THE IMPACT OF TRUST (IN) AND POWER OF THE AUTHORITIES ON TAX COMPLIANCE IN THE CASE OF ROMANIA

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Abstract

Tax compliance is important for governments, for the proper functioning of the tax authority, having an impact on the level of the budget revenue. In this paper, the influence of trust (in) and power of the authorities on tax compliance is analysed, using data for Romania during 2007-2017 period. The extent to which trust (in) and power of the authorities may influence the tax compliance continues to attract the attention of scholars and the results of the paper may represent a starting point for various measures needed to support the voluntary tax compliance. The results suggested that "trust" variable has a statistically significant impact on tax compliance, in the case of Romania. Another goal of this paper is to underline the importance of checking the hypotheses for a regression model, because any violation may lead to inaccurate results.

Keywords: *tax behaviour; tax compliance; Romania.*

JEL Classification: H21, H26

Introduction

Tax revenues contribute to the financing of public projects. The policymaker may adopt various measures to ensure the sustainable financing of public goods. Tax compliance refers to the compliance with tax legislation. Taxpayers who do not comply and do not pay their taxes on time may face fines or penalties.

Tax compliance may be influenced by various economic and non-economic factors. In this paper, the influence of trust and power of authorities on tax compliance is analysed, using data for Romania during 2007-2017 period. In the following section, a review of the literature on tax compliance is developed. Section three presents the methodology used. Section four contains the analysis and a discussion of the results. The last section concludes the paper.

Literature Review

A report from the European Commission (2007) describes various measures adopted by countries to reduce tax compliance costs for enterprises. Its aim is to facilitate the exchange of good practices between countries and to support the distribution of methods to improve the business environment. The report analyses the situation of income taxes and payroll taxes, and underlines some of the reasons for high tax compliance costs of small businesses, such as the frequent changes in tax legislation or the complexity of tax systems.

There are various studies in the literature on the topic of tax compliance. Kirchler *et al*. (2008) use the interaction between power of tax authorities and trust in tax authorities to understand tax compliance, and variables such as fines, audit probabilities, tax rate, knowledge, attitudes, norms and fairness are discussed. Power of authorities is related to tax legislation and to the support from the population (information about misconduct), and underlines the taxpayers' perception on detecting tax evasion by tax officers. Trust in authorities underlines the fact that tax authorities are interested in the common good. By using power and trust, the compliance may be enforced in the first case and voluntary in the second one. [Kirchler *et al*., 2008]

Related to trust and power of authorities' variables, an approach is developed in the literature, named the slippery slope framework: tax compliance may be encouraged by deterrence of tax evasion (audits and fines) and by building a trusting relationship with taxpayers (services and support). The slippery slope appears with the reduction of power / trust, and is related to a negative influence on the tax compliance level. [Prinz *et al*., 2014] According to the framework, tax compliance

can be encouraged by increasing trust in the authorities or by increasing the perception of the power of the authorities. Increasing trust in the authorities leads to voluntary compliance, while increasing the power of the authorities generates enforced compliance. [Kogler *et al*., 2013]

Prinz *et al*. (2014) discuss about two groups of taxpayers: compliance-minded and evasion-minded persons. The authors underline that the parameters of the taxpayers' reaction functions are important.

Pukelienė and Kažemekaitytė (2016) suggest that taxpayers' motivation to pay taxes, other than legal obligation (tax morale), socio-cultural determinants and the relationship between the tax authority and taxpayers, have a significant impact on tax behaviour. The authors built a model for the analysis of the slippery slope framework (refers to the perceived fairness of and trust in the tax authorities). Compliance behaviour is represented by tax revenues (measured as % of GDP). The paper analyses the effect of trust, power, and the relationship between them, on tax compliance. The authors use the following variables: trust in tax authority, an indicator that measures government effectiveness, and describes how aspects such as quality of public services, the quality of policy development and implementation, and the government's commitment to such policies are perceived. The perception of the tax authority power is the proxy for government power, an indicator of the rule of law. It shows the extent to which individuals trust and abide by the rules in a society (emphasizing the quality of police and court work, enforcement of contracts and property rights, and the prospect of criminal or violent activities). It was found that the power of tax authorities is mainly associated with a negative reaction to coercive measures, while the trust has a positive impact on compliance.

According to Kogler *et al*. (2013), the slippery slope framework integrates different determinants of compliance. Tax compliance depends on factors such as trust in authorities and perceived power of authorities. Trust encourages voluntary compliance, while power leads to enforced compliance. The highest level of voluntary tax compliance and the lowest level of tax evasion were found in conditions of high trust and high power. The authors use the corruption index as proxy for trust, and the "rule of law" variable as proxy for the state power, measuring the quality of the enforcement of the contracts, the property rights, the police and the courts, as well as the likelihood of crime and violence. The results show that both trust and power are important determinants of tax compliance.

Kosonen and Ropponen (2015) study the level of unintentional mistakes made by companies in submitting tax documents and how this level may be influenced

by providing information about the tax code. The results indicate that informing companies about tax rules significantly reduces the level of unintentional mistakes in tax reporting. Informing taxpayers about tax legislation may lead to an increase in their tax compliance.

Kastlunger *et al.* (2013) underline that the trust has a positive relationship with voluntary tax compliance. Also, trust has a negative relationship with the coercive power and a positive one with the legitimate power. Coercive and legitimate powers are correlated with enforced compliance, leading to increased tax evasion.

Pavel and Vítek (2014) present an analysis of tax compliance costs (TCC). The paper highlights what factors influence the size of the TCC at taxpayer level, and analyses how the size of the taxpayer and other factors influence the relative volume of the TCC. The authors underline that the compliance costs are more important for small taxpayers.

According to Hofmann *et al.* (2017), the socio-demographic characteristics have a low impact on compliance. Characteristics of data collection, such as the region in which they were collected, have an impact on the relationship between socio-demographic indicators and tax compliance.

In the literature, the tax compliance analysis is related to the decision of paying or evading taxes. The emphasis is placed on the impact of various indicators on tax compliance. In the following section, the methodology used in this paper is presented, together with the descriptive statistics of the variables and the hypotheses regarding the relationships between them.

Research Methodology

In this paper, an annual dataset for the 2007-2017 period was developed for Romania. The variables used in analysis are presented in the following table.

Table 1. The Variables Used in Analysis

Acronym	Explanation	Unit	Source
TAXCI	Tax compliance (the taxpayer's behaviour)	index	National Institute of Statistics
TRUST	Public trust in politicians		World Bank
POWER	Rule of law		

Source: developed by authors.

Note: TAXCI is computed as a ratio between tax on individual income and GDP.

The descriptive statistics are presented in the following table. This table is presenting important information (mean, median, standard deviation, skewness, kurtosis) regarding the data series.

Table 2. Descriptive Statistics of the Variables

	TAXCI	TRUST	POWER
Mean	0.035	1.947	0.493
Median	0.035	1.959	0.500
Maximum	0.037	2.317	0.530
Minimum	0.032	1.745	0.410
Std. Dev.	0.001	0.180	0.043
Skewness	-0.052	0.692	-0.837
Kurtosis	2.881	2.684	2.378
Jarque-Bera	0.012	0.923	1.461
Probability	0.994	0.630	0.482
Sum	0.382	21.421	5.420
Sum Sq. Dev.	1.44E-05	0.324	0.018

Source: developed by authors.

Both variables, TRUST and POWER, are sourced from the World Bank. Those variables may underline the influence of the trust in authority and the power of authority regarding the tax compliance, for the Romanian case. We expect a positive relationship between TRUST variable and the dependent variable, and a negative one between POWER variable and the dependent one, underlining the impact exerted by the state in this tax matter.

Results and Discussion

The analysis aims to develop an econometric model to highlight the relationships between tax compliance and variables such as trust in tax authority and power of the tax authority (state) regarding tax compliance, for the case of Romania, considering the 2007-2017 period. Using the Least Squares method, the regression model is described as follows:

$$Y_{t=}\alpha + \beta X_t + u_t \qquad (1)$$

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where Y_t is the dependent variable (tax compliance – TAXCI) and X_t is the set of explanatory variables (TRUST and POWER). In the following, the hypotheses of the regression analysis are checked. [Săvoiu, 2011]

The absence of measurement errors in observed values is checked by validating the relationships $x \in (\bar{x} \pm 3\sigma_x)$ and $y \in (\bar{y} \pm 3\sigma_y)$. Descriptive statistics is the starting point for testing this hypothesis. Thus, the data in Table 2 validates the hypothesis of the absence of measurement errors. The validation of the hypothesis is obtained through the following steps:

• $y \in (\bar{y} \pm 3\sigma_y)$, for $y = (0.035 \pm 3 \times 0.001)$ or the interval (0.032, 0.038) which captures the values of y (TAXCI);

• $x \in (\bar{x} \pm 3\sigma_x)$, for $x_1 = (1.947 \pm 3 \times 0.180)$ or the interval (1.407, 2.487) which captures the values of x_1 (TRUST); for $x_2 = (0.493 \pm 3 \times 0.043)$ or the interval (0.364, 0.622) which captures the values of x_2 (POWER).

The hypothesis regarding the absence of measurement errors in observed values (x_i and y_i) is satisfied, having all of the values in the computed intervals.

Another hypothesis is the following: errors' mean is equal to zero (tends to zero). This hypothesis is checked by using the residuals' descriptive statistics and observing the value of the residuals' mean. Also, there are the following steps in the analysis:

a) in the group of variables, the correlation relationships between y and x_1, and between y and x_2, are checked with the correlation matrix;

Table 3. Results Regarding the Correlation between Variables

	TRUST	POWER
TAXCI	0.644	0.165

Source: developed by authors.

The correlation coefficient underlines an average intensity relationship between TAXCI and TRUST, but between TAXCI and POWER the relationship is not significant.

b) the parameters are estimated.

Table 4. Estimation of the Regression Model Parameters

Dependent Variable: TAXCI				
Method: Least Squares				
Sample: 2007 2017				
Included observations: 11				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
TRUST	0.004	0.002	2.310	0.050
POWER	-0.001	0.008	-0.127	0.902
C	0.027	0.005	5.945	0.000
R-squared	0.417	Mean dependent var		0.035
Adjusted R-squared	0.271	S.D. dependent var		0.001
S.E. of regression	0.001	Akaike info criterion		-10.702
Sum squared resid	8.40E-06	Schwarz criterion		-10.594
Log likelihood	61.862	Hannan-Quinn criter.		-10.771
F-statistic	2.856	Durbin-Watson stat		1.043
Prob(F-statistic)	0.116			

Source: developed by authors.

In the following, the descriptive statistics for the residuals is checked, to see if the mean tends towards zero or equals zero.

Table 5. The Residuals and the Descriptive Statistics for the Residuals

| Obs.	Residual	The descriptive statistics	
2007	-0.0015	Mean	-5.95E-18
2008	0.0003	Median	0.0002
2009	0.0001	Maximum	0.0015
2010	-0.0010	Minimum	-0.0015
2011	-0.0012	Std. Dev.	0.0009
2012	0.0002	Skewness	-0.2335
2013	0.0015	Kurtosis	2.1983
2014	0.0010	Jarque-Bera	0.3946
2015	0.0006	Probability	0.8210
2016	0.0002	Sum	-6.59E-17
2017	-0.0002	Sum Sq. Dev.	8.40E-06

Source: developed by authors.

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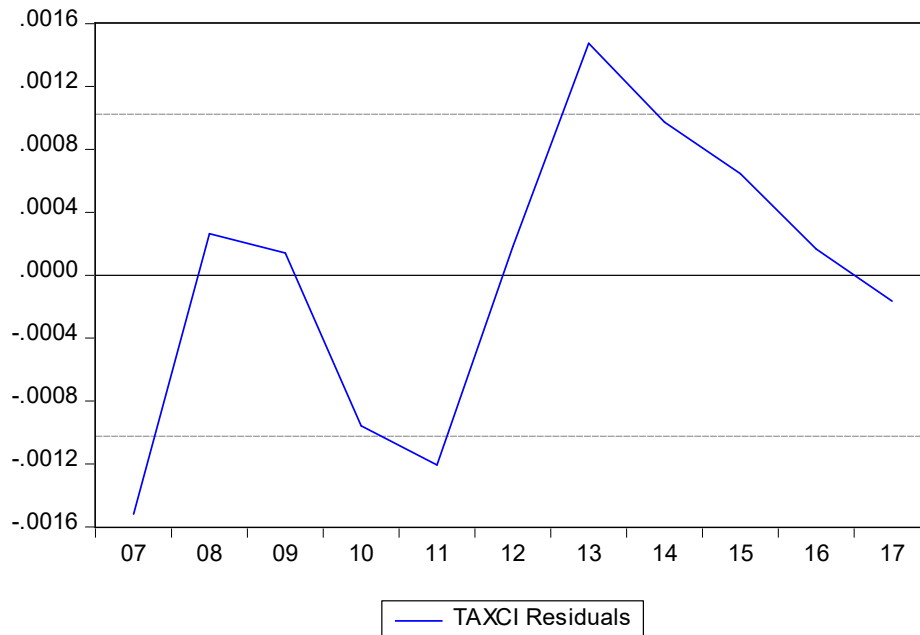
Fig. 1. The Variation of the Residuals around Zero Mean
Source: developed by authors.

According to the results, the mean tends towards zero (-5.95×10^{-18}). Regarding the model's homoscedasticity or heteroscedasticity, the White test may be used to check these aspects. The homoscedasticity of the model refers to a constant variance of the residuals in relation with any value of x_i variable. White test results show that the heteroscedasticity is not present (see Table 6).

For a significance threshold of 0.05 with a value from the table of the χ^2 test (0.05/5 = 11.070), with the White test statistics of 6.776 (or n x R^2 = 11 x 0.616), we can see that the model is not heteroscedastic (LM < $\chi^2_{0.05/5}$). The hypothesis of homoscedasticity is confirmed.

Table 6. White Heteroscedasticity Test

| F-statistic	1.604	Prob. F(5,5)	0.308
Obs*R-squared	6.776	Prob. Chi-Square(5)	0.238
Scaled explained SS	2.147	Prob. Chi-Square(5)	0.828
Test Equation:			
Dependent Variable: RESID^2			
Method: Least Squares			
Sample: 2007 2017			
Included observations: 11			
Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	8.80E-05	6.31E-05	1.396	0.222
TRUST^2	3.26E-06	8.71E-06	0.374	0.724
TRUST*POWER	5.88E-05	5.64E-05	1.043	0.345
TRUST	-4.48E-05	3.05E-05	-1.467	0.202
POWER^2	3.94E-05	0.000	0.225	0.831
POWER	-0.000	0.000	-0.788	0.467
R-squared	0.616	Mean dependent var	7.63E-07
Adjusted R-squared	0.232	S.D. dependent var	8.76E-07
S.E. of regression	7.68E-07	Akaike info criterion	-25.018
Sum squared resid	2.95E-12	Schwarz criterion	-24.801
Log likelihood	143.601	Hannan-Quinn criter.	-25.155
F-statistic	1.604	Durbin-Watson stat	1.830
Prob(F-statistic)	0.308		

Source: developed by authors.

In the following, the Durbin-Watson test is used to check the hypothesis of independent residuals or uncorrelated errors. In this case, d = 1.043, and the values for dL and dU, for n = 11, are 0.758, and 1.604 respectively, generating the situation dL ≤ d ≤ dU, meaning an indecision, the test is inconclusive for 0.05 threshold.

For the analysis of the independent residuals in relation to exogenous variables, the scatter charts with the relationships between residuals and exogenous variables are developed, showing that there is no relationship between them (see Fig. 2).

Regarding the independent variables influence on tax compliance and the obtained signs of the coefficients, the results are consistent with the expectations in both cases, of the relationship between TRUST variable and tax compliance (positive

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sign), and also in the case of the relationship between POWER variable and tax compliance (negative sign). In the case of the coefficient of POWER variable, the result is not statistically significant.
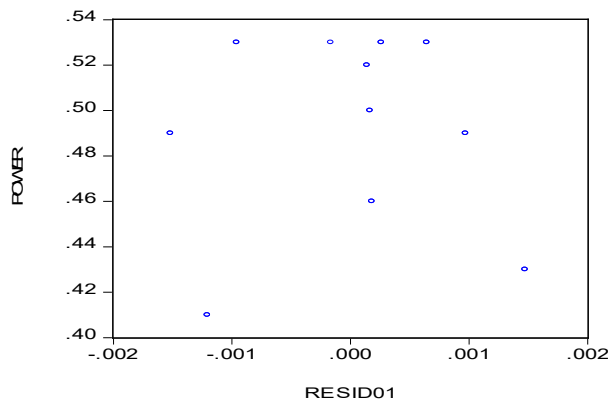
a.) Resid vs. Power
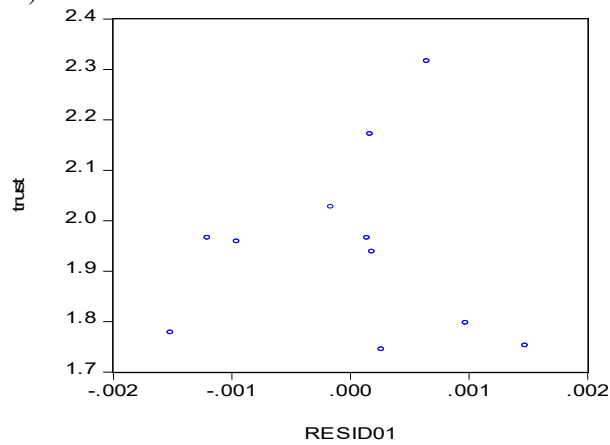
b.) Resid vs. Trust

Fig. 2. The Relationships between Residuals and Exogenous Variables: (a) RESID vs. POWER; (b) RESID vs. TRUST
Source: developed by authors.

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Conclusions

In this paper, the model developed underlined the impact of trust (in) and power of tax authority on tax compliance, with data for Romania, for the 2007-2017 period. The analysis identified statistically significant relationships between TRUST variable and tax compliance. The importance of this topic requires further research and the use of other variables which may influence the tax compliance. Another goal of this paper is to underline the importance of checking the hypotheses for a regression model. Violations of those hypotheses may lead to inaccurate results. Thus, the hypotheses are presented and checked.

Tax compliance is important for governments, for the proper functioning of the tax authority, and for attracting revenue to the budget, so necessary for the development of public projects. Tax compliance may be influenced by various factors. The results may underline the need to improve the tax compliance level. The policymaker may adopt measures to support voluntary tax compliance.

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