:-** Is the degree to which an individual believes that using the system will help him or her to attain gains in job performance [online shopping will make it easier , useful , enable for me]
- **Effort expectancy:-** Is the degree of easy associated with the use of the system. [easy to use , minimum effort]
- **Social influence:-** Is the degree to which an individual perceives that important others believe he /she should use the new system [my colleagues / friends support me to shop online]
- **Facilitating conditions:-** Degree to which an individual believes that an organizational & technical infrastructure exists to support use of the system. [technical infrastructure support , online shopping website]
- **Price:-** consumers have to bear the costs associated with the purchase of devices & services. [price value as a predictor of behavioural intention to use a technology]
- **Hedonic motivation:-** it is defined as the fun or pleasure derived from using a technology. [perceived enjoyment]
- **Habit:-** it is a perceptual construct that reflects the results of prior experience.

Source:- [Venkatesh et.al ,2012]

- **Perceived risk :-** Perceived risk is defined as the uncertainty faced by consumers when they are unable to predict the results of their online transaction activities

source :- (Lu, Cao, Wang, & Yang, 2010).

Trust : trust implies the degree to which one can believe and rely upon promises made by others.

Research Instrument

We are in the process of pilot testing results to establish the validity of the questionnaire & reliability of the respondents . We have obtained 7 point Likert scale . Responses from 50 individuals who have participated in this survey.

I ,now welcome constructive criticism from house to give me feedback. So . I can further improve my research work.

We are using reflective scale not a formative scale. We intend to obtain responses from 300 to 400 respondents. This paper is basically working paper & not a final research paper. Our research primarily focuses on the popularity of online shopping platform like flipkart ,Amazon ,snapdeal etc.

Data Analysis

In the present study I have used structural equation modeling (SEM) as one of the analytical tools. SEM is the statistical technique to tests the relationships among a set of measured (observed) variables and latent (unobserved) variables. SEM has become very popular in the field of psychology to analyze the psychological factors which cannot be measured directly otherwise. SEM allows for representing, estimating and specifications of relationships between measured variables and latent constructs. In SEM, causal processes are represented by a series of structural equations that can be modeled graphically to aid in conceptualizing a theoretical framework (Byrne, 2001) Unless the measuring instrument is proper & accurate, results so obtained will not reflect the correct picture. Therefore , we have devoted significant time to develop the research Questionnaire which is the measuring instrument.

Exploratory Factor Analysis

Then, the supposition test of sphericity was conducted by the Bartlett test (H_0 : All correlation coefficients are not quite far from zero) is rejected on a level of statistical significance $p < 0.0005$ for Approx. Chi-Square=8624.031. (shown in Table 5.29)

Table 5: KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.743
Bartlett's Test of Sphericity	Approx. Chi-Square	435.113
	df	36
	Sig.	.000

Source: calculated through SPSS 21

I have also conducted the Kaiser-Meyer-Olkin (KMO) measure of sampling adequacy and Bartlett’s test of sphericity. To ascertain if the subscales were suitable for factor analysis, two statistical tests were used. The first being the Bartlett Test of Sphericity, in which it is examined if the subscales of the scale are inter-independent, and the latter is the criterion KMO (Kaiser-Meyer Olkin Measure of Sampling Adequacy, KMO) (Kaiser, 1974)¹³, which examines sample sufficiency. The KMO measure of sampling adequacy results in .743 i.e. greater than .05 which was supported by the Bartlett’s test of sphericity with 36 degrees of freedom. The adequacy indicator of the sample $KMO = 0.743 > 0.70$ (shown in Table 5.29) indicated that the sample data is suitable for the undergoing of factor analysis. The control of sphericity (Bartlett’s sign < 0.001) proved that the principal component analysis has a sense. Through this analysis, data grouping was based on the inter-correlation with the aim of imprinting those factors which describe completely and with clarity the participants’ attitudes towards the research subject. Consequently, the coefficients are not all zero, so that the second acceptance of factor analysis is satisfied. As a result, both acceptances for the conduct of factor analysis are satisfied and we can proceed to it.

Then a Principal components analysis with Varimax Rotation produces the dimension of differentiation was used in order to confirm or not the scale constructs validity. The main method of extracting factors is the analysis on main components with right-angled rotation of varimax type (Right-angled Rotation of Maximum Fluctuation), so that the variance between variable loads be maximized, on a specific factor, having as a final result little loads become less and big loads become bigger, and finally, those with in between values are minimized (Hair et al., 2005)¹⁴. The following factors were found from the factor analysis.

¹³Kaiser, H. F. (1974). An index of factorial simplicity. *Psychometrika*, 39(1), 31-36.

¹⁴Hair, F. J., Black C. W., Badin, N. J., Anderson, E. R., Tatham, R. L. (2005). *Multivariate Data Analysis*. New Jersey, Pearson Education Inc.

Results of Factor Analysis for the first Construct

For factor analysis I have used Principal Component Analysis with 4 components consisting of 10 variables and also Varimax Rotation Method and finally they were extracted into 3 factors which explain near about 68.945% of the total variance. (Shown in Table 6 and 7)

Rotated Component Matrix ^a			
	Component		
	Innovation	Assurance	convenience
Ease of Comparison/Discounted Offers	.854		
Inclination towards trying something new	.813		
can find products which are not available in the stores	.797		
no need to deal with the sales people		.855	
Ease of finding products		.694	
assurance of on-time delivery	.568	.678	
Convenience			-.712
Known or famous brand name			.608
ease of product return and money refund			.584
Extraction Method: Principal Component Analysis. Rotation Method: Varimax with Kaiser Normalization.			
a. Rotation converged in 6 iterations.			

Total Variance Explained									
Component	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	3.879	43.104	43.104	3.879	43.104	43.104	2.714	30.154	30.154
2	1.205	13.384	56.489	1.205	13.384	56.489	2.142	23.805	53.959
3	1.121	12.456	68.945	1.121	12.456	68.945	1.349	14.986	68.945
4	.781	8.673	77.618						
5	.696	7.733	85.351						
6	.513	5.705	91.057						
7	.470	5.219	96.276						
8	.172	1.917	98.193						
9	.163	1.807	100.000						

Extraction Method: Principal Component Analysis.

Results of Factor Analysis

In the factor analysis only 4 factors were considered important –

1. **First factor** include the variables named ‘Ease of Comparison/Discounted Offers’, ‘Inclination towards trying something new’, ‘can find products which are not available in the stores’. So **the factor was termed as “Innovation”**.
2. Within **Factor 2** important variables were, ‘no need to deal with the sales people’, ‘Ease of finding products’ and ‘assurance of on-time delivery’. **The factor can be termed as “Assurance”**.
3. In **Factor 3** important variable was, ‘I Known or famous brand name’ and ‘ease of product return and money refund’. Hence **the factor can be termed as “Convenience”**.

So after the above factor analysis, the following factors were found as pertinent and important – **Innovation, Assurance and Convenience**.

CONCLUSION

UTAUT has served as the theoretical background in this study. The intent was to place the UTAUT theory in an online shopping context using three dimensions of perceived risk (i.e. channel risk, social risk, and transaction risks) and the precursors of trust as independent variables affecting the attitude and intent to use online shopping. It was established that the expected performance strongly drove the intention to shop online. This endorsed the UTAUT model that links expected performance to intent to shop online. The consumers' satisfaction was heightened by timely delivery as they continued to shop online. This confirmed the relationship between Internet users' perception of online shopping advantages and their intent to continue online shopping in Kolkata.

The vital influence of attitude toward shopping for products and services online strongly impacted such an intention. This is logical since with strong positive feelings, Internet users will be more intention to purchase through online shopping.

Overall, this study has augmented existing literature by showing that various beliefs and motives may affect the attitude and intent to shop online.

We hope that the results of this study will provide insights for future research.

BIBLIOGRAPHY :

1. Arun Thamizhvanan, MJ Xavier. "Determinants of Customers' Online Purchase intention: an empirical study in India", *Journal of Indian Business Research*. 2012; 5(1):17-32.
2. Banerjee N, Dutta. A, Dasgupta T. "A Study on Customers' Attitude Towards Online Shopping – An Indian perspective". *Indian Journal of Marketing*. 2010; 40(11):43-52.
3. Chiang KP, Dholakia RR. "Factors Driving Consumer Intention to Shop Online: An Empirical Investigation." *Journal of Consumer Psychology*. 2003; 13(1-2):177-183.
4. Jayawardhena C, Wright LT, Dennis C. "Consumers Online : Intentions, Orientations & Segmentation" *International Journal of Retail & Distribution Management*. 2007; 35(6):515-526, DOI:10.1108/09590550710750377.
5. Kim JI, Lee HC, Kim HJ. "Factors Affecting Online Search Intention and Online Purchase Intention." *Seoul Journal of Business*. 2004; 10(2):28-29.
6. Marianne Horppu, Olli Kuivalainen, Anssi Tarkiainen, Hanna-Kaisa Ellonen. "Online Satisfaction, Trust and Loyalty, and The Impact of the Offline Parent Brand ". *Journal of Product & Brand Management*. 2008; 17/6:403-413.
7. Monsuwe TPY, Dellaert BGC, Ruyter KD. "What Drives Consumers to Shop Online? A Literature Review." *International Journal of Service Industry Management*. 2004; 15(1):102-121. DOI:10.1108/09564230410523358.
8. Mrs. Pallavi Kumara. *Changing Purchase Behaviour Of Indian Customers*. A *Journal of economics and management*. 2012; 1(8):69-73.
9. Murugaiah V, Vishvas R. "Women & Shopping An Empirical Study of Bangalore City." *Indian Journal of Marketing*. 2008; 38(7):47-55.
10. Namita Bhandari, Preethi Kaushal. *Online Consumer Behaviour : An Exploratory Study*. *Global Journal Of Commerce & Management Perspective*. 2013; 2(4):98-107.
11. Nielsen Global Online Survey on Internet Shopping Habits .2008, February 1. "Internet the New pit Stop for Indian Shoppers." Retrieved from <http://techdealzindia.wordpress.com/2008/04/14/nielsen-global-online-survey/>
12. Piyush Kumar Sinha, Arindam Banerjee. 2004, "Store Choice Behaviour in an Evolving Market", *International Journal of Retail & Distribution Management*, Vol. 32 Iss 10 pp. 482-494
13. Prasad JS, Aryasri AR. "Determinants of Shopper Behaviour in E-Tailing: An Empirical Analysis." *Paradigm*. 2009; 13(1):73.
14. Rajamma RK, Neele CR. "Antecedents to Shopping Online: A Shopping Preference Perspective." *Journal of Internet Commerce*. 2005; 4(1):63-78, DOI:10.1300/JI79v04n01_03.
15. Rao SA, Mehdi MM. "Online User Behaviour in Delhi A Factor Analysis." *Indian Journal of Marketing*. 2010; 40(7):21-29, 46.
16. Schimmel K. "Media Mix Elements that Motivate Online Shopping", *Journal of Website Promotion*. 2005; 1(1):53-63, DOI:10.1300/J238v01n01_05
17. Shalini S, Kamalaveni D. *Online Buying Behaviour of Netizens ,A Study with Reference to Coimbatore, Tamil Nadu*. *Indian Journal of marketing*, 2013; 10(3):35-45.
18. Soyoung Kim, Christie Jones. "Online Shopping and Moderating role of Offline Brand Trust". *Direct Marketing: An International Journal*. 2009; 3(4):282-300.

19. Susan Rose, Moira Clark, Phillip Samouel, Neil Hair. " Online Customer Experience in e- Retailing: An Empirical Model of Antecedents and Outcomes". *Journal of Retailing*. 2012; 88(2):308-322.
20. Tonita Pereay Monsuwe, Benedict GC, Dellaert, Ko de Ruyter. "What Drives Consumers to Shop Online ? A Literature Review", *International Journal of Service Industry Management*. 2004; 15(1):102-121.
21. Vijaysarathy LR."Shopping Orientations, Product Types & Internet Shopping Intentions." 2003. *Electronic Markets*,13(1),67-79,DOI:10.1080/1019678032000039903.

Employer Branding Leveraging Digital Forces for Enabling Gen Y in ITeS Sector in India – A Contemporary Study

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ABSTRACT: *In the present time, the nature of work is confronted with many challenges for staffing: knowledge-based high performance work places (e.g. Information Technology enabled services) while, greater demands on employee competencies, diverse workforce and growing global shortfalls of talented applicants (Konig, C. 2008.). In today's digital economy, where the modern business world (Known to be Business 4.0) is shaped and reshaped by digital five forces Viz. Social Media, Mobile (Including Gamification), Analytics, Cloud computing and Robotic Automation at Work Place. These Digital Platforms brings a sweeping change by helping re-imagine how the 21st century business processes operate and interacts with its different stakeholders especially with its customers and employees. The purpose of this paper is to examine how in today's economy such forces of digital world play the role for continuous promoting of strong Employer Branding as a Human Resources Management tool as to attract and retain top talents for ensuring high performance. The study mainly covers the ITeS sectors in India. The thought has been analyzed by the help of primary data analysis through random sample survey to know the status of the employer branding concept in India and its effectiveness in the organization.*

Keywords: *Employer Branding, Digital Economy, High Performance, ITeS sector, Gen Y.*

1. Introduction

The concept of the “employer branding” was coined in 1996. Since then, companies operating in all industry sectors have embarked on the development and strategic management of their images in order to make it more appealing to actual and potential employees. In the long run, the employer brand brings additional benefits, as it also enhances the product brand. The primary cause behind the emergence of this concept is the necessity to attract and retain the best and the most talented human capital. **(Carrington, 2007).**

The issue of recruiting and retaining talented staff became prominent because of several factors. The significance of human capital for each company has become widely recognized. The companies rely on intellectual assets more than on hard assets. **(Aslam et al., 2015; Moroko & Uncles, 2009),**

Manpower Group's 2013 Talent Shortage Survey reveals that 35% of employer's report difficulty in filling jobs due to a lack of available talent the biggest shortage since the start of the global recession (Manpower Group Survey 2013).

The **employer branding** is focused on *building the brand name of the employer as a great place to work in the job market.* It is focused on developing the positive relationship with existing as well as prospective employee groups. A strong employer brand should be aligned with the organization's vision and values, strategy and culture, becoming a critical factor in creating employee engagement. This engagement has a strong impact on increasing motivation, loyalty, performance and retention of employees, with a strong impact on long lasting people competitive advantage **(Arachchige, B. J., & Robertson, A. 2011, Backhaus, K., & Tikoo, S. 2004).**

Increasing number of GenY in the workforce (born in between the years 1980 to 1999 AD) presents new challenges for employers and is causing many businesses to re-think their working practices. One key factor that differentiates GenY is that they have grown up in the age of information technology and Social Media which environment has shaped the way they view the world, including their expectations of the workplace **(Kapoor and Solomon 2011).**

Indian Information Technology (IT) Industry changed the economic landscape of India over the last quarter of century. The industry's revenues grew from USD 100 million in Financial Year 1992 to USD 147 billion in 2015. In 2005, the industry serviced 3.3% of global IT market, serving nearly half of all Fortune 500 companies **(Bhatnagar, 2006).**

In 2015, it constituted 9% of India's Gross Domestic Product (GDP) and a quarter of total exports and provides direct employment to about 3 million people and more than 10 million in indirect employment **(Mittal, 2015),**

Relevance of the Study

Presently the ITeS business in its 4th revolution (Business 4.0) is shaped and reshaped by digital forces such as 1. Social Media, 2.Mobile, 3.Analytics, 4.Cloud etc. (SMAC) at Work Place. Such SMAC Digital Platforms that brings a sweeping change by helping re-imagine how the modern business processes operates and interacts with its different stakeholders especially with its customers and employees.

The sustainability of competitive advantage of the IT & ITeS industry in these changing times are driven by the factors specially the low cost high skilled English speaking that contributed to the fast growth of the industry thus far, good enough to provide the leading edge. Today ITeS firms have not just competition for customers but also for attracting and retaining the quality people and the best way to combat this situation is by having a clear, identifiable employer brand and communicating it in the marketplace to be the employer of choice which is the theme of this contemporary study.

Literature Review

Employer branding presents a strategic framework consisting of both human resource management and marketing (**Biswas & Suar, 2014****Ambler & Barrow, 1996;**). Job seekers differentiate companies on the basis of their employer brands and thus, having a well-developed brand is a competitive advantage. It strongly impacts career intentions of job applicants (**Rampl, 2014, , Backhaus, 2004****Turban & Greening, 1997**).

Companies with a stronger employer brand image can frequently attract and retain better talents while offering less compensation than their competitors who are either less or without a developed employer brand to employees with equal qualifications and skills. The reason is that the fresh graduates and post graduates aspire to work in a company that represents a particular perceptual values to them (**Malden, MA: Blackwell. Edwards, M. R. 2009**).

In contemporary business 4.0 context, it is challenging to attract and retain loyal and dedicated employees, where a strong employer brand building on digital platform serves as a key factor to ensure better performance at a lower operating cost. Thus the organizational investment on employer branding yields high returns. (**J. L., Westhoff, J. J. C., Meeusen, K., & Schoonderbeek, J.-W.2013**).

Strategies of employer branding are both externally and internally oriented, as the image of a company as a desirable employer is promoted within and outside the company. Branding strategy also focuses on the recruitment messages in order to attract the job seekers who appropriately fit the company's needs, vision, mission, priorities and image (**Biswas & Suar, 2014, Backhaus and Tikoo, 2004**)

On the other hand, the increasing presence of GenY in the workforce presents new challenges for employers and is causing many businesses to re-think their working practices (**Kapoor and Solomon 2011**).

Bearing in mind these complexities and in reviewing research pertaining to GenY, the following are the main GenY characteristics:

- **Digital immersion:** GenY subjects are technologically advanced especially in content creation and engaged interaction (Kapoor and Solomon 2011).
- **Work/life balance:** GenY value and seek work/life balance (Kapoor et al 2011; Broad bridge et al 2009).
- **Formalized procedures:** GenY prefer formalized procedures, systems and structures (Hershatter et 2010).
- **Continuous Feedback:** GenY seek approval and affirmation. They need prompt and continuous feedback (Kapoor and Solomon 2011).
- **Affiliation or social values:** GenY seek less formal interaction with managers but more with peers and friends (Kapoor and Solomon 2011).
- **Developmental opportunities:** GenY seek opportunities for development and prefer varied work (Ng, Schweitzer, and Lyons 2010; Kowske, Rasch, and Wiley 2010).
- **Equality and Diversity:** GenY value and seek equality, fairness and tolerance in the workplace (Broad bridge, Maxwell, and Ogden 2009; Ng, Schweitzer, and Lyons 2010).
- Finally, Social Media, is at the heart of modern communication technologies specially used by Gen Y.

Potential Impacts of a Strong Digital Employer Branding for ITeS Organization-

In today's world many a professional sector is investing heavily on hiring and retaining quality talents being engaged inside the organization at a rationalized cost and enshrined into the values and culture of the said

organization since such quality hires and retentions decides on the quality of customer services and experiences that differentiate one firm from others. IT/ITeS companies, software exporting firms are examples of companies that are spending millions of dollars for building themselves as every aspirant's choice through effective communication of the idea that the specific company is an excellent employment brand. The brand managers focus on two key power message 1. The compelling differentiator of working in the company and 2.excellent amplified real story sharing basis trustworthy and believable information sharing. Here the social media on digital platform plays the key role e.g. Googles new Employment Branding strategy includes Social Medis on digital platform such as Facebook, Twitter, You Tube and Linked in, to actively engage, impress and inspire potential talents consistently which are reachable anytime and anywhere.

Thus potential impacts of employer branding leveraging social media may be summarized as below: -

1. Least Lead-time to Hire (LTH)
2. Reduced Cost Per Hire (CPH)
3. Communicating Company Culture
4. Revenue Growth:
5. Quality of Hire & Retention

Research questions & Scope

In the present research we are going to examine the different external and internal factors of employer branding help to attract the Gen Y for showing their interest in terms of job offered by the organization and attraction towards organization for applying new jobs. This is especially in the areas of IT &ITeS industries in India. The study will also help to identify the factors which are more effective in developing employer branding for the generation Y who are deciding to settle their carriers in this industries.

Research Methodology

The present research is an attempt taken by the researcher to find out the important components of employer branding may attract to the new generation for showing their interest to join in the ITeS sectors and their level of understanding. Which may the causes of the industry for recruiting more skilled workforce? In this context the present study is experimental in nature and data have been collected through structured Interview through direct questionnaire. The respondents of the study are the young graduates and post graduates of different general degree colleges and professional institutions of West Bengal, Jharkhand and Odisha who expressed their interests to join ITeS Sector. Random sampling method has been followed for collection of responses.

Total 410 responses have been collected from Gen Y students who are UG / PG fresher or in Final Year of their study however 303 data have been considered basis reliability of sample to represent the group for the final analysis. In the analysis, we have followed Demography to Response Cross Tab, chi-square test and Multivariate factor analysis to find out the real scenario of the research.

Analysis of the data

Reliability Statistics	
Cronbach's Alpha	N of Items
0.798	31

We can see that Cronbach's alpha is **0.798**, which indicates a high level of internal consistency for our scale with this specific sample.

Demographic design of the respondents

As mentioned there are total 303 samples collected through direct survey of final year graduates and PG students being the prospective Gen Y employees for ITeS organization, there are 84.5 % of respondents are in the age bracket of 22 years while 14.2% of them are between 22 to 26 years of age comprising of 98.7% of total survey.

Percent wise Analysis of Demography Responses towards Key Elements of Employer Branding, the data shows that 49.5 % of respondents feel Brand Visibility is important while another 43% feels it is very

important to extremely important. It speaks about brand loyalty where 36.3% feels it's very important followed by 30.7% as important.

Table No. 1: Access to Smart Digital Device for Practicing Social Media

Smart Phone/PC /Digital Access	Frequency	Percent
NO	17	5.6
YES	286	94.4
Total	303	100.0

Table 1 above depicts of the surveyed population 94.4 % have access to smart digital devices for practicing on social media and the major sites surfed on regular basis are Linked In , Face Book, YouTube and this includes job sites such as Times Job, Monster.com, Naukri.com etc

The present data analyze the Final Opinion on Digital Employer Branding. It takes us to the conclusive answer that barring 1.3 % of respondents who feels digital employer branding is not important rest 98.7% feels it's either important, very important or extremely important and 98% of the respondents agrees that Social Media and other digital platforms are important to very important to extremely important for effective communication on employer branding to reach the appropriate future employees and hence to be part and parcel of digital communication strategy for ITeS organizations.

Table No. 2: Chi-square test of significance between age and digital platform through social & smart mobile

	Response measured	Age			Total	Chi- square
		18 - 22 Years	22 to 26 Years	27 Years & more		
Digital platform through social & smart mobile	Not so important	2.3%	0.0%	0.0%	2.0%	Non significant at 0.05 level
	Important	7.0%	7.0%	0.0%	6.9%	
	Very Important	43.4%	51.2%	75.0%	44.9%	
	Extremely Important	47.3%	41.9%	25.0%	46.2%	

In the table- 2 we are trying to find out the relationship age groups wise importance of Social Media as a tool for effective employer branding communication, Highest percentage of opinion recorded 46.2 % as extremely important followed by 44.9% as very important which indicates that there is very strong agreement (in terms of percentage of important and extremely important) of digital media in connection with employees brand. But the chi-square result indicates that there is no association between different age group of respondents and digital platform through social and smart mobile. P value is 0.767 at 6 degree of freedom which is higher than 0.05 at 95 % confidence level. That is changing the different platform of digital communication does not make impact to change the mindset of the responses.

Table No. 3: Relationship between Gender and the role digital Media for effective communication of Employees Brand

	Response measured	Gender		Chi square
		FEMALE	MALE	
Social media, smart mobile etc. as digital platforms for effective communication of Employees Brand to reach appropriate audience	Not so important	2.1%	1.9%	Non significant at 0.05 level
	Important	6.2%	7.6%	
	Very Important	49.7%	40.5%	
	Extremely Important	42.1%	50.0%	

In the table- 3, we are trying to find out the relationship between gender and role of digital media as a communication of employees brand. Highest percentage of opinion recorded (very important- male-49.7% and female 40%, extremely important male- 42.1% and 50% female) that there is very strong agreement (in terms of percentage of important and extremely important) of digital media in connection with employees brand. But the chi result indicates that between male and female are not significantly associated because p value is greater than 0.05 at 95% level of confidence. It can be said that male and female graduates have different understanding towards the role of social media i.e changing the structure of digital media cannot change the opinion among male and female.

Table No. 4: Chi square test of significance between social media as a effective communication tools and educational attainment of respondents

	Response measured	Educational Attainment			Total	Chi- square
		B COM	B.A.	B.SC	MBA	
Social media, smart mobile etc. as a platforms for effective communication of Employees Brand to reach appropriate audience	Not so important	0.0%	4.2%	1.6%	0.0%	.013 at df 9 Significant at 0.05 level
	Important	10.3%	4.2%	7.2%	0.0%	
	Very Important	33.3%	59.4%	41.6%	25.0%	
	Extremely Important	56.4%	32.3%	49.6%	75.0%	

In the Table 4, based on highest qualification of respondents having Pearson Chi square test p value at 95 % level of confidence, which are less than 0.05, implies significant difference in opinion across groups. In cross Tab analysis 3 it is evident that while 56.4 % B. Com graduates feel leveraging Social Media for building and communicating Employer Branding is extremely important only 32.3% BA graduates feel so. Again while 59.4% BA Graduates feel it is very important only 25% MBA graduates and 33.3% B. Com Graduates feel so.

Table No. 5: Chi square test of significance between social media as an effective communication tools and different region base of respondents

	Response measured	Region wise			Chi- square
		RURAL	SEMI URBAN	URBAN	
Digital Media for effective communication of Employees Brand to reach appropriate audience	Not so important	7.3%	1.5%	1.0%	0.001 at df 6 Highly significant at 0.05 level
	Important	2.4%	1.5%	9.6%	
	Very Important	48.8%	61.5%	38.6%	
	Extremely Important	41.5%	35.4%	50.8%	

On a similar note in Table 7, when 61.5% of Semi Urban respondents feel Social Media and other digital platforms are important to very important to extremely important for effective communication on employer branding to reach the appropriate future employees and hence to be integrated in the employer branding communication strategy for ITes organizations only 38.6% Urban respondents feel so.

However, despite this nominal difference in opinion amongst sub classification of demographics it has to be observed that only 2 % of respondents thinks digital Employer branding is not important leaving remaining 98 % in favor of it. Thus across demography endorses the fact Employer Branding for Visibility and attractiveness is immensely important and that they prefer Company intranet, Company Face book and social media to be leveraged for the purpose

Table No. 6: Multi Factor Relationship for determining the Underlying Themes of Employer Branding in ITes Sector

KMO and Bartlett's Test		
Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.679
Bartlett's Test of Sphericity	Approx. Chi-Square	5543.322
	df	465
	Sig.	0.000

Table No - 6A : Total Variance Explained

Component	Initial Eigen values			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	5.607	18.088	18.088	5.607	18.088	18.088	3.699	11.932	11.932
2	3.993	12.882	30.970	3.993	12.882	30.970	3.690	11.905	23.837
3	3.208	10.349	41.319	3.208	10.349	41.319	2.727	8.798	32.635
4	2.550	8.224	49.543	2.550	8.224	49.543	2.632	8.492	41.127
5	1.826	5.891	55.434	1.826	5.891	55.434	2.554	8.239	49.365
6	1.626	5.244	60.678	1.626	5.244	60.678	2.534	8.173	57.539
7	1.476	4.761	65.439	1.476	4.761	65.439	1.888	6.091	63.629
8	1.233	3.978	69.418	1.233	3.978	69.418	1.478	4.769	68.398
9	1.012	3.265	72.682	1.012	3.265	72.682	1.328	4.284	72.682

Extraction Method: Principal Component Analysis.

Multi variant Factor Analysis or Principal Component Analysis based on Eigen values as derived ≥ 1 , identifies 9 broad significant factors which suggests some important themes for designing Digital Employer Branding Strategy as depicted in Table 8- A & B. The 9 broad significant factors hold 73% of information and if we delete remaining components, we may loss 27 of information.

Table No - 7 : Rotated Component Matrix^a

	Principal Components of Digital Employer Branding								
	1. Company Financials	2. Employee Connects - Individual & Intranet	3. Digital Referral - Friends, Peers & Relatives	4. Equal Opportunity Employer	5 Learning Opportunity & Group Connects	6 Leveraging Social Media	7 Higher Study & Onsite Deputation	8 Compensation & Benefits	9 Promotion
Brand Visibility	0.659	0.527	0.004	0.030	-0.020	0.211	0.002	-0.059	-
Brand Loyalty	0.680	0.441	0.117	0.071	0.125	-0.023	-0.205	0.021	-
Brand Attractiveness	0.688	-0.241	0.061	0.160	0.146	0.049	0.278	-0.309	0.070

ven ess									
Rev enu e	0.728	0.315	0.155	0.028	-0.035	0.022	0.107	-0.027	- 0.1 13
Prof it	0.769	0.039	0.078	0.032	-0.005	-0.081	-0.150	0.210	0.0 49
Mar ket Capi taliz atio n	0.540	-0.316	-0.143	-0.064	0.240	-0.395	-0.210	0.030	- 0.0 08
Com pan y Intr anet	0.265	0.600	0.205	-0.032	0.013	0.360	-0.247	0.303	0.0 74
Com pan y Face boo k e.g. Kno me	0.221	0.312	0.185	0.059	-0.009	0.691	0.213	-0.035	0.1 11
Soci al Med ia	- 0.101	0.024	0.048	-0.192	0.232	0.717	0.025	0.242	0.2 46
Frie nds refe renc e	0.005	0.131	0.856	-0.213	-0.020	0.048	0.096	0.020	- 0.0 29
Rela tive s refe renc e	0.155	0.052	0.848	0.110	0.210	0.017	-0.040	0.142	0.1 16
Refe rred by Peer Gro up	0.160	0.040	0.573	-0.505	-0.094	0.152	0.242	-0.033	0.1 76
Digi tal Platf orm refe renc e e.g. FB/ Link ed in etc.	- 0.167	0.102	0.503	-0.586	-0.124	0.171	-0.091	0.119	0.1 45
Equ	-	0.077	0.081	0.788	0.039	0.071	-0.200	0.349	-

al Pay for Equ al Wor k	0.070								0.110
No Discrimination bas is Cast e, Creed and Religion	-0.230	0.310	-0.181	0.503	-0.128	0.266	0.263	0.033	0.005
Safe wor kpla ce acro ss cast e, creed & mp; religion	0.252	0.092	-0.168	0.730	0.011	-0.115	-0.004	-0.074	0.012
Sala ry	0.036	0.051	0.145	0.105	-0.129	0.091	0.111	0.840	0.073
Per quis ites	0.086	0.256	0.384	0.501	-0.402	0.141	0.081	-0.092	-0.220
Oth er Ben efits such as Hig her Stud y Lea ve, Trav el abro ad, Club Me mbe rshi p	-0.116	-0.144	0.074	-0.047	0.214	0.249	0.765	0.052	-0.049

etc									
Job Rotation	0.256	0.061	0.355	-0.088	-0.127	0.441	0.250	0.197	-0.154
Promotion	-0.087	-0.022	0.143	-0.157	0.085	0.121	0.008	0.056	0.865
Deputation Abroad	0.029	0.570	0.102	-0.031	0.005	-0.048	0.682	0.190	0.067
Web Based	-0.087	0.752	0.189	0.250	0.079	-0.042	0.003	-0.219	0.175
Class Room	-0.009	0.065	0.115	0.031	0.749	-0.371	0.100	-0.161	0.075
Workshops	0.100	0.107	-0.098	-0.053	0.814	0.175	0.055	0.143	-0.032
Town halls	0.021	0.014	0.069	-0.058	0.609	-0.028	0.443	-0.245	0.078
Group Connect	0.221	0.357	0.148	0.294	0.613	0.161	-0.161	-0.206	0.107
One on One	0.051	0.789	0.063	-0.019	0.040	-0.033	0.147	0.107	-0.241
Client Facing	0.340	0.700	-0.071	0.162	0.254	0.049	-0.092	0.064	0.033
Interaction with Top Executives	0.218	0.339	0.097	-0.077	0.109	-0.566	0.001	0.090	0.056
Exposure to Board / CEO /COO	0.409	-0.075	-0.212	-0.076	0.126	-0.486	0.014	0.044	0.412

Extraction Method: Principal Component Analysis.
 Rotation Method: Varimax with Kaiser Normalization.
 a. Rotation converged in 28 iterations.

Table 9 elaborates on the 9 (Nine) Principal Factors in their order of priority for designing the digital employer branding strategy by ITeS organizations in India are explained here: -

Priority Factor 1: Building Brand Visibility through highlighting Company Financials such as sharing true facts about Revenue, Profit, Market Capitalization, disclosure about Board of Directors etc. which is of importance in the highest degree;

Priority Factor 2: Building Brand Loyalty through Employee Connects by means of One on One and through leveraging company intranet platforms

Priority Factor 3: Building Brand through promoting Employee referrals by Relatives, Friends and Peers for new hires leveraging Company Intranet and Social Media;

Priority Factor 4: Making it a most desirable workplace through sharing facts about practice equality at workplace in terms of compensation and other benefits and encouragement towards Diversity & Inclusion;

Priority Factor 5: Building Brand by facilitating learning opportunities by building Web based learning platforms followed by Instructor laid training for employee talent development for future growth

Priority Factor 6: Making it an Employer of choice leveraging Social Media Platform for digital employer branding by promoting the company culture that promotes social affiliation and work life balance

Priority Factor 7: Promoting Brand Loyalty by providing sponsored higher education for employees and onsite posting opportunities

Priority Factor 8: Compensation Packages and other employee Benefits has been identified as a single component driven significant factor that drives digital employer branding

Priority Factor 9: Scope of Promotion during employment comes as the last priority factor considering the mind set of this generation leading to short shelve life of employment for an employer by Gen Y

Three components Viz, Job Rotation, Interaction with Top Executives like CEO, COO etc. and connect to Board of Directors are proved to be insignificant for Digital Employer Branding.

In light of the above analysis on it is possible to hypothesize on how Social Media can be utilized to attract Gen Y in ITeS organizations for superior performances. Further we believe the above study will throw light on a new conceptual model of the framework for digital employer branding for ITeS companies in India.

Study limitations

The primary goal of our study was to propose an adequate conceptual framework of employer branding by identifying its main components and their mutual inter relationships. Therefore, it did not address any specific, precise practices and strategies for the implementation. It is an issue that should be scrutinized in future research. Also the assessment of the employer brand outcomes was done according to the potential employee's perceptions in Indian context.

Conclusions and Recommendations

Social Media and other digital platforms are important for effective communication on employer branding to reach the appropriate future employees and hence to be integrated in the employer branding communication strategy for ITeS organizations. To attract top talent from GenY, ITeS organizations can use Social Media to highlight their organizational culture in ways that supports what GenY are looking for in a future employer There are some other factors give us a strong indication on the development of employer brand to Gen Y. These are corporate governance, leveraging company intranet platforms, giving emphasis on employee referrals to peer groups, practice equality & diversity at promoting the company culture & values

that promotes social affiliation and work life balance, sponsored higher education for employees and onsite posting opportunities, provide learning opportunities and promotion during employment.

Recommendations for future research

The main obstacle to the development and wider acceptance of the concept of the employer branding is a lack of sound theoretical base. Nonetheless, branding, as a concept, is well researched in marketing. These studies can serve as a basis for the further development of the employer branding concept. On the basis of the conceptual model proposed in this study, further research can focus on a more detailed analysis of the employer's brand elements and the mutual relations. Also, the further research should pay attention to the ways of using the employer brand in order to increase the productivity.

References

1. Ambler T, Barrow S. the employer brand. *Journal of Brand Management*. 1996; 4(3):185-206.
2. Arachchige BJ, Robertson A. Business student perceptions of a preferred employer: A study identifying determinants of employer branding. *The IUPJournal of Brand Management*. 2011; 8(3):25-46.
3. Arama RD. What is The Future of Employer Branding Through Social Media in The Vision of HR Professionals?, (2011). [Bhttp://www.utwente.nl/mb/ba/staff/bondarouk/Graduation_projects_Bondarouk/Roxana_2011.pdf](http://www.utwente.nl/mb/ba/staff/bondarouk/Graduation_projects_Bondarouk/Roxana_2011.pdf) Accessed on 18,2,2013
4. Aslam S, Mason C, Zakria A, Farid M. Gender perceptions: Employer branding through attractiveness, job characteristics and organizational attributes. *American Journal of Trade and Policy*. 2015; 2(3):161-166.
5. Ashley C, Tuten T, Morrison M. Top Brands' Creative Strategies in Social Media. [Article]. *American Academy of Advertising Conference Proceedings*, 2012, 98-98.
6. Axinia E. What is the future of employer branding through social media?: a Delphi study among academics. (Master of Human Resources Management- Unpublished Master Thesis), University of Twente, 2011.
7. Backhaus K, Tikoo S. Conceptualizing and researching employer branding. *Career Development International*. 2004; 9(5):501-517. doi:10.1108/13620430410550754
8. Bhatnagar S. India's Software Industry, Technology adaptation and Exports: How Some Developing Countries Got It Right, Technology, Adaptation, and Exports-World Bank.2006. siteresources.worldbank.org/INTEXPCOMNET/.../Chandra_2006.pdf
9. Bohnert D, Ross WH. The influence of social networking web sites on the evaluation of job candidates. *Cyberpsychology, Behavior, and Social Networking*. 2010; 13(3):341-347.
10. Biswas MK, Suar D. Antecedents and consequences of employer branding. *Journal of Business Ethics*. 2014; 136(1):57-72.
11. Bornhofen RJ. How organizations adapt social media capabilities as a competitive advantage. (Unpublished Ph.D. Thesis), University of Maryland, USA, 2012.
12. Broughton A, Foley B, Ledermaier S, Cox A. The use of social media in the recruitment process. Institute for Employment Studies, Brighton, UK. Business and Technology Incubator Website, Retrieved 7-10-2016, from www.bti.ps.
13. Broadbridge AM, Maxwell GA, Ogden SM. Selling retailing to Generation Y graduates: recruitment challenges and opportunities. *The International Review of Retail, Distribution and Consumer Research*. 2009; 19(4):405-420.
14. Carrington L. Designs on the dotted line. *People Management*. 2007; 13(21):36-39.
15. Chandrashekar R. Indian IT-BPM industry overview. 2014. http://hysea.in/wpcontent/uploads/2014/06/Presentation_by_R_Chandrashekar.pdf
16. Collins EC, Ed. *The Employment Law Review*. London, Gideon Robertson, 2012.
17. Davies G, Chun R, da Silva RV, Roper S. A corporate character scale to assess employee and customer views of organization reputation. *Corporate Reputation Review*. 2004; 7(2):125-146. doi:10.1057/palgrave.crr.1540216
18. DelVecchio D, Jarvis CB, Klink RR, Dineen BR. Leveraging brand equity to attract human capital. *Marketing Letters*. 2007; 18(3):149-164. doi:10.1007/s11002-007-9012-3
19. Deb T. *Strategic Approach to Human Resource Management*: Atlantic Publishers & Distributors (P) Limited, 2006.
20. Deloitte L. *Social Networking and Reputational Risk in the Workplace*. Deloitte LLP 2009 Ethics & Workplace Survey results, 2009, 1-56.

21. Dickson DR, Nusair K. An HR perspective: the global hunt for talent in the digital age. *Worldwide Hospitality and Tourism Themes*. 2010; 2(1):86-93.
22. Dreher S. Social media and the world of work: A strategic approach to employees' participation in social media. *Corporate Communications: An International Journal*. 2014; 19(4):344-356.
23. Freer T. Social media gaming – a recipe for employer brand success. *Strategic HR Review*. 2011; 11(1):13-17.
24. Funk T. *Social Media Playbook for Business: Reaching Your Online Community with Twitter, Facebook, LinkedIn, and More*: Praeger, 2011.
25. Grace D, Iacono JL. Value creation: An internal customers' perspective. *Journal of Services Marketing*. 2015; 29(6/7):560–570. doi:10.1108/jsm-09-2014-0311
26. Harrison AG. Exploring the relationship between corporate, internal and employer branding. *Journal of Product & Brand Management*. 2010; 19(6):401-409.
27. IMD Data, 2015. <http://www.imd.org/uupload/imd.website/wcc/scoreboard.pdf>
28. JL, Westhoff, JJC, Meeusen K, Schoonderbeek JW. The war for talent & quest; The relevance of employer branding in job advertisements for becoming an employer of choice. *Journal of Brand Management*. 2013; 20(5):355–373. doi:10.1057/bm.2012.21
29. Jhamb RK. Contribution of Software Industry In The Growth Of Indian Economy In The Last Decade, *ZENITH International Journal of Business Economics & Management Research*. 2011; 1(13).
30. Kaplan AM, Haenlein M. The Next 20 Years: How Customer and Workforce Attitudes Will Evolve. [Article]. *Harvard Business Review*. 2010; 85(7/8):41-52.
31. Kluemper DH, Rosen PA, Mossholder KW. Users of the world, unite! The challenges and opportunities of Social Media. [Article]. *Business Horizons*. 2012; 53(1):59-68. doi: 10.1016/j.bushor.2009.09.003
32. Kapoor C, Solomon N. Understanding and managing generational differences in the workplace. *Worldwide Hospitality and Tourism Themes*. 2011; 3(4):308-318.
33. Kapoor V. Employer branding: A study of its relevance in India. *The IUP Journal of Brand Management*. 2010; 7(1):51–75.
34. Konig C. Employer branding: Management crunch. *Brand Strategy*, December, 2008, 46–47.
35. Kreiner GE, Ashforth BE. Evidence towards an expanded model of organizational identification. *Journal of Organizational Behaviour*. 2004; 25(1):1–27. doi:10.1002/job.234
36. Kluemper DH, Rosen PA. Future employment selection methods: evaluating social networking web sites. [Article]. *Journal of Managerial Psychology*. 2009; 24(6):567-580. doi: 10.1108/02683940910974134
37. Lievens F, van Hove G, Anseel F. "Organizational Identity and Employer Image: Toward a Unifying Framework," *British Journal of Management*. 2007; 18:45–59.
38. Lloyd S. Branding from the inside out. *Business Review Weekly*. 2002; 24(10):64–66.
39. Martin G, Gollan PJ, Grigg K. "Is there a bigger and better future for employer branding? Facing up to innovation, corporate reputations and wicked problems in SHRM". *The International Journal of Human Resource Management*. 2011; 22(17):3618-3637
40. Malden MA, Blackwell. Edwards MR. An integrative review of employer branding and OB theory. *Personnel Review*. 2009; 39(1):5–23. doi:10.1108/00483481011012809
41. Mittal S. The IT Miracle of India, presentation at IIM Ahmedabad, 2013,
42. Moroko L, Uncles MD. Characteristics of successful employer brands. *Journal of Brand Management*. 2008; 16(3):160–175. doi:10.1057/bm.2008.4
43. NASSCOM. 2009. Perspective 2020: Transform Business, Transform India. <http://www.nasscom.in/sites/default/files/upload/Perspective%202020%20Press%20release%20presentation.pdf>
44. NASSCOM. 2015. Contributions of India's Tech Industry to the U.S. Economy. <http://www.nasscom.in/contributions-india%E2%80%99s-tech-industry-us-economy>
45. Panda, Tapan K "Product and Brand Management - Chapter 21 - Employment Branding - Pages 796 to 801 & 811-815 , Oxford University Press,2016)
46. Rampl LV. How to become an employer of choice: Transforming employer brand associations into employer first-choice brands. *Journal of Marketing Management*. 2014; 30(13–14):1486–1504. doi:10.1080/0267257x.2014.934903
47. Saini GK, Rai P, Chaudhary MK. What do best employer surveys reveal about employer branding and intention to apply. *Journal of Brand Management*. 2014; 21(2):95–111. doi:10.1057/bm.2013.10 Stuart, H.

48. Sullivan J. Eight elements of a successful employment brand, ER Daily, 23 February. Retrieved 14-07-2015 from <http://www.ere.net/2004/02/23/the-8-elements-of-a-successful-employment-brand/>,
49. The Cost of Hiring a New Employee,” Investopedia, July 25, 2011, <http://www.investopedia.com/financial-edge/0711/the-cost-of-hiring-a-new-employee.aspx>
50. Turban DB, Greening DW. Corporate social performance and organizational attractiveness to prospective employees. *Academy of Management Journal*. 1997; 40:658-672. doi:10.2307/257057
51. Thorne K. One-stop guide: Employer branding. *Personnel Today*. 2004; 30:66-75.

Online Consumer Behaviour for Home Appliances: A case study in Kolkata and outskirts.

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ABSTRACT: *Online Marketing is a subset of Digital Marketing which has gained its popularity due to the internet revolution that has brought about a paradigm shift in the shopping pattern of the consumers during the last decade. Digital Marketing refers to using digital channels, platforms and devices irrespective of online or offline medium to promote the product or services. To keep up with the Digital India campaign, the country has already started to take initiative to empower our country digitally by providing high speed internet network both in rural and urban sector. According to a survey report published by Internet World Stats currently, India holds the second position in terms of number of internet users with more than 46.2 crores of internet users which is next to China. Due to this massive technological revolution the perspective of the common people towards marketing has also changed. As a result of which the change in the buying pattern of the consumers are getting reflected. Consumers' behaviour towards the purchase of Consumer Durable products especially home appliances has also changed to keep pace with time and the global wave. The Consumer Durable goods industry operates in a competitive, complex and fast changing environment as a result of which the information regarding these products should be accurate, timely, and consistent- since India has the second largest consumer market in the world. Home Appliances are the household products which are broadly classified into three types – Major appliances (White goods), Small Appliances and Consumer Electronics (Brown Goods). In today's intensely competitive and dynamic environment with technological innovation in every sphere, knowing the consumers' mind is the most significant factor for the success of any business. In this backdrop the researchers have made an attempt to study the behaviour of the online customers of home appliances in Kolkata and outskirts. The factors that affect the buying behaviour are identified and analysed. Further the innovative marketing strategies in this changing environment are prescribed for the practitioners to win the race.*

Keywords: *Digital Marketing, Online, Home Appliances, Consumer Behaviour, Consumer Durable Goods, Marketing Strategies.*

1. Introduction

Digital Marketing is a process of using digital channels, platforms and devices irrespective of online or offline medium for promoting goods and services. Online shopping is a part of Digital Marketing which has turned out to be the most phenomenon technology in IT and E-Commerce sector. In India also it has taken a plunge with more and more people using the internet. Online Shopping is also termed as E-marketing, online marketing, Internet marketing (IM) or web-marketing,

Due to this sudden hike of the internet usage, people are becoming more dependent on technology and as a result of which a shift in the buying pattern is noticed over the decade. Online Shopping is a form of e-commerce where the buying and selling of goods and services are conducted by using internet or web browsers. Recently, the online shopping process has evolved into such a user friendly marketing platform that customers can conduct online shopping through internet connection by using a wide range of portable gadgets, like desktop computers, laptops, tablet computers and even smartphones enabling the customers to conduct transaction from anywhere at their convenient time.

The internet revolution has brought about a paradigm shift in the traditional process in each and every sphere of life. The World Wide Web better known as the web or www., which was invented by the British scientist Tim Berners Lee in 1989 is an information space where documents and other web resources are identified by Uniform Resource Locators (URLs), interlinked by hypertext links, and can be accessed through the Internet.

The products that yields utility over time and are used or retained for a considerable time frame are termed as Consumer Durable products. These products have less wear and tear value and are also known as hard goods. Home Appliances are an example of Consumer Durable goods.

Home appliances are the electrical or mechanical machines which can accomplish the household functions, such as cooling, heating, cooking or cleaning.

Home appliances are broadly classified into three types:

- Major appliances (white goods) are the major household appliances like air conditioner, refrigerators, washing machines, micro ovens, induction cookers.
- Small appliances are the most commonly used electrical household products like fans, juicers, deep fryers, rice cookers toasters.
- Consumer electronics (brown goods) are the goods which are used in our daily life like laptops, desktops printers, mobile phones, cameras, which unlike white goods comes in small boxes.

Global Trend of internet users and online shopping

The growth rate of global e-commerce is unexpected. According to a report published in www.statista.com, in 2018 global online shopping amounted to 2.85 trillion US dollars and is expected to be 4.48 trillion US dollars in 2021. In the USA alone, ecommerce represents almost 10 percent of the total retail sales which is growing by nearly 15 percent each year. In Asia Pacific, internet sales accounted for 12.1 percent of retail sales in 2016 but only for 1.8 percent of retail sales in the Middle East and Africa.

According to a survey report, 11 percent of online shoppers now shop online through their smartphones on a weekly basis, and 35 percent opines that it will become their main purchasing tool in future, it also stated that around 39 percent of online shoppers use social networks to get inspiration for purchases. As a result, online shopping continues to evolve at a rapid pace throughout the globe.

Indian Trend of internet users and online shopping

To keep pace with the global trend, a sudden change in the buying pattern has occurred which is mainly due to the advancement of technology and abundant availability of network connection by various internet provider. As a result, the usage of internet has abruptly increased in the country and is expected to have more than 63 crores users in 2021 while the projected figure for the current year is more than 53 crores compared to the 36.5 crores in 2014, 41 crores in 2015, 45 crores in 2016 and 46 crores in 2017. According to a survey report published by Internet World Stats as on 31st December 2017, India ranks second in terms of number of internet users with more than 46 crores of internet users which is expected to rise in the forthcoming years that is next to China, that clearly shows a rising trend of internet users in India as a result of which an increase in the online shoppers in the country.

Literature Review

A literature review contains a detailed text of scholarly papers, which reflects the very recent knowledge and substantive findings along with theoretical and methodological input to the pertinent topic. So a detailed literature review plays a vital role in carrying out research as it helps to identify the gaps between the unexplored area and the findings of prior researches done in the particular field. While going through the process of literature review of the related topics both from national as well as international journals, I found no such study has been carried out in Kolkata or West Bengal till date.

In spite of having plenty of research papers on online shopping, the papers related to the objective of the paper are aligned and presented.

Aggarwal (2012) observed the importance and growth of online shopping in India. The researcher highlighted on the various benefits of online shopping which are not only anytime and anywhere shopping with the help of internet facility but also the mode of shopping is so customer friendly that they can easily find out the desired brand or product, can avail the various benefits like discounts, fast delivery, better quality, combo offers, replacement facilities, guarantee and warranty of products, discount coupons on next purchase and many more.

Sen (2014) stated that the cost factor, convenience factor, product factor and seller related factor are the four important factors influencing the online purchase of products in Kolkata.

Jiradilok, Malisuwan, Madan and Sivaraks (2014) observed through a survey conducted at Thailand and rated the six variables that have influence on the purchase intention as- assurance, empathy, experience in purchasing, responsibility, website information quality and appropriate pricing. The researchers also found out that although e-commerce has increased a large amount of benefits by creating superior value for customers beyond geographical barriers and generating unprecedented business growth but it has not been realised with the mass. It

Saha (2015) highlighted the impact of the rising trend of online shopping over the various fixed shop retailers. This paper unveils the effect on the profitability of the retailers of Guwahati city of Assam due to online shopping.

Rotich and Mukhongo (2015) explored the importance of web shopping programs for retail industry which allows the companies to offer products and services 24 hours as per the requirement and need of the customers. They also provided evidences to the retail companies about how internet marketing strategies have promoted the firms at international level to acquire customers.

Niharika & Satinder (2015) stated that post globalization, due to the closeness of various nations different sector has undergone through significant changes. These changes has resulted to the emergence of internet and e-commerce which is now one of the fastest growing technologies and are playing the main role in the day to day business activities

.Kothari and Maindargi (2016), identified five dominant factors which influence consumer perceptions for online shopping as- information, easy to use, satisfaction, security, proper utilization of available information to compare the different product.

After going through the literatures it is observed that though the online shopping as a whole is mentioned but the consumer behaviour analysis, along with various factor analysis and formulation of marketing strategies in the sphere of home appliances and that too in Kolkata are not addressed till date.

Objective of the study

The pertinent analytical study aims to explore and analyse the online shopping of home appliances in and around Kolkata, which is quiet lagging behind compared to other cities.

- To study the online customers' behaviour of Home Appliances in Kolkata and outskirts.
- To analyse the online market overview regarding shopping of the three broadly classified Home Appliance – Major Appliances, Small Appliances and Consumer Electronics in Kolkata and outskirts.
- To figure out the various factors affecting the online shopping of Home Appliances.
- To develop the various marketing strategies in the changing environment.

Research Methodology

Research Methodology is a systematic process of collecting, organising and analysing data. The paper intends to study, analyse and identify the behaviour of online customers of home appliances in and around Kolkata. Population of the study was restricted to users as well as non-users of home appliances purchased through online shopping. The geographic territory was restricted to Kolkata and its outskirts including Howrah, Srirampur, Sheoraphuli and Haripal- all the places are within 50km from proper Kolkata. A pilot study from the population were selected as per convenience sampling method (As per their availability and willingness).

As the exact population is unknown, so by applying the Krejcie and Morgan formula of sample size calculation for infinite (unknown) Population, we get

$$n = x^2 p (1-p) / d^2$$

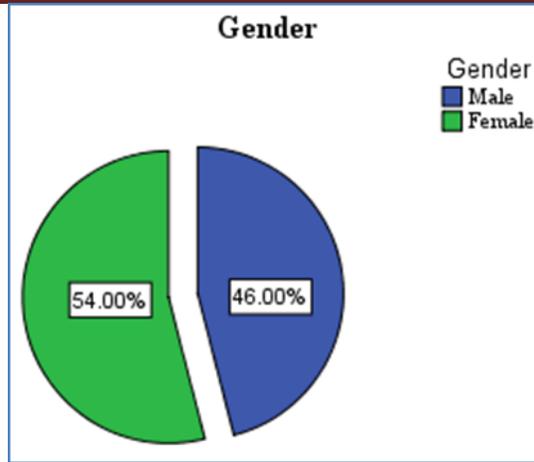
$$n = (1.96)^2 \times 0.5 (1-0.5) / (0.1)^2 = 96.04 \text{ (Round of 100)}$$

Here $x= 1.96$ for 95% confidence level, $P= 0.5$ and $d = 0.1$

Sample size calculated for study was 100 consumers. Since it is a part of our research work, so we have worked with 100 samples only. Primary Information was collected with the help of well-structured Questionnaire along with personal interview. Secondary data was collected from Published literature in Books, Magazines, Journals and Newspapers and websites. A well-structured objective type and probing questionnaire was prepared. To collect personal views, a pilot survey was conducted to investigate the practical aspect, personal interview and observation technique was used. The information collected during data collection was generated, analysed and interpreted with the help of SPSS 20 software. On the basis of findings based on tabulated information and Observations during data collection, conclusion was drawn.

Findings and Analysis

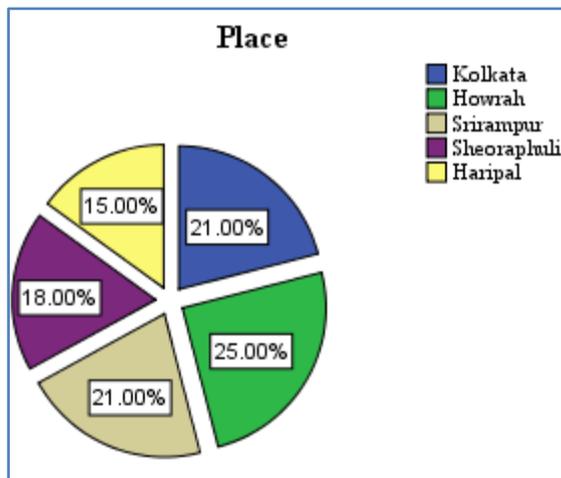
Following are the demographic analysis made from the survey from 100 respondents based in Kolkata and outskirts including Howrah, Srirampur, Sheoraphuli and Haripal.



Gender	Number	%
Male	46	46%
Female	54	54%

Interpretation

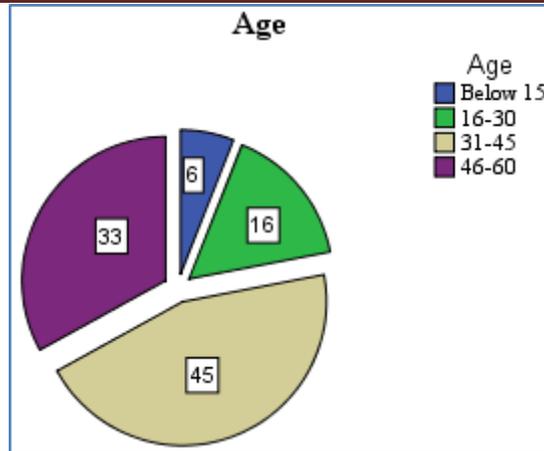
Out of 100 respondents 46% were male respondents and 54% were female respondents, from where we can comment that during the survey more or less equal weightage is given to both the genders.



Place	Number	%
Kolkata	21	21%
Howrah	25	25%
Srirampur	21	21%
Sheoraphuli	18	18%
Haripal	15	15%

Interpretation

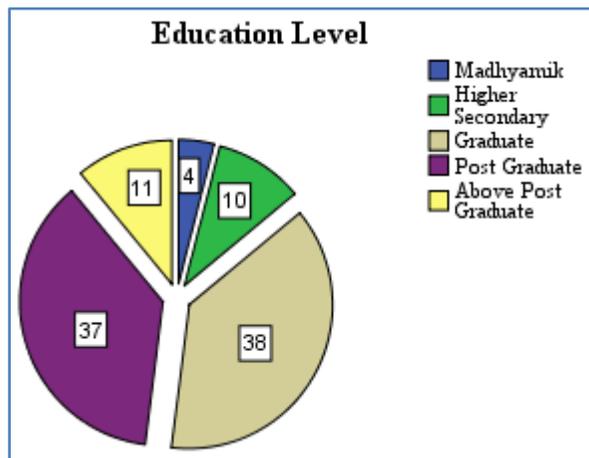
Out of 100 respondents 21% of them were from Kolkata, 25% from Howrah, 21% from Srirampur, 18% from Sheoraphuli and 15% from Haripal, from where we can comment that during the survey more or less a fair weightage is given to the five places in and around Kolkata covered during the survey.



Age	Number	%
Below 15	6	6%
16-30	16	16%
31-45	45	45%
46-60	33	33%

Interpretation

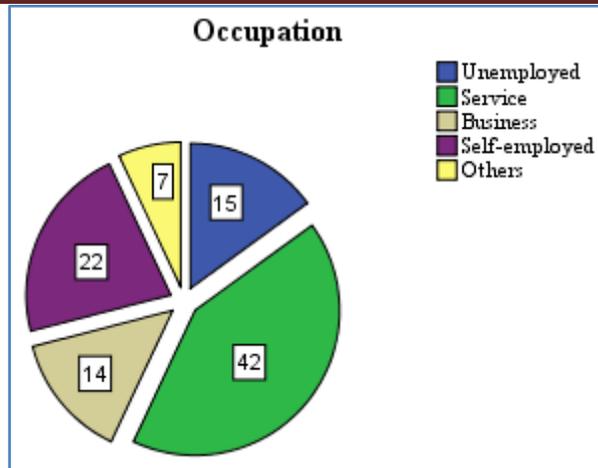
Out of the 100 respondents, only 6 respondents which means (6%) were below the age of 15 years, 16 that is (16%) were in the age group of 16-30 years, 45(45%) in the age group of 31-45 years and 33 respondents (33%) were in the age group of 46-60. From which we can analyse that most of the data collected are in the age group of 31-45 years.



Education Level	Number	%
Madhyamik	4	4%
Higher Secondary	10	10%
Graduate	38	38%
Post Graduate	37	37%
Above Post Graduate	11	11%

Interpretation

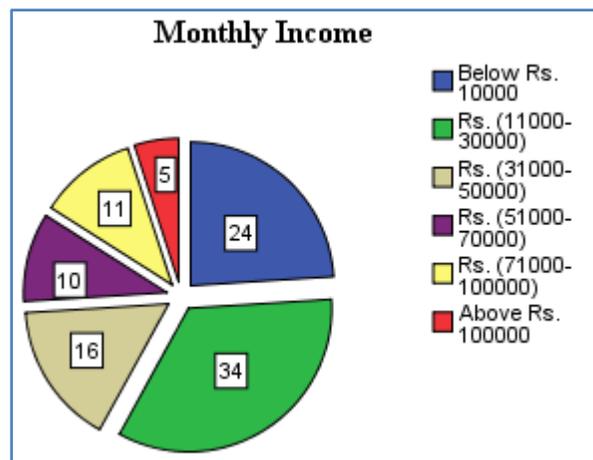
Out of the total respondents, 4% of the respondents are Madhyamik qualified, 10% of the respondents are Higher Secondary qualified whereas a maximum of 38% of the respondents are Graduates followed by 37% Post Graduates. Even 11% of the respondents do have a Ph.D. or Post-Doctoral degree.



Occupation	Number	%
Unemployed	15	15%
Service	42	42%
Business	14	14%
Self-employed	22	22%
Others	7	7%

Interpretation

A maximum of 42% of the collected respondents are service holders followed by 22% Self-employed respondents. 15% were unemployed whereas 14% of the respondents were businessmen and 7% includes the respondents other than the above mentioned profession.

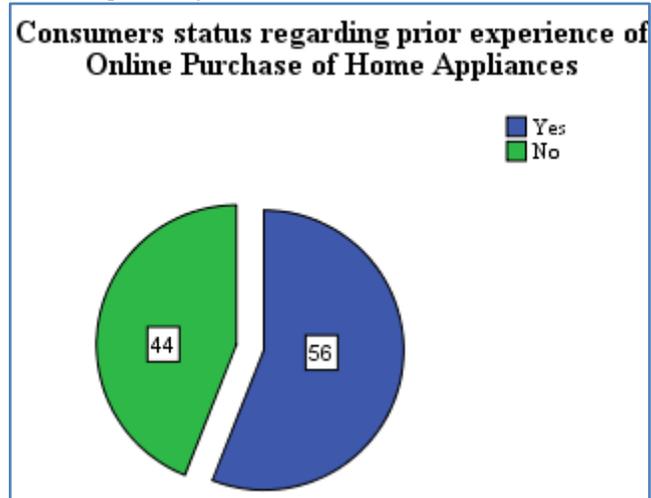


Monthly Income	Number	%
Below Rs.10,000	24	24%
Rs.(11,000-30,000)	34	34%
Rs.(31,000-50,000)	16	16%
Rs.(51,000-70,000)	10	10%
Rs.(71,000-1,00,000)	11	11%
Above Rs.1,00,000	5	5%

Interpretation

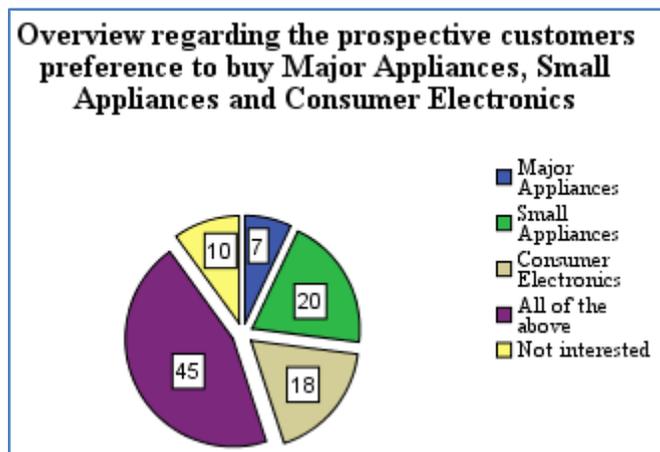
Maximum respondents that is 34% of the data collected are in the income group of Rs. 11000 to Rs. 30000, followed by 24% of the respondents having monthly income of less than Rs. 10000. 16% of the collected data are from the income group of Rs. (31000-50000) followed by 10% of the respondents having monthly

income of Rs.(51000-70000). 11% and 5% of the respondents are in the income group of Rs.(71000-100000) and above Rs. 100000 respectively.



Interpretation

The survey revealed that 44% of the respondents in Kolkata and outskirts have never purchased Home Appliances through internet whereas 56% of the respondents have conducted online shopping of home appliances.



Consumer Preference on the type of Home Appliances	Number	%
Major Appliances	7	7%
Small Appliances	20	20%
Consumer Electronics	18	18%
All of the above	45	45%
Not interested	10	10%

Interpretation

From the survey we found out that 7% of the respondents from in and around Kolkata were interested to buy Major Appliances, 20% of them preferred to buy Small Appliances, 18% preferred to buy Consumer Electronics whereas a maximum of 45% of the respondents opted to buy all the three abovementioned types of Home Appliances online. Only 10% of the respondents opted out the possibility to purchase any type of Home Appliances through internet.

While conducting Factor Analysis through SPSS 20, we found out that though the sample size is very small, but the test result is justifying us to proceed for further analysis as the result turned out by applying KMO and Bartlett's Test is .754 and 136 respectively.

KMO and Bartlett's Test		
Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.754
Bartlett's Test of Sphericity	Approx. Chi-Square	1101.848
	Df	136
	Sig.	.000

Out of 17 variables, only 4 factors are extracted to eliminate the multi collinearity in regression analysis. The Component Matrix as derived from SPSS are as follows:

Factor Score Coefficient Matrix

	Factor			
	1	2	3	4
Don't know about online shopping	.015	.100	.011	.044
Risk of credit and debit card transaction	-.020	.187	-.061	-.120
Internet/Computer illiteracy	-.021	.430	-.037	-.246
Risk of identity theft	-.071	.381	.058	.243
Shopping through internet saves time	.032	.064	.376	.009
It is easy to purchase at any time of the day.	.040	.037	.235	-.147
I prefer the online shopping to traditional/ conventional shopping as we can avoid the hassles of shopping in store.	.047	-.011	.143	.038
In online shopping we get to compare the price of the products in various shopping sites.	.036	-.104	.270	.057
Online shopping provides us with abundant options of substitute products.	.027	-.043	.130	.076
Reluctance to disclose the banking detail	-.025	-.076	-.012	.453
Prefers to see, touch and feel before purchasing the product	-.054	-.009	.024	.356
Unavailability of internet connection	.020	.028	.012	-.032
Mismatch of product ordered and arrived	.159	-.179	-.129	.148
Stringent and lengthy procedure for return	.358	-.015	.106	.033
Problem faced due to delay in delivery	.212	.104	.096	-.176
Cheap/Damaged quality of product delivered	.347	-.097	-.003	.088
Bad experience due to non-delivery of the product.	.004	.044	.014	-.086

Extraction Method: Principal Axis Factoring.
 Rotation Method: Varimax with Kaiser Normalization.
 Factor Scores Method: Regression.

The four factors that are identified along with the parameters are as follows:

- Internet hazards and bitter prior experience
 - Unavailability of internet connection.
 - Mismatch of product ordered and arrived.
 - Stringent and lengthy procedure for return.
 - Problem faced due to delay in delivery.
 - Cheap/Damaged quality of product delivered.
 - Bad experience due to non-delivery of the product.
- Convenience of online shopping
 - Shopping through internet saves time.
 - It is easy to purchase at any time of the day.
 - I prefer the online shopping to traditional/ conventional shopping as we can avoid the hassles of shopping in store.
 - In online shopping we get to compare the price of the products in various shopping sites.
 - In online shopping we get to compare the price of the products in various shopping sites.

- Sudden growth of internet usage to keep pace with the global trend
 - Knowledge about online shopping.
 - Risk of credit and debit card Transaction.
 - Internet/Computer illiteracy.
 - Risk of identity theft.
- Lack of personal touch in online shopping
 - Reluctance to disclose the banking detail
 - Prefers to see, touch and feel before purchasing the product
 - Unavailability of internet connection
 - Mismatch of product ordered and arrived
 - Stringent and lengthy procedure for return

Total Variance Explained

Factor	Initial Eigenvalues			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	5.379	31.642	31.642	4.275	25.147	25.147
2	2.915	17.148	48.790	2.456	14.447	39.594
3	2.245	13.206	61.996	2.386	14.034	53.629
4	1.309	7.700	69.696	1.169	6.877	60.506

Extraction Method: Principal Axis Factoring.

By applying SPSS 20 we have found out that 60.506% of the total variables are explained by the variables.

Factor Transformation Matrix

Factor	1	2	3	4
1	.859	.324	-.358	.169
2	-.192	.811	.435	.342
3	.475	-.268	.825	-.149
4	-.010	-.407	.038	.913

Extraction Method: Principal Axis Factoring.

Rotation Method: Varimax with Kaiser Normalization.

Scope of Further Study

The study has discussed the behaviour of online customers of Home Appliances in Kolkata and outskirts, analysed the market overview and discussed the various parameters affecting the Online shopping of home appliances however there can be few more aspects that might be considered for critically analysing the impediments in the growth of online shopping of home appliances in and around Kolkata. Categorising the customers and setting up a score for each of the respondents can also be done, as this is the area which is yet to be covered.

Conclusion

Online shopping of Home Appliances in and around Kolkata is still at its initial stage in spite of the fact that it is trying to keep pace with the global mode of shopping. As per the conducted pilot survey we have come across the four mentioned factors along with their parameters. While going through the questionnaire we observed that majority of the customers have conducted online purchase of Home Appliances and maximum of the prospective customers are interested to buy all the three mentioned categories of home appliances. From which we can conclude that online purchase of home appliances is the happening form of shopping due to its manifold diversity. The study can be considered as a first step in the way of conducting a research in online shopping of home appliances in Kolkata and outskirts.

Reference

1. Blackwell R, Miniard P, Engel J. *Consumer behaviour*. Mason: Thompson, 2006.
2. Cialdini Robert B. *Influence: The Psychology of Persuasion*. Harper Business, 1984.
3. Enis BM. *Marketing Principles: The Management Process*, 1974.
4. Egan J. *Marketing Communications*. London: Cengage Learning, 2007.

5. Gabbott M, Hogg G. *Consumers and services*. Chichester: John Wiley & Sons, 1998.
6. Jain Rajiv, Gupta Nisha. Consumer Behaviour towards E commerce: Online Shopping. *International Conference on Recent development in Engineering Science, Humanities and Management organised by NITTTTR, Chandigarh*. 2017; 3:56-68.
7. Kumar P. *Marketing of Hospitality & Tourism Services*. Tata McGraw-Hill Education, 2010.
8. Kotler P, Keller K. *Marketing Management*. London: Pearson Education, 2011, Ed. 14.
9. KinkerManisha, Shukla NK. An Analysis of Consumer Behaviours towards Online Shopping of Electronic Goods With special reference to Bhopal and Jabalpur city. *International Journal of Innovation and Applied Studies*. 2016; 14(1):218-235
10. Niharika and Satinder. A study of Internet Marketing in India: Challenges and Opportunities. *International Journal of Science Technology and Management*. 2015; 4(11):15-37.
11. Rotich Joseph Kiplang'at, Mukhongo Aaron. Effects of Internet Marketing Strategies on Sale of Communication Services. A Case Study of Telkom Kenya-Eldoret Branch. *International Journal of Scientific and Research Publications*. 2015; 5(10):1-15.
12. Solomon M. *Consumer Behaviour*. New Jersey: Prentice Hall, 1995, Ed. 3.
13. Schiffman L, Hansen H, Kanuk L. *Consumer Behaviour: A European Outlook*. London: Pearson Education, 2007.
14. Stallworth P. *Consumer behaviour and marketing strategic*. Online, 2008, 9.
15. Sen Rahul Argha. Online Shopping: A Study of the Factors Influencing Online Purchase of Products in Kolkata. *International Journal of Management and Commerce Innovations*. 2014; 2(1):44-52.
16. Saha Amit. A Study on "The impact of online shopping upon retail trade business *IOSR Journal of Business and Management*. 2015; 4(11):74-78.
17. Shettar Rajeshwari M. Emerging trends of E-Commerce in India: An Empirical Study. *International Journal of Business and Management Invention*. 2016; 5(9):25-31.
18. Underhill Paco. *Why we buy: The science of Shopping*. Simon and Schuster, 1999, Ed.1.
19. <https://www.pwc.com/gx/en/industries/retail-consumer/total-retail/total-retail-categories.html#key8>
20. www.statista.com
21. www.google.com

Position of Women Entrepreneurship in West Bengal

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1. Introduction

- Entrepreneurship-

Entrepreneurship is the act of setting up and developing a business independently, taking all the financial risk and to earn profit. In a developing country like India entrepreneurship has gained a lot of importance. India is suffering from population explosion and unemployment. Now unemployment has a negative impact on the economic growth of a country which is not desirable. Entrepreneurship is considered to be a solution for this problem.

- Women Entrepreneurship-

Women entrepreneurship may be defined as the women or group of women who initiate, organize and operate a business enterprise. The topic of women entrepreneurship has been largely neglected in our society. With the span of time many women came forward and participated in entrepreneurship still there is a large number who are willing to see themselves as entrepreneurs but are struggling to overcome their societal, economic and political barriers.

- Micro, Small and Medium Enterprises (MSMEs)-

MSMEs have been globally considered as an engine of economic growth and as key instrument for promoting equitable development. MSMEs help in generating huge employment as it is a labour-intensive sector as well as encourage entrepreneurship for livelihood.

MSMEs are classified in two classes- Manufacturing enterprise and Service enterprise.

- Manufacturing enterprises include that enterprise which manufacture products and sells it to other industries. It is also identified as Investment in Plant and Machinery.
- Service enterprises are those which are involved in rendering services and defined as Investment in Equipment.

Depending on the amount of investment MSMEs are divided into three categories- Micro, Small and Medium.

SECTOR	MICRO ENTERPRISES	SMALL ENTERPRISES	MEDIUM ENTERPRISES
Manufacturing	Up to Rs. 25 lakhs	Above Rs. 25 lakhs but does not exceed Rs. 5crores	Above Rs. 5 crores but does not exceed Rs. 10 crores
Service	Up to Rs. 10 lakhs	Above Rs. 10 lakhs but does not exceed Rs. 2 crores	Above Rs. 2 crores but does not exceed Rs. 5 crores

This sector now encompasses all other non- agricultural activities from village to town to metropolitan cities. The most important features of these industries are their low requirement of capital, emphasis on the use of local resources and to meet the demand of local people. No economy in the world can hope to survive without a robust MSME ecosystem. West Bengal has emerged as one of the leading state in India to facilitate growth in MSME sector.

Need of the study

West Bengal may be lagging compared to many other states in India from different aspects. But in case of MSMEs West Bengal has emerged as one of the leading states. West Bengal has the potential to become the

leading state in coming future in terms of MSME productivity within India. This is not only because of huge number of MSME units but also the diversified approach from production to services. The varied segments are food processing, leather, gems and jewellery, mineral-based, iron and steel, handicrafts, manufacturing industries and service sector. From the viewpoint of women entrepreneurship in MSME West Bengal is in the top position. However, the women entrepreneurs of MSMEs in West Bengal face several challenges. The aim of the article is to have a look towards the position of women entrepreneurs of MSMEs in West Bengal. The prime intent of the study is to identify the various challenges faced by the women entrepreneurs of MSMEs and to focus on the recent and ongoing government schemes and policies for ensuring sustenance and competitive growth of MSMEs in West Bengal.

Literature Review

Suparaj M. J. and Dr. Salve P.S. (2014) in their paper “Constraints / Challenges faced in a journey of women entrepreneurs in the Development in Western Maharashtra” mentioned that the success of women entrepreneurs differs from state to state in India. It was also observed that women entrepreneurs are concentrated in the micro segment of the MSME sector.

Singh R. (2017) in her thesis “Problems and Prospects of women entrepreneurship with special reference to MSMEs in the state of Gujarat” has focused on gender gap in relation to entrepreneurship. She mentioned that women entrepreneurs have the potential to create new jobs, nurture creativity and to solve various social retardations.

Dr. Rathee V. and Yadav R. (2017) in the paper “Role of women Entrepreneurship in economic empowerment of rural areas” focused on women entrepreneurship situation in rural areas of India and their prospects. They emphasized on the role of government in improving accessibility of finance by encouraging more banks and other financial institutions to support women entrepreneurship.

Objectives

The objectives of this paper are mentioned below:

1. To have a glance on the current position of women entrepreneurship in MSMEs in West Bengal.
2. To identify the obstacles the women entrepreneurs are facing.
3. To see the various support provided to them by the Government.

Methodology

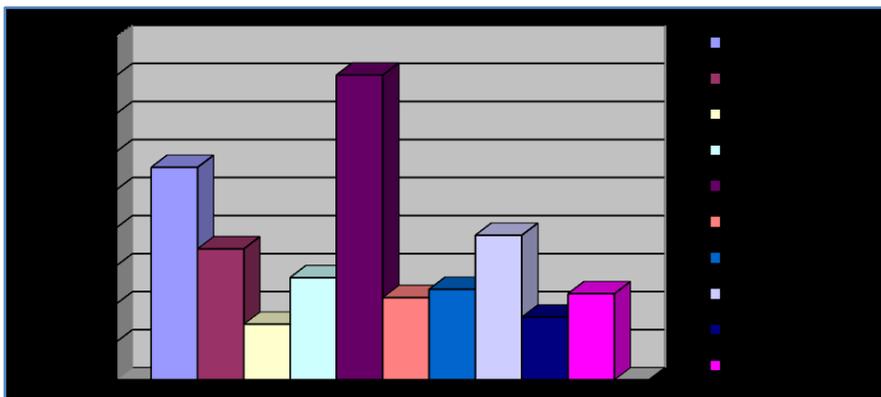
The present paper uses secondary sources of data to satisfy the objectives. Data are mostly collected through desk research of online resources, research papers, conference documents, various Annual Report of MSMEs and various reputed websites and other relevant publications of government.

Position of Women Entrepreneurs in MSMEs in West Bengal among the top ten states

The distribution of Proprietary MSMEs by gender of owners among top ten states in India has been analysed. Two separate tables have been shown to compare the number of male owned MSMEs and female owned MSMEs.

The share of male owned MSMEs among the top ten states in India has been analysed.

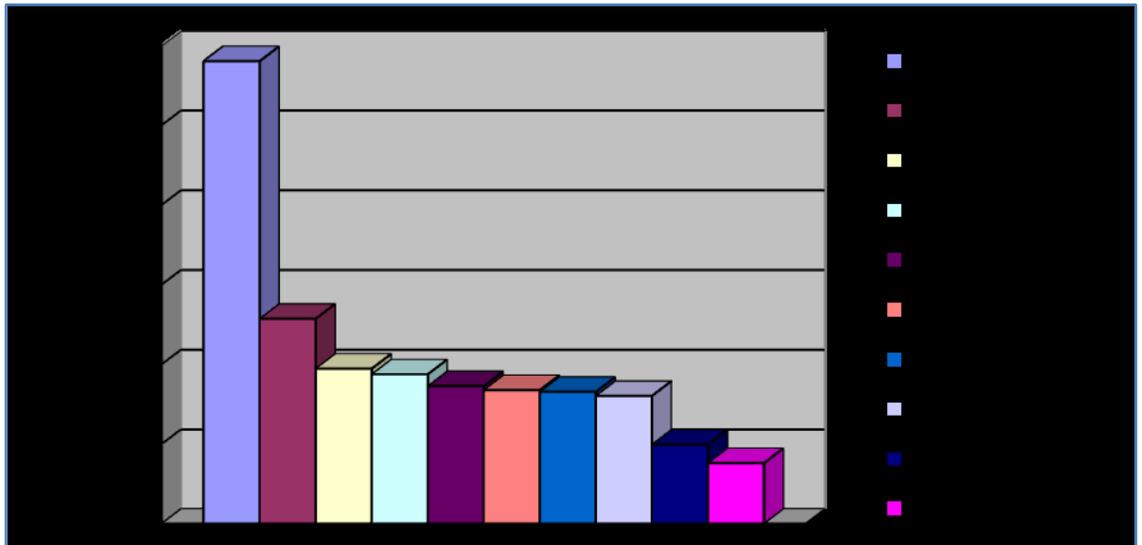
(Table 1- Appendix)



Source: MSME Annual Report 2017-18

As per the above table it can be seen in terms of the number of male entrepreneurs, Uttar Pradesh is holding the top position with a share of 16.53% of the total number of male MSMEs followed by West Bengal with a share of 11.52%. It can be said that in respect of MSME West Bengal is holding a good position and it has good prospect for MSMEs.

The share of female entrepreneurs in the top ten states in India has been analysed to focus on the position of women entrepreneurs in West Bengal. (Table:2)



Source: MSME Annual Report 2017-18

From the above table as per the latest annual report of MSMEs it can be seen that West Bengal is holding the top position in terms of female owners with 23.42% of the total female owned MSMEs. The second highest female owned MSME is Uttar Pradesh and it contributes 10.37% of the total number.

It is clearly visible that the difference between the number of women entrepreneurs of West Bengal and U.P. is very high. The number of women entrepreneurs in West Bengal is almost more than double compared to U.P. Compared to the other states of India West Bengal is stepping ahead. In this situation we must identify the challenges they are facing so that proper steps could be taken for their removal. In this way we can be assured of the steady growth of women entrepreneurship in MSMEs in West Bengal.

Challenges of women entrepreneurs in MSMEs

The various problems that a women entrepreneur in MSME faces are listed below:

1. **Lack of society's confidence-** In a male dominated society woman still have to face a lot of questions for establishing themselves as an entrepreneur.
2. **Dual role in home and business-** Women has a very important role in their family. A woman has the efficiency of balancing her family with her career, but it is very tough for them to convince about her ability to her surrounding people.
3. **Lack of self- confidence-** Due to lack of appreciation of society and family sometimes women lack their self confidence.
4. **Lack of safety-** There is a lack of safety for women in our country which creates an obstacle for them regarding the place or time of travelling.
5. **Limited working capital-** Sometimes women can collect capital and start a business but often they have to face problem regarding working capital. As the society lacks confidence on women entrepreneurship they are not ready to invest in any such business which is run by a woman.
6. **Lack of knowledge about government schemes-** Though government is taking initiatives to support women entrepreneurs from time to time still a large portion of them are not available of the proper information about those schemes.
7. **Lack of training-** In MSME there are different types of work for which proper training must be given to the employees, but this is not always available.

8. **Lack of knowledge about banking procedures-** Women often avoids doing banking work. They are not accustomed with the banking procedures which again create a problem for them in running their business.
9. **Non-availability of skilled employees-** Proper skilled and trained employees are not always available and since society lacks confidence in women entrepreneurship, they often face problem in finding skilled employees.
10. **Employee turnover-** The employees who has gained experience over time in a business often leaves the business to start their own set up. This causes problem to the earlier business as they again have to give training to new employees which is time consuming and costly process.
11. **Lack of technology-** Modern technology is expensive and women entrepreneurs lack in the amount of capital. So, they cannot afford modern technology. Even they are not always comfortable in using those technologies due to lack of proper training.
12. **Inadequate advertising and publicity-** Women entrepreneurs do not get the proper platform to advertise about their products which reduces their sale and profit.
13. **Poor knowledge of business management-** There are many women entrepreneurs who does not possess any proper knowledge about business management which hampers their business.

Government Support to Women Entrepreneurs of MSMEs in West Bengal:

1. Mahila Coir Yojana (MCY)-

This women welfare scheme is specially designed for the welfare of the rural women of the nation. Under this scheme training were given to women for two months and for period they were also paid stipend of Rs. 1000 per month. After completion of successful training under this scheme, the Coir Board distributes the motorized rats which are essential for Coir production.

2. Trade Related Entrepreneurship assistance and Development (TREAD) Scheme for Women

This scheme focusses on empowering women economically through trade related training, information and counselling extension activities related to trades, products, services etc. Financial loans are provided under this scheme by Nationalized Banks and grants by Government of India at the rate of 30% of the loan subject to maximum limit of Rs.30.00 lakh for undertaking self-employment ventures by women in non-farm activities.

3. Revamped Coir Udyami Yojana (CUY) & Coir Vikas Yojana (CVY)

Coir UdyamiYojana is a credited linked subsidy scheme in coir sector that aims to integrate and develop coir units. The scheme provides 40% as Govt. subsidy, 55% as Bank loan and 5% beneficiary contribution for setting up of coir units with project cost up to Rs.10.00 lakh. Coir VikasYojana (CVY) focuses on training for men & women coir workers also provides subsidized Ratts to women workers apart from aiding for setting up and expansion of coir units. This scheme also provides assistance under CVY and is provided for participation in international and domestic exhibitions and fairs.

4. Swayamsiddha

It aims to empower women through formation of self help groups. Its objective is to create general awareness about women's rights and changing the environment around women's empowerment.

Conclusion

A woman can change this world with her skills if she is an entrepreneur. In underdeveloped economy women entrepreneurship is a very good solution to reduce poverty. Women entrepreneurship will not only make the woman independent but also will create employment opportunities and can stop the crime against them. In the words of our first Prime Minister Pandit Jawaharlal Nehru "when a woman moves forward, the family moves; the village moves; and the whole nation moves". West Bengal has shown a steady growth in women entrepreneurship in MSMEs in West Bengal till now and we hope that with the support of the government and the society the problems they are facing now can be removed and the growth rate can be definitely increased in future.

Reference

1. Singh R, "Problems and Prospects of Women Entrepreneurship with special reference to MSMEs in the state of Gujarat", May 2017

2. Rathee V, Yadav R, "Role of women Entrepreneurship in Economic Empowerment of Rural Areas", International Journal of Emerging Research in Management and Technology, 2017; 6(12)
3. Sugaraj J.M., Salve P.S., "Constraints/ Challenges faced in a Journey of Women Entrepreneurship in the Development in Western Maharashtra". IOSR Journal of Economics and Finance, 2014; 3(2):53-60

Report

1. MSME Annual Report 2017-18
2. MSME Annual Report 2016-17

Appendix

Table 1:

Sl. No.	States	Number of Male owners	Share of the state among all MSMEs with male owners
1.	West Bengal	5583138	11.52
2.	Tamil Nadu	3441489	7.10
3.	Telangana	1459622	3.01
4.	Karnataka	2684469	5.54
5.	Uttar Pradesh	8010932	16.53
6.	Andhra Pradesh	2160318	4.46
7.	Gujarat	2375858	4.90
8.	Maharashtra	3798339	7.84
9.	Kerala	1647853	3.40
10.	Rajasthan	2261127	4.67

Source: MSME Annual Report 2017-18

Table 2:

Sl. No.	States	Number of Female Owners	Share of state among all MSMEs with female owners
1.	West Bengal	2901324	23.42
2.	Tamil Nadu	1285263	10.37
3.	Telangana	972424	7.85
4.	Karnataka	936905	7.56
5.	Uttar Pradesh	862796	6.96
6.	Andhra Pradesh	838033	6.76
7.	Gujarat	826640	6.67
8.	Maharashtra	801197	6.47
9.	Kerala	495962	4.00
10.	Rajasthan	380007	3.07

Source: MSME Annual Report 2017-18

Potential Emerging Retail format of Indian railway and market opportunities for companies

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ABSTRACT: *Railway provides a concentrated market for product and services. Travelling is considered to be inevitable and when it comes to Indian railway it is having obvious advantages to it. There is a need for the companies in India to re-look Indian railway and its consumers in a new perspective with the access of mobility and convenient of technological connectivity. Railway represents the actual picture of mini India. Its demographic disparity and diversity by uniting it across the matrix of the nation. India's disparity is expressed in terms of its consumption pattern, its axis of wealth but also in the contest of how railway operates. Till date only 5 % of the actual potentiality of Indian market was tapped and realized by Companies through Indian Railway. Potentiality of Indian consumers can be unlocked broadly into 4 categories, urban India, rural India & moving India. Railway represents moving India. The products of substandard and inferior quality clearly makes inroads, can be conveniently replaced by standardized and quality product of organized market through Consumers taste and preferences in the modern era of hyper marketing delight. Railway represents tremendous potential for the growth. This paper can be used for number of products and vendors for Product penetration. It can also be used by the companies by substantially adding the new set of product category which may lead to the opening of a new product segment. Redefining the Journey of world largest network, Till date consumers are just fulfilling their basic requirements, but it the time when we need to provide the Consumers high quality products which can not only fulfill their functional requirement, but should also provide them a product usage satisfaction and memorable experience. It can provide tremendous traffic as well as visibility to the latent Consumers. An opportunity to the companies to formally rewrite the marketing game plan for the Retail sector, Conventional Ps are needed to be re-worked with new Ps when it comes to marketing of products (In case of Indian Railway).*

Keywords: *Urban india, Rurban india, Rural Indian, Moving india in railway, Railway infrastructure, Type of passengers, Taste, Consumption behavior, Travelling consumers, Type of stations, Trains Frequency of travel, Migration, LCM, Trans-local consumers*

1. Introduction

Railway provides a concentrated market for product and services. Travelling is considered to be inevitable and when it comes to Indian railway it is having obvious advantages to it. There is a need for the companies in India to re-look Indian railway and its consumers in a new perspective with the access of mobility and convenient of technological connectivity. Railway represents the actual picture of mini India. Its demographic disparity and diversity by uniting it across the matrix of the nation.

India's disparity is expressed in terms of its demographic differentiation, consumption pattern, its axis of wealth but also in the contest of how railway operates. Till date only 5 % of the actual potentiality of Indian market was tapped and realized by Companies through Indian Railway.

Indian railways always remains the biggest themes of Bollywood, and now It Is the tern for the marketers to unlock its potential for consumer benefit which is also the key for the success of companies. Plethora of Indian companies with MNCs flair failed to create effective dent in the mind space of Indian consumers in the conventional market, reasons for their failures can be multiple but analysis suggest some fundamental functional indicator behind them, a similarity to reckon with, indicating the direction of failure, MNCs with innovative products and established global brands failed to create a dent in Consumer mind-spac, Only those companies are successful in Indian Diaspora which are innovative, adapting to Indian condition, localizing their product, and customizing according to Indian consumers irrespective of MNCs brand baggage. Diversity of the success and failure depends upon reading the mind set of Consumers. Railway provides the perfect recipes for these MNCs to get success.

Railway represents the actual picture of mini India. Its demographic disparity and diversity by uniting it across the matrix of the nation. India's disparity is expressed in terms of its consumption pattern Till date only 5 % of the actual potentiality of Indian market was tapped by Companies through Indian Railway. Potentiality of Indian consumers can be unlocked broadly into 4 categories, urban india, rural india, rural India & moving india. Railway represents moving India. A country as huge like India can never be neglected

to its potentiality and failure . Railway represents the true picture of India , its vast demographic variation, cultural diaspora, and visible consumption variation that makes India unique in its one form, There is a homogeneity in India’s Railway system, as per its operational parameters are concerned . On the one hand it unite India but also distinctly segment Indian Consumers based upon social, demographic, economic, locational availability, culturally etc.

Railway provides a concentrated market for product and services . There is a need for the companies in India to re-look Indian railway and its consumers in a new perspective with the access of mobility and convenience of technological connectivity. Railway is increasing at a rate of 7%. The products of substandard and inferior quality clearly makes inroads , can be conveniently replaced by standardized and quality product of organized as well as local market through Consumers taste and preferences. Railway represents tremendous potential for the growth, It can provide tremendous traffic as well as visibility to the latent Consumers. An opportunity to the companies to formally rewrite the marketing game plan,

Indian Railway has created a massive networks of 64,000 Kms spread across Pan India and transport 30 million passengers each day from the length and breadth of the country, Indian railway is the largest railway network connectivity in the world, If we only focus on passengers train , covering India, Companies which purely create product on needs of Railways can create tremendous depth in Product portfolio. By creating railway as universe marketers can promote their product very effectively to the consumers. Railway station are the points of selling and the companies should target the lines/ routes of selling , Different marketing models can be created by the companies , to generate effective business which can be based upon mass customization of the product, another can be meant for niche segment, for rich and poor, on the other hand products can also be created based upon local approaches, and Hyper local means. Travelling is considered to be inevitable and when it comes to Indian railway it is having obvious advantages over others.

Portable sitting system, High energy biscuits, snacks, socks ,energy beverages, fragrances, syruped water, Local delicacies ,Toys , spices, detergent, confectioneries fancy handicrafts ,Packed meals with unique local flair , The plethora of the products which are not covered through online and offline tools can make in-roads in the consumer home through Indian railway. Indian railway is a world in itself. Smart phones are quite successful in penetrating this category by providing information and visual urge of the consumers during the travel. To a certain extent smart phone has provided us the functional as well as emotion consumer (Passenger) engagement.

The distribution element of Railways can be classified in to Utility chart

Types of Product Category	Utility Functions	Scope	Company Category	Type of Companies
Food products	Functional needs	Exist	FMCG	MNCs as well as local
Toys	Functional and aspirational needs	Exist	FMCG	MNCs as well as local
Beverages	Functional needs	Exist	FMCG	MNCs as well as local
Well-ness Medicines	Health needs	Exist	FMCG/Pharmaceutical Companies	MNCs as well as local
Human safety	Functional needs	Exist	FMCG	MNCs as well as local
Apps which can make our journey easier	Aspirational need and functional needs	Exist	FMCG	MNCs as well as local
Local especiality/ Delicacies	absence	Exist	FMCG	MNCs as well as local
Travel Utilities	absence	Exist	FMCG/Retail	MNCs as well as local
Cosmetics and Toileteraries	absence	Exist	FMCG/Retail	MNCs as well as local

Table-1

During the travel a passenger spend around 6 – 12 hrs, and it is this duration when the passengers goes through different types of biological, physiological, psychological urge of consumption which opens the possibilities of the companies to do business. Train travel in India and its experiences can be categorized into different segments ranging from Maharaja Travel experience of luxury to the most fundamental/ crude form of travel where the passengers are just urging for reaching the destination on time , but with infrastructural hiccups, passengers are bound to spend more travel time. It can also harbor the market for such product which are not available in the TIER-2345 cities or other way round.

Indian markets can be broadly classified in to various market parameters, fundamental variables(tangible as well as un-tangible) include product,place,price,promotion,publicity,process,procurement,politics,purity,pride,personal selling, procedure, proliferation, proximity, profile, promise, public relation, pressure groups, para- language, para pharse, point of interaction etc. The conventional mix of marketing are replaced by new mix in the universe of India railway system. Conventional Ps are needed to be re-worked with new Ps when it comes to marketing of products (In case of Indian Railway). The Journey of Indian railway provides a unique mix of comfort, challenge, risk, joy, luxury, adventure, enigma, patience, sadness, perseverance and testing our mettle inside, hence opens the window of all psychological as well as physiological needs. Railway provides the concentrated market for product and services. Brand loyalty will be replaced by the fusion of brand loyalty- availability. Design specification are required to be updated for the identified product and category which can provide multiple benefits to the travelling consumers.

No. of the people used to travel every year, is approximately 84 crore and increasing at a rate which is equal or more than the entire population of Europe and Australia . (Localisation , Customization and Mass marketing) is the mantra for the success of MNCs to get successful in Indian Railway market.

Indian railway system , is a universe in itself, and its passengers are the world largest consumer market in a specific domain. Britishers rule this country and united economically its resources by creating massive railway network. Effective business models and marketing strategies can provide enough space to the companies not only to provide market place but also to collaborate wealth. The dynamics of marketing mix and marketing in Indian railway system. Local produce which are mostly perishable /non-perishable nature can be easily dispersed through the Indian railway networks, even the passengers, Railway itself replaces the conventional marketing mix.

There are many villages across the country which are solely depending upon the timings of railway that arrives, these villagers are desperate to sell their produce through railway Network.

Objective/ Application of the study:-

This paper can be used for number of products , Companies and vendors for Product penetration in Indian Railway Domain. It can be used by Indian railways as a point of selling strategy and Market opportunity . Companies by substantially adding the new set of product/Service category may lead the opening of a new product /Service category hence redefining the Journey of world largest network of travel, Till date consumers are just fulfilling their basic requirements, but it the time when we need to provide the Consumers high quality products which can not only fulfill their functional requirement, but should also provide them a product usage satisfaction. Railway can utilize its unused layout for commercial purposes hence increasing its operational efficiency ,and cash surplus which can be further used for massive development of railway infrastructure expansion.

The objective of this research article is to provide an incite in to the potentiality of Indian Companies unlocking through Indian railways. .

Research Gap:- An opportunity to the companies to formally rewrite the marketing game plan for the Retail sector especially in the context of Indian railway domain, Conventional Ps are needed to be re-worked with new Ps(Mobile Phone and process of selling)will be the deciding factor , when it comes to marketing of products (In case of Indian Railway).

Research Methodology

To know about how diffusion speed varies for various products and retail formats across Railway destination of the country by using a Bass diffusion model. For Marketing managers, one of the biggest question is how fast a new product is likely to selling different destinations. By the help of data and research findings a consensus is building which will help to answer the query. By the use of "meta-analysis" of "diffusion speed" research, the mystery of diffusion speed is resolved and certain useful quantitative tool provides the insight information for product adoptions across certain categories .

How does the speed at which new products get adopted and diffuse through the market vary across products and formats. One simplest way to answer that question is by collecting data on the diffusion of a large number of products available in a large number of multi formats, and analyzing them to identify systematic patterns. However, building such a database would be an enormous task. Fortunately, there is an alternative. For over four decades, sociologists and marketing academics have been studying the diffusion of new products. So, the alternative is to pool the results of all published studies and look for patterns. This piggy-back strategy where one does not collect new raw data but instead analyzes other people's analyses has long been accepted in medicine and psychology. It is called "meta-analysis." This is the research strategy that I will follow. But how does one quantify diffusion speed? To quantify the diffusion speed and to correlate with existing format I have used the Bass Diffusion Model.

Using the Bass model

For over 30 years, marketing scientists have been using a simple mathematical model to study the diffusion of innovations in various sectors. It is often referred to as the Bass model, after Professor Frank M. Bass who first applied it to marketing problems. Here is how the model works. There is a market consisting of m consumers for differentiated and un-differentiated products, who will ultimately adopt. (I use the word consumers, but the model can be applied to business markets as well.). Let's call $N(t-1)$ the number of people who have already adopted before time t . The model assumes that the probability that someone adopts given that he or she has not adopted yet consists of two factors. First, there is a fixed factor p that reflects people's intrinsic tendency to adopt the new product. Second, there is a factor that reflects "availability", "word of mouth" or "social contagion," such that people are more likely to adopt the larger the proportion of the market that has already adopted. Since that proportion is simply $N(t-1)/m$, the rate at which new people adopt is $p + qN(t-1)/m$, where q captures the influence of word of mouth. So, since the number of people who have not adopted yet before time t is $m - N(t-1)$, and the rate at which these people turn into new adopters is $p + qN(t-1)/m$, one can express the number of adoptions occurring at time t as:

$$N(t) - N(t-1) = [p + qN(t-1)/m] \times [m - N(t-1)]$$

The model has three unknown parameters: the market size m , the coefficient of innovation p , and the coefficient of imitation q . The parameters can be estimated from real data using standard statistical software or even using the Solver tool embedded within Microsoft Excel.

Attractive properties

The model has several attractive properties. When q is larger than p , the cumulative number of adopters $N(t)$ follows the type of S-curve often observed for really new product categories. When q is smaller than p , the cumulative number of adopters follows an inverse J-curve often observed for less risky innovations such as new grocery items, movies, and music CDs. Exhibit 1 shows these patterns, where I rescaled the curves to be cumulative penetration curves by dividing $N(t)$ by m . Exhibit 2 on this page shows the corresponding patterns for the proportion of new adoptions occurring at time t , i.e. $[N(t) - N(t-1)]/m$. Note that an S-curve as shown in Exhibit 1 for the cumulative proportion corresponds to the familiar bell-shaped curve for the non-cumulative proportion of adopters (Exhibit 2) described in Geoffrey Moore's popular books like *Crossing the Chasm*.

Diffusion speed is captured by p and q

The parameters p and q provide us information about the speed of diffusion. A high value for p indicates that the diffusion has a quick start but also tapers off quickly. A high value of q indicates that the diffusion is slow at first but accelerates after a while. Of course, the number of new adoptions must start to decline at some point in time, since the number of people who have not adopted yet $[m - N(t-1)]$ becomes smaller and smaller.

Interestingly, once one knows p and q , one can calculate the time at which the peak number of adoptions occurs as:

$$t^* = \ln(q/p) / (p + q)$$

In short, the Bass model is a handy model that one can use to quantify the speed of diffusion. Better still: assuming that we start at the time of launch (where $t = 0$ and $N(0) = 0$), and that we have values for m , p and q that we feel comfortable about, the model can also be used to forecast future adoptions using the following formula:

$$N(t) = m \times [1 - \exp\{-(p+q)t\}] / [1 + (q/p) \exp\{-(p+q)t\}]$$

How p and q vary

Having found a way to quantify diffusion speed in terms of p and q and having chosen to perform a meta-analysis, I can translate the broad question I started with into something feasible: Taking all published applications of the Bass diffusion model, what can one say about the speed of diffusion of innovations as captured in the parameters p and q ? Specifically, how do p and q vary across products and countries? p and q values are considered to be quantifiers which determines the market value or perceptions of products towards the Consumers.

Constructing the database

I constructed a database containing 1000 sets of p and q parameters, from 50 papers published between yr.2000 and yr 2018. Some of these observations of 1000 data sets, include multiple p and q values for the same diffusion process. For instance, many studies have investigated the diffusion of Retail, FMCG Products of organized and Un-organised formats. I drastically reduced this database. By deleting all entries relating to such products which diffused much faster than average, I kept only those datasets about the extent of collectivism and risk avoidance. Furthermore, I only kept data relating to the period between yr 2000 and yr 2018, since this is the only window for which data on consumer buying and adoption inputs are available. Finally, I collapsed multiple observations of the similar product/ matrix in to a single average value. These several steps reduced the data set to 100 unique sets of p and q .

Averages are better than nothing, but market analysts and managers want more fine-grained and precise information. Say we have a new product that perhaps is not even launched yet. Based on the diffusion history of previous product categories, what kind of diffusion curve can we expect for the new product? That is, what values for p and q gives the forecast to the adoption curve?

As a baseline, I took specimen value of consumer products available at railway destination. The Exhibit (1 &2) give values for p and q for such cases, and also indicate how we should change those values if the Product/ Category does not fit that baseline. The exhibits also report 90 percent confidence intervals. Those are intervals or "windows" of values such that one would expect the (unknown) true value to fall within that interval with a 90 percent probability. As such, the intervals reflect uncertainty.

When applying the values, it is a good idea to get indicative values within the confidence intervals. This will allow us to see how sensitive the predicted curve is to the level of uncertainty in my analysis. Also, as a general rule in forecasting, we should use the forecasts from the Bass model, technique as it provides the accurate predictive value.

The results shown in Exhibit 1 and Exhibit 2 describe differences across product categories and demographics. First, in one axis of wealth where more development has taken place, consumers are more proactive rather than other Axis of wealth, where q is higher. This makes a lot of sense, Consumers in that segment are aspirational with higher amount of Purchasing parity than others.

Second, in specific regions with higher Axis of wealth & higher purchasing power, per capita, p is higher. That makes perfect sense as well, since having a higher purchasing budget makes it easier to adopt new products immediately. Finally, products and technologies that exhibit network effects compounded with avenues of possibility of heavier investment in infrastructure to enhance Consumer buying capacity with a higher q . This is consistent with prior research indicating that for such categories, people tend to wait until enough other people have adopted and, when there are competing standards, until it has become clear what products will survive. Interestingly, p also tends to be lower for products with network effects, making the S-shape even more pronounced.

Portable sitting system, High energy biscuits, snacks, socks, energy beverages, fragrances, syruded water, Local delicacies, Toys, spices, detergent, confectioneries fancy handicrafts, Packed meals with unique local flair, The plethora of the products which are not covered through online and offline tools can make in-roads in the consumer home through Indian railway. Indian railway is a world in itself. Smart phones are quite successful in penetrating this category by providing information and visual urge of the consumers during the travel. To a certain extent smart phone has provided us the functional as well as emotion consumer (Passenger) engagement.

Fog-1, (Aggregation & Integrator -can also be summed up through Railway Model/ Consumer Adoption)

Findings and Conclusions:-

There are systematic differences in diffusion of global products which emerge using a Bass model analysis.

Here are my conclusions:

The Bass model is a handy tool to look at diffusion patterns. Moreover, the quantitative "best guesses" from meta-analysis can be useful for predicting future adoptions, even when the product has not been launched yet.

There are systematic demographic differences in diffusion patterns.

The average coefficient of innovation p (speed of take-off) in some parts of one Axis of wealth is roughly half then the other axis.

The average coefficient of imitation q (speed of late growth) in one Axis is roughly a quarter less than that of other Axis.

Also, economic differences explain regional disparity of markets its product adoption variations in speed and cultural differences . It also explains about the potentiality of Indian Railway and the need for investment in Railway Infrastructure . There are systematic product differences in diffusion patterns. For instance, take-off is slower for non durables and products with competing standards that require heavy investments in infrastructure, while late growth is faster for industrial products and products with competing standards which require heavy investments in infrastructure.

References-

1. Armstrong, J. Scott , Editor, Principles of Forecasting: A Handbook for Researchers and Practitioners.
2. Boston: Kluwer Academic Publishers, 2001. [See also Professor Armstrong's website: marketing.wharton.upenn.edu/forecast.]
3. Bass, Frank M., "A New Product Growth Model for Consumer Durables," Management Science, 15 (January 1969), 215-227. [Website: basseconomics.com.]
4. Lilien, Gary L. and Arvind Rangaswamy, Marketing Engineering: Computer-Assisted Marketing Analysis and Planning, 2nd ed. Upper Saddle River, NJ: Prentice- Hall, 2003. [Website: www.mktgeng.com.]
5. Lilien, Gary L., Arvind Rangaswamy, and Christophe Van den Bulte, "Diffusion Models: Managerial Applications and Software," 295-336 in New-Product Diffusion Models, edited by Vijay Mahajan, Eitan Muller and Jerry Wind. Boston, MA: Kluwer Academic Publishers, 2000.
6. Barry Berman, Joel Evans R., –Retail Management a Strategic Approach||, tenth edition Pearson Education Inc., Dorling Kindersley Publishing Inc., 2007.
7. Burman Barry and Evans Joel, Retail Management: A Strategic Approach, 10th ed., Prentice Hall. Pearson Education Inc., Dorling Kindersley Publishing Inc., 2006.
8. Dunne Patrick M. and Lufsch Robert F., –Retailing|| 6th edition Thomson Learning Inc., 2008.
9. Krishnaveni M., "Marketing Paradigms and the Indian Firm", Asia Pacific Journal of Marketing and Logistics. 2006; 18(4):254-265.
10. Levy Michael and Weitz Barton, Retailing Management, McGraw Hill. Pearson Education Inc., Dorling Kindersley Publishing Inc., 2008.
11. Nair Suja, Retail Management, 1st ed., Himalaya Publishing House New Delhi, 2008.
12. <https://www.slideshare.net/sunilmbsingh/dmart-final>
13. <https://www.bloomberquint.com/business/2018/01/25/d-mart-parents-profit-jumps-65-on-demand-for-high-margin-products>
14. <https://economictimes.indiatimes.com/avenue-supermarkets-ltd/stocks/companyid-45987.cms>
15. <http://www.businesstoday.in>
16. https://www.slideshare.net/PrachiPawaiya1/dmart-69229309?next_slideshow=1
17. <https://www.moneycontrol.com/news/business/earnings/avenue-supermarkets-aims-to-open-15-20-d-mart-stores-per-annum-2491615.html>
18. <http://www.business-standard.com/company/avenue-super-40942/financials-ratios>
19. <https://www.livemint.com/Companies/SCYeHWZjo3MEoRt6LJdmN/DMart-parent-Avenue-Supermarkets-Q4-profit-up-474-to-Rs97-c.html>
20. https://money.rediff.com/companies/Avenue-Supermarkets-Ltd/10760016/ratio?src=comp_research

Exhibit-1

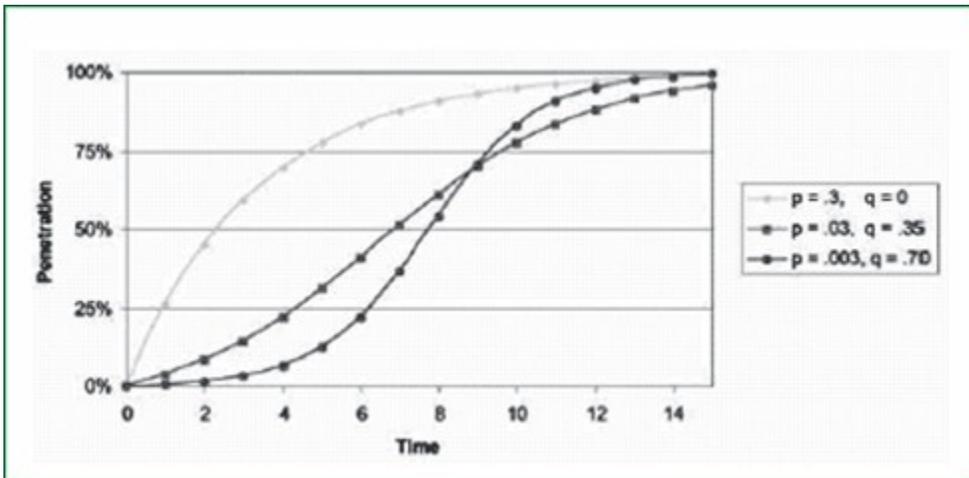
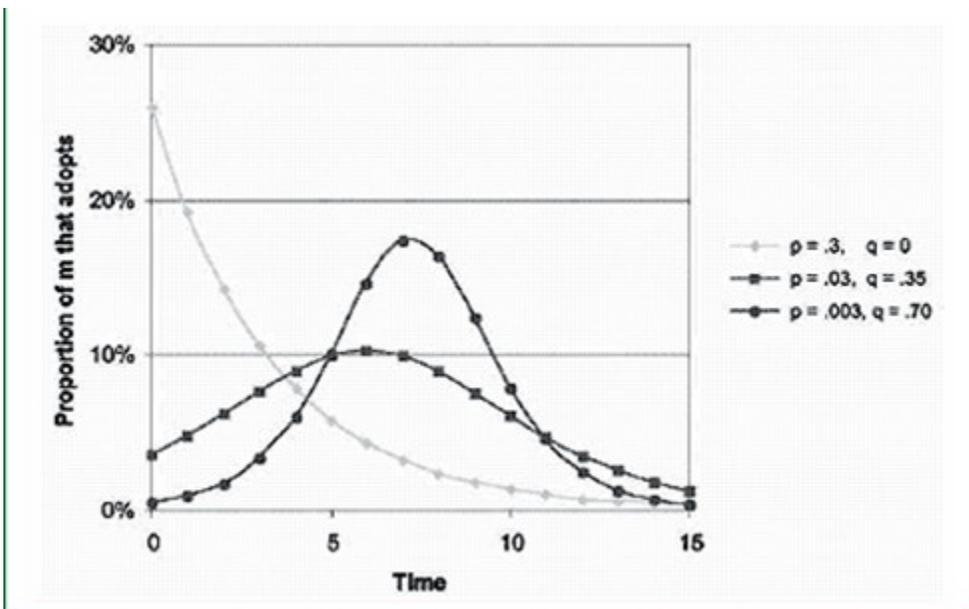
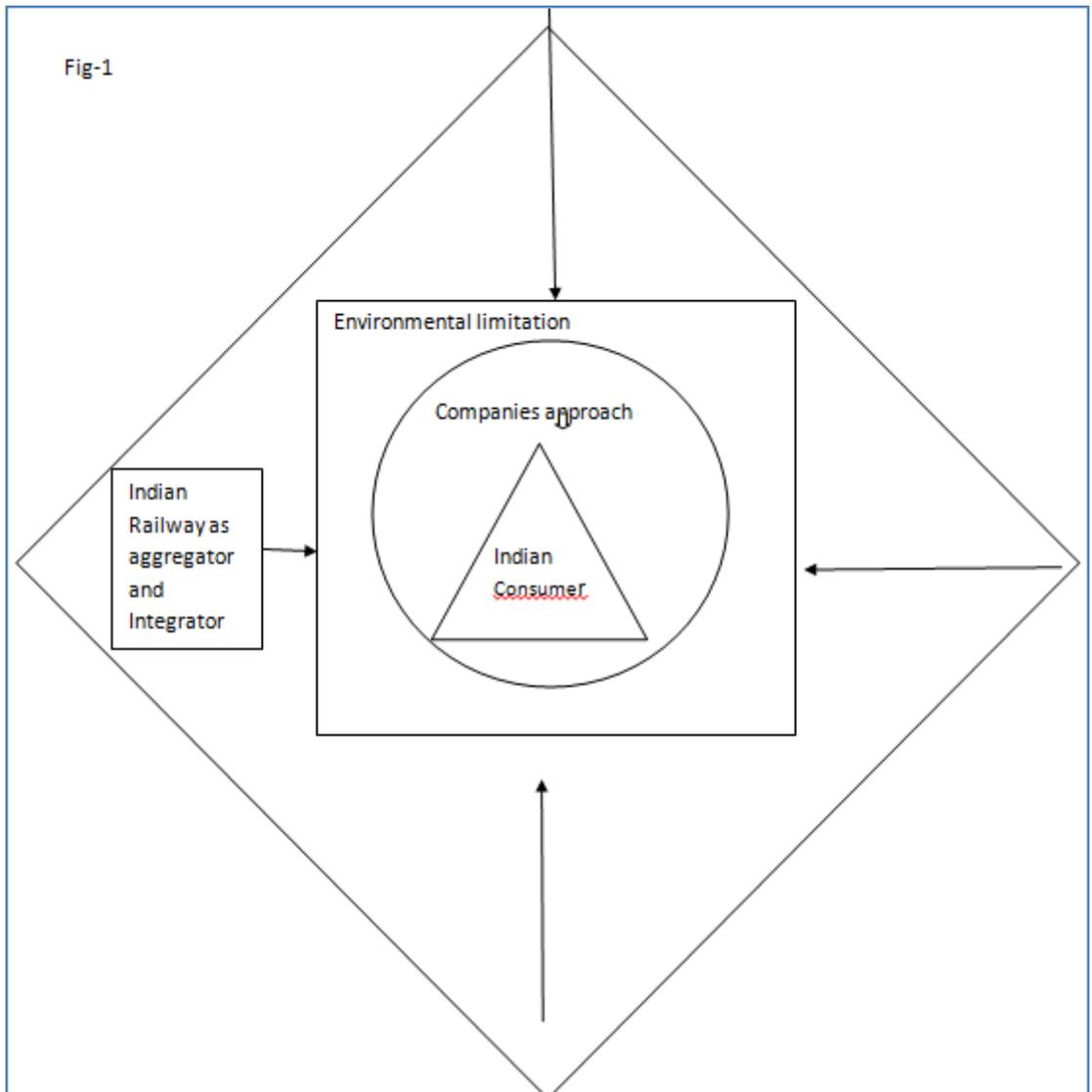


Exhibit-2



The rail model of marketing, works as integrator and aggregator,



An Economic Analysis of Cashew Nut Production in Pudukkottai Districts of TamilNadu

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1. Introduction

The share of agriculture and allied sectors in India's 17% of the GDP and employed 51% of the total workforce in 2012. It earns about 10 percent of its export earnings from the trade. The Cashew nut (*Anacardium occidentale*) is an evergreen tree in the family anacardiaceous grown for its edible fruits (nut). The Economic life span of the tree is 30-40 year. Cashew tree's produce highly productivity yield during the period of 7- 20 years after 20 years the yield will be decline. Native of the tree is Brazil in India start 16th centenary mainly to check soil erosion. The tree takes 3-4 years from cultivation to produce flower and fruit. Young cashew trees do not produce high productivity, when the tree become mature the productivity increases. Cashew is one of the important tree-nut crops, ranking third in international trade after hard nuts and almonds (MOFA, 2007). Cashew nut contains high nutritive value like 581 k cal of energy, 16.84 g of protein, 30.16 of carbohydrates, 47.77g of fat. Among cashew growing countries, India is one of the largest cashew cultivators and production next to Nigeria (www.faostat.org).In 2012 the area of cultivation and production of cashew nut at the global was 5.3 lakhs hectares and 4.1 lakhs tones. and productivity was 992000 kg/ha respectively (Sources: www.faostsat.org). In India area and production of cashew nut was 992000 hectors and 753000 tones respectively. The average productivity in India was 760 kg/ha. (Sources: Department of agricultural and cooperation (horticultural division). Area and production of cashew nut in Tamilnadu was 93302 ha and 19338 tonnes respectively and average productivity was 545 kg/ha (Sources: Season and Crop Report). In the year 2012, the price of raw cashew nut has reached its higher level. India is the largest producer, processor and exporter of cashew in the world. Cashew production in India is mainly a smallholder activity and provides income to farmers and all other agents involved in its production and marketing. Resources used in any production activity are regarded as the inputs that drive the production process. In cashew farming, the resources required include the land, labour, capital, fertilizer. A resource or input is said to be efficiently utilized when it is put to the best use possible and at minimum cost allowable. In a bid to help farmers increase productivity, through the farmers are using better and improved technologies. As the aim of every agribusiness firm is to maximize profit whiles minimizing cost, it is pertinent to determine the efficiency of resourceuse (Tambo and Gbemu, 2010). farmers are even making maximum use of what is available to them in terms of inputs so that the stakeholders involved in agriculture will be convinced that the new technologies they intend to introduce to farmers will be used efficiently and cost effectively to boost output

Objective

1. To estimate the cost and returns of cashew nut production.
2. To estimate the financial feasibility of cashew nut plantation.
3. To evaluate the resources use efficiency of cashew nut production in the study area.
4. To study the constraints faced by the farmers and to suggest policy measures.

Review of Literature

- Wongnaa,C.A and D. Ofori (2012) he identified resources use efficiency of the cashew farmer. The farmers were inefficient in using their resources. Land, fertilizer and pesticide were underutilized while labour and capital were over utilized. Farmers should be encouraged to increase the use of land, fertilizers and pesticides so as to increase productivity.
- Ojo S. O. and O. O. Ehinmowo (2010)He stated the productivity analysis kola nut, shows that while number of trees, cost of chemicals and labour were efficiently utilized, the case with farm distance and age of kola trees not effectively utilized.

- Sekar C. and K.R. Karunakaran (1992) he studied the costs incurred and the returns realized from cashew plantations under rain fed farm conditions. Since this enterprise was capable of generating Rs.9871 as NPV, it is more profitable than other rain fed crops. Since BCR was more than one, cashew cultivation in the study area could be considered as a profitable enterprise.
- Uwagboe E.O et.al (2010) he identified the following constraints of cashew in Nigeria Majority (70%) of the respondents in the study area ranked inadequate capital (finance) as the most severe constraint while lack of storage facilities was ranked by few (5.50%) of the respondents. This implies that significant increase in constraints will lead to reduction in income of cashew farmers

Selection of the Study Area:

For the study area, Gandarovokkottai taluk of Pudukkottai district is selected, as it is the third largest area under cashew nut cultivation in rain fed condition. In the second stage, 3 villages were randomly selected and in the third stage, 15 farmers were selected randomly from each village. Therefore, the total sample size was 45 farmers who cultivate intercrops like eucalyptus, jackfruit, and mango of cashew tree. Out of the 45 farmers in the sample only 18 farmers have followed 7X7 spacing and only 6 farmers in the sample has cultivated intercrops in their farm.

Data Collection:

The study is based on both primary and secondary data. Primary data is collected from producers, through the interview method and the tool used for it was pre-designed questionnaires. Secondary data is collected from the Food and Agricultural Organization, Directorate of Cashew and Cocoa, Cashew, Export Promotion Council of India (CEPC) and Directorate of Horticulture, Season and Crop Report.

Tools of Analysis

Data collected is tabulated and analyzed using standard statistical tools like

- Percentage distribution
- Cost and returns
- Project technique
- Cobb - Douglas production function
- Garrett ranking

1. Percentage analysis

Percentages were worked out to study the sample characteristics like age, education, occupation, farming experience and cashew nut experience.

$$\text{Percentage analysis} = \frac{\text{Number of respondents}}{\text{Total sample size}} \times 100$$

2. Compound growth rate

The compound growth rate analysis is a useful measure of growth over a multiple time periods. For estimating the growth rates for area, production and yield under cashew have been estimated for the period 1990 to 2012 .The compound growths can be computed by the following equation.

$$\text{CGR} = [\text{antilog}(b) - 1] \times 100$$

Where,

b--- Slope of parameters in logarithmic form

3. Financial Analysis

Net present worth

$$\frac{P_1}{(1+i)^{t_1}} + \frac{P_2}{(1+i)^{t_2}} + \dots + \frac{P_n}{(1+i)^{t_n}} - C$$

Where

P₁ = Net cash flow in first year,

i = Discount Rate,

t = Time Period, and

C = Initial cost of the investment

4. Benefit Cost Ratio (B-C RATIO)

$$B-C \text{ Ratio} = \frac{\sum_{t=1}^n \frac{B_t}{(1+r)^t}}{\sum_{t=1}^n \frac{C_t}{(1+r)^t}}$$

(OR)

Benefit cost ratio = $\frac{\text{Present worth of gross returns}}{\text{Present worth of cost}}$

5. Internal Rate of Return (IRR)

$(IRR) = [\text{Lower discount rate}] + [\text{Difference between the two discount rates}] \times$

$$\left[\frac{\text{Present Worth of Cash flow at the lower discount rate}}{\text{Absolute difference between the present worths of the cash flow at two discount rates}} \right]$$

6. Cobb - Douglas production function is used to calculate the resource use efficiency of Cashew Nut production.

$\ln Y_i = \beta_0 + \beta_1 \ln X_1 + \beta_2 \ln X_2 + \beta_3 \ln X_2 + \beta_4 \ln X_4 + \beta_5 \ln X_5 + D1 X_6$

Where, the subscript 'i', denotes the ith farmer in the sample,

- Y_i = Output of cashew nut (kg/Acre),
- β₀... β₅ = Parameters to be estimated,
- X₁ = Machine Labor (hr/Acre)
- X₂ = Human labor (man-days/Acre)
- X₃ = No of the plant (No/Acre)
- X₄ = Age of the plant (yrs/Acre)
- X₅ = Quantity of Manures (kg/Acre)
- D1= Intercrop (1 indicate yes: 0 is no)

7. Garrett's ranking

In this techniques are used to measure Problem and constraint faced by Cashew farmer .In the Garrett's ranking technique these ranks were converted into percent position by using following formula.

$100 \times (R_{ij} - 0.5)$

Percent position = _____

N_j

Where,

- R_{ij} = Ranking given to the ith attribute by the jth individual
- N_j = Number of attributes ranked by the jth individual

Result and Discussion

Table 1: Personal characteristics of the respondents

S. No	Particulars	Minimum	Maximum	Mean
1	Age	30	80	46
2	Farming Experience	4	50	20
3	Cashew nut Experience	4	50	23.4
5	Average Yield	120	130	198
6	Human Labour	2	6	2.6
7	Machine Labour	2	4	2.5
8	Quantity of manures	1	3	2.5

The minimum value of the age of the farmers in the sample is 30 years and the maximum age of the farmer is 80 years, so the mean value is 46. The minimum value of farming experience of the farmers in the sample is 4 years and the maximum farming experience of the farmers is 50 years, so the mean value is 20. The

minimum value of cashew nut farming experience of the farmers in the sample is 4 years and the maximum value is 50 years, so the mean value is 23.4. The minimum value of the yield of cashew nut is 120 and the maximum yield is 130, so the mean value is 198. The minimum and maximum value of the human labours in the farms of the sample is 2 and 6 respectively, so the mean value is 2.61. The minimum and maximum value of the machine labours in the farms of the sample is 2 and 4 respectively, so the mean value is 2.5 and the standard deviation is 0.59. The minimum and maximum value of the quantity of manures in the farms of the sample is 1 and 3 respectively, so the mean value is 2.5

Table 2: Distribution of respondents by their Education and occupation

S. No	Education	No	%
1	Primary	16	36
2	Secondary	23	51
3	Higher Secondary	4	9
4	Graduates	2	4
5	Illiterate	0	0
	Occupation		
1	Farmer	36	80
2	Business	7	16
3	Others	2	4

The educational level and occupation of the farmers in the sample is tabulated. Among the samples, 36% of the farmers have completed their primary education. Farmers who have completed their secondary education are 51%. Among them 4% of the farmers are graduates. None of the farmers in the sample is illiterates. , the occupation of the sample under study is presented. In that, 80% of the samples are farmers, 16% of them are doing business and rest of the 4%, are doing other works.

Table 3: Compound growth rate for area, production and productivity of cashew nut

S. No	Particulars	1990-2000(%)	Mean	2000-2012(%)	Mean
1	Global				
	Area(lakhs ha)	6.58	24.2	5.14	43.4
	Production(lakh tones)	8.09	13	7.50	33
	Productivity(kg/ha)	1.42	535	2.24	775
2	India				
	Area (000'ha)	3.54	613	2.66	856
	Production (000't)	5.62	387	4.13	563
	Productivity (kg/ha)	3.39	733	0.001	768
3	TamilNadu				
	Area (ha)	1.94	78833.5	0.11	98426
	Production (tones)	15.8	20592	-1.74	40297.5
	Productivity (kg/ha)	13.7	286	-1.51	406
4	Pudukkottai				
	Area (ha)	-9.75	11812	-3.36	9612
	Production (tones)	4.90	3692	0.52	2935
	Productivity (kg/ha)	1.97	159	3.84	261

Table 4: Cost and returns of cashew nut cultivation(Rs/ha)

S. No	Operation	Cost	%
1	Machine Labour	4806	37
2	Manures and manuring	2008	28
3	Human Labour	3050	26

4	Equipment cost (basket)	1000	9
	Total	10864	100
	RETURNS	Field Survey	
1	Average Yield (kg/ha)	200	
3	Gross Return	13000	
4	Gross margin	2136	

The cost of machine labour is 4806 and it occupies 37% of the total cost spent in the farm. The cost of manures and manuring is 2008 and it occupies 28% of the total cost spent in the farm. The cost of human labour is 3050 and it occupies 26% of the total cost spent in the farm. The cost of the equipment is 1000 and it occupies 9% of the total cost in the farm. The average yield is 200 Kg/Ha, the gross return is 13000 and the gross margin is 2136. The gross margin is minimum so it must be increase.

Table 5: Estimates of Cobb Douglas production function in cashew nut cultivation

Particulars	Coefficient	t value
Intercept	5.652717	7.562229
Machine Hrs	-0.03835	-0.65387
No of H L	0.06023	1.253801
Quantity of manures	-0.01214	-0.44043
No of the plant	0.341275**	2.80602
Age plant	-0.49685***	-5.08908
Inter Crop	0.019058	0.397778
R square	0.76	

This analysis used to estimate the resources use efficiency of the farmer in the study area. No of the plant is significant at 5 % significant level it leads to 1 % increase in variable automatically the production will be increase at .34%. Age of plant is negatively significant at 1 % significant level it leads 1 % increase the variable automatically the production will be decrease are -.49 %. Remaining variables are insignificant. The R square will be 0.76 which show 76 % deviation in production of cashew is explained by explanatory variable.

Table 6: Economic appraisal of cashew plantation

S.No	Particulars	Result
1	Net Present Worth (NPW)	15995
2	Benefit Cost Ratio (BCR)	1.1
3.	Internal Rate of Return (IRR)	16.42

The positive NPW show that cashew plantation is economically feasible supported by a BCR of 1.1. And IRR is 16.42 %

Table 7: Ranking of respondents constraints according to their severity.

S. NO	PARTICULARS	RATING
1	Climatic factors(Rainfal)	I
2	Pests and disease	II
3	Labour shortage	III
4	Storage	IV
5	Others	V

The major constraints faced by the farmers in the cashew nut cultivation are rated. The first constraint is rainfall. The second is pest and disease, as most of the farmers do not get proper guidance on control measures. The third constraint is labor shortage as due to urbanization most of the people have left agriculture.

Conclusion

Area & production in Pudukottai districts was found to be declining in past two decade Farmers are not efficiently utilizing their resources such as land area by maintaining optimum plant population. Climatic factors such as rain fall are the major constraint faced by the farmers in the study area. The technology adoption is very low hence farmer should be made aware of the available technologies in cashew nut production through trainings. To increase the income resources which are not properly utilized like land has to be more efficiently utilized. Since older age plants fetches lesser yield, new plantation or rejuvenation of the plantations are recommended with the new varieties such as VRI2 and VRI 5

References

1. C Sekar, KR Karunakaran. Economic analysis of cashew plantations under Agro forestry conditions of central Tamil Nadu. *Journal of Tropical Forest Science*. 1992;6(4):523-528.
2. Uwagboe EO.et.al. Constraints of farmers in cashew production: a case study of orire l.g.a. of oyo state, Nigeria. *ARPJ Journal of Agricultural and Biological Science*. July, 2010; 5(4). ISSN 1990-6145
3. SO Ojo, OO Ehinmowo. Economic Analysis of Kola-nut Production in Nigeria. *J Soc Sci*. 2010; 22(1):1-5.
4. CA Wongnaa, D Ofori. Resource-use Efficiency in Cashew Production in Wenchi Municipality, Ghana *Agris on-line Papers in Economics and Informatics*, 2012,IV(2).

"Green Marketing - A Real Practice or Eyewash?" An Ethical Perspective

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ABSTRACT: *Increasing awareness on the various environmental problems has led a shift in the way consumers go about their life. There has been a change in consumer attitudes towards a green lifestyle. People are actively trying to reduce their impact on the environment. However, this is not widespread and is still evolving. Organizations and business however have seen this change in consumer attitudes and are trying to gain an edge in the competitive market by exploiting the potential in the green market industry. In the modern era of globalization, it has become a challenge to keep the consumers in fold and even keep our natural environment safe and that is the biggest need of the time. Green marketing is a phenomenon which has developed particular importance in the modern market and has emerged as an important concept in India as in other parts of the developing and developed world, and is seen as an important strategy of facilitating sustainable development. In this line, many organizations nowadays are using various green products instead of non-renewable resources but not at a cost of their profit mark up. In reality, the scenario is such that too many green products have confused the consumers to which claims are real and which are not. Similarly organizations are also affected with this issue i.e., the correct implementation of this practice. No company will implement any such practice which is not enhancing their quantitative benefits. In this context many practices are adopted by organizations where green marketing is adopted but not in all its correct senses, quantitative benefits are included as an important element there which is making the implementation of green marketing only eyewash. In this regard, this paper attempts to highlight the various issues of understanding the real meaning of green marketing, to introduce the concept of various types of malpractices in green marketing and the perspective of the consumers in their conceptual understanding of green marketing. The paper uses both primary and secondary data for the purpose of accomplishment of the defined objectives. The various concepts of malpractices of green marketing are defined on the basis of secondary data available whereas the perspectives of the consumers are incorporated with the help of primary data collected.*

Keywords: *Consumer Greendex, Eyewash, Green Lifestyle, Green Marketing, Sustainable Development.*

1. Introduction

Businesses need to constantly assess the latest and most attractive marketing trends. Marketing trends can be found out by continually researching about the changes in consumer behaviour in the marketplace. By identifying the changes in the consumer behaviour, the businesses can modify their offering to the consumers. Consumers today are more concerned about environmental degradation and negative impact of their uses of product and services on environment. The reason for this concern could be visible climatic changes, global warming and increasing air and water pollution. Thus using green marketing by the organizations not only provides an opportunity to meet consumer expectations and address their environmental concerns, but also to gain a competitive advantage and a strong consumer base.

Green marketing is also termed as environmental marketing or ecological marketing. According to American Marketing Association, marketing of products that are presumed to be environmentally safe is called as Green Marketing. Thus wide range of activities are covered under green marketing, which includes modifying the product, making changes in the production process and packaging, as well as modifying advertising or removing any activity that impacts the environment in negative way. Today, the Earth faces more environmental issues than ever before, hence it is imperative for companies to make and market them as environment friendly. Green marketing is emerging as a popular promotional strategy owing to increased consumer awareness and concerns.

The concept of green or ecological marketing calls upon businesses to follow ethical and green practices while dealing with customers, suppliers, dealers, and employees. Companies have started marketing themselves as green companies. Even the Public Sector Units and state governments are now paying a lot of attention towards environmental issues such as global warming, pollution, or water contamination and have started taking steps to prevent environmental pollution. In a recent survey conducted by *National Geographic Society* and the international polling firm Globescan (2010) to determine consumers' green attitude called "Consumer Greendex", the top scoring consumers were in the developing economies of India,

Brazil and China while industrialized countries ranked at the bottom. Consumers showing the largest increase in environmentally sustainable behaviour were in India, Russia and the United States (Howe et al., 2010). A company to be successful in green marketing requires to be committed to operate in environmentally friendly ways.

The prerequisite for going green enables the companies to contribute towards Sustainable Development. Due to Government, competitive pressures, Corporate Social Responsibility, entrusted the corporations to adopt Green Marketing. Recycle Renewable Bio-gradable are the most available options that can benefit the environment. Sustainable development AS per the "Report of the World Commission on Environment and Development (United Nations, 1987)" can be viewed as a pattern of resource use that aims to meet human needs while preserving the environment so that these needs can be met not only in the present, but in the indefinite future. The field of sustainable development can be conceptually broken into three constituent parts: environmental sustainability, economic sustainability and socio political sustainability. Sustainable development does not focus solely on environmental issues. The United Nations 2005 World Summit Outcome Document refers to the "interdependent and mutually reinforcing pillars". Green marketing has now evolved as one of the major area of interest for marketers as it may provide competitive advantages. However it requires investment in terms of technology enhancement, process modification, communicating benefits to customers etc. Many of the companies in India have now started marketing themselves as green organizations due to certain government regulations and shift in the preference of the consumers worldwide. However, not much research with respect to green marketing has been done in India and there is question about the awareness of green products among consumers. The attitude of Indian consumers towards green products and the relationship between the attitude and behaviour is also questionable. As green marketing is different from the marketing in traditional way, marketers need to know the factors that persuade the consumer to buy the green products. This study aims to identify the various malpractices adopted by many companies where they are not adopting green marketing in all real aspects but showcasing disguise presentation of their concern towards the environment in which the biggest loophole is the minimal understanding of the consumer base regarding the real meaning of green marketing practices. Thus the paper here attempts to identify the deviation between the perceived knowledge and real practice of green marketing.

1. Literature Review

Some selected available literatures have been reviewed as below:

Prothero, A. (1998) introduces several papers discussed in the July 1998 issue of 'Journal of Marketing Management' focusing on green marketing. This includes; a citation of the need to review existing literature on green marketing, an empirical study of United States and Australian marketing managers, a description of what a green alliance look like in practice in Great Britain, ecotourism and definitions of green marketing.

Oyewole, P. (2001) presents a conceptual link among green marketing, environmental justice, and industrial ecology. It argues for greater awareness of environmental justice in the practice for green marketing. A research agenda is finally suggested to determine consumers' awareness of environmental justice, and their willingness to bear the costs associated with it.

Karna, J., Hansen, E. & Juslin, H. (2003) interpreted that proactive marketers are the most genuine group in implementing environmental marketing voluntarily and seeking competitive advantage through environmental friendliness. The results also give evidence that green values, environmental marketing strategies, structures and functions are logically connected to each other as hypothesized according to the model of environmental marketing used to guide this study.

According to Michael J Polonsky, environmental marketing has been perceived as an opportunity by the organizations to achieve their objectives (stated by Keller 1987, Shearer 1990). It was believed that organizations have moral obligation to serve the society in more environmental friendly way (Davis 1992, Freeman and Liedtka 1991, Keller 1987, Shearer 1990). Firms are also forced to become more socially responsible due to the laws laid by the government towards the protection of the environment. Firms are also pressurized by the environmental activities adapted by competitors that demand the firms to change their marketing activities to environmental marketing activities. One of the factors identified that affects the purchase of green product is its high price in comparison with traditional product. Price of the product can be reduced by properly designed environmental standards. Environmental standards can trigger innovations that lower the cost of the product or improve its value. Such innovation will allow the companies to use a range of inputs more productively-from raw materials to energy to labour - thus

offsetting the cost of improving environmental impact and hence enhanced resource productivity will make companies more competitive. Innovation will play a lead role in sustainable development for the companies to be competitive and resisting innovations will lead to loss of competitiveness in today's global economy (Michael Porter and Claas van der Linder, 1995).

Jacquelyn Ottman, (1998) suggests that from an organizational standpoint, all aspects of marketing including new product development and communications should be integrated with environmental considerations. This holistic view of Green Marketing suggests that not only the suppliers and retailers, but the new stakeholders including educators, community members, regulators, and NGOs should also be taken into purview. Environmental issues should not be compromised to satisfy primary customer needs. Organization operating green practices in their processes and products is considered as environmentally friendly by the consumers and they prefer to purchase the products of the organization that are marketing themselves as green organizations.

According to Joel Makower (cited by Shafaat & Sultan, 2012), challenges faced by green marketer also include *the lack of standards and common consensus among the public about gain popularity*, particularly in light of growing global concern about climate change. Companies are coming forward to showcase their commitments to reduce adverse climate impacts of their products and services. Green marketing can play an important role in sustainable development so firms must adapt innovative methods to sustain itself in the competitive environment.

Consumers are substantially aware about green products; however applying green marketing practices in business operations is not an easy task (Juwaheer, 2005). Antonio et al (2009) suggested that due to environmental consciousness that has evolved over time, studies on green consumerism will be the main focus point in future leading to identifying the consumer attitudes, behaviours and intentions. Braimah and Tweneboah-Koduah (2011) studied Ghanaian consumers and have found low level of awareness towards green marketing issues which affected that purchase decision of the consumers. Price of green products was also found to be one of the factors that influence the purchase of green products. However, it was found that young consumers are more likely to be influenced by green issues. **Cherian and Jacob (2012)** found that consumers lack green knowledge and because of this low awareness, organizations are still not focusing towards development of green products.

2. Research Objectives

This paper attempts to highlight the various issues of understanding the real meaning of green marketing, to introduce the concept of various types of malpractices in green marketing and the perspective of the consumers in their conceptual understanding of green marketing.

3. Research Methodology

The present study is exploratory in nature to provide a clear guidance for empirical research. For this purpose secondary data were collected. The secondary data were collected through newspapers, magazines, books, journals, conference proceedings, Government reports and websites. Along with this some sample questions are also analyzed to have a clear picture about the understanding of the concept of green marketing among consumers (with sample size of 100 respondents chosen up randomly) which is presented in the form of various graphical representation.

4. Analysis and Findings

a. Need for Green Marketing:

The mankind has limited resources on the earth to satisfy their unlimited wants. As firms face limited natural resources, they must develop new or alternative ways of satisfying these unlimited wants. Green marketing looks at how marketing activities utilize these limited resources. Different group of consumers have different levels of environmental concerns and thus different attitudes towards green marketing. There are some reasons for which a marketer should go for the adoption of green marketing:

✚ Social responsibility

All types of consumers, both individual and industrial are becoming more concerned and aware about the natural environment. So firms are realizing to behave in an environmentally responsible manner and integrating environmental issues into the firm's corporate culture.

✚ Governmental Pressure

As with all marketing related activities, governments want to "protect" consumers and society; this protection has significant green marketing implications. Governmental relating to environmental marketing are designed to protect consumers in several ways,

- To reduce production of harmful goods or by-products.
- To ensure that the consumers have the ability to evaluate the environmental composition of goods.
- To modify industry's consumption of harmful goods.
- Introduction of voluntary recycling programs.

For example, some governments have introduced voluntary curb side recycling programs, making it easier for consumers to act responsibly. In other cases governments tax individuals who act in an irresponsible fashion. For example in Australia there is a higher gas tax associated with leaded petrol.

Competitive Pressure

Another major force in the environmental marketing area has been firm's desire to maintain their competitive position. In many cases firms observe competitors promoting their environmental behaviours and attempt to emulate this behaviour. In some instances this competitive pressure has caused an entire industry to modify and thus reduce its detrimental environmental behaviour. For example, it could be argued that Xerox's "Revive 100% Recycled paper" was introduced a few years ago in an attempt to address the introduction of recycled photocopier paper by other manufacturers.

Cost or Profit Issues

Firms may also use green marketing in an attempt to address cost or profit related issues. Disposing of environmentally harmful by-products, such as polychlorinated biphenyl (PCB) contaminated oil are becoming increasingly costly and in some cases difficult. Therefore firms that can reduce harmful wastes may incur substantial cost savings. When attempting to minimize waste, firms are often forced to re-examine their production processes. In these cases they often develop more effective production processes that not only reduce waste, but reduce the need for some raw materials. This serves as a double cost savings, since both waste and raw material are reduced.

b. Problems with application of green marketing concept:

As pointed out earlier, green marketing is an all embracing concept and involves market analysis to identify the market for green ideas and products, studying consumers' green attitudes and behaviours, stratifying the green market into different segments based on consumers' greenness, and developing green positioning strategies and marketing mix programmes. However, it is easier said than done. Firstly, there is difficulty in establishing policies at the corporate level that address all the environmental issues. Even if an organisation is able to adopt a green policy, it is invariably expensive as it might involve modifying the entire marketing process. Notwithstanding the fact whether one is a leader or a follower, a higher risk is associated in the tapping of the green market and employing green marketing strategies as a competitive tool. Even a follower reacting to competitive pressures can make the same mistake as the leader has done. Moreover, there is uncertainty involved as the environmentally responsible action of today might turn out to be harmful in the future. A firm faces the risk of coming back to square one and starting over, once again, the entire greening process. The other problem with green marketing is that too many environmental claims make consumers confused over claims and terminology such as eco-safe, environment friendly, recycled, recyclable and biodegradable.

A major factor inhibiting the wide scale application and role of green marketing is the failure among business firms to fully understand and embrace the green marketing concept. Many a firm has resorted to green marketing practices merely as a tactic to promote its commercial interests. Based on the motive for going green and the postures business firms adopt, an interesting typology of half-hearted green marketing practices has come into the green marketing literature. Some of the major types of less than true green marketing strategies that are inimical to the long term growth and wider application of the green marketing concept are briefly discussed here:

-  **Green Spinning:** Instead of environmentally improving the product, some business firms try responding to environmental challenges and pressures by presenting their own version of environmental "facts" through their public relation efforts. Such practices and tactics add to the already existing stock of confusion in the market and substantially lower down the credibility of environmental claims made by other genuinely green firms.

- + **Green Selling:** Companies continue to produce virtually the same product, but they add some “new” environmental benefits in their promotion campaigns to take advantage of increasing consumer interest in the environment. When practiced in this form, green marketing efforts on the part of the companies remain concerned only with promotional activity, with little or no effort being made to develop products which are truly green.
- + **Green Harvesting:** Greening sometimes leads to a decrease in product cost. This tempts many companies to go green and harvest the market. Products are produced at lower costs, but sold at a premium to earn extra profits. However, these companies retreat and show reluctance when a further move towards sustainability means increased product and marketing costs for them.
- + **Enviropreneur Marketing:** An Enviropreneur is defined as an “environmentally committed individual, section or company that seeks to bring to market innovative new green products” (Crane and Peattie, 1999). Though the Enviropreneur time and money spent on developing green products are laudable, there is no guarantee that such products when launched into the market would succeed commercially. As is often the case, these products turn out to be great failures primarily due to the preoccupation of their inventors with the engineering and technological aspects of the new product’s development process. Such companies get overly concerned with developing products that are environmentally safe, but pay scant attention to undertaking consumer research and understanding the needs and wants of their prospective buyers. Such companies, therefore, end up producing what is most environments friendly rather than producing environmental products that customers actually want.
- + **Compliance Marketing:** This type of green marketing strategy is practiced by companies whose only environmental initiatives are the ones imposed on them by regulations. These companies comply with environmental laws just to promote their products in the market. They are not genuinely keen on green issues. They go in for green production and marketing only when pressurised to do so, while at the same time lobbying actively to ensure that no new legislations are enacted in the future.
- + **Green Washing:** A lot of companies see new environmental awareness as an opportunity for short-term profits rather than as a market opportunity. Little wonder they adopt or make false or misleading environmental claims which create consumer distrust in green marketing efforts (www.nhhs.no/interesse/oikos/GreenMarketing.pdf)

c. Eight keys to successful Green Marketing:

Show potential customers that you follow green business practices and you could reap more green on your bottom line. Green Marketing isn’t just a catchphrase. It’s a marketing strategy that can help you get more customers and make more money. But only if you do it right. For green marketing to be effective, you have to do three things. Be genuine, educate your customers, and give them the opportunity to participate.

- + **Being genuine** means that (a) that you are actually doing what you claim to be doing in your green marketing campaign and (b) that the rest of your business policies are consistent with whatever you are doing that’s environmentally friendly. Both these conditions have to be met for your business to establish the kind of environmental credentials that will allow a green marketing campaign to succeed.
- + **Educating your customers** isn’t just a matter of letting people know whatever you’re doing to protect the environment; but also a matter of letting them know why it matters. Otherwise, for a significant portion of your target market, it’s a case of “So what?” and your green marketing campaign goes nowhere.
- + **Giving your customers an opportunity to participate** means personalizing the benefits of your environmentally friendly actions, normally through letting the customer take part in positive environmental action.
- + **Know your customer:** If you want to sell a greener product to consumers, you first need to make sure that the consumer is aware of and concerned about the issues that your product attempts to address. (Whirlpool learned the hard way that consumers wouldn’t pay a premium for a CFC-free refrigerator because consumers didn’t know what CFCs were!).
- + **Empower consumers:** Make sure that consumers feel, by themselves or in concert with all the other users of your product, that they can make a difference. This is called “empowerment” and it’s the main reason why consumers buy greener products.
- + **Be transparent:** Consumers must believe in the legitimacy of your product and the specific claims you are making. Caution: There’s a lot of scepticism out there that is fuelled by the raft of spurious claims made in the “go-go” era of green marketing that occurred during the late 80s to early 90s- one brand of household cleaner claimed to have been “environmentally friendly since 1884!

- ✚ **Reassure the buyer:** Consumers need to believe that your product performs the job it's supposed to do — they won't forego product quality in the name of the environment. (Besides, products that don't work will likely wind up in the trash bin, and that's not very kind to the environment.)
- ✚ **Consider your pricing:** If you're charging a premium for your product -and many environmentally preferable products cost more due to economies of scale and use of higher quality ingredients-make sure that consumer can afford the premium and feel it's worth it. Many consumers, of course, cannot afford premiums for any type of product these days, much less greener ones, so keep this in mind as you develop your target audience and product specification.

5. Consumer Perception about Green Products and Practices

1. Do you select products as per its impact on environment?	
Options	Responses (In %)
YES	27.3
NO	18.2
SOMETIMES	54.5

2. Do you prefer green products over normal products?	
Options	Responses (In %)
YES	90.9
NO	9.1

3. What makes you buy a green product?	
OPTIONS	RESPONSES (In %)
Promotional Campaigns	9.1
Product Features	36.4
Environmental Issues	54.5

OPTIONS	RESPONSES (In %)
YES	90.9
NO	9.1

After analyzing the scope, opportunities and challenges of green marketing in detail, a sample survey has been taken for better understanding and clarity of the topic. Below presented are some broad observations which highlight the viewpoint of the consumers':

- More than 80% of society is aware of green products and they prefer them over normal products.
- 54% of consumers are buying green products to curb the environmental complications and others i.e., 46% is buying green product as per the product features and their promotion campaigns.
- Even after knowing the benefits of green products, 27.3% of consumers are unwilling to pay premium price which shows either their 'let go' attitude or less disposable income which is restricting them.
- Consumers are not sceptical regarding the eco-friendly claims of brand because only 36.4% people are verifying the claims before any purchase.
- More than 50% of respondents occasionally check product's impact on environment. This perhaps indicates that they are not fully dedicated towards sustainable development or less concerned about it.
- Only 10% of consumers think that green products are not beneficial to curb environmental complications and they do not oppose products which are harmful to environment.

6. Concluding Observations

Green marketing is still in its infancy and a lot of research is to be done on green marketing to fully explore its potential. There are some suggestion that an organizations should implement for catering challenges of green marketing and successful exploitation of green marketing. Consumer needs to be made more aware about the merits of Green products. The consumer needs to be educated and made aware of the environmental threats. It should be made sure that the consumer is aware of and concerned about the issues

that your product attempts to address. Green Marketing campaign and green advertising is good step toward it. Consumers must be motivated to switch brands or even pay a premium for the greener alternative.

Make sure that consumer feel that they can make a difference. This is called – “empowerment” and due to this main reason consumers will buy greener products. Further steps should be taken to control false promise and claim by the marketer to maintain legitimacy and trustworthiness of green products. For effective and efficient implementation of this concept of Green Marketing the factor that plays a major role is the Government. Unless the government creates specific and stringent laws and utilizes its authority to implement them, the concept cannot be conceptualized. If the Consumer, the Organization and the Government work in unison towards the common goal of minimizing the detrimental environmental impact of their activities, then they can surely save this environment and make this world a better place to live in. It is not enough for a company to green its products, consumers expect the products at they purchase pocket friendly and also to help reduce the environmental impact in their own lives too. Green marketing is very low on the agenda of most businesses and therefore it’s still an under-leveraged USP (Unique Selling Proposition). Therefore, effective green marketing targeted at the right audience will make a difference.

Green marketing is beneficial for both firms as well as environment although it has its own certain drawbacks. Marketers should not just focus on its initial huge investment instead they should focus on brand’s long term growth and future dividends. It definitely helps a firm in earning trust of consumers by satisfying their needs and serving environment simultaneously, which sets it apart from the crowd and strengthens their brand loyalty. Green marketing should not neglect the economic aspect of marketing. Marketers need to understand the implications of green marketing. Firms should promote about green products before adopting green marketing to raise the standard of awareness and convince consumers to pay more for “greener” prospect. Given the global challenges as we face today, any company that is making a positive impact needs to have a green marketing strategy. Consumers in India are not examining the product’s impact on environment and do not verify their ecological claims which shows their negligence about the green products, because they are. The main challenge of green marketing in India is convincing a significant portion of consumers who refuse to pay premium price for green products. Green marketing is still a budding topic in Indian market and it will take time for society to accept it. The study has implications for marketers as well as consumers and makes a good case for start of an era of green marketing in India.

The study since focused on a limited sample size has limited generalisability but provides good insights regarding behaviour of consumers towards green products. Future research could focus on psychographic segmentation of consumers in terms of assessing their green values and preferences. The study can be replicated at a larger scale to get more insights into the behaviour of consumers and understand more about green phenomenon.

References

1. Antil JH. Socially Responsible Consumers: Profile and Implications for Public Policy. *Journal of Macromarketing*, Fall. 1984; 4(2):18-39.
2. Antonio C, Sergio R, Francisco MJ. Characteristics of Research on Green Marketing. *Business Strategy and the Environment*. 2009;18:223-239.
3. Braimah M, Tweneboah-Koduah EH. An Exploratory Study of the Impact of Green Brand Awareness on Consumer Purchase Decision in Ghana. *Journal of Marketing Development and Competitiveness*. 2011; 5(7):11-18
4. Cherian J, Jacob J. Green Marketing: A Study of Consumers’ Attitude towards Environment Friendly Products. *Journal of Asian Social Science*. 2012; 8(12):117-126.
5. Crispell D. Going Green(ish). *Public Perspective*, September/October 2001, 28-30.
6. Davidson AR, Yantis S, Norwood M, Montano DE. Amount of Information about the Attitude Object and Attitude Behavior Consistency. *Journal of Personality and Social Psychology*. 1985; 49(5):1184-1198. <http://dx.doi.org/10.1037/0022-3514.49.5.1184>
7. Davis, Joel J. Ethics and Environmental Marketing. *Journal of Business Ethics*.1992; 11(2):81-87.
8. Freeman RE, Liedtka J. Corporate Social Responsibility: A Critical Approach. *Business Horizons*. 1991; 34(4):92-98.
9. Gadenne D, Sharma B, Kerr D, Smith T. The Influence of Consumers’ Environmental Beliefs and Attitudes on Energy Saving Behaviors. *Energy Policy*. 2011; 39(12):7684-7694. <http://dx.doi.org/10.1016/j.enpol.2011.09.002>
10. www.greenmarketing.net/stratergic.html
11. www.google.com
12. www.scribd.com

13. www.wmin.ac.uk/marketing_research/marketing/greenmix.html
14. www.wikipedia.com
15. <http://www.managementparadise.com>
16. <http://www.businessworld.in>
17. <http://www.outlookindia.com>
18. <http://en.wikipedia.org>
19. <http://www.business-standard.com>
20. <http://www.encyclopedia.com>

Social Media Advertising: A Study of Awareness, Attitude and Responsiveness by Indian Youths

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ABSTRACT: *The new trend and the growing popularity of the social media has without question brought about a paradigmatic shift in the way advertisers and marketers seek to promote their product and affect the purchasing decisions of their customers and targets. However, research on advertisements positioned on these social networks and the level of awareness, attitude and responsiveness of its users are relatively still developing, especially within the Indian context. Because Facebook has, among the various social media, grown exponentially to become the biggest and most popular today along with other medias, this study thus investigates the level of awareness, attitude and responsiveness to Facebook advertising by Indian youths who are the most active social media users. Drawing a sample size of 260 from some selective educational Institutes in India, the survey shows high awareness of Facebook advertising among the youths and different experiences with Facebook. The study supports the social cognitive theory of communication and recommends that social media advertisers make their Ads more assertive, eye-catching, detailed, brief and concise, more visible and more properly positioned, among others than the existing .*

Keywords: *Social media, Advertising, Facebook, Marketing, Indian Youths.*

1. Introduction

Now a day's Social Media has shifting the power from marketers to consumers due to the freedom given to use the social media. Now consumers can be in contact with each other by exchanging the information about products and services, which push marketers for changing their old methods to match the new needs and trends of consumers. It helped a lot to contact with them in individual as possible as they can. Earlier Marketers were familiar with the traditional media of communication to reach their target audiences, and tried to beat the competition against themselves. However, the current scenario is creating a rapid change by adopting Social Media to circulate information. Especially their buying behavior by using social media as marketing tools in both free as word-of-mouth and paid as social media advertising. It is found from recent studies that the traditional mass media audiences are growing and to a great extent turning toward the new media for information and fulfillment of certain communication needs. This has indicated a change from the more conventional mainstream media especially among the younger generation to the alternative media of new media i.e social media. Social media is shifting the power from marketers to consumers, due to the independency that all users as consumers allowed and can be in contact with each other by exchanging the information about products and services. It helps the marketers to change their old methods to match the new needs of consumers. It facilitates to contact individually by using social media as marketing tools which may be a paid social media advertising. It has become clear that social media, especially social networking sites (SNS), enable users to present themselves, establish and keeps social connections with others, and articulate their own social networks. This increasing popularity of social media has also brought about a drastic shift in the way advertisers now use traditional media to target their audiences, leading them to spend more time to communicate the target consumers through online social networking.

Rationale for the Study

Among the social media and social networking sites, Facebook has grown exponentially over time to become the biggest and most popular social networking site today. The number of Facebook users in India stands at 241 million compared to the US's 240 million ("The Next Web", 2017) and still counting. In India, the diffusion of new digital technologies and their use are increasing by the day. Over 460 million internet users, India is the second largest online market, ranked only behind China. By 2021, there will be about 635.8 million internet users in India. Internet penetration in Urban India was 64.84% in December 2017 as compared to 60.6% last December. In comparison, rural Internet penetration has grown from 18% last December to 20.26% in December 2017. This figure puts India as the nation with the largest Internet population This is an indication that in India, Social network sites such as Facebook may have become a medium for advertisers and market practitioners to engage their customers and consumers. However, research studies on these social network sites and how its users perceive it are relatively limited.

This study therefore becomes useful when we recall that as new information technologies are developing globally, advertisers in turn are increasingly relying on various modes of interactive technology to advertise and promote their products and services. Thus, recent observations and studies have indicated that advertisers have turned the way of the social media in a bid to reach their targets, by taking advantage of the ever-present social networks with their multiple platforms. However, understanding consumer's attitudes toward advertising has always been one of the goals of advertisers. This is based on the premise that advertisers and the audiences may be playing discordant tunes if the intended message of the advertiser is not well received by the intended audience. Advertisements can only be said to be successful if the message is well delivered and at the same time well received by the intended audiences. It therefore becomes exigent to find out to what extent these advertising messages on the social network platforms have been received by the audiences and by extension helped to promote and build awareness on the advertisers' offerings. This study comes handy to unveiling to what extent the popularity and proliferation of social media like Facebook advertising is in correspondence with the expected awareness, attitude and responsiveness among the youths in India.

Objectives of the study

This study makes an investigation to find out, whether the responding youths make more active use of social media in particularly Facebook, are even aware of the existence of social media advertising positioned by advertisers and, to explore their attitudes and responsiveness towards these advertisements by the new generation Indian youths.

Specifically, the objectives are :

- To find out if and to what extent Indian youths make use of Facebook media.
- To determine the extent to which they are aware of advertisements posted on Facebook.
- To ascertain the perception of these youths to the advertisements encountered on Facebook.
- To investigate their attitude and responsiveness toward such social media advertisements.

Literature Review

Social media is a set of various web services that can be interrelated for social interaction using highly accessible and scalable communication techniques. Those web services refer to user's capacity to create, publish and share contents that are accessible in various platforms – basically webs and mobiles (Subramanyam and Greenfield, 2008).

Cray, Emily(2012) By communicating with customers, they are kept loyal. Social media requires closer monitoring than traditional advertising because of two reasons: two-way communication and the fluctuation of audience members. Brands look to encourage conversation and engagement through transparency but they must be a part of the conversation to guide it; if it isn't executed and monitored appropriately, negative press for your brand can easily be generated. Social media has the power to reach new audience members that may have previously been unavailable to a message without the social media platform.

According to Khan(2006) we consume daily concerning to desires, preferences, and buying power, which open the door for too many questions about what to buy? How we buy? where and when we buy? Further while we say purchaser we confer with two forms of consuming units two forms of consuming unites, first one is the organizational consumers like business organization, Government companies, or non-profit groups second one the final purchaser like individuals, families or households.

Dorado (2011) examines the use of social media by way of fashion retail groups, and the way they use it to effectively reach their target audiences, and how their audiences are responding, then examines why people choose to create relationship with a selected style brand through social media

Vijai, and Sharma, (2007) have carried out a study on social networking sites experience of consumers and marketers in the state of Punjab. based on the results of the study and reviewed literature, the paper suggested the measures for effective of advertising and marketing on Social networking web sites strategies that above all, social networking sites marketing content should be interesting, informative, interactive and reliable. Entrepreneurs should align their social marketing attempt with the changing tastes and preferences of customers. They suggested that the commercial promotes competition inside the market which results in supply better quality merchandise for consumers.

Silva et.al., (2006)1conducted a survey on “advertising on social networking sites” with the objective of ascertaining the effectiveness of customers closer to commercial messages. It also aimed at assessing the impact of social networking sites on the client buying behavior. An amount of 39% growth in advertising

spends on Social networking sites have been forecasted for 2006. outcomes from the analysis indicated that social media is a very crucial tool for networking among youngsters.

Hindshaw (2006) has studied on “Effectiveness of advertisement in social networking sites” with aim to determine both the positive and negative aspects of advertisements. He concluded that the advertisement creators must ponder more on the information and social aspects in any advertising and must avoid for harm products.

Bashar et.al., (2007) have done an empirical research to understand the effectiveness of social networking sites as a advertising and marketing device and an attempt has been made to analyze the extent social networking sites allows consumers in buying decision making. Results of paper suggested that the medium is growing very speedy and holds large potential however remains in its nascent stage in India. Consequently, it is time for the companies to make powerful techniques and execute them to win large proportion of enterprise via this revolutionary medium and become the innovative firm of coming future.

Yadav, (2008) has made an attempt to set up the significance of social networks as an advertising medium and evaluated the present advertising methods which are in trend via certain case studies and concluded that social websites are not only a tool to interact with the different people but also medium to attain the potential customers.

Chi (2011) analyzing consumer Motivation and Social Media marketing Responses in Taiwan found that social networking on-line is the main reason users keep spending time with social media such as facebook. therefore, users understand and respond to marketing venues, such as marketing and brand communities, in a specific manner than they do to traditional media. The findings also suggest that user motivations generate complex effects for responses to social media marketing, differing across facebook advertising and digital brand communities

Mayfield (2008) explains that social media is on-line or digital media which enables participation, openness, conversation, network and connectedness among on-line customers. The middle of social media as explained by Trusov et al. (2009) lies in fact that customers can have individual profiles and personal images, users are able to communicate their thoughts, feelings, interests (music, pursuits, options) and link to affiliated profiles (friends or professional fan pages).

Methodology

This research adopted quantitative methodological approach and thus used the survey method as the study design. The questionnaire was used as the survey instrument. Consequently, 250 asked to respond the questionnaires which were distributed to young people between the ages of 19 and 30 in selected eastern Indian universities. The universities include: Utkal University, S O A deemed to be University, KIIT Deemed to be University, Centurian University and National Law university of Odisha state. Online form has prepared and sent to the respondents to get their response.

Data Presentation and Discussion

From the total of 260 questionnaires that were distributed to respondents from the select Universities, though there was a 90 percent return rate. The analyses of the valid ones were done using the Statistical Package for Social Sciences (SPSS 20). The details of data analysis are based on the research objectives.

Table 1: Demographic Variables

Demographics		Frequency	Percentage
Gender	Male	156	60
	Female	104	40
Age bracket	18-21 years	130	50
	22-25 years	102	39.3
	26-29years and above	28	10.7
Year of study	1st year	154	59.3
	2nd year and above	106	40.7

From the demographic data above, 40 percent of the respondents were females whereas 60 percent were males. Data also show that for majority of them, their ages were spread between 18 to 21 years. This indicates that these young people are between the ages adjudged by the United Nations to be the ideal definition of youth – between the ages of 15 and 24 (United Nations, 2003) - as only 10.7 percent were

between the ages of 26 – 29 years and above. In the same vein, data shows that the percentages of the level of study for the surveyed First year undergraduate students were more.

Table 2: Use of Facebook Social Media

Variable		Frequency	Percentage
Ownership of Facebook account	Yes	255	98
	No	05	2
Years of using Facebook	Less than a year	42	16.2
	1 - 3 years	154	59.3
	4 - 6 years	46	17.6
	7 - 10 years	18	6.9
How often respondents Facebook	Once in a while	11	4.2
	Several times a week	13	5.1
	Once a week	08	3
	Everyday	228	87.7
Time spent when signed in	Less than 1 hour	28	10.8
	Average of 1-2hours	56	21.6
	Average of 3-5hours	176	67.6

From data presented above, majority of the respondents (98 percent) own Facebook accounts. Only an insignificant 2 percent agree they don't have any. However, data at the same time indicate that majority of the respondents (59.3 percent) have just had this account for between 1 – 3 years; 17.6 percent of them have had it for between 4 – 6 years while only 6.9 percent have had it for as long as 7 years just as 16.2 percent opened their own accounts less than a year ago. Though these data indicate that the phenomenon of Facebook might not totally be new to these young people, yet when compared with young people in more advanced societies, Indian youth might still be discovering the Facebook phenomenon. On the other hand, from the above data, it is seen that 32.6 percent of them 'facebook' on daily basis just as 28.3 percent say they do so several times a week. This makes it difficult for one to begin to consider the fact that another 30.4 percent avow they use Facebook once in a while. The fact that over 87.7 percent of them either use it everyday or several times a week speaks louder here. However, when asked the amount of time they spend when signed in, it is shocking to note that 10.8 percent of them spend less than an hour on Facebook, even though the fact that another 21.6 percent agree they spend between 1 – 2 hours. It is interesting to also note that many are logged on round the clock, for those who have Blackberry or Android phones and constant Data subscription. It was found that increasingly spending more time on the Internet than on other more conventional media; mobile phones being at the forefront of this development.

Table 3: Awareness of Facebook Advertisements

Variable		Frequency	Percentage
Encountered advertisements on Facebook?	Yes	252	86.9
	No	8	13.1
How often?	Accidentally	7	2.7
	Sometimes	28	10.8
	Always	225	36.2
Noticeability	They take me time and effort to notice	22	8.5
	They are easily noticeable	238	91.5

Having established the fact of their use of Facebook social media, another thing is to ascertain the extent to which they are aware of Facebook advertisements. Firstly, 86.9 percent agree they have at one time or the other encountered advertisements positioned on Facebook while 13.1 percent claim they haven't had such encounter. In an open ended question to this regard, many of them were quick to name various kinds of advertisements they have encountered: product advertisements, cooperate advertisements, telecommunication, on music concerts, real estate, on foreign scholarships, on fashion accessories,

Admission in Educational institution with special courses on mobile phones, automobiles, commercials, among others. Still, 10.8 percent of the undergraduate students claim that these encounters with Facebook advertisements happen “Sometimes” (that is, not always) whereas a considerable 36.2 percent say they encounter them always and only 2.7 percent do so accidentally. By aking this line of thought, the next question sought to find out if this encounter has anything to do with noticeability of the advertisements. Yet, 91.5 percent of them claim that these Facebook advertisements “are easily noticeable” to them just as only 8.5 percent of them allege it “takes them time and effort to notice”. This brings up a certain contradiction. Majority of them claim they do not always encounter advertisements on Facebook and yet turn round to say that the advertisements are easily noticeable to them. Considering the fact that there is never a time these days when advertisements are not always displayed on Facebook, this contradiction might go to show that these youths might simply be suffering from ‘attention problem’.

Table 4: Perception of Respondents To Facebook Advertisements

Statement	Response	Frequency	Percentage
Using social media for advertising is useful and good	Yes	232	89.2
	No	28	10.8
I like Facebook advertising very much	Yes	126	48.5
	No	134	51.5
I enjoy viewing advertisements displayed on Facebook	Sometimes/Not really	12	4.6
	Yes	168	64.7
	No	80	30.7
I am a fan of at least one company/brand on Facebook	Yes	132	50.8
	No	128	49.2
Compared to other media, advertisements on Facebook are more eye catchy	Not really/Sometimes	14	5.4
	Yes	128	49.2
	No	118	45.4
It's easier for me to recall brands advertised on other media than those on Facebook	Yes	162	62.4
	No	98	37.6
The position of these advertisements is the biggest factor that prevents me from noticing them	Yes	94	36.1
	No	166	63.9

Coming to how these undergraduate students perceive the whole idea of Social media/Facebook advertising and the advertisements themselves, seven statements were put forward to them in order to elicit varied responses pertaining perception. Interestingly, a vast majority of the respondents (89.2percent) agree that “using social media for advertising is useful and good” whereas 48.5 percent “like Facebook advertising very much”. Still we cannot ignore the fact that a good number of them (51.5 percent) do not like it very much. Similarly, majority of them “enjoy viewing advertisements displayed on Facebook” while another 30.7 percent do not. It goes to show therefore that since majority state that using social media to advertise is good and useful and that they are not liking Facebook advertising very much, it is expected that they would also enjoy viewing them. Moreover, 50.8 percent of them claim they are fans of at least one company/brand on Facebook. This claim is even so questionable owing to the fact that another huge 49.2 percent allege they are no fans to any brand or company. Yet, more disturbing indications from their perception show that when compared to other media, advertisements on Facebook are not more eye catchy (63.8 percent). The rest say they are more eye catchy (45.4 percent) and some say they are, sometimes (5.4 percent). Still, many of the respondents admit that it is easier for them to recall brands advertised on other media than those advertised on Facebook. This lends credence to our earlier assertion in Table 3 that these youths might be experiencing what could be called as ‘attention challenges’ in their use of Facebook. As if to echo the last observation, 63.9 percent agree that the positioning of these advertisements on Facebook is not the one big factor that prevents them from maximally noticing, recalling and observing them. Rather, it is their fault; so it seems.

Attitude/Responsiveness to Facebook Advertisements

Statement	Response	Frequency	Percentage
If I am a fan of a brand on Facebook, I'll buy the product	Yes	128	49.2%
	No	132	50.8%
I will visit a product website after seeing an advertisement on Facebook	Yes	78	30%
	No	182	70%
When you are told your friend likes a product/brand, do you click 'like' as well?	Sometimes	12	4.6%
	Yes	76	29.3%
	No	172	66.1%
I always look out for Facebook advertisements because they tell me what's new and popular	Yes	136	52.3%
	No	124	47.7%

Considering the above revealing data on perception of Facebook advertisements, what remains is to ascertain their attitude and responsiveness to these advertisements. To gauge this, four-item statements were given the respondents to respond in the affirmative or otherwise. 49.2 percent claim that if they are fans of a brand on Facebook, they will buy the product whereas 50.8 percent claim they won't. Yet, data analysis shows strongly that majority of them at 70 percent would not visit a product website after seeing an advertisement on Facebook. However, 30 percent say they would. There is the common practice on Facebook where users are updated about what brands and products their "Friends" 'like' and could be fans of; the idea being that users can decide to as well 'Like' the brand or product as they are likely to want to associate with what their circle of friends associate with. But in this study, data shows that 29.3 percent of the young people say they would not "like" the product/brand just because their friends do; whereas 29.3 percent of them claim they would. That is not denying the fact that 4.6 percent say they sometimes do. Finally on attitude, 52.3 percent agree after all said, that they "always look out for Facebook advertisements because it tell them what's new and popular".

Summary and Conclusion

The study finds that Facebook phenomenon and its use is popular among the surveyed Indian youths – undergraduate students and that over 90 percent of them either use it everyday or several times a week. This use is however facilitated by their internet-enabled mobile phones. It shows that Indian youths are start to join their contemporaries in other societies to engage more with the Internet and the mobile phones. More so, it is found that majority of the surveyed youths are well aware of advertisements on Facebook as many of them have encountered as well as have been able to name some of the various advertisements they have encountered. These range from product advertisements, cooperate advertisements, telecommunication, on music concerts, real estate, on foreign scholarships, on fashion accessories, on mobile phones, automobiles, commercials, among others. However, it is concluded that the youths might be experiencing what has been termed "attention challenges" in their vicarious use of Facebook. This attention challenge is further buttressed by the fact that the youths say that the positioning of the advertisements on Facebook does not in any way contribute to their inability to notice the advertisements 'Always'. Just as majority believe that when compared to other media, advertisements on Facebook are not more eye-catching; and that they more easily recall advertisements from other media platforms than those from Facebook. Furthermore, the attitude and responsiveness of young people to Facebook advertising in general indicate a cause for worry. While majority aver that if they are fans of a brand on Facebook, they may not buy the product, many of them insist they would not visit a product website after seeing an advertisement on Facebook and that they do not necessarily have to "Like" the brands their friends "Like" on Facebook. Advertisements and marketing contents abound on Facebook. However, while media scholars might be quick to assume that advertisements and marketing stunts comprise as being among the media users' needs and gratifications and reasons for 'facebooking', this study has found a slight contradiction to this. As far as the surveyed young people are concerned, advertisements, though noticeable and appealing, do not form part of their more serious gratification sought from Facebook usage. This study recommends, alongside those suggested by the students themselves (see above) future research directions. A study involving a

larger sample size drawn from more than one geographical zone in India is hereby suggested. More so, further examination on the relationship between social media consumption and attitude and responsiveness to advertising/marketing communication should be explored using a qualitative methodology such as focus group discussion.

References

1. Bati U. (n.d.). The era of the new marketing: Attitudes of young consumer towards social media marketing. Paper presented at the 7th International Symposium of Interactive Media Design.
2. Bajpai V, Pandey S, Shriwas S. Social media marketing: Strategies and its impact. *International Journal of Social Science and Interdisciplinary Research*. 2012, 1(7).
3. Boyd D M, Ellison NB. Social Network Sites: Definition, History and Scholarship, *Journal of Computer-Mediated Communication*. 2007; 31(1):210- 230.
4. Cauwenberge AV, d'Haenens L, Beentjes H. Emerging Consumption Patterns Among Young People of Traditional and Internet News Platforms in the Low Countries. *Observatorio (OBS) Journal*. 2010; 4(3):335-352.
5. Chi H. Interactive digital advertising versus Virtual brand community: Exploratory study of user motivation and social media marketing responses in Taiwan. *Journal of Interactive Advertising*, 2011, 12 (1).
6. December J. Units of Analysis for Internet Communication. *Journal of Communication*. 1996; 46(1):14-37.
7. Ellison NB, Steinfield C, Lampe C. The Benefits of Facebook 'Friends:' Social Capital and College Students' Use of Online Social Network Sites. *Journal of Computer-Mediated Communication*. 2007; 12(4).
8. Evans L.. *Social Media Marketing: Strategies for Engaging in Facebook, Twitter & Other Social Media*. Que, 2010.
9. Finin T, Ding L, Zhou L, Joshi A. Social networking on the semantic web. *The Learning Organisation*. 2005; 12(5):418-30.
10. Hausmann A, Poellmann L. (n.d.). broadcast your services! Impact of social media on the marketing of Performing Arts Organisation. *European-University Viadrina*
11. Frankfurt (Oder). IAB Platform Status Report (April 2008). User Generated Content, Social Media and Advertising — An Overview. Published by Interactive Advertising Bureau.
12. Katz E, Blumler J, Gurevitch M. Utilization of Mass Communication by the Individual. In J. Blumler & E. Katz (Eds.), *The Uses of Mass Communication: Current Perspectives on Gratifications Research*. (pp.19 - 34). Beverly Hills, CA: Sage, 1974.
13. Kaplan AM, Haenlein M. Users of the world, unite! The challenges and opportunities of social media. *Business Horizons*. 2010; 53(1):59-68.
14. Kaushik R. Impact of social media on marketing. *IJCEM International Journal of Computational Engineering and Management*. 2012; 15(2).
15. Kocak A, B Terkan. Media Use Behaviours of Elderly: A Uses and Gratifications Study on Television Viewing Behaviours and Motivations. *GeroBilim Journal of Social & Psychological Gerontology*, 2009. 1.
16. Kuehn SA. Computer-Mediated Communication in Instructional Settings: A Research Agenda. *Communication Education*, 1994;4:3-17.
17. Liu H. Social network profiles as taste performance. *Journal of Computer-mediated Communications*, 2008; 13(1):252-275.
18. Mayfield TD. What is social media? [e-book] iCrossing, 2008.
19. Meerman Scott D. *The New Rules of Marketing and PR: How to Use Social Media, Blogs, News Releases, Online Video, and Viral Marketing to Reach Buyers Directly (2nded.)*. San Francisco: John Wiley and Sons, 2010.
20. Morris M, Ogan C. The Internet as Mass Media. *Journal of Communication*. 1996; 46(1):39-50.
21. O' Toole K. Results of the Stanford Institute for the quantitative study of Society: Study on social impact of computer use, 2000.
22. Omenugha KA, Ndolo IS, Uzuegbunam CE. Celebrity culture, media and the Nigerian youth: Negotiating cultural identity in a globalised world. Paper presented at 2012, International Association of Media and Communication Research (IAMCR) Conference, 2012, 25 – 29 June, 2012, Durban South Africa.
23. Roy SK. Determining Uses and Gratifications for Indian Internet Users. *CS-BIGS*. 2008; 2(2):78-91.

24. Tong S, van Der Heide B, Langwell L, Walther J. Too much of a good thing? The relationship between number of friends and interpersonal impressions on Facebook. *Journal of Computer-mediated Communication*. 2008; 13(3):531-49.
25. Trusov M, Bucklin R, Pauwels K. Effects of Word-of-Mouth versus Traditional Marketing: Findings from an Internet Social Networking Site. *Journal of Marketing*. 2009; 73:90-102.
26. Weinberg T. *The New Community Rules: Marketing on the Social Web*. Sebastopol, CA: O'Reilly, 2009.
27. Yaakop AY, Annar MM, Omar K, Liung ALK. (n.d.). Consumers' perception and attitudes towards advertising on Facebook in Malaysia. Paper presented at World Business and Economics Research Conference, Auckland, New Zealand.
28. <https://www.statista.com/topics/2157/internet-usage-in-india/>
29. //economictimes.indiatimes.com/articleshow/63000198.cms?utm_source=contentofinterest&utm_medium=text&utm_campaign=cpps
30. Emily, Cray, The Social ROI: Successful Social Media Measurement From an Agency Standpoint *The Elon Journal of Undergraduate Research in Communications*. 2012; 3(1):43
31. Yadav.E.V. , "social networks as an advertising medium", *The Elon Journal of Undergraduate Research in Communications*. 2008; 1(1):22-36.
32. Bashar, Ahmad and Wasiq, "Effectiveness of social networking sites", *Journal of current issues and research in advertising*. 2007; 42(5):30-38.
33. Sliva, Bhuptani, Menon and Sliva., "Advertising on social networking sites", *The Journal of Marketing*, 2016; XXI(1-4):47-57
34. Dorado LE. *The Effect of Social Media on the Fashion Retail Industry*. South Carolina: Elon University, 2011.
35. Vijai K, Sharma N. "Social networking sites experience of consumers and marketers in the State of Punjab", *Indian journal of marketing*. 2007, XXXIII(10).
36. Hindshaw T, "Effectiveness of advertisement in social networking sites", *The Journal of advertising research*. 2006; VI(3):3-6.

Effect of Global Price Fluctuation on the Indian Economy

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ABSTRACT: *Volatility is a statistical measure of the dispersion of returns for a given security or market index. Volatility can either be measured by using the standard deviation or variance between returns from that same security or market index. The higher the volatility, the riskier is the security. According to NBER working Paper Number 20872, the more volatile a nation's economy is relative to its partners, the more resources its residents choose to hold in foreign assets. There is a strong relationship between volatility and market performance. Volatility tends to decline as the stock market rises and increase as the stock market falls. As described by MPT, volatility creates risk that is associated with the degree of dispersion of returns around the average. When volatility increases, risk increases and returns decrease. Risk is represented by the dispersion of returns around the mean. The greater the dispersion of returns around the mean, the larger is the drop in the return. In other words, the greater the chance of a lower-than-expected return, the riskier is the investment. we can see that the Indian Economy is tremendously affected by the volatility of the oil prices, which is not the case for the gold market .The objective of this paper is to do an analysis of the effect of oil price fluctuation as well as the Gold Market on the development of the Indian economy for last few years.*

Keywords: *Volatility, securities, oil price fluctuation, development, Indian Economy*

1. Introduction

VIX (created by CBOE) is a real-time market index that represents the expectation of 30-day forward-looking volatility in market. VIX provides a measure of market-risk and investors' sentiments. Investors, research analysts and portfolio managers look to VIX values as a measure of market risk, fear and stress prior to investment decisions.

Volatility is an indicator in the world of investments, of the movements of stock prices, a sector-specific index, or a market-level index , representing the association of risk with the particular security, sector or market. Volatility value, investors' fear and the VIX index values move up when the market is falling. The reverse is true when market advances – the index values, fear and volatility decline.¹⁵

Factors Affecting Volatility

Economic factors of region and country, e.g. tax and interest rate policy, contribute to the directional change of the market and thus volatility. For example, in many countries, the central bank sets the short-term interest rates for overnight borrowing by banks. A change in overnight rate can cause stock markets to react, sometimes violently.

Changes in inflation trends influence the long-term stock market trends and volatility. Expanding P/E ratios tend to correspond to economic periods when inflation is either diminishing or is low and stable. This is when markets experience low volatility as they trend higher. On the other hand, periods of diminishing P/E ratios tend to relate to rising or higher inflation periods when prices are more unstable. This tends to cause the stock markets to decline and experience higher volatility. Industry and sector factors can also cause increased stock market volatility. For example, in the oil sector, a major weather event in an important producing area can cause prices of oil to increase. As a result, the price of oil-related stocks will follow suit. Some benefit from the higher price of oil, others are hurt. This increased volatility affects overall markets as well as individual stocks.¹⁶

Why Volatility is Important for Investors

There is a strong relationship between volatility and market performance. Volatility tends to decline as the stock market rises and increase as the stock market falls. When volatility increases, risk increases and returns decrease. Risk is represented by the dispersion of returns around the mean.¹⁷

¹⁵<https://www.investopedia.com/terms/v/vix.asp>

¹⁶<https://www.investopedia.com/articles/financial-theory/08/volatility.asp>

¹⁷<https://www.investopedia.com/articles/financial-theory/08/volatility.asp>

Volatility Index of India

Volatility Index is a measure of expectation of volatility in market over the near term. Volatility is often described as the "rate and magnitude of changes in prices" and in finance often referred to as Risk. Volatility Index is a measure of the amount by which an underlying Index is expected to fluctuate, in the near term, (calculated as annualized volatility, denoted in percentage e.g. 20%) based on the order book of the underlying index options. India VIX is a volatility index based on the NIFTY Index Option prices. From the best bid-ask prices of NIFTY options contract, a volatility figure (%) is calculated which indicates the expected market volatility over the next 30 calendar days.¹⁸ The table below compares the VIX of India over the last six months.

	November'18	October'18	September'18	August'18	July'18	June'18
High	20.13	22.81	18.31	13.86	13.94	15.47
Low	14.77	14.28	10.98	9.43	10.01	9.74
Close	18.83	19.80	17.00	12.60	12.48	12.94

Source : NSE

Reasons for fluctuation of the VIX of India

One of the prime reasons for the fluctuation of the VIX in India is due to the oil price fluctuation, which has affected the economy of the country. The survey said that economic growth of country is expected to grow between 7 and 7.5% in the fiscal year 2019, while flagging concerns over rising crude oil price.

The survey said that the oil price is expected to grow by average 12% in the Fiscal Year 2019. The Economic Survey estimated that every \$10 per barrel increase in the price of oil reduces growth by 0.2 - 0.3 percentage points, increases WPI inflation by about 1.7 percentage points and worsens the CAD by about \$9-10 billion dollars. India imports 82% of its total oil requirement and Brent crude oil makes up around 28% of India's total imports. Economic Survey 2018 said "The average oil prices are forecast by the IMF to be about 12 percent higher in 2018-19, which will crimp real incomes and spending—assuming the increase is passed on into higher prices, rather than absorbed by the budget through excise tax reductions or by the oil marketing companies". If higher oil prices require tighter monetary policy to meet the inflation target, real interest rates could exert a drag on consumption.

The continuous rise in crude oil prices is putting an end to the three-year-long low oil price windfall, which allowed the government to hike excise duty by Rs 12 on petrol per litre and Rs 13.77 on diesel since April 2014. In the last three months, the Brent crude oil price has gone up by \$18 per barrel, while petrol and diesel prices have gone up by over Rs 3 per litre. Morgan Stanley has said that the fiscal deficit is likely to increase to 3.5% of the GDP in the fiscal year 2018-19.¹⁹

As oil prices rise once again, let us discuss what we can learn from historical petrol, diesel prices in India and the associated inflation. Petrol or Diesel prices in India is a touchy subject. While Indian middle class feel angry about the huge taxes that they need to pay on fuel, the government argues that such revenue is essential for it operates and fund growth. This is a never-ending argument. The essential point that we need to be aware as money managers is, since 80% of our fuel requirements are outsourced, we are at the mercy of not only international market sources but also the strength of our currency. To add to this, we have had a history of subsidies in all aspects of life. It is only in the last few years, India has a solid plan to become subsidy-free. So there is not much point in cribbing as it is a necessary price to be paid for previous sins from both parties.

While naturally many are worried and angry about the recent increase in fuel prices, a bigger sore point was the multi-fold increase in excise duty when fuel prices plummeted in late 2013. This meant that we never *directly* got the benefit of low oil prices. Comparatively, the recent increase is a tamer market-linked increase. Long-term fuel inflation has been high, but reasonably stable. Going forward, the biggest threat to deviations from past inflation seems to be political uncertainty, wars and dwindling oil resources more than anything else. So let us get started.²⁰

¹⁸<http://www.moneycontrol.com/indian-indices/india-vix-36.html>

¹⁹<https://www.financialexpress.com/market/commodities/how-rising-crude-oil-price-affects-indias-gdp-growth-inflation-and-current-account-deficit/1035029/>

²⁰<https://freefincal.com/india-petrol-diesel-historical-price-data/>

Factors influencing hike in the prices of oil:

Increase in demand of crude oil is one of the most essential causes of rise in price of oil. It is seen that the demand for crude oil around the world since 1994 till 2006 grew at an average rate of 1.76% per annum, reaching a height of 3.4% in 2003–2004. The demand in the developing countries is irresistible due to their economic development increasingly depending on mechanization. The increase in demand for crude oil has been already predicted and the developing economies including China and India may be the greatest contributors to demands owing to their progressively more urbanized lifestyle and increasing urbanization. With the rapidly increasing economy, the sector which is considered to be the highest consumer of oil is the transportation sector in the form of new demand for vehicles of personal use. These vehicles are powered by internal combustion engines running on petrol/diesel. Growth in population also causes an increasing demand of oil.

Reduction or deduction of the state fuel subsidies in order to reduce the subsidization cost of government, can also be treated as a reason behind fluctuating oil price as the state subsidies were responsible to protect consumers from price rises in many countries. Further, an increasingly short supply of oil in the world is the major cause for rises in prices. According to statistics, the world has been demanding more oil than can be produced. Presently, production of oil in most countries has already gone down and will soon be reducing further – leaving less of a surplus to use and at the same time, demand also keeps increasing simultaneously. The supply remains tight and prices keep rising despite OPEC's decision to increase crude oil production by 500,000 barrels per day. With little price elasticity from both demand and supply, any trivial event will send prices going skyhigh.

Since oil is being traded globally in US dollars, the changes in values of US dollars are also said to have impact on the oil prices. According to studies, when the dollar devalues by 1 percent, it causes an oil price hike of the same degree. In addition, technical, meteorological and political elements also affect prices.

Loose monetary policies may also be blamed for the increase in oil price and devaluation of dollar. Labor strikes, threats from hurricane to oil platforms, threats or challenges faced by risks of fires and terrorist at the refineries and similar other factors are also considered as the causes of short term price rise but these have no significance to long term increase in the price of oil.²¹

Impact of Rising Oil price on the Indian Economy

As the oil prices changes there is a huge impact on the GDP, inflation, unemployment rate and industrial growth production. In short, oil price fluctuation has adverse effects on the economy. India is highly dependent on imported oil products and the drastic increase in the prices of crude oil to as high as \$148/bbl, has become a greater concern for the Indian economy. India imports over 70% of crude oil and the figure may reach 85% by the end of the decade. Thus impact of increasing crude oil prices on the Indian economy is a matter of grave concern. The increase in oil prices has affected the Indian economy quite significantly and has forced the country to produce about one trillion worth of GDP to fulfill the needs of its huge population. In order to produce this trillion dollar worth of output, India needs 2.5 million barrel of oil per day this is 6.5 percent of total world demand for oil.

Spiking high prices impact is lacking more directly because fuel costs are important in food and transportation expenses, which are necessarily essential to spend. High oil costs also hit economies on a macro-level and have been leading to factors in economic cycles. Short-term low prices, on the other hand, delay necessary energy investments in current and alternative sources, which are required for securing supply in the future. Changing prices also make it difficult for customers to understand new consumption styles and look for alternatives. Adding to supply and cost issues are ecological concerns, in which oil also has a main role.²²

As a rule of the thumb, an increase of \$10 per barrel in crude prices will lead to an increase of about Rs17,000 crore (or \$2.5 billion at an exchange rate of INR 67/\$) in fuel subsidies, equivalent to 0.09% of GDP. In the Union Budget 2018–19, the government had budgeted for petroleum subsidy of Rs.25,000 crore, similar to that in Fiscal Year 2018.

Also, an increase of \$10 per barrel in crude oil prices will lead to an adverse impact of \$10–11 billion (or 0.4% of GDP) on current account deficit. There are two opposite forces at work in current account deficit. Higher oil prices will push the import bill higher. However, it will be partly offset by higher oil exports and better remittances. The latter will materialize, since more than half of remittances from India are reported to be channeled through the Gulf countries, which are likely to witness better economic conditions with higher

²¹<https://www.theguardian.com/business/2018/may/17/what-are-the-factors-driving-up-the-price-of-crude-oil>

²²<https://www.ukessays.com/essays/economics/effect-of-crude-oil-prices-on-indian-economy-economics-essay.php>

oil prices. Numerically, an increase of \$10 per barrel in crude prices will push the merchandise imports bill up by about \$20 billion, which will be partly offset by an increase of about \$6 billion in oil exports and \$3–4 billion in remittances of Indian workforces.

With a weight of only 2.4% in headline CPI, the adverse impact will entirely depend on the extent to which higher crude oil prices are passed on to the consumers. Considering the general election next year, it is difficult to envisage a significant hike in retail fuel prices, and thus, the direct impact on CPI inflation is likely to remain muted.²³

Conclusion

Government of India has a big role to play to tackle this issue of oil price fluctuation. One thing the government can do, and which it is reportedly considering doing, is to ask the OMCs to refrain from passing on the higher oil prices to consumers. The government can also always reduce the excise duty on petrol and diesel, thereby earning lower revenue but at least easing some burden dumped on the consumers. This would ultimately help in solving the twin problems of fiscal deficit and current account deficit. This, in turn, would have a positive impact on the monetary policy of the country, as well as the consumption and investment behavior in the economy.

References

1. <https://www.financialexpress.com/market/commodities/how-rising-crude-oil-price-affects-indias-gdp-growth-inflation-and-current-account-deficit/1035029/>
2. <https://www.investopedia.com/articles/financial-theory/08/volatility.asp>
3. <https://www.investopedia.com/terms/v/vix.asp>
4. <http://www.moneycontrol.com/indian-indices/india-vix-36.html>
5. <https://www.theguardian.com/business/2018/may/17/what-are-the-factors-driving-up-the-price-of-crude-oil>
6. <https://www.ukessays.com/essays/economics/effect-of-crude-oil-prices-on-indian-economy-economics-essay.php>
7. <https://freefincl.com/india-petrol-diesel-historical-price-data/>

Abbreviation

1. MPT – Modern Portfolio Theory
2. NBER – National Bureau of Economic Research
3. CBOE - Chicago Board Options Exchange
4. VIX – Volatility Index
5. P/E Ratio – Price Earnings ratio
6. NIFTY – National Stock Exchange Fifty
7. WPI – Wholesale Price Index
8. CAD – Current Account Deficit
9. GDP – Gross Domestic Product
10. OPEC – Organization of Petroleum Exporting Countries
11. IMF – International Monetary Fund
12. CPI – Consumer Price Index
13. OMC – Oil Manufacturing Company

²³<https://www.livemint.com/Opinion/PnHcP040QNZYkLT5BWK5rL/The-impact-of-rising-oil-prices-on-Indian-economy.html>

School Bus Drivers in India: Their Job Demands and Effects

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ABSTRACT: In India, school bus drivers are working in an atmosphere that wrecks their schedules, makes social activities and regular breaks very hard to plan. This research study aim to assess the job demands and its effects (eg; stress and job satisfaction) faced by the school bus drivers in India using the COPSQO (Copenhagen Psychosocial Questionnaire). Stress and job satisfaction are projected as intended outcomes of job demand.

Keywords: School bus drivers, job demand, stress and job satisfaction.

Introduction of School Bus Drivers

School bus drivers are exposed to a demanding psychosocial work environment, which includes solitary work and heavy responsibility for operating the school bus (in terms of both safety and adhering to the timetable). In India, school bus drivers have usually started the day before the sun rise. They think about of kids transport to and from schools every day. Every day, they pray, "God, give us the strength, the wisdom and the knowledge to make sure these kids are safe." Driving through heavy traffic or bad weather conditions and dealing with unruly kids can be stressful for school bus drivers. Because of traffic congestion and sometimes unruly kids, school bus drivers are put in stressful situations and must remain calm and continue to drive their bus. Driving a school bus is a highly repetitive job. The school bus drivers have no power to punish the kids.

Table 1: Job Descriptions of Indian School Bus Driver

Sr. No.	Bus Drivers' Job Descriptions
1	No formal education required by the private bus drivers, but state or big transport company are require only 7 th or 8 th class pass.
2	Bus drivers must have HPMV (Heavy Passenger Motor Vehicle).
3	There is no formal log entry, only verbal communication regarding the problems.
4	Inform the school administration or police regarding any accident occurred.
5	Driving a bus requires the controlled use of multiple limbs on the basis of what driver observes.
6	Drivers require having normal use of their arms and legs.
7	Pick up and drop of kids at designated locations.
8	Follow a planned route according to a time schedule.
9	Obey traffic laws, state and central regulations.
10	Follow procedures to ensure kids safety.
11	Perform basic maintenance (check the bus tires, breaks, lights, and oil etc).
12	Keep order and safety on the bus.

(Source: Bus Driver's Job Description, 2017)

Job Demands

Job demands have been defined as those aspects of work that require sustained physical or psychological effort or skills (Bakker & Demerouti, 2007).

Job Stress and Job Satisfaction

Karasek (1979) developed a model that predicts the mental strain of a job, based on the work demands and the decision latitude. The main finding from this study is that a combination of low decision latitude and high job demands results in heavy mental strain. Over the time this leads to job dissatisfaction. Sullivan & Bhagat (1992) concluded that relationship between job stress and job satisfactions are inversely related. This means a higher level of job stress will cause a lower level of job satisfaction.

Objectives of this Research Study

The focus of this research study is on job demands and its effects on health (eg; stress and job satisfaction) faced by the school bus drivers in India using the COPSOQ (Copenhagen Psychosocial Questionnaire). Present study tries to address the following objectives:

1. To examine the job demands and its effects (eg; stress and job satisfaction) among school bus drivers in India.
2. To help school bus drivers in India as well as school management to detect, analyze, anticipate and modify the influencing factors.

Proposed Model

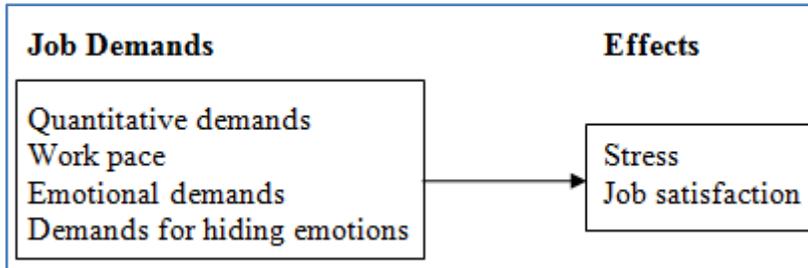


Figure 1: Proposed model

Source: Prepared by the authors.

This model is based on the structure of DCS (Demand-Control-Support model, Karasek & Theorell 1990). This model proposes that job demands are all proposed to have main effect relationships on stress and job satisfaction. Karasek (1979), notified job demands as a division of all potential work stressors, particularly “psychological stressors involved in accomplishing the work load, stressors related to unexpected tasks and stressors of job related personal conflict”. Overall this study presents an integrated model for describing the relationships between job demands and its effects (for eg; stress and job satisfaction) faced by the school bus drivers in India.

Research Methodology

This study uses descriptive survey design. Data was collected by using “Copenhagen psychosocial Questionnaire- II” (long version).

Location and Participants

This study adopted random sampling approach. This survey was conducted in the Northern part of India (Jehanabad in Bihar state). **Researcher approached 75 school bus drivers; out of which 52 (69%) school bus drivers were responded.** Questionnaire was personally distributed among them. An overview of demographic profile of the respondents can be found in table 2.

Measurement of Job Demands and its Effects

For measuring job demands, Hindi version of COPSOQ-II scale included four scales- quantitative demands, emotional demands, demands for hiding emotions and work pace were used. For measuring effects, the COPSOQ-II scale included two scales- stress and job satisfaction was used. Scales are based on the long version of the COPSOQ-II (Kristensen et al., 2010). In most cases the questions have five response options. In these cases the weights are: 0, 25, 50, 75, and 100. The scale value is calculated as the simple average. The direction of the score follows the label of the scale; that is, a high score indicates high demands, and so on .

Statistical Analysis

The statistical analysis was carried out with the help of SPSS- programme (Statistical Package for Social Science). Initially, the demographic data was displayed and the reliability analysis with Cronbach's alpha coefficient was performed to identify the reliability of this survey and Pearson correlation analysis was performed to identify the relationship between variables.

Demographic Profile of Respondents

The demographic questions were used to understand the characteristics of the participants. Participants were asked to report demographic information including age, salary, duration in present job, marital status, and time spent in work and household tasks per day and general health perception etc.

All the participants of this study were male, as no females are employed as school bus drivers in Jehanabad- Bihar. All the 52 respondents (100%) were found to be married.

Table 2: Demographic Profile of Respondents (N=52)

Demographic Characteristics	Frequency	Percentage (%)
Gender		
Male	52	100
Age		
18-30 years	10	19
31-40 years	20	38
41-50 years	15	29
51-60 years	07	14
Total	52	100
Duration in Present Job		
0-5 years	10	19
6-10 years	20	38
11-15 years	13	25
16-20 years	05	10
>20 years	04	08
Total	52	100
Annual Salary in Rupees		
Rs. 75,000/- to Rs. 100,000/-	52	100
Marital Status		
Married	52	100
Miss Out Quality Time With Family Because of Pressure of Work		
Never	10	19
Rarely	20	38
Sometimes	15	29
Often	05	10
Always	02	04
Total	52	100
Number of Hours Spent for Work (Per Day)		
07-10 hours	52	100
Number of Hours Spent in Household Tasks (Per Week)		
<= 08 hours	52	100
General Health Perception		
Poor	03	06
Fair	17	33
Good	20	38
Very-Good	10	19
Excellent	02	04
Total	52	100

Source: Author’s own findings, 2017

Descriptive Statistics of the Variables

The filled questionnaire data was analyzed using the Statistical Package for Social Science (SPSS 20 version) software. Table 3 explores the descriptive statistics of different variables under study.

Table 3: Summary: Descriptive Statistics of the variables

Sr. No	Variable	No. of Items	Minimum	Maximum	Mean	Std. Deviation
1	Quantitative Demands	4	0	275	33.70	73.04
2	Work Pace	3	0	300	30.43	65.76
3	Emotional Demands	4	75	375	297.83	68.80
4	Demands for Hiding Emotions	3	75	275	212.77	47.24
7	Stress	4	0	400	97.55	68.04
9	Job satisfaction	4	100	250	144.57	36.65
		Total=22				

Source: Author's own findings, 2017

It can be inferred from table 3, that the mean value of emotional demands is 297.83, which indicates that most of the respondents are found to be high emotional demands. The mean value of demands for hiding emotions is 212.77, which indicates that most of the respondents are found to be high demands for hiding emotions. The mean value of quantitative demands is 33.70, which indicates that most of the respondents are found to be low quantitative demands. The mean value of work pace is 30.43, which indicates that most of the respondents are found to be low work pace. It can be inferred from table 3, that the mean value of stress is 97.55, which indicates that most of the respondents are found to be moderate stress. The mean value of job satisfaction is 144.57, which indicates that most of the respondents are found to be lower job satisfaction.

Cronbach's Alpha (α) Reliability Analysis of Scales

The filled data was tested for Cronbach's Alpha (α) reliability with a sample of 52 Indian school bus driver respondents.

Table 4: Summary: Cronbach's Alpha Reliability (α) Analysis (N=52)

Sr. No	Scale	No. of Items	Cronbach's Alpha Values of Original Scales	Cronbach's Alpha Values from the current study
1	Quantitative Demands	4	0.82	0.81
2	Work Pace	3	0.84	0.90
3	Emotional Demands	4	0.87	0.68
4	Demands for Hiding Emotions	3	0.57	0.63
7	Stress	4	0.81	0.84
9	Job satisfaction	4	0.82	0.71
		Total=22		

Source: Author's own findings, 2017

Correlation Analysis between Variables

To obtain an idea of relationships between all research variables, Pearson correlation coefficients were computed, and are presented in table 5.

Table 5: Correlation between Variables (N=52)

Sr.	Pearson Correlation	1	2	3	4	5	6
1	Quantitative Demands	1					
2	Work Pace	.62 .00	1				
3	Emotional Demands	-.58 .00	-.57 .00	1			
4	Demands for Hiding Emotions	-.38 .00	-.22 .04	.49 .00	1		
5	Stress	.59	.57	-.54	-.17	1	

		.00	.00	.00	.06		
6	Job satisfaction	-.31	-.29	.19	.09	-.14	1
		.00	.00	.10	.39	.26	

(Sig. p=0.05)

Source: Author’s own findings, 2017

Correlations between Quantitative demands and other Variables

The Pearson correlation value shown in above table 5 reveals positive correlation between quantitative demands and work pace, and stress. It indicates that, when quantitative demands increases or more then work pace, and stress also increases or more.

The Pearson correlation value shown in above table 5 reveals negative (inverse) correlation between quantitative demands and emotional demands, demands for hiding emotions and job satisfaction. It indicates that, when quantitative demands increases or more then emotional demands, demands for hiding emotions and job satisfaction decreases.

Correlations between Work pace and all other Variables

The Pearson correlation value shown in above table 5 reveals positive correlation between work pace and quantitative demands, and stress. It indicates that, when work pace increases or more then quantitative demands, and stress.

The Pearson correlation value shown in above table 5 reveals negative (inverse) correlation between work pace and emotional demands, demands for hiding emotions and job satisfaction. It indicates that, when work pace increases or more then emotional demands, demands for hiding emotions and job satisfaction decreases.

Correlations between Emotional demands and other variables

The Pearson correlation value shown in above table 5 reveals positive correlation between emotional demands and demands for hiding emotions. It indicates that, when emotional demands increases or more then demands for hiding emotions are also increases or more.

The Pearson correlation value shown in above table 5 reveals negative (inverse) correlation between emotional demands and quantitative demands, work pace, and stress. It indicates that, when emotional demands decreases or low then quantitative demands, work pace and stress increases.

Correlations between Demands for hiding emotions and other variables

The Pearson correlation value shown in above table 5 reveals positive correlation between demands for hiding emotions and emotional demands. It indicates that, when demands for hiding emotions increases or more then emotional demands also increases or more.

The Pearson correlation value shown in above table 5 reveals negative (inverse) correlation between demands for hiding emotions and quantitative demands and work pace,. It indicates that, when demands for hiding emotions decreases or low then quantitative demands and work pace.

Summary of this research Study

In Nov, 2017, researcher conducted this survey study in which 52 school bus drivers were participated.

All school bus drivers regardless of their demographic profile significantly faced some health issues. These findings highlight that there are certain issues related to psychosocial work environment that need to be addressed.

The findings from this survey study suggest that contending with stressful situations in the workplace is a common occurrence for the **school bus drivers** leading to deterioration in their quality of work and life.

Following Issues comes out after this Study;

- *More noise level,*
- *Suffer from stress related disease (hypertension, diabetes, frequent headaches etc.),*
- *Sometime miss out quality time with his family and friends because of nature of work etc.*

Major Findings of this Study;

1. *Previous literature indicated that school bus drivers are working in an environment over which they have no control whatsoever and is an atmosphere that wrecks their schedules, makes social activities and regular breaks very hard to plan. This is consistent with the findings of this study, because, amongst the respondents 02 (04%) told they always miss out quality time with family and friends because of pressure of work, 05 (10%) respondents told they often miss out quality time with family and friends because of pressure of work, and 15 (29%) responded as sometimes they miss out quality time with family and friends because of pressure of work.*
2. *The school management has been forcing school bus drivers to continuously work for more than eight hours a day. This is consistent with the findings of this study, because, respondents worked 07-10 hours in a day.*

Discussion of the Study

The findings of this study reveal that correlation exists in between variables of job demands and its effects (for eg; stress and job satisfaction). However, there were no direct correlation found between many variables of this study, but these variables are indirectly correlated with those variables have no direct correlation. For eg; emotional demands were not directly correlated with job satisfaction; but correlated through quantitative demands. Because emotional demands were directly correlated with quantitative demands and quantitative demands were correlated with emotional demands. In this way it was found that variables of this study were correlated with each other either directly or indirectly.

The findings from this study suggest that contending with stressful situations in the workplace is a common occurrence for the Indian school bus drivers leading to deterioration in their quality of work and life. It is the important reason to assume that stress reduces school bus driver's mental capacity when work load reach its peak.

Suggestions and Recommendations

Following points are concluded from the theoretical part of this paper. The aim of these points is to suggest possible solutions and tools how to improve work environment of school bus drivers in India, in order to reduce the stress caused by different factors.

It is suggested that the school management must undertake stress audit at all levels of the school bus drivers to find out stressful areas of job to take necessary action for their elimination or overall improvement of job.

Limitations of the Study

The findings from this research study are subject to several limitations.

1. This survey only included school bus drivers worked at specific location (Jehanabad- Bihar).
2. Finally, the findings are based on self-reported data and may be subject to social desirability bias meaning certain behaviours may be under or over reported. Since the interview was anonymous and respondents were assured of the confidentiality of their responses, this bias is likely to be minimized.

The next step of this study would involve collecting data from a larger sample of Indian school bus drivers and then test the proposed conceptual model of this study.

References

1. Bakker AB, Demerouti E. The job demands-resources model: State of the Art. *Journal of Managerial Psychology*. 2007; 22(3):309-328.
2. Bus Driver's Job Description, retrieved from https://study.com/articles/Bus_Driver_Job_Description_Duties_and_Requirements.html, 2nd Feb; 2018
3. Karasek RA. Job demands, job decision latitude, and mental strain: implications for job redesign. *Administrative Science Quarterly*. 1979; 24:285-308.
4. Karasek R, Theorell T. *Healthy work: stress, productivity and the reconstruction of working life*. New York (NY): Basic Books; 1990.
5. Kristensen TS, Pejtersen JH, Borg V, Bjorner JB. The second version of the Copenhagen Psychosocial Questionnaire (COPSOQ II). *Scand J Public Health*. 2010; 38(3):8-24.
6. Sullivan SE, Bhagat RS. Organizational stress, job satisfaction and job performance: where do we go from here? *Journal of Management*, 1992; 18:353-374.

Appendices:

Instructions:

This questionnaire consists of two parts. **Part-I** deals with the **demographic information** about the school drivers who completes the questionnaire. **Part-II** explores the **job demands and its effects** related aspectsof the concerned school bus drivers.

Part-I

1) Name:-

2) Age (in years): -

- a) 18-20 b) 20-25, c) 26-30, d) 31-35, e) 36-40,
- f) 41-45, g) 46-50, h) More than 50 yrs.

3) Duration in present job (in years):-

- a) 0-5, b) 6-10, c) 11-15, d) 16-20, e) More than 20 yrs.

4) Annual Income: - Rupees

5) Marital Status:-

- a) Married b) Unmarried

6) Approximate number of hours spent for work, per week: _____

7) Approximate number of hours spent in household tasks, per week: _____

8) Do you ever miss out any quality time with your family or your friends because of pressure of work?

- a) Never b) Rarely c) Sometimes d) Often e) Always

9) I) Does your school has any policy for copying stress?

- a) Yes b) No c) Not aware (Not known)

II) If, yes please, specify_____.

Part-II

Section-1 This section is concerned with the **demands at your work/job**. Please indicatethe extent of your agreement/disagreement with each item by putting a tick mark (√).

1.1 Quantitative Demands: This section is concerned with the **quantitative demands at your work**. Pleaseindicatethe extent of your agreement/disagreement with each item by putting a tick mark (√).

Never/Hardly Ever=0	Seldom=25	Sometimes=50	Often=75	Always=100
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Sr. No.	Statement	0	25	50	75	100
1.	Is your workload unevenly distributed so it piles up?					
2.	How often do you not have time to complete all your work tasks?					
3.	Do you get behind with your work?					
4.	Do you have enough time for your work tasks? ®					

(α=0.82) ®=Reverse score

1.2 Work Pace: This section is concerned with **your work pace**. Please indicate the extent of your agreement/disagreement with each item by putting a tick mark (√).

Never/Hardly Ever=0	Seldom=25	Sometimes=50	Often=75	Always=100
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Sr. No.	Statement	0	25	50	75	100
1.	Do you have to work very fast?					
2.	Do you work at a high pace throughout the day?					
3.	Is it necessary to keep working at a high pace?					

($\alpha=0.84$)

1.3 Emotional Demands: This section is concerned with the **emotional demands at your work**. Please indicate the extent of your agreement/disagreement with each item by putting a tick mark (√).

Never/Hardly Ever=0	Seldom=25	Sometimes=50	Often=75	Always=100
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Sr. No.	Statement	0	25	50	75	100
1.	Does your work put you in emotionally disturbing situations?					
2.	Do you have to relate to other people's personal problems as part of your work?					
3.	Is your work emotionally demanding?					
4.	Do you get emotionally involved in your work?					

($\alpha=0.87$)

1.4 Demands for hiding emotions: This section is concerned with the **demands for hiding emotions at your work**. Please indicate the extent of your agreement/disagreement with each item by putting a tick mark (√).

Never/Hardly Ever=0	Seldom=25	Sometimes=50	Often=75	Always=100
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Sr. No.	Statement	0	25	50	75	100
1.	Are you required to treat everyone equally, even if you do not feel like it?					
2.	Does your work require that you hide your feelings?					
3.	Are you required to be kind and open towards everyone – regardless of how they behave towards you?					

($\alpha=0.57$)

Section-2 This section is concerned with the **effects of job demands**. Please indicate the extent of your agreement/disagreement with each item by putting a tick mark (√).

2.1 Stress: This section is concern with your stress. These questions are about how you have been during the last 4 weeks. Please indicate the extent of your agreement/disagreement with each item by putting a tick mark (√).

Not at all=0	A small part of the time=25	Part of the time =50	A large part of the time =75	All the time=100
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Sr. No.	Statement	0	25	50	75	100
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1.	How often have you had problems relaxing?					
2.	How often have you been irritable?					
3.	How often have you been tense?					
4.	How often have you been stressed?					

($\alpha=0.81$)

2.2 Job satisfaction: This section is concerned regarding your work in general. Please indicate the extent of your agreement/disagreement with each item by putting a tick mark (\checkmark). How pleased are you with:

Not relevant =0	Very unsatisfied =25	Unsatisfied =50	Satisfied =75	Very satisfied =100
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Sr. No.	Statement	0	25	50	75	100
1.	Your work prospects?					
2.	The physical working conditions?					
3.	The way your abilities are used?					
4.	Your job as a whole, everything taken into consideration?					

($\alpha=0.82$)

Identifying Cultural Clusters of Nations : Strategic Potential for MNCs

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ABSTRACT: *With increasing globalization, business activities are progressively transcending national boundaries. This obviates increasing cross-border movement of capital, technology and manpower. Multinational corporations are agents of such globalized business operations and catalyze cross border commercial and industrial ventures. Dealing with different nations obviates exposure to different national cultures and managing the complexity arising out of the multiplicity of cultures. Thus management of international business, in essence hinges on compatibility of the management styles with different national cultures. National cultures have certain distinguishing dimensions as professed by scholars like Hofstede and Trompenaars & Hampden-Turner. An understanding of these dimensions and the relations in between them will help international business management in monitoring and assessing the cultural environments and in formulating and executing successful and appropriate business strategies. This paper identifies cultural clusters of the different nations of the world based on the various dimensions of national culture as identified by Hofstede. The statistical technique of cluster analysis and discriminant analysis on R platform has been resorted to in this paper. The findings of this paper may facilitate formulating strategies for global business which leverage on the identification of cultural clusters of nations across the globe.*

Keywords: *National Culture, International Business, Hofstede, Cultural Clusters, Cluster & Discriminant Analysis.*

1. Introduction

An understanding of different national cultures is important in all aspects of international business management. Since international business is becoming increasingly important with growing magnitude of globalization of commercial activities, knowledge of national cultures is important in interpreting results of environmental scanning. An understanding of national cultures is also important to the formulation and execution of strategies in international business management. Hofstede found in his research that national culture is influential enough to overwhelm corporate cultures. International business management deals with multiplicity of national cultures and as such an understanding of these differences is crucial in formulating and executing business decisions in different countries. A certain management style or practice might be successful in one nation, but fail in another. Because of cultural differences, managerial style and practices in different functional areas of management must be tailored to fit the particular country-specific situations. Knowledge of the differences in national culture is thus a vital determinant for successful international business management. Moreover, it is impossible to design business strategies for individual nations. Identifying clusters of nations which are similar or at least culturally closer to each other, would facilitate designing of a manageable number of strategies for each of the cultural clusters identified.

Objective of the study

The objective of the study is to identify a pragmatic number of cultural clusters comprising of the different nations of the world. However such categorization or classification needs certain dimensions of culture which are numerically calibrated so as to constitute the basis of such categorization or classification. The objective of this paper i.e. to identify the cultural clusters of the nations of the world, has hence been attempted to be achieved on the basis of the six dimensions of national cultures as identified by Hofstede.

Literature survey

Literature survey for the study has been done with two objectives. The first objective was to delve into the concept and implication of culture at national level as viewed by different scholars and authors. The second one was to study the research works of scholars on the relevance of national cultures in the context of international business decisions, strategies and practices.

Culture is variously defined in terms of several common processes i.e. thinking, feeling, reacting, recognizing identities, environmental constructs, using technology, and commonly experienced events including the

history, language, and religion of their members of a group which distinguishes that group with other groups. Culture is concerned with the development of coherent viewpoints which bring a cumulative effect to otherwise isolated experiences of a group, making them feel special yet allowing others to have a parallel experience (Veltman 1998). Culture is relevant for the development of socio-technical systems (Kummer & Leimeister 2012). Culture is a group-level construct. Professions, organizations, societies and nations are among the groups that could be considered to have their own cultures. Hence National Culture, for the purpose of the study, is construed to be common behaviors, beliefs, values and attitudes shared by citizens of a nation. A national culture is the whole body of efforts made by a people in the sphere of thought to describe, justify, and praise the action through which that people has created itself and keeps itself in existence (Fanon 2003).

National and regional culture and cultural variations decisions regarding the choice of location and foreign entry modes deployed in international business management (Reis et al 2011; Kogut & Singh 1988). Importance of cultural issues is becoming increasingly evident in many applied disciplines including information technology (Ali & Brooks 2008), (Myers & Tan 2002). Management of international science projects is also affected by National culture (Shore & Cross 2005). National culture impacts the e-governance readiness of nations (Kovacic 2005). Failures of some International Joint Ventures can be attributed to incompatibility of national cultures of the parties involved (Avny et al). Cultural model of comparative industrial relations theory explains the cross-national pattern of industrial relations institutions and any change thereof (Black 2002). There are empirical evidences of increased utility of national culture as a state legitimization strategy in response to economic protectionist capacity changes resulting from global political economic integration (Blad 2008). Differences in national cultures are important for domestic companies which consider international expansion (Bayias & Assimakopoulos 2011). National culture affects the composition and leadership structure of board of directors of corporate organizations (Li & Harrison 2008). National cultures and diversity of management perceptions are correlated (Guidroz et al 2005). Origin of corporate behaviour and the mechanisms that can help promote organizational effectiveness are affected by national cultures as evidenced by empirically in Germany, Austria, Slovenia & Denmark (Gulev 2009). It has also been observed that employees may be resisting a company's corporate culture if it is in contrast with their respective national cultures (Katz 2005). National culture is an important determinant of business negotiation process (Sebenius 2009). Corruption, a burning problem in business management is linked with, along other factors inter alia, national culture (Rethi 2012). Configuration of national financial systems are affected by national culture (Tadesse & Kwok 2005). Scholars have cited instances of impact of national culture on knowledge sharing activities in global virtual collaboration (Smith & Dugan 1996). National culture also impacts economic ideology on managerial work values (Ralston et al 1995) Scholars argue that management practice must fit the national culture (Erez 2000). National culture thus has a pervasive effect on organizational and managerial aspects (Santos 2012).

The various researches of Hofstede (2003, 2010) and Trompenaars (2012) have been found globally in order to get a broad view of the culture. Hofstede's taxonomy is the most cited in the literature on national culture and his taxonomy has strong linkages to several streams of research (Reis et al 2011). As such this paper focuses on the initial four dimensions of national culture as identified by Hofstede (1983) i.e. Power Distance, Individualism, Masculinity versus Femininity and Uncertainty Avoidance. Though he extended the number of dimensions of national culture to six (<http://www.geert-hofstede.com>) with introduction of two new dimensions of Long-Term Orientation in 1991 based on research by Michael Bond and Indulgence versus Restraint in 2010 based on analysis by Michael Minkov.

Brief descriptions of the six dimensions considered in this paper have been provided hereafter. All the dimensions have been scaled from 0 – 100.

Power-Distance (coded as "pdi" in this paper) measures the degree of equality, or inequality, between people of one society and how much the less influential members accept the hierarchy. The institutions or organizations where less powerful members accept power is distributed unequally will have a high PDI. Those countries will be more likely not to allow significant upward mobility of its citizens, because they accept autocratic and paternalistic relations. A low PDI indicates the society tends to reduce the differences between citizen's power and wealth. In those cultures people expect power relations that are more democratic. They relate to others regardless of formal positions, such as if they were consulting them. Subordinates are more comfortable with contributing to and criticizing the decisions of those who are hierarchically higher.

Individualism (coded as "ici" in this paper) focuses on how much people of a society define themselves apart from their group and on how much the country emphasizes individual or collective achievements. A High Individualism ranking indicates that people are expected to develop and to be proud of their personalities

and their choices. People often tend to form a higher number of looser relationships in those societies. A Low Individualism ranking typifies societies where the individuals are more likely to act as a member of a group e.g. family, town, profession etc. This collectivist nature tends to develop relationships between individuals, and reinforce extended families.

Masculinity (coded as “mfi” in this paper) measures the degree the society reinforces the traditional masculine work role model or not. A High Masculinity ranking indicates the country gives a high importance on traditional male values like ambition, accumulation of wealth and power. Those societies emphasize high gender differentiation. In these cultures, males dominate a significant portion of the society, while females are under domination. In the opposite case, a low masculinity will indicate that the society de-emphasizes the gender differentiation. In those countries, females are treated equally to males in all aspects of the society.

Uncertainty Avoidance (coded as “uai” in this paper) focuses on the level people try to cope with stress by fighting uncertainty and ambiguous situations within the society. A high uncertainty-avoidance indicates a rule-oriented society, where citizens prefer explicit laws, rules and controls, in order to reduce the amount of uncertainties. A Low Uncertainty Avoidance ranking indicates the country has less concern about ambiguity and has a greater tolerance for informal situations. This is reflected in a society that is less rule-oriented, where people value implicit or flexible guidelines.

Long-term (coded as “lsi” in this paper) orientation encompasses the basic notion that preparing for the future is always needed. In a short-time-oriented culture, the past provides a moral compass and adhering to it is morally good. Every society has to maintain some links with its own past while dealing with the challenges of the present and the future. Societies prioritize these two existential goals differently. Societies who score low on this dimension, view societal change with suspicion. Those with a culture which scores high, on the other hand, encourage thrift and efforts in modern education as a way to prepare for the future.

Indulgence (coded as “iri” in this paper) stands for a society that allows relatively free gratification of basic and natural human drives related to enjoying life and having fun. Restraint stands for a society that suppresses gratification of needs and regulates it by means of strict social norms. In an indulgent culture it is good to be free. Human activities driven by impulses is considered good. In a restrained culture, the feeling is that life is hard. Life in these countries is considered to be a duty and not freedom and is thought of as the normal state of being.

Methodology for the study

The scores of the nations on each of the six dimensions of national culture were obtained from the official website of Geert Hofstede i.e. <https://www.hofstede-insights.com/product/compare-countries/>. Scores of 82 countries were thus obtained for which scores of all the six dimensions were available. The technique of k-means cluster analysis was applied on the data. Considering the number of nations to be clustered, 4 clusters were considered. The clusters were found to be differing widely in terms of constituent nations. The number of nations in one cluster was found to be almost thrice of that of other clusters. When the number of clusters was increased to five, the disparity in the number of nations in the five clusters decreased. However, the results showed that there was a scope of splitting the third cluster into two different clusters. When this was done, the number of clusters came to be six.

A discriminant analysis was also done considering the six identified clusters to test the robustness of the 6-cluster model. The results of the discriminant analysis supported the robustness of the clustering model. Both the techniques of cluster analysis and discriminant analysis were done on R platform.

Findings of the study

The results of the three iterations for cluster analysis considering 4, 5 & 6 clusters are appended below:

Table 1: Number of clusters and number of constituent nations under the three iterations

4 Clusters		5 Clusters		6 Clusters	
Cluster No.	No. of Nations	Cluster No.	No. of Nations	Cluster No.	No. of Nations
1	44	1	24	1	24
2	11	2	11	2	11
3	13	3	20	3	12
4	14	4	13	4	13

		5	14	5	14
				6	8

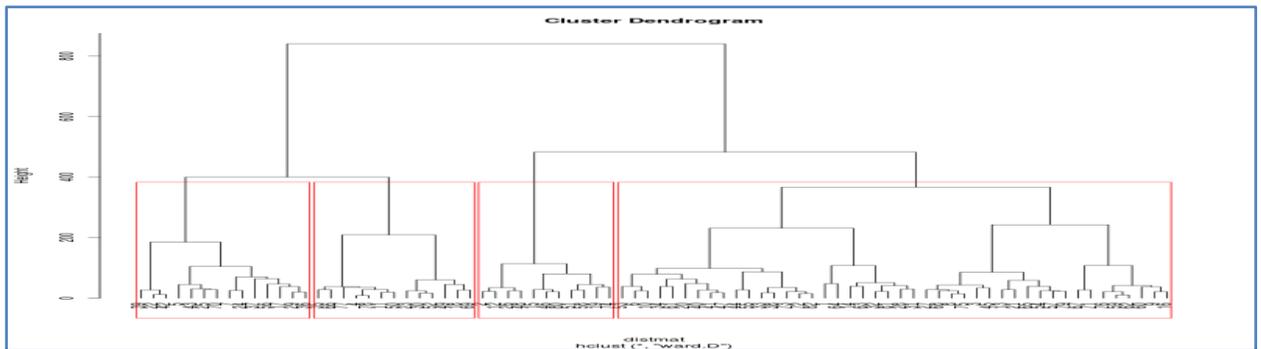
Source: i.e. <https://www.hofstede-insights.com/product/compare-countries/> and author's own calculations

Table 2: Cluster Means (4 Clusters)

Cluster Means (4 Clusters)						
Cluster	pdi	ici	Mfi	uai	lsi	iri
1	72.95	29.81	48.06	69.61	44.40	36.61
2	73.81	20.54	50.72	58.18	13.90	83.18
3	33.07	75.46	39.15	44.38	37.00	67.23
4	46.71	64.71	56.71	74.78	69.57	38.28

Source: i.e. <https://www.hofstede-insights.com/product/compare-countries/> and author's own calculations

Chart 1: Dendrogram for 4 Clusters



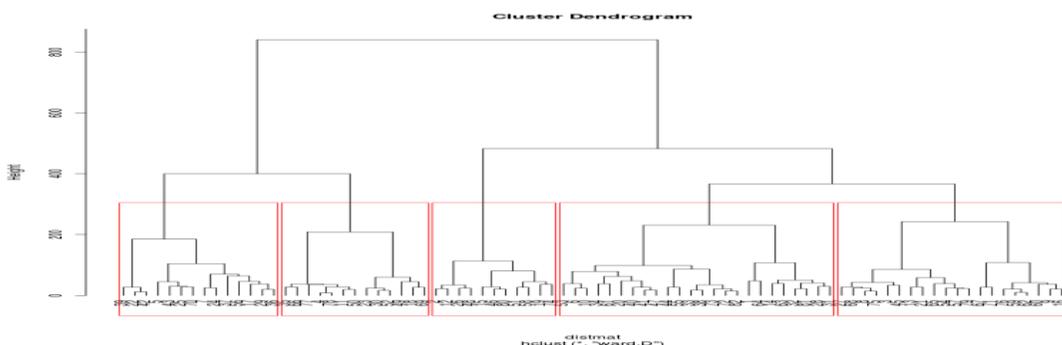
Source: i.e. <https://www.hofstede-insights.com/product/compare-countries/> and author's own calculations

Table 3: Cluster Means (5 Clusters)

Cluster Means (5 Clusters)						
Cluster	pdi	Ici	mfi	uai	lsi	iri
1	76.79	28.37	54.54	53.75	40.20	30.45
2	73.81	20.54	50.72	58.18	13.90	83.18
3	68.35	31.55	40.30	88.65	49.45	44.00
4	33.07	75.46	39.15	44.38	37.00	67.23
5	46.71	64.71	56.71	74.78	69.57	38.28

Source: i.e. <https://www.hofstede-insights.com/product/compare-countries/> and author's own calculations

Chart 2: Dendrogram for 5 Clusters



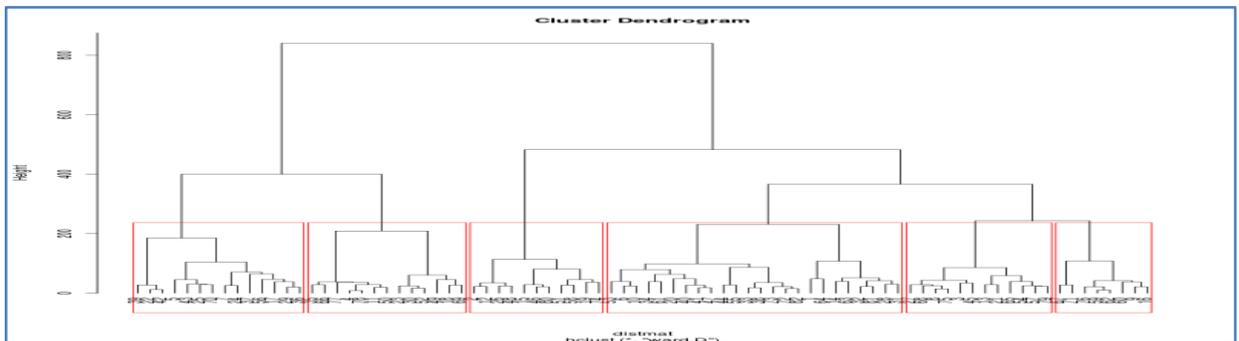
Source: i.e. <https://www.hofstede-insights.com/product/compare-countries/> and author's own calculations

Table 4: Cluster Means (6 Clusters)

Cluster Means						
Cluster	pdi	lci	mfi	uai	lsi	iri
1	76.79	28.37	54.54	53.75	40.20	30.45
2	73.81	20.54	50.72	58.18	13.90	83.18
3	62.08	34.50	41.16	90.16	35.75	55.58
4	33.07	75.46	39.15	44.38	37.00	67.23
5	46.71	64.71	56.71	74.78	69.57	38.28
6	77.75	27.125	39	86.375	70	26.625

Source: i.e. <https://www.hofstede-insights.com/product/compare-countries/> and author's own calculations

Chart 3: Dendrogram for 6 Clusters



Source: i.e. <https://www.hofstede-insights.com/product/compare-countries/> and author's own calculations

Based on the values of the cluster means and the number of constituent nations, this paper identifies an optimum number of six cultural clusters of the nations of the world. The clusters and the constituent nations thereof are contained in Appendix 1.

The identified clusters revealed that the first cluster constituted of 16 Asian nations, 6 African nations and 2 European nations. The second cluster constituted of 5 African nations, 4 North American nations and 2 South American nations. The third cluster constituted of 5 South American nations, 1 each of Asian and North American nations and 5 European nations. The fourth cluster consisted of both the Oceania nations of Australia & New Zealand, 2 North American nations, 8 European nations and 1 African nation. The fifth cluster consisted of 13 European nations and only one Asian nation i.e. Japan. The sixth cluster consisted of 5 European nations and 3 Asian nations.

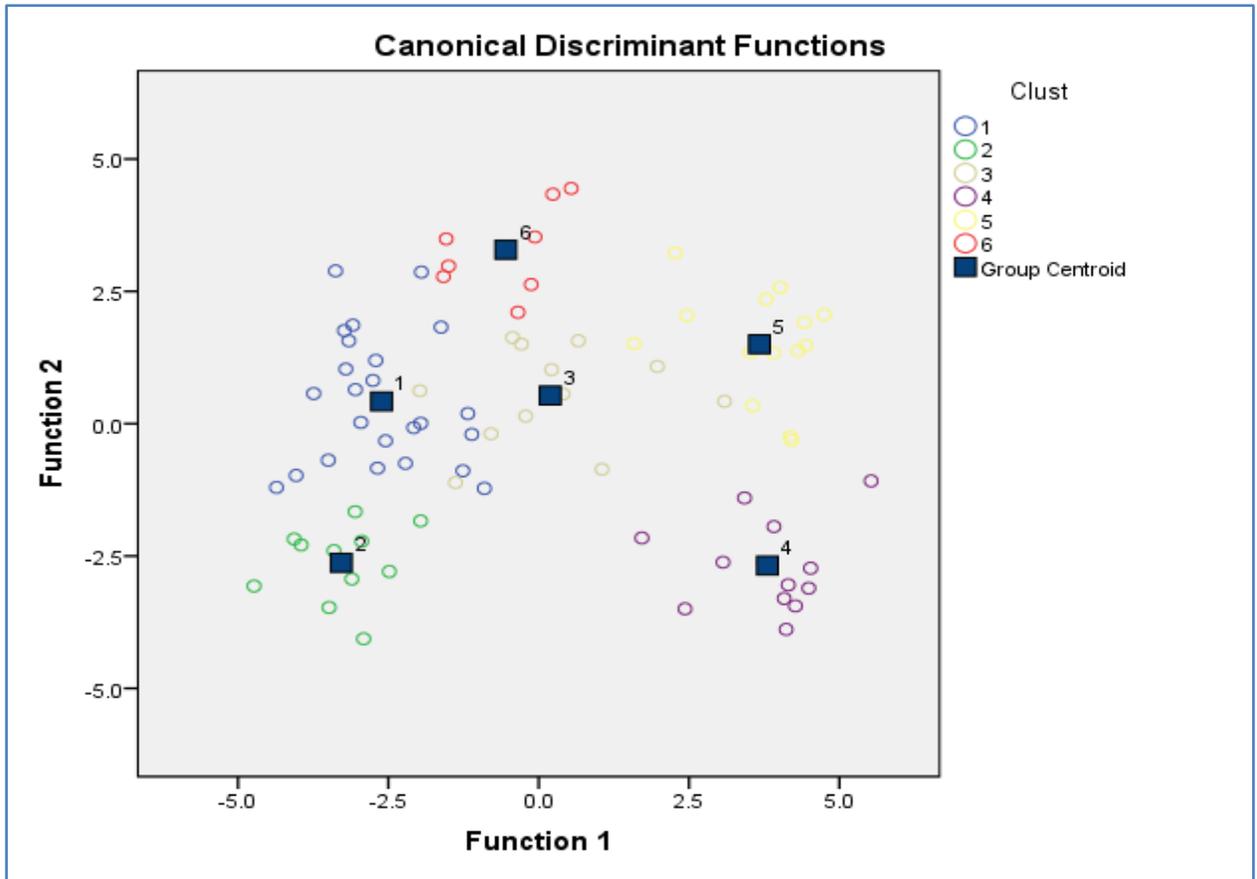
These findings lead to the following cultural mapping of the continents:

	Asia	Africa	Europe	N America	S America	Oceania	Total
Cluster 1	16	6	2				24
Cluster 2		5		4	2		11
Cluster 3	1		5	1	5		12
Cluster 4		1	8	2		2	13
Cluster 5	1		13				14
Cluster 6	3		5				8
Total	21	12	33	7	7	2	82

It transpires from the above that European nations exhibit the most cultural diversity. On the contrary, Asian culture is almost unique.

The 6-cluster model was subjected to a discriminant analysis. The Wilk's Lambda values were found to be significant for all the six cultural dimensions, the null being rejected in all of them. In the Boxe's M test also the null was rejected. 97.6% of original grouped cases correctly classified. 93.9% of cross-validated grouped cases correctly classified. The canonical discriminant functions with the group centroids are appended below:

Chart 4: Canonical Discriminant Functions with Group Centroids



Conclusions

The identification of distinct cultural clusters of the nations of the world shall help the multinational corporations in designing their business strategies in an optimum way to cater to different cultures at the minimum cost. Strategies for all nations in a cultural cluster shall be considerable homogeneous, thereby economizing on cost. This shall stem from the fact that decisions on all functional domains of the business i.e. production, marketing, personnel-related, finance, research & development etc can be made national culture –specific to enable the business houses to adapt better in different scenarios, the heterogeneity of which is largely attributable to diverse national cultures.

Future scope of research

Apart from strategic decisions by multinational organizations through leveraging on cultural clusters, several other macro-economic and social aspects can also be studied further in the light of national cultures. Entrepreneurship, corruption, inequality of income and wealth are some of the very important and significant aspects affecting the development of a national economy. There remains a considerable amount of scope of research for identifying the latent functional relation between the different national cultures and their constituent factors on the on these macro-economic and socio-economic aspects.

References

1. Veltman, Kim H. Computers and the Importance of Culture. Informatic Forum. Vienna. August 1998; 12(2):76 - 82
2. Kummer, Dr. Tyge-F; Leimeister, Prof. Dr. Jan Marco; Bick, Prof. Dr. Markees. On the Importance of National Culture for the Design of Information Systems. BISE Research Paper. Business & Information Systems Engineering. 6/2012, 317-330
3. Fanon Frantz. National Culture: The Post Colonial Studies Reader. Ashcroft, Bill; Griffiths, Gareth & Tiffin, Helen (Ed.), 2003, 153-157, Routlege, London & New York

4. Reis, Nuno Rosa; Ferreira, Manuel Portugal; Santos, Joao Carvalho. The cultural models in international business research: A Bibliometric Study of IB Journals. globeADVANTAGE. Working Paper no. 76/2011.
5. Kogut, Bruce and Singh, Harbir. The Effect of National Culture on the Choice of Entry Mode. Journal of International Business Studies. Fall 1988; 411-432
6. Ali, Majed & Brooks, Laurence. Culture & IS: National Cultural Dimensions within IS Discipline, AMCIS 2008.
7. Myers, Michael D, Tan, Felix B. Beyond Models of National Culture in Information Systems Research. Journal of Global Information Management. Volume 10. Number 2. © 2002. Idea Group Publishing
8. Shore, Barry; Cross, Benjamin J. Exploring the Role of National Culture in the Management of Large Scale International Science Projects. International Journal of Project Management. 2005; 23:55-64
9. Kovacic, Zlatko J (2005). The Impact of National Culture on Worldwide eGovernment Readiness. Informing Science Journal, 2005; 8:143-158
10. Avny Giora, Anderson Alistair R. Organizational Culture, National Culture & Performance in International Joint Ventures based in Israel, International Journal of Business and Globalisation. 2008; 2(2):133-145.
11. Black Dr. Boyd. National Culture and Comparative Industrial Relations Theory, 2002.
12. Blad, Cory. Globalization and the Efficacy of National Culture: A Methodological Framework for analyzing the Neoliberal State. International Journal of Social Inquiry. 2008; 1(2):37-67
13. Bayias, Paris, Assimakopoulos Vassilis. About the Significance of National Culture Differences for Domestic Companies that Expand to the International Environment. International Journal of Business & Management Studies. 2011; 3(2):237 - 247
14. Li Jiatao, Harrison J Richard. National Culture Structures and Boards of Directors. 2008; 16(5):375-385
15. Guidroz, Ashley M; Kotrba, Lindsey M; Denison, Daniel R. Workplace Diversity: Is National or Organizational Culture Predominant? Denison Consulting LLC, 2005.
16. Gulev, Rune Ellemose. Are National & Organizational Cultures Isomorphic? Evidences from a Four Country Comparative Study. Managing Global Transitions. Volume 7. Number 3. Fall 2009 pp 259 - 279
17. Katz, Lothar (2005). Organizational versus National Culture. © Leadership Cross Roads™ 2005
18. Sebenius, James K. Assess, Don't Assume, Part I: Etiquette and National Culture in Negotiation. Working Paper 10-048. Harvard Business School. December 2009
19. Rethi, Gabor. Cultural Perspectives of Corrupt Behaviour - Application of Trompenaars Model for Corruption. 'Club of Economics in Miskolc'. TMP. 2012; 8(1):76-82.
20. Tadesse, Solomon, Kwok Chuck. National Cultural and Financial Systems. William Davidson Institute Working Paper Number 884. 2005
21. Smith, Peter B; Dugan, Shaun 1996. National Culture and the Values of Organizational Employees. Journal of Cross-Cultural Psychology. March 1996, 27(2):231
22. Ralston, David A; Holt, David H; Terpstra, Robert H; Kai-Cheng, Yu. The Impact of National Culture and Economic Ideology on Managerial Work Values: A Study of the United States, Russia, Japan & China, 1995.
23. Erez Miriam. Make Management Practice fit the National Culture. In: Locke, E.A. (Ed.) pp 418 - 434, Basic Principles of Organizational Behavior. A Handbook NY: Blackwell, 2000.
24. Santos, Joe. Global Strategy & Organization. MIT Open Courseware. Spring 2012
25. Hofstede, Geert. National Cultures in Four Dimensions. International Studies Of Man & Organizations. XIII(1-2):46 -74, M E Sharpe Inc 1983
26. Trompenaars, Alfons. Riding the Waves of Culture: Understanding Diversity in Global Business. 3rd Revised Edition. Nicholas Brealey Publishing, 2012.
27. Hofstede, Geert Jan; Minkov, Michael. Cultures and Organizations: Software for the Mind: Intercultural Cooperation and its Importance for Survival. Tata McGrawHill Education, 2010.

Appendix I: Cultural Clusters

Cluster 1		Cluster 2		Cluster 4		Cluster 6	
Nation	Continent	Nation	Continent	Nation	Continent	Nation	Continent
Albania	Eur	Angola	Afr	Australia	Ocn	Bulgaria	Eur
Bangladesh	Asa	Cape Verde	Afr	Canada	Nam	Croatia	Eur
Burkina	Afr	Colombia	Sam	Denmark	Eur	Romania	Eur

Faso							
China	Asa	DominicanRepub	Nam	Finland	Eur	Russia	Asa
Egypt	Afr	Ghana	Afr	Iceland	Eur	Serbia	Eur
HongKong	Asa	Mexico	Nam	Ireland	Eur	SouthKorea	Asa
India	Asa	Mozambique	Afr	Netherlands	Eur	Taiwan	Asa
Indonesia	Asa	Nigeria	Afr	NewZealand	Ocn	Ukraine	Eur
Iran	Asa	PuertoRico	Nam	Norway	Eur		
Iraq	Asa	TrinidadTobago	Nam	SouthAfrica	Afr		
Jordan	Asa	Venezuela	Sam	Sweden	Eur		
Lebanon	Asa			UK	Eur		
Libya	Afr			USA	Nam		
Malaysia	Asa						
Morocco	Afr	Cluster 3					
Pakistan	Asa	Nation	Continent				
Philippines	Asa	Argentina	Sam	Cluster 5			
SaudiArabia	Asa	Brazil	Sam	Nation	Continent		
Singapore	Asa	Chile	Sam	Austria	Eur		
Slovakia	Eur	ElSalvador	Nam	Belgium	Eur		
Tanzania	Afr	Greece	Eur	CzechRepublic	Eur		
Thailand	Asa	Malta	Eur	Estonia	Eur		
Vietnam	Asa	Peru	Sam	France	Eur		
Zambia	Afr	Portugal	Eur	Germany	Eur		
		Slovenia	Eur	Hungary	Eur		
		Spain	Eur	Italy	Eur		
		Turkey	Asa	Japan	Asa		
		Uruguay	Sam	Latvia	Eur		
				Lithuania	Eur		
				Luxembourg	Eur		
				Poland	Eur		
				Switzerland	Eur		

Codes used for Continents

Eur = Europe, Asa = Asia, Afr = Africa, Nam = North America & Canada Region, Sam = South America, Ocn = Oceania

Appendix II

R codes used:

```
dataframe<-data.frame(pdi,ici,mfi,uai,lsi,iri)
distmat<-dist(dataframe, method="euclidean",diag=FALSE, upper=FALSE)
clust<-hclust(distmat, method="ward.D")
Cluster<-cutree(clust,6)
table(Cluster)
dataframe<-cbind(dataframe,Cluster)
agg<-aggregate(. ~ Cluster,data = dataframe, mean)
rect.hclust(clust,6)
plot(clust,label=,hang=-1)
```

A Comparative Appraisal of Financial and Economic Performance: An Empirical Study in FMCG Sector in India

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ABSTRACT: *The objective of any corporate entity is to maximize its shareholders' wealth but it is not only the shareholder's group to which a company is accountable and responsible. In fact, it is responsible towards the economy as well in which it operates. A company which maximizes shareholder's wealth may not fulfill the priorities of the economy. In a developing country like India, it is the responsibility of a company towards contribution to the GDP of the country and generation of employment. So, evaluating a company's performance only on the basis of return to its shareholders becomes inadequate. In this paper, an attempt has been made to evaluate both financial and economic performance of a company. Further, to know whether a company which adds value to the shareholder's wealth also adds value to the economy or not, thereby fulfilling its priorities. To fulfill these objectives, a sample of 12 companies of Nifty FMCG Index had been taken and relevant data relating to past seven years had been extracted from Prowess database. In this paper, to measure the financial performance of a company, return on net worth had been made use of and to measure economic performance, value added income per rupee of capital employed and no. of employees per rupee of capital employed had been calculated. From the study, Colgate-Palmolive (India) Ltd. was found to be the best performer in terms of maximizing returns to its shareholders. United Spirits Ltd., was found to have the highest value added income generation ability although it provided negative returns to its shareholders. Godrej Industries Ltd. was found to the least performer in terms of fulfilling the priorities of the Indian economy. Using composite ranking wherein both financial and economic performance measures were taken together, Colgate-Palmolive (India) Ltd. and Godrej Industries Ltd. were found to be the best and worst performing companies respectively. Using Spearman's rank correlation measure amongst the three ratios, it was found that there was no statistically significant association between them which implied that a company which maximizes shareholders wealth may not fulfill its responsibilities towards the economy.*

Keywords: *Shareholder's wealth, economic performance, value added income, financial performance, employment generation*

1. Introduction

Every firm always intends to maximize its value thereby maximizing the wealth of its shareholders. But shareholders are only a part of its various stakeholders who contribute in generating wealth for the economy. So, a firm's responsibility is not limited to only shareholders but also towards the economy in which it operates. Every economy has its own priorities. So a company which operates in that economy has a responsibility to fulfill those priorities. For a country like India, every firm operating in the country has responsibility towards contribution to the Gross Domestic Product of the country and generation of employment to the available work force. Thus, evaluating the performance of a company only on the basis of its financial performance becomes inadequate. A company's economic performance should also be considered along with its financial performance. The economic performance of a company is measured by its ability to add value to the economy and to generate employment with the limited capital resources.

Conceptual Framework of Value Added Income

The term value added may be defined as the sales value less the cost of bought in goods and services used in producing those sales (Brown and Howard, 1992). Value added is the value which the entity has added in a period that equals its sales less bought in goods and services (Morely, 1978). In terms of equation Value Added = Sales - Cost of bought in goods and services. Value added is the increase in market value brought about by an alteration in the form, location or availability of a product or service excluding the cost of bought in materials and services (ICMA). This can be expressed in the following equation: Value added = Value after alteration - Value before alteration Kohler defines value added as 'that part of the cost of a manufactured or semi-manufactured product attributable to work performed on constituent raw material. The value is arrived at after deducting from the total value of the output of a firm and other incomes, the cost of raw materials, power, fuel, etc. which are bought from other firms.' According to this definition,

$$\text{Value added} = (\text{Value of Output} + \text{other income})$$

– (cost of materials and services purchased from outside). Accounting Standards Steering Committee suggests formula for computing value added: Value added = a - b = c + d + e + f where, a=Turnover, b=bought in materials and services, c=employees wages and other benefits, d=dividend and interest payable, e=tax payable and f=retained profit.

Literature Review

Van Staden (1998) investigated the usefulness of value added statement to its users in South Africa and concluded that very little use of the value added statement was made use of by its users due to lack of consistencies in the calculation of value added and disclosure of VAS which stems directly from the lack of statutory requirements for production of the VAS. These inconsistencies made the statement confusing, non-comparable and unverifiable. The existence of these inconsistencies was also confirmed by many research studies examining the present and past value added reporting formats which have been undertaken (Gray and Maunders, 1980; Renshall, Allan and Nicholson, 1979; and Stainbank, 1992). These studies have found that the accounting practices used in the statement are diverse.

Devendra kumar Sharma (2008) studied the components of value added of Raymond Ltd. for a period of 4 years. An analysis was made to find out to the increasing or decreasing trend.

Nandi, C.K. (2011) had assessed the performance of selected PSE's on the basis of value added income as a public sector enterprise is expected to contribute more towards value addition rather than financial income to the society.

Shilpi Jauhari (2012) in her paper titled 'Significance of Value Added Concept in Inter-firm comparison of Bharat Petroleum Corporation Ltd. and Hindustan Petroleum Corporation Ltd' recommended the preparation of value added statements by showing it as a better performance indicator compared to traditional performance measures. This was established by comparing the performance of the two companies using traditional ratios (like G.P ratio, N.P ratio, N.P to sales ratio, N.P plus interest to capital employed ratio, wages to sales ratio) and value added ratios (like GVA to net worth, NVA to net worth, GVA to capital employed, NVA to capital employed, GVA to sales, NVA to sales, N.P to GVA or NVA and GVA or NVA to labour cost ratio)

Ramesh H. Davada (2012) in his paper titled 'Social Performance through Value added Reporting – An Empirical Study of Reliance Industries Ltd' found that sales was correlated with gross value added and net value added. An analysis of the company's contribution made by employees, government and capital providers was made for a period of 4 years.

Mohammad Fawzi Shubita (2013) conducted a study to find out whether net value added provides incremental information to its users as compared to earnings figure in predicting a company's future earnings. Return on equity was taken as earnings. It was found that net value added did not provide incremental information beyond that provided by earnings.

Priya. K. and Nimalathasan (2013) in a study on companies under manufacturing sector listed in Colombo stock exchange, Sri lanka found that VA has a great impact on all financial performance ratios except ROI and ROE. Further NPVA, VAS and VAFA were found to be significantly correlated with GPM, NPM, and ROA, significant at 5 and 1 percent level of significance respectively. . An attempt was made to find the correlation between value added ratios and financial performance ratios. Value added ratios made use of were VACER: Value Added to Capital Employed Ratio VASR : Value Added to Sales Ratio NPVA : Net Profit to Value Added Ratio VAS : Value Added to Stock ratio VAFA : Value Added to Fixed Assets Ratio TVA : Taxation to Value Added Ratio

Financial performance ratios made use of were

GPM : Gross Profit Margin NPM : Net Profit Margin

ROI : Return on Investment ROE : Return on Equity ROA : Return on Asset

Vijayalaxmi B and Potharla Srikanth (2014) made an attempt to study the impact of the share of various contributors to the value added by a company on its profits. The role of Value Added Statement as a financial performance measurement model for company was analysed. The results of the study disclosed that there is 5.89% compounded annual growth rate in the Gross Value Added. It was found that share capital contributor's share (or Dividend payment) has most significant impact on profits of the company followed by retained earnings.

Objectives

1. To appraise the financial performance of select Indian companies using return on net worth.
2. To measure the economic performance of select Indian companies by use of value added income.

3. To find out the correlation between a company's financial performance with its economic performance.

Research Methodology

The research had been conducted on a sample of 12 companies of NIFTY FMCG Index. The FMCG Index had fifteen companies but only twelve companies could be made use of because of inadequacy of data

The required secondary data were collected from the Prowess database for a period of past 7 years from the year 2011-12 to 2017-18. To measure financial performance of the companies, data relating to Return on Net Worth were directly extracted from the database whereas to measure economic performance, the following two ratios were calculated:

1. Value added income/capital employed to know the Value added income generation ability and
2. No. of employees/capital employed to know the employment generation ability

The method of composite ranking was used to rank the companies based on both financial and economic performance.

Finally, to know the association between the financial and economic performance measures, Spearman's rank correlation was made use of.

Data Analysis and Findings:

The financial and economic performance of select companies as measured by the RONW, VAI/CE and no. of employees/ CE are presented and analysed in Tables 1-5 and Figures 1-4.

Table 1: Financial Performance Analysis based on Return on Net Worth [RONW]

Serial No.	Company Name	Mar-12	Mar-13	Mar-14	Mar-15	Mar-16	Mar-17	Mar-18	Avg	Rank
1	Britannia Industries Ltd.	0.3359	0.3834	0.4585	0.4422	0.4703	0.3666	0.3257	0.3975	2
2	Colgate-Palmolive (India) Ltd.	1.0874	1.071	0.8691	0.8169	0.6065	0.4853	0.465	0.7716	1
3	Dabur India Ltd.	0.4479	0.4208	0.3884	0.3598	0.3446	0.2981	0.2717	0.3616	3
4	Emami Ltd.	0.2205	0.2972	0.3712	0.4395	0.2413	0.2165	0.1782	0.2806	7
5	Glaxosmithkline Consumer Healthcare Ltd.	0.3439	0.3481	0.4267	0.3015	0.2583	0.2151	0.2085	0.3003	6
6	Godrej Industries Ltd.	0.1853	0.0654	0.0579	0.0925	0.014	-0.09	0.1466	0.0674	11
7	I T C Ltd.	0.3564	0.3626	0.3596	0.3383	0.2605	0.2328	0.2238	0.3049	5
8	Jubilant Foodworks Ltd.	0.4535	0.3779	0.253	0.201	0.1465	0.1005	0.2139	0.2495	9
9	Marico Ltd.	0.3382	0.2391	0.2951	0.249	0.2794	0.3085	0.2415	0.2787	8
10	Procter & Gamble Hygiene & Health Care Ltd.	0.2769	0.2574	0.3387	0.3205	0.2932	0.4111	0.4111	0.3298	4
11	Tata Global Beverages Ltd.	0.1616	0.1065	0.098	0.0867	0.0787	0.0823	0.147	0.1087	10
12	United Spirits Ltd.	0.05	0.0549	-0.1638	-0.4705	-0.183	0.1707	0.1711	-0.0529	12

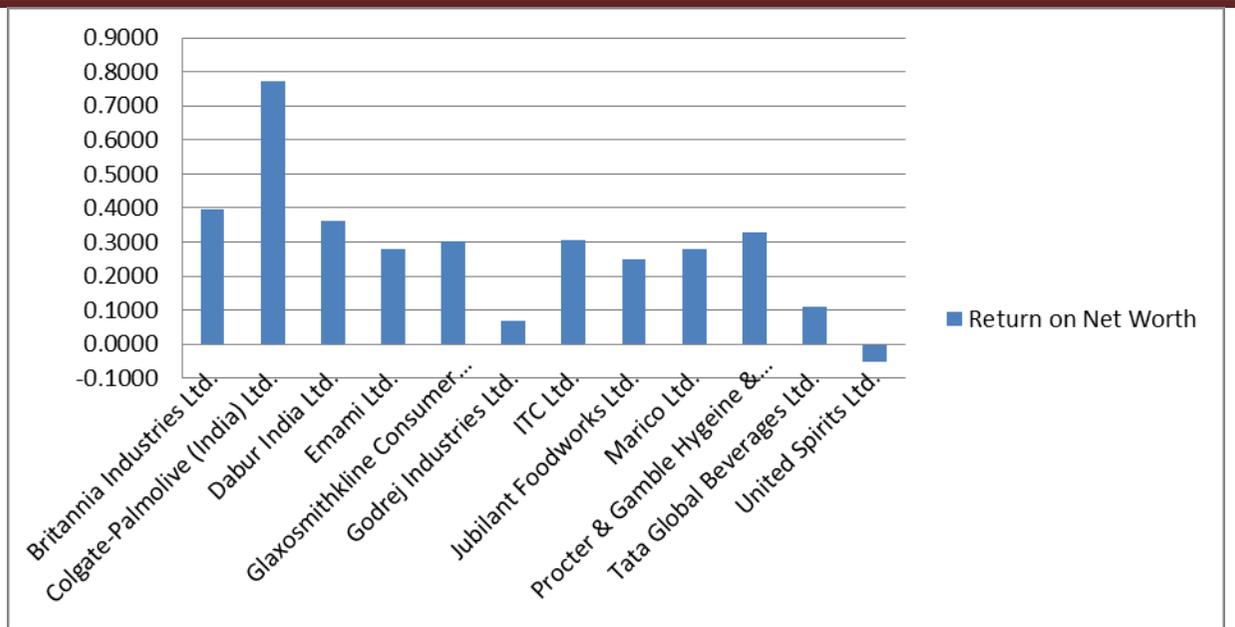


Fig. 1: RONW of select companies averaged over the period 2011-12 to 2017-18

It can be observed that Colgate-Palmolive (India) Ltd. is the best performing company in terms of RONW as it generates on an average the highest return of ` 0.7716 for each rupee of capital employed. Britannia Industries Ltd. has been found to be the next best performer with a return of `0.3975 followed by Dabur India Ltd. with a return of `0.3616. United Spirits Ltd. generating a negative return of - ` 0.0529 was found to be the least performing company with regard to maximizing return to its shareholders.

Table 2: Economic Performance Analysis based on Value Added Income Generation Ability (VAI-GA)

Serial No.	Company Name	Mar-12	Mar-13	Mar-14	Mar-15	Mar-16	Mar-17	Mar-18	Avg	Rank
1	Britannia Industries Ltd.	0.5594	0.6833	1.0275	1.0648	0.8191	0.7050	0.5573	0.7738	7
2	Colgate-Palmolive (India) Ltd.	2.2692	2.3883	2.0652	1.7713	1.6721	1.3692	0.9212	1.7795	2
3	Dabur India Ltd.	0.6173	0.6444	0.6833	0.6164	0.5380	0.4750	0.4424	0.5738	8
4	Emami Ltd.	0.4780	0.6305	0.7502	0.7403	0.3087	0.3615	0.3130	0.5118	9
5	Glaxosmithkline Consumer Healthcare Ltd.	0.8841	0.9052	1.0401	0.8022	0.7581	0.6500	0.5022	0.7917	6
6	Godrej Industries Ltd.	0.2732	0.1544	0.1572	0.1403	0.1035	0.0612	0.1379	0.1468	12
7	I T C Ltd.	1.1293	1.1635	1.1019	1.0202	0.8165	0.7888	0.4913	0.9302	5
8	Jubilant Foodworks Ltd.	1.1143	1.0348	0.8984	0.8868	0.9171	0.8180	0.9007	0.9386	4
9	Marico Ltd.	0.3552	0.2903	0.3894	0.3794	0.4516	0.4805	0.4210	0.3953	10
10	Procter & Gamble Hygiene & Health Care Ltd.	0.5319	0.5690	0.6271	0.5594	0.5277	2.2402	2.2402	1.0422	3
11	Tata Global Beverages Ltd.	0.2087	0.1911	0.2778	0.2164	0.1822	0.2099	0.2291	0.2165	11
12	United Spirits Ltd.	0.9976	1.1396	0.9841	1.6580	2.8626	3.0783	3.4425	2.0232	1

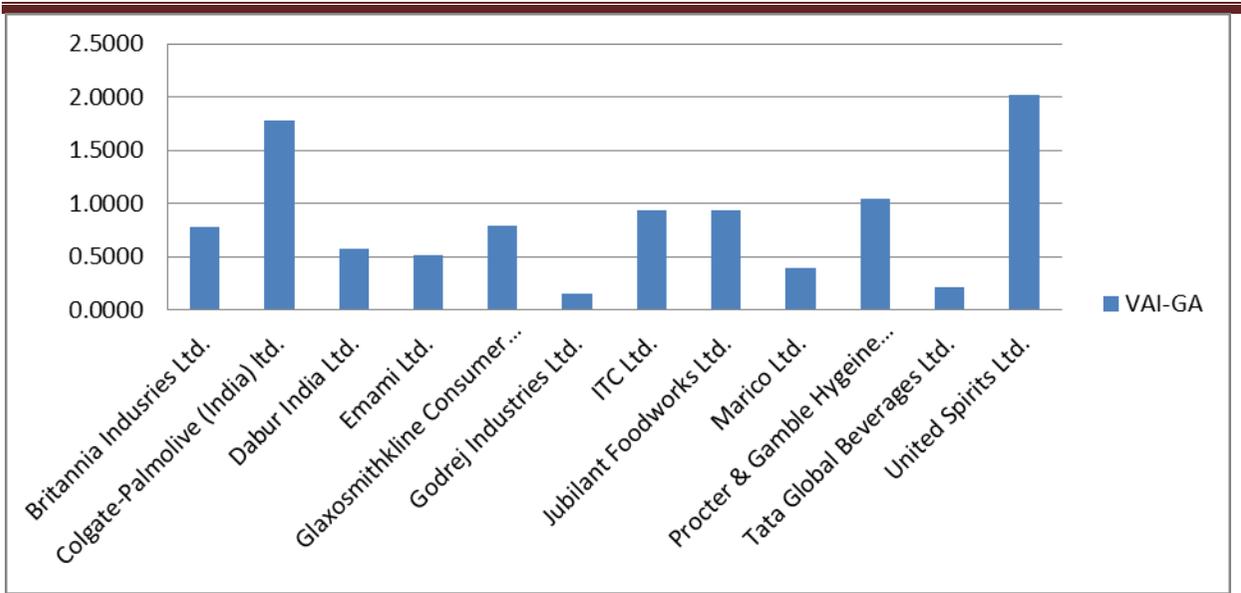


Fig. 2: VAI-GA of select companies averaged over the period 2011-12 to 2017-18

It can be seen that United Spirits Ltd. Ltd. (Table 2, Fig 2) contributes the most to the national wealth of the economy by generating on an average ` 2.0232 for each rupee of capital employed. The next best performing company in terms of contribution to the country's GDP is Colgate-Palmolive (India) Ltd. which was found to generate ` 1.7795 for one rupee of capital provided by its owners and debt providers. Procter & Gamble Hygiene & Health Care Ltd. ranks third and so on. Godrej Industries Ltd. generates the least amount of value added income of ` 0.1468 per rupee of capital employed.

Table 3: Economic Performance Analysis based on Employment Generation Ability (EGA)

Serial No.	Company Name	Mar-12	Mar-13	Mar-14	Mar-15	Mar-16	Mar-17	Mar-18	Avg	Rank
1	Britannia Industries Ltd.	0.2082	0.2381	0.2764	0.2079	0.4205	0.3713	0.3454	0.2954	4
2	Colgate-Palmolive (India) Ltd.	0.4542	0.4101	0.2837	0.3335	0.2905	0.2412	0.2049	0.3169	3
3	Dabur India Ltd.	0.3701	0.5071	0.4825	0.3796	0.3819	0.1236	0.1050	0.3357	2
4	Emami Ltd.	0.2933	0.2942	0.2698	0.2023	0.2182	0.2611	0.2492	0.2554	5
5	Glaxosmithkline Consumer Healthcare Ltd.	0.2796	0.2544	0.1932	0.2424	0.1892	0.1679	0.1714	0.2140	6
6	Godrej Industries Ltd.	0.0806	0.0539	0.0473	0.0346	0.0278	0.0260	0.0251	0.0422	12
7	ITC Ltd.	0.1328	0.1161	0.0989	0.0839	0.0619	0.0577	0.0517	0.0862	9
8	Jubilant Foodworks Ltd.	4.6785	4.4029	4.3205	3.9576	3.4706	3.1550	2.8077	3.8275	1
9	Marico Ltd.	0.0637	0.0459	0.0764	0.0942	0.0540	0.0531	0.0526	0.0628	10
10	Procter & Gamble Hygiene & Health Care Ltd.	0.0560	0.0505	0.0405	0.0307	0.0214	0.1159	0.1159	0.0615	11
11	Tata Global Beverages Ltd.	0.0868	0.0887	0.0831	0.0862	0.0734	0.1089	0.0893	0.0881	8
12	United Spirits Ltd.	0.0610	0.0575	0.0746	0.0935	0.1731	0.1612	0.1413	0.1089	7

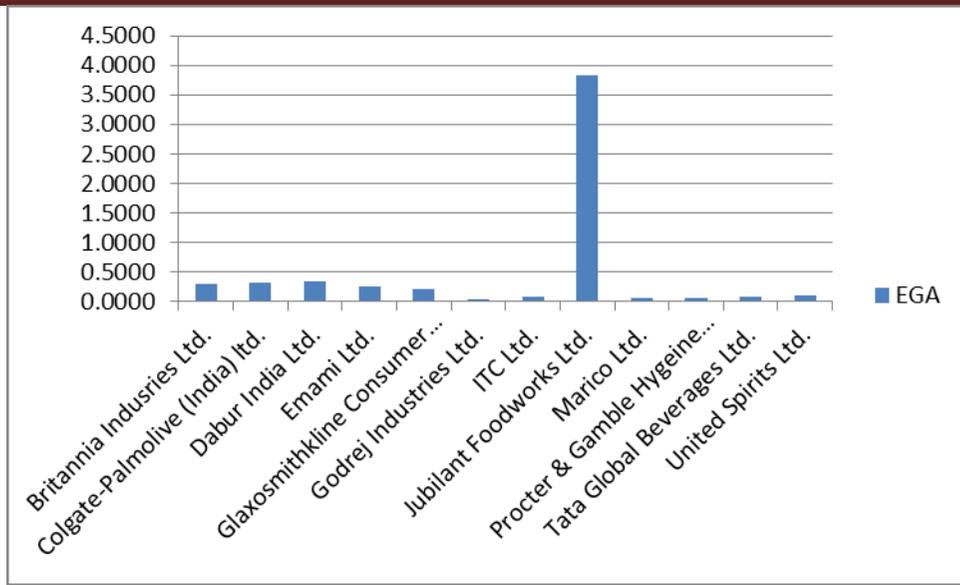


Fig.3: EGA of select companies averaged over the period 2011-12 to 2017-18

It is clearly evident that the ability to generate employment per rupee invested by the company is the highest in case of Jubilant Foodworks Ltd. Although, Dabur India Ltd. ranks second with an average ` 0.3357, there is a significant difference as compared to Jubilant Foodworks Ltd. showing an average of ` 3.1550. Godrej Industries Ltd. has been found to be the company generating the least employment per rupee of capital employed.

Table 4: Composite ranking of companies based on financial and economic performance measures

Serial No.	Company Name	Financial Performance Measure	Economic Performance Measures		Composite Ranking
		RONW	VAI-GA	EGA	
1	Britannia Industries Ltd.	2	7	4	13
2	Colgate-Palmolive (India) Ltd.	1	2	3	6
3	Dabur India Ltd.	3	8	2	13
4	Emami Ltd.	7	9	5	21
5	Glaxosmithkline Consumer Healthcare Ltd.	6	6	6	18
6	Godrej Industries Ltd.	11	12	12	35
7	ITC Ltd.	5	5	9	19
8	Jubilant Foodworks Ltd.	9	4	1	14
9	Marico Ltd.	8	10	10	28
10	Procter & Gamble Hygiene & Health Care Ltd.	4	3	11	18
11	Tata Global Beverages Ltd.	10	11	8	29
12	United Spirits Ltd.	12	1	7	20

From the calculated composite score, it can be observed that Colgate-Palmolive (India) Ltd. had been the top performer in terms of both maximizing return to its shareholders and fulfilling the priorities of the Indian economy whereas Godrej Industries Ltd. was found to be the least performing company.

Table 5: Correlation Table

			<u>RONW</u>	<u>VAIGA</u>	<u>EGA</u>
Spearman's rho	<u>RONW</u>	<u>Correlation Coefficient</u>	<u>1.000</u>	<u>.273</u>	<u>.385</u>
		<u>Sig. (2-tailed)</u>	<u>.</u>	<u>.391</u>	<u>.217</u>
		<u>N</u>	<u>12</u>	<u>12</u>	<u>12</u>
	<u>VAIGA</u>	<u>Correlation Coefficient</u>	<u>.273</u>	<u>1.000</u>	<u>.315</u>
		<u>Sig. (2-tailed)</u>	<u>.391</u>	<u>.</u>	<u>.319</u>
		<u>N</u>	<u>12</u>	<u>12</u>	<u>12</u>
	<u>EGA</u>	<u>Correlation Coefficient</u>	<u>.385</u>	<u>.315</u>	<u>1.000</u>
		<u>Sig. (2-tailed)</u>	<u>.217</u>	<u>.319</u>	<u>.</u>
		<u>N</u>	<u>12</u>	<u>12</u>	<u>12</u>

From the correlation table, it was found that there was no statistically significant association between the three ratios which implied that a company which maximizes shareholders wealth may not fulfill its responsibilities towards the economy.

Conclusion

The research conducted revealed that in the FMCG sector, Colgate-Palmolive (India) Ltd., followed by Britannia Industries Ltd. and Dabur India Ltd. had been the best performer both in terms of maximizing return to its shareholders and fulfilling its economic responsibilities. Moreover, it can also be concluded with respect to the sample companies that a company that maximizes the wealth of the shareholders may not contribute to the wealth of the Indian economy and fulfill its priorities.

References

1. Staden Van C, Vorster Q. The usefulness of the value added statement: A review of the literature. *Meditari Accountancy Research*. 1998; 6:337-351
2. Staden Van C. Aspects of the predictive and explanatory power of value added information in South Africa. *South Africa Journal of Accounting Research*. 1999; 13(2):53-75
3. Sharma KD. Social Performance through Value Added Reporting. *International Research Journal*. 2009; 2(5)
4. Nandi CK. Performance measures: An application of value added statement. *The IUP Journal of Operations Management*. 2011, X(3)
5. Jauhari S. Significance of Value Added Concept in Inter-firm Comparison of Bharat Petroleum Corporation Ltd. and Hindustan Petroleum Corporation Ltd. *The Manager- a journal for the managers in making*. 2012; 7:14-20
6. Davada HR. Social Performance through Value Added Reporting – An Empirical Study of Reliance Industries Ltd. *Research Expo International Multidisciplinary Research Journal*, 2012; II(II)
7. Priya K, Nimalathan B. Value added and Financial Performance: A case study of listed manufacturing companies in Sri Lanka. *SAARJ Journal on Banking & Insurance Research*, 2013, 2(3)
8. Vijayalaxmi B, Potharla Srikanth. Value Added Statement – An Innovative Dimension of Financial Performance Measurement - A Case Study of Steel Authority of India Ltd. (SAIL). *Asian Journal of Research in Business Economics and Management*. 2014; 4(4):138-152

Indoor Air Pollution & Health: Evidence from IHDS Data

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ABSTRACT:

Introduction

Indoor air pollution (IAP) is a potential public health risk. The World Health Organisation (WHO) reports that globally 4.3 million die due to air pollution from household sources. Main source of indoor pollution is the smoke emitted during cooking, heating and lighting. The type of fuel used by the household depends on affordability, availability and awareness which are reflected through income and education. Unlike outdoor pollution, indoor pollution is not an external 'bad' in the household utility frontier, rather it ideally should be internalised in the decision-making process within the household.

This paper attempts to investigate the impact of indoor air pollution, arising out of use of polluting fuels for cooking, on the health of population, in general as well as on women and children below 5 years of age, in particular. It also tries to find out the associated factors that affect the incidence of IAP induced diseases. Finally, some policy suggestions are made on the basis of the findings of the analysis carried out.

Data & Methodology

The paper uses India Human Development Survey-II (IHDS-II) data, 2012. The dataset provides information on household details and demographic and socio-economic profile of individuals. Data analysis using cross-tabulation method is applied to investigate the choice and collection time of fuel, location and ventilation of kitchen across households and morbidity profile across ages and sexes. A Clean Cooking Index (CCI) has been constructed. Logit regression is run to find the impact of indoor smoke, represented by CCI on the IAP induced morbidity controlling for other confounders like income (per capita), education, age and sex.

Result

More than half of the study population uses firewood/twigs for cooking followed by LPG, dung cake and crop residue. LPG, known to be a clean fuel, is used by only 55% of the population. The collection of the fuels majorly made on weekly basis. No separate kitchen is found for more than one quarter of the individuals. The CCI has a negative coefficient on the incidence of morbidity implying use of cleaner fuel leads to less morbidity. Education also has a significant effect on reduction of morbidity. Age has a non-linear relation with the incidence of morbidity. Females who are mainly involved in cooking activities, are naturally more affected than their male counterpart.

Conclusion

Switching to cleaner fuel (LPG) is a potential solution for IAP induced morbidity of the individuals. Educational attainment also can put an end to this menace through raising awareness. Subsidy to cleaner fuel and increasing its availability on the part of the state can be a policy suggestion. Enhancement of the scope of the education and a better provision of the same and for all may provide another solution to the problem. Increase in the availability of clean fuels would reduce the time and hazard related to fuel collection making way for spending the time for a productive purpose. It has a double dividend outcome through reducing pollution related disease and increase in income.

Keywords: Indoor air pollution, Health, clean cooking, education

1. Introduction

Indoor air pollution is a potential public health risk. The World Health Organisation (WHO) reports that 8 million people die every year globally because of air pollution out of which 4.3 million die due to air pollution from household sources (Figure 1). Out of these 4.3 million 60% die because of cardiovascular diseases including Ischaemic Heart disease and stroke; 40% mortality happens because of pulmonary diseases like Chronic Obstructive Pulmonary Disease (COPD), Acute Lower Respiratory Infections (ALRI) and lung cancer (Figure 2). According to the Global Burden of Disease Report, indoor air pollution is the leading cause of disability-adjusted life years (DALYs) in Southeast Asia and the third leading cause of DALYs globally. In India Smith (1994) estimated 850,000-3300, 000 IAP related and 50,000-300,000 OAP related premature deaths annually. In the high mortality developing countries (which make up 40% of the world population) the IAP is considered to be the 4th most dangerous killer after malnutrition, unsafe sex and lack of safe water and sanitation.

Majority of total IAP exposure seems to fall under two categories: the combustion of solid fuel for cooking and heating and Environmental Tobacco Smoke (ETS). In this paper focus will be placed only on the solid fuel use major source of which is domestic cooking and heating. More than half of the world's population rely on the biomass fuels to meet their most basic energy needs and 95% of them are from the lower income countries (Smith et al., 2004). Cooking and heating with such solid fuels on open fires or stoves without proper ventilation leads to indoor air pollution. In poorly ventilated dwellings the levels of small particles coming out of indoor smoke can exceed that from outdoor air manifold (WHO, 2005). The WHO (2012) reports that indoor air pollution cause death because of heart disease and stroke, ALRI, COPD and lung cancer. Smith (2000, 2006), Bruce et al. (2002), Ezzati and Kammen (2002), Pant (2008), Smith et al. (2004) etc. have found strong evidences regarding link between indoor smoke exposure and prevalence of ALRI, COPD, bronchitis and lung cancer. Study by Misra (1999), Misra et al. (2002), Lin et al. (2007), Gupta and Mathur (1997), Perez-Padilla et al., (1996, 2001), etc. found consistence evidence of association between use of biomass cooking fuel and prevalence of tuberculosis. Song et al. (2011), Penard-Morand et al. (2010), Lee et al. (2008) associated skin infection to exposure to particles with diameter less than 10 μm . Studies (Pokhrel, 2005) also have estimated the cooking fuel and the risk of cataract. Morgenstern et al. (2008) finds association between the exposure to particulate matter, $\text{PM}_{2.5}$ (one of the major indoor air pollutants with size smaller than 2.5 μm) and incidence of bronchitis in children. Evidences of association between $\text{PM}_{2.5}$ exposure and incidence of asthma are also found in Janssen et al. (2003), McCormack et al. (2009), Guneseer et al. (1994), Azizi et al. (1995) etc. The link between cardiovascular disease and exposure to fine particles has been established in Brook et al. (2004), Miller (2007), McCracken et al. (2007), Fullerton, Bruce and Gordon (2008).

This paper attempts to investigate the impact of indoor air pollution, arising out of use of polluting fuels for cooking, on the health of population, in general. The analysis has been done for the year 2012. It also tries to find out the associated factors that affect the incidence of IAP induced diseases. Finally, some policy suggestions are made on the basis of the findings of the analysis carried out.

Data and Methodology:

The paper uses India Human Development Survey (IHDS) II Data. The survey was conducted in the year 2011-12. It is a nationally representative multitopic survey including 42,152 households in 1,503 villages and 971 urban neighbourhoods across India. The topics covered the areas of health, education, employment, economic status, marriage, fertility, gender relations, and social capital.

Quality of indoor air gets affected by the type of fuel used by the household, the medium of cooking, the location of the kitchen within the house, the ventilation system in the kitchen and adjacent rooms, the height of the ventilation from the hearth etc. In IHDS data information is available on the type of fuel used for cooking, the type of stove the household is using, vent in the cooking area, source of fuel, kitchen type, etc. The data also provide information on the type of morbidity an individual was suffering from at the time of survey. Information on demographic characteristics of the individual are also available. In absence of the actual pollutant concentration in the air in-house the type of fuel used in the cooking has been used as the proxy of the indoor air pollution. On the basis of the type of fuel, stove type, vent in the cooking area and the location of the kitchen, a clean cooking index (CCI) has been constructed and its relation with morbidity of the individuals is examined. Few diseases have been selected from the list of reported ailments provided by IHDS. Respiratory infections like cough and cough with shortness of breath, tuberculosis, cataract, asthma cardiovascular diseases like heart diseases and hypertension are considered to be the diseases and symptoms caused by IAP. The inclusion of these diseases in IAP induced disease has background in literature in the area as mentioned in the preceding paragraph. The fuel used for cooking has been broadly divided into two categories-clean and dirty. The paper has used kerosene and LPG as the clean fuel and firewood, dung cake, crop residue and coal/charcoal as the dirty fuel. This classification has been made on the basis of the potential to pollute of the fuels. IHDS does not provide any direct information on income of household or individuals, instead information on per capita monthly household expenditure is available. It is taken as the surrogate for income. The sampled individuals have been arranged over different expenditure classes where the latter have been divided into three broad categories, viz., low (with MPCE less than Rs.1500.00), medium (with MPCE in the range Rs.1500.00 - Rs.3000.00) and high (with MPCE greater than Rs.3000.00). These classes have been constructed on the basis of World Bank's poverty line income. It is \$3.20 per person per day, in 2011 PPP dollars for low and middle-income countries like India which is coming out to be Rs. 1450.50 per person per month. So, income less than Rs.1500.00 is taken as low MPCE class. The individuals have been divided into five categories on the basis of education level attained. Number

of completed years of education is taken as the education level. Those who have completed zero years of schooling (no schooling), completed up to 4th class, 5th class to 10th class, 11th class to 12th class and higher than that are categorised as not literate, below primary, above primary and up to secondary, above secondary and up to higher secondary, above higher secondary respectively. Age is also divided in to five groups. The groups are infant and children below 5 years, children and teenagers in age group 5-15 years, mothers who may carry children (15-49 years), mothers whose children are elder but those who engaged in cooking activities (49-60 years) and aged (over 60 years). Information is available on the total time taken for fuel collection per round trip from home to the place where fuel is available. This is reported in minutes.

Data analysis has been carried out using the information on the total time taken for fuel collection to construct an idea about the opportunity cost of the job. Data analysis also has been done through cross tabulation technique between IAP induced diseases and sex, age group, MPCE, education, and type of fuel used for cooking in the household the individual belongs to. The IAP exposure is expressed in terms of the CCI. Finally, logit regressions have been run to analyse the health impact of IAP exposure in presence of different confounding variables that include household specific factors like individual specific factors like MPCE, age, sex, education and CCI. Any incidence of disease is likely to affect the children and the aged most, as they are more vulnerable. So, in the logit regression a non-linear function of age (squared age) is also been introduced. A total of 1, 29, 388 individuals have been studied as information on these individuals are available for all the variables included/constructed in the analysis. Almost equal number of males and female individuals are present in the sample.

Variable Description

The variable included in the study are as follows:

IAP_disease: This is the response variable. The effect of indoor pollution will be studied on this variable. This represents the health outcome that arises out of IAP. This considers incidence of diseases mentioned before. The variable is assigned a value 1 if any one of the included diseases occurs. Otherwise 0 is given. Thus, the variable is binary in nature.

W: This is the presence of window or vent in the cooking area. The value is 1 if window/vent is present, and 0 otherwise. This is directly taken from the dataset.

CCh: This is the presence of clean chulha (the mode of cooking). If improved chulha with chimney or any other chulha suitable for cooking with non-biomass fuels (kerosene/LPG) is used then that is considered as clean chulha. Clean chulha is assigned a value 1. Open fire cooking or cooking with traditional chulha without chimney are categorised as dirty chulha and is assigned 0. This variable is dichotomous in nature.

SK: It represents presence of separate kitchen. This is again a discrete variable with two values. Presence of separate kitchen in the household is given a value 1 and 0 otherwise.

CF: This is clean fuel. Kerosene and LPG are considered as clean fuel and firewood, dung cake, crop residue and coal/charcoal as the dirty fuel. The value 1 is assigned if any of the clean fuels is used and 0 is given for dirty fuels.

CCI: This is clean cooking index. The index is constructed as the sum of values of the variables W, CCh, SK, CF. If all the component variables are 1 then CCI takes a value 4 and if all the variables are 0 then CCI is 0. So, the CCI varies between 0 and 4. Higher value of CCI indicates cleaner cooking, as more variables used as indicator of clean cooking get 1 and hence clean. The individual who has cleanest possible cooking arrangement gets the value 4 and 0 for the dirtiest arrangement.

age: This is the age of the individual and taken as reported in data.

agegroup: The age of the individuals is divided into five categories. Categories are defined earlier.

sex: This is used from the data directly.

edugroup: This is the education group. Five groups have been defined. The definitions have been mentioned earlier.

MPCE: This is monthly per capita expenditure and taken from the data in its original form.

Data Analysis and Result

Fuel collection time

This work attempts to study the frequency at which people go for fuel collection and the total time spent for this purpose per trip. This is shown in table 1. It shows that weekly trip is the highest frequency for all the groups followed by daily one. Adult women are more frequent traveller than any other group studied. The average time spent on per trip is at least 120 minutes i.e., two hours. As the distribution of the total time spent on the trip is skewed in all cases, the median has been taken as the appropriate average. It is

interesting to note that 21.2% adult women and around 19% girls and boys under the age 15 spend 2 hours daily for fuel collection. For the children under age 15, this time can be used for the purpose of education. For adult women, the time can be utilised in some other production activities. The supply of fuel at the demand end may reduce this unproductive utilisation of time. Education and income generating activities during this time have a long-term impact on the standard of living.

Fuel use and other cooking environment:

Table 2 shows that 58.62% of the total surveyed individuals use firewood and 54.67% use LPG for cooking. Around 61% of the population use clean fuels (not shown in the table). More than half of the population (51.5%) do not use clean chulha i.e., they either use three stone open fire stove or traditional chulha without chimney for cooking purpose. These modes of cooking are likely to generate more pollution and affect the person involved in cooking.

Data reveal that nearly 76% individuals have window or vent in their cooking area. Presence of window/vent naturally reduce the pollution adjacent to the cooking area as the smoke get ventilated through the vent. 75% individuals have separate kitchen inside the household indicating less impact of IAP on the other members of the household.

Clean Cooking index (CCI):

As described before, CCI ranges between 0 and 4. The cleanest cooking arrangement gets 4 and dirtiest gets 0. Table 3 shows distribution of CCI across individuals. Nearly 35% of the individuals get a score 4 indicating cleanest cooking arrangement. Only 8.35% have the dirtiest arrangement for cooking and thereby exposed to highest pollution.

IAP induced morbidity:

The data reveal that 16.5% of the total individuals studied in this analysis suffer from different kinds of disease which are likely to generate from indoor pollution.

It is observed in table 4 that the morbidity related to indoor pollution is highest among the aged (over 60 years) and children. The differences are statistically significant. The females are more affected as they reach age of 15 and more. As females are more involved in cooking activities, mainly in the age cohorts 15-49, 49-60 and above 60, they suffer most. This is interesting because those who cook in the household generally fall in this age bracket. So, the vulnerability of women for this particular section is higher than males as they are more exposed to the indoor pollutants coming out of the cooking smoke. Children, as carried by the mother and/or be with mother, suffer high. The older are more morbid either due to their vulnerability related to age or due to the fact that they spend most of their time indoor. Females are, in general, more affected. So, the problem is serious for females, especially for this particular age group.

As the females who cook are likely to be more exposed, the fuel type must be an important factor explaining the incidence IAP borne diseases. Table 5 reveals that use of clean fuel is higher among those who suffer this ailment. This goes against the claim that fuel type is an important determinant of this illness. Use of fuel depends, among many other factors, upon the affordability and availability and awareness of the user. Here the affordability is measured by MPCE and awareness by education. The pattern of IAP related morbidity across different MPCE class and education group is reported in table 6.

It is observed from table 6 that the burden of the disease is mostly borne by low income class followed by middle income class. 17.42% of those who earn least suffer from this ailment. The highest disease burden falls on the illiterate section of the population and it gradually decreases as the education level increases, except in the third category (upto secondary). It directs to the hypothesis that effect of the indoor air pollution is inversely related to the income and education. The rise of incidence for 'upto secondary' group may have some other explanation related to the confounders. Regression analysis is done considering these confounders.

Regression Analysis

A LOGIT regression has been run taking IAP_disease as the dependent variable. The variable is of dichotomous nature and hence the LOGIT has been the chosen form of regression. The independent variables are MPCE, square of MPCE ($sqMPCE$), age, square of age ($sqage$) *edugroup* and CCI. The squared MPCE and squared age are included in order to capture any non-linearity in the relationship. Coefficients of CCI and *edugroup* are reported with reference to the base category. The 'not literate' group has been used as base for *edugroup* and '0' is base value for CCI. The regression result is reported in table 7. Sex has been

included with reference category 'male'. This will give the morbidity impact on females. The result shows that the cooking environment has an impact on the incidence of IAP related diseases, when confounded with other socio-demographic variables. Assuming the dirtiest arrangement as the reference category (CCI=0), the negative coefficient represent an inverse relation between CCI and IAP_disease. It implies that cleaner arrangement for cooking reduces the suffering of the victim. As CCI, by construction, includes fuel type, mode of cooking, location of kitchen and the ventilation, it also represents the extent of exposure of the cook. MPCE and age both have a non-linear relation with the morbidity incidence. At the initial stage, morbidity increases with income, but after a threshold it falls. It is probably because with rise in income individuals become able to afford the mitigation measures and hence fall less ill. As an individual crosses his/her infancy and childhood, body resistance increases and morbidity falls. But, as he/she grows old and becomes elderly, again the problem starts coming up because of age related vulnerability. So, age is non-linear here. Education has an inverse impact on the morbidity throughout. More education leads to more awareness and hence less ailment. The table also shows that females are more vulnerable in terms of morbidity than their male counterpart.

Conclusion

The analysis has been successful to establish the primary hypothesis i.e. it confirms a relation between morbidity and IAP exposure at the household level. Some other factors also have been located that have significant impacts on this morbidity. Factors identified were household income, education and age. Exposure, expressed as CCI, in turn, depends on fuel type, ventilation in the kitchen, mode of cooking and location of the kitchen inside the house. Now, except age and sex of the individual, all other factors are equally important as effective policy target. Fuels used in the household and kitchen type are household decisions altogether whereas the education is related to public policy. Income is not a very effective policy target as it relates to much broader aspects like overall growth and development of the nation as a whole. So, design of an effective intervention strategy is a complex issue in this context.

At the first hand, it is very difficult to improve the household factors. It involves household taste and preferences, culture and belief and some age-old habits. If the change of fuel type is targeted through a proper subsidisation scheme the effect may not be as satisfactory as expected. Complete fuel switching generally does not occur even when households moves up in the income ladder. Multiple fuel choice has been identified by many studies as the revealed household decision. So, subsidisation may not work well as strategic policy measure, though somewhere it ended up with excellent success (Schlag and Zuzarte, op cit). Moreover, even if it is possible to change the fuel at the household, the efficiency of the fuel depends upon the type of cooking hearth the household is using. For that, Improved Cookstove (ICS) Program has been considered as an important policy strategy suggested by many literatures. The RESPIRE study in Guatemala is an excellent example of success of such intervention. In India also Improved Stove Program has been attempted but success was limited because of various social and physical factors that hindered the use of these stoves altogether. The performance of these stoves depends strongly on maintenance of the stoves. Performances vary across actual conditions of use. Moreover, there are some traditional and cultural practices within the household regarding the use of fire, cooking habits etc. that restricts use of such stoves. So behavioral factors become all important in the context of such interventions.

Behavioral pattern of the household members is all important in the context of effective policy design. It is after all the household decision (either a sole choice of the household head herself or a decision taken jointly within the household) that matters for any policy suggestion to be realized at the household level. So, alteration of the behavioral pattern on the part of the household should be the first priority of any strategic intervention program. Any behavioral change depends upon the awareness of the individuals, especially of the victims and of the main decision taker in the household. This awareness can be improved through proper educational training right from the primary level of schooling. As we have obtained in our analysis that educational attainment has been always important under all circumstances, a mere literacy may not be sufficient for the realization of required improvement in the health. Education up to primary level or even more are necessary to conceptualize the hazardous effects of indoor air pollution on the morbidity level of the household. A targeted training program on health and hygiene at the school level may work well in this context. Since educational policy is a state subject and does not depend much on the household decision it should be the first priority to be pinned on. A planned and well-designed educational policy, with a special attention to health and hygiene, may hold the problem at its root and an overall change in the fuel use pattern, living condition and the behavior of the victims could be brought forward as an immediate outcome.

References

1. Azizi BH, Zulfkifli HI & Kasim S: Indoor Air Pollution and Asthma in Hospitalised Children in a Tropical Environment. *Journal of Asthma*, 1995; 32:413–418.
2. Brook RD, Franklin B, Cascio W, Hong Y, Howard G, Lipsett M, Luepker R, Mittleman M, Samet J, Smith Jr, SC, Tager I. Air Pollution and Cardiovascular Disease: A Statement for Healthcare Professionals from the Expert Panel on Population and Prevention Science of the American Heart Association. *Circulation*. 2004; 109(21):2655—2671.
3. Bruce Nigel, Mccracken John, Albalak Rachel, Schei Morten, Smith Kirk R., Lopez Victorina, Westa Chris.: Impact of Improved Stoves, House Construction and Child Location on Levels of Indoor Air Pollution Exposure in Young Guatemalan children, *Journal of Exposure Analysis and Environmental Epidemiology*, 2004; 14:S26-S33.
4. Elizabeth Heidi, Mestl Staff, Eskeland Gunnar. Richer and Healthier, but Not Greener? Choices Concerning Household Energy Use in India, *Energy Policy*, 2009; 37:3009–3019
5. ESMAP: India: Household Energy, Indoor Air Pollution, and Health, Final Report, Joint UNDP/World Bank Energy Sector Management Assistance Programme, 2002.
6. Ezzati M, Kammen DM.: The Health Impacts of Exposure to Indoor Air Pollution from Solid Fuels in Developing Countries: Knowledge, Gaps, and Data Needs in *Environmental Health Perspectives*, 2002, 110(11)
7. Fullerton Duncan G. Bruce N. Gordona Stephen B.: Indoor Air Pollution from Biomass Fuel Smoke is a Major Health Concern in The Developing World *Transactions of the Royal Society of Tropical Medicine and Hygiene*. 2008; **102**:843—851
8. Global, regional, and national age-sex specific all-cause and cause- specific mortality for 240 causes of death, 1990–2013: a systematic analysis for the Global Burden of Disease Study 2013. *Lancet*. 2015; 385(9963): 117–71. PubMed Abstract | Publisher Full Text | Free Full Text | F1000 Recommendation
9. Guneser S, Stici A, Alparslan N & Cinaz P :Effects of Indoor Environmental Factors on Respiratory Systems of Children. *J Trop Pediatrics*, 1994; 40:114-116
10. Gupta BN & Mathur N: A Study of the Household Environmental Risk Factors Pertaining to Respiratory Disease. *Energy Environ Rev* 1997; 13:61-67.
11. Janssen, N.A.H., Brunekreef, B., van Vliet, P., Aarts, F., Meliefste, K., Harssema, H., Fischer, P. The relationship between air pollution from heavy traffic and allergic sensitization, bronchial hyperresponsiveness, and respiratory symptoms in Dutch schoolchildren. *Environmental Health Perspectives* 2003; 111:1512–1518.
12. Lin, Ezzati and Murray: Tobacco Smoke, Indoor Air Pollution and Tuberculosis: A Systematic Review and Meta-Analysis, McCormack, M.C., Breyse, P.N., Matsui, E.C., Hansel, N.N., Williams, D., Curtin–Brosnan, J., Eggleston, P., Diette, G.B., Environ, C.C.A.U., 2009. In-home particle concentrations and childhood asthma morbidity. *Environmental Health Perspectives* 2007; 117:294–298.
14. McCracken, J.P., Smith, K.R., Diaz, A., Mittleman, M.A., Schwartz, J.: Chimney Stove Intervention to Reduce Long-Term Wood Smoke Exposure Lowers Blood Pressure Among Guatemalan Women. *Environ. Health Perspect*. 2007; 115:996-1001
15. Miller, K.A., Siscovick, D.S., Sheppard, L., Shepherd, K., Sullivan, J.H., Anderson, G.L., Kaufman, J.D.: Long-Term Exposure to Air Pollution and Incidence of Cardiovascular Events in Women. *N. Engl. J. Med*. 2007; 356:447-458
16. Mishra VK, Retherford RD, Smith KR. Biomass Cooking Fuels and Prevalence of Tuberculosis in India, *J Infect Dis*, 1999; 3:119-129.
17. Mishra Vinod, Retherford Robert D. and Smith K.R: Indoor Air Pollution: The Quiet Killer in Asia Pacific Issues, 2002, East – West Centre No.63.
18. Morgenstern, V., Zutavern, A., Cyrys, J., Brockow, I., Koletzko, S., Kramer, U., Behrendt, H., Herbarth, O., von Berg, A., Bauer, C.P., Wichmann, H.E., Heinrich, J., Grp, G.S., Grp, L.S., Atopic diseases, allergic sensitization, and exposure to traffic-related air pollution in children. *American Journal of Respiratory and Critical Care Medicine*. 2008; 177:1331– 1337.
19. Pant K.P: Estimating Health Benefits when Behaviors are Endogenous: A Case of Indoor Air Pollution in Rural Nepal, SANDEE Working Paper. 2008, 34-08
20. Penard–Morand, C., Raheison, C., Charpin, D., Kopferschmitt, C., Lavaud, F., Caillaud, D., Annesi–Maesano, I. Long-term exposure to close-proximity air pollution and asthma and allergies in urban children. *European Respiratory Journal* 2010, 36:33–40.

21. Perez-Padilla R, Perez-Guzman C, Baez-Saldana R, Torres-Cruz A: Cooking With Biomass Stoves and Tuberculosis: A Case Control Study. *International Journal of Tuberculosis and Lung Disease*. 2001; 5(5):1-7.
22. Perez-Padilla R, Regalado J, Vedal S, Pare P, Chapela R, Sansores R, Selman M: Exposure to Biomass Smoke and Chronic Airway Disease in Mexican Women: A Case Control Study. *American Journal of Respiratory Critical Care Medicine*, 1996; 154(3 Pt1):701-706
23. *PLoS Medicine* 4(1), e20. doi:10.1371/journal.pmed.0040020
24. Pokhrel A.K, Smith K.R, Khalakdina A, Deuja A. and Bates M. N: Case-control study of indoor cooking smoke exposure and cataract in Nepal and India; *International Journal of Epidemiology* 2005; 34:702-708
25. Prasad R., Singh A., Garg R., Hosmane G. B., (2012): Biomass fuel Exposure and Respiratory Diseases in India, *BioScience Trends*; 6(5):219-228. *BioScience Trends*. 2012; 6(5):219-228 (DOI: 10.5582/bst.2012.v6.5.219)
26. Schlag N. and Zuzarte F: Market Barriers to Clean Cooking Fuels in Sub-Saharan Africa: A Review of Literature, Stockholm Environment Institute, 2008
27. Smith K.R: National Burden of Disease In India From Indoor Air Pollution, *PNAS* 2000, Vol. 97, No. 24, 13286-13293
28. Smith Kirk R: Health Impacts of Household Fuelwood Use In Developing Countries, 2006, *Unasylva* 224, 57
29. Song, S., Lee, K., Lee, Y.M., Lee, J.H., Lee, S., Yu, S.D., Paek, D. Acute health effects of urban fine and ultrafine particles on children with atopic dermatitis. *Environmental Research* 2011; 11:394-399.
30. World Health Organization: Burden of disease from Household Air Pollution for 2012. accessed 9th Aug 2016; 2014.

A Futuristic Approach of Indian Health Economics

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ABSTRACT: Health economics is an applied field of systematic and rigorous study of how scarce resources are allocated among alternative uses for the care of ill-health. It emerges in a rapid way for the last two decades as it becomes a measuring parameter and also a way to improve health standards of a nation in their economy.

In this area, Michael Grossman's 1972 model of health production has been extremely influential and is treated as cornerstone with its unique attributes. Here, health is considered as a stock depletes or degrades over time and it is also viewed as inherited durable capital goods. In Grossman's model, the optimal level of investment in health occurs where the marginal cost health capital is equal to the marginal benefit. Over the time, health depreciates at some rate and the interest rate faced by the consumer is also taken into consideration. The marginal cost of health capital can be obtained by adding these two variables. The complexity of this model arises as health is neither a pure investment good nor a pure consumption good. Health economics aims to understand the behavior of individuals, healthcare providers, public and private organizations and the Government and also considers the theories of production, efficiency, disparities, competition etc. It handles plenty as well as various issues like demand of healthcare demand of healthcare services, scarcity of resources, pattern of distribution of resources, supply of healthcare facilities, gap between demand and supply, scope of generating healthcare facilities. The largest gains in health status will come from preventive measures.

Indian healthcare sector is vast and is hugely valued at nearly \$40 billion. The scope of growth of this market is very of upward because its huge population (estimated as most populous country by 2030) and it will also face elephantine challenges to ensure uniform facilities to such a population. There is a large between the prescribed basic requirements recommended by WHO (3960 beds/ million population) and present scenario (860 beds/ million) in our country. Therefore the relevance of emergence of health economics is high in India. It facilitates the quality health system performance by making the system cost-effective and accessible.

The landscape or scenarios of health problems have undergone a rapid transition in India. Nowadays, there is a decrease in mortality rate but increase in communicable and lifestyle diseases. Therefore there is a growing stress on healthcare infrastructure. The efficiency can be increased by,

1. Focusing on cost containment
2. Designing an effective healthcare services
3. Preparation of population mapping
4. Private-Public Partnership (PPP) model
5. Promotion of community based health insurance.

The present article aims to synthesize:

- Present scenario of Indian Health Economics
- A futuristic approach to promote healthy lifestyle and cost-effective strategies for positive outcomes.

This study concludes by highlighting areas where our knowledge is limited and further research seems needed.

Keywords: Health Capital, Grossman's Model, Mortality rate, Non-Communicable Diseases (NCDs) and Cost-containment

1. Introduction

Basic Concept of Health:

Health is a multifaceted as well as very complex field of study. The meaning of health has evolved over the passage of time. Previously, 'health' focuses on the body's ability to function. But World Health Organisation (WHO) provided a definition of health, "a state of complete physical, mental and social well being and not merely the absence of disease or infirmity (1992)". This broad view of health definition is certainly inspiring but less relevant for any economic analysis. It becomes very problematic to any government to allocate resources in this sector on this basis. We need to remember that health is a relative concept and differs from community to community, individual to individual, and from time to time. In fact, 'a state of complete physical, mental and social well being' closely resembles to 'Happiness'. Happiness is an issue which is difficult to quantify. The inner cause leads to the factor 'Uncertainty'. Uncertainty is intrinsic to health for many reasons: patient outcomes, financial concerns, asymmetric information etc. happiness is highly influenced by the factor 'asymmetric information'. Any asymmetric information exchange between health-care provider and patient leads to different errors: medical errors, patient frustration, over-treatment and under-treatment etc.

Health and Economics:

The inter-relationship between health and economic growth is dynamic and complex. The health of a population can itself influence economic progress. Health-care produces primarily better health for the citizens of a country who are productive human resource of an economy. Good health is very crucial for improving life expectancy of people. The low life expectancy rate has high impact on infant and child mortality rate and high mortality rate blames for low nutrition and low rate of immunization programs. Thus, health programmes aim to design strategies which improve health services and create provisions of other infrastructures such as availability of plenty of drinking water, and sanitation.

Health is a versatile tool in the basket of commodities to improve per capita income as it affects growth. The World Development Report, 1993 pointed out good health as a crucial part of well being and strongly advocate for health spending on purely economic grounds. The report also advocates that there are four ways of economic growth from improved health:

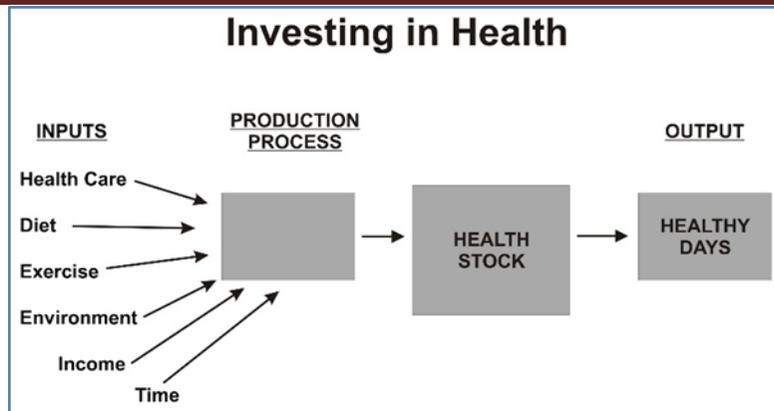
- a) **Enhanced Workers' Productivity:** the most prominent benefit obtained from healthier workforce is savings of workdays. It ultimately derives the following benefits like (i) increased productivity, (ii) better job opportunity, (iii) less absenteeism and (iv) longer tenure of working lives in unorganized sector.
- b) **Improved Utilisation of National Resources:** Many developing economies waste huge sum of money on treatment of various diseases rather than their prevention. The investment made in treating disease can be diverted to other productive uses.
- c) **Effect of health expenditure extending to next generation:** Poor health conditions, inadequate sanitation and nutrition adversely affect the benefits of schooling. A study suggests that four years of primary education boosts farmers' annual productivity by 9% on an average.
- d) **Long run reduction in cost of medical care:** The spending that reduces the incidence of disease can result in big saving in treatment costs.

Conceptual Framework of Health Economics:

Health economics is an applied field of systematic and rigorous study of how scarce resources are allocated among alternative uses for the care of ill-health. Health economists apply their economic theories, concepts and techniques to promote, maintain and improve the health care and health-related services towards the weaker section of our society or community. This field also focuses on the efficient and cost-effective and equitable course of action for preventive, curative and rehabilitative health services on individuals and society. It handles plenty as well as various issues like demand of healthcare demand of healthcare services, scarcity of resources, pattern of distribution of resources, supply of healthcare facilities, gap between demand and supply, scope of generating healthcare facilities. The largest gains in health status will come from preventive measures.

This distinctive field of study emphasizes on institutional framework for health care and also on making a bridge between institutions and the beneficiaries. It is a fact that economists of all sectors are concerned with the allocation of resources between multiple competing demands. Demands are assumed to be unlimited as there is an endless consumption needs in a developing country like India. Though the investment in this sector is huge, ultimately it leads to scarcity. Here, scarcity of resources (limited availability relative to unlimited demands) is a challenging task of health economists and they are attempting to address the same. The economics of health has a wider scope than any other fields. As individual health is final output, it is really complex to quantify the improvements in individual health condition. There is no satisfactory method to assess the health outputs or benefits to the society from health services expenditure. This special characteristic of this sector poses manifold challenges to economic theories also. The task before any health economist is to bring certain pertinent solutions to this problem.

In this area, Michael Grossman's 1972 model of health production has been extremely influential and is treated as cornerstone with its unique attributes. Here, health is considered as a stock which depletes or degrades over time and it is also viewed as inherited durable capital goods.



In Grossman's model, the optimal level of investment in health occurs where the marginal cost health capital is equal to the marginal benefit. Over the time, health depreciates at some rate and the interest rate faced by the consumer is also taken into consideration. The marginal cost of health capital can be obtained by adding these two variables. The complexity of this model arises as health is neither a pure investment good nor a pure consumption good.

Objectives of the study:

Health economics aims to understand the behavior of individuals, healthcare providers, public and private organizations and the Government and also considers the theories of production, efficiency, disparities, competition etc. Indian healthcare sector is vast and is hugely valued at nearly \$40 billion. The scope of growth of this market is very of upward because its huge population (estimated as most populous country by 2030) and it will also face elephantine challenges to ensure uniform facilities to such a population. There is a large gap between the prescribed basic requirements recommended by WHO (3960 beds/ million population) and present scenario (860 beds/ million) in our country. Therefore the relevance of emergence of health economics is high in India. The objectives of this study are as follows:

- To identify Health Status Indicators
- To evaluate them
- To facilitate quality health system performance
- To formulate cost-effective strategies for Indian Environment

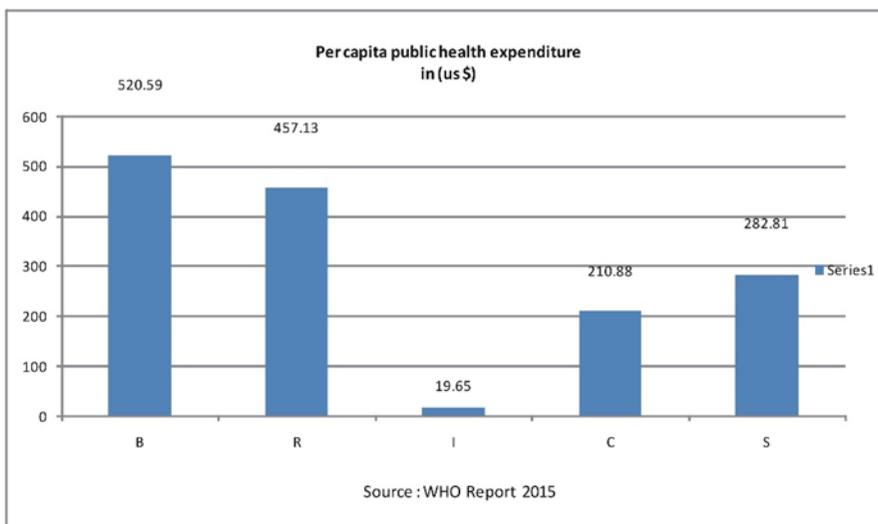
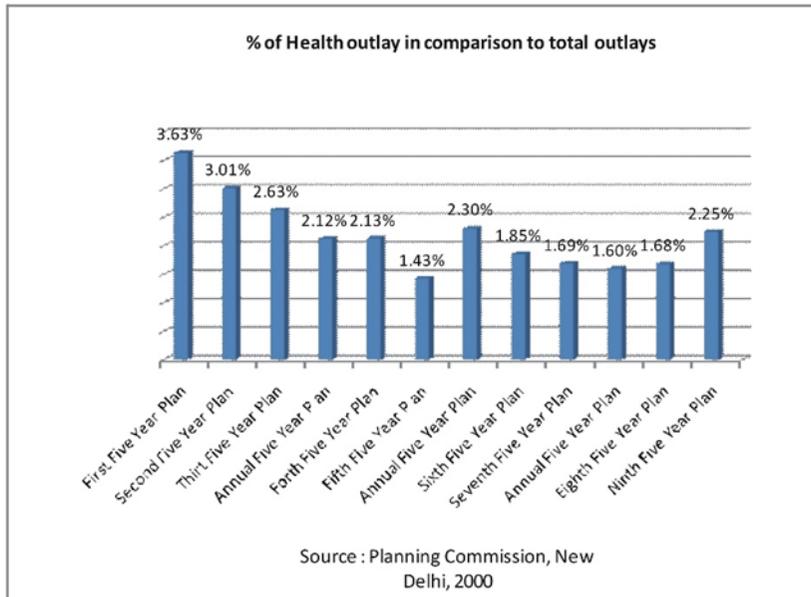
Indian Scenario:

Health is one of the fundamental rights of every Indian citizen. According to Article 21 of Indian Constitution, the state should ensure good health and nutritional well being of its entire people. Entry 6 in the State list (List II) in the Seventh Schedule of the Constitution of reads: "Public health and sanitation, hospitals and dispensaries" in the State List. Thus, public health is a state subject in India. In this context, it must be mentioned that provision of health services is one of the most important welfare responsibilities of the Government of India (GOI) and the various state governments. In the post-independence period, different committees formed and they emphasized directly or indirectly to the improvement of the fundamental right.

A brief summary of these committees are presented here:

- Bhore Committee (1946): promised healthcare to all irrespective of individual's paying capacity.
- Mudaliar Committee (1962): advised to strengthen the sub-divisional and district hospital.
- Chadha Committee (1963): suggested that the vigilance activity in the NMEP (National Malaria eradication Programme) should be carried out along with family planning assistance.
- Mukherji Committee (1965): recommended separate staff for the family planning programme and delink family planning from it.
- Jungalwalla Committee (1967): suggested integrated health services
- Karthar Singh (1973): recommended that one primary health centre should be divided into 16 subcentres (one for 3000 to 3500 population) and each to be staffed by a male and female health worker.

- Shrivastav Committee (1975): advised to create bonds of paraprofessional and semiprofessional health workers within the community itself.
- Working Group on Health for all by 2000 A.D.(1981): Under the chairmanship of Kripa Narain, the committee submitted its report in 1981 and recommended that Government should formulate a comprehensive national health policy dealing with all dimensions: environmental, nutritional, educational, socioeconomic, preventive and curative.



For the first time in the history of free India a very comprehensive health policy was approved by the Parliament in 1983. The National Health Policy (NHP), 1983, has clearly admitted the failures of the government in health sector in the past. The main goal was the provision of universal, comprehensive primary health services. This policy also recommended a decentralized system of health care and also envisaged the integration of a large number of private and voluntary organizations. Thus, the subsequent plans emphasized on restructuring and developing the health infrastructure, specially at the primary level. After taking such a concerted effort, the Tenth Five Year Plan (2002-2007) started with a dismal picture of the health services infrastructure. To combat the situation, Government introduced the National Health Policy (NHP), 2002. Then the Central Government increased emphasis on aggregate public health investment and on a more equitable access to health services across the social geographical expanse of the country in the 10th Five Year Plan. Governmental funding increased double in health research, prioritized

school health programs, envisaged the setting up of new Medical and Dental Colleges, emphasized on improvement in the ratio of nurses vis-à-vis doctors/beds etc.

The development of healthcare services post-NHP provides clear evidence that these policies lacked proper implementation as well as the overall sense of integration. Though the crude death rate decreased and life expectancy increased, but the fertility and immunization related targets were much below. Until recently, neither state nor the federal governments have played a major role in regulating private healthcare services. With shortfalls in public services, private health care services have grown rapidly to meet rising expectations and incomes. With regard to private health care sector the NHP clearly favours privatization of curative care. It promotes the concept that “People can afford”, thereby implying that health care services will not be free. The NHP suggested that curative services should be left to the private sector because the state suffers from a “Constraint of resources”. The expansion of the private health care in the last two decades has been phenomenal thanks to state subsidies in the form of medical education, soft loans to set up medical practice etc. private health care providers dominate service provision today, although data are poor. Private health sector provides 75% of human resources and advanced medical technology and 68% of hospital services. With few barriers to entry and quality regulation that is barely enforced or is limited to a small number of high end hospitals, a large number of private facilities are delivering services without the equipment and expertise for their work. Corruption and inappropriate clinical practices are also a concern, with doctors receiving payments from drug companies and medical supplies manufacturers. A major constraint on efforts to improve access to health care services is the low levels of qualified health personnel and their uneven geographical distribution.

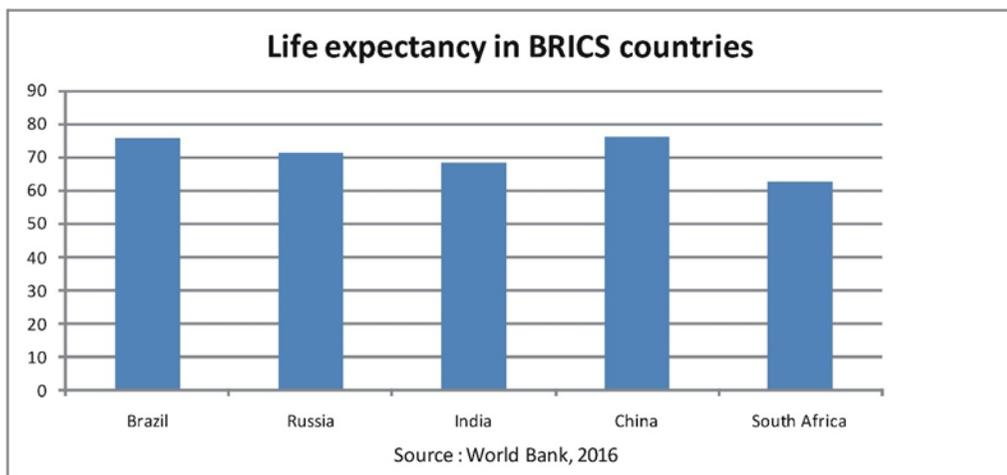
Method:

This article is purely based on secondary data. These data are collected from books, journals, World Bank and World Health Organisation Reports and also from some national and international websites. In this study, different indicators of health status are compared among BRICS countries.

BRICS is a grouping acronym that refers to the countries of Brazil, Russia, India, China and South Africa. All these countries have similar stage of newly advanced economic development. The economic potential of BRICS may become most dominant by 2050. Thus, BRICS countries are considered and compared in this study.

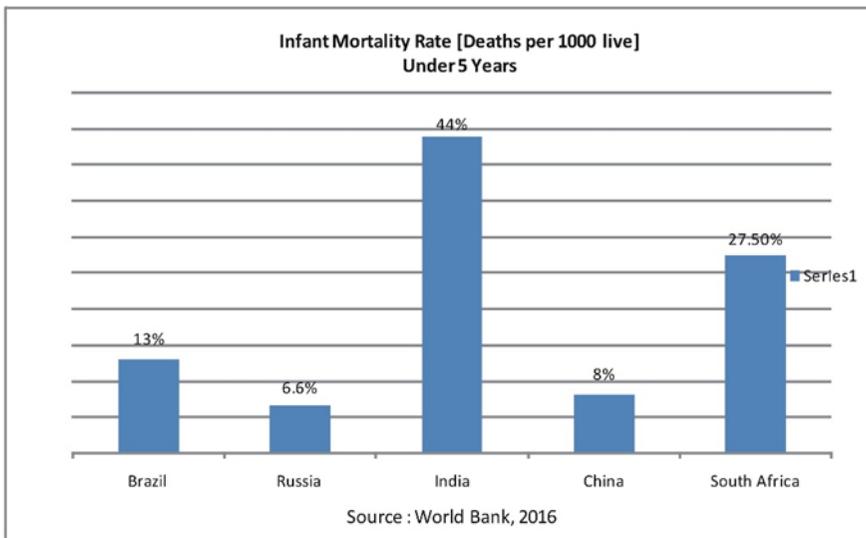
Findings:

Public health care policies are formulated to provide an access to comprehensive basic health care services to all but suffer from insufficient spending, shortfalls in management etc. Ultimately, it leaves many with insufficient care. Public health efforts over past decades have contributed to these improvements but still inaccessible by many. Despite huge investment in recent years, life expectancy in India has increased from 49.1 years in 1970 to 68.56 in 2016 but still remains low at a similar developing economy.

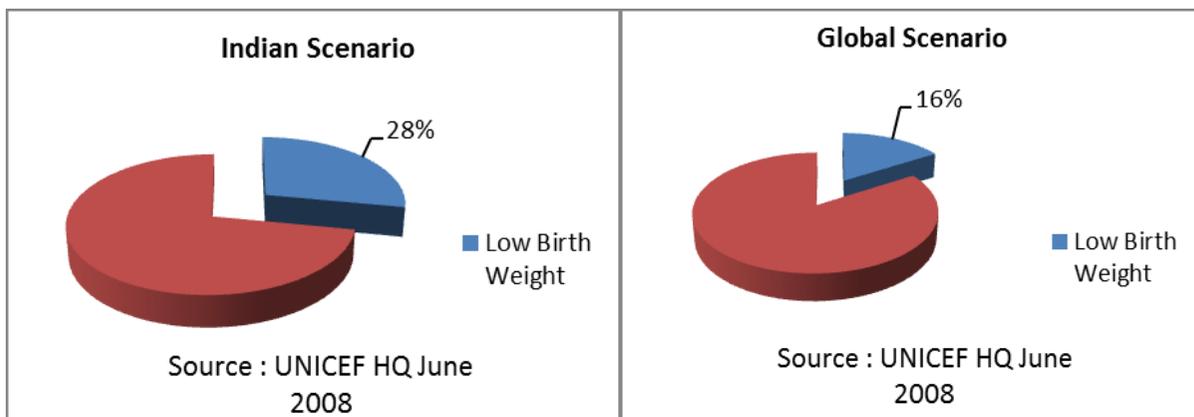


In a comparative study, Life expectancy in India is low due to a high rate of death from communicable diseases and due to poor nutrition, specifically among the young. While infant mortality has halved since

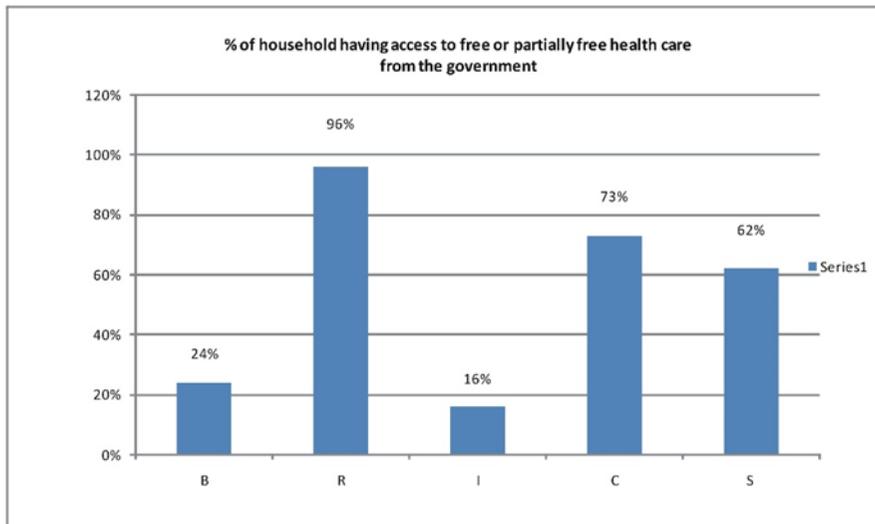
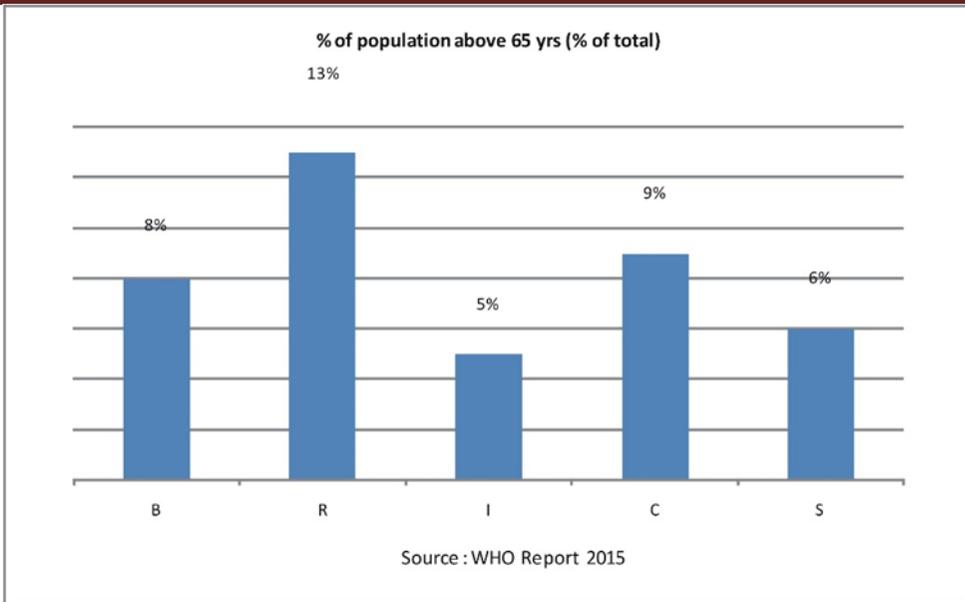
1990, it is still high when compared with other comparable economies (BRICS countries). A significant chunk of life lost due to ill health which can be prevented (if due care could be provided).



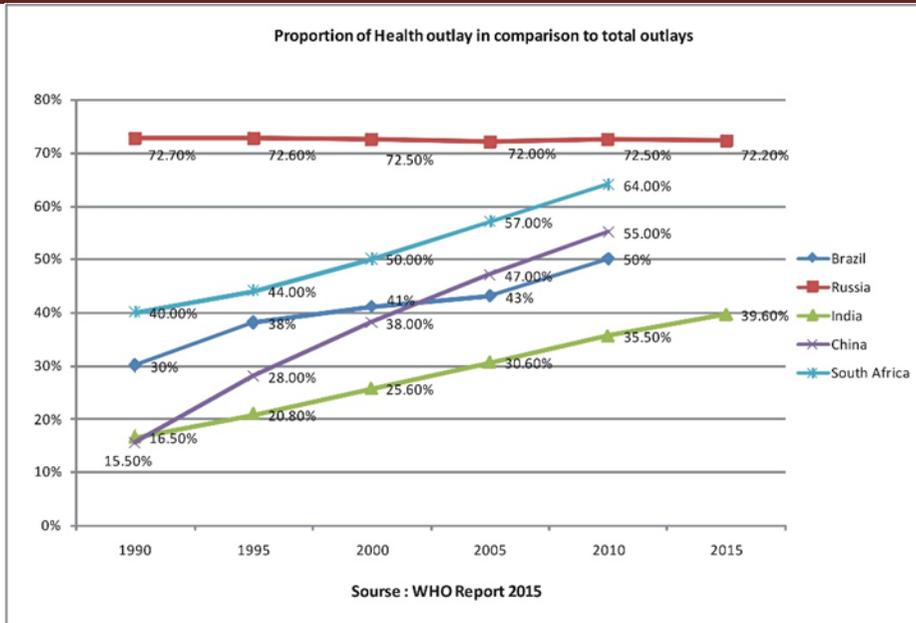
A baby’s weight at birth is a strong indicator of maternal and newborn health and nutrition. Accurate monitoring is challenging, however, since nearly half of the world’s infants are not weighted at birth. The low birth-weight and nutrition deficiency is again a reflection of poor nutrition and India has significantly high proportion if it is compared with global scenario.



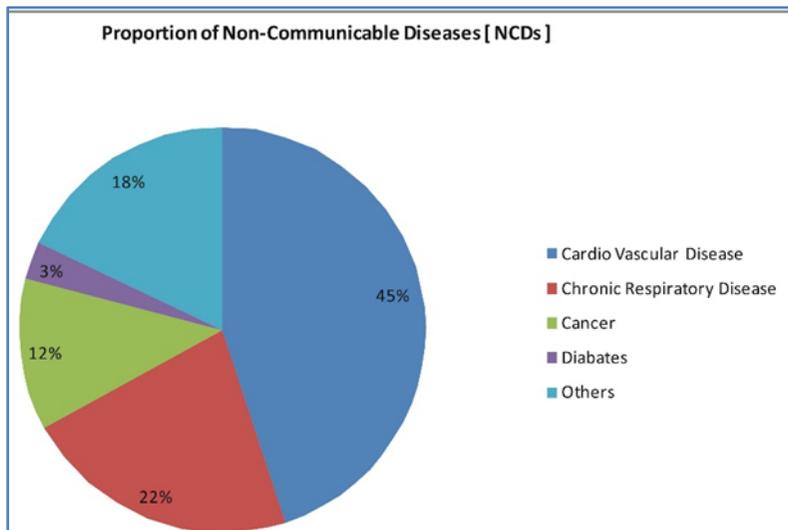
Though Government is more keen to invest in reduction of infant mortality, but composition of adult population is another indicator of health status. If population above 65 years makes a substantial amount of total population, it reflects that aged health care facilities are sufficient in that economy and life expectancy will also increase.



Communicable disease is another reason to remain low life expectancy in developing countries like India. Communicable diseases are caused by micro-organisms such as bacteria, viruses, parasites and fungi that can be spread through direct or indirect physical contact with infected person, such as through touch (staphylococcus), sexual intercourse (gonorrhoea, HIV), fecal/ oral transmission (Hepatitis A) or droplets (influenza, TB) etc. These kinds of diseases are largely preventable if proper precautions are taken, people can be made aware, adequate accessibility of improved sanitation facilities and plenty of fresh water be provided etc. Till today, many Indian rural household do not defecate in a toilet or latrine which leads to infant and child diseases (such as diarrhea, cholera etc.). To improve living condition, the Government launched the Swatchh Bharat Abhiyan Program or Clean India Movement for the last decade. Though it is a welcome initiative, the access to improved sanitation is still unsatisfactory.



A Non-Communicable Disease (NCD) is non-infectious and non-transmissible among people and is a leading cause of death. The list includes heart disorders, respiratory disorders, cancers and diabetes. Non-communicable or lifestyle diseases cause 61% of deaths in India (WHO Report, 2017). The United Nations (UN) Agency has warned against premature deaths due to NCDs and said governments should take necessary efforts because, "Limited national progress has been made in the fight against NCDs". According to the agency, NCD are the leading cause of death globally and responsible for 70% of deaths worldwide (composed of cardiovascular disease 45%, chronic respiratory disease (22%), cancer (12%), diabetes (3%))



Remedies to improvement of Indian Health Care Sector:

The landscape or scenario of health problems has undergone a rapid transition in India. Though there is a decrease in mortality rate, but rise in communicable diseases and lifestyle diseases pose a serious threat to the industry. Therefore there is a growing stress on healthcare infrastructure. It is already an established fact that healthy population is an asset for an economy. The efficiency can be increased by,

1. Focusing on cost containment: This principle of cost containment aims at reducing the cost of health services without compromising the results by adopting containment measures such as i) Minimising purchase of stock, ii) prevent wastage by internal auditing and effective supervision, iii) reduction of cost of medicine: purchase of generic drugs. A physician could play an important role in cost

- containment by: i) reducing number of investigations, ii) prescribing equally effective cheaper alternative (where possible), iii) reduce the number of drugs prescribed, reduce the average length of stay in hospital, avoid overstaffing, and develop cheaper and innovative technology.
2. Designing cost-effective healthcare services: The term 'Cost-Effective' estimates the costs and health gains and prioritizes the allocation of resources and have potential to yield the greatest improvement in health for the least resources. The report of the WHO Commission suggested investing more on cost-effective health interventions in areas like vaccination policy and preventative versus curative health interventions.
 3. Preparation of population mapping: Population Mapping is an integrated description of the population density of an area and maps of the potential field of settlement are also being developed. Population density is very useful to formulate the distribution strategy. To improve the indicators of health status, the Government need to know the population data to fulfill their basic requirement.

There are some constraints in preparing the population map of a country like India. Still we need to be hopeful for easier way to prepare this map by using technologies.

4. Public-Private Partnership (PPP) model: Governments from both developed and developing countries are increasingly focusing at public-private partnerships (PPPs) as a way to expand access to higher-quality health services by leveraging capital, managerial capacity and knowhow from the private sector.
5. Promotion of community based health insurance: The cost of healthcare is steadily rising and it becomes difficult for common people to pay the huge medical bills. Thus, National Health Policy (NHP), 2002 proposed a social health insurance scheme, funded by the Government and with service delivery through the private sector. Government sponsored insurance schemes have shown an enormous growth of 27%. Here are some major government health insurance schemes and these are running by State or by Central Government.

- Employment State Insurance Scheme (ESIS)
- Central Government Health Scheme (CGHS)
- Rastriya Swasthiya Bima Yojana (RSBY)
- Aam Aadmi Bima Yojana (AABY)
- Universal Health Insurance Scheme (UHS)
- Ayushman Bharat Yojana

These schemes have some good features and can make them more improved and attractive. We need to make common people aware of these facilities and these schemes significantly reducing out-of-pocket expenses.

Bibliography

1. HLEG. High Level Expert Group Report on Universal Health Coverage for India, Instituted by the Planning Commission of India, New Delhi, 2011.
2. Joumard, Isabelle and Kumar, Ankit. 'Improving Health Outcomes and Health Care in India', 2005.
3. Lee, Kenneth, AJ Mills. 'The Role of Economists and Economics in Health Service Planning: A General Overview', 1979.
4. Lopez-Casnovas, G.,B. Rivera and L.Currais. Health and Economic Growth: Findings and Policy Implications, MIT Press, 2005,
5. Menon, Nidhiya. 'Health Policy and Economic growth in India:Lessons from International Growth Center Projects', 2017.
6. MoHFW. National Health Accounts India, 2004-05, National Health Accounts Cell, Ministry of Health and Family Welfare, Government of India, 2009
7. Nath, Anitha. 'Health Economics: Importance For Public Health in India', 2008.
8. Planning Commission. Twelfth Five Year Plan 2012-17, Vol III, Planning Commission, GOI, New Delhi, 2012.
9. Rout Himanshu Sekhar, Nayak Narayan Chandra. 'Health and Health Economics: A Conceptual Framework', 2007.

10. Shanmugasundaram Yosodha. 'Theory and Practice of Health Economics in India', Institute of Advanced Studies and Research, Chennai, 1994.
11. Spence M, M Lewis. Health and Growth, Commission on Growth and Development, World Bank Publishing, 2009.
12. World Bank. 'World Development Report: Investing in Health', World Bank and Oxford University Press, New York, 1993.

Websites:

National:

Census of India: censusindia.gov.in

Central Bureau of Health Intelligence: cbhidghs.nic.in

Centre for Monitoring Indian Economy: cmie.com

India Human Development Survey: ihds.umd.edu

Ministry of Health and Family Welfare: mohfw.gov.in

National Institute of Health and Family Welfare: nihfw.org

NITI Aayog: niti.gov.in

International:

United Nations Development Programme: undp.org

World Health Organization: who.int/en/

International Health Economics Association: healthconomics.org

Reddy K. N. proposed that practically health should be defined in terms of various health indicators such as life expectancy, infant mortality rate, death rate etc.

Impact of Advertisement in the minds of Teenagers

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ABSTRACT: Media is playing very important role in the society. It is creating awareness among people. The most important factor regarding this point is that media is easily accessible. With a click, people can get information of all over the world. The information that is being spread by media can be divided roughly in two parts- news and advertisement. No doubt, news has more impact in the mind of the people but there are many people in the society who are influenced more by advertisements. Teenagers are one of them. Teenagers are attracted by advertisements as advertisements are presented in attractive format. Teenagers are in tender age therefore they easily believe by the claims made by companies. Someone may raise question that now teenagers are very rich in education, especially in Delhi-NCR then how it is possible that they are influenced by the advertisements without any solid reason. The answer of this question is that companies including corporate sector have special strategies to attract them by their advertisements. According to 2011 census, Delhi has 86.3% literacy rate. (1) This is 2018-19, It can be assumed that now Delhi has a very good rate of literacy. Surprising thing is that in spite of good literacy rate, teenagers are influenced by advertisements.

Teenagers get advertisements from different sources like TV, Radio, Newspapers, Magazines, Social media etc. This research paper is based on these mediums (like TV, Radio, Newspapers, Magazines, Social media) only. However social media has different parts but in this study only facebook has been included. In earlier days TV had more impact on children than newspapers but now they have more options to get the information of advertisements. Companies are also utilizing different platforms of advertisements to attract different types of people in the society.

This research paper is focused this fact. How advertisements have impact on teenagers? Why teenagers are influenced by advertisements. Which types of advertisements attract teenagers? Which types of advertisements have more impact on teenagers? There are many questions which are discussed in this research paper.

Keywords: Advertisement, teenager, corporate sector, tender age, literacy rate.

1. Introduction

Advertisement is known as paid form of communication. Generally people know very well about the claims of advertisements. Many advertisers make wrong claims. People know that advertisements have two teeth-one for show and another for self use. In many advertisements, it is found that it is not what it claims. On the other hand, many advertisements are fully based on truth and there is no difference between claims and the product or service. It is a way to get publicity. It promotes the brand and indirectly attracts consumers to buy the product or service. All the people of the society are not attracted by the advertisements but there are many people who take their steps to purchase any product or service inspired by any advertisement. Generally teenagers, who are not matured, are easily attracted by advertisements of newspapers, magazines, TV, Radio or any other medium. Many advertisements are prepared according to the liking of youngsters. This is the reason why such type of advertisements has impact on them and this is good for advertisers. Every company has special budget for the publicity. Advertisements are very effective for the publicity and these are also good tools of marketing.

Methods

This research paper is based on the primary and secondary data. A survey was conducted to gain the data to know the roles of teenagers regarding advertisements. Data have been collected from secondary sources also like research papers, newspapers, magazines, websites etc. This research is descriptive in nature which describes the impact of advertisements on the minds of teenagers. Different facts have been analyzed to draw a conclusion.

Results

Every action has a reaction. Advertisements have also reactions in the minds of teenagers. It is a fact that teenagers' mind develop rapidly and grasps any information easily. Therefore advertisers victimize children of this age group (5-19). They like to promote different types products in children's show. One factor which

can't be ignored specially in Delhi urban areas that children decide the product for purchasing in the families. In this regard, a survey was conducted among 100 families in Delhi. (2) This was the question-

Who decides which product will be purchased in family?

1. Mother
2. Father
3. Teenager
4. None of these.

The role of mother, father and teenager in purchasing any product was revealed in the answers of the families. Out of 100 the result was as under-

1. Mother -----24
2. Father-----22
3. Teenager-----48
4. None of these---6.

It means that 24 families said that purchasing decision of any product is taken by mothers. On the other hand, 22 families are dependent on father to purchase any product. Here, father is deciding factor. Surprising thing is that 48 families out of 100 said that teenagers decide to purchase any product. We can convert this data in percentage:

Decision makers' percentage for purchasing of any product in Delhi urban areas		
Sr.no	Decision makers	percentage
1	Mother	24
2	Father	22
3	Teenager	48
4	None of these	06

The teenagers have gained their position in the small families in comparison to joint family. In such families teenagers are like the centre of importance but they have no such significance in joint families. In joint families, the decision regarding purchasing is taken collectively. Here is a question, why teenagers are more and more involved in family matters. They think that they have smart brains and they are more sensible than their parents regarding product. They also think that parents' knowledge is outdated. Therefore their roles are increasing in the families in such things. Advertisers know this fact.

A report published in 'Media Smarts' website says:

"Kids represent an important demographic to marketers because in addition to their own purchasing power (which is considerable) they influence their parents' buying decisions and are the adult consumers of the future. Today's kids have more autonomy and decision-making power within the family than in previous generations, so it follows that kids are vocal about what they want their parents to buy. "Pester power" refers to children's ability to nag their parents into purchasing items they may not otherwise buy. Marketing to children is all about creating pester power, because advertisers know what a powerful force it can be.

According to the marketing industry book Kidfluence, pestering or nagging can be divided into two categories—"persistence" and "importance." Persistence nagging (a plea, that is repeated over and over again) is not as effective as the more sophisticated "importance nagging." This latter method appeals to parents' desire to provide the best for their children, and plays on any guilt they may have about not having enough time for their kids." (3)

Today parents want to purchase more things for their children because they have no more responsibilities like joint family.

"Parents today are willing to buy more for their kids because trends such as smaller family size, dual incomes and postponing having children until later in life mean that families have more disposable income. As well, guilt can play a role in spending decisions as time-stressed parents substitute material goods for time spent with their kids." (4)

The teenagers adopt technology very soon. They are also very close to consumer market. It is clear fact that marketing is a different type of strategy to attract the consumers. This has impact in the minds of children. Fast use of technology has changed the life style of the people. Those people who are not habitual to use of technology, they are considered as backwards. People think that those who are close to technology, they are well updated and they have very good knowledge of new trends and products/services.

"The advertising industry views teenagers in society as a viable market segment, because of their immature understanding of the media and its dazzling impact on teen and young undeveloped brains. The media is increasingly focusing on kids and adolescents to captivate with advertisements. According to marketing research companies, teenagers are important to marketers because they can spend a substantial open income, spend family money easily, and they are easily able to influence their families to spend on large and small household purchases that appeal to them. Furthermore, Kids are also a viable market because they can easily influence, lifestyle, and overall trends; and provide a view of society and how it is now and what it is likely to become." (5)

Conclusions

Advertising is very powerful tool to promote the products and services. The teenagers are playing very impotent roles in Indian families regarding purchasing. No doubt, they are attracted by advertisements because they are access with media and technology. They decide which product will be purchased for the family. All the members including parents have faith on him/her that the selection made by him/her will be good for the family. This study reveals that 48 percent teenagers are deciding factors in their families regarding purchasing.

References

1. <https://www.mapsofindia.com/census2011/literacy-rate.html>
2. A survey Report conducted in Delhi on 100 families, 5-15 December, 2018
3. <http://mediasmarts.ca/digital-media-literacy/media-issues/marketing-consumerism/how-marketers-target-kids>
4. <http://mediasmarts.ca/digital-media-literacy/media-issues/marketing-consumerism/how-marketers-target-kids>
5. <https://saeedalhairi.wordpress.com/2013/02/19/impact-of-tv-advertisements-on-teens/>
6. http://pediatrics.aappublications.org/content/140/Supplement_2/S152
7. <https://bit.ly/2F2K1x9>
8. <https://www.progressiveteacher.in/impact-of-advertisements-on-children/>
9. <https://www.grin.com/document/305644>
10. <http://ghroll.blogspot.com/2006/11/effects-of-advertising-on-teens.html>

Environmental Degradation vs. Economic Growth: Known Yet Unknown Facets of Indian Situation

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ABSTRACT: *The triad of accelerating Green House Gas (GHG) emissions, its consequent global warming and pollution has become one of the most critical concerns of the present world, India not being an exception. The humankind is trying to seek and implement different adaptation and mitigation strategies to combat global warming and its resultant threats to the flora and fauna. Analyses are being made about the degree and depth of damage already taken place and impending in near future. In this context, the present paper is ambitious to empirically inquire about the nature and direction of Carbon dioxide (CO₂) and other GHG emissions in India during 1978 to 2016. After initial theoretical deliberations and trend analyses, the study has used Auto Regressive Distributed Lag (ARDL) model only to find long run cointegration between CO₂ and different economic growth parameters of India, namely gross value added, foreign direct investment and trade openness. Moreover, Toda-Yamamoto Granger non-causality test has also been applied to understand the short-run nuances of their relationships.*

Keywords: *Auto Regressive Distributed Lag (ARDL) model, foreign direct investment, Green House Gas (GHG), Toda-Yamamoto Granger non-causality test, total value added.*

1. Introduction

Environmental degradation and its consequent global warming, a threat towards the very habitability of this blue globe, is one of the prime apprehensions of the human race today. The reasons behind such deterioration being primarily anthropogenic in nature, economic activities are blamed for this at large. Debates and discussions are pervading throughout the national and international forum, predominantly post IPCC Fourth Assessment Report 2007. The humankind is trying to request and implement different adaptation and mitigation strategies to combat global warming and its resultant threats to the flora and fauna.

To confront any predicament it is imperative to first probe into the dimensions of the crisis in depth. While seeking to analyze the causes of dilapidation of the natural environmental, the experts have categorized pollution into five broad segments as shown in Table (1):

Table 1: Causes & Effects of Environmental Pollution

Nature of Pollution	Causes of Contamination	Disruptions created
Air (Green House Gases & particulate matters)	Burning of fossil fuels, depletion of forest, construction sites	Acute respiratory ailments, acid rain
Water	Agricultural and industrial effluents, Eutrophication, plastic wastes, sewerage	Spoilage of water eco-system, digestive diseases and skin problems
Soil	Hazardous wastes, landfill wastes, pesticides, herbicides and chemical fertilizers	Contaminated food, loss of fertility of soil
Sound	Loud and disruptive noise	Psychological problems, stress and hypertension
Light	Excessive urban lighting	Visual obstruction and impairment
Radioactivity	Dumping and mismanagement of radioactive wastes and its emissions	Permanent damage caused by mutation of species

Source: Compiled by the author from different sources

Among these pollutants, the maximum threat is being poised by the air pollutants, as human health is directly threatened by the Green House Gases (GHGs) and particulate matters, which may be carcinogenic, biologically active or radioactive in nature. The standard for reporting GHG emissions is in carbon dioxide equivalent (CO₂e). Multiple gases can be expressed in a single unit of carbon equivalent, so low carbon can be synonymously used for low GHGs. Different GHGs have different levels of global warming potential (GWP) and atmospheric life which has been shown in Table (2). GHGs are naturally released in the atmosphere and are essential as it helps to keep the earth warm enough to make the planet habitable. The major sources of the GHGs have been presented in Table (2), where it could be found that as compared to the natural sources of emissions, the anthropogenic sources are probably causing greater environmental disequilibrium.

Table 2: Global Warming Potential of GHGs measured in terms of CO₂ equivalent

Green house Gases	Chemical Symbol	Global Warming Potential	Atmospheric Life (in years)	Major Sources
Carbon dioxide	CO ₂	1	5-200	Natural: Respiration, decomposition and ocean release Anthropogenic: Deforestation and fossil fuel combustion
Methane	CH ₄	28-36	12	Natural: Wetlands, paddy rice fields, livestock production, decomposition of organic waste in landfills Anthropogenic: Biomass burning, exploration and transport of fossil fuels
Nitrous Oxide	N ₂ O	265-298	114	Natural: Direct agricultural emissions, livestock, indirect agricultural emissions Anthropogenic: Industrial emissions
Hydro fluorocarbons	HFC-23	11700	260	Anthropogenic: Manufacturing of semi conductors, insulators, leakage from and end of life disposal of refrigeration and air conditioning equipment and aerosols, firefighting foams, fabric cleaners
	HFC-125	2800	29	
	HFC-134a	1300	14	
	HFC-152a	140	1.4	
Per fluorocarbons	CF ₄	6500	50000	
	C ₂ F ₆	9200	10000	
Sulfur hexafluoride	SF ₆	23900	3200	

Source: Compiled by the author from various sources

Coming to the Indian situation, the Environmental Performance Index (EPI) 2018 has ranked India 177th among 180 countries across the globe on 24 performance indicators across ten issue categories covering environmental health and ecosystem vitality. India's score is a meager 30.57 as against Switzerland, the highest scorer, at rank 1 and score 87.42 (Yale Center for Environmental Law & Policy, 2018). According to the JRC Science for Policy Report 2017, India stands fourth in the list of highest global emitters of CO₂ after China, USA and European Union (EU) 28. Keeping pace with the GDP growth rate, CO₂ emissions rate of India has also increased at around 5%, and unlike Brazil, no decoupling of India's CO₂ emissions rate and economic growth could be found yet (Janssens-Maenhout, et al., 2017). Moreover, in 2018 the carbon emissions from the developed economies are apprehended to rise for the first time in the last five years (International Energy Agency, 2018). Due to the rising marine temperatures on account of global warming, the coral reef cover of Lakshadweep has reduced to almost 40 per cent over the last eighteen years. It is also being apprehended that if the present situation continues, the coral reef would suffer a mass die-off in no less than twenty-two years resulting in an extremely unenthusiastic impact on marine biodiversity and the livelihoods associated with it (Sarkar, 2018).

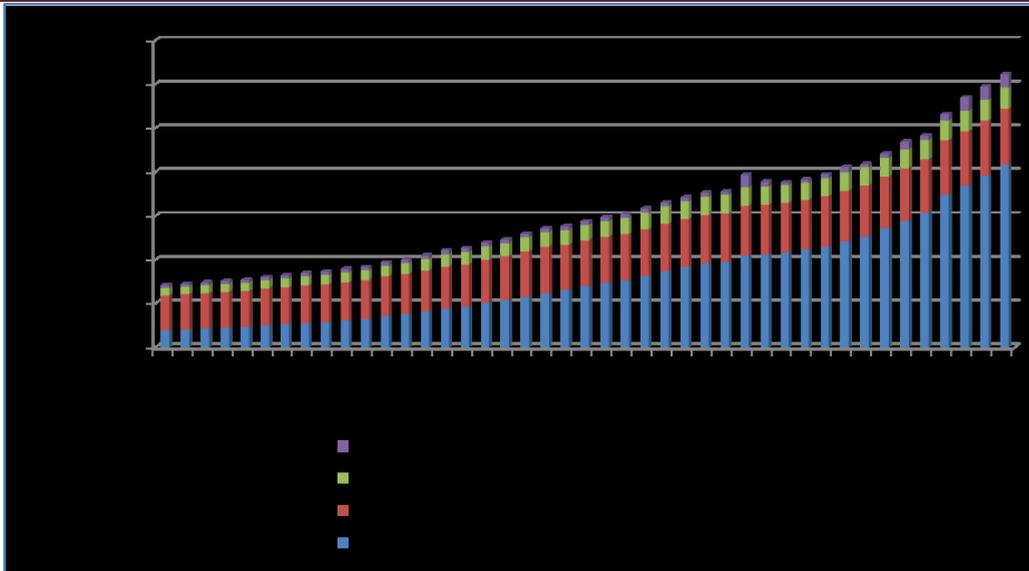


Figure 1: Emission Trends of Greenhouse Gases (GHGs)
Source: Compiled from WDI 2018

Figure (1) showcases the emission trends of GHGs in India from 1970 to 2012. The upward rising trend of GHG emissions is quite evident from the figure. More importantly, the rise in CO₂ emissions is far more palpable than the rest of the GHGs. Nonetheless, the GWP of the rest of the GHGs is even more detrimental as compared to CO₂ (Table:2). Now when we try to trace back the different sources of such CO₂ emissions from different economic sectors of India the pictorial presentation becomes as is shown in Figure (2):

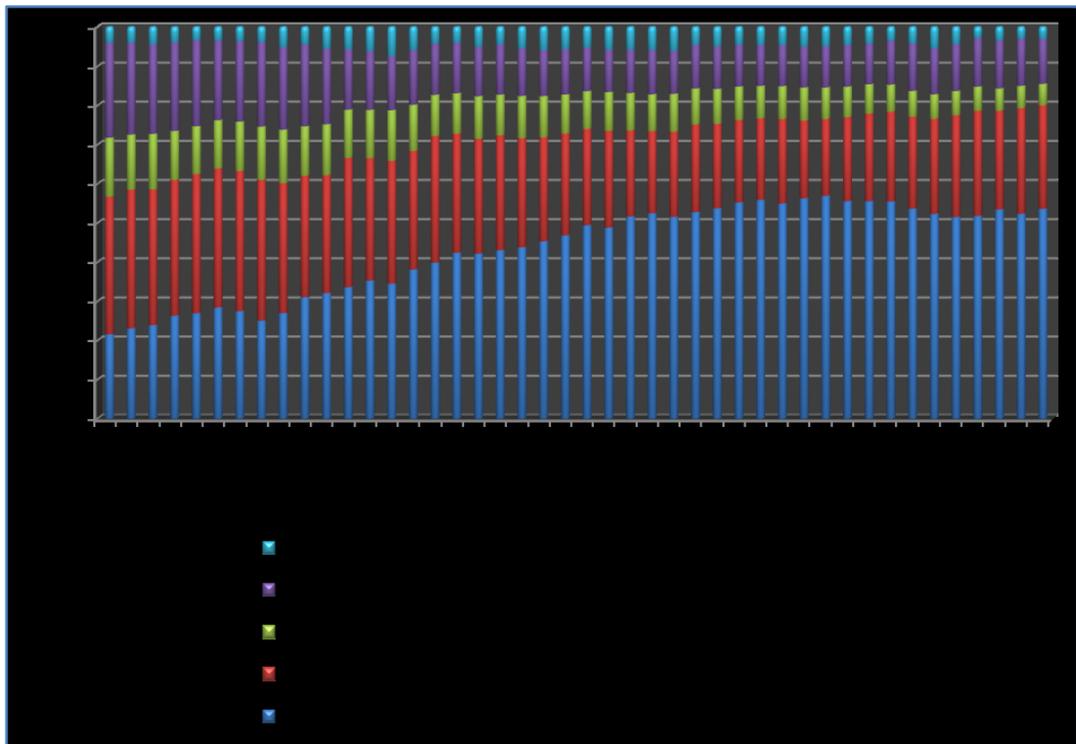


Figure 2: CO₂ Emissions from Different Economic Sectors of India
Source: Compiled from WDI 2018

From Figure (2) it can be observed that the highest CO₂ emission has been generated from electricity and heat production followed by manufacturing and construction in India. Transportation sector is the next contributor closely pursued by residential buildings and commercial and public services.

Many studies have attempted to examine the possible role of economic growth on environmental squalor. Like, the Environmental Kuznets Curve (EKC) hypothesis found that as an economy prospers the filthiness of the atmosphere, though initially increases up to a certain point, gradually comes down as people become more environment-conscious and eventually can afford and access more clean technologies (Grossman & Krueger, 1995). There are quite a number of assorted literatures both for and against this EKC hypothesis itself. Then, the EPI 2018 observed good governance to be the critical factor required to balance the two distinct dimensions of sustainability namely, (1) environmental health, which rises with economic growth and prosperity, and (2) ecosystem vitality, which comes under strain from industrialization and urbanization (Yale Center for Environmental Law & Policy, 2018). Cederborg & Snobohm (2016) conducted a cross-sectional study on 69 industrial and 45 poor countries and established a positive relationship between GDP per capita and CO₂ emissions. According to them, the market mechanisms were insufficient to reduce the emissions for both the types of economies and hence, alternatively, legal restrictions are to be imposed to control the crisis. Kasperowicz (2015) applied panel data approach and found that though in the short run, the relationship between GDP and CO₂ emission was positive, in the long run, a negative relationship developed between them. Again, the panel vector autoregression and impulse response function test of 106 countries for a period of 40 years by Antonakakis et. al. (2015) exposed that the impact of different kinds of energy consumption on CO₂ emissions as well as real GDP, were heterogeneous for different country-sets. Nain et. al. (2015) conducted a disaggregated causal analysis among energy consumption, economic growth and CO₂ emissions of India for a period of 1971 to 2011 to find that the long run and short run causal relationships among the variables were not uniform across the sectors. Thus they suggested that the policy formulations in this regard should pay heed to the sectoral differences to make them meaningful and worthy of action.

However, the present paper aspires to specifically study the nature and direction of causal relationship between economic growth and CO₂ emissions of India only, so as to understand the environmental policies to be framed to handle the state of affairs pragmatically by taking adaptation and mitigation strategies relevant to the Indian situation.

Methodology

The study has been conducted by collecting pertinent data pertaining to India from the World Development Indicators 2018 for the period of 1978 to 2016, i.e. for 39 years. The variables selected include:

(a) CO₂ Emissions: These refer to the emissions arising from the consumption of fossil fuels whether in solid, liquid or gaseous state, gas flaring and the manufacture of cement. Though CO₂ emissions are not the only factor contributing towards environmental degradation, but as it extremely difficult to get access to relevant comparable emissions data and conceptually it is not very prudent to combine the effects of these different sorts of emissions, only CO₂ emissions data has been considered in this study.

(b) Gross value Added (GVA): It is the net output of a sector after adding up all outputs and subtracting intermediate inputs. It is calculated without making deductions for depreciation of fabricated assets or depletion and degradation of natural resources.

Most studies use GDP as the benchmark for measuring economic growth of any nation (Antonakakis, Chatziantoniou, & Filis, 2015; Kasperowicz, 2015; Nain, Ahmad, & Kamaiah, 2015; Cederborg & Snobohm, 2016). By the definition of World Bank, GDP is the sum of gross value added by all resident producers in the economy plus any product taxes and minus any subsidies not included in the value of the products. But in this study GVA at factor cost (formerly GDP at factor cost), which is derived as the sum of the value added in the agriculture, industry and services sectors has been considered. It is derived by subtracting net product taxes from GDP and hence, seems to be more relevant for the study.

(c) Foreign Direct Investment (FDI): As defined by the World Bank, FDI is direct investment by way of equity flows in the reporting economy. It is the sum of equity capital, reinvestment of earnings, and other capital. Direct investment is a category of cross-border investment associated with a resident in one economy having control or a significant degree of influence on the management of an enterprise that is resident in another economy. Ownership of 10 per cent or more of the ordinary shares of voting stock is the criterion for determining the existence of a direct investment relationship (Acharyya, 2009; Paziienza, 2015; Zhou, Fu, Kong, & Wu, 2018).

(d) Trade openness (TRD): The variable has been chosen to quantify the economy’s exposure to global economy. It is measured as the difference between export and import of goods and services adjusted against GDP (Pazienza, 2015) (The World Bank, 2018).

All the above-mentioned variables except TRD have been converted into their logged forms for the sake of computational needs. Thus, henceforth they will be referred to as LCO₂, LGVA and LFDI respectively.

Empirical Findings

The study has applied the Auto Regressive Distributed Lag (ARDL) model (Pesaran & Shin, 1997) (Pesaran, Shin, & Smith, 1999, 2001) instead of the regular cointegration studies like Engle-Granger (1987) or Johansen-Juselius (1988, 1990) test to study the cointegrating relationship between the selected variables. Though it is not a pre-requisite for an ARDL model to test for the stationarity, the Augmented Dickey-Fuller (ADF) (Said & Dickey, 1984) test, Phillips-Perron (PP) (Phillips & Perron, 1988) test and Kwiatkowski-Phillips-Schmidt-Shin (KPSS) test (Kwiatkowski, Phillips, Schmidt, & Shin, 1992) have been conducted to test the order of integration for each of the variables.

Table 3: Unit Root Tests

Variables	ADF	PP	KPSS
	1 st Difference	1 st Difference	Level
	Intercept only	Intercept only	Intercept only
LCO ₂	-5.20 [0] (0.00)	-5.43 [4] (0.00)	0.76 [5]
LGVA	-5.48 [0] (0.00)	-5.51 [2] (0.00)	0.73 [5]
LFDI	-6.52 [0] (0.00)	-8.88 [14] (0.00)	0.74 [5]
TRD	-5.18 [0] (0.00)	-5.24 [2] (0.00)	0.66 [5]

Figures in [] represent Lag Lengths based on SIC in case of ADF Test and Bandwidth based on Newey-West in case of PP Test; Figures in () represent MacKinnon (1996) one sided *p* values.

Only the statistically significant values have been considered for tabulation.

Table (3) indicates that the variables are I(1) i.e., integrated of the same order. Thus, they qualify for the traditional Engel and Granger (1987) test, Johansen and Juselius (1990) test and Vector Error Correction Model (VECM). In spite of that, ARDL model is being applied in the study as it has three major advantages. Firstly, it is applicable irrespective of the underlying regressors being purely I(0), purely I(1), or a mixture of both. Secondly, the ARDL model dealing with single cointegration, yields consistent and robust results for both the long-run and short-run relationships. Thirdly, it is relatively more efficient in case of small and finite sample data sizes. Moreover, all the variables of this model are assumed to be endogenous. The cointegration equation thus formed under ARDL could be stated as follows:

$$\Delta LCO_{2t} = \alpha_0 + \sum_{i=1}^n \alpha_{1i} \Delta LCO_{2t-1} + \sum_{i=0}^n \alpha_{2i} \Delta LGVA_{t-1} + \sum_{i=0}^n \alpha_{3i} \Delta LFDI_{t-1} + \sum_{i=0}^n \alpha_{4i} \Delta TRD_{t-1} + \beta_1 LCO_{2t-1} + \beta_2 LGVA_{t-1} + \beta_3 LFDI_{t-1} + \beta_4 TRD_{t-1} + \mu_{1t} \dots \dots \dots (1)$$

Where,

Δ = the first difference operator,

LCO_{2t} = log of dependent variable CO₂,

$LGVA_t$ = log of independent variable GVA

$LFDI_t$ = log of independent variable FDI

TRD_t = independent variable TRD

μ_t = the usual white noise residuals

The left-hand side of the equation signifies the dependent variable. The first part of the right hand side of the equation ($\alpha_1 - \alpha_4$) represents the short-run dynamics of the model; whereas, the parameters $\beta_1 - \beta_4$, on the right-hand side, correspond to the long-run relationship among the independent variables. This is a test of the hypothesis of no cointegration among the variables against the existence of cointegration among the variables, denoted as:

H_0 : There is no long run cointegration among the variables

H_1 : There is long run cointegration among the variables.

After running the equation in the e-views software the outcomes obtained have been tabulated in Table (4).

Table 4: Results from ARDL Bounds Test Model (1, 0, 3, 2)

Dependent Variable	AIC Lags	F Statistics	Decision
F_{LCO_2} (LCO_2 LGVA, LFDI, TRD)	3	6.031300	Cointegrated (at 1% level of significance)
	Lower Bound	Upper Bound	
1 per cent level of significance	4.29	5.61	
5 per cent level of significance	3.23	4.35	
10 per cent level of significance	2.72	3.77	

Lower and Upper Bounds values are taken from Pesaran et al. (2001) Critical Value Table

The findings of Table (4) exhibits that the F-statistics (6.03) is higher than the upper-bound critical value (5.61) at the 1 per cent level of significance. This implies that the null hypothesis of no cointegration among the variables is rejected, i.e., there exists a long run cointegrating relationship amongst the variables considering LCO_2 a dependent variable, i.e., the independent variables namely, LGVA, LFDI and TRD together, can influence the CO_2 emissions of India in the long run.

Table 5: Estimated Long Run Coefficients of LCO_2 using the ARDL approach

Dependent Variable	Regressor	Coefficient	Standard Error	T-Ratio	Probability
LCO_2 ARDL (1, 0, 3, 2) selected based on SIC	LGVA	0.628283	0.293540	2.140367	0.0419**
	LFDI	-0.035100	0.093112	-0.376962	0.7093
	TRD	0.006378	0.016006	0.398479	0.6935
	C	-1.924557	6.925607	-0.277890	0.7833
ect		-0.076866	0.030466	-2.523023	0.0181**

** indicates the statistical significance level of five per cent

The estimated long-run coefficients of LCO_2 as shown in Table (5) exhibit that, individually only LGVA has positive long-run cointegration with LCO_2 at 5 per cent level of significance. LFDI and TRADE as independent variables do not have significant p-values and thus, individually they are not cointegrated with LCO_2 in the long-run. Moreover, the significance of the error correction term (ect) shows causality in at least one direction for LCO_2 , which is in sync with the findings of the bounds test. Ect is negative and significant implying that in case of any deviation in the long run, the model will restore equilibrium at a speed of adjustment of 7.69 per cent per annum, i.e. with an increase in the LGVA, a simultaneous increase in LCO_2 can be observed. It is worthy to note that the model has qualified the relevant diagnostic tests, the results of which have been encapsulated in Table (6).

Table 6: Diagnostic Tests

Dependent Variable	Tests	Test statistic	Probability (lags)	Decision
F_{LCO_2} (LCO_2 LGVA, LFDI, TRD)	Serial Correlation LM Test	2.40	0.30 (2)	No Serial Correlation
	Breusch-Pagan-Godfrey	8.57	0.48 (9)	Homoskedastic

Environment Pollution Control Authority has been compelled to ban the construction works and industrial activities in industrial hotspots for three days consecutively (Press Trust of India, 2018). Obviously, as a consequence huge economic compromises would have to be made. The Supreme Court has also mandated that no BS-IV vehicles should be sold in the country from 1st April 2020 as the BS-VI emission norms would come into vogue to reduce the emissions of lethal fumes from the automobiles (IANS, 2018). Individuals like R.L. Srinivasan are fighting for clean air for the residents of Ennore in Chennai. He has filed a case in the National Green Tribunal, as a consequence of which the Environment Ministry has shut down a road being built there for a coal conveyer belt giving environmental needs a priority (Chandrasekhar, 2018). Then again, a club, a forest-officer and a scientist together have made an unwieldy Forest Research Station in Bengaluru into a butterfly haven and is awaiting its status for a butterfly reserve (M, 2018).

In this context it is worthy to state that among the different variants of air pollutants, few noxious emits are local, like NO₂, CO, SO₂; whereas CO₂ is a global pollutant. So any combating mechanism adopted, needs to address the issues pertaining to both local as well as global pollutants. Very recently in December 2018 the two week long 14th session of the Conference of Parties (COP24) serving as the Meeting of the Parties to the Kyoto Protocol was held in Katowice, Poland. There, Carbon Capture, Utilization and Storage (CCUS) and energy efficiency have been identified as the major tools to fight back global warming. But not to utter amazement, COP24 has provided few tools only to combat climate change, but no mandate. It is left to the governments to decide whether to and to what extent, adopt them or not (Khan, 2018). United Nations Statistics Division (UNSD) and United Nations Environment Program (UNEP) are jointly endeavouring to develop Environment Statistics to ensure meaning and conclusive studies on environment management (Statistics Division, 2016). Agliardi et. al. (2015) had employed a stochastic dominance (SD) approach to derive a relative environmental degradation index across countries. But that needs to be extended to the subsequent years for comparative analysis. However, though identification of the disease is of primary importance, without treatment it is futile.

Human race has become civilized at the cost of nature. Now it is a high time to look back and ponder over. Many measures in local, national and international levels, individual, community as well as government levels are being taken up in bits and pieces by the environment-conscious fraternity. But the pace of combating climate change is not even at par with the speed of degeneration of the environment. Primarily it should be the business and the government who should be proactive to reduce the harmful emissions. Economic compromises and providence by the 'haves' might give some ray of hope to both the 'haves' and 'have-nots' that humans and humanity would survive, the sky will remain blue along with the earth's green cover. India has four extremely rich bio-diversity hotspots. It is our responsibility to protect and preserve them and not merely exploit them for economic motives. To ensure the habitability of our planet, urgent and drastic steps are the call of the moment and we have to respond to it instead of focusing on our immediate comforts. We have to act more responsibly to ensure that our future generations have some economic as well as moral resources left for them to survive.

References

1. Acharyya J. FDI, Growth and the Environment: Evidence from India on CO₂ Emission during the Last Two Decades. *Journal of Economic Development*. 2009; 34(1):43-58.
2. Agliardi E, PinarM, Thanasis S. An environmental degradation index based on stochastic dominance. *Empirical Economics*. 2015; 48(1):439-459.
3. Antonakakis N, Chatziantoniou I, Filis G. Energy Consumption, CO₂ Emissions, and Economic Growth: A Moral Dilemma. *Munich Personal RePEc Archive*, 2015, 1-32.
4. Cederborg J, Snobohm S. Is there a relationship between economic growth and carbon dioxide emissions? Bachelor thesis of Economics . Stockholm: Sodertorns University; Institution of Social Sciences, 2016.
5. Chandrasekhar A. Meet the kabaddi coach who's fighting for clean air in Ennore. Retrieved December 25, 2018, from *The Hindu*: <https://www.thehindu.com/sci-tech/energy-and-environment/meet-the-kabaddi-coach-whos-fighting-for-clean-air-in-ennore/article25790301.ece>
6. Engle RF, Granger C. Co-integration and Error Correction: Representation, Estimation and Testing. *Econometrica*. 1987; 55(2):251-276.
7. Granger C. Investigating Causal Relations by Econometric Models and Cross-Spectral Methods. *Econometrica*. 1969; 37(3):424-438.
8. Grossman G, Krueger A. Economic Growth & the Environment. *Quarterly Journal of Economics*, 1995, 353-377.

9. Grubb M, Muller B, Butler L. (n.d.). The relationship between carbon dioxide emissions and economic growth. Oxbridge study on CO₂-GDP relationships, Phase 1 results . University of Cambridge.
10. IANS. (2018, December 19). Maruti Suzuki plans to stop producing BS-IV models by Dec 2019. Retrieved December 25, 2018, from The Economic Times: <https://economictimes.indiatimes.com/industry/auto/auto-news/maruti-suzuki-plans-to-stop-producing-bs-iv-models-by-dec-2019/articleshow/67163804.cms>
11. International Energy Agency. The Energy Mix: COP, CO₂ & CCUS. Newsletter of the International Energy Agency, 2018.
12. Janssens-Maenhout G, Crippa M, Guizzardi D, Muntean M, Schaaf E, Olivier J. et al. Fossil CO₂ & GHG emissions of all world countries. European Commission, Joint Research Centre. Luxembourg: Publications Office of the European Union, 2017.
13. Johansen S, Juselius K. Maximum Likelihood Estimation and Inference on Cointegration - with Applications to the Demand for Money. Oxford Bulletin for Economics and Statistics. 1990; 52(2):169-210.
14. Kasperowicz R. Economic growth and CO₂ emissions: the ECM analysis. Journal of International Studies. 2015; 8(3):91-98.
15. Khan DA. COP24 Results, Developing Countries And a Bit of Good News for Solar Energy and Carbon Capture. Retrieved December 24, 2018, from Countercurrents.org: <https://countercurrents.org/2018/12/19/cop24-results-developing-countries-and-a-bit-of-good-news-for-solar-energy-and-carbon-capture/>
16. Kwiatkowski D, Phillips PC, Schmidt P, Shin Y. Testing the null hypothesis of stationarity against the alternative of a unit root: How sure are we that economic time series have a unit root? Journal of Econometrics. 1992; 54:159-178.
17. MRM. How a unwieldy patch of green turned into butterfly haven in Bengaluru. Retrieved December 25, 2018, from The Hindu: <https://www.thehindu.com/sci-tech/energy-and-environment/how-a-unwieldy-patch-of-green-turned-into-butterfly-haven-in-bengaluru/article25789922.ece>
18. Mavrotas G, Kelly R. Old Wine in New Bottles: Testing Causality between Savings & Growth. The Manchester School Supplement. 2001, 97-105.
19. Myhre GDMF. Anthropogenic and Natural Radiative Forcing. In D. S. Gunnar Myhre, & T. D.-K. Stocker (Ed.), Climate Change 2013: The Physical Science Basis. Contribution of Working Group I to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change (pp. 659-740). Cambridge, United Kingdom : Cambridge University Press.
20. Nain Z, Ahmad W, Kamaiah B. Economic Growth, Energy Consumption and CO₂ Emissions in India: A Disaggregated Causal Analysis. International Journal of Sustainable Energy, 2015.
21. Paziienza P. The relationship between CO₂ and Foreign Direct Investment in the agriculture and fishing sector of OECD countries: Evidence and policy considerations. Intellectual Economics. 2015; 9:55-66.
22. Pesaran MH, Shin Y. Working with Microfit 4.0: Interactive Econometric Analysis. Oxford: Oxford University Press, 1997.
23. Pesaran MH, Shin Y, Smith RJ. Bounds testing approaches to the analysis of level relationships. Journal of Applied Econometrics. 2001;16(3):289-326.
24. Pesaran MH, Shin Y, Smith RJ. Bounds Testing Approaches to the Analysis of Long Run Relationships. Discussion Paper Series Number 46 . Edinburgh School of Economics, 1999, February.
25. Phillips P, Perron P. Testing for a Unit Root in Time Series Regression. Biometrika. 1988; 75:335-346.
26. Press Trust of India. EPCA Shuts Industries in Delhi's Pollution Hotspots, Bans Construction Activities till Wednesday . Retrieved December 25, 2018, from The Times of India: <https://timesofindia.indiatimes.com/city/delhi/epca-shuts-industries-in-delhis-pollution-hotspots-bans-construction-activities-till-wednesday/articleshow/67230316.cms>
27. Said SE, Dickey DA. Testing for Unit Roots in autoregressive-moving average models of unknown order. Biometrika, 1984, 599-607.
28. Sarkar S. That Sinking Feeling: Shrinking Coral Reef Cover in Lakshadweep. Retrieved December 24, 2018, from The Hindu Ecologic Environment: <https://www.thehindu.com/sci-tech/energy-and-environment/that-sinking-feeling/article25741390.ece>
29. Statistics Division. (2016). Environment Statistics. Retrieved December 6, 2018, from United Nations: https://unstats.un.org/unsd/envstats/country_files
30. The World Bank. (2018). World Development Indicators. The World Bank.
31. Toda H, Yamamoto T. Statistical inference in vector autoregressions with possibly integrated processes. Journal of Econometrics. 1995; 66(1-2):225-250.

32. Yale Center for Environmental Law & Policy. 2018. Environmental Performance Index. Yale University.
33. Zhou Y, Fu J, Kong Y, Wu R. How Foreign Direct Investment Influences Carbon Emissions, Based on the Empirical Analysis of Chinese Urban Data. Sustainability, 2018, 1-19.

An exploratory analysis for productivity enhancement through integration of Neuro Linguistic Programming, Emotional Intelligence and Cognitive Intelligence

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ABSTRACT: *This paper seeks to investigate productivity augmentation through integration of Neuro Linguistic programming (NLP), Emotional Intelligence (EI) and Cognitive intelligence (CI). We made a conceptual framework based on theories of emotional intelligence proposed by Salovey and Mayer (1989-1990), Neuro linguistic Programming developed by Grinder and Bandler (1970's) and Cognitive intelligence. We studied a case on "Emotional Intelligence, Cognitive Intelligence, and Job Performance" by Stéphane Côté and Christopher T. H. Miners and tried to resolve the gaps through Neuro linguistic Programming. We tried to show that how this integrated techniques improves and enhances effectiveness of performers and performance standard of the organizations.*

Keywords: *Productivity, Neuro Linguistic programming, Emotional Intelligence, Cognitive intelligence.*

1. Introduction

Productivity is a measure of the efficiency of a person, machine, factory, system, etc., in converting inputs into useful outputs. According to the definition by European Productivity Agency (E. P. A. The Concept of Productivity and Aims of the National Centres. Rome Conference 1958) with balancing of Japan Productivity Centre (JPC), Productivity is as a concept and made known as an "attitude of mind". It finds to improve things which meanwhile exists continuously and pressed that one can do better in day after day comparing the previous day, in simple words every day become better. In 1995, R.D. Pritchard explains three definitions which related to productivity: (1) Productivity is measure of output per unit of input, in other words is measure of efficiency (techno economic view); (2) Productivity is formation of effectiveness and efficiency (Rantanen H., 1995) indicates to (output / input + output / goal) as productivity; (3) IT is prescribing to broader concept that whatever makes the organization has a better function.

Over and above, Asia Productivity Organizations (APO) defines the productivity as: Productivity = Efficiency + Effectiveness

= "Doing things right" + "Doing the right things" (Organization A.P. In-country training program for productivity and quality practitioners In IRAN 2008)

Kirikal and Tallinna (2005) introduce that productivity is considering as significant factor in analyzing, monitoring and supervising the performance which there is a consensus among scholars that the performance management is important element in continuous progress and successful management (Rantanen et al., 2007). Also, it can help firms to identify the weakness and strengths along with opportunities and threats which sprouting from market can be the other reason as to why productivity is significant in this level. Organizations evaluate their weak point and try to fill and produce what things they expect. This way supports them to control the output driving various departments. Father of modern management Peter F. Drucker (1909-2005) defined the variation between effectiveness and efficiency. He mentions "doing the thing right" as efficiency. Measures of efficiency for a company related to quantity of resources used in producing the output of a process. It links primarily to company profitability. On the other hand, "Doing the right things" and select the activities in proper way are defined as effectiveness (Drucker, 1963). Measures of effectiveness for a company related to how well the process output(s) meets the needs of the customer. It links primarily to customer satisfaction.

Productivity is a combination of effectiveness and efficiency (Sheth & Sisodia, 2002). Achieving both effectiveness and efficiency in high level is important for an Organization. In this article, we do an empirical analysis for productivity augmentation through integration of Neuro Linguistic Programming, Emotional Intelligence and Cognitive Intelligence.

1.1. Neuro Linguistic Programming:

Neuro Linguistic Programming was developed by John Grinder and Richard Bandler in the early 1970's. Richard Bandler, whose background was in mathematics and therapy (Dilts and DeLozier 2000), was

studying at the University of Santa Cruz in the 1970's, where he developed a successful collaboration with John Grinder, a professor of linguistics (McLendon, 1989). They studied the field of human change. The title, prepared by Bandler and Grinder, is understood to denote that a person is a whole mind body system, with systematic, patterned connections between neurological processes ('Neuro'), language ('linguistic') and learned behavioral strategies ('programming') (Dilts et al, 1980)

In simple words, the name Neuro linguistic programming comes from:

Table1: Neuro Linguistic Programming

N:	Neurology:	The study of mind and nervous system that means how we think.
L:	Linguistics:	The study of language and how we use language.
P:	Programming:	The order of our action that means how we motivate ourselves to achieve our goals.

Source: Grinder, Bandler, And Delozier (1980)

NLP has been defined in various ways. In its promotional literature it is stated as (for example) 'the art of communication excellence'. Alternatively, as in the subtitle to Dilts et al (1980), it is stated as 'the study of the structure of subjective experience'. NLP is a growth-orientated rather than diagnostic-orientated approach, emphasizing learning as the key to personal change and development. NLP assumes that people are inherently creative and capable, and in important respects adopts a constructivist position that people act according to the way they presume and illustrate the world, not according to the way the world 'is' (Tosey & Mathison, 2006) In Korzybski's (1941) words, 'the map is not the territory', is often quoted. There is a solid emphasis in NLP on understanding the structure rather than the content of experience (Bandler and Grinder 1975). In simple words, Neuro linguistic programming is how to use language of mind to consistently obtain our specific and desired production (Grayson and Proctor, 2000).

1.2. Intelligence:

Intelligence is a harmonic problem solving behavior toward naturalizing realization of applied goals and harmonious growth. Consistent behavior fatigues the goals that may lead to internal conflict. This concept of intelligence is based on affirmations that enforce the process of stepping towards the goals, adopting strategies to overcome obstructions and solving the problems (Emmons, 1999, Nasel 2004, Sternberg 1997). The Western direction to intelligence is cognitive and includes informational processing, whilst the combined eastern direction to intelligence covers different elements of performance and man's realization, including cognition, intuition and emotion in an integrated framework (Nasel 2004). Usually, intelligence assists people to improve their harmony with the environment and trace the paths to deal with problem and issues.

1.2.1. Cognitive Intelligence:

Cognitive intelligence holds intellectual's capability such as logic, reasoning, reading-writing, analyzing and prioritizing. They take advantage of neo cortex only, not the emotional centers of the brain which also provide crucial and fateful information. These capabilities do not want any social skills i.e., a mathematic equation can be solved itself or jot down an essay or balance a business book by yourself (Saxena & Saxena, 2012). Tests of cognitive ability are scales of performance. They count the ability to resolve problems in various cognitive domains (Brody, 2004). For example, a test of vocabulary, No one would doubt that a man who has a high score on this test has a huge vocabulary and better in the ability to define and perceive the meanings of words.

1.2.2. Emotional Intelligence:

By proposing the concept of 'emotional intelligence' psychologists have tried to build it clear that emotion and intelligence are not two ends of one spectrum (Averill, 2007). To interpret the importance of emotion in man's evolution, social biologists argue that heart is more significant than brain. They further demonstrate that in tough and risky tasks, emotions are more necessary than being assigned to brain. It is the emotion that leads man in hazardous situations, loss of loved ones, and insistence in reaching the goals despite several failures, forming love relations, and creating a family. Different emotions make us for different tasks and lead us to a direction in which man has confirmed to be successful for several times (Ostadi & Zarehpour, 2009).

The concept of emotional intelligence evolved back in 1920's when Thorndike (1920) for the first time conceived the emotional intelligence in to three dimensions i.e. abstract intelligence, mechanical intelligence and social intelligence. Latterly in 1980s, several scholars formed further contributions to the concept of emotional intelligence, e.g. Gardner (2013) came up with the idea of intra-emotional intelligence and inter-emotional intelligence. The work of Steiner (1984) conceived the idea of EI. The contribution of these scholars gave rise to the elevation and improvement of the concept "emotional intelligence" by Salovey and Mayer (1990). In the following years, emotional intelligence was studied widely in the literature of organizational behavior, human resources, and management and many other disciplines.

The contribution of Salovey and Mayer (1990) is substantive, as they proposed a model for emotional intelligence by defining EI as part of the social intelligence, which take measures the ability of an individual to regulate his/her personal and other's emotions and feeling. It helps them split and manage their reasoning and actions. Mayer, Caruso and Salovey (1999) redefined the concept of EI as the ability of an individual to recognize access and produce emotions in order to facilitate the decisions. Moreover, EI helps access and regulate feelings, emotions and emotional knowledge to develop the growth of emotions and intellectuality.

1.2.3. Emotional Intelligence VS Cognitive intelligence:

Howard Gardner from the Harvard School of Education introduced that a single entity called intelligence does not exist. He presents an idea of "multiple intelligence". It indicates that there are many X-intelligence (Gardner & Hatch,1989). Within them, emotional intelligence is one of them as well as cognitive intelligence. Previous researches indicated that EI is as significant as cognitive intelligence because it is basic for better coordination (Abraham, 1991). It is true, CI is required to qualify an exam and to deserve a job but after getting a job (during job) it is EI which is more important (Barchard& Hakstian, 2004). We compare these two types of intelligence with iceberg where cognitive intelligence is the upper part which we easily measure by examination and job's interview; but huge lower part is emotional intelligence which plays more significant role in job performance.

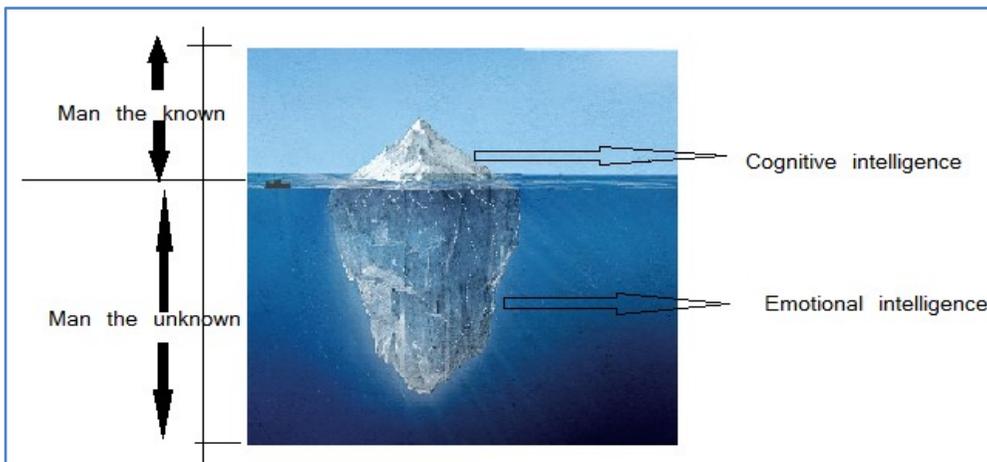


Figure1: comparing with iceberg

Table2: Cognitive intelligence VS Emotional intelligence

Feature	Cognitive Intelligence	Emotional Intelligence
effectiveness	Only effective when functioning alone.	Being effective both alone and as a group member.
convince	Using an Intellectual appeal to convince someone of something.	Using an emotional appeal to convince someone to something.
ability	Not being able to access the feelings of others and understanding how the emotions are affecting the circumstance.	Being able to sympathize with others knowing that they are coming from.
Test	Tests of cognitive ability are	Mayer-Salovey- Caruso Emotional

	measures of Performance. They assess the ability to solve problems in various Cognitive domains.	Intelligence Test (MSCEIT) tests knowledge of emotional but not necessarily the ability to perform tasks that are related to the knowledge that is assessed.
Consent	The existence of correct answer to cognitive ability items implies that it is possible for a person with unusually high cognitive ability to provide a response to an item that is non-consensual and correct.	Responses to the emotional intelligence test can only be correct if they are consensual.

Source: Brody N (2004) & Saxena & Saxena (2012)

2. Literature Survey:

The human side of organizational representation is instinctively associated with Motivation. Social scientists have been cultivating motivation for decades, trying to what motivates human behavior, how and why. The 'two factor theory' (also known as Herzberg's motivation-Hygiene Theory or dual-factor theory) represents that there are certain factors in the workplace that cause job satisfaction, while a separate set of factors cause dissatisfaction (Herzberg, Mausner & Snyderman, 1959). Maslow's (1943) Hierarchy of needs states that individuals' most basic needs must be met before they become motivated to attain higher level of needs. The Hawthorne Effect (Landsberger, 1958) indicated that employees become motivated to work harder as a response to the care being paid to them, rather than the genuine physical changes themselves. Vroom's (1964) Expectancy Theory mentions that people will chose how to behave depending on the outcomes they except as a result of their behavior. It is also impacted by excuse - the belief that a reward will be received if performance expectancies are met its goal. Weiner's (1985) attribution theory is preeminently about achievement. He stated that most important factors affecting attributions are ability, effort, task, difficulty and luck. Neurologist and psychiatrist Viktor Frankl concept of Logotherapy is based on the proposition that the primary motivational force of an individual is to find a meaning in life. The following list of tenets illustrates basic principles of Logotherapy (I) Life has meaning under all circumstances, even the most pathetic ones. (II) Our main motivation for living is our will to search meaning in life. (III) We have freedom to search meaning in what we do, and what we experience, or at least in the stance we take when faced with a situation of unchangeable suffering (Marshall & Marshall, 2012).

NLP associates philosophically the discipline of constructivism. Three presumption of NLP derive from constructivism: The map is not the territory, everyone is doing the best they can with the resources they have available, and the meaning of the communication is dependent upon the context it appears in. Roger's whose person centered Psychology made an impression on NLP. NLP also draws on self-efficiency theory and his cognitive learning theory regarding thoughts, feelings, behavior, and situation (.Susie Linder-Pelz, 2010)

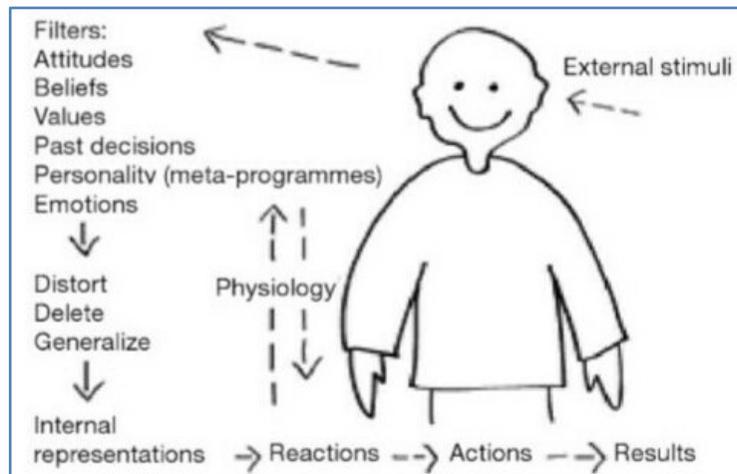


Figure 2: NLP communication model
Source: Susie Linder-Pelz, 2010

Neuro linguistic programming is how to use language of mind to consistently obtain our specific and desired production (Grayson and Proctor, 2000).

Goleman stated that the single most important factor prominent star performers in every field is not only IQ, advanced degrees, or technical expertise, but also the quality known as emotional intelligence (Goleman,1995). Provides guidelines for cultivation these abilities and explains why corporate training must change if it is to be effective. Mayer mentioned that there is a good reason to expect that both EI and IQ makes separate and discrete contributions to performance (.Mayer, Salovey, and Caruso,2000).

3. Aims and objectives:

In this article, we have done a holistic approach in productivity augmentation through integration of Neuro Linguistic programming (NLP),Emotional Intelligence (EI) and Cognitive intelligence (CI). Following are the objectives of the study:

- I. To find out the difference between cognitive intelligence and emotional intelligence of performers.
- II. Find out the way of enhancement of emotional as well as cognitive intelligence.
- III. Find out, that how this integrated techniques of Neuro Linguistic programming (NLP), Emotional Intelligence (EI) and Cognitive intelligence (CI) improves and enhances effectiveness of performers and performance standard of the organizations.

4. Conceptual Framework:

The Greek philosopher Aristotle divided the means of persuasion,appeals, into three categories--Ethos, Pathos, and Logos. Where ethos represents articulation; Pathos represents feelings; Logos means persuading by the use of reasoning. If we denote stupendous success by SS, then Ethos(E), Pathos(P), and Logos(L) associates with SS by following Venn diagram.

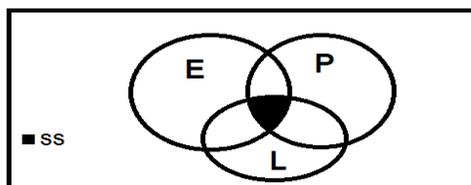


Figure3: EPL Venn diagram

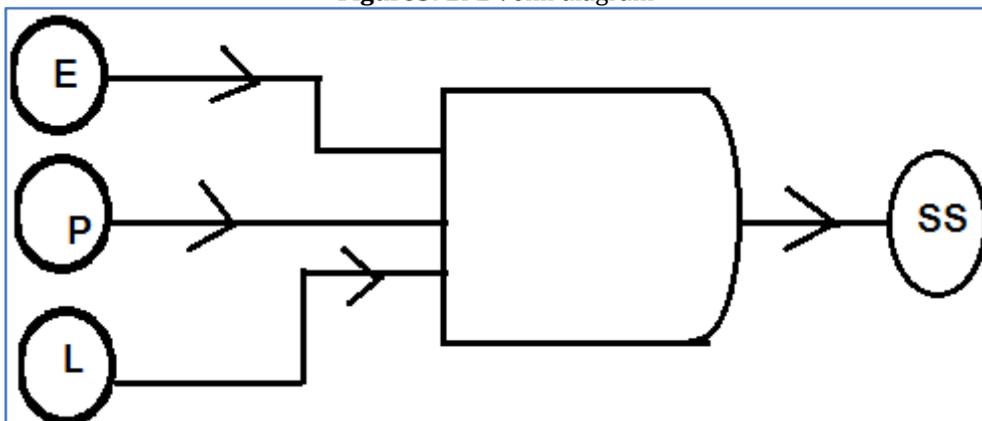


Figure 4: Input and gate

Table3: Truth table

Sl. No.	E	P	L	SS
1	0	0	0	0
2	1	0	0	0

3	0	1	0	0
4	0	0	1	0
5	1	1	0	0
6	1	0	1	0
7	0	1	1	0
8	1	1	1	1 ► Success/ Achievement

In our conceptual model we propose P as emotional intelligence, E as Neuro linguistic Programming, and L as cognitive intelligence. Our goal is SS, enhancement of productivity through these integrated techniques of Neuro Linguistic programming (NLP), Emotional Intelligence (EI) and Cognitive intelligence (CI).

5. Case Study:

We took the paper 'Emotional Intelligence, Cognitive Intelligence, and Job Performance' by Stéphane Côté and Christopher T. H. Miners (Administrative Science Quarterly, Vol. 51, No. 1 (Mar., 2006), pp. 1-28) for our case studies. In this paper, they propounded compensatory model in which cognitive intelligence limited the association between emotional intelligence and job performance, so that the association became more positive as cognitive intelligence decreases. They assumed that individuals with low cognitive intelligence may harvest relatively large returns from high emotional intelligence because they tend to set out low job performance in most, if not all jobs. When job performance is low, the room for correction and improvement is large. Job performance that is not performed through cognitive intelligence may be performed through emotional intelligence via multiple supplementary techniques. The first technique concerns expertise at identifying and understanding the emotions of other individuals. In most, if not all jobs, organization members interact with supervisors, co-workers, support staff, and outsiders such as clients, customers, or patients (Rafaeli and Sutton, 1987; Sutton, 1991). The second technique by which emotional intelligence may augment the job performance of individuals with low cognitive intelligence concerns how regulating emotion impresses the quality of social relationships (Grandey, 2003; Grandey et al., 2005). The third technique by which emotional intelligence may augment the job performance of individuals with low cognitive intelligence concerns the impressions of emotions on how people think and act (Loewenstein and Lerner, 2003; Seo, Feldman Barrett, and Bartunek, 2004). They presented various past researchers' works and suggested that emotional intelligence may certainly relate to the job performance of organization members with low cognitive intelligence and, as such, pay off for low cognitive intelligence. Emotional intelligence, however, should become less positively associated with job performance as cognitive intelligence increases. Individuals with high cognitive intelligence are expected to set out high job performance and hence permit little room for correction and improvement. Although emotional intelligence may help individuals with high cognitive intelligence recognize other people's emotions, manage their own emotions, improve their own decisions, and augment their own motivation, emotional intelligence should contribute little to their job performance because they already earn high job performance.

Their Compensatory model suggested following two hypothesis:

Hypothesis 1: The association between emotional intelligence and task performance becomes more positive as cognitive intelligence decreases.

Hypothesis 2: The association between emotional intelligence and organizational citizenship behaviour (OCB) becomes more positive as cognitive intelligence decreases.

They took 175 full time employees of a large public university as a participants. Their mean age was 41 (s.d. = 11, range = 22to 65), and 67 percent were female. Participants had an average of 19 full years of work experience (s.d. = 11, range = 0 to 49 full years) and had worked at the university for an average of 10 full years (s.d. = 9, range = 0 to 37 full years).

They measured emotional intelligence through the Mayer-Salovey-Caruso Emotional Test (MSCEIT; Mayer, Salovey, and Caruso, 2002), a 141-item ability test of emotional intelligence. The MSCEIT holds tasks that ask respondents to recognize emotions in photographs of faces and in images and landscapes, compare different emotions to different perceptions such as colours, indicate how emotions make an impression on thinking and reasoning, assemble emotions into complex feelings, know how emotions transition from one to another, and rate the effectiveness of different emotion regulation strategies in both intrapersonal and interpersonal contexts. They gave several explanations for choosing of MSCEIT. The MSCEIT is a capability test in which respondents are put forward with emotional problems and asked to pick the best answer among a set of options (Mayer, Caruso, and Salovey, 2000). The capability test approach to measuring

emotional intelligence addresses some of the serious limitations of the contending self-report and peer-report approaches. They also selected MSCEIT because it displays a high test-retest correlation (.86; Brackett and Mayer, 2003) and high internal reliability (above .90; Brackett and Mayer, 2003; Mayer et al., 2003).

For cognitive intelligence, they used the Culture Fair Intelligence Test, Scale 3, Form A (Cattell, 1973) to measure cognitive intelligence. Fifty items are divided into four timed subtests that involve different perceptual tasks to avoid dependability on a single skill. They gave several explanations for choosing the Culture Fair Intelligence Test. The test expresses adequate internal reliability (.74; Cattell, 1973). The validity of the test is confirmed by considerable evidence. The test correlates extremely with other tests of cognitive intelligence, including the Wechsler Adult Intelligence Scale ($r = .74$) and the General Aptitude Test Battery ($r = .74$; Cattell, 1973). The test predicts job outcomes (e.g., Turnage and Muchinsky, 1984), memory performance (e.g., Maylor, 1993), and processing speed (e.g., Smith and Stanley, 1987).

They used hierarchical multiple regression to test the hypotheses. They integrated the continuous predictors to simplify the interpretation of the findings (Cohen et al., 2003). They entered education level, the number of hours worked per week, the dummy codes for occupation, the Big Five traits, leader-member exchange, the leader-member exchange by cognitive intelligence interaction, emotional intelligence, and cognitive intelligence in step 1 and the emotional intelligence by cognitive intelligence interaction in step 2. After analysis, their result justified hypothesis 1 but hypothesis 2 was partially supported by their result.

Past research has consistently or clearly proposed that emotional intelligence and cognitive intelligence relate to job performance in independent and fulfilling linear ways (Goleman, 1998; Mayer, Salovey, and Caruso, 2000). This study proposed, instead, that emotional intelligence and cognitive intelligence are compensative with respect to task performance and organizational citizenship behavior directed at the organization (OCBO). Emotional intelligence becomes a stronger predictor of task performance and OCBO as cognitive intelligence decreases.

This research conceptualized emotional intelligence and cognitive intelligence as isolate broad sets of abilities that are subsumed under general intelligence in the hierarchical model and emotional intelligence has a plus point for them who are with low cognitive intelligence, but we see many complex projects with high cognitive intelligent organizations members experience substantial cost overruns and delays in completion, and fail to deliver their objectives. For example, the FIFA World Cup 2014 project budget increased from the originally estimated € 1 billion to €11 billion. Such failures in complex projects are not unique to sport events. The construction of Denver International Airport exceeded the original budget by 200% and was delivered 16 months over schedule (Flyvbjerg, 2005). Researchers including Dvir et al. (2006) and Sausser et al. (2009) have found that challenges in complex projects are primarily attached with managerial, rather than technical issues. So, there rises a question, is only high cognitive intelligence enough for performance standard of the organizations?

Through Neuro linguistic programming, individuals enhance their integrated emotional and cognitive intelligence level. May an individual with low cognitive intelligence and low emotional intelligence enhance his or her performance standard through NLP training?

It is important to look for further whether the associations between emotional intelligence, cognitive intelligence, and Productivity depend on the nature of the job. For this reason, our aim is to examine how Neuro linguistic programming emotional intelligence and cognitive intelligence associated with Productivity of radio presenter's performance in the All India Radio, Kolkata (India's Public Service Broadcaster). Sample size consists of 150 radio presenters (considering gender, academic qualification, Instructional mood, age group etc.) from All India Radio, Kolkata station. This will be sent to around 150 respondents (Presenters) for getting their responses. An in-depth analysis will be carried out to see the effect of cognitive as well as emotional intelligence on the performance of the presenters. The results will lead to evaluation of performers and non-performers. Remedial measures to be adopted with a view to minimizing the gap between the above groups through NLP. Pareto analysis would be carried out in order to show and reflect the important of criteria associated with them.

6. Conclusion:

Few years before, the highest standard of intelligence has been the I.Q. (Intelligence Quotient) Score. I.Q. tests are the measures of cognitive perspective of intelligence; But, Previous researches have proved that EI is as important as Cognitive Intelligence (CI) because it is fundamental for better performance and productivity. CI is required to qualify an written exam as well as interview and to get a job but afterwards (during job) it is EI which is more essential. It is seen that many people with very high IQs (CI) do poorly in work and in relationship also because they have low EQs (EI). They sabotage themselves because they cannot

operate their own emotions or those of peoples and they sabotage projects because they may have all the logical, rational, analytical "answers", but they do not have "soft" skills to move a project forward. For stable productivity enhancement, both are equally important.

References

1. Abraham R. Emotional Intelligence in organizations: A conceptualization. New York: Bantam Books, 1991.
2. Averill JR. Together again: Emotion and intelligence reconciled. In G. Matthews, M. Zeider, & R. D. Roberts (Eds.), Emotional intelligence: Knowns and unknowns. New York: Oxford University. 2007, 49-71.
3. Bandler, R. and Grinder, J. The Structure of Magic I: A Book about Language and Therapy, Palo Alto, California: Science and Behaviour Books, 1975.
4. Barchard, Kimberly A. & Hakstian, A. Ralph., The nature and Measurement of Emotional Intelligence Abilities; Basic Dimensions and Their Relationships with Other Cognitive Abilities and Personality variables, Educational & Psychological Measurement, 2004, 64(3):437-462.
5. Brody N. What Cognitive Intelligence Is and What Emotional Intelligence Is Not. Psychological Inquiry. 2004; 15(3):234-238.
6. Cattell RB. Manual for the Cattell CultureFair Intelligence Test. Champaign, IL: Institute for Personality and Ability Testing, 1973.
7. Cohen J, P Cohen, West SG, Aiken LS. Applied Multiple Regression /Correlation Analysis for the Behavioral Sciences. 2003.
8. Dilts R, DeLozier J. Encyclopedia of Systemic NLP and NLP New Coding, Capitola, California: Meta Publications (available online with limited access at <http://nlpuniversitypress.com/>, accessed 13.2.2006)
9. Dilts R, Grinder J, Bandler R, DeLozier J. Neuro-linguistic Programming: Volume 1, the study of the structure of subjective experience, California: Meta Publications, 1980.
10. Drucker PF. Managing for business effectiveness. Harvard Business Review 1963; 41:53-60.
11. Dvir D, Ben-David A, Sadeh A, Shenhar AJ. Critical managerial factors affecting defense projects success: a comparison between neural network and regression analysis. Eng. Appl. Artif. Intell. 2006; 19(5):535-543.
12. Emmons RA. The psychology of ultimate concern: Motivation and spirituality in personality. New York: The Guilford Press, 1999.
13. Flyvbjerg B. Design by deception: the politics of megaproject approval. Harv. Des. Mag. 2005; 22:50-59.
14. Gardner H. The theory of multiple intelligences 1. Teaching and Learning in the Secondary School, 2013, 38.
15. Gardner, H. & Hatch, T. Multiple Intelligences Go to School: Educational Implications of the Theory of Multiple Intelligences, Educational Researcher, Nov. 1989; 18(8):4-10.
16. Goleman D. Emotional Intelligence: Why it can matter more than IQ. New York: Bantam Books, 1995.
17. Goleman, D. Working with Emotional Intelligence, 1998.
18. Grandey AA. "When 'the show must go on': Surface acting and deep acting as determinants of emotional exhaustion and peer-rated service delivery." Academy of Management Journal, 2003 ; 46: 86-96.
19. Grandey AAGM, Fisk AS, Mattila KJ, Jansen, and Sideman L. A. "Is 'service with a smile' enough? Authenticity of positive displays during service encounters." Organizational Behaviour and Human Decision Processes, 2005; 96:38-55.
20. Grayson J, Proctor B. Neuro linguistic Programming, Introduction to counselling and psychotherapy. 2000; 12:159-171.
21. Herzberg F. Mausner, B; Snyderman, B.B. The Motivation Work, 2nd ed., New York: John Wiley.
22. Kirikal L, Tallinna T. Productivity, the Malmquist index and the empirical study of banks in Estonia, Tallinn Technical University Press; 2005.
23. Landsberger HA. Hawthorne Revisited, Cornell University, Ithaca, NY, 1958.
24. Loewenstein G, Lerner JS. "The role of affect in decision-making." In R. Davidson,
25. K Scherer, H Goldsmith (eds.), Handbook of Affective Sciences: 2003, 619-642.
26. Marshall M, Marshall E. Logotherapy Revisited: Review of the Tenets of Viktor E. Frankl's Logotherapy, Ottawa Institute of Logotherapy, 2012.
27. Maslow AH. A theory of human motivation, Psychological Review, 1943; 50(4):370-396.
28. Mayer JD, Salovey P, Caruso DR. Manual for the MSCEIT Mayer-Salovey-Caruso Emotional Intelligence Test. Toronto, ON: Multi-Health Systems, 2002.

29. Mayer JD, Salovey P, Caruso DR, Sitaremos G. "Measuring emotional intelligence with the MSCEITV2.0." *Emotion*. 2003; 3:97-105.
30. Mayer JD, Salovey P, Caruso DR. Models of emotional intelligence. In R. J. Sternberg (Ed.), *The handbook of intelligence*. New York: Cambridge University Press, 2000, 396-420.
31. Mayer JD, Caruso DR, Salovey P. Emotional intelligence meets traditional standards for an intelligence. *Intelligence*, 1999; 27(4):267-298
32. Maylor EA. "Aging and forgetting in prospective and retrospective memory tasks." *Psychology and Aging*, 1993; 8:420-428.
33. McLendon TL. *The Wild Days: NLP 1972 - 1981*, Cupertino, California: Meta Publications, 1989.
34. Nasel D. *Spiritual Orientation in Relation to Spiritual Intelligence: A consideration of traditional Christianity and New Age/individualistic spirituality (Doctoral dissertation)*. University of South Australia, Australia, 2004.
35. Ostadi R, Zarehpour E. Emotional intelligence and its usage in HR management field in 21st century. *Social Science Journal*, 2009; 44:167-188.
36. Pelz SL. *NLP Coaching: An Evidence-Based Approach for Coaches, Leaders and Individuals*, 2010, 81-82.
37. Pritchard R. D. *Productivity measurement and improvement: Organizational case studies*, Greenwood Publishing Group; 1995.
38. Rafaeli A, Sutton RI. Expression of emotion as part of the work role." *Academy of Management Review*, 1987; 12:23-37.
39. Rantanen H. The effects of productivity on profitability: a case study at firm level using an activity-based costing approach. *LTKK Tieteellisiä julkaisuja-Research Papers* 1995.
40. Rantanen H, Kulmala HI, Lönnqvist A, Kujansivu P. Performance measurement systems in the Finnish public sector. *International Journal of Public Sector Management* 2007; 20:415-433.
41. Salovey P, Mayer JD. Emotional intelligence. *Imagination, Cognition and Personality*, 1990; 9(3):185-211.
42. Saxena S, Saxena S. Impact of Cognitive and Emotional Intelligence on Quality Education. *I.J. Modern Education and Computer Science*, 2012; 10:47-58
43. Seo MG, Barrett LF, Bartunek J. "The role of affective experience in work motivation." *Academy of Management Journal*, 2004; 29:423-439.
44. Sheth JN, Sisodia RS. *Marketing productivity: issues and analysis*. Journal of Business Research 2002; 55:349-362.
45. Smith GA, Stanley G. "Comparing subtest profiles of g loading and correlations with RT measures." *Intelligence*, 1987; 11:291-298.
46. Steiner C. Emotional literacy. *Transactional Analysis Journal*. 1984; 14(3):162-173.
47. Sternberg R. *Nature of creativity*. Yale University Press, 1997.
48. Sutton RI. "Maintaining norms about expressed emotions: The case of bill collectors." *Administrative Science Quarterly*, 1991; 36:245-268.
49. Thorndike RK. *Intelligence and its uses*. Harper's Magazine, 1920; 140:227-335.
50. Tosey, P. & Mathison, J. 'Neuro-linguistic Programming and Learning Theory: a response', *The Curriculum Journal*, 2003; 14(3):361-378.
51. Turnage JJ, Muchinsky PM. "A comparison of the predictive validity of assessment center evaluations versus traditional measures in forecasting supervisory job performance: Interpretive implications of criterion distortion for the assessment paradigm." *Journal of Applied Psychology*. 1984; 69:595-602.
52. Vroom VH. *work and motivation*, CA: Jossey-Bass, San Francisco, 1964 .
53. Weiner B. An Attributional theory of achievement, motivation and emotion, *Psychological Review*, 1985; 92(4):548-573.

Relationship between Sensex and Selected Macroeconomic Variables: a Study based on VAR Model

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ABSTRACT: *In recent times, research on stock market is very important topic for the researchers, academicians and practitioners due to the pervasiveness of its nature. In this study we tries to investigate the causal relationship in between Sensex and select macroeconomic variables in terms of gold price, consumer price index, crude oil price, exchange rates and money supply (M1). Earlier it was observed that change in the structure of macroeconomic variables provide a severe impact in the stock market of the developing countries like India. In this context it is important to mention here that macroeconomic variables play a crucial role for achieving the stability of an economy. Monthly time series data were collected from April 1995 to March 2018 with 276 observations from BSE database, RBI database, U.S. energy information and administration database, labour bureau database and world gold council database for conducting this study. Initially all the selected data series were transformed into natural logarithm for the purpose of reduction of heteroscedasticity problem. After that ADF and PP unit root test techniques were followed for testing Stationarity of the data. Both the unit root test result shows that selected time series data is non-stationary at level but stationary at 1st differenced and also the series is integrated in same order. The impulse response test results show that the majority of innovations arising from selected macroeconomic variables are significant in describing movements in the stock market. The variance decomposition test results indicate that selected macroeconomic variables are less competent in signalling movements in the stock market. This reveals the predictive capability and effectiveness of the Indian stock market.*

Keywords: *Sensex, macroeconomic variables, unit root tests, impulse response, variance decomposition test.*

1. Introduction

The stock market of any country is considered as one of the most important segment because this market helps to arrange the entire amount of share capital for any company from the investors. The investors of any economy will be interested to invest their hard earned money to any company if the share market through which they wants to invest is well developed enough or not. There are so many factors which may influence stock market of any country like the political, economic and socio-cultural activities of such country. Thus, every investor must be careful and aware of such activities before making their investment as it may lead to waste of money due to wrong decision. The investor must also carefully observe the activities of the respective stock markets as a whole before investing funds. It is well known that the stock market, especially the stock markets of developing countries are very sensitive to the basic changes in the structure of macroeconomic variables. Macroeconomic variables play an imperative responsibility in attaining the stability of an economy. Stock market is considered as one of the most important foundation of the country's economy and it is also very cautiously observed by the different bodies of the government, investors and the companies (Nazir *et al.*,⁽¹⁾ 2010). So, it is said that the policy makers of any economy and also the researchers always keep their eyes on the changes the activities of the stock market. Because stock market is the only way for running the economy in a smooth and risk free path which ultimately leads to financial stability and helps to create healthy economy. The relations and impact between stock market and the macroeconomic variables in terms of gold price, silver price, crude oil price, exchange rate, consumer price index, wholesale price index, interest rate, money supply, call money rates, foreign direct investment, GDP growth rate etc. especially in India have been a subject of interest among academicians, researchers and practitioners over the past few decades. It is also evident that now a day the performance of Indian stock market is also analyzed very carefully by a large number of foreign players. A large number of foreign researcher, academicians and others recently analysed the performance of Indian stock market very critically. There are different dimension of modern research on Indian stock market whereas most of the researchers conducted their research work to identify the impact of macroeconomic variables on Indian stock market. This approach of the policy makers, foreign investors, domestic investors, traders, and academic researchers (Tripathy,⁽²⁾ 2011; Arora,⁽³⁾ 2012; Patel,⁽⁴⁾ 2012; Yahyazadehfar and Babaie,⁽⁵⁾ 2012; Bhunia,⁽⁶⁾ 2013) gives

us a new dimension in the modern research activities. Keeping in view of this, we assess the causal relationships between the macroeconomic variables and the Indian stock market in terms of Sensex.

II. Review of Literature

Numbers of studies have been carried out to examine the effects of financial variables on stock market of developed economies. Ali *et al.*⁽⁷⁾(2010) inspected the causal relationship between selected macro-economic variables like, inflation, exchange rate, balances of trade and index of industrial production, on Karachi Stock Exchange, Pakistan using monthly data from June 1990 to December 2008. Analysing the data it was concluded by the researcher that co-integration exists between industrial production index and stock exchange prices. On the other hand, no causal relationship was found between selected macro-economic variables and Karachi Stock Exchange during the study period. Samanta and Zadeh⁽⁸⁾ (2012) considered daily World Gold price, World Oil Price, real exchange rate of US Dollar and US Stock Price from January 1989 to September 2009 with more than 5200 observations using Granger Causality test. The result of causality test shows that there no causality exists between stock price and gold price but causality exists between oil price and exchange rates. Yahyazadehfar and Babaie⁽⁵⁾ (2012) tried to ascertain the impact of selected macroeconomic variables e.g. gold price, housing price index and interest rate on Iran capital market i.e. on Tehran Exchange Dividend Price Index (TEDPIX). For conducting this study the researchers collected monthly data from March, 2001 to April, 2011 based on Vector Auto Regression (VAR) model and Johansen-Juselius Cointegration model. Johansen-Juselius Cointegration Model shows a positive relationship in between TEDPIX and housing price index, but the result shows negative relationship between nominal interest rate and gold price with stock price. Impulse-Response Functions shows that stock price reaction to the shocks of other variables was very fast during the study period. Ibrahim and Musah⁽⁹⁾ (2014) investigates the consequence of selected macroeconomic variables on stock market returns in Ghana using monthly time series data from September, 2000 to September, 2010. Johansen multivariate cointegration approach and Vector Error Correction Model were used to come into a conclusion. Result shows the long-run relationship between macroeconomic variables and stock returns in Ghana. But on the other hand, causality from any direction between selected macroeconomic variables and stock prices of Ghana were evident using Granger causality test. Kabeer *et al.*⁽¹⁰⁾(2016) conducted this research to explore the impact of selected macroeconomic variables such as FDI, Foreign Exchange Rate, Gold Price, Inflation and Oil Price on Karachi Stock Exchange, Pakistan. The Durbin-Watson statistics of value 1.90 indicate that there does not exist any serial correlations in study. The researchers concluded that there was a significant negative impact of inflation, foreign direct investment and Foreign exchange rate on KSE. Tripathy⁽²⁾ (2011) considered selected Macroeconomic variables and the Indian stock market to identify the causal relationship and market efficiency using weekly data from January, 2005 to February, 2011. The study considered Unit Root test, Granger Causality test, Ljung-Box Q test and Breusch-Godfrey LM test. In this study autocorrelation in the Indian stock market and macroeconomic variables exists. On the other hand, the Granger-causality test reflects bidirectional causal relationship between interest rate and stock market as well as exchange rate and stock market. The researcher concluded that there was a unidirectional causality running from international stock market to domestic interest rate, stock market, inflation rate and exchange rate. Makan *et al.*⁽¹¹⁾(2012) try to investigate the relationship between selected macroeconomic variables and BSE Sensex completely in Indian Context. The study considered regression, ADF Unit root test, Granger causality test using monthly data from April, 2005 to March, 2012. Based on the overall analysis and sectoral analysis the researchers concluded that out of the selected seven variables only three variables (i.e. exchange rate, foreign institutional investment and call rate) had significant influence on Indian stock market. There is a positive relation between FII and call rate with Sensex but on the other hand, there was a negative relation in between exchange rate and Sensex. Granger Causality Test result shows that except FMCG Sector, call rate was considered as an affecting factor on BSE Sensex and regression analysis shows that exchange rate and FII is affecting the entire selected sector. Naik and Padhi⁽¹²⁾ (2012) try to investigate the relationships between the BSE Sensex and selected five macroeconomic variables, viz., Money Supply (M₃), Wholesale Price Index, Industrial Production Index, Exchange Rates and Treasury Bills Rates using monthly data from April, 1994 to June, 2011. Result of the analysis shows that selected macroeconomic variables and the BSE Sensex are cointegrated and, therefore, there exists a long-run equilibrium relationship in between them. In the Granger causality test shows that causal relationship exists between selected macroeconomic variables and stock market in the long-run, not in the short-run. The result shows bidirectional causality between industrial production and stock prices. But on the other hand there was a unidirectional causality exists between share price to inflation, money supply to share price and interest rates to share prices. The research paper of Patel⁽⁴⁾ (2012) conducted a detailed study to investigate the

effect of eight macroeconomic (such as Gold Price, Silver Price, Index of Industrial Production, Exchange Rate, Money Supply, Inflation, Interest Rate & Oil Price) on the performance of the Indian Stock Market (i.e. Sensex and S&P CNX Nifty). The study considered monthly data for the selected variables from January, 1991 to December, 2011. Cointegration results pointed out that there exist long run relationship between the selected macroeconomic variables and stock market indices during the select time period. The Granger causality results also revealed the causality were running from exchange rate to stock market indices to IIP and Oil Price. Sireesha⁽¹³⁾ (2013) studied the relationship among Inflation Rate, GDP, IIP, Money Supply (M_3), Exchange Rate (in terms of USD-INR, GBP-INR, EUR-INR and JPY-INR), FIIs and Domestic Institutional Investors, Gold price and Silver Price with S&P CNX Nifty based on monthly data from January, 1993 to December, 2012 covering 240 data set over the 20 years of time span. The study concludes that S&P CNX Nifty returns are significantly influenced by inflation, GDP, USD-INR and JPY-INR. Venkatraja⁽¹⁴⁾ (2014) tries to investigate the association involving the performance of BSE Sensex, India with selected five macroeconomic variables, such as WPI, IIP, FII, Gold Price and Exchange Rate using monthly time series data from April, 2010 to June, 2014. The regression analysis shows that out of the selected five variables WPI, IIP, FII and Exchange Rate had high degree of positive influence on Sensex during the study period. It was also noticed that Sensex was inversely predisposed by changes in price of gold. The researcher came into conclusion that all the selected variables had significant impact on the Indian stock market performance during the study period. In the research paper of Aggarwal and Saqib⁽¹⁵⁾ (2017) it was observed that the researcher tried to investigate the effect of changes in selected macroeconomic variables (FII, IIP, WPI, exchange rate, gold price and fiscal deficit) on Nifty 50 index. Along with these selected variables, few other macroeconomic variables based on USA like interest rate, inflation and GDP and S&P Index were also considered in the study. Monthly data from 2001 to 2016 were considered in this study. On the basis of the analysed data as well as result, it was concluded by the researcher that Nifty 50 index was significantly affected by the selected macroeconomic variables and indices (US GDP, S&P index, Indian WPI, fiscal deficit, gold prices, IIP and exchange rate) during the study period. In the thesis of Ajayakumar⁽¹⁶⁾ (2017) it was found that the researcher tried to examine the relationship between selected macroeconomic variables (like Interest Rates, Inflation, Money Supply, Exchange Rate and Oil Prices) with Nifty Realty Index using average annual data from 2006 to 2016. After testing proper tools the researcher concluded that Inflation, Money Supply and Crude Oil Prices had a negative impact on Nifty Realty Stock Index whereas Interest Rates and Exchange Rate had a positive effect on Nifty Realty Stock Index. Keeping in view of the above literature survey obviously the research question must arises whether there is any short-run and long-run causality running from selected financial variables to sensex or not.

Overall, the literature demonstrates that causal relationship exist between the stock prices and the macroeconomic variables, irrespective of geographical closeness. Drawing on this, we assess the causal relationships and prospective for the economic development in a sample of macroeconomic variables with respect to Sensex.

III. Data and Methodology

This study is purely based on secondary data collected from BSE database, RBI database, U.S. Energy Information and Administration database, Labour Bureau database and World Gold Council database. Monthly data from April, 1995 to March, 2018 with 276 observations were considered to conduct this study. Monthly data of Crude Oil Price (COP) and Indian Gold Price (GP) and have been considered as commodity indicators at the same time as significant importing indicators, Consumer Price Index (CPI) and Money Supply (M_1) has been used as economic growth of India, Exchange Rates (ER) in terms of dollar versus rupee has been as a signal of dollar demand in India as well as trade deficit position and closing monthly stock market index of Bombay Stock Exchange (SENSEX) has been taken as economic mirror of India for the preferred periods. Finally all the data series were transformed into natural logarithm.

For examining the data initially the test of stationarity was conducted using ADF (Augmented Dickey-Fuller) and PP (Phillips-Perron) unit root techniques, and then Johansen cointegration technique and Vector Error Correction Model (VECM) and Wald test have been used in this research effort.

IV. Empirical Results and Analysis

4.1 Descriptive Statistics

Descriptive statistics contain the description of mean, median, standard deviation; kurtosis, skewness and J-B statistics with probability for the selected macroeconomic variables and stock market indices which are exposed in Table 1. It is viewed that mean and standard deviation of the particular series have highest mean.

Skewness, kurtosis and Jarque-Bera statistic with probability designates that none of the series are normally distributed.

Table 1: Descriptive Statistics

	COP	CPI	ER	GP	M1	SENSEX
Mean	3.79	6.43	3.86	9.18	8.99	9.13
Median	3.87	6.32	3.82	9.08	9.05	9.25
Maximum	4.89	7.15	4.22	10.32	11.36	10.49
Minimum	2.42	5.68	3.44	8.17	7.56	7.94
Std. Dev.	0.61	0.42	0.18	0.78	0.86	0.83
Skewness	-0.21	0.23	0.23	0.15	-0.04	-0.02
Kurtosis	1.87	1.81	2.52	1.34	1.74	1.39
Jarque-Bera	16.62	18.65	5.15	32.52	18.25	29.48
Probability	0.00	0.00	0.07	0.00	0.00	0.00
Observations	276	276	276	276	276	276

4.2 Correlation Statistics

Correlation statistics in Table 2 reveal that BSE-Sensex and all the macroeconomic variables shows high (excluding exchange rate) positive correlation under the study. However, this result does not utter about the description and shock in terms of causality. With the intention of imply an undisclosed explanation of the shock; it is very much mandatory to perform Johansen co-integration and Granger Causality Test between the selected variables.

Table 2: Correlation Statistics

	COP	CPI	ER	GP	M1	SENSEX
COP	1.00					
CPI	0.70	1.00				
ER	0.45	0.90	1.00			
GP	0.79	0.95	0.77	1.00		
M1	0.79	0.96	0.81	0.95	1.00	
SENSEX	0.80	0.92	0.71	0.94	0.95	1.00

4.3 Unit root test results

Before conducting cointegration method, it is very much important to check the stationarity of the data. In this study we used Augmented Dickey-Fuller Unit Root Test and Phillips-Perron Test for this purpose. This test is very much helpful to examine the cointegration association between the Sensex and selected macroeconomic variables in the long-run if time series data is not stationary at level but it is stationary at 1st differenced, that is, after converting the raw data into the 1st differenced. So, ADF and PP unit root test has been applied whether the data is stationary at 1st differenced or not. From the results it was observed that all the selected data are non stationery at level and stationery at 1st difference.

Table 3: ADF and PP Unit Root Test Results

Variable	At level				At 1 st differenced			
	ADF t-stat	PP t-stat	C.V. at 5%	Decision	ADF t-stat	PP t-stat	C.V. at 5%	Decision
COP	-1.42	-1.60	-2.87	NS	-12.65	-12.69	-2.87	S
CPI	-0.18	-0.60	-2.87	NS	-3.29	-11.78	-2.87	S
ER	-1.27	-1.48	-2.87	NS	-6.28	-12.67	-2.87	S
GP	-0.10	-0.10	-2.87	NS	-12.62	-15.53	-2.87	S
M1	-0.76	-1.13	-2.87	NS	-5.79	-204.6	-2.87	S
SENSEX	-0.45	-0.51	-2.87	NS	-16.15	-16.19	-2.87	S

4.4 Pairwise Granger Causality Tests

Causality test generally conducted to find out any causal relationship between the selected variables in a time series data set. Alternatively it may be said that this test helps to identify whether one of the selected variables can be used for predicting another variables or not. Analysing the data (at lag length 3) it was found there does not exists any granger causality relationship among the selected variables in the time series data except in between Sensex with Crude Oil Price and with Exchange Rate as in this two cases it reject null hypothesis. In other words it may be said that there shows a one way causal relationship in between Sensex and Crude Oil Price as well as Sensex and Exchange Rate.

Table 4: Pairwise Granger Causality Tests

Null Hypothesis:	Obs	F-Statistic	Prob.
LCOP does not Granger Cause LBSE	273	0.16499	0.9199
LBSE does not Granger Cause LCOP		4.50071	0.0042
LCPI does not Granger Cause LBSE	273	2.25616	0.0822
LBSE does not Granger Cause LCPI		1.90372	0.1293
LER does not Granger Cause LBSE	273	2.39276	0.0689
LBSE does not Granger Cause LER		4.07519	0.0075
LGP does not Granger Cause LBSE	273	1.93874	0.1237
LBSE does not Granger Cause LGP		1.57485	0.1958
LM1 does not Granger Cause LBSE	273	2.58545	0.0536
LBSE does not Granger Cause LM1		2.63319	0.0504

4.5 Impulse Response Test

Impulse Response Test is carried out with the objective to find out whether there is any signalling system exists among the selected time series data through which one variable push the responsiveness of another variable during the study period. Due to some external changes, there might observe certain changes of the selected variables and this is exactly termed as Impulse Response. In our study the results (Table – 5) show that the majority of innovations arising from selected macroeconomic variables are significant in describing movements in the stock market.

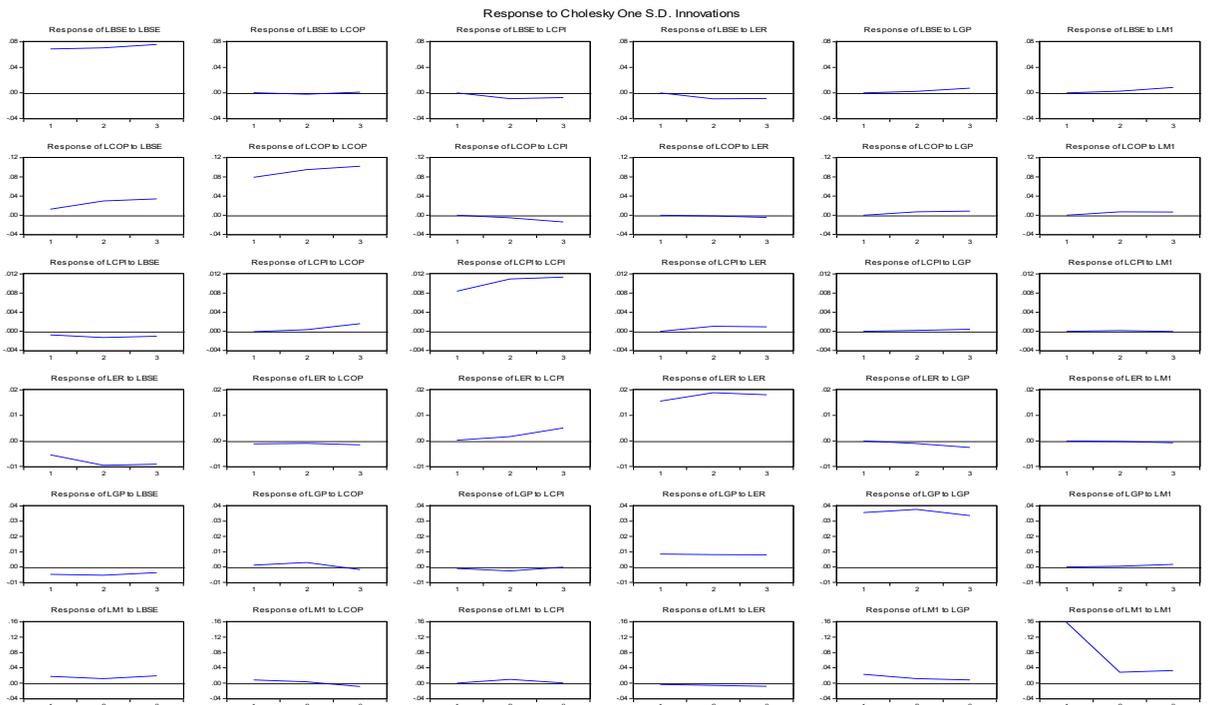
Table 5: Impulse Response Test

Response of LBSE:						
Days	LBSE	LCOP	LCPI	LER	LGP	LM1
10	0.068599	0.000000	0.000000	0.000000	0.000000	0.000000
20	0.070388	-0.002307	-0.009168	-0.009492	0.002322	0.002397
30	0.075810	0.001026	-0.007633	-0.009056	0.007327	0.008279
Response of LCOP:						
Days	LBSE	LCOP	LCPI	LER	LGP	LM1
10	0.012246	0.079039	0.000000	0.000000	0.000000	0.000000
20	0.029560	0.095110	-0.005641	-0.001903	0.007047	0.006951
30	0.033813	0.102267	-0.014262	-0.005037	0.008260	0.006515
Response of LCPI:						
Days	LBSE	LCOP	LCPI	LER	LGP	LM1
10	-0.000771	-0.000107	0.008363	0.000000	0.000000	0.000000
20	-0.001305	0.000339	0.010920	0.001037	0.000179	0.000131
30	-0.001033	0.001595	0.011314	0.000922	0.000428	-7.65E-05
Response of LER:						
Days	LBSE	LCOP	LCPI	LER	LGP	LM1
10	-0.005480	-0.001232	0.000261	0.015539	0.000000	0.000000
20	-0.009601	-0.001000	0.001661	0.018844	-0.001076	-0.000269
30	-0.009147	-0.001598	0.005048	0.018044	-0.002580	-0.000801
Response of LGP:						

Days	LBSE	LCOP	LCPI	LER	LGP	LM1
10	-0.004797	0.001264	-0.001012	0.008520	0.035650	0.000000
20	-0.005335	0.003007	-0.002523	0.008181	0.037772	0.000448
30	-0.003693	-0.001664	-9.40E-05	0.008033	0.033630	0.001682
Response of LM1:						
Days	LBSE	LCOP	LCPI	LER	LGP	LM1
10	0.017411	0.008378	-9.79E-05	-0.003685	0.022782	0.158565
20	0.011695	0.003518	0.009961	-0.006049	0.011838	0.028505
30	0.019253	-0.008795	0.000394	-0.008269	0.008046	0.032986

Cholesky Ordering: LBSE LCOP LCPI LER LGP LM1

Figure 1: Impulse Response Test



4.6 Variance Decomposition Test

During the next part of analysis we move towards the Variance Decomposition Tests. In econometrics analysis which basically deals with multivariate time series analysis, a variance decomposition test is normally used to assist in the explanation of a Vector Auto Regression (VAR) model once it has been fitted. With the help of the variance decomposition test, it can easily be identifiable that any information of one variable contributes to auto regression of other variables. On the other hand this test also helps to determines how long the shocks of particular variables help to predict the shocks of the other variables. The variance decomposition test results (Table – 6) indicate that selected macroeconomic variables are less competent in signalling movements in the stock market. This reveals the predictive capability and effectiveness of the Indian stock market.

Table 6: Variance Decomposition Test

Variance Decomposition of LBSE:							
Period	S.E.	LBSE	LCOP	LCPI	LER	LGP	LM1
1	0.068599	100.0000	0.000000	0.000000	0.000000	0.000000	0.000000
2	0.099252	98.06497	0.054006	0.853239	0.914696	0.054743	0.058342
3	0.125943	97.13664	0.040176	0.897272	1.085095	0.372420	0.468393

Variance Decomposition of LCOP:

Period	S.E.	LBSE	LCOP	LCPI	LER	LGP	LM1
1	0.079982	2.344271	97.65573	0.000000	0.000000	0.000000	0.000000
2	0.128259	6.223433	92.96551	0.193410	0.022009	0.301911	0.293730
3	0.168498	7.632808	90.70163	0.828482	0.102118	0.415266	0.319701
Variance Decomposition of LCPI:							
Period	S.E.	LBSE	LCOP	LCPI	LER	LGP	LM1
1	0.008399	0.842459	0.016165	99.14138	0.000000	0.000000	0.000000
2	0.013883	1.191367	0.065516	98.15982	0.557793	0.016604	0.008899
3	0.018039	1.033609	0.820842	97.48078	0.591485	0.066217	0.007067
Variance Decomposition of LER:							
Period	S.E.	LBSE	LCOP	LCPI	LER	LGP	LM1
1	0.016525	10.99518	0.555929	0.024926	88.42396	0.000000	0.000000
2	0.026932	16.84659	0.347063	0.389806	82.24708	0.159498	0.009957
3	0.034205	17.59593	0.433339	2.419539	78.82227	0.667852	0.061065
Variance Decomposition of LGP:							
Period	S.E.	LBSE	LCOP	LCPI	LER	LGP	LM1
1	0.037001	1.680693	0.116678	0.074779	5.301524	92.82633	0.000000
2	0.053915	1.770788	0.366116	0.254131	4.799563	92.80251	0.006893
3	0.064200	1.579740	0.325403	0.179446	4.950493	92.89145	0.073466
Variance Decomposition of LM1:							
Period	S.E.	LBSE	LCOP	LCPI	LER	LGP	LM1
1	0.161396	1.163751	0.269439	3.68E-05	0.052132	1.992517	96.52212
2	0.165186	1.612241	0.302580	0.363631	0.183868	2.415722	95.12196
3	0.170164	2.799471	0.552284	0.343204	0.409381	2.500027	93.39563
Cholesky Ordering: LBSE LCOP LCPI LER LGP LM1							

V. Conclusions

The primary findings of the study is that all the chosen time series data is non-stationary at level but stationary at 1st differenced and also the series is integrated in same order, which is an indication for cointegration test and vector error correction model test for determining long-run relationship between Sensex and selected five financial variables in terms of crude oil price, Indian gold price, consumer price index, money supply and exchange rates. The impulse response test results show that the majority of innovations arising from selected macroeconomic variables are significant in describing movements in the stock market. The variance decomposition test results indicate that selected macroeconomic variables are less competent in signalling movements in the stock market. This reveals the predictive capability and effectiveness of the Indian stock market.

References

1. Nazir MS, Nawaz MM, Gilani UJ. Relationship between Economic Growth and Stock Market Development, African Journal of Business Management, 2010;4(16):3473-3479.
2. Tripathy DN. Causal Relationship between Macro-Economic Indicators and Stock Market in India, Asian Journal of Finance & Accounting, 2011;3(1):208-226.
3. Arora S. Information Content of Stock Market, Gold & Exchange Rate: An Indian Market Perspective, a dissertation paper submitted to Jindal Global Business School, 2012. Available from: <https://www.slideshare.net/SukantArora/final-draft-20100040-13836194>. [Accessed December 2, 2018].
4. Patel S. The effect of Macroeconomic Determinants on the Performance of the Indian Stock Market, NMIMS Management Review, 2012;XXII:117-127.
5. Yahyazadehfar M, Babaie, A. Macroeconomic Variables and Stock Price: New Evidence from Iran, Middle-East Journal of Scientific Research, 2012;11(4):408-415.
6. Bhunia A. Cointegration and Causal Relationship among Crude Price, Domestic Gold Price and Financial Variables-An Evidence of BSE and NSE, Journal of Contemporary Issues in Business Research. 2013; 2(1):1-10.

7. Ali I, Rehman K U, Yilmaz A K, Khan M A, Afzal H. Causal Relationship between Macro-Economic Indicators and Stock Exchange Prices in Pakistan, *African Journal of Business Management*, 2010; 4(3): 312-319.
8. Samanta SK, Zadeh AHM. Co-Movements of Oil, Gold, the US Dollar, and Stocks, *Modern Economy*, 2012; 3(1):111-117.
9. Ibrahim M, Musah A. An Econometric Analysis of the Impact of Macroeconomic Fundamentals on Stock Market Returns in Ghana, *Research in Applied Economics*, 2014;6(2):47-72.
10. Kabeer M A, Iqbal A, Najaf R, Najaf K. The Influences of Macro-Economic Factors on Capital Market Performance in Pakistan, *International Journal of Research – GRANTHAALAYAH*, 2016; 4(2): 135-150.
11. Makan C, Ahuja AK, Chauhan S. A Study of the Effect of Macroeconomic Variables on Stock Market: Indian Perspective, MPRA Paper No. 43313, 2012, Available from: <http://mpra.ub.uni-muenchen.de/43313/> [Accessed November 22, 2018].
12. Naik P K, Padhi P. The Impact of Macroeconomic Fundamentalson Stock Prices Revisited: Evidence from Indian Data, *Eurasian Journal of Business and Economics*, 2012;5(10):25-44.
13. Sireesha P B. Effect of Select Macro Economic Variables on Stock Returns in India, *International Journal of Marketing, Financial Services & Management Research*, 2013;2(6):197-209.
14. Venkatraja B D. Impact of Macroeconomic Variables on Stock Market Performance in India: An Empirical Analysis, *International Journal of Business Quantitative Economics and Applied Management Research*, 2014;1(6):71-85.
15. Aggarwal P, Saqib N. Impact of Macro Economic Variables of India and USA on Indian Stock Market, *International Journal of Economics and Financial Issues*, 2017; 7(4):10-14.
16. Ajayakumar S. A Study on the Relationship between NIFTY Realty Stock Index and Macroeconomic Variables, Thesis for Bachelor of Business Administration, 2017. Available from:https://www.researchgate.net/publication/315750181_A_Study_on_the_Relationship_between_NIFTY_Realty_Stock_Index_and_Macroeconomic_Variables. [Accessed November 30, 2018]

Relationship between non-organic fertiliser and cereal production in agriculture: A study with special emphasis on environment in India

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ABSTRACT: *Fertilization increases efficiency and obtains better quality of product recovery in agricultural activities. Non-organic fertilizers mainly contain phosphate, nitrate, ammonium and potassium salts. Fertilizer industry is considered to be source of natural radio nuclides and heavy metals as a potential source. It contains a large majority of the heavy metals like Hg, Cd, As, Pb, Cu, Ni, and Cu; natural radionuclide like 238U, 232Th, and 210Po. However, in recent years, fertilizer consumption increased exponentially throughout the world, causing serious environmental problems. Fertilization may affect the accumulation of heavy metals in soil and plant system. Plants absorb the fertilizers through the soil; they can enter the food chain. Thus, fertilization leads to water, soil and air pollution. The main focus of this study is to identify the relationship between non-organic fertilizers and cereal production in India. This study also tries to show whether there is any relationship between fertiliser use and Nitrous oxide gas emission or not. The study used product-moment correlation, co-integration technique to analyse the objectives. The study concludes that there is no long run relationship between non-organic fertilizers and cereal production in India. But there is positive correlation between Nitrous oxide gas emission and fertiliser use. The study takes the help of secondary data which has been analysed and concluding observations made.*

Keywords: *Agriculture, Cereal Production, Environment, Fertiliser*

I. Background of the Study

Fertilization increases efficiency and obtains better quality of product recovery in agricultural activities. Non-organic fertilizers mainly contain phosphate, nitrate, ammonium and potassium salts. Fertilizer industry is considered to be source of natural radio nuclides and heavy metals as a potential source. It contains a large majority of the heavy metals like Hg, Cd, As, Pb, Cu, Ni, and Cu; natural radionuclide like 238U, 232Th, and 210Po.

A chemical fertiliser is defined as any inorganic material of wholly or partially synthetic origin that is added to the soil to sustain plant growth. Many artificial fertilizers contain acids, such as sulphuric acid and hydrochloric acid, which tend to increase the acidity of the soil, reduce the soil's beneficial organism population and interfere with plant growth. There are some advantages for which the application of non – organic fertiliser is beneficial. Chemical fertiliser is easy to find everywhere and its application procedure is also very easy. It is available in pellets, granules, liquid, tablets, spikes and slow-release to suit every preference.

Though the application of non-organic fertiliser has advantages it has some disadvantages also. Its life span is very short, unless using a controlled release form. The basic synthetic elements contribute nothing to enhance soil fertility. Chemical nitrogen stimulates the growth of existing microorganisms, which then use up organic matter in the soil. Repeating this cycle regularly leaves soil depleted. Synthetic fertilizer is salt. Over-concentration can cause dehydration and plant tissue is destroyed. The Excess phosphorous can collect in the soil and cause pollution problems. As nitrogen is volatile, it is lost easily into the atmosphere as and when fertilizer is left on the ground and not watered into the soil. It is also lost from bags in storage, if not sealed properly. Use of fertiliser in agriculture has a great impact on environment. Environment can negatively affected by the repeatedly use of fertiliser. It causes emission of some greenhouse gases which affect the environment in terms of Global Warming.

Gases that trap heat in the atmosphere are called greenhouse gases (GHGs). According to 2013 estimates from the Environmental Protection Agency (EPA), agriculture generates 9% of the US GHG emissions. The main GHGs of concern for agriculture are carbon dioxide (CO₂), methane (CH₄), and nitrous oxide (N₂O). For comparison purposes, GHGs are characterized by their “global warming potential” (GWP), a measure of how much heat each gas can trap over a 100 year period relative to CO₂. The GWP of CO₂ is set at 1 versus 24 for CH₄ and 298 for N₂O making N₂O a gas of interest for agriculture. Nitrous oxide emission is primarily driven by soil management practices and represents an estimated 44% (GWP basis) of the total agriculture-

related GHG emissions. Paul Crutzen in his study (2008) concludes that the amount of nitrous oxide release from the agricultural nitrate fertilizers has been seriously underestimated. A study by Grossman (2009) concludes N₂O emission as the single most important ozone-depleting substance (ODS) emission.

However, in recent years, fertilizer consumption increased exponentially throughout the world, causes serious environmental problems. According to the Singh (2013) production and consumption of Nitrogen and Phosphorus fertilizer is increasing in India. Mazid and Khan (2015) also show positive relationship between bio-fertilizer and agriculture production. Fertilization may affect the accumulation of heavy metals in soil and plant system. Plants absorb the fertilizers through the soil; they can enter the food chain. Thus, fertilization leads to water, soil and air pollution.

The main focus of this study therefore is to identify the relationship between non-organic fertilizers and cereal production in India. This study is also trying to show whether there is any relationship between fertiliser use and Nitrous oxide gas emission or not.

II. Objectives of the Study

1. To find the relationship if any, between fertilizer consumption and food grain production in India.
2. To find the relationship if any, between fertilizer consumption and nitrous oxide gas emission in India.

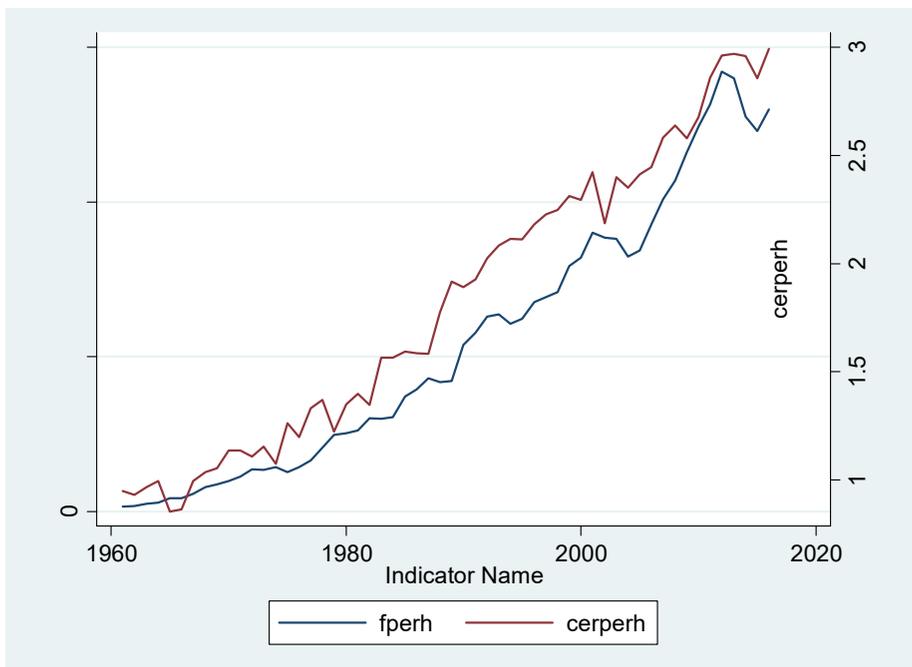
III. Methodology of the Study

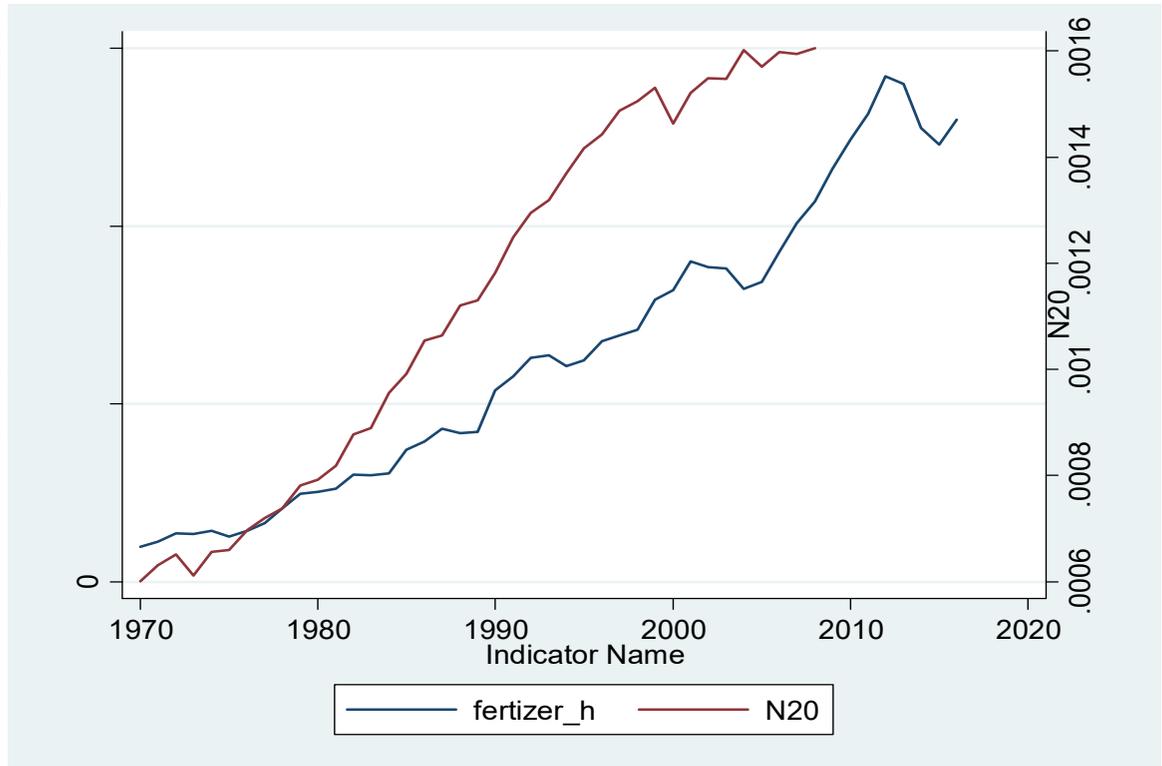
The study uses the data on fertilizer consumption/hectare , food grain production/hectare, agricultural nitrous oxide emission in India for the period 1960 to 2016. Since this is a time series data , the methodology used is to first check whether the variables in the time series are stationary or not. For this purpose, the Augmented Dickey-Fuller (ADF) test was undertaken. A series is said to be stationary if the mean & covariance are constant over time & the auto-covariance of the series depends only on the lag between two time periods & not on the actual time at which the co-variance is calculated. If the time series are not stationary at level Co-integration test is used to test the long run relationship. The long run relationship between fertilizer consumption and food grain production from 2000 to 2017 was estimated by Co-integration analysis.

IV. Analysis and Findings

The figure -1 depicts the increasing trend of fertilizer consumption/hectare and food grain production/hectare.

Figure 1: Fertilizer consumption/hectare and food grain production/hectare from 1960-2016.





Nearly 72 % of the total nitrous oxide emission is from the agriculture. The study reveals that fertilizer used per hectare and agricultural nitrous oxide emissions per hectare have a correlation of 0.95.

V. Concluding Observations

The fertilizer is actually playing a dual role in agriculture. On the one hand it has an impact on the food grain production on the other hand it increases the agricultural nitrous oxide emission per hectare. The large emission of nitrous oxide gas has negative impact on the environment. Bio fertiliser also emits nitrous oxide. Climate scientists have assumed that the cause of the increased nitrous oxide was nitrogen-based fertilizer, which stimulates microbes in the soil to convert nitrogen to nitrous oxide at a faster rate than normal. Therefore we raise here some pertinent questions like how the emission of nitrous oxide from agriculture due to the uses of fertilizer can be control to decrease the GHGs and is there any other compound, other than nitrogen which can be used as fertilizer which will form our future area of study.

References

1. Crutzen PJ, Mosier AR, Smith KA, Winiwarter W. "N2O release from agro-biofuel production negates global warming reduction by replacing fossil fuels". Atmospheric Chemistry and Physics, 2008.
2. Edwards ,C.A., and Lofty ,J.R., –Nitrogenous fertilizers and earthworm populations in agricultural soils, Soil Biology and Biochemistry. 1982; 14:515–521.
3. Grossman, Lisa. "Laughing gas is biggest threat to ozone layer, 28 August, 2009.
4. Gujarati DM, Sangeetha. Basic Econometrics Forth Edition. New Delhi: Tata McGraw- Hill Publishing Company Limited, 2007.
5. Mazid M, Khan TA. Future of bio-fertilizers in Indian agriculture: an overview. International Journal of Agricultural and Food Research, 2015.
6. RathoreDS. Use of domestic and industrial waste water for vermiculture and soil fertility, Ph.D. Thesis, MLS University, Udaipur, 2011.
7. Sadeghpour, Amir, Lefever, Andrew, Ketterings Quirine, Czymmek, Karl, Nutrient Management Spear Program <http://nmsp.cals.cornell>, 2016, 1.
8. Singh, J. 2013. Demand Projection of Chemical Fertilizer’s Consumption In India: Determinants And Outlook For 2020. International Journal of Transformations in Business Management,

9. Tiwari SC. Effects of organic manure and NPK fertilization on earthworm activity in an Oxisol, BiolFertil Soils. 1993; 16:293-295.
10. Whalen JK, ParmeleeRW, EdwardsCA. Population dynamics of earthworm communities in corn agro ecosystems receiving organic or inorganic fertilizer amendments||, Biology and Fertility of Soils. 1998; 27: 400–407.
11. <https://data.worldbank.org/>
12. <http://www.faidelhi.org/statistical-database.htm>

Cashless Economy in India: It's Trends and Prospects

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ABSTRACT: A Cashless economy means an economy where cash transactions are minimal. The transactions are done mostly by digital mode which includes the use of debit cards, credit cards, online bank transfers and other digital mode of transferring cash. India is an overwhelming cash economy. However the sudden surprise of demonetization has pushed the population of our country into digital grid. The demonetization has resulted in a notable improvement in the digital transactions. New bank accounts are being opened. Online grocery business is gaining rapid importance. Even the small shops and vegetable vendors in the market have opened Paytm Account. There the customers can pay by scanning the bar code in the machine, which is there with the vendor. In short it can be said that indeed India is moving towards a world of non-cash economy. Against this backdrop, the present study is a modest attempt to explore the trends of cashless transactions, like NEFT, RTGS, ECS, PPI and Card payments etc, in India both in volume as well as in value terms over last 5 years (2013-2014 to 2017-2018). This study is an empirical and aggregative level study based on secondary data collected from online database of RBI, Annual reports of RBI and RBI bulletin. In our study we compute Annual Compound Growth Rate (ACGR) of various cashless transactions in volume as well as value terms. So far as the methodology is concerned we have used various statistical tools like Annual Compound Growth Rate (ACGR), Coefficient of Variation (CV), and tabular representation of data, charts and diagrams.

Keywords: ACGR, Cashless, CV, Demonetization, ECS.

1. Introduction

A Cashless Economy means a structure where any kind of monetary transactions are done through digital means like debit card, credit card, electronic fund transfers, mobile payments, card swipe or point of sales (POS) machines, internet banking, mobile wallets and other recently evolved methods. In this kind of economy there is very negligible flow of hard cash in the economy. It means an economy which is tracked in real time.

In order to curb the black money transactions the present Government decided to ban Rs 500 and Rs 1000 notes on November 8, 2016. The Government also restricted on the amount of money that can be withdrawn from banks and ATM. The sudden step of demonetization pushed millions of new user towards cashless transactions.

Financial inclusion is yet another step in bringing the population under the digital grid. The huge unbanked population of India has to be targeted. Enabling the use of banking facilities is a step towards moving cashless.

Modes of Cashless transaction

Cheque: It is one of the oldest and frequently used methods of doing transactions without using physical cash. It helps to keep a track of the entire transaction.

Demand Draft: It is yet another old method of cashless transaction. The advantage of demand draft over cheque is that it never gets defaulted since it is signed by the banker.

Online transfer- NEFT or RTGS: It is a faster method of transferring cash as compared to cheque or demand draft. For transferring money using this mode, only internet banking is required.

Debit and Credit card: It is another method of transacting without cash as it allows payment through card swipe or POS (point of sales) machines. Its use has increased in India after sudden demonetization in the country.

E- Wallets: It is a very recent addition in the modes of cashless transactions. For availing this facility both the customer and merchant needs to have a smart phone with internet banking facility. It helps to purchase anything starting from groceries to hotel booking.

Mobile Wallets: It is the easiest technique of cashless payment. All that is required is to credit money in the wallet. And thereafter all the payments are done through the wallet. The most common example of mobile wallet is Paytm, MobiKwik.

Gift Card: It is becoming a popular technique of presenting gifts on different occasions without using hard cash.

Benefits of Cashless Economy

Risk Reduction: If stolen, it is easy to block a credit or mobile wallet remotely, but it's impossible to get your cash back. "In that sense, the digital option offers limited security", says Pai.

Convenient: The transactions become easier with the help of cashless mode. People no longer need to carry hard cash with them or stand in the queue of the ATM Corner. Especially when they are travelling cashless mode is the best and the safest way. However it can create a lot of problem for low income group people, but leaving that class of people it has a lot of advantages for the rest of the society.

Tracking Spends: Since no cash transactions, it is easy to keep a track of all the spending. It helps to make a budget of our expenditure and at the same time it helps in return filling.

Increase in Tax Base: It increases the revenue earning of the Government through collection of taxes. As all the transactions are done directly through bank there is no concealment of income and hence increased tax collection.

Financial Inclusion: Cashless economy will help in financial inclusion by providing the unbanked population with basic banking facilities. Financial inclusion and cashless economy are very much related.

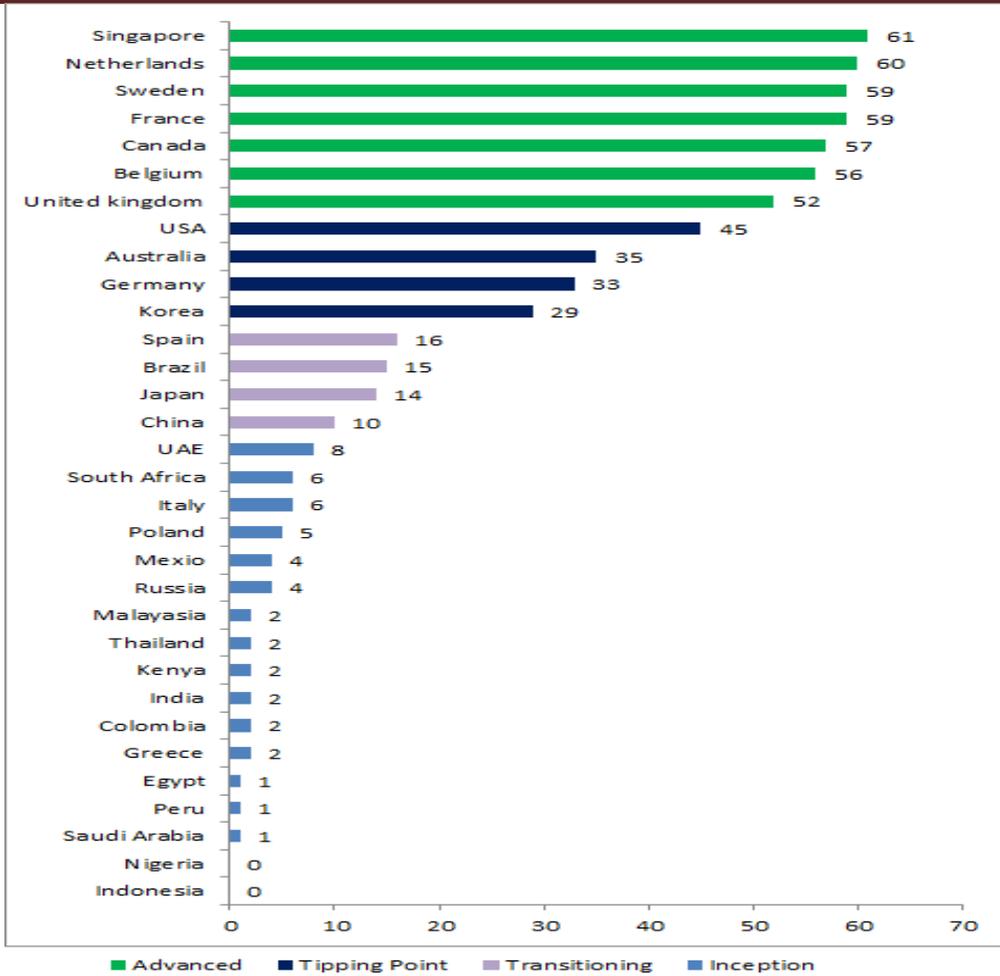
Challenges of Cashless economy in India

Digital Literacy: The rural population of India does not know the use of computer and do not have access to smart phones. This population comprises of more than half of the population. Without digital literacy, India cannot move towards being cashless.

Financial Inclusion: Major parts of India's population do not enjoy the banking facilities and their products.

Low literacy rates: It acts as a hindrance in enjoying the banking facilities.

Global scenario of cashless transaction and India's position



Source: GoByMe.com

In this context if we take a look towards global scenario we can see that Singapore has the more digitalised economy (61% of cashless transactions) following by Netherlands, Sweden, France, Canada, U.K etc. which have more than 50% of cashless transactions. Whereas, the countries like USA, Germany, Australia and Korea they capture the range of 30% to 50% of cashless transactions. However, in this whole scenario it is evident that India being a cash dominating economy has only 2% of transaction which are made in digital mode. Therefore, India is in an inception stage for cashless transactions. However, the crucial move of demonetisation in November, 2016 is likely to change the scenario.

Under this backdrop, this study is a modest attempt to analyse the various cashless transaction modes for the period of 5 years (2013-14 to 2017-18) and India’s prospects to reach cashless economy.

2. Literature Review:

Some selected available literatures are reviewed as below:

Katiyal.D (2017) in his study named “Moving India into cashless Economy” taken into consideration two groups of respondents, students and teachers of Management colleges of Indore and explore that the young generation are ready to adopt the latest technologies. However, the faculty members are little hesitant to adopt the same but then they also agree that for overall growth and development of India it is an important state.

Al-Dalaïen Borhan Omar Ahmed(2017) in his paper titled “Cashless Economy in India: Challenges’ Ahead” has examined the benefits of cashless economy to the general public by collecting data with the help of questionnaire designed on a Five Point Likert’s scale. The result however revealed that cashless economy is not beneficial to the population.

Ranjana.K.A (2018) in her paper, named “Growth in Cashless transaction in India: Challenges and Prospects”, has argued that cashless transaction has induced to digital economy as well as it has boosted the

financial inclusion effort. Moreover, it also improved the banking sector. However, the problems like digital illiteracy, cyber security problem, internet costs etc. are the hurdles to reach the cashless economy.

Rupa.R (2017) in her paper titled "Demonetization: A Way to Cashless Economy" has aimed at giving an overview of our currencies and move towards cashless economy. The volume of people using digital banking services has increased as a result of sudden demonetization.

3. Objectives of the study:

1. To give a brief overview of the various cashless transaction items selected for our study.
2. To capture the trends and prospects of selected modes cashless transactions in India both in volume as well as in value terms over the period of last 5 years (2013-14 to 2017-18).

I. Data and Methodology:

This study is an empirical and aggregative level study based on secondary data collected from online database of RBI, Annual reports of RBI and RBI bulletin. Our study hovers around 2013-14 to 2017-18 to capture the trends of various cashless modes of transactions, like RTGS, ECS (Dr. and Cr.), NEFT, Debit and credit cards, IMPS, UPI, NACH and PPI, in India in terms of volume as well as in value.

So far as the methodology is concerned we have used various statistical tools like Growth rate (GR), Annual Compound Growth Rate (ACGR), Coefficient of Variation (CV), and moreover, tabular representation of data, relevant charts, graphs and diagrams are used for the analysis purpose wherever found relevant for the particular study. In this study simple growth rate is abbreviated as GR and it is computed as follows:

$$GR (\%) = (V_t - V_{t-1}) / V_{t-1} * 100$$

Where: V_t = Value of current year and V_{t-1} = Value of the previous year.

Annual compound growth rate (ACGR) is a common and useful measure of growth over multiple periods of time. Because of its simplicity it has variety of uses. In our study ACGR is used to calculate the overall growth rate of selected cashless transactions modes over the period of our study to show the trends. The formula to calculate ACGR is given below:

$$ACGR (\%) = [(Ending\ value / Beginning\ value)^{(1/No.\ of\ years)} - 1] * 100$$

Coefficient of variation (CV) is a statistical measure of dispersion of data point in a data series around the mean. It measures the volatility of the series. In this study we have used this measure to capture the variability and volatility of the various cashless transactions over the period of our study. The formula to calculate C.V is given below:

$$C.V (\%) = (Standard\ deviation / Mean) * 100$$

II. Analysis and Findings:

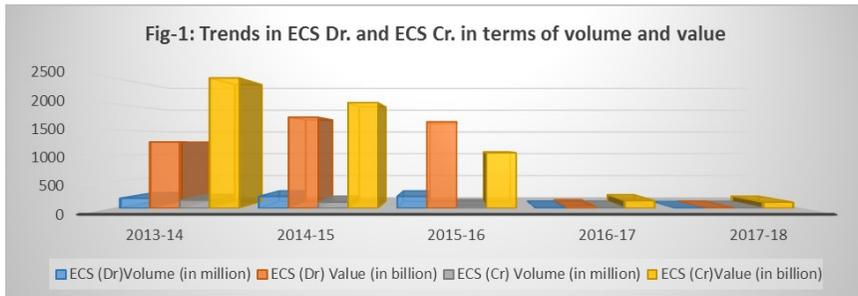
Here we try to portray the status and trends of various modes of cashless transactions. For this purpose, we have selected various cashless modes like ECS (Dr. and Cr.), RTGS, NEFT, Credit card, Debit card, IMPS, NACH, PPI and UPI for our study over the period of 5 years (2013-14 to 2017-18).

Transaction through ECS: ECS stands for Electronic clearing services which provide debit as well as credit clearing through electronic mode of fund transfer from one bank account to another. It is also helpful for any type of bill payment like electricity bill, telephone bill etc. ECS is helpful for reducing bank administrative cost and it also makes the banking a profitable one.

Table 1: Trends in ECS Dr. and ECS Cr. in terms of volume and Value

Year	ECS(Dr)Volume (in millions)	GR (%)	ECS (Dr) Value (in billions)	GR (%)	ECS (Cr) Volume (in millions)	GR (%)	ECS(Cr)Value (in billions)	GR (%)
2013-14	192.9	-	1268	-	152.5	-	2492	-
2014-15	226	17.159	1740	37.2239	115.3	24.3	2019	18.9

						9		80
2015-16	224.8	0.531	1652	5.0574	39	66.17	1059	47.548
2016-17	8.8	96.09	39	97.639	10.1	74.10	144	86.402
2017-18	1.5	82.95	10	74.358	6.1	39.60	115	20.138



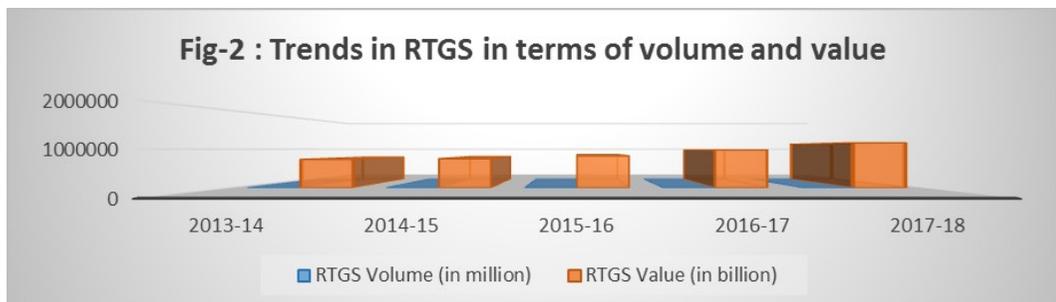
Source: Authors’ own computation from RBI Annual reports.

In Table-1 and Fig-1, the trends of ECS have been presented. From the figure, it is clear that there is a downward trend of both ECS Dr and Cr. in terms of both volume and value over the period of our study. In case of ECS (Dr.) in both volume and value term it was highest in the year 2014-15, on the other hand in case of ECS (Cr.) both in volume and value terms it is highest in the year 2013-14. Interestingly, in both ECS Dr. and Cr there was a drastic fall over last three years and in case of ECS Dr., it is severe. Therefore it is clear from this trend analysis that demonetisation has affected ECS negatively.

Transaction through RTGS: RTGS stands for Real time gross settlements. This is the fastest method of real time settlements of funds through secure banking channels. RTGS provides immediate settlements of high value funds electronically.

Table-2: Trends in RTGS in volume and value

Year	RTGS Volume (in millions)	GR (%)	RTGS Value (in billions)	GR (%)
2013-14	81.1	-	734252	-
2014-15	92.8	14.42663379	754032	2.693898
2015-16	98.3	5.926724138	824578	9.3558364
2016-17	107.8	9.664292981	981904	19.079578
2017-18	124.4	15.39888683	1167125	18.863453



Source: Authors’ own computation from RBI Annual reports.

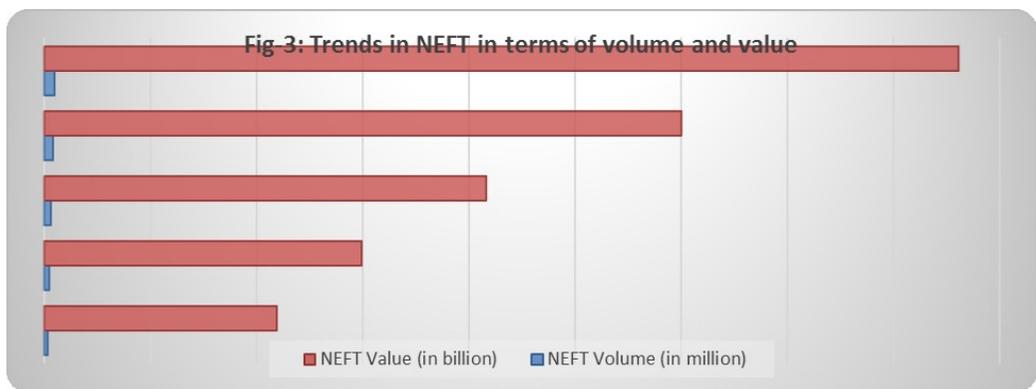
In Table-2 and Fig-2, the trends of RTGS have been presented. From the figure, we can see a moderate growth trend over the period of our study. If we take a look towards the simple growth rate we see that it hovers around 5% to 15% for RTGS volume and 2% to 19% in value terms. Moreover, the simple GR is

highest for RTGS volume in the year 2017-18 whereas in terms of value it was highest in 2016-17. Therefore, it is evident that demonetisation has a positive effect on RTGS.

Transaction through NEFT: NEFT stands for National electronic fund transfer which facilitates one to one fund transfer from one bank account to another bank account through electronic modes. Under this scheme, the transactions are settled at a particular time of a day. NEFT is not available on Sundays and holidays.

Table 3: Trends of NEFT in volume as well as in value

Year	NEFT Volume (in millions)	GR (%)	NEFT Value (in billions)	GR (%)
2013-14	661	-	43786	-
2014-15	927.6	40.33282905	59804	36.582469
2015-16	1252.9	35.06899526	83273	39.243194
2016-17	1622.1	29.46763509	120040	44.152366
2017-18	1946.4	19.99260218	172229	43.476341



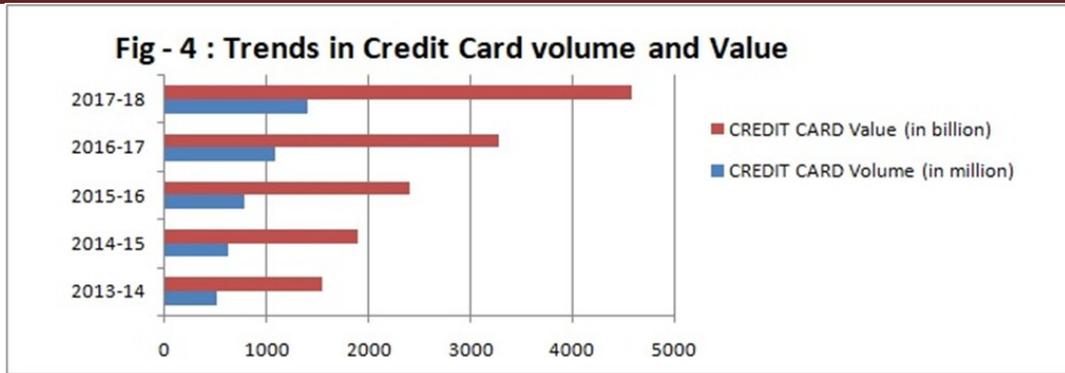
Source: Authors' own computation from RBI Annual reports.

In this study table-3 and fig-3 have shown the trends of RTGS in volume as well as value terms over the period of our study. It depicts that the NEFT is increasing moderately over time in volume as well as value terms. Interestingly, if we consider simple GR of NEFT then we see a decreasing trend over the period of our study and it hovers around 19% to 40% in volume terms and 36% to 44% in value terms. The GR has shown utmost growth for volume term in the year 2014-15 but for value terms it was highest in the year 2016-17. Therefore, the trend of NEFT shows a moderate growth over time implying that there is no such significant impact of demonetisation on NEFT.

Transaction through Credit Cards: Credit card offers the opportunity of cashless transactions. It permits to purchase a product and pay for the same at a later date in future.

Table 4: Trends in Credit card in volume and value

Year	Credit card Volume (in millions)	GR (%)	Credit card Value (in billions)	GR (%)
2013-14	509.1		1540	
2014-15	615.1	20.82105677	1899	23.31169
2015-16	785.7	27.73532759	2407	26.75092
2016-17	1087.1	38.36069747	3284	36.4354
2017-18	1405.2	29.2613375	4590	39.76857



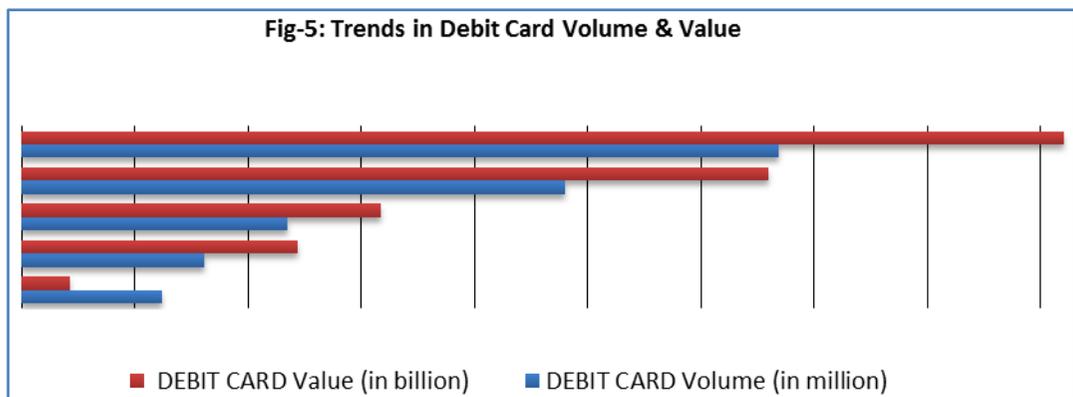
Source: Author’s own computation from RBI Annual Report

From the above table it is clear that use of credit card in term of volume increased to 38.67% in the year 2016-2017. However, there seems to be a decline in the year 2017-18 by 9.10%. On the other hand there is an increase in terms of value of use of credit card over the years. It is clear from the above table that there is a rising trend in the use of value of credit card. It has increased by 16.45% in the year 2017-18. Thus it may be said that there is a positive impact of demonetization on the use of credit cards, as people are moving towards cashless transactions.

Transaction through Debit Cards: Debit cards also known as plastic card is used to make payment instead of using cash. However, unlike debit card it does not give the opportunity of deferred payment and instead amount gets deducted from payer’s bank account at the time of purchase.

Table 5: Trends in Debit card volume and value

Year	Debit card Volume (in millions)	GR (%)	Debit card Value (in billions)	GR (%)
2013-14	619.1	-	215	-
2014-15	808.1	30.52818608	1221	467.907
2015-16	1173.5	45.21717609	1589	30.13923
2016-17	2399.3	104.4567533	3299	107.6149
2017-18	3343.4	39.34897678	4601	39.46651



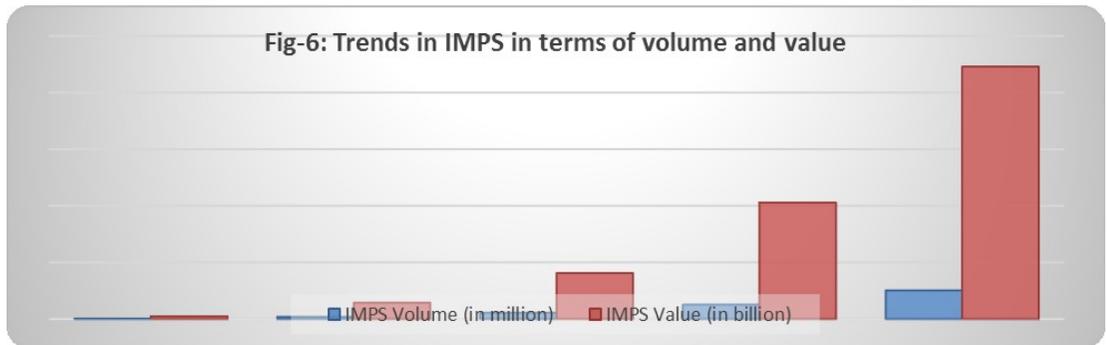
Source: Author’s own computation from RBI Annual Report

From the above table it is clear that there is an increasing trend in terms of volume of debit card over the years. The number of Point of Sales terminal (POS) witnessed a increase of 39 % from 2.39 million to 3.34 million in the year 2017-2018. POS transactions recorded a value of INR 4601 million in the year 2017-2018.Hence it may be said that use of cashless purchases are gaining popularity over the years and hence we are moving towards being a cashless economy.

Transaction through IMPS: IMPS stands for Immediate Payment Service, unlike other modes of cashless transactions that become unavailable on Sundays and holidays, IMPS functions 24/7 allowing fund transfers at any time of the day. IMPS facilitated immediate settlement of funds but only through a digital grid.

Table 6: Trends of IMPS transactions in volume as well as in value

Year	IMPS Volume (in millions)	GR (%)	IMPS Value (in billions)	GR (%)
2013-14	15.4	-	96	-
2014-15	78.4	409.0909091	582	506.25
2015-16	220.8	181.6326531	1622	178.69416
2016-17	506.1	129.2119565	4116	153.76079
2017-18	1009.8	99.52578542	8925	116.83673



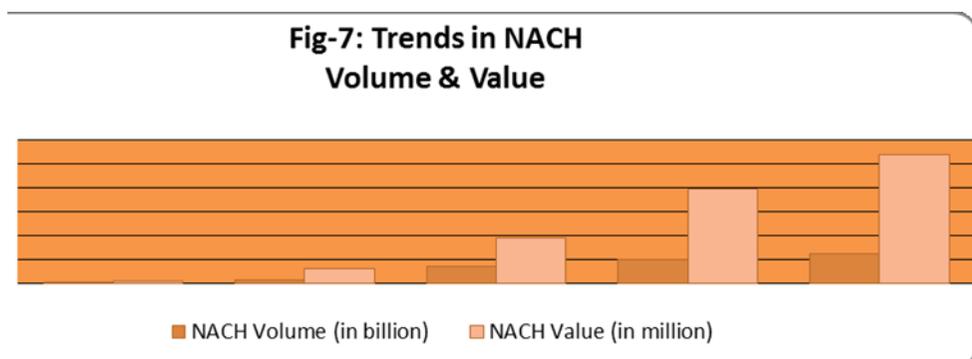
Source: Authors' own computation from RBI Annual reports.

From table-6 and fig-6 we can find the trends of IMPS in volume as well as in value terms over last 5 years. IMPS have shown a record growth (GR) in the year 2014-15 in volume (409%) as well as in value (506%) terms. However, the actual figures of IMPS in terms of both volume and value have shown a moderately increasing trend over the period of our study implying that there is no such significant impact of demonetisation on IMPS.

Transaction through NACH: National Automated Clearing House is the easiest way to transfer money. Ach is an electronic fund transfer system. Under this system the transferor of money sends the amount from his bank account and the recipient bank receives the amount after a stipulated period of time. The recipient can collect the money from the bank thereafter.

Table-7: Trends in NACH volume and value

Year	NACH Volume (in millions)	GR (%)	NACH Value (in billions)	GR (%)
2013-14	86.5		215	
2014-15	340.2	293.2947977	1221	467.907
2015-16	1404.1	312.7278072	3802	211.3841
2016-17	2057.3	46.52090307	7916	108.2062
2017-18	2502.3	21.63029213	10736	35.62405



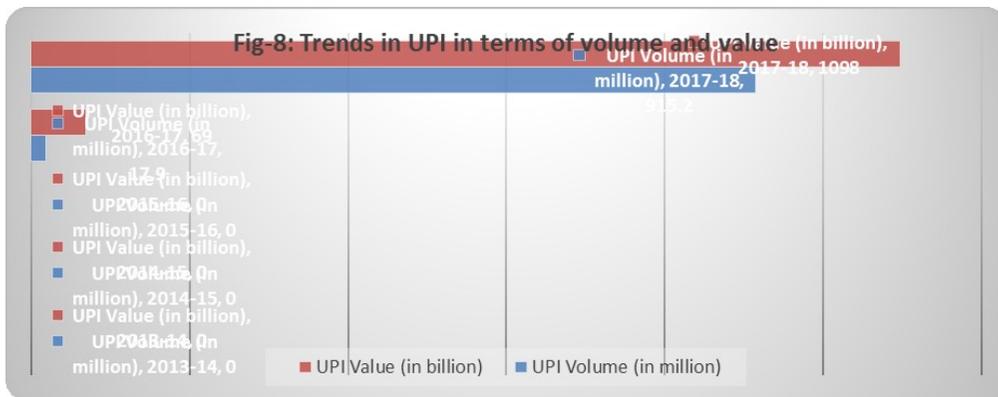
Source: Authors' own computation from RBI Annual reports.

From the above table it can be seen that there is an increase in growth rate of NACH volume during the financial year 2014-15 and 2015-16. However its growth rate tends to decrease in the following years. Transfer of funds through NACH have increased from Rs 7916 billion to Rs10736 billion. However, the growth rate is increasing but at a declining rate.

Transaction through UPI: UPI stands for unified payment interface which is a mobile application that enables all bank account holders to send and receive money from their smart phones around 24/7 without the need to enter bank account information or net banking user id/ password. This requires only the recipient’s mobile number or Virtual Payment Address (VPA). But in case of bank transfer bank account information need to be given which is not necessary for UPI. This is the most recent version of cashless transactions. It is first introduced in India from the year 2016-17.

Table 8: Trends in UPI in terms of volume and value

Year	UPI Volume (in millions)	GR (%)	UPI Value (in billions)	GR (%)
2013-14	0	-	0	-
2014-15	0	-	0	-
2015-16	0	-	0	-
2016-17	17.9	-	69	-
2017-18	915.2	5012.849162	1098	1491.3043



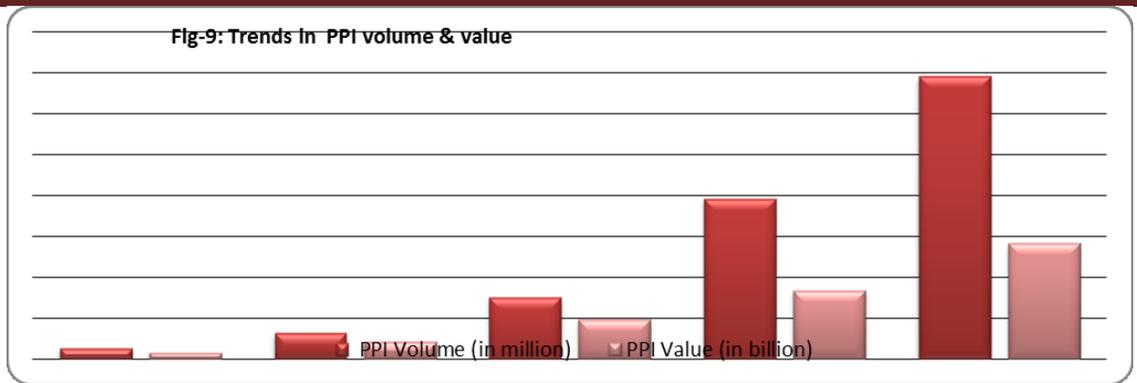
Source: Authors’ own computation from RBI Annual reports.

In table-8 and fig-8, the trends of UPI over last 2 years have been shown. The UPI figures has shown a supreme growth trend over 2 years, recording a growth rate of 5012% and 1491% for volume and value terms respectively. Here it is mention worthy that demonetisation has a significant positive effect on UPI application and it gaining unprecedented momentum.

Transaction through PPI: Prepaid payment instrument allows the holder of such instruments to purchase goods and enjoy services against the value stored in such instrument. Such value is paid by the holder in cash, by debit to a Bank A/C or by credit card.

Table 9: Trends in PPI in terms of volume and value

Year	PPI Volume (in millions)	GR (%)	PPI Value (in billions)	GR (%)
2013-14	133.6	-	81	-
2014-15	314.5	135.4041916	212	161.7284
2015-16	748	137.8378378	488	130.1887
2016-17	1963.7	162.526738	838	71.72131
2017-18	3459	76.14706931	1416	68.97375



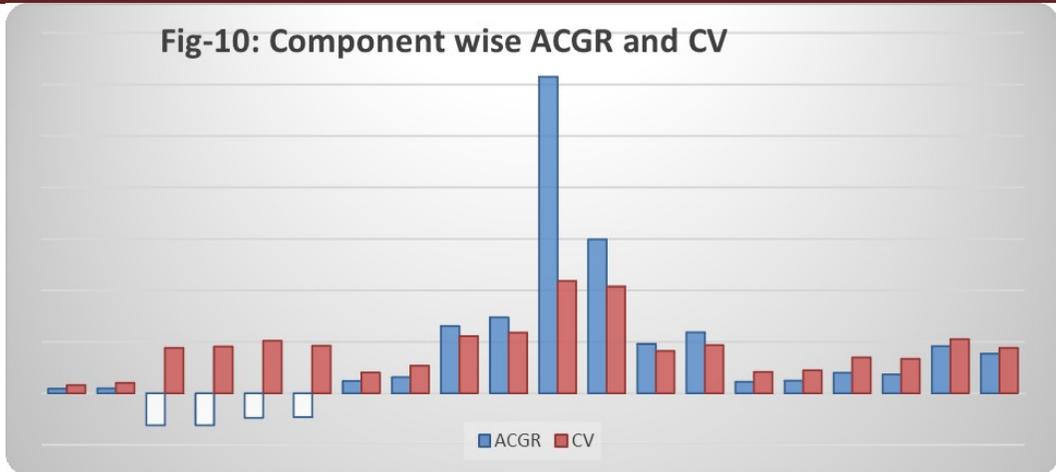
Source: Authors' own computation from RBI Annual reports

From the above table it is clearly evident that prepaid payment instruments (PPIs) recorded a volume of 3.5 million transactions in the year 2016-2017, which is the highest over the period 2013-2014 to 2017-2018. In terms of value it recorded a transaction of 1416 billion in the year 2017-2018. Thus it may be said that cashless transactions witnessed a growth over this period of 5 years.

Further, in Table-10 and Fig-10 in this respect have computed the annual compound growth rate (ACGR) of the several items of cashless modes transactions.

Table 10: Component wise ACGR and CV

Cashless modes	ACGR	CV
RTGS Volume	8.933111	16.16927
RTGS Value	9.712079	20.37531
ECS(Dr) Volume	-62.1425	88.30022
ECS(Dr) Value	-62.0356	90.89395
ECS (Cr) Volume	-47.4694	101.9346
ECS (Cr) Value	-45.9457	92.44962
NEFT Volume	24.10981	40.32811
NEFT Value	31.50861	53.68742
IMPS Volume	130.8569	111.023
IMPS Value	147.5525	118.0847
UPI volume	615.0419	218.2844
UPI value	298.9116	207.4759
NACH Volume	96.00387	82.25931
NACH Value	118.6154	93.4642
Credit card Volume	22.51436	41.55196
Credit card Value	24.41089	44.54616
Debit card Volume	40.11528	69.79645
Debit card Value	36.95244	67.08211
PPI Volume	91.70296	105.0512
PPI Value	77.22119	88.51495



Source: Authors' own computation from RBI Annual reports

In table-10 and fig-10 we have computed the annual compound growth rate (ACGR) to find the overall growth of the various modes of cashless transactions as well as the Coefficient of variations (CV) to determine the variability in the transactions. In case of RTGS volume it is found to be 9%, whereas in value terms also the picture is almost same. On the other hand the variability of RTGS transaction is not very high and it found to be 16% and 20% for volume and value terms respectively. Again, in case of ECS Dr. and ECS Cr. both have recorded a negative growth (62% for ECS Dr and 47% for ECS Cr.) and in respect of variability also both are found to be moderately high. Moreover, considering the various components the analysis has shown that UPI volume has recorded the highest ACGR (615%) followed by its value term and in terms of variability also the same picture has revealed. Interestingly, The Debit card and Credit cards are recorded a moderate ACGR hovers around 22% to 40%. On the other hand, in terms of variability it hovers around 41% to 69%. Moreover, the other recent item like PPI has shown a high positive ACGR (91% for volume and 77% for value) with a high CV (105% for volume and 88% for value).

III. Concluding Observations

From the above discussion it is clear that cashless economy is such an economy where there is a very minimum flow of cash and the transactions are done mostly through electronic media. There are various advantages of a cashless economy however considering the Socio-economic condition of the country it suffers various drawbacks. While NEFT and RTGS showing a rising trends mobile payments and card payments are getting a Luke warm response. This proves that large corporations are using this mode of electronic payments while the majority of the households are lacking. The long standing queue in front of ATMs is the evidence that there are low confidences in digital payment. Moreover, the debit cards are being used as ATM cards rather than for swiping at point of sale and in online transactions. However, though the demonetization has suddenly moved the cash centric population of the country to cashless economy but its positive effects are not evenly distributed among the various components of cashless transactions. The e-payment services, use of plastic cards in POS (point of sales), UPI Apps, PPI transactions etc. have been gaining importance over this period of 5 years which is evident from our study. At the same time cash withdrawal using debit card, ECS transactions and NACH transactions have considerably reduced over the same time period.

Thus, though there is a tremendous growth prospect of cashless modes of transactions in India which can lead it to a cashless economy, can be reached by overcoming the challenges and utilising its key drivers efficiently.

References

1. Al-Dalaien Borhan Omar Ahmed, 'Cashless Economy in India:Challanges Ahead', Asian Journal of Applied Science & Technology". August 2017; 1(7)168-174.
2. Alawiye Adams Adewale. "The cashless payment system as a panacea to the National security challenges in Nigeria" SSRN journals, abstract: 2337239.
3. Annual Reports of RBI 2015-16 and 2017-18.
4. Clonia Reeta, Asht Manju. E-banking in India: Current and Future Prospects, IJABER. 2016, 14(7).

5. Jashim Khan, Margaret Craig-Lees, "Cashless transactions: their effect on purchase behaviour", University of Auckland, *International Business & Economics Review*. 2014; 1(1). ISSN 1647-1989.
6. Katiyal Deepa, Moving India into cashless economy: An empirical Study, *International Journal of Business Quantitative Economics and Applied management research*. 2017; 4(1), ISSN-2349-5677.
7. Ranjana KA Growth of Cashless transactions in India: Challenges and Prospects, *IJEDR*. 2018; 6(1). ISSN-2321-9939.
8. Roy Ajit Kumar. Cashless Economy in India- Present Scenario, Potential, Prospectus & Challenges Ahead".
9. RBI Annual Reports: various issues.
10. RBI Bulletins: various issues.
11. Rupa R. 'Demonetization: A Way to Cashless Economy', *Intercontinental Journal of Finance Research Review*". 2017; 5(7). ISSN: 2321-0354

A Study on Privately-initiated Health Education & Information Service Provider Motivational Pivot: The Issue of Health Care Development

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ABSTRACT: *The present paper is an attempt to detect the response of the people to private enterprise Health Education & Information Service Provider (HEISP) in West Bengal if it is provided. The study primarily investigates the major determinants of the sources of information for health education in general to accrue a glimpse about the awareness about adaptability for such privately initiated HEISP. The study reveals the demand of the sample selected regarding the constituents of the Health Education & Information Services (HEIS) for which they are ready to pay in accordance to the quality of the services influenced by market forces. The corollary here is that the positive economics of scale affect may generate an all-round societal development condition by an upward "relay" function to reduce the on-going burden of the Primary Health Sector as well as Hospital in West Bengal.*

The study is based on primary survey with semi-structured questionnaire an indirect interview method. The sample size is 100 spread through the regions of North 24 parganas, Kolkata, Midnapure (East & West), Hooghly & Nadia district in South Bengal. The qualitative survey is based on purposive random sampling procedure. The corrected data have been presented and analyzed by using appropriate bar diagrams & pie-charts with necessary theoretical support to derive our targeted result that the payment-based private enterprise HEISP is going to in-generate positive influences towards the development of health care sector.

Keywords: *Health Education, Information, Health Care, Health Service*

1. Introduction

Providing a comprehensive knowledge, skills and attitude about health and health practice is now becoming more challenging due to different social factors. Lack of Health education and information is becoming more crucial which is noticeable in the different social class within the community. Today's modern civilized young people are not very much serious about to get health information due to their hectic schedule of life and not even very much alert to find the sources from where they can get health related information. Information regarding preventive care and regular health monitoring leads to positive health and it reduces the severity of chronic lifestyle diseases. Among the different sources, Advertisement & Internet are the major sources of health related information within the community. The other sources of medical and health related information are Doctors, family & friends, books & journals etc. But the irony is that Advertisement and internet is not very much accessible to lower educated and lower age & income group. Another noticeable issue is that people were visiting doctors when they got ill. The most remarkable point is that the above mentioned sources of health information are not equally responsive among the surveyed population irrespective of their age, income, occupation and educational qualifications. Health education is one of the major factors which can make healthier communities and through education preventive measures, sanitation, nutrition can spread among communities. But incorporating and spreading health education is not equally responsive among community, basically less responsive to lower educated population. However, health education is not the only ones providing health information and services. Regular health information and specific information regarding the importance of preventive care as well as the symptoms and treatment of chronic diseases and proper nutritional services delivered through the alternate source. So, a holistic health care service is needed to monitor regular health of the community. People are now wanted to get multidimensional health care services from a single concern. In order to satisfy the increasing demand of the multidimensional health care services it is needed to introduce and practice different concepts of health education with regular health check-up by professional physicians, proper diet and nutrition, provision of yoga and meditation facilities by trainers etc.

Review of literature

Health education motivates and helps people to maintain healthy lifestyles and it also induces to conduct professional training and research. [National Conference on Preventive Medicine in USA]. Health education leads to positive physical and mental wellness which builds the strong nation.

Health education is concerned with promoting positive health and it also reducing different lifestyle disease. It also helps to leads positive changes in personal and group attitudes and behavior which promote healthier living [K. Park, Communication for health education, Preventive and Social Medicine, 2015].

Government has major responsibility to provide the necessary infrastructure of health services. The major challenge for India's health care sector is to provide a wide range of quality care. It has been almost true that the Indian Public sector hospitals deliver care of unacceptably low quality". [Mohan Manoj, Hay Katherine and Mor Nachiket, 'Quality of Health Care in India: Challenges, Priorities and The Road Ahead'].

"The service or administrative approach aims at providing all the health facilities needed by the community in the hope that people would use them to improve their own health. The service approach provides a failure when it was not based on the " felt needs" of the people ". [K. Park, Communication for Health Education, Preventive and Social Medicine, 2015]

In India under the community development program, there are lots of free services, but, there is no guarantee that the service will be used by them. [K. Park, Man and Medicine - Towards Health for All, Preventive and Social Medicine, 2015].

It is recognized that the Primary Health Care services did not cover the whole population, especially in rural areas doesn't reach health services. The public and private hospital does not take the responsibility to spread health education and health related information within the community. In addition to that the cost of health care service is rising without much improvement in their quality and there has been a growing dissatisfaction with the existing health services and clear demand for better health care.

Objectives

The Objectives of my proposed paper are:

- To find out how did people absorb information regarding health & health related issues.
- To find the impact of different sources of health information to the community.
- To find the payment-based private enterprise Health Education & Information Service Provider (HEISP) is going to in-generate positive influences towards the development of health care sector.

Research Methods

The study is based on primary survey with semi-structured questionnaire and indirect interview method. The sample size is 100 spread through the regions of North 24 Parganas, Kolkata, Midnapure (East & West), Hooghly & Nadia district in South Bengal. The qualitative survey is based on purposive random sampling procedure. The corrected data have been presented and analyzed by using appropriate bar diagrams & pie-charts with necessary theoretical support to derive our targeted result that the payment-based private enterprise "Health Education & Information Service Provider" (HEISP) is going to in-generate positive influences towards the development of health care sector.

Data Analysis and Interpretation

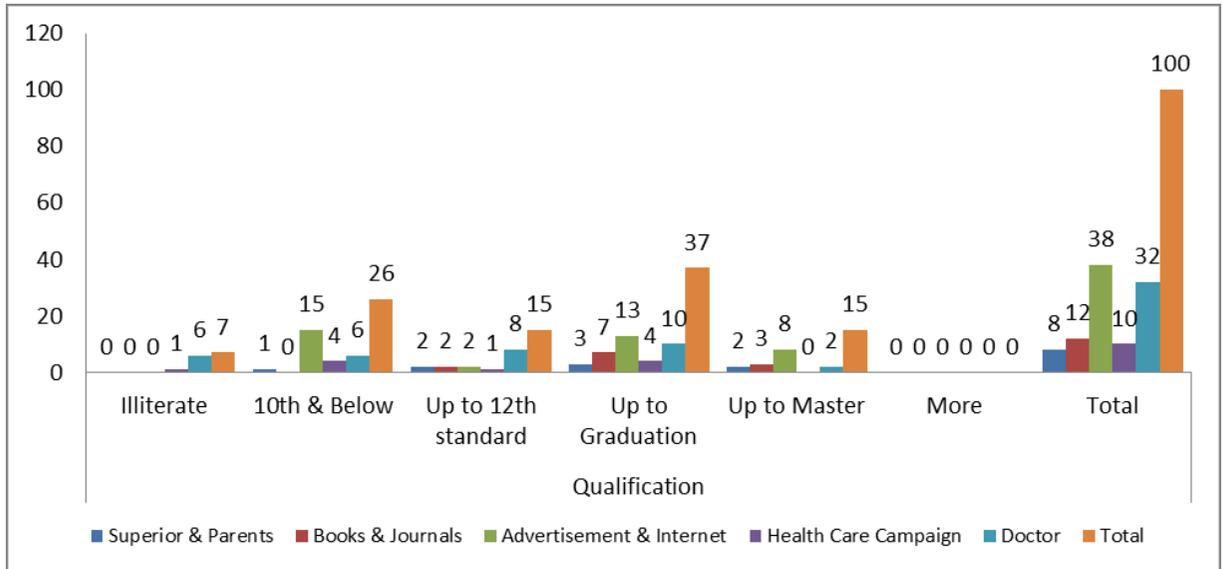
In my study I have shown that the different sources of information as independent variables which includes Superior & Parents, Books & Journals, Advertisement & Internet, Health Care Campaign, Doctor and demographic sources as dependent variables which comprises of Qualification, Occupation, Age and Income.

Table I: Responses of different sources of Health Information for different Educational Qualifications

Health Information Sources	Qualification						Total
	Illiterate	10 th & Below	Up to 12 th standard	Up to Graduation	Up to Master	More	
Superior & Parents	0	1	2	3	2	0	8
Books & Journals	0	0	2	7	3	0	12
Advertisement & Internet	0	15	2	13	8	0	38
Health Care Campaign	1	4	1	4	0	0	10
Doctor	6	6	8	10	2	0	32
Total	7	26	15	37	15	0	100

Source: Primary Data

Figure1: Responses of different sources of Health Information for different Educational Qualifications



Source: Primary Data

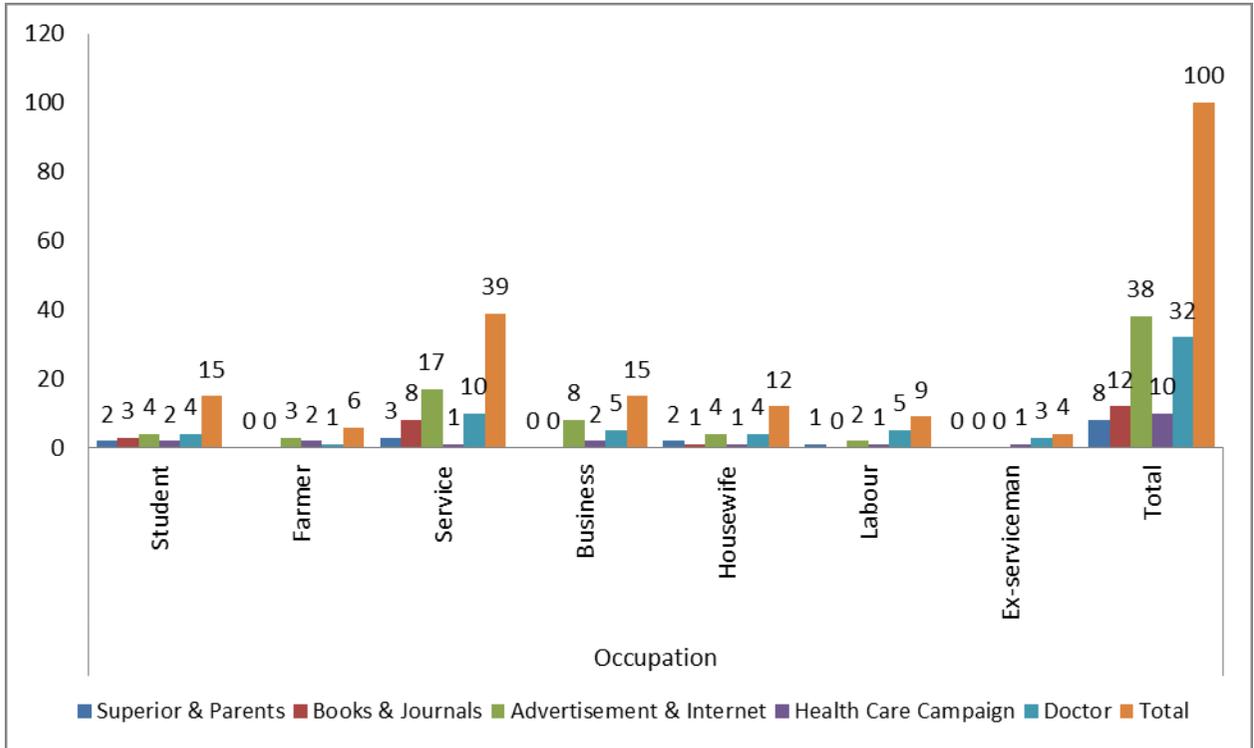
The above Figure shows that 38% people were collecting health information from Advertisement & Internet whereas 32% people were collecting information from Doctor, 12% from Books & Journals, 10% from Health Care Campaign and rest 8% from Superior & Parents. Maximum people are graduate (i.e.-37%) who prefer to get information regarding health from Advertisement & Internet (i.e.-13%) that reflects the proper growth and advancement of technology as well as the easy accessibility and availability of internet to common people.

Table II: Responses of different sources of Health Information for different Occupation

Health Information Sources	Occupation							Total
	Student	Farmer	Service	Business	Housewife	Labour	Ex-serviceman	
Superior & Parents	2	0	3	0	2	1	0	8
Books & Journals	3	0	8	0	1	0	0	12
Advertisement & Internet	4	3	17	8	4	2	0	38
Health Care Campaign	2	2	1	2	1	1	1	10
Doctor	4	1	10	5	4	5	3	32
Total	15	6	39	15	12	9	4	100

Source: Primary Data

Figure II: Responses of different sources of Health Information for different Occupation



Source: Primary Data

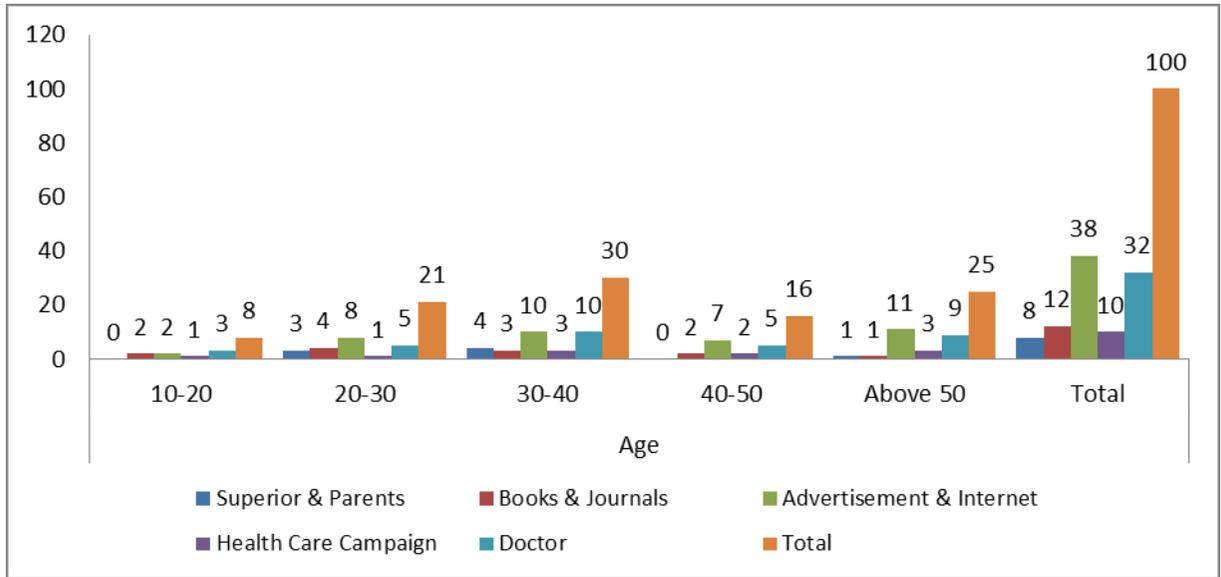
The above Figure shows that the affect of different sorces of Infomation of health among different occupational people. The majority of the pepole belonging from Service Sector (i.e.-39%) and they prefer to get health infromation from Advertisement & Intenet (i.e.-17%) whereas 15% students , 15% Businessman , 12% Housewife, 9% Labour, 6% Farmer and only 4% Ex-serviceman were giving more preference to Advertisement & Internet as compared to the other information sources. As the majority of the population belongs from service sector so they did not get adequet time to read books & journals. They visit doctors only when they ill, so, there is a very limited scope to get health information from Practitioners. Health Care Campaign is very rare in urban and semi-urban area. So, people always looking for the easily accessible sorces that is Advertisement & Internet.

Figure III: Responses of different sources of Health Information for different Age group (Year)

Health Information Sources	Age (Year)					Total
	10-20	20-30	30-40	40-50	Above 50	
Superior & Parents	0	3	4	0	1	8
Books & Journals	2	4	3	2	1	12
Advertisement & Internet	2	8	10	7	11	38
Health Care Campaign	1	1	3	2	3	10
Doctor	3	5	10	5	9	32
Total	8	21	30	16	25	100

Source: Primary Data

FigureIII: Responses of different sources of Health Information for different Age group (Year)



Source: Primary Data

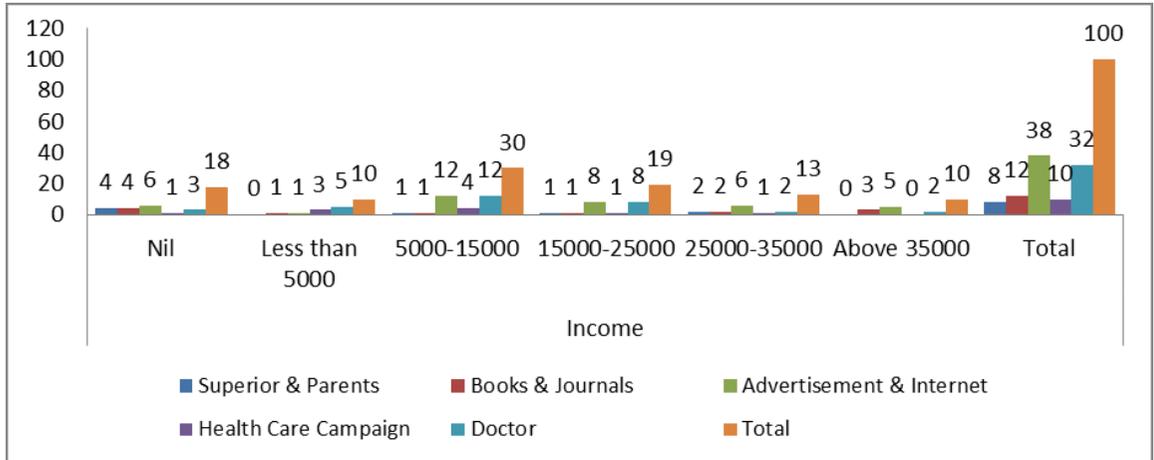
The above Figure shows that out of 100 there are 30 numbers of peoples who belongs from 30-40 age group and they show their preference to Advertisement &Internet (i.e.-10%) with same as Doctor (i.e.10%),whereas 25 numbers of above 50 age group people prefer to get information from Advertisement & Internet (i.e.-11%) and Doctor (i.e.9%).Out of 100 there are 21 numbers of people who belongs from 20-30 age group were more likely to get health information from Advertisement & Internet (i.e.-8%) compare to the rest other information sources which are Books & Journals (i.e.4%), Doctor(i.e.5%), Superior & Parents (i.e.3%) and Health Care Campaign(i.e.1%).

Table IV: Responses of different sources of Health Information for different Income group (Rs.)

Health Information Sources	Income (Rs.)						Total
	Nil	Less than 5000	5000-15000	15000-25000	25000-35000	Above 35000	
Superior & Parents	4	0	1	1	2	0	8
Books & Journals	4	1	1	1	2	3	12
Advertisement & Internet	6	1	12	8	6	5	38
Health Care Campaign	1	3	4	1	1	0	10
Doctor	3	5	12	8	2	2	32
Total	18	10	30	19	13	10	100

Source: Primary Data

FigureIV: Responses of different sources of Health Information for different Income group (Rs.)



Source: Primary Data

The above Figure shows that the majority of population (i.e.30%) belonging from 5000-15000 income group and they gave equal priority to Advertisement & Internet (i.e.12%) and Doctors (i.e.12%).

The above all table shows that Advertisement & Internet has got more priority among the population compared to the rest other sources (i.e. Doctors, Books & Journals, health Care Campaign, Superior & Parents) irrespective of their qualification, occupation, age and income.

People were giving more preference to Advertisement & Internet as compared to the other sources due to the cost effectiveness and accessibility. They visit Doctor only when they ill. Health care campaign is very rare to organized by the Primary and Secondary Health Care sector and their focus is mostly rural centric. They had very little awareness about Health care books & journals and not even got adequate time to purchase and read it due to their hectic life and busy job schedule. Today's new generations are more depending on Advertisement & Internet and less listening to their Parents & Superior.

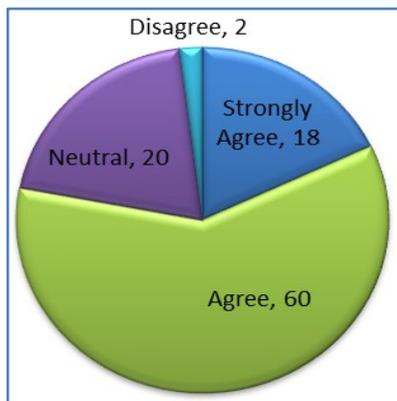
Health practices & Life style is included with lot more factors which induces the positive health. In my survey I have considered some of important factors which are modern society basically looking for. Evidence shows that the periodic health check-up by physician, the proper diet & nutrition according to the age & health condition, yoga & meditation are the most important factors to determine and that induces the positive health. It has been seen that if we will combining all the factors in a single organization as well as providing various health education and information then definitely peoples get motivates to maintain positive health practices & lifestyle. The privately-initiated Health Education & Information Service Provider in this regard plays a motivational role to get response from people.

Table V: Response among people to get health information from HEISP

	Preference to get health information from HEISP (%)
Strongly Agree	18
Agree	60
Neutral	20
Disagree	2
Total	100

Source: Primary Data

Figure V: Response among people to get health information from HEISP



Source: Primary Data

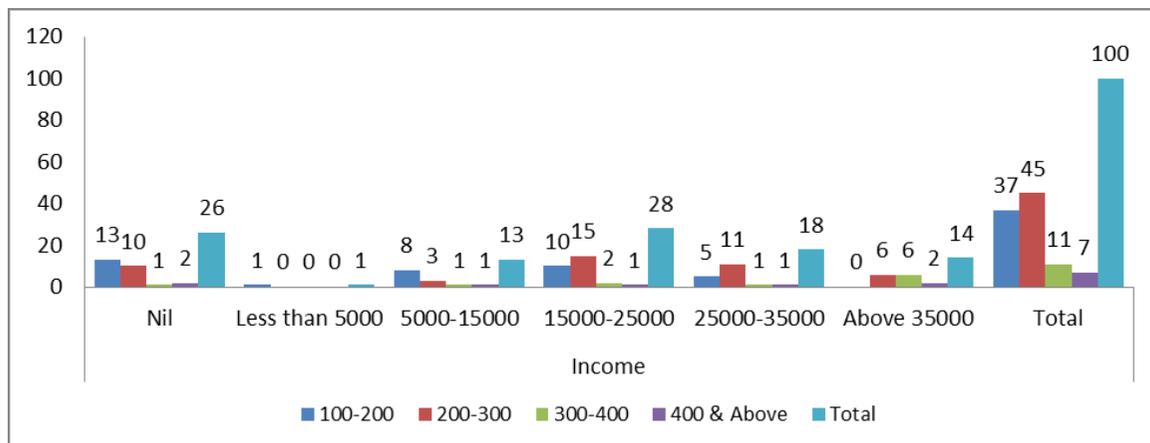
The above Chart (Figure-V) derive that how people prefer the Health Education & Information Service Provider (HEISP) where they can get information regarding health with health check-up facility, proper nutritional guide and Yoga & meditation training by the professional. The above chart shows that 60% people agree to get that kind of facilities from this organization whereas only 2% people disagree, 18% people strongly agree and 20% people remain neutral.

Table VI: Responses for fee (Rs./month) of HEISP in different Income groups (Rs.)

Fee (Rs./month)for HEISP	Income (Rs.)						Total
	Nil	Less than 5000	5000-15000	15000-25000	25000-35000	Above 35000	
100-200	13	1	8	10	5	0	37
200-300	10	0	3	15	11	6	45
300-400	1	0	1	2	1	6	11
400 & Above	2	0	1	1	1	2	7
Total	26	1	13	28	18	14	100

Source: Primary Data

Figure VI: Responses for fee (Rs./month) of HEISP in different Income groups (Rs.)



Source: Primary Data

The above Figure representing that whether the people ready to pay fee for getting these services or not? The chart (Figure-VI) shows that 45% people agree to pay fee @ Rs.200-300 whereas 37% people agree to

pay fee @ Rs.100-200, 11% people agree to pay fee @ Rs.300-400 and 7% people agree to pay fee Rs.400 & above.

Table VII: Responses of Different Income Group (Rs.) for reducing the burden of PHC by HEISP

HEISP reduces the burden of PHC	Income (Rs.)						Total
	Nil	Less than 5000	5000-15000	15000-25000	25000-35000	Above 35000	
Yes	20	1	15	23	9	11	79
No	7	0	5	5	3	1	21
Total	27	1	20	28	12	12	100

Source: Primary Data

The above table shows that 79% people agreed that this “Health Education & Information Service Provider” will reduce the burden of Primary Health Centre. The number of Primary Health Centre in West Bengal is (914 up to 31st March, 2017) very less compare to other states like Uttar Pradesh (3392), Karnataka (2160), Maharashtra (1645), Rajasthan (1426), Andhra Pradesh (1296), Tamilnadu (1249), Odisha(1261), Madhyapradesh (1062), Gujrat (1004) and Assam (993) which actually leads to deficient primary health care services.

Table VIII: Responses of Different Income Group (Rs.) for minimizing the work load of Hospital by HEISP

HEISP minimize the work load of Hospital	Income (Rs.)						Total
	Nil	Less than 5000	5000-15000	15000-25000	25000-35000	Above 35000	
Yes	18	1	14	24	9	10	76
No	8	0	6	4	4	2	24
Total	26	1	20	28	13	12	100

Source: Primary Data

The above table shows that 76% people agreed that this “Health Education & Information Service Provider” will minimize the work load of Hospital. The doctor-patient ratio in West Bengal is 1:1850 (up to 23rd March, 2018) where the absolute doctor-patient ratio recommended by WHO is 1:1000. So West Bengal is suffering with an inadequate doctor-patient ratio which leads to deficiency in health care services. Evidence shows that a well-circulated health care education and information induces the positive impact of living which reduces the risk of health and diseases.

Conclusion

Health education & information is an essential tool of community health. Every Branch of community health has a health educational aspect. Health education & information refers the promotion of health as well as reduction the factors which induces diseases. The study has analysed the trends and responses of different sources of Health Information in different part of West Bengal. The study has also derived the different demographic factors like Income, age, occupation and qualification that are responsible for different responses among people to the different sources of health information which are Advertisement & Internet, Books & Journals, Superior & Parents, Health Care Campaign and Doctor. The majority of the population prefers Advertisement & Internet than other sources in order to get health information. It is noticeable that today’s modern people are showing very less interest to collect health information due to their busy life schedule.

It is very important concern that in the year 2015 the Infant Mortality Rate of West Bengal is 26 per 1000 population after Kerala (12), Delhi (18), Tamil Nadu (19), Maharashtra (21), Punjab (23) and Under 5 year Mortality Rate is 30 per 1000 population after Kerala (13), Delhi (20), Tamilnadu (20), Maharashtra (24), Punjab (27), and Jammu & Kashmir (28). Both the cases West Bengal decline its rank from 5th to 6th. [State Bureau of Health Intelligence Directorate of Health Services Government of West Bengal, Health on March

(2015-16)]. Over the year the growth of Government hospitals, hospital beds and medical institutions has declined. The Public Health Care Sector is over burden due to the lack of efficient staff. They are now incapable to spread health awareness and information to the whole community. Books and journals related to health is rarely available in the rural area simultaneously the people belongs from rural area are not very much serious about positive health practice due to their traditional mindset. In other case, the urban people are too busy to read the health journal or books. The Primary health centres are suffering by lack of infrastructure. Eventually health awareness campaign is very rarely conducted by them. In that scenario the Privately-initiated Health Education & Information Service Provider has to take the major responsibility to ensure health education within the community. The study shows that the majority of the people prefer HEISP to get health education and information services along with other facilities like proper health check-up, nutritional & yoga guides by professionals.

Reference

1. Bengal GO. *Health on March*. Kolkata: State Bureau of Health Intelligence, 2015-16.
2. India GO. *Annual Health Survey Report, A Report on Core and Vital Health Indicators Part-I*. New Delhi: Ministry of Health & Family Welfare, 2012-13.
3. Baru R. Privatisation of Health Care in India: A comparative Analysis of Orissa, Karnataka and Maharashtra State. *a joint publication of IIPA, CMRD and UNDP India*, New Delhi, 2006.
4. Kurian O. 'Charitable Hospitals: Charity at Market Rate'. *Economic and Political Weekly*. 2012; 47(39):23-25.
5. Phadke A. Regulation of Doctors and Private Hospitals in India. *Economic and Political Weekly*. 2016; 51(6):46-55.
6. Shah U, RMohanty. Private Sector in India Health Care Delivery: Consumer Perspective and Government Policies to Promote Private Sector. *Information Management and Business Review*. 2011; 1(2):79-87.
7. Sakharkar BM. Role of Hospital in Health Care. *Principles of Hospital Administration & Planning*. New Delhi: Jaypee Brothers, 2009, 3-20.
8. Park K. Communication for health education, Health Planning & Management, Health Care of the Community. *Preventive and Social Medicine*. Jabalpur: Banarsidas Bhanot, 2015, 854-864, 868-888, 890-915.

Fostering Creative Ideation : A Case of Idea Stimulation with Analogy

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ABSTRACT: *In today's strategic business scenario the generation and implementation of creative ideas are the sure drivers of innovation. DeBono, explained creativity as a process of transformation of existing ideas, views and approaches of doing things in new ways (DeBono 1971). The process of idea generation taps external sources of information to open multiple resource domains. To mitigate biased and premature adoption of solutions, analogies can act as stimulants to evoke a plethora of radical ideas, through fusion of knowledge that has not been connected before. Creativity involves searching for new knowledge representation and creating business opportunities. Recent research about innovation has brought to light fundamental principles of ideation and representations as factors effecting design outcomes (Shah et al 2006 & Goldschmidt 1991).*

The case of a student's project has been studied and analysed to see the application of analogical ideation process in coming up with creative design solutions for a given design task. Thus demonstrating the analogical stimulation of divergent & convergent thinking to drive idea diversity and originality.

Creative association acts as a powerful tool when trying to understand a new situation or solve a new problem, and build unexpected design solutions (Yanowitz, 2001). The process of problem deconstruction and redefinition of the solution space helps explore new opportunities. The paper aims to explain the creative process and help redefine opportunities for creative representation to maximize creative ideation. The study suggests that analogical thinking in non-design disciplines can enhance the creative exploration and facilitate innovative idea generation. Creative thinking training can tap knowledge resource dynamically and break patterned thinking to come up with innovative ideas. This can help develop training methodology for idea generation to overcome inadequate exploration and biased adoption of ideas. Creative problem solving methods, thinking tools, techniques, and strategies etc. are all trying to supply some distinctive component for the operating system of innovation. Thus compelling us to focus on the innovative ideation process. This accentuates the need for an operational generative strategy and mitigation of mental inertia that prevents us from thinking radically. Exploration is an important part of creativity, it is important to consider and nurture exploration in the design process (Finke et al 1992). To maintain a competitive edge it is imperative to exploit new opportunities. The germ of this lies in fructification of creative ideas. The fundamental view on creativity is that the creative potential exists within all of us and through training or instruction individuals may enhance their creative potentials and style. New and creative ideas emerge from a conscious effort to balance analysis and imagination (Treffinger and Reis, 2004). In today's competitive market the production of creative ideas generated through idea exploration by a generative design process, can be of immense value towards a creative economy.

Keywords: *Analogy, creative stimulation, idea generation, associative thinking, creative representation*

1. Introduction

Generation and implementation of creative ideas are the sure drivers of innovation in today's strategic business scenario. The pressure to produce new and useful ideas has become a business imperative to deliver a competitive edge. De Bono, explained creativity as a process of transformation of existing ideas, views and approaches of doing things in new ways (DeBono 1971). The process of idea generation taps external sources of information to open multiple resource domains. To obliterate biased adoption of solutions, analogies can act as stimulants to evoke an extensive exploration of radical ideas, caused by fusion of knowledge that has not been connected before. This process of searching for new knowledge representation and creating business opportunities is the core involvement of creative ideation. When developing ideas, one is only able to notice a limited section of the environment, due to constraints of his/her limited cognitive abilities and due to established thinking patterns (Simon 1996). Recent research about innovation has brought to light fundamental principles of ideation and representations as factors effecting design outcomes (Shah et al 2006 & Goldschmidt 1991).

To understand the creative process involved in idea generation, it is necessary to analyze the process as actionable steps towards radical ideation and innovative solution. This can enable educators to foster individual creativity as well as facilitate creative idea generation. The paper presents a case of a student in

term project, conducted with a group of non-design undergraduate engineering students, and their application of analogical ideation process in coming up with creative solutions for a given design task. The hindrances and opportunities observed in the process of creative idea exploration has been articulated so as to maximize creative ideation. The study suggests that analogical thinking in non-design disciplines can enhance the creative exploration and facilitate innovative idea generation. The mind through training can tap knowledge resource dynamically and generate innovative ideas.

1.1 Aim of the study

This study proposes to explore the possibilities of fostering creative exploration to facilitate innovative idea generation across disciplines. The paper showcases the implementation of the design process through a project case. The researchers hope that the findings can benefit various non-design disciplines to initiate creative idea explorations. This paper aims to build knowledge on the role of analogy in the ideation process and its scope in fostering creativity in non-design students. This can help develop training methodology for idea generation to overcome inadequate exploration and biased adoption of ideas.

1.2 Creativity in the Design process

Creative problem solving methods, thinking tools, techniques, and strategies etc. are all trying to supply some distinctive component for the operating system of innovation. Thus compelling us to focus on the innovative ideation process. This accentuates the need for an operational generative strategy and mitigation of mental inertia that prevents us from thinking radically. Exploration is an important part of creativity, it is important to consider and nurture exploration in the design process (Finke et al 1992).

The basis of most of the processes involving creativity is psychological aspects of thinking patterns and mental stimulation in generating new ideas. This has allowed a proliferation of techniques to trigger inspiration and stimulate new ideas, with little or no consensus regarding steps and methods of idea generation.

1.2.1 Creative idea generation

The need for creative exploration is of the highest importance in today's world. To maintain a competitive edge it is imperative to exploit new opportunities. The germ of this lies in fructification of creative ideas. The fundamental view on creativity is that the creative potential exists within all of us and through training or instruction individuals may enhance their creative potentials, style and output. New and creative ideas emerge from a conscious effort to balance analysis and imagination (Donald et. al.2004). In human creativity researches several processes are frequently described: (Boden 1990)

- i. Combining ideas from different domains.
- ii. Use visual imagination, metaphor, and analogy.
- iii. Expanding and varying the search space of alternatives of design possibilities to inspire creativity (Gero 1994).

2. Method

The case study was part of the university course and its coursework - for Undergraduate level engineering students from different disciplines. The focus was the use of analogy in the design process framework in a step by step procedure towards a finished design concept. The progressive work sheets and presentation report was studied to analyze the implications and implementation of analogy triggers, to understand the integral relationship of analogies, their workings and influencing factors on idea exploration and radical concept generation.

2.1 Description of research study

The project was part of a graded design assignment submission of the 'Introduction to design' Minor course offered at IITB for all discipline UG students. The case study presented involved a 10 undergraduate engineering students of various streams working together as a group assignment. They were adequately exposed to the design process and analogical thinking for idea generation stimulation and creative conceptualization. The focus was innovative product solutions to address certain functional and utility needs.

They followed the ideation techniques of analogical association at multiple stages of user study, identifying design opportunity, analyzing the problem and generating ideas. They were instructed to document and explain their design journey as well as articulate the same in a presentation, for which they would be awarded certain grades to fulfill their credit requirements.

2.1.1. Procedure and Task

At first the instructor provided the brief and the descriptions of the design task and the steps for the design project and idea generation framework.

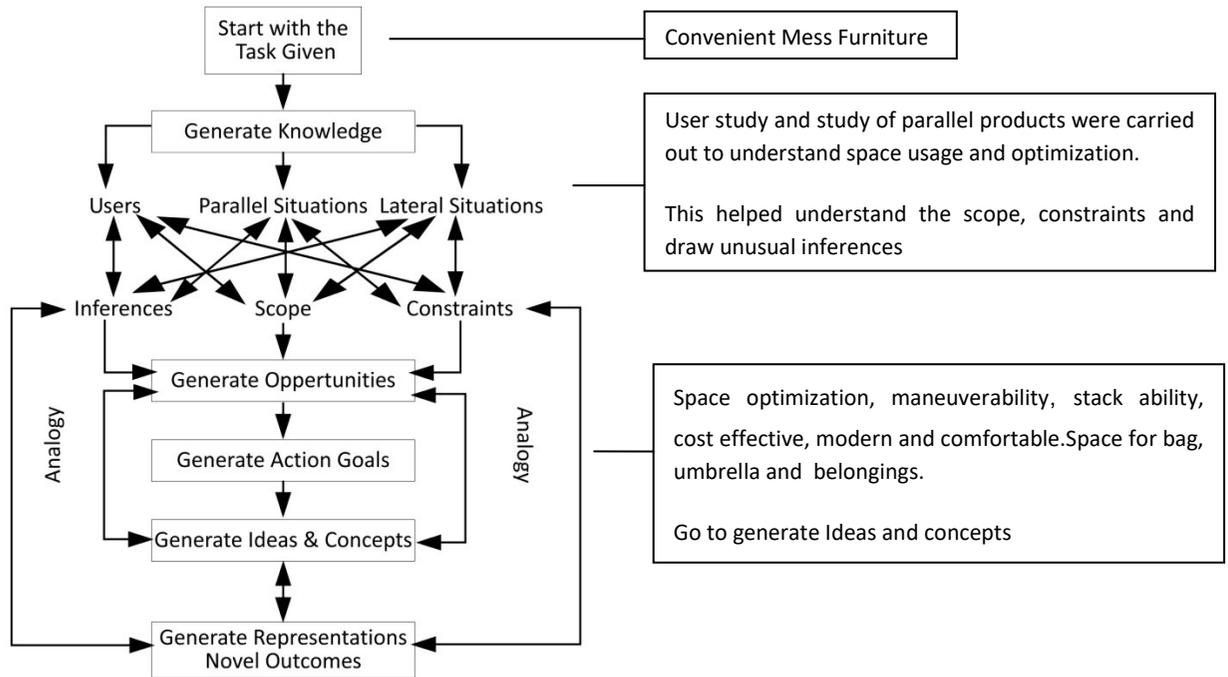


Fig 1: The Design Process Operational Flow

The design task given was to design innovative concepts for the given brief by following the design process and various methodologies taught.

The stipulated project time was 18 working hours spread over 3 months. The participants thought process, idea sketches, thought links and case development were taken as document data for analysis.

3.1 Analysis

The documents generated by the group was analyzed to see the role of analogy triggers in each stage of idea exploration.

This inquiry helped formulate an understanding of the creative inhibitions during the ideation process and the radical linking of triggers. The design outcomes generated and idea triggering is presented below.

Analogies

Triggers

Idea Representations

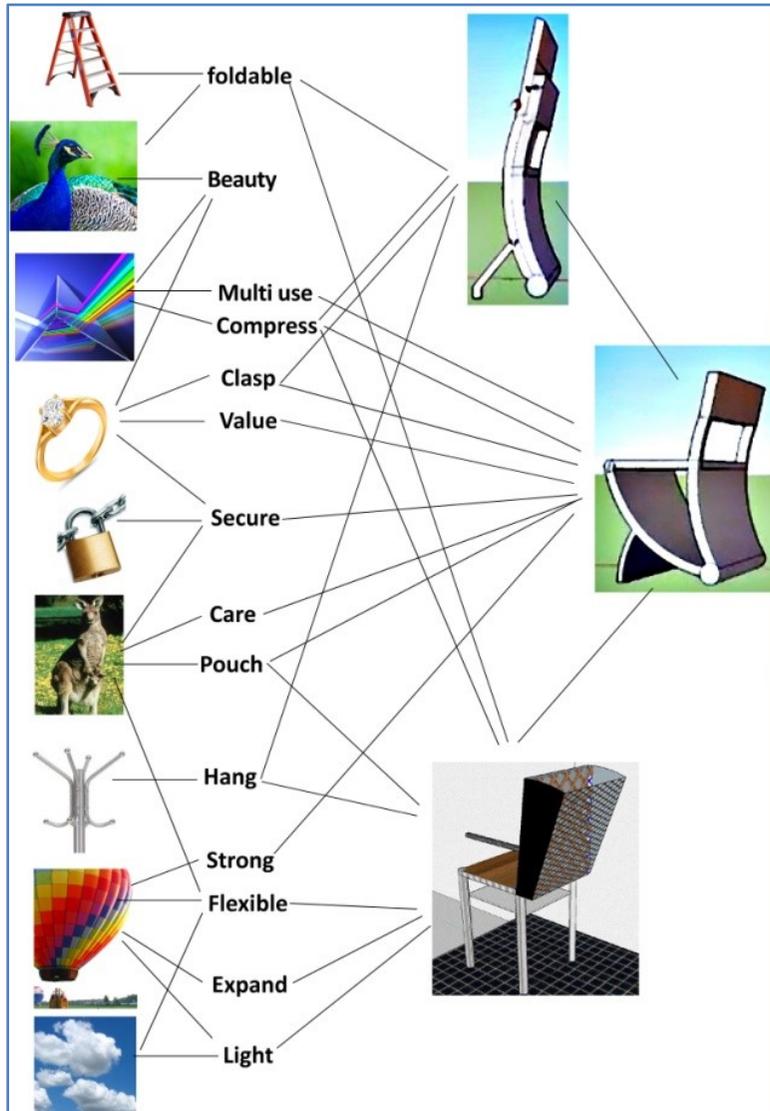


Fig2: Description of the analogical triggering followed in the case project

3.2. Findings and Discussions

The case project showed that, by following a generative framework, unique opportunity identification and idea exploration propelled innovative conceptual solutions. Along with analogy triggered idea exploration shows a compelling effect on the creative design outcome. The methodology of analogical association in the various stages enhanced generation of creative outputs. The generative phases of the framework with the analogies give physical representation to conceptual thought, through manipulation in differing contexts. The random analogy worked to triggers varied thought links and break fixation, which has been described as 'path of least resistance,' which limits creative exploration. The mix of analogies from nature as well as manmade objects was used as triggers. Analogy helped as idea starters that further catalyzed multiple points of association and analogies. This steered abstract thoughts that allowed radical exploration through force fitting attributes from source to domain (Sinha and Chakravarthy 2013). The process framework helped the students to break out of conditioned thinking and freely explore multiple radical thoughts and helped in developing novel ideas and concepts.

The generative process framework driven with analogical association triggers allowed varied concept representations from simple attributes, and the generation of novel design solution. The contextual aspect of

analogy revealed various associative links, allowing multiple possibilities of explorations. The use of multiple triggers extracted from the analogies showed radical generation of ideas in an encouraging way. Further work in the area has to be done to formulate and facilitate pedagogical instruments to develop and foster creative and explorative thought process across disciplines and professions.

4. Conclusions

This paper articulates how the generative process framework triggered by analogical association facilitates exploration and implementation of creative ideas for innovative concept generation.

Using analogical triggers in the idea generation process allows exploration at multiple stages and helps students to break out of their conventional thinking. It initiates explorations in generating new problems and opportunities for ideas and concept generation. The analogical association enabled varied exploration of ideas to drive creative output. The insights gained clearly helped depict the generative role of analogy.

In today's competitive market the production of novel ideas generated through idea exploration by a generative design process, can be of immense value towards a creative economy. Education needs to take initiatives and lead changes through integrated pedagogic interventions to meet the dynamics of a highly complex society.

Acknowledgement

We are grateful to the students of the course 'Introduction to design' at Indian Institute of Technology Bombay, India, who participated with full enthusiasm and rigor in completion of the project. We are thankful to them for sharing their work and cooperating with our data collection.

References

1. Edward De Bono, *Lateral Thinking* (Harmondsworth: Penguin Books, 1970).
2. Karen L. Yanowitz, 'Using analogies to improve elementary school students inferential reasoning about scientific concepts', *School Science and Mathematics*. 2001; 101(3):133-142.
3. John S. Gero, 'Creativity, emergence and evolution in design', *Knowledge Based System*. 1996; 9:435-448.
4. Nilgun Kuloglu, Ali O. Asasoglu, 'Indirect expression as an approach to improving creativity in design education', *Procedia Social and Behavioral Sciences*. 2010; 9:1674-1686.
5. Simon H., *Bounded rationality* (In Eatwell, J. e. a. (Eds) *The New Palgrave*, London: Macmillan, 1996).
6. Jami J. Shah, Steven M. Smith, Noe Vargas Hernandez, 'Multilevel aligned empirical studies of ideation: Final results', *International Design Engineering Technical Conference (ASME IDETC)* Philadelphia, PA, 2006.
7. Gabriela Goldschmidt, 'The dialectics of sketching', *Creativity Research Journal*. 2010; 4(2):123-143.
8. Ronald A. Finke, Thomas B. Ward, Steven M. Smith, *Creative Cognition: Theory, Research, and Applications*, (MIT Press, Cambridge, MA, 1992).
9. Donald J. Treffinger, Sally M. Reis, *Creativity and Giftedness* Sage Publications, South Aisia, 2004.
10. Margaret Boden, *The Creative Mind Abacus*, UK, 1990.
11. John S. Gero, 'Creativity and Design', in *Artificial Intelligence and Creativity* ed. T. Dartnall, Dordrecht, Kluwer, 1994, 259-267.
12. Sharmila Sinha, Battula K. Chakravarthy, 'A design inquiry into the role of analogy in form exploration: an exploratory study', *Proceedings of ICoRD13*, Springer, 2013.

Bibliography

1. Arthur Koestler, *The Art of Creation* (Hutchinson, London, 1964).
2. Keith J. Holyoak, Paul Thagard, *Mental leaps: Analogy in creative thought* (MIT Press, Cambridge, MA, 1995). William JJ Gordon, *Synerctics: The Development of Creative Capacity*, (Joanna Cotler Books, 1961).
3. Mihaly Csikszentmihalyi, *Creativity: Flow and the psychology of discovery and invention* (Happer Perennial, New York, 1997).
4. Nigel Cross, *Designerly Ways of Knowing* (Springer, London, 2006).

References

1. De Bono E. *New Think*. Avon Books, New York. 1971.
2. Donald J. Treffinger, Sally M. Reis, *Creativity and Giftedness* Sage Publications, South Aisia, 2004.

3. Jami J. Shah, Steven M. Smith, Noe Vargas Hernandez, 'Multilevel aligned empirical studies of ideation: Final results', International Design Engineering Technical Conference (ASME IDETC) Philadelphia, PA, 2006.
4. Gabriela Goldschmidt, 'The dialectics of sketching', Creativity Research Journal. 1991; 4(2):123-143.
5. Ronald A. Finke, Thomas B. Ward, Steven M. Smith, Creative Cognition: Theory, Research, and Applications, MIT Press, Cambridge, MA, 1992.
6. Yanowitz KL. Using analogies to improve elementary school students' inferential reasoning about scientific concepts. School Science and Mathematics. 2001; 101(3):133-142.

Measurement of Travelers' Satisfaction with special reference to Three Star Hotels in Kolkata

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ABSTRACT: *In the present day world, the services sector is growing at a phenomenal rate. The service sector also plays a pivotal role in contributing to gross domestic product (GDP) in India. The service sector comprises of a number of sub-sectors like finance, tourism, travel, education, hospital, hospitality etc. Hospitality in Kolkata is on a swing, from the sepia-tinted impression of an indolent economy to a bustling marketplace, if the changing cityscape is anything to believe in. The political stability in Kolkata is one of the major reasons why east is becoming an important market. The concept of hotel marketing confirms the alignment of marketing concepts and principles in the hotel business where customer satisfaction is the most important aspect. To understand this phenomenon, a sort of pilot survey was conducted for the Hotel industry. Further the targeted sample for this survey was selected as Kolkata, a city with many sites of historical, religious and industrial importance. As all people cannot afford seven/five or four star hotel due to lack of fund, they generally opt for two/three star hotels. This paper articulates whether travelers in Kolkata are satisfied with the service of two/three star hotels or not. The data used for the study is both secondary and primary in nature. The secondary data has been collected from government and semi-government reports, news articles and websites. The primary data has been collected through questionnaire method from 200 frequent travelers. The data so collected has been analysed by using appropriate techniques with the help of SPSS Software.*

Keywords: GDP, Hotel Industry, Manova, Travelers' satisfaction.

1. Introduction

Global Investments in hospitality Sector has shown an increasing trend over last few years. The contribution of the entire travel and tourism sector in India to Gross Domestic Product is estimated to rise from 8.6% (USD 117.9 billion) in 2010 to 9.0% (USD 330.1 billion) by 2020. Between 2010 and 2019 the demand for travel and tourism in India is expected to grow annually by 8.2%, which will place India at the third position in the world. Travel and tourism in India also accounts for 49,086,000 jobs in 2010 (about 10% of total employment) and is expected to rise to 58,141,000 jobs (10.4% of total employment) by 2020. Within the travel and tourism sector, the Indian hospitality industry is one of the fastest growing and most important segments, revenue-wise as well as employment-wise. According to an estimate of the Economic Survey of India and Technopak, the Indian hotel industry accounts for USD 17 billion, 70% (USD 11.85 billion) of which take their origin from the unorganized sector and the remaining 30% (USD 5.08 billion) from the organized sector.

During the past few decades, customer satisfaction and service quality have become a major area of attention to practitioners and academic researchers. Therefore, one of the key strategies for customer-focused firms is to measure and monitor service quality and customer satisfaction. Several tools are available for measuring customer satisfaction. We have used survey/questionnaire method. When analyzing data gathered in such a way, managers can get information about the attributes that have an impact on guests' satisfaction. This paper is divided into several sections. First, a brief review of main concepts of interest is provided. Next, the research methodology used for this study is presented, followed by presentation and discussion of the results. Finally, the article concludes with main research findings.

Objectives of The Study

The brief review of literature carried out by us to pinpoint the objectives of the study which are highlighted below:

- To identify whether customers are satisfied with the service of two/three star hotels in Kolkata.
- To find out the challenges of hotel industry in India in general and Kolkata in particular.
- To know the future prospects of hotel industry in India especially with respect to Kolkata.

Research Methodology

This paper is basically based on both primary as well as on secondary data. For collecting primary data, questionnaire method was used. We have approached 200 Travelers' in different 3 star hotels in Kolkata. We

have visited the following hotels to collect our data-Hotel Emerald, Hotel Trimoorti, Aquatica Water Theme Park and Resort, Hotel Aura, Hotel Sheldon, Hotel Park Inn, Hotel Marina, Hotel Crest Inn, Hotel Pallavi International. Secondary data has been collected from various articles, published journals, semi-government and government reports as well as websites.

Conceptual Framework

Hotel is a part of the hospitality industry which is an umbrella term for a broad variety of service industries including, but not limited to, hotels, restaurants and casinos. Hotel is often referred as a “Home away from home”. The word “*hotel*” is derived from the French “*hotel*” (coming from *hôte* meaning *host*), which referred to a French version of a “Townhouse” or any other building seeing frequent visitors, rather than a place offering accommodation. A hotel is an establishment that provides “lodging” Paid on a short-term basis. The provision of basic accommodation, in times past, consisting only of a room with a bed, a cupboard, a small table and a washstand has largely been replaced by rooms with modern facilities, including en-suite bathrooms and air conditioning or climate control. Additional common features found in hotel rooms and facilities for making tea and coffee. Larger hotels may provide additional guest facilities such as a swimming pool, fitness center, business center, childcare, conference facilities and social functional services. Hotel rooms are usually numbered to allow guests to identify their room. Some hotels offer meals as part of a room and board arrangement. In nutshell, hotel is a commercial establishment intended to provide travellers/ guests with lodging, food and related services. Government of India policy statements define the term “hotel” to include restaurants, beach resorts, and other tourist complexes providing accommodation and/ or catering and food facilities to tourist. “A hospitality service is a bundle of features and benefits”. For the above discussion it becomes obvious that the hospitality covers a wide range of services offered to travellers/ guests-these services include all forms of food, accommodation, dining, and transport entertainment. Hospitality Management is the academic study of the hospitality industry.

Hotel Industry In India In General And Particular In Kolkata

India holds a special place in the international world of hospitality. Culturally the country might very well be the most diverse place in the world. It is a vivid kaleidoscope of landscapes, magnificent historical sites and royal cities, misty mountain retreats, colourful people, rich cultures, and festivities. Luxurious and destitute, hot and cold, chaotic and tranquil, ancient and modern - India's extremes rarely fail to leave a lasting impression. Hospitality is a long running tradition in India. From the majestic Himalayas and the stark deserts of Rajasthan, over beautiful beaches and lush tropical forests, to idyllic villages and bustling cities, India offers unique opportunities for every individual preference. However, until fairly recently this was hardly evident when looking at India's hospitality industry. Accommodation options throughout India have become extremely diverse, from cosy home stays and tribal huts to stunning heritage mansions and maharaja palaces. From Kashmir to Kanyakumari, from Gujarat to Assam, there are different cultures, languages, life styles, and cuisines. This variety is increasingly reflected by the many forms of accommodation available in India, ranging from the simplicity of local guest houses and government bungalows to the opulent luxury of royal palaces and five star deluxe hotel suites.

After many years of obscurity, the Indian hospitality industry is suddenly now in the limelight of the global hospitality industry. The trade press is full of features on the potential of the Indian hospitality sector and presents ever new stories of successful innovations in the industry. The hotel industry in India is going through an interesting phase. One of the major reasons for the increase in demand for hotel rooms in the country is the boom in the overall economy and high growth in sectors like information technology, telecom, retail and real estate. Rising stock market and new business opportunities are also attracting hordes of foreign investors and international corporate travellers to look for business opportunities in the country. The arrival of low cost airlines and the associated price wars have given domestic tourists a host of options. The opening up of the aviation industry in India has led the way for exciting opportunities for the hotel industry as it relies on airlines to transport 80% of international arrivals. Moreover, the government's decision to substantially upgrade 28 regional airports in smaller towns and privatisation and expansion of Delhi and Mumbai airport will improve the business prospects of hotel industry in India. Substantial investment in tourism infrastructure is essential for Indian hotel industry to achieve its potential. The upgrading of national highway connecting various parts of India has opened new avenues for the development of budget hotels here.

Kolkata knows exactly how to cater to the taste of everyone – artist, intellectual, history enthusiasts, avid shoppers, epicureans and sports lovers! The heritage hotels in Kolkata are replete with colonial influences. Since the reforms in the Indian economy and the boom in the IT sector, there has been a visible change in the

hospitality industry with the younger generation taking over. The hotels in Kolkata are increasingly finding pride of place among the best hotels in the country. Out of the total premium category hotel rooms coming up in the top 10 cities in the country in the next three years, about eight per cent will be in Kolkata, a study has said.

The horizontal expansion of the city limits in the eastern and north-eastern part of Kolkata, including Rajarhat and Salt Lake, has seen many global IT companies setting up operations there. The proximity to the airport, availability of large land parcels and upcoming industrial set-ups has fuelled the demand for hotels to be located in this region. Kolkata's attractiveness as an investment option is increasing due to the city developing as a major industrial and medical hub and the lack of new hotels opened this year. The promotion of large-scale IT and non-IT industries in West Bengal will further enhance the demand for hotel rooms, the study said. Though there are a number of luxury hotels in the city, the industry is feeling the heat due to an acute shortage of business category rooms to accommodate mid-level and lower-level executives. While Singapore and Bangkok are still regarded as benchmarks in terms of best practices in the hospitality industry, in another eight years, Kolkata can become a centre like that because supply creates demand. The city clearly lacks good-quality branded hotels in the second and third rungs and need to add a significant number of rooms in the three-star category and the organized budget category, since this segment will witness high demand soon. The city needs more hotel rooms and conference facilities. The recommissioned Grand Great Eastern hotel will have 244 rooms. The only gap between promise and delivery could be the software. "All the three Ps — people, product and processes — would determine survival and growth, but people would be the key. Since there's a perennial shortage of trained manpower in this industry, it's important for the leading hotels to take the initiative and roll out training programmes to feed the boom.

Data Analysis & Interpretation

Factor Analysis

Table 1:Summary of the Data Set

	Output Created	13-Jan-2019 22:04:59
	Comments	
Input	Active Dataset	DataSet1
	Filter	<none>
	Weight	<none>
	Split File	<none>
	N of Rows in Working Data File	200
Missing Value Handling	Definition of Missing	MISSING=EXCLUDE: User-defined missing values are treated as missing.
	Cases Used	LISTWISE: Statistics are based on cases with no missing values for any variable used.
	Syntax	FACTOR /VARIABLES Prices of three star hotels are comparatively cheap Locations of three star hotels are not bad Staff manner and behaviour are upto the mark Facilities and amenities in the room are good Available foods are not bad Customer service is good /MISSING LISTWISE /ANALYSIS Prices of three star hotels are comparatively cheap Locations of three star hotels are not bad Staff manner and behaviour are upto the mark Facilities and amenities in the room are good Available foods are not bad

		Customer service is good /PRINT INITIAL DET KMO EXTRACTION ROTATION /FORMAT SORT /CRITERIA MINEIGEN(1) ITERATE(25) /EXTRACTION PC /CRITERIA ITERATE(25) /ROTATION VARIMAX /METHOD=CORRELATION.
Resources	Processor Time	0:00:00.063
	Elapsed Time	0:00:00.139
	Maximum Memory Required	5544 (5.414K) bytes

Table 1 shows that the data set consists of 200 respondents and the variables chosen are 6 in total with no missing values.

Table 2:KMO and Bartlett's Test

	Kaiser-Meyer-Olkin Measure of Sampling Adequacy.	.534
Bartlett's Test of Sphericity	Approx. Chi-Square	36.441
	df	15
	Sig.	.002

The value of Kaiser-Meyer-Olkin (KMO) is 0.534 which indicates that the sample size in the study is suitable for factor analysis. The value of chi-square in Bartlett’s Test is 36.441 and statistically significant. Consequently, PCA is suitable for analyzing the magnitude of the selected parameters in gauging Travelers’ satisfaction.

Table 3: Communalities

	Initial	Extraction
Prices of three star hotels are comparatively cheap	1.000	.541
Locations of three star hotels are not bad	1.000	.499
Staff manner and behaviour are upto the mark	1.000	.629
Facilities and amenities in the room are good	1.000	.737
Available foods are not bad	1.000	.590
Customer service is good	1.000	.639

Extraction Method: Principal Component Analysis.

By observing Table 3 we can see that the variance of “Prices of three star hotels are comparatively cheap” is initially given a communality value of 1 but after extracting the factors we find it has a communality of 0.541. This indicates that 54 per cent of its variability is explainable by the factors.

Table 4: Total Variance Explained

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	1.437	23.946	23.946	1.437	23.946	23.946
2	1.144	19.071	43.017	1.144	19.071	43.017
3	1.053	17.557	60.574	1.053	17.557	60.574
4	.930	15.493	76.067			
5	.730	12.168	88.236			
6	.706	11.764	100.000			

Extraction Method: Principal Component Analysis.

Table-4 has shown the results of the PCA. This study has reflected 3 principal components which have Eigen value greater than 1. Rotation Sums of Squared Loadings show that the first rotated principal component has explained 23.946% of total variation in travelers' satisfaction. The 2nd rotated principal components have explained 19.071 % of variance. The 3rd rotated principal components have explained 17.557 % of variance. 3 components explained 60.574% of total variation in the travelers' satisfaction.

Table 5: Component Matrix^a

	Component		
	1	2	3
Prices of three star hotels are comparatively cheap	.727	-.105	.048
Available foods are not bad	.691	.197	.271
Staff manner and behaviour are upto the mark	.621	-.414	-.269
Facilities and amenities in the room are good	.143	.807	.255
Locations of three star hotels are not bad	.157	.496	-.478
Customer service is good	-.021	-.164	.782

Extraction Method: Principal Component Analysis.
 a. 3 components extracted.

The Component Matrix in Table 5 details the factor loadings onto our three factors before they have been rotated. This table gives us the initial picture of the loadings of the variables onto the factors, but it can be made clearer by rotation. For instance, we can see that all variables appear to load onto factor 1 to a reasonable extent. However, rotation will simplify the picture and show which variables really are important to factor 1.

Table 6: Rotated Component Matrix^a

	Component		
	1	2	3
Prices of three star hotels are comparatively cheap	.735	.016	.008
Staff manner and behaviour are upto the mark	.665	-.404	-.154
Available foods are not bad	.663	.374	.101
Facilities and amenities in the room are good	.026	.853	-.090
Customer service is good	.042	.157	.783
Locations of three star hotels are not bad	.054	.282	-.645

Extraction Method: Principal Component Analysis.
 Rotation Method: Varimax with Kaiser Normalization.
 a. Rotation converged in 4 iterations.

As we have selected the **Principal Component Analysis** with a **Varimax** rotation in Table 6, the **Rotated Component Matrix** gives us a clearer picture than the **Component Matrix** of our factor loadings onto the seven factors.

We now have a much clearer picture of our three factors. Rotation has shown that different variables load onto different factors. We can now look at the variables loading onto each factor and choose suitable names for factors.

- ❖ **FACTOR 1** seems to be related to variables that assess **Perception** which consist of ;
 - Prices of three star hotels are comparatively cheap
 - Staff manner and behaviour are upto the mark
 - Available foods are not bad

- ❖ **FACTOR 2** is related to variables that deal with **Facilities** which consist of;
 - Prices of three star hotels are comparatively cheap

- ❖ **FACTOR 3** is related to variables that deal with **Service** which consist of;
 - Customer service is good

The application of Factor Analysis technique helped us to reduce the numerous variables into three factors which affect the travellers' satisfaction namely, **Perception, Facilities and Service.**

Challenges of hotel industry in india:

- It is often forgotten that in the last few years, more Indians travelled abroad, almost double than to the inflow of foreign visitors, leading to a net outflow of foreign exchange due to high cost of hotel rooms. Our tourism planners only keep in view one class of visitor i.e. the foreigners. Hence, we give more importance to airports than railway stations and bus terminals. Luxury hotels get priority over budget accommodation. Because of high land price, there are more five star hotels than budget hotels, making National Capital Region (NCR) and India a high cost destination.
- India faces stiff competition from Asian neighbours like China and Singapore as a tourist destination. India may fall far behind unless it takes effective measures to match their low costs and wide availability of hotel accommodation. In China and Singapore a five star hotel room is available within the range of US\$ 100-150 whereas in India it costs around US\$ 500 per night making India an expensive destination.
- Average growth rate of hotels rooms in India is only 6 per cent as compared with 22 per cent in China, 18 per cent in Thailand and 15 per cent in Malaysia. India is located far away from rich and prosperous countries. Time and cost is the biggest reason opting India as a tourist destination. More over perception about India in European countries has slightly changed but due to uncertainties related to security and threat therefore it loses its image from time to time. Earlier British writers and scholars projected India as a land of heat, dust and poverty, as a result low tourist traffic.
- India is having poor neighbours, people from these countries does not have sufficient disposable income to travel as a result low tourist traffic from neighbouring countries. Moreover due to some political tension for one or other reasons with these countries, tourism industry is badly affected for a long time.
- Lack of infrastructure like proper roads, flights to several tourist spots, proper drinking water and sometimes law and order poses a very heavy threat to the international visitors.
- Non-availability of the trained experienced and well-behaved staff in budget hotels. Satisfying the customer is most difficult thing since services is highly personalized.
- The hotel industry suffers from sickness due to high tax rates. The hotel industry also lacks proper advertisement network in both domestic and foreign countries due to high cost of publicity.

Future Prospects Of Hotel Industry In India

India is the second largest populated country in the world with a population of more than 1.02 billion. Compromising of an ever-increasing size of middle class as well as travellers from other countries is going to be a significant force in the promotion of tourism. Promotion of budget class tourism is the call of the time and in India today it can also help in promotion of domestic and regional tourist traffic movement. Domestic tourism, not only helps in encouraging better understanding among people from different regions, cultures and religions but it also provides the necessary infrastructural base for international tourism. A country with a weak domestic tourism base does not generally have a lot international tourism. So, budget tourism needs greater attention from the planners as the majority of country's population as well world's population is unable to travel for recreational purposes due to low per capita income and economic crisis is emerging from time to time. In fact, widening of India's tourism base depend upon the participation of increasing middle class within country and in the parts of rest of world. To encourage and motivate this large segment and for the growth of tourism in India there must be adequate accommodation facilities for low budget tourists. For the budget tourist's cheap and neat accommodation such as budget hotels should be provided. This becomes essential in view of the fact that the availability of functional low cost accommodation enables and encourages the low-income tourists to visits many more tourist places helps in decongesting the popular and more frequently visited tourist destinations.

Conclusion

The findings and the conclusion of this pilot survey have been an eye opener. It was realized that this shift in approaches and understanding was not merely to withstand the onslaught of competition, but more so to address the categorical development in the consumer perception. As all people cannot afford seven/five or four star hotel due to lack of fund, they generally opt for two/three star hotels. One of the clear reasons is that they find it comparatively cheap in rate than four or five star hotels. Promotion of budget class tourism is the call of the time and in India today it can also help in promotion of domestic and regional tourist traffic movement. Domestic tourism, not only helps in encouraging better understanding among people from different regions, cultures and religions but it also provides the necessary infrastructural base for international tourism. In fact, widening of India's tourism base depend upon the participation of increasing middle class within country and in the parts of rest of world. To encourage and motivate this large segment and for the growth of tourism in India there must be adequate accommodation facilities for low budget tourists.

References

1. Bapat Harish B, Soni Vishal, Khasgiwala Vishal. A Study of Customer Satisfaction & Service Quality of Indian Hotel (A Comparative Study in Indore Region).IOSR Journal of Business and Management 2015; 17(2):53-60.
2. Rishipal. Customer Loyalty towards Hotel Industry In India. International Journal of Science and Research. 2014; 3(12):1362-1365.
3. Singh Mukesh Kumar, Arora Ritu. The Changing face of the Indian Hospitality Industry. International Journal of Advanced Research in Management and Social Sciences. 2014; 3(8):26-36.
4. Sharma Nitya, Kalotra Anil. Hospitality Industry in India: A Big Contributor to Indias Growth. International Journal of Emerging Research in Management & Technology. 2016; 5(6):202-210.
5. Sharma Vivek, Thusoo Vinay. Major shift in the Indian hospitality industry: An assessment study.IOSR Journal of Business and Management. 2017; 19 (12):59-62.
6. Thyagaraju N. Indian Hotel Industry - Future Prospects and challenges In India. International Multidisciplinary E-Journal. 2015; IV(iii):55-66