Tax administration, Taxpayer's Reciprocity and Compliance in Tanzania: Empirical Evidence from a Survey

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Abstract

This paper analysed the effects of tax administration on taxpayer reciprocity and compliance. Four aspects: trust in the tax administration, corruption in tax administration, awareness and certainty of taxes to be paid, and ability of the tax administration to detect tax evaders were assessed. We obtained strong support that these variables significantly influence reciprocity and compliance. The tax administration in Tanzania therefore needs to improve on these aspects in efforts to boost voluntary tax compliance. Also, in the same vein of making people more compliant there is a need to improve on provision of tax education. Likewise, the enhancement in utilisation of ICT in tax administration processes.

Key words: Tax administration, taxpayer reciprocity, tax compliance attitude, Tanzania
JEL classification: E62, H30

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1. Introduction

The need to mobilise resources to support government provision of public goods and services has never lacked urgency in developing countries like Tanzania. Mobilising resources for the government is however limited by the level of tax compliance. In Tanzania the level of compliance is very low. Tax revenue statistics from ICTD/UN-WIDER (2019) government revenue dataset indicate that the tax to GDP ratio for Tanzania has stagnated for many years at around 12 per cent. Personal income taxes for example contribute just 2 per cent of GDP. These tax collection levels are far below the average of sub-Saharan Africa (18 per cent) and even comparable neighbour economies like Kenya (18 per cent) and Rwanda (16.7 per cent). Due to weak resources mobilisation the country's provision of important social services to its citizens is also low. The IMF (2015) and World Bank (2011) reports indicate undersupply of key social services in the country pointing to limitations in mobilising domestic resources. Therefore, much is left desired of the country's tax system to ensure revenue adequacy for social services provision and development. The question, which remains, is how to improve tax compliance and revenue collection to such levels that speed the level of development.

To improve tax compliance tax administrations often use both measures deterrence and non-deterrence measures side by side, while promoting and nurturing voluntary compliance culture is gaining prominence in developing countries where compliance culture is generally low. Voluntary tax compliance depends on many factors, however the tax administration and its practices has a crucial role to play. A tax administration that is able to win taxpayers confidence and trust due to fair treatment and quality of service delivered will have leverage on taxpayers' decision to comply (see for example Feld and Frey, 2002; D'Arcy, 2011). This reciprocal relationship between taxpayers and the tax administration is well describe in an insightful framework termed the 'slippery slope' (see Kirchler et al., 2008). Other areas of tax administration that have bearing effect on compliance include provision of taxpayer education, access to and adequacy of information provided to taxpayers, simplification of compliance procedures and reduction of compliance burdens through the use of technologies. Governance practices are also important aspects. For instance, high corruption perception diminishes taxpayer compliance morale.

In this paper, we employed a large data set from Afrobarometer survey that among other variables measures respondent's perception of tax administration and tax compliance behaviour. Four aspects: trust in the tax administration, corruption in tax administration, certainty of taxes to be paid, and ability of the tax administration to detect tax evaders were assessed on how they influence reciprocity and tax compliance. Consistent with previous studies, we obtain strong support that these variables significantly influence reciprocity and compliance. The tax administration in Tanzania therefore needs to improve on these aspects in efforts to boost voluntary tax compliance.

In what follows, section two presents theoretical and empirical literature on tax compliance in relation to tax administration and reciprocity to government provision of services. Section three presents the overall methodology used including models specification and estimation procedures. Section four presents data used in the study and data description. Section five discusses the findings of the study and section six summarise the findings and provide policy implications of the study.

2. Literature review
2.1 Tax compliance theory
Tax compliance as a behavioural aspect is determined by taxpayer attitude towards taxes. If a taxpayer has negative attitude towards taxes deterrence measures need to be applied to enforce compliance, otherwise taxpayers comply voluntarily if they have positive attitude toward taxes. Thus, the literature on tax compliance often focuses on two main strands of theories; deterrence and non-deterrence.

Deterrence theories (see Allingham and Sandmo model, 1972; Beron, Tauchen and Witte, 1988), deterrence model presents a theoretical framework for taxpayers' incentive to evade taxes given the level of audits and other forms of tax compliance enforcement. They assume a principal agent that taxpayers' decision to comply is based on utility from evading taxes. If they perceive that utility of not complying is higher given available sanctions such as penalties and fines they will evade. When such sanctions are perceived to be more costly than compliance taxpayers will comply with their tax obligations to avoid legal sanctions (such as penalties and incarceration). Here the ability of tax administration in detecting and punishing non-compliance is crucially important. However, the deterrence models fails to provide strong predictions of the socioeconomic determinants of tax evasion (Sheffrin and Tries, 1992). Further, enforcing compliance requires extra capacity in terms of resources. Given resources constraints, nature of economies and technology limitations, especially in low-income countries, only a fraction of all taxpayers can be audited and not all detected tax evaders are penalised. Thus, alternative models of tax compliance gain prominence in tax administration practices. Tax administrations often blend both deterrence and non-deterrence measures in fostering tax compliance.

Turning to non-deterrence measures a strand of theories on social contract guides our discussion on the predictions of voluntary compliance. This model suggests that a contract is a commitment or pledge agreed by both parties, although only a metaphor because there is no signature above paper between the taxpayer and government. In taxation context, taxpayer is party who offers while the government accepts the offer. Taxpayer offer is to provide economic resources to obtain welfare, whereas the government accepts the offer and use the economic resources to create wealth for society. Therefore, taxpayer implements mutual interest principle to establish tax compliance and that tax compliance is not a purely economic decision but also depend on established social norms, morality, altruism and justice (Alm, 2012). Non-compliance by taxpayers is not only for profit but rather as a way to address non seriousness of government to fulfil the taxpayers' rights within social contract (Mangoting et al., 2015). Conversely, if the taxpayer rights are not met, tax evasion becomes a justification for taxpayer.

2.2 Tax administration and compliance in Tanzania
According to Gupta and Mookherjee (1998), tax administration comprises three interrelated activities. These activities are (i) identification of tax liabilities based on existing tax legislations, (ii) the assessment of taxes to determine if the taxes paid are actually within tax liabilities, and (iii) the collection, prosecution, and penalty activities that impose sanctions on tax evaders and ensure that taxes and penalties due from the tax payers are actually collected.

The tax administration in some cases refer to the government office that is responsible for administration of taxation – the tax authority. Broadly interpreted the main role of tax

administration is to administer the tax code for collection of government revenue. The tax administration achieves its revenue collection objective by influencing taxpayer compliance using various mechanisms – deterrence and non-deterrence. Thus, the level of compliance in any jurisdiction is dependent among other factors the capability and way the tax administration interact with taxpayers.

Because of limited tax administration capability, tax compliance and productivity in Tanzania has remained very low. In efforts to improve tax administration capability there has been several changes in the Tanzania tax system. These include, among others, reorganisation of the tax administration itself, enhanced utilisation of ICT, increase staffing and financial resources, enhanced taxpayer service and education, open more tax offices to bring service close to taxpayers, improve enforcement mechanisms and commitment to taxpayer service (TRA Annual Reports, 2014, 2015, 2016). Likewise, in realising the importance of quality service delivery to taxpayers for building trust and compliance, the tax administration is implementing a taxpayer's service charter, which delineates the roles and responsibilities of the tax administration to the taxpayers (TRA, 2017).

These changes reflects development in tax administration capability, which with changes in the economy and taxpayer compliance improvements have seen an increasing tax revenue collection. Tax revenue has increased in nominal term year after year, however the productivity remained relatively unchanged; the tax to GDP ratio almost remained stagnant at around 12 percent for a decade long (ICTD, 2019; TRA, 2019). This situation implies that tax compliance has not significantly relative to economy growth and there are needed more improvements in tax administration in order to increase compliance and revenue productivity.

2.3 The role of tax administration in voluntary tax compliance
A view on the effects of tax administration on compliance has highly focused on ability to deter tax evasion (see Allingham and Sandmo, 1972; Das-Gupta, Lahiri, and Mookherjee, 1995; Das-Gupta, Estrada and Park, 2016). However, there is increasing support that tax administration has potential for improving compliance through non-deterrence measures. The aspects of registration of taxpayers, timely declaration, filing, payment and post-filing process largely depends capability of the tax administration but more so on how the tax authority interacts with the taxpayers (Muehlbacher and Kirchler, 2010; Prichard et al., 2019.

Also, trust in tax administration, which may be a result of perception of practices and perception of fairness influence voluntary taxpayer compliance. A study by Fjelstad et al. (2004) in Tanzania reported that limited voluntary compliance of taxpayers is closely related to a lack of trust in the local government revenue systems. Likewise, Kastlunger et al. (2013) found evidence that trust is positively related to voluntary tax compliance. In relation to tax administration practices Kogler et al. (2016) points out that delayed feedback on tax audits affects taxpayers' fairness perceptions. Similarly, Gobena amd Van Dijke (2017) argue that procedural justice affects trust in tax authorities and promotes voluntary compliance.

As the tax administration represent an important duty of the government, taxpayers dissatisfaction with that service will render establishment of weak citizen-state relationship which in turn affect compliance. The social contract theories point out that taxpayers are more willing to comply with

taxes if they perceive that they can get in return fair treatment and important public goods and services from the government (Torgler, 2007; Alm et al., 2012: Mugoya, Chimilila and Chikongoye, 2013; Baum et al., 2017). Torgler (2007), argues that taxes can be seen as a pride paid for government's positive actions. When taxpayers are satisfied with the way they are treated, the cooperation is enhanced. Likewise, cooperation increases if the outcome received from the government is judged to be fair in relation to the taxes.

Another aspect of tax administration that affects compliance and reciprocity is governance. Corruption robs the potential tax revenue collection, destroys people's faith in governing authorities and consequently make them less willing to cooperate including paying taxes (Mauro, 2002). Presence of rampant corruption in tax administration diminishes willingness to comply and represents a significant revenue loss due to collusion between tax officials and taxpayers. If taxpayers perceive that taxes paid benefit tax officials instead of boosting government coffers then their attitude towards tax compliance diminishes or decides to operate informally which makes it more difficult to tax hidden incomes (see Uslaner, 2008).

Compliance is in one way depending on certainty of taxes. However, most of taxpayers in developing countries have low level of general education, comprehending tax laws is somewhat difficult for them. A study by Ali et al (2013) pointed out that one of the limitations for taxpayer compliance is difficulty of finding out what taxes to comply. Knowledge about tax is important can contribute to shaping attitudes towards compliance (see Mascagni and Santoro, 2018).

Support for compliance such as provision taxpayer service and education is another aspect. Mascagni and Santoro (2018) argue on the importance of taxpayer education for tax compliance in Africa. In line with education on paying taxes is the issue of adequacy and accessibility of information provided to the taxpayers. The use of technologies such as mobile phones, call centres and internet have improved access of information.

Likewise, the tax administration has a role to improve compliance by easing the compliance process – burdensome procedures increase taxpayer compliance costs (Dabla-Norris, 2017) which in turn diminishes compliance. Some countries, including Tanzania are utilizing mobile technologies for payment of taxes, which simplifies the payment process thereby reducing compliance costs, improve convenience to the taxpayers and in turn enhance compliance (see Cotton and Dark, 2017; McCluskey and Huang, 2019). As tax compliance burdens are regressive in nature, efforts that alleviate tax compliance burdens are likely to benefit more small and medium business (Dabla-Norris, 2017) and improve compliance.

3. Empirical model and methodology
In order to test empirically the effect of the effect of tax administration on taxpayer reciprocity and compliance attitude, two separate models have been estimated. The first model is for determinants of reciprocity and the second model for compliance attitude. Using the latest data from Afrobarometer survey (2016) we assigned two variables as dependent variables, respectively. The dependent variable for taxpayer reciprocity is based on the question "If the government decided to make people pay more taxes or user fees in order to increase spending on public health care, would you support this decision or oppose it? This variable is measured in five-point ordinal scale defined

as; 5 if individual strongly support, 4 = somewhat support, 3 = neither support nor oppose, 2 = somewhat oppose and 1 = strongly oppose to pay more taxes to increase health spending.

For compliance attitude we use the question "….please tell me whether you think the action is not wrong at all, wrong but understandable, or wrong and punishable: Not paying the taxes they owe on their income? This variable is measured in five-point ordinal scale defined as; 3 if individual think it is wrong and punishable, 2= wrong, but understandable and 1 = not wrong at all when he/she do not pay taxes.

Since the dependent variables are measured in ordinal scale, in both cases we employed ordered logistic models as specified below.

$$y_i^* = x'\beta + \mu_i \qquad (1)$$

where y is taxpayer reciprocity or compliance attitude. Since the dependent variables are latent, we cannot observe y^*, instead we can only observe categorical responses

$$y = \begin{cases} 0 \, if \; y^* \le \mu_1, \\ 1 \, if \; \mu_1 < y^* \le \mu_2, \\ 2 \, if \; \mu_2 < y^* \le \mu_3, \\ . \\ . \\ N \, if \; \mu_N < y^* \end{cases} \qquad (2)$$

Assuming that μ_i is a random and normally distributed error term, then the ordered logit technique uses the observations on y to fit the parameter vector β. Using maximum likelihood estimation method we can estimate the cumulative probability of obtaining y as,

$$\Pr[y < j \mid x] = F(k_j - x'\beta) \qquad (3)$$

The probability of obtaining a response y = j for j= 1, 2,…..,J is estimated as,

$$\Pr[y = j \mid x] = F(k_j - x'\beta) - F(k_{j-1} - x'\beta) \qquad (4)$$

In order to interpret the coefficients in ordered logit models we need to determine how a marginal change in one regressor changes the distribution of the outcome variable i.e. marginal probability effects. The marginal probability effects can be calculated as,

$$MPE_{ji} = \frac{\partial \Pr[y = j \mid x]}{\partial x_i} = \left[\frac{\partial(k_{j-1} - x'\beta)}{\partial x_i} - \frac{\partial(k_j - x'\beta)}{\partial x_i} \right] \beta_i \qquad (5)$$

In general, the magnitude of these probability changes depends on the specific values of the ith observation's covariates. As such, we obtain average marginal probability effects for changes in covariates.

The two models estimated from equation (1) above are specified as,

$$\Pr(y_i > j) = \frac{\exp\left(x_i'\beta - k_j\right)}{1 + \exp\left(x_i'\beta - k_j\right)} \quad j=1, 2, ..., M\text{-}1 \qquad (6)$$

where y are dependent variables representing reciprocity or compliance attitude and x is a vector of independent and control variables that influence taxpayer reciprocity and compliance. The independent variables are age, sex, education, employment status, trust tax administration, corruption of tax officials, difficulty of knowing which taxes to pay, difficulty of avoid paying taxes, awareness of civic responsibility to pay taxes and previous incidence of refusing to pay taxes.

4. Data and preliminary analysis
4.1 Data and Descriptive Statistics
Data for the study were compiled from the Afrobarometer round 6 survey (2016). The Afrobarometer survey covered a total of 36 African countries and elicited public attitude on various social aspects including taxation. For Tanzania the survey covered a sample size of 2,386 randomly selected respondents across all 30 administrative regions in Tanzania mainland and Zanzibar, of which 35% represent respondents in urban and 65% in rural. Given the urban-rural split of the population in Tanzania where majority live in rural areas, this distribution of the sample makes it a more representative. Table 1 below shows the descriptive statistics of the variables used. It can be seen from Table 1 that people have a marginally agreement in trust in tax administration, perception of corruption, and reciprocity to pay more taxes. Difficult to find out taxes or fees to pay, difficult to avoid paying taxes and right or wrong to pay taxes have a relatively higher assessment by majority of taxpayers as indicated by mean values somewhat higher than the mid values of the scale.

Table 1: Descriptive statistics of the variables

Variable	N	Min.	Max.	Avg.
Refused to pay tax or fee to the government	2314	2	5	2.4
The tax authorities have the right to make people pay taxes	2290	1	5	3.7
Trust tax department	2225	1	4	2.7
Corruption: tax officials	2102	1	4	2.4
Difficulty to find out what taxes or fees to pay	2232	1	4	3.1
Difficulty to avoid paying taxes	2271	1	5	3.3
Pay more taxes to increase health spending	2333	1	5	2.9
Right or wrong: not paying the taxes	2289	1	3	2.6

4.2 Semi-parametric analysis
Semi-parametric analysis using Chi-square (χ^2) is performed as a preliminary analysis to test the significance of association between the dependent and the variables assumed to influence it. It can be seen from Table 2 below that the variables which depicts tax administration quality i.e. trust, corruption of tax officials, difficulty of finding out taxes to pay and difficulty to avoid paying have significant association with reciprocity and compliance attitude. In the subsequent section we estimate the nature of effect of these variables on the probability of taxpayer to reciprocate and comply while using control variables that influence these decisions.

Table 2: Results of Semi-parametric Chi-square analysis

Variable	Reciprocity		Compliance attitude	
	χ^2	p-value	χ^2	p-value
Refused to pay tax or fee to the government	77.850	0.000	105.473	0.000
The tax authorities always have the right to make people pay taxes	147.539	0.000	166.022	0.000
Trust tax department	43.650	0.000	25.389	0.000
Corruption: tax officials	110.279	0.000	3.302	0.069
Difficulty to find out what taxes or fees to pay	84.879	0.000	21.750	0.001
Difficulty to avoid paying taxes	83.323	0.000	37.856	0.000

5. Results and discussion
5.1 Results of ordered logit regression model for taxpayer reciprocity
Results of ordered logistics for taxpayer reciprocity are presented in Tables 3 and 5. Results in Table 3 indicate that the predicted probability of having an individual disagree with paying more taxes to increase health spending is slightly more than 0.5. The probability that an individual agree with paying more taxes in order for government to increase health spending is about 0.4.

Table 3: Predictive margins for taxpayer reciprocity

	Margin	Std. Err.	Z	p-value	[95% Conf. Interval]	
Pr (Y=1)	0.2463	0.0116	21.24	0.0000	0.2236	0.2690
Pr (Y=2)	0.2730	0.0122	22.38	0.0000	0.2491	0.2969
Pr (Y=3)	0.1014	0.0083	12.23	0.0000	0.0852	0.1177
Pr (Y=4)	0.1892	0.0107	17.6	0.0000	0.1681	0.2103
Pr (Y=5)	0.1901	0.0107	17.78	0.0000	0.1691	0.2110

A number of factors can explain the reasons for this high likelihood of lack of taxpayer reciprocity. One of these reasons is individuals trust in tax administration; only 21.8% of respondents indicate that they trust a lot the tax department. Further, results in Table 5 (see appendix) show a negative marginal effect of trust in tax administration for individuals who oppose increase of taxes to increase health spending. Corruption of tax officials and difficulty of knowing taxes to pay have negative but insignificant effect on taxpayer reciprocity. Employment status and education have positive marginal effects indicating that individuals who are in formal employment and those with high level of education are likely to reciprocate by contributing more to the government in terms of taxes to support more provision of public goods and services. Age and gender, both have positive but insignificant effects. Further, Figure 1 (see appendix) depicts the effects on probability

of changes in explanatory variables. It can be seen from Figure 1 that trust in tax administration has positive effect on probability of individual to strongly support paying more taxes to support health spending, while difficulty of knowing taxes to pay has negative effect. Perception of tax officials corruption and difficulty of avoid taxes have almost no effect. Perception of civic duty to pay taxes has positive effect. Level of education has positive effect on probability for strong support for reciprocity. These results indicate that trust in tax administration plays a strong role on influencing taxpayer reciprocity. As only 21.8% strongly trust the tax department, there is a dire need to improve on this aspect.

5.2 Results of ordered logit regression model for compliance attitude

Results of ordered logit regression for taxpayer compliance attitude are presented in Tables 4 and 6. Results in Table 4 indicate that the prediction that an individual will exhibit positive attitude towards tax compliance is 0.63. However, the actual compliance may be much less to a number of factors, such as the tax administration capacity to detect tax evaders, as predicted by Alligham and Sandmo model. Turning to results of ordered logit model, it can be seen from Table 6 that trust in tax administration has positive effect on marginal probability effect and perception of corruption of tax officials has negative and significant effect. Difficulty of knowing taxes to comply has negative but insignificant effect while difficulty of avoid taxes has positive and significant effect. Awareness of civic responsibility of paying taxes has positive and significant effect while previous experience of refusing to pay taxes due to dissatisfaction with government services has negative and significant effect. Similar results (in Figure 2), shows the effects of these variables of probabilities of compliance. In sum, these results indicate that taxpayers compliance attitude is strongly influenced by trust in tax administration, perception of corruption of tax officials, difficult of avoid taxes and satisfaction with government services. Thus, the tax administrations, which builds trust with taxpayers, implement governance practices proved by taxpayers, and which devise proper mechanisms for detecting and punishing tax evaders are likely to see improved tax compliance. Although difficulty of knowing taxes to pay has insignificant effect, since its effect is negative it indicate the demand for taxpayer education for improved compliance. Similarly, the finding that education has positive effect on compliance supports this later argument.

Table 4: Predictive margins for taxpayer compliance

	Margin	Std. Err.	Z	p-value	[95% Conf. Interval]	
Pr (Y=1)	0.0895	0.0077	11.57	0.0000	0.0743	0.1047
Pr (Y=2)	0.2760	0.0121	22.85	0.0000	0.2523	0.2997
Pr (Y=3)	0.6345	0.0126	50.23	0.0000	0.6098	0.6593

6. Summary and Policy implications

This paper analysed the effects of tax administration on taxpayer reciprocity and compliance. Four aspects: trust in the tax administration, corruption in tax administration, awareness and certainty of taxes to be paid, and ability of the tax administration to detect tax evaders were assessed on how they influence reciprocity and tax compliance. Consistent with previous studies, we obtain strong support that these variables significantly influence reciprocity and compliance. The tax administration in Tanzania therefore needs to improve on these aspects in efforts to boost voluntary tax compliance.

Thus, the tax administration needs to instil taxpayers' trust. This can be achieved through improving the way taxpayers are treated so that they perceive fairness of procedures. Another aspect is improvement in governance practices. This has impacts on improve fairness, reciprocity, trust and in turn compliance. The tax administration also need to improve on provision of information to the taxpayers for making them aware of taxes. This has to go with simplification of the tax code or packaging of ease to follow instructions to ordinary taxpayers in order to make them more aware of tax issues. Similarly, the tax administration needs to enhance the mechanisms of detecting tax evaders. This can be achieved through improvements in audits, use of third part information, and enhance utilisation of ICT in tax administration.

Since the general tax education is very low in Tanzania, in the same vein of making people more compliant there is a need to improve on provision of tax education. The tax education contents can be introduced from primary level education. Likewise, more utilisation of ICT in tax administration will improve governance and increase trust and perception of fairness by reducing direct contacts between taxpayer and tax officials, reduce compliance burden, ease access of information and eventually improve taxpayer compliance.

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Appendix: Results of Ordered Logit Regression Analysis

Table 5: Ordered Logit regression and marginal effects of taxpayer reciprocity

Variable	Predict[*]	dy/dx	Std. Err.	Z	P-value	[95% Conf. Int.]	
Trust tax department	1	-0.0241	0.0102	-2.37	0.0180	-0.0440	-0.0042
	2	-0.0079	0.0034	-2.34	0.0190	-0.0146	-0.0013
	3	0.0018	0.0008	2.18	0.0290	0.0002	0.0034
	4	0.0104	0.0044	2.37	0.0180	0.0018	0.0190
	5	0.0198	0.0084	2.36	0.0180	0.0034	0.0363
Tax official corruption	1	0.0016	0.0128	0.12	0.9020	-0.0235	0.0267
	2	0.0005	0.0042	0.12	0.9020	-0.0078	0.0088
	3	-0.0001	0.0009	-0.12	0.9020	-0.0020	0.0017
	4	-0.0007	0.0055	-0.12	0.9020	-0.0115	0.0102
	5	-0.0013	0.0105	-0.12	0.9020	-0.0220	0.0194
Difficult to know taxes to pay	1	0.0173	0.0126	1.37	0.1700	-0.0074	0.0419
	2	0.0057	0.0042	1.37	0.1700	-0.0024	0.0138
	3	-0.0013	0.0010	-1.32	0.1860	-0.0031	0.0006
	4	-0.0075	0.0054	-1.37	0.1690	-0.0181	0.0032
	5	-0.0142	0.0104	-1.37	0.1700	-0.0345	0.0061
Employment status	1	-0.0359	0.0183	-1.97	0.0490	-0.0718	-0.0001
	2	-0.0119	0.0062	-1.92	0.0550	-0.0240	0.0002
	3	0.0026	0.0014	1.88	0.0600	-0.0001	0.0054
	4	0.0156	0.0079	1.96	0.0500	0.0000	0.0311
	5	0.0296	0.0152	1.95	0.0510	-0.0002	0.0594
Gender	1	-0.0266	0.0180	-1.48	0.1390	-0.0618	0.0086
	2	-0.0088	0.0060	-1.47	0.1420	-0.0205	0.0029
	3	0.0019	0.0014	1.44	0.1500	-0.0007	0.0046
	4	0.0115	0.0078	1.48	0.1390	-0.0037	0.0268
	5	0.0219	0.0148	1.48	0.1400	-0.0072	0.0510
Age	1	-0.0001	0.0001	-0.58	0.5650	-0.0004	0.0002
	2	0.0000	0.0000	-0.58	0.5650	-0.0001	0.0001
	3	0.0000	0.0000	0.57	0.5690	0.0000	0.0000
	4	0.0000	0.0001	0.58	0.5650	-0.0001	0.0002
	5	0.0001	0.0001	0.58	0.5650	-0.0002	0.0003
Education	1	-0.0095	0.0026	-3.6	0.0000	-0.0147	-0.0044
	2	-0.0031	0.0009	-3.49	0.0000	-0.0049	-0.0014
	3	0.0007	0.0002	3.02	0.0030	0.0002	0.0012
	4	0.0041	0.0011	3.6	0.0000	0.0019	0.0064
	5	0.0079	0.0022	3.57	0.0000	0.0035	0.0122

- Takes values 5 if individual *strongly support*, 4 = *somewhat support*, 3 = *neither support nor oppose*, 2 = *somewhat oppose* and 1 = *strongly oppose* to pay more taxes to increase health spending.

Table 6: Ordered Logit regression and marginal effects of taxpayer compliance

Variable	Predict*	dy/dx	Std. Err.	Z	P-value	[95% Conf. Int.]	
Trust tax department	1	-0.0039	0.0012	-3.32	0.0010	-0.0062	-0.0016
	2	-0.0067	0.0019	-3.47	0.0010	-0.0105	-0.0029
	3	0.0107	0.0031	3.47	0.0010	0.0046	0.0167
Tax official corruption	1	0.0127	0.0065	1.95	0.0510	-0.0001	0.0254
	2	0.0217	0.0110	1.98	0.0480	0.0002	0.0433
	3	-0.0344	0.0174	-1.98	0.0480	-0.0685	-0.0003
Difficult to know taxes to pay	1	0.0120	0.0074	1.62	0.1040	-0.0025	0.0265
	2	0.0207	0.0126	1.64	0.1000	-0.0040	0.0453
	3	-0.0327	0.0199	-1.64	0.1000	-0.0716	0.0063
Difficult to avoid pay taxes	1	-0.0157	0.0076	-2.06	0.0390	-0.0307	-0.0008
	2	-0.0270	0.0129	-2.09	0.0370	-0.0524	-0.0017
	3	0.0427	0.0204	2.09	0.0360	0.0027	0.0828
Civic duty	1	-0.0230	0.0045	-5.07	0.0000	-0.0319	-0.0141
	2	-0.0395	0.0070	-5.61	0.0000	-0.0533	-0.0257
	3	0.0625	0.0111	5.64	0.0000	0.0408	0.0842
Refused tax	1	0.0407	0.0078	5.2	0.0000	0.0253	0.0560
	2	0.0698	0.0123	5.66	0.0000	0.0457	0.0940
	3	-0.1105	0.0192	-5.74	0.0000	-0.1482	-0.0728
Employment status	1	0.0408	0.0101	4.05	0.0000	0.0210	0.0605
	2	0.0700	0.0164	4.28	0.0000	0.0380	0.1021
	3	-0.1108	0.0257	-4.3	0.0000	-0.1613	-0.0604
Gender	1	-0.0150	0.0092	-1.63	0.1030	-0.0331	0.0030
	2	-0.0258	0.0157	-1.64	0.1010	-0.0566	0.0050
	3	0.0408	0.0248	1.64	0.1000	-0.0078	0.0895
Age	1	0.0000	0.0001	-0.22	0.8240	-0.0002	0.0002
	2	0.0000	0.0002	-0.22	0.8240	-0.0003	0.0003
	3	0.0001	0.0003	0.22	0.8240	-0.0004	0.0005
Education	1	-0.0029	0.0014	-2.11	0.0350	-0.0055	-0.0002
	2	-0.0049	0.0023	-2.14	0.0320	-0.0094	-0.0004
	3	0.0078	0.0036	2.14	0.0320	0.0007	0.0149

- Takes values 3 if individual think it is *wrong and punishable,* 2= *wrong, but understandable* and 1 = *not wrong at all* when he/she do not pay taxes.

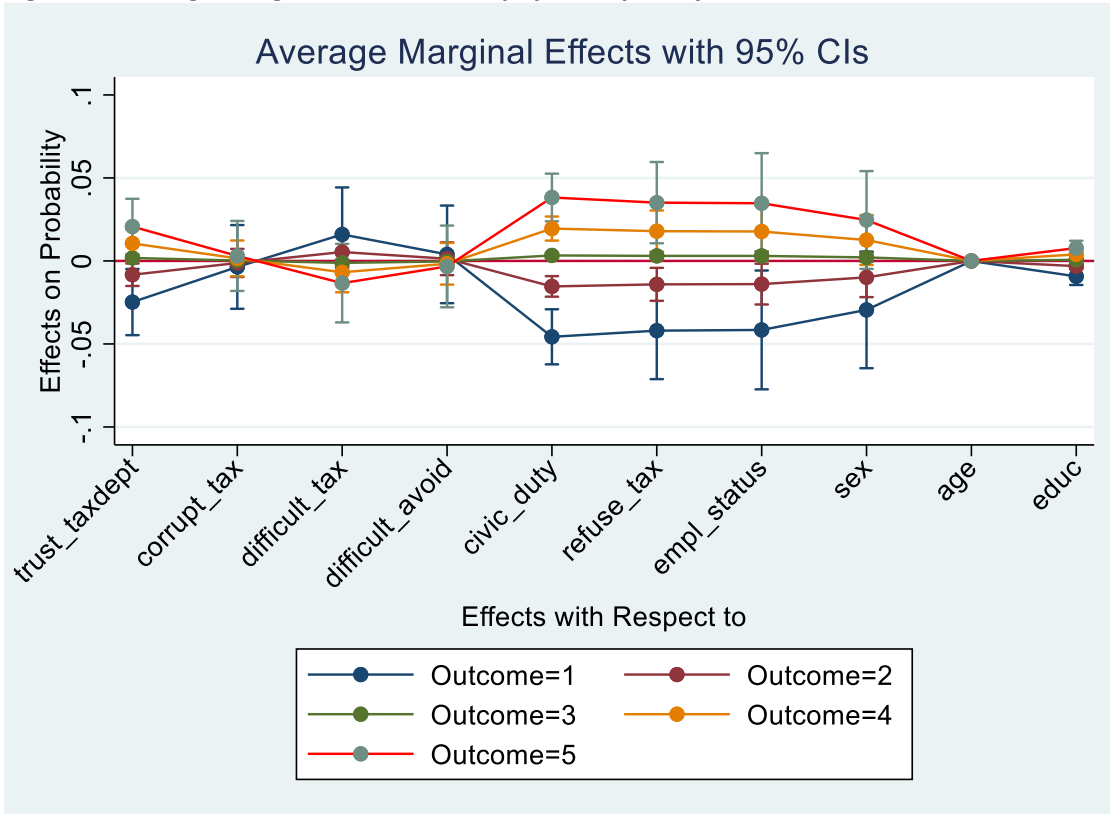**Figure 1: Average marginal effects on taxpayer reciprocity**

Figure 2: Average marginal effects on taxpayer compliance