

# The effect of Economic and Institutional factors on tax compliance in Ethiopia: A study with reference to Southern Nations, Nationalities, and Peoples' Regional State (SNNPRS)

<sup>1</sup>Prof. K. Sambasiva Rao, D.Litt. & <sup>2</sup>Chernet Bereda Biraro

<sup>1</sup>Professor, Department of Commerce and Management Studies, Andhra University, Vishakhapatnam, Andhra Pradesh, India

<sup>2</sup>Research Scholar, Department of Commerce and Management Studies, Andhra University, Vishakhapatnam, Andhrapradesh, India and lecturer, in Accounting and Finance, Wolkite University, Ethiopia

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**ABSTRACT:** : *Tax non-compliance can be viewed as a problem of public finance, law enforcement, organizational design, labor supply, ethics, or a combination of all of these factors. Understanding the taxpayers' behavior in the sense of their attitude towards tax compliance and manner in which to positively alleviate against this problem is, as a result, it is a typical component of any good tax administration.*

*This study founded that the provisions of rewards, government service, tax audit, and penalty rates were statistically significant and positively associated with tax compliance behavior of taxpayers. Whereas, the tax rate was found out to have a strong negative association with the tax compliance behavior of taxpayers in Ethiopia.*

*The study concludes that the higher provision of rewards scores leads to an increase in the probability of tax compliance behavior of taxpayers. There was strong evidence that tax audit, penalty rate, government service varies directly with tax compliance behavior of taxpayers in Ethiopia. Apart from this, tax compliance behavior was negatively affected by the tax rate.*

**Key Words:** *Economic factors, institutional factors, and tax compliance behavior of taxpayers.*

## 1.1. Significance of the Study

Tax is imposed by the government on the income, profit or wealth of an individual, partnership and corporate organization. As stated by Hasan, (2014) to regulate the economic sectors in the right direction by encouraging the production and distribution of useful goods and discouraging the harmful products, imposing the tax is essential. The tax revenue bodies share a common authorization. This authorization is to ensure effective tax collection and administer it effectively and efficiently through the implementation of various tax laws and regulations in place within their authority. Therefore, the study on the effect of Economic and Institutional factors on tax compliance in Ethiopia is vital as it will enable revenue authorities, regional government, policy makers as well as community to know as to where and how to channel efforts in order to improve tax administration and enhance compliance level and to minimize and reduce tax evasion and cheating. The identification of factors encumbering tax payers' compliance will also help to formulate successful tax policies and intervention measures. Moreover, the study will magnify the importance of knowledge and education to increase the compliance level and finance the current development projects of the region and by then reduce the income inequality and prevail fair distribution of income. In addition to these, the study will provide benchmark information for those who would like to conduct further studies on tax administration and factors affecting tax payers' compliance.

## 1.2. Literature Review

### Tax Compliance

The meaning of tax compliance in its majority simple type is usually emitted in conditions of the degree to which taxpayers comply with the tax law of a given country. On the other hand, similar to a lot of such thought, the meaning of compliance can be observed just about as a variety of description. Which variety from the narrow law enforcement approach to broaden economic explanations and on top of yet additional wide-ranging descriptions connecting to taxpayer choices to obey the rules to the broader aims of the public as revealed in tax policy of the country.

Tax compliance is the enthusiasm of individuals and other taxable bodies to take action in harmony inside the courage in addition to the correspondence of valid tax law and administration rules and regulations lacking the application of enforcement action (Prihandini, 2018).

Besides, Fookan and Herrmann (2014) proposed the meaning of tax compliance is simply the nonexistence of tax avoidance. Additionally, Andini, Riyadi, & Lestari (2018) defined tax compliance as reporting all taxable incomes and paying all taxes in agreement with the valid tax rules of the country in which the tax is levied. Likewise, Gangl et al., (2013) put forward his description of tax compliance at the same time as the most neutral term to explain taxpayers' readiness to pay their taxes voluntarily.

Tax Non-compliance corresponds to whichever failure to meet tax obligations whether it is practiced deliberate or in unconsciously, it consists of non-filing of tax returns or incorrect filing of tax returns, underreporting of tax, and underpayment of tax obligations Non-compliance leads to the high tax gap, which is a combined non-compliance measure, which is distinct as the variation between actual tax collected and the potential tax collection under full compliance with the tax laws and regulations (Gemmell & Hasseldine, 2014).

### **Tax rate**

The perception of business income taxpayers that pay high tax rate is that they can offset their overdue through tax evasion. several studies assured that there a negative relation of tax rate and compliance behavior of taxpayers (Almunia & Lopez-Rodriguez, 2018; Braunerhjelm & Eklund, 2014; Kogler et al., 2013 ). Similarly, Alm, Bloomquist, & Mckee, ( 2015) stated on their finding that there are experimental facts for the significant negative association between high tax rates and tax compliance behavior. Thus, the perception of high tax rate affects tax compliance behavior of taxpayers negatively.

### **Penalty**

The tax penalty is a corrective measure that imposes for the act of violations of rules of tax laws, or for the failure to carry out necessary activities such as failure to timely file of tax returns, overstatement of deductions, filling incorrect or undervalued taxable returns. The tax penalty usually depends on the magnitude of fault ratepayers in fulfilling their requirements. **A measure of tax penalty may avert taxpayers to make inappropriateness in paying taxes and it has a positive effect on tax compliance behavior** (Namusonge, Biraori, & Kipicoech, 2014). The federal income tax laws impose three basic obligations on the taxpayers: to assess their own tax liabilities, to file their tax return reporting that liabilities, as well as to pay that tax liabilities at the time of due. A complex scheme of civil and criminal penalties will come behind those obligations in the condition that failure to file a tax return, and failure to pay a tax liability when it is due. The taxpayer's responsibilities to file tax return as well as to pay are clear-cut, and the procedures of the related penalties is straightforward. **Therefore, the penalty rate has a positive significant effect on tax compliance.**

### **Provision of rewards**

The reward is more likely to be perceived as an indication of acknowledgment, as a result, is more likely to maintain or increase intrinsic motivation of taxpayers, as the sign of appreciation from the revenue authority is perhaps stronger than a mere reduction in tax liability. The use of non-monetary rewards may be preferable and could improve tax compliance behavior of taxpayers (Brockmann, Genschel, & Seelkopf, 2016; Kastlunger, Lozza, Kirchler, & Schabmann, 2013).

In the direction of implementing penalties and sanctions need not be the only form of power exercised by tax authorities. The rationale is that power exercised by authorities can be either 'influential' or 'controlling'. Influential power is the act of convincing people in various ways that the desired action is correct, moral, as well as proper, taxpayers are then probably to cooperate voluntarily as well as act out of their own resolution. On the other hand, control power is the capacity to find citizens to do something when they are not convinced or are not paying attention in the validity of the particular belief or the enforcement taken by the authority. There can be possible to divide controlling power into two different types, to be precise these are a coercive and legitimate authority. The coercive power means with the intention of the authority resorts to actions such as penalties as well as sanctions to control taxpayers behavior. Therefore, it is intended for at forcing taxpayers to comply with tax laws and regulations on an involuntary basis. On the other hand, legitimate power is managing based on the acceptance by community of the authority's right in the direction of set down its beliefs, attitudes as well as procedures (Kaplanoglou & Rapanos, 2015).

Pickhardt & Prinz (2014) stated that there is a psychological contract between taxpayers and tax authorities. This contract is based on trust and implies that authorities expect taxpayers to declare their true income honestly; and taxpayers expect authorities to treat them respectfully and not suspect or assume them to be tax evaders. Alm, Kirchler and Muehlbacher (2012) put important point that the disappointment of expectations represents a violation of the contract with a resulting negative impact on willingness to

cooperate with the authority or vice versa. Hence, the provision of reward has a positive significant effect on tax compliance.

### ***Tax Audit***

Tax Audit is an inspection of a sequence of actions to collect and process data, information, and evidence carried out objectively and professionally based on a standard of examination to test compliance of tax obligations fulfillment or intended for other purposes in order to apply the requirements of the tax legislation of the Country (Hoopes, Mescall, & Pittman, 2012). **According to Mascagni (2018), the determinants of tax compliance like the probability of being audited and being detected by tax authorities are significant and increases the tax compliance behavior of taxpayers. Similarly, Damayanti & Martono (2018) also founded that the probability of being audited by tax authorities has a significant association with tax compliance behavior of taxpayers.** Hence, the probability of being audited has a positive significant effect on tax compliance behavior of taxpayers.

### ***Government service***

Government spending intended for plans such as education, healthcare, military, and social welfare are just a few examples of the hot issues in current policy discussions (Feld & Frey, 2018). There is high relation outlooks in the direction of the intensity of taxation and tax enhancements are rely on attitudes about the interest of governmental programs and on feelings to the government because increase in government outlay is beneficial for economic development (Dzhumashev, 2014). Taxpayers are more likely to pay their taxes in the condition that they accept as true in what the government is doing. As per Bal, Bergeron, Tourek, & Weigel, (2018) taxpayers may fulfill the tax requirements for the reason that they value the goods supplied by the government and be aware of with the aim of their payments are essential both to help finance the goods and services and to get others to make a payment or to comply with tax law. A study of Ortega, Ronconi, & Sanguinetti (2016), provided a shred of empirical evidence by exploiting a novel survey conducted in seventeen Latin American cities as well as experimental efforts at gauging reciprocity in tax collection in developing countries. Their study suggests that governments interested in increasing tax revenues should not focus only on increasing the coercive power of the state. To a certain extent, providing better public services to society can be an effective tool to raise tax revenues. Therefore, government service has a positive significant association with tax compliance behavior of taxpayers.

### **1.3. Statement of the problem**

Taxation is the major source of government's financing in the world for all income level countries. In the majority of African countries including Ethiopia, tax noncompliance is a serious challenge to finance its activity by its own means, and thereby leads to an excess of public expenditure over public revenues resulting deficit (IMF, 2018).

The majority of underdeveloped countries including Ethiopia have low revenue yield of taxation. This is due to the fact that the tax provisions are not correctly imposed either on account of the inability of the administration to cope with them or on account of straightforward dishonesty. Besides this, important factors like taxpayers awareness level, perceptions of government services, provision of rewards, compliance behavior and its determinants consideration at the time of designing the current tax system were insufficient. The tax system must be designed in the form to encourage taxpayers to comply with tax law voluntarily, and hence, it has to be simple to fill returns, and equitable or fair to all taxpayers (Picciotto, 2013).

Revenue collection from the tax is indispensable to finance the current tremendous and vital projects of the development plan of the country. On the other hand, According to the IMF report (2018), the ratio of tax revenue to GDP in Ethiopia was 12.5 percent which is lower than low-income countries. Administrative bottlenecks and weak tax compliance have been the main obstacles to revenue administration. **Thus,** reforms have focused on strengthening core operational processes, improving organizational structures, better use of data and information technology, and enhanced human resource management thereby contributes to voluntary system, taxpayers have to be confident that the taxes are levied fairly and that everyone pays his share as per the laws, and feel that is able to minimize tax collection loopholes and non compliance.

Tax compliance is the subject of growing interest and policy give a face-lift in most developed countries for academics and governments institutions. On the other hand, in developing countries including in Ethiopia research on tax compliance was limited and not studied in depth, this is for the reason that lack of concern by academicians, it requires complicated investigation involving the collection of large amounts of data, lack of data available from published sources, lack of cooperation with institutions, So the problem had been

gone insufficient attention (Ali, Fjeldstad, & Sjursen, 2013).

There has been no comprehensive research conducted on the determinants of tax compliance behavior of taxpayers in Ethiopia and the existing literature indicated the need of inconclusive finding to the extent that the determinants of tax compliance is concerned. Thus, conducting research which could fill the gap is timely and worth taking. Therefore, this research is aimed at investigating institutional and economic determinant factors of tax compliance behavior of taxpayers in Ethiopia in general and Southern Nations, Nationalities, and Peoples' Regional State in Particular.

**1.4. Objectives of the Study:**

The general objective of this study is to investigate the effect of Economic and Institutional factors on compliance in Ethiopia the case of the Southern state.

More in particular, the objectives are described below:-

- To analyze the effects of economic factors such as government service, tax rate and penalty rate on tax compliance behavior of taxpayers.
- To identify the extent of institutional factors such as tax audit and provision of rewards effect on tax compliance behavior of taxpayers.

**1.5. Methodology and Hypotheses**

The population of this study was business income taxpayers who are registered and operating in the Southern State of Ethiopia. Because it is difficult to make senses survey, 395 sample size was determined by using Yemane (1967) formula. By considering the probability of non-returnable questionnaires, a total of 480 structured questionnaires were distributed to the taxpayers. Out of which, 402 were returned and used for the analysis. To test the formulated hypotheses the researcher used both Pearson correlations and Econometrics model.

**Econometric Analysis**

In order to analyze the determinant factors of tax compliance behavior of taxpayers in Ethiopia with reference to southern nations nationalities, and peoples regional state taxpayers the binary logit model was used to examining an association of each factor with compliance behavior of taxpayers. The model is often used to approximate the mathematical relationships between explanatory variables and the dependent variable. To mention few points as to why the logit model is used, when the dependent variable is binary i.e., measuring whether the taxpayer is being compliant or not, OLS regression technique produces parameter estimates that are inefficient as well as heteroscedastic error structure. Consequently, testing hypothesis, as well as the construction of confidence interval, becomes inaccurate and misleading (Agresti, 2018). In the same way, a linear probability model may produce predicted value outside 0 - 1 interval which violates the basic view of probability (Gujarati, 2004). It also generates a problem of nonnormality, heteroscedasticity of the disturbance term; after that leading to lesser coefficients of determination (Gujarati, 2004). To improve these problems as well as generate relevant outcomes, the most commonly used models are the logit and probit models (Saha, 2011). Although the logit and probit models are similar, it is reported that the logit model has the advantage that these predicted probabilities could arrive at easily. Healy, (2006) also point out that when there are many observations at the extremes of the distribution, at that moment the logit model is preferred over the probit model. For this reason, in this study, the logit model is fitted to estimate the strength of the relationship of each factor with the compliance behavior of taxpayers when the other variables are controlled. Let y represent the tax compliance behavior of taxpayers, and then the binary response variable y has two categories denoted by 1 and 0. That is, tax compliance behavior of taxpayers can take the value 1 if the taxpayer belongs to compliant, i.e. tax compliance behavior of taxpayers with the probability of Pi, otherwise, a value of 0, i.e. otherwise with the probability of 1 - Pi.

Let  $P(y = 1) = 1 - (Py = 0) = P(i)$ .....**Equation(1)**

Where  $P(i)$  is defined by equation (2)

$$P(i) = \frac{e^{(\alpha + \beta_1 X_1 + \beta_2 X_2 + \dots + \beta_n X_n)}}{1 + e^{(\alpha + \beta_1 X_1 + \beta_2 X_2 + \dots + \beta_n X_n)}} \dots\dots\dots \text{Equation(2)}$$

That is (Equation 2) can be concisely written as

$$P(i) = \frac{e^{(\alpha + \sum_{i=1}^n \beta_i X_i)}}{1 + e^{(\alpha + \sum_{i=1}^n \beta_i X_i)}} \dots\dots\dots \text{Equation(3)}$$

Where e is considered as the base of the natural logarithm

$X_i$  = stands for the nth explanatory variable

$P(i)$  = is the probability that a taxpayer is being compliant

$\beta_i$  = is parameters to be estimated

$\alpha$  =constant term of the logistic regression function

Following Gujarati (2004), the logit model could be written in terms of the odds and log of odds, which enable one to understand the interpretation of the coefficients. In this study, the odds ratio is the ratio of the probability that a taxpayer would be compliant ( $P(i)$ ) to the probability that a taxpayer would be otherwise ( $1 - P(i)$ ). The odds ratio is given by

$$\text{Odds} = \frac{P(i)}{1-P(i)} = e^{(\alpha + \sum_{i=1}^n \beta_i X_i)} \dots\dots\dots \text{Equation(4)}$$

Given from (Equation 3)

$$P(i) = \frac{v}{1+v}, \text{ where } v = e^{(\alpha + \sum_{i=1}^n \beta_i X_i)}$$

$$\text{Therefore Odds} = \frac{P(i)}{1-P(i)} = \frac{v}{1+v} * \frac{1}{1-\frac{v}{1+v}}$$

$$\text{But } 1 - \frac{v}{1+v} = \frac{1+v-v}{1+v} = \frac{1}{1+v}$$

$$\text{Therefore, Odds} = \frac{v}{1+v} * \frac{1+v}{1} = v$$

Therefore equation (4) can be transformed into an alternative form of logistic regression equation by taking the logarithm of the Odds ratio popularly known as logistic transformation (Logit) to obtain equation (5)

$$\text{Logit } [P(i)] = \ln\left[\frac{P(i)}{1-P(i)}\right] = \alpha + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \beta_5 X_5 + U_i \dots\dots\dots \text{Equation(5)}$$

**Hypotheses of the Study**

In order to achieve the objective of the study, a number of hypotheses were tested regarding the determinants of tax compliance behavior in Ethiopia based on different empirical research and theoretical review.

These testable hypotheses were stated as follows;

**A:** Institutional factors have a significant effect on tax compliance behavior of taxpayers in Ethiopia.

**Ha1:** There is a positive significant relationship between tax audit and tax compliance behavior of taxpayers.

**Ha2:** There is a positive significant relationship between the provision of reward and tax compliance behavior of taxpayers.

**B:** Economic determinant factors have a significant effect on tax compliance behavior of taxpayers in Ethiopia

**Hb3:** There is a positive significant relationship between government service and tax compliance behavior of taxpayers.

**Hb4:** Tax rate has a significant negative effect on tax compliance behavior of taxpayers.

**Hb5:** Penalty rate has a positive significant effect on tax compliance behavior of taxpayers.

**1.6. Data presentation and interpretation**

**Table 1. Pearson Correlation**

		TC	TR	PR	GOVS	TAUD	PREW
TC	Pearson Correlation	1	-.451**	.452**	.649**	.304**	.376**
	Sig. (2-tailed)		.000	.000	.000	.000	.000
	N	402	402	402	402	402	402
TR	Pearson Correlation	-.451**	1	-.460**	-.570**	-.493**	-.417**
	Sig. (2-tailed)	.000		.000	.000	.000	.000
	N	402	402	402	402	402	402
PR	Pearson Correlation	.452**	-.460**	1	.514**	.532**	.324**
	Sig. (2-tailed)	.000	.000		.000	.000	.000
	N	402	402	402	402	402	402
GOVS	Pearson Correlation	.649**	-.570**	.514**	1	.419**	.398**
	Sig. (2-tailed)	.000	.000	.000		.000	.000
	N	402	402	402	402	402	402

TAUD	Pearson Correlation	.304**	-.493**	.532**	.419**	1	.399**
	Sig. (2-tailed)	.000	.000	.000	.000		.000
	N	402	402	402	402	402	402
PREW	Pearson Correlation	.376**	-.417**	.324**	.398**	.399**	1
	Sig. (2-tailed)	.000	.000	.000	.000	.000	
	N	402	402	402	402	402	402

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

**Where;** TC = tax compliance behavior of taxpayers, TR = tax rate, PR = penalty rate, GOVS = government service, TAUD = tax audit, PREW = provision of rewards.

Table1. Shows the Pearson correlation results of dependent and independent variables. The correlation analysis result tells us variables like penalty rate, government service, tax audit and provision of rewards have a positive and significant association with tax compliance behavior of taxpayers. On the other hand, a significant negative association was observed between tax rate and tax compliance behavior of taxpayers.

**The Omnibus Tests of Model Coefficients**

Omnibus tests are a type of statistical test which measures how well the model explains variations in the outcome of interest. They test whether the overall explained variance in a set of data is significantly greater than the unexplained variance. The Omnibus test of model coefficients considered as a statistical test is put into practice on an overall hypothesis that inclined to find general significance between parameters' variance despite the fact that investigating parameters of the same type.

The Hypothesis for Omnibus Tests of Model Coefficients are;

**H0: adding all variables to the model has a significant increase in our ability to predict the decision made by our subjects**

**H1: adding all variables to the model has no significant increase in our ability to predict the decision made by our subjects**

Decision Rule: if the chi-square test of statistics value is significant i.e. P-value is less than 5% level of significance, we accept the null hypothesis, that is adding all variables to the model has significantly increased our ability to predict the decision made by our subjects.

**Table 2. Omnibus Tests of Model Coefficients**

		Chi-square	df	Sig.
Step 1	Step	249.941	5	.000
	Block	249.941	5	.000
	Model	249.941	5	.000

Source: Survey output, 2018

In this study as shown above the Chi-square test statistic gave the conclusion that there is no evidence to reject the null hypothesis because the Chi-square  $\chi^2$  value [(5, N = 402) = 249.941] is significant at one percent level of significance (p=0.000). Hence, we can conclude that our predictor model fits significantly better than no predictors as well as adding all variables to the model has significantly increased our ability to predict the decision made by our subjects.

**Table 3. Model Summary**

Step	-2 Log likelihood	Cox & Snell R Square	Nagelkerke R Square
1	172.576 <sup>a</sup>	.463	.712

a. Estimation terminated at iteration number 8 because parameter estimates changed by less than .001.

In the model summary, we can observe that the -2 Log Likelihood statistics is 172.576. This statistic measures how this model predicts tax compliance behavior of taxpayers decision. Generally, the smaller the statistic the better the model. In the linear regression, the coefficient of determination R-square value gives an indication of how much variation in independent variable is explained by the model. This cannot be

calculated for logistic regression other than the Model Summary table gives Cox & Snell R Square and Nagelkerke R Square values, which indicates the variability of prediction of dependent variable tax compliance behavior of taxpayers in the lower case and upper case respectively. Hence, we can conclude that between 46.3 percent and 71.2 percent of the variation in the tax compliance behavior of taxpayers is explained in this model.

**Hosmer and Lemeshow test**

The Hosmer-Lemeshow test (HL test) is another a goodness of fit test for logistic regression, it is widely used to know how well your data fits the model. Particularly, the Hosmer and Lemeshow test calculate whether or not the observed event rates match the expected event rates in population subgroups. The test compares the predicted values against the actual values of the dependent variable. The method is similar to the chi-square goodness of fit because it involves grouping the sample into groups based on the percentiles of estimated probability to check whether the model is fit or not (Paul, Pennel, & Lemeshow, 2013).

The hypothesis for Hosmen and Lemeshow goodness of fit test for Logistics regression is;

**Null hypothesis: The predicted model fits perfectly with the observed group membership**

**Alternative hypothesis: The predicted model doesn't fit with the observed group membership.**

Decision rule: if the P-value from Hosmen and Lemeshow goodness of fit test for Logistics regression is statistically insignificant (greater than five percent) null hypothesis is accepted, otherwise accept the alternative hypothesis.

**Table 4. Hosmer and Lemeshow Test**

Step	Chi-square	df	Sig.
1	23.227	8	.053

In this study, as shown above, the Chi-square test statistic gave the conclusion that there is no evidence to reject the null hypothesis because the Chi-square  $\chi^2$  value is insignificant with a p-value of 0.053. Therefore, we can conclude that there is no significant difference between the observed and predicted model values, as well as the model, fits the data well. Besides, we can remember that in the Omnibus test of model coefficients we desired and achieved significant values but here in the Hosmer and Lemeshow test we desired and achieved insignificant value, this supports us to conclude that the model is a good fit for our data.

**Table 5. Variables in the Equation**

	B	S.E.	Wald	df	Sig.	Exp(B)	95.0% C.I. for EXP(B)	
							Lower	Upper
TR	-.520	.200	6.742	1	.009	.594	.401	.880
PR	1.095	.184	35.367	1	.000	2.990	2.084	4.289
GOVS	.931	.171	29.530	1	.000	2.538	1.814	3.552
TAUD	.398	.170	5.479	1	.019	.671	.481	.937
PREW	.575	.131	19.223	1	.000	1.778	1.375	2.299
Constant	-11.590	3.471	11.151	1	.001	.000		

a. Variable(s) entered : TR, PR, GOVS, TAUD, PREW.

To accomplish the objectives of the study, a number of hypotheses were tested regarding the determinants of tax compliance behavior of taxpayers in Ethiopia based on different empirical research and theoretical review. There are two general testable hypotheses with their sub-hypothesis. The first one was institutional determinant factors have a significant effect on tax compliance behavior of taxpayers in Ethiopia. Under this hypothesis (hypothesis A), Ha1 and Ha2, supposed that tax audit and provision of rewards respectively have a positive relationship with tax compliance behavior of taxpayers in Ethiopia and it is failed to reject by this study because they were positive and significant at 1 percent significant level. The second hypothesis (hypothesis B) stated that economic determinant factors have a significant effect on tax compliance behavior of taxpayers in Ethiopia. Under this hypothesis, Hb3 and Hb5 hypothesized that government service and penalty rate respectively have a positive significant effect on tax compliance behavior of taxpayers and it is failed to reject by this study because they were positive and significant at 1 percent significant level. On the other hand, Hb4 stated that tax rate has a significant negative effect on tax

compliance behavior of taxpayers and it is failed to reject by this study because it has a significant negative effect on tax compliance behavior of taxpayers at 1 percent significant level.

### **Conclusion:**

The study concludes that other things being constant the higher score for provision of rewards leads to increase the probability of tax compliance behavior of taxpayers. There was strong evidence that tax audit, penalty rate, government service varies directly with tax compliance behavior of taxpayers in Ethiopia. Apart from this, tax compliance behavior was negatively affected by the tax rate. Thus, the authority is advised to improve or focus on the provision of rewards because it is more likely to be perceived as an indication of acknowledgment, as a result, is more likely to maintain or increase intrinsic motivation of taxpayers, as the sign of appreciation, and perhaps stronger than a mere reduction in tax liabilities, especially the use of non-monetary rewards may be preferable and could improve tax compliance behavior of taxpayers.

### **References**

1. Afuberoh, Dennis & Okoye Emmanuel (2014). The Impact of Taxation on Revenue Generation in Nigeria: A Study of Federal Capital Territory and Selected States International Journal of Public Administration and Management Research (IJPAMR), Vol. 2, No 2, 22-47
2. Agresti, A. (2018). An introduction to categorical data analysis: Wiley.
3. Ali, M., Fjeldstad, O.-H., & Sjursen, I. H. (2013). Factors affecting tax compliant attitude in Africa: Evidence from Kenya, Tanzania, Uganda, and South Africa. Paper presented at the Centre for the Study of African Economies 2013 Conference, Oxford University.
4. Alm, J., Bloomquist, K. M., & McKee, M. (2015). On the external validity of laboratory tax compliance experiments. *Economic Inquiry*, 53(2), 1170-1186.
5. Almunia, M., & Lopez-Rodriguez, D. (2018). Under the radar: The effects of monitoring firms on tax compliance. *American Economic Journal: Economic Policy*, 10(1), 1-38.
6. Andini, P., Riyadi, S., & Lestari, S. D. (2018). Law Enforcement, Taxation Socialisation, and Motivation on Taxpayer Compliance with Taxation Knowledge as Moderating Variable. *Pertanika Journal of Social Sciences & Humanities*.
7. Bal, P., Bergeron, A., Tourek, G., & Weigel, J. L. (2018). Pre-analysis plan: the origins of tax compliance and state capacity.
8. Braunerhjelm, P., & Eklund, J. E. (2014). Taxes, tax administrative burdens and new firm formation. *Kyklos*, 67(1), 1-11.
9. Brockmann, H., Genschel, P., & Seelkopf, L. (2016). Happy taxation: increasing tax compliance through positive rewards? *Journal of Public Policy*, 36(3), 381-406.
10. Damayanti, T. W., & Martono, S. (2018). Taxpayer Compliance, Trust, and Power. *Jurnal Keuangan dan Perbankan*, 22(2), 231-239.
11. Dzhumashev, R. (2014). The Two-Way Relationship between Government Spending and Corruption and Its Effects on Economic Growth. *Contemporary Economic Policy*, 32(2), 403-419.
12. Feld, L. P., & Frey, B. S. (2018). Illegal, immoral, fattening or what?: How deterrence and responsive regulation shape tax morale Size, causes and consequences of the underground economy (pp. 15-37): Routledge.
13. Gangl, K., Muehlbacher, S., de Groot, M., Goslinga, S., Hofmann, E., Kogler, C., . . . Kirchler, E. (2013). "How can I help you?" Perceived service orientation of tax authorities and tax compliance. *FinanzArchiv: Public Finance Analysis*, 69(4), 487-510.
14. Gemmill, N., & Hasseldine, J. (2014). Taxpayers' behavioural responses and measures of tax compliance 'gaps': A critique and a new measure. *Fiscal Studies*, 35, 275-296.
15. Gujarati, D.N. (2004): Basic Econometrics, 4th Ed. New York: Tata Graw – Hill Publishing Co. Ltd
16. Hassan, M. (2014). The 30 billion Gombe state infrastructure bond. *Leadership*, May 14, 2014. Access on December 7, 2014, available: <http://leadership.ng/opinions/370744/n30bn-gombe-state-infrastructurebond>.
17. Healy, L.M. (2006): Logistic Regression: An Overview. Easter Michigan College of Technology
18. Hilling, A., Vilhelmsson, A., Taylor, G., Fan, Y. H., Tan, Y. Y., Mihaylov, G., . . . van der Helm-van Dijk, L. (2015). *eJournal of Tax Research*. *eJournal of Tax Research*, 13(3), 677-715.
19. Hoopes, J. L., Mescall, D., & Pittman, J. A. (2012). Do IRS audits deter corporate tax avoidance? *The accounting review*, 87(5), 1603-1639.
20. International Monetary Fund (2018). Indonesia: 2016 Article IV Consultation-Press Release; Staff Report; and Statement by the Executive Director for Indonesia. Country Report No. 17/37.
21. Johnson, C. H. (2013). The Cost of Creation Do Income Taxes Influence Small Retail Entrepreneurship. Georgetown University.
22. Kaplanoglou, G., & Rapanos, V. T. (2015). Why do people evade taxes? New experimental evidence from Greece. *Journal of Behavioral and Experimental Economics*, 56, 21-32.

23. Kastlunger, B., Lozza, E., Kirchler, E., & Schabmann, A. (2013). Powerful authorities and trusting citizens: The Slippery Slope Framework and tax compliance in Italy. *Journal of Economic Psychology*, 34, 36-45.
24. Kogler, C., Batrancea, L., Nichita, A., Pantya, J., Belianin, A., & Kirchler, E. (2013). Trust and power as determinants of tax compliance: Testing the assumptions of the slippery slope framework in Austria, Hungary, Romania and Russia. *Journal of Economic Psychology*, 34, 169-180.
25. Mascagni, G. (2018). From the lab to the field: A review of tax experiments. *Journal of Economic Surveys*, 32(2), 273-301.
26. Mascagni, G., Moore, M., & McCluskey, R. (2014). Tax Revenue Mobilisation In Developing Countries: Issues and Challenges: European Union (Belgium).
27. Murphy, K., Bradford, B., & Jackson, J. (2016). Motivating compliance behavior among offenders: Procedural justice or deterrence? *Criminal Justice and Behavior*, 43(1), 102-118.
28. Namusonge, G.S., Biraori, O.E. and Kipicoech, E.C. (2014) Factors Affecting Tax Compliance among Small and Medium Enterprises in Kitale, Kenyan. *International Journal of Recent Research in Commerce Economics & Management*, 1, 60-75
29. Olsen, J., Kang, M., & Kirchler, E. (2018). 13 Tax Psychology. *The Cambridge handbook of psychology and economic behavior*, 405.
30. Ortega, D., Ronconi, L., & Sanguinetti, P. (2016). Reciprocity and willingness to pay taxes: evidence from a survey experiment in Latin America. *Economía*, 16(2), 55-87.
31. Paul, P., Pennell, M. L., & Lemeshow, S. (2013). Standardizing the power of the Hosmer–Lemeshow goodness of fit test in large data sets. *Statistics in medicine*, 32(1), 67-80.
32. Picciotto, S. (2013). Is the International Tax System Fit for Purpose, Especially for Developing Countries? *International Centre for Tax and Development Working Paper*, 13.
33. Prihandini, W. (2018). The Optimum Level of Tax Compliance Based on Power of Authority and Trust in an Antagonistic Climate. *European Research Studies Journal*, 21(1), 362-373.
34. Saad, N. (2012). Perception of Tax Fairness and Tax Compliance Behavior: A Comparative Study. *Jurnal Pengurusan*, 36, 89-100.
35. Saha, G. (2011). Applying logistic regression model to the examination results data. *Journal of Reliability and Statistical Studies*, 4(2),1-13.
36. World Bank, (2018). *World Development Indicators 2018*, Washington, D.C.: The World Bank.