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Determinants of Tax Compliance: A Case of Gondar City, Ethiopia

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Abstract
Tax compliance literature has indicated that there are many factors such as, social, psychological, economic, demographic and institutional factors that have an impact on compliance behavior of taxpayers. The study was conducted with the aim of identifying factors of compliance in Gondar city by adopting an explanatory research design by employing simple random sampling to select the participants. The sample was determined to 332 category 'A' and category 'B' business income taxpayers from whom primary data was collected structured questionnaires. Given the ordered ranking of the dependent variable (tax compliance), ordered logit model was adopted to identify the determinants of tax compliance in Gondar city. The findings revealed that simplicity of the tax system, probability of detection and organizational strength of the tax authority were found to be the significant determinants of tax compliance in Gondar city. Finally based on the findings recommendations are forwarded including building the tax authority's capacity, increasing the number and frequency of audits and making the tax laws and regulations simple to understand.
Keywords: Determinants of tax compliance, Gondar, tax compliance, taxpayers

1. Introduction

Ta is a compulsory payment imposed by the government without expectation of direct return from the tax paid. It imposes a personal obligation on the people to pay the tax if they are liable to pay it (Parameswaren, 2005).

Government intervention in the supply of public goods is unavoidable and can only be done if the public pays taxes for the production and supply of such goods (Beza, 2014).

Andreoni, Erard and Feinstein (1998) define tax compliance as the willingness of taxpayers to act in accordance with the tax laws of the country. It means true reporting of income or asset balance that is used to calculate tax liability, correct computation of the tax liability, timely filing of returns and timely payment of the amount due.

According to Amina and Saniya (2015) these days the role of the government has increased and government must have to collect more tax revenue to finance its operation. But governments are confronting trouble in collecting the tax they need because of many reasons. The main reason is tax noncompliance.

According to Tadesse and Goitom (2014), as it does in some other developing countries, tax noncompliance is a serious challenge in income tax administration and tax revenue performance in Ethiopia. Like other developing countries, Ethiopia faces vaults in raising revenue to the required level in order to scale up the development endeavors.

1.2 Statement of the Problem

The issue of tax compliance has gained more stress by researchers in the recent couple of decades because of increasing level of tax non-compliance and its consequence on the capacity of the government to raise revenue (IMF, 2015).

In most African countries, the domestic tax bases are undermined by widespread tax avoidance and evasion (IMF, 2011). According to Samuel and Viswanadham (2013), Ethiopia, one of the fastest growing economies with a highly authoritative tax authority has failed to finance its activities by its own means due to non compliance even after a series of tax system reforms.

According to Ketema (2013), Millions (may be billions) of Birr are lost in expected tax revenue every year leading to a shortfall in expected revenue collections due to non compliance which leads to excess of public expenditure over public revenues resulting deficit.

The last three decades, tax compliance has been given a big emphasis by researchers because of increasing noncompliance especially tax evasion and its consequences on the capacity of government in raising public revenue. But most of these researches are done on developed countries particularly on USA (Torgler, 2003). There are few researches done on tax compliance in Ethiopia. For example, Lemessa (2007) tried to investigate Determinants of voluntary compliance in Dire Dawa City and found that fairness of the tax system, organizational strength of the tax authority, awareness level of taxpayer's, socio-cultural factors were the main determinants of tax compliance. Another study by Tilahun and Yidersal (2014) found that perception on government spending, fairness of the tax system, penalties, personal financial constraint, changes on current government policies and referral group (friends, relatives etc.) are factors that significantly affect tax compliance

behavior of taxpayers in Bahir Dar city. Amina and Saniya (2015)concluded that probability of detection, age, gender, fairness and complexity of the tax system and perceptions of government spending are important factors of compliance in Jimma zone, Ethiopia. Niway and Wondwossen (2015) suggested that compliance is significantly influenced by tax knowledge, simplicity of tax returns and administration, probability of being audited, perception of government spending, perception on tax fairness and equity, the influence of referral groups and educational level of tax payers in Southern Nations, Nationalities and People's Regional State, Ethiopia. However, to the best of the researcher's knowledge studies have not been made to identify the determinants of tax compliance in Gondar city. Therefore the objective of the study is to identify factors that affect compliance behavior in Gondar city.

1.3 Objectives of the Study

1.3.1 General Objective

The general objective of the study was identifying the determinants of taxpayer's compliance in Gondar city.

1.3.2 Specific Objectives

- To investigate the relationship between tax compliance and demographic factors (Age, Gender and Awareness level of taxpayers).
- To examine the relationship between tax compliance and institutional factors (organizational strength of the tax authority, probability of detection and simplicity of the tax system).

2. Literature Review

Tax compliance can be defined as the degree to which the taxpayer complies or fails to comply with the tax rules and regulations of the country. According to Andreoni, Errard and Feinesten (1998), ax compliance means true reporting of tax bases, correct computation of tax liability, timely filling of returns as well as timely payment of the tax liability. James and Alley (2004) defined tax compliance as the willingness of individual taxpayers as well as other taxable entities to act in accordance with the tax laws and regulations of the country without enforced by the tax authority.

As discussed by various researchers, Jackson and Milliron (1986) listed several factors that have influenced tax compliance. The factors that are considered in this study are discussed in detail as follows:

2.1 Demographic Factors

2.1. 1. Age

The effect of age on tax compliance has been researched by many researchers and the results are not consistent. For example, Warneryd and Walerud (1982) and Wahlund (1992) found a negative correlation (younger people are more compliant) between age and tax compliance. On the other hand, some researchers argue that older taxpayers are more compliant than their younger counterparts. In line with this, Palil (2010), Clotfelter (1983), Mohani (2001)argued that age and compliance were positively (older people are more compliant) related. This is also supported by Jackson and Milliron (1986) and Chung and Trivedi (2003) who argue that older taxpayers are more compliant than their younger counterparts. However, Spicer and Becker (1980) found no relationship between tax compliance and age of taxpayers.

2.1. 2. Gender

Another factor examined in this paper in terms of the effect of demographic factors on tax compliance is gender. The issue of gender related to tax compliance behavior is still debatable and although gender can be still considered in tax compliance issue. There are a number of studies that found males are more compliant while some other studies have found females are more compliant and though no difference between males and females. Hasseldine and Hite (2003) reported that female taxpayers were more compliant. Similarly, Tadesse and Goitom (2014) have found female taxpayers are more compliant than male taxpayers. This is also supported by Torgler and Schneider (2007) stating that women are more compliant than men in fulfilling their tax obligations. However, a contradictive result has been founded by Friedland, Maital, and Rutenberg (1978) who have claimed that women taxpayers are less compliant than men taxpayers. This finding supports the study by Houston and Tran (2001) who found that females have a tendency to do tax evasion than males. Moreover, Richardson (2006) suggested that gender has no significant impact on compliance.

2.1. 3. Awareness Level of taxpayers

As per Oladdipupo and Obazee (2015), tax knowledge is the level of awareness or sensitivity of the taxpayers to tax legislation. Knowledge about tax law is thought to be of importance for preferences and attitudes towards taxation (Eriksen & Fallan, 1996). One of the fundamental ways to increase public awareness is for taxpayers to have knowledge about taxation (Oladipupo & Obazee, 2015). Knowledge of tax laws and regulations is important in order to compute actual income reporting, make true deductions and reliefs claims and make accurate tax calculations and payments (Mohd, 2010).

In the previous studies, the effect of awareness on tax compliance is not consistent. Many taxpayers might

be willing to comply but, unable to do so because they are not aware of their obligations (Lemessa, 2007). Similarly, Niway and Wondwossen (2015) found that educated tax payers tend to comply with tax laws compared with non-educated tax payers. On the other hand, the results of the study conducted by Chuenjit (2014) showed that the higher the education (awareness) level, the higher the degree of tax noncompliance. The researcher remarked that this is because better educated taxpayers understand the opportunities for evasion more than lower educated taxpayers.

2.2 Institutional Factors

While taxpayers are influenced by their pure economic concerns either to evade or not to evade taxes, evidence suggests that institutional factors also play vital role in their compliance decisions (Tadesse & Goitom, 2014).

2.2. 1. Organizational strength of tax authorities

Government tax administrations perform the important functions of interpreting tax legislation, collecting various taxes, social security contributions and enforcing tax laws. The sure indicator of ineffective tax administration is the presence of a very large nonpayment of tax liability (Lemessa, 2007). Bird and Oldman (1967) argue that in large part the solution for the large delinquency lies in providing the bite. Tax is evaded to the extent that tax authorities are perceived as weak by taxpayers. A taxpayer will be more receptive to information on his obligation if, in his efforts to comply, he receives a reasonable degree of service from the revenue administration. Poorly drafted forms, long waiting lines and even charges for acquiring them, bureaucratic hassle in processing the case, rudeness from the officials, cumbersome appeal procedures, and the like, can repel even the most loyal taxpayers (Peacock & Forte, 1981). According to Lemessa (2007) and Desta (2010) perceived strength of the tax authority significantly affects the compliance behavior of the taxpayers. On the other hand Tadesse and Goitom (2014) organizational strength of the tax authority have no significant effect on the compliance behavior of taxpayers. To encourage compliance it is equally important that tax authorities administer the law fairly. This implies both an absence of arbitrary or corrupt behavior on the part of the officials, and normative standards to ensure that the same laws are applied and administered in a standard fashion across the board.

2.2. 2. Simplicity of the tax system

Complexity of the tax system can be seen as one of the major determinants of tax compliance. There are a number of countries for example; Denmark, Canada and New Zealand who have introduced simplified tax returns to enhance voluntary compliance of taxpayers (Mohani, 2001). Silvani and Baer (1997) stated that by simplifying the tax return, taxpayers will be encouraged to fill the tax return by themselves rather than sought help from a third party.Slemrod (1989) believes that a simple tax return and simpler tax regulations and proclamations will increase voluntary tax compliance. Simplifying tax administration is important because it can facilitate efficient and enhanced administration and reduce costs (Mohani, 2001; Silvani & Baer, 1997).

2.2.3 Probability of Detection

In recent years the effect of probability of detection on tax compliance has received a great emphasis from a number of researchers. But the results are not clear. Taxpayers will always declaretheir income correctly if the probability of detection is high (Allingham and Sandmo, 1972). Slemrod, Blumenthal and Christian (1998) have tried to investigate the relationship between tax compliance and probability of detection and found that probability of detection plays an important role in determining compliance behavior but the direction of relation is not clearly stated. Young (1994) and Slemrod *etal*(2001) found that probability of detection was negatively correlated withcompliance behavior. Tilahun and Yidersal (2014) found that probability of being audited is not an important factor in determining tax compliance behavior which is also supported by Beza (2014).

3. Research Methodology

The objective of the research is to examine the relationship between tax compliance and its factors and to this end explanatory research design was adopted. The target population for the purpose of this study is category 'A' and 'B' business income taxpayers of Gondar city. This is because category 'C' business income taxpayers pay their tax based on the tax liability assessed by the assessment committee and are irrelevant for this study. According to the city revenue authority, there are a total number of 1923 category 'A' and 'B' business income taxpayers in the city as of August, 2017. The sampling method which is used in this study was simple random sampling. The sample size is determined to approximately 332 business income taxpayers by using Yamane's (1967) formula as follows by considering sampling error to the usual 5%:

$n = N / [1 + N (e)^2]$

Where, **n** is sample size, **N** is population size and **e** is the sampling error.

$$n = \frac{1923}{1 + 1923(0.05)2} = 332$$

The study consumes primary data collected through structured questionnaires composed of closed ended

questions that are developed on a likert scale and those collected data was analyzed by using STATA14 software.

Model specification and Variables

Taxpayer's decision of either to comply or not will be influenced by many factors (Economic, social, institutional, demographic…). In this study tax compliance is measured by hypothetical questions in which respondents were asked to rate each question by using a likert scale (ranges from one to five) from strongly agree to strongly disagree. And therefore this ranking merits the use of either ordered logit/probit regression model to analyze those responses. But, for this study ordered logistic regression model is adopted.

For the purpose of this study, tax compliance will be explained by age, gender and awareness level of taxpayers as well as organizational strength of the tax authority, probability of detection and simplicity of the tax system. Therefore the model can be specified as:

$$TCOMP = \beta 0 + \beta 1age + \beta 2gendr + \beta 3altp + \beta 4osta + \beta 5probd + \beta 6simplcty + \varepsilon$$

Where: TCOMP=Tax compliance age= age of taxpayers

altp= awareness level of taxpayers osta= organizational strength of the tax authority

probd= probability of detection Simplcty= simplicity of the tax system

ε= error term

4. Data Analysis

Six independent variables were tested by adopting ordered logistic regression model namely, age of taxpayer's, gender of taxpayer's, awareness level, organizational strength of the tax authority, probability of detection and simplicity of the tax system.

4.1 Model Specification Tests

These are robust statistical tests carried out to verify if the data used have met the assumptions underlying the ordinal logistic regression and where possible to remove problems associated with the data.

4.1.1 Multicollinearity Test

Multicollinearity is the existence of a perfect or exact linear relationship among some or all explanatory or independent variables of the regression model. An important assumption in regression models is that independent variables should not perfectlycollinear (one regressor should not be a linear function of another). It can be tested through VIF or correlation coefficients can be employed. But in this study the nature of the data is ordinal and use of non-parametric tests like spearman's correlation coefficient is best. According to Kothari (2004), Spearman's coefficient of correlation (or rank correlation) is the technique of determining the degree of correlation between two variables in case of ordinal data where ranks are given to the different values of the variables.

According to Hair et al (2006) a correlation coefficient of greater than 0.7 indicates that substantial collinearity among variables. But, as table one indicates there is no problem of multicollinearity in this study.

4.1.2 Heteroskedasticity Test

An important assumption we have made is that the error terms in the regression model have a common or constant variance. This is called homoscedasticity assumption. The assumption of homoskedasticity fails when the variance changes in different segments of the population. By using Breusch-Pagan / Cook-Weisberg test for heteroskedasticity, there is no any problem ofhetroskedasticity since the chi-square is insignificant (chi2 (1) = 2.38, Prob > chi2 = 0.1232) which we failed to reject the null hypothesis and we can conclude that there is no problem of heteroskedasticiy (Ho: Constant variance).

4.1.3 Test of Omitted Variable

Testing for omitted variable bias is important for our model since it is related to the assumption thatthe error term and independent variables in the model are not correlated (E (e|X) = 0). The null hypothesis is that the model does not have omitted variables bias. According toRamsey RESET test F (3, 279) =2.41, Prob > F =0.0676), the p- value is higher than the usual threshold 0.05, so we failed to reject thenull hypothesis and conclude that we do not need more variables or the model has no omitted variables. (Ho: model has no omitted variables).

4.1.4 Model specification Error Test

It basically checks whether we need more variables in our model by running a new regression with observed Y against Yhat and Yhat-squared as independent variables. The thing to look for here is the significance of *_hatsq*. The null hypothesis is there is no model specification error. According to table 2, the p-value of *_hatsq* is not significant (0.919) then we fail to reject the null hypothesis and conclude that our model is correctly specified.

4.1.5 Test of Proportional Odds Assumption

Ordered logostic regression assumes that the coefficients that describe the relationship between, say, the lowest versus all higher categories of the response variable are the same as those describe the relationship between the next lowest category and all higher categories, etc. this is called the proportional odds assumption or the parallel

regression assumption. It can be tested through likelihood ratio test. The null hypothesis is that there is no difference in the coefficients between models, so we hope to get a non-significant result. Accordingly approximate likely hood ratio test of proportionality of odds across response categories:
Chi2 (12) = 19.38 p>chi2= 0.080
The above test indicates that we have not violated the proportional odds assumption.

4.2 Determinants of Tax Compliance: Ordered Logit Model Regression Result

As depicted in table 3, ordered logit regression was conducted for all variables and indicates organizational strength of the tax authority, probability of detection and simplicity of the tax system were found to be statistically significant factors.

The result of the ordered logistic regression (table 3) shows that there is a negative and insignificant relationship between awareness level of taxpayers and tax compliance. This result is consistent with the study by Harris (1989) who has claimed tax knowledge has no direct significant effect on taxpayer's compliance behavior. On the other hand this result is in contradiction with the finding of Inasius (2015), who have indicated that the tax knowledge is significant factor explaining tax compliance behavior. Additionally Eriksen and Fallan (1996) argue that knowledge about taxation is an important factor that determines the compliance behavior of taxpayers. Similarly, Mogeni (2014) has found significant relationship between tax compliance and awareness of taxpayers. Niway and Wondwossen (2015) found positive and significant relationship between awareness level about tax and tax compliance.

Organizational strength of the tax authority and tax compliance found to be having a positive and significant relationship in this study. This suggests that if the tax authority is strong in improving the tax administration, creating awareness, providing social services, and other information regarding taxes and other activities of the city government, the compliance behavior of the taxpayers should be high. The result is in contradiction to the insignificant correlation between organizational strength of the tax authority and tax compliance found by Tadesse and Goitom (2014). On the other hand the result is in consistent with the findings of Lemessa (2007) and Desta (2010). In line with this Bird and Oldman (1967) argue that tax is evaded to the extent that tax authorities are perceived as weak by taxpayers. taxpayers' willingness to cooperate with the tax authority will increase, if the authority sees itself as a service institution and provides a quality service and treats the taxpayers as partners (Torgler, 2007).

As shown in the above table, age of taxpayers did not appear to have a significant impact upon compliance behavior of taxpayers. This indicates that there is no difference in the compliance behavior between younger and older taxpayers. According to Jackson and Milliron (1986) age of taxpayers is an important factor that affects tax compliance. Dubin &Wilde (1988) found that younger taxpayers are less compliant than older taxpayers. In contradiction, Warneryd and Walerud (1983) and Wahlund (1992)foundthat older people are less compliant than young taxpayers.

In this study, gender of taxpayers found to have insignificant impact on tax compliance. This result is toward the argument that compliant behavior between males and females is similar. The finding is similar with the findings of Jeypalan and Hijattulah(2006). However, Jackson and Milliron (1986) found that female taxpayers were more compliant than male taxpayers. This is also supported by Amina and Saniya (2015) who found that a positive and significant relationship between tax compliance and gender of taxpayers.

Probability of detection and tax compliance has positive and significant relationship in Allingham and Sandmo (1972), Dubin (2004), Riahi-Belkaoui (2004), Andreoni, Erard and Feinstein (1998)and Amina and Saniya (2015). And in this study, they found to have a positive significant relationship. This finding indicates that high probability of being caught could enhance tax compliance. But, Slemrod, Blumenthal, and Christian (2001), Braithwaite, Reinhart, and Smart (2009)found contradicting results, which is high probability of being audited or detected would decrease compliance (negative correlation). Beza (2014) and Tilahun and Yidersal (2014) found that probability of detection has no significant impact on compliance behavior of tax payers.

Simplicityof the tax system is the most important determinant of tax compliance (Richardson, 2006). Similarly this study found that simplicity of the tax system has a positive significant impact on the compliance behavior of taxpayers. This indicates that as the tax system is going simple and simple to understand, compliance level will be enhanced. Having consistent and stable tax laws will make the tax system simple and can boost tax compliance (Reza, Hadi, & Hamid, 2011).

5. Conclusions

The main objective of this study is identifying factors affecting tax compliance of Gondar city business income taxpayers. Six potential determinants of tax compliance such as awareness level of tax payers, age of taxpayers, gender of taxpayers, organizational strength of the tax authority, probability of detection and simplicity of the tax system were examined in the study.

The findings imply that significant factors affecting tax compliance in Gondar city include simplicity of the

tax system (positive), organizational strength of the tax authority (positive) and probability of detection (positive).

These results provide that as the tax authority is perceived by the taxpayers as strong, their compliance will increase. Additionally, it can be concluded that a high probability of being audited and detected could encourage taxpayers to comply and simplicity of the tax system has a positive and significant correlation with tax compliance indicating the more simple the tax system, the more compliance level.

In this study other variables such as gender, age and awareness level of taxpayer's appear having insignificant correlations with compliance behavior of taxpayers.

6. Recommendations

Based on the findings of the study, the following recommendations are forwarded that may help the tax authority and other policy makers. In order to make the taxpayers more compliant to the tax system, the following measures should be taken by the tax authority:

- Organizational strength of the tax authority has a significant influence in the compliance decision of taxpayers. The tax authority needs to be strong enough in order to implement the tax law effectively and efficiently. Functions such as tax assessment, collection, awareness creation, providing information, and enforcement have to be performed effectively and efficiently, so that it will be perceived as strong and powerful by the taxpayers. In addition to this, efficient service delivery to taxpayers is a key factor against which the strength of the authority is to be judged. Taxpayers tend to evade to the extent they feel that the authority is weak and unable to enforce the law.
- As the study finding indicates that probability of detection has a positive significant influence on tax compliance, it is recommended that the tax authority should increase the number or frequencies of audits to increase tax compliance level of taxpayers.
- The study finds a strong support for the argument that simpler tax systems are more complied by taxpayers than complex tax systems and administrations. Therefore the tax authority is required to simplify the tax return that will encourage the taxpayers to complete the tax return themselves rather than sought help from tax agents and that will decrease compliance cost.

Finally, it is recommended that this type of study should be conducted at national level by incorporating other types of taxpayers rather than mere incorporation of business income taxpayers to gain a better understanding on the determinants of tax compliance at a national level. Additionally, as discussed by different literatures, there are a number of factors that affect compliance behavior of taxpayers. So, interested individuals can extend this study by including more variables in the model.

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Appendix

Table 1: Spearman rank correlation matrix

	Tcomp	Age	Gendr	Altp	osta	probd	simplcty
Tcomp	1.0000						
Age	0.0866	1.0000					
Gendr	0.0573	-0.0209	1.0000				
Edcn	-0.1073	0.0472	-0.1708	1.0000			
Osta	0.3725	-0.0175	-0.1431	-0.0273	1.0000		
Probd	0.3829	0.0853	0.0166	-0.1404	0.1258	1.0000	
simplcty	-0.2736	-0.0217	-0.1643	0.0392	-0.2215	-0.2331	1.0000

Source: STATA output, 2017

Table 2: Model specification error test

Tcomp	Coef.	Z	P>|z|	[95% Conf.	Interval]
_hatsq	.0199455	0.10	0.919	-.3665329	.4064239

Source: STATA output, 2017

Table 3: Regression result

Tcomp	Coef.	Std. Err.	Z	P>z	[95% Conf.	Interval]
Age	.2522214	.1588002	1.59	0.112	-.0590212	.563464
Gendr	.4619738	.310629	1.49	0.137	-.146848	1.070796
Altp	-.101759	.1486406	-0.68	0.494	-.3930892	.1895712
Osta	.7382774	.132726	5.56	0.000	.4781392	.9984157
Probd	.8229871	.1561283	5.27	0.000	.5169812	1.128993
Simplcty	.3723982	.1395645	2.67	0.008	-.6459395	-.0988568
/cut1	1.711368	.9299402			-.111281	3.534018
/cut2	5.2426	.9895647			3.303089	7.182111
/cut3	8.477789	1.105633			6.310789	10.64479

Source: STATA output, 2017