



# PAYING TAXES IN EURO ZONE COUNTRIES: ISSUES BEHIND TAX MORALE

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## ABSTRACT

This article investigates theoretical and practical aspects of tax morale in Euro zone countries. The attitude of households on tax payment – whether to pay taxes or not – is assessed quantitatively by employing dichotomous logit–probit regression analysis. Research is based on household level data received from World Values Survey and European Values Study. The results suggest that the main issues behind weak tax morale are corruption and disrespect of the country. Additionally, tax morale is significantly affected by such factors as age, gender, religiosity, income and education. Article concludes on possible policy options in order to increase tax morale.

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## INTRODUCTION

Payment of taxes is an agreement among taxpayers and the state. Taxpayers commit to pay taxes and the state provides public goods and security that otherwise would not be available in market economy. However, the universal aversion to tax theory contradicts the previous statement in a way that every rational economic agent will tend to increase its wellbeing by reducing tax payments and seeking public benefits. Practical outcomes support this statement: for instance, 90% of public income is raised from tax contributions, but at the same time, uncollected taxes constitute nearly one-fifth. Therefore, attention to the practical and theoretical examination of additional factors that have the most pronounced influence to tax payment is growing.

However, the underlying decisions whether to pay taxes or not is based on cost-benefit analysis. Usually two main indicators – tax base and tax ratio – are unable to fully and comprehensively explain changes in tax payments, suggesting the existence of other explanatory variables. This is the reason behind growing attention to the alternative factors, which could uncover deeper factors under unwillingness to pay taxes more accurately. The main drawback of such research approach is lack of suitable data sources. Usually assessments of tax evasion are based on data provided by surveys, experiments, or laboratory outcomes. This could give another loath outcome: in some occasions, it could be hard to expect honest answers to questions that carry a criminal threat.

The aim of this paper is to disclose factors affecting unwillingness to pay taxes in separate countries of Euro zone. The analysis is based on the data provided by World Values Survey and European Values Study. Data received from these surveys are quantitatively assessed by employing dichotomous logit-probit regression models. Most significant factors behind the unwillingness to pay taxes are revealed and described separately for each of the 19 countries in the Euro zone. The results of this paper are beneficial for the practitioners, because public authorities could direct their efforts more precisely in order to increase tax compliance. Moreover, the results of this paper enrich academia's views on alternative factors underlying the taxpayers' decisions that can be used as guidelines for further research. The summary of the paper includes a suggestion on policy measures that could be helpful to increase tax compliance.

Without the introduction and conclusions, this paper consists of the three main sections. The second section reveals the importance of taxes in contemporary economy and the magnitude of tax evasion. The third section deals with main factors underlying the tax morale, which are discovered in the existing literature. The fourth section is a quantitative assessment of tax morale in 19 Euro zone countries with the results thereof presented. Some ideas that are provided in this paper have, to some extent, been published by other authors (Rutkauskas V., Ivaškaitė-Tamošiūnė, V. 2015: Vengimas mokėti mokesčius ir jo vertinimas Baltijos šalyse), however, this article presents a much broader and deeper assessment of tax morale questions.

## ECONOMIC MEANING OF TAXATION

Taxes are affecting economy and behavior of taxpayers in different ways. As Levine-Schayowitz (2005) presents, when governments raise taxes, people alter their behaviors and make decisions they would not make otherwise. This suggests that when the behavior of private citizens is affected by a tax, the allocation of resources changes as well. Because taxes raise the prices buyers pay, providing incentives to consume less, and lower the prices sellers receive, providing incentives to produce less, the size of the market shrinks below its optimum level in the sense that revenues raised by government taxation may be less than the distorting market outcomes. Therefore, to better understand the impact of taxation on behavior, it is necessary to take into account how taxes influence the prices consumers pay, the quantities consumers demand, and the resulting tax revenues raised. Changes in tax policies also affect decisions to participate in the labor market, choice of occupation, tax avoidance

schemes and the degree of tax evasion activities through participation in the formal or informal sector of the economy.

Taxes constitute the main part of public sector income in modern economies (see Figure 1). Usually, changes in tax collection determine whether the government is running budget surplus or deficit. If the public sector has more income and savings than expenditures, public spending on consumption and investment increases without building up debt. This makes positive contribution to the general economy because public spending increases *ceteris paribus* aggregate demand. If public expenditure remains high for a longer period, the widening gap between income and expenditures needs to be covered by borrowed funds or decrease in reserves (if a country has the reserves). Both outcomes are generally unwelcome, because the growth of debt means an increase in debt burden for future generations and usually it is a leading indicator of future tax increases as it is proposed by Ricardo – De Viti – Barro equivalence theorem. Thus, economic agents' decisions whether to pay taxes or not, ultimately have a direct impact on them as tax payments are directly interlinked with the provision of public goods and services and the indebtedness of public sector.

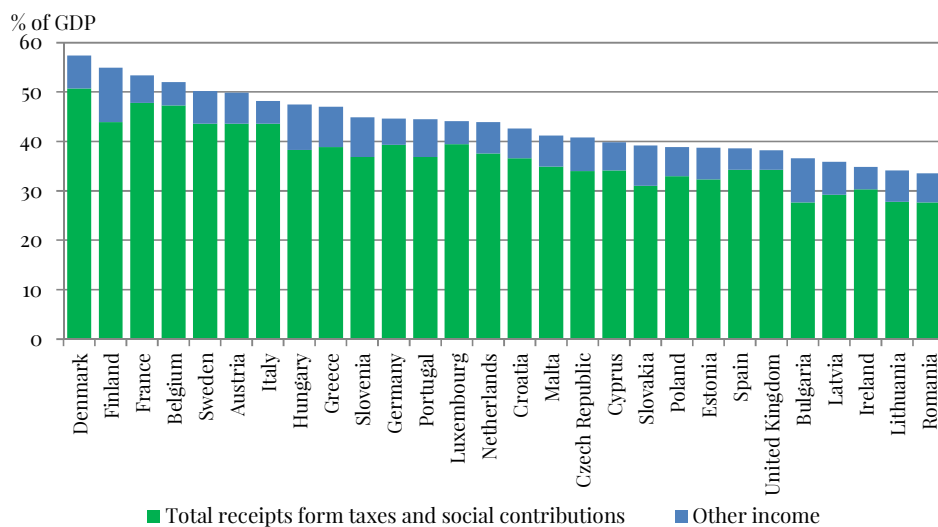


Figure 1. Government revenue sources in 2014

Sources: Eurostat and author's calculations.

Budget deficit is a common issue in the public sector in the aftermath of financial or economic crises. The main reason for the deficit is an increase in public sector expenditures in order to support a faster economic recovery. Such view was presented by J. M. Keynes in times of the Great Depression. However, it could be added (Rutkauskas 2015) that public borrowing following the economic downturn is a consequence of the usually enormous generation of private debt prior the bust. Greater flows of consumption and investment during the boom phase support faster growth and put the economy on a new – higher – level. When economic downturn starts, a simultaneous drop in borrowing and consumption and investment of private sector results in a new – lower –

GDP level. To keep economy close to the previous equilibrium, the same level of funding is required; however, the private sector tends to save rather than consume more in bust periods. The crucial role in terms of automatic stabilizers and general expenditures is played by the public sector that behaves like a substitute for a drop in private sector expenditures (where the National Accounts consumption (C) and investment (I) are substituted by government expenditure (G)).

In many countries, the differences between theoretically calculated and collected tax income are noticeable. A UK research suggests that in 2012 – 2013, the gap between theoretically calculated and collected tax income constituted 6.8% (HMRC 2014). Similar figures for the EU in 2009 were 22.1%. For every year, uncollected taxes in the region are reaching approximately EUR 1 billion. According to Murphy (2012), the main reason behind this phenomenon is a significantly large shadow economy. Moreover, reverse calculations show that public sector debt could be repaid in 9 years (based on the 2009 data) if all taxes had been paid as they were supposed to. Assessment of the gap between theoretically calculated and practically collected Value Added Tax in the EU suggests that in 2011, the gap constituted 18% or 1.5% of GDP. The highest measure was in Romania, Latvia, Greece, and Lithuania (CPB 2013). Thereby shadow economy and corruption in these countries are suggested to be among the highest in the EU (see Schneider 2013 and EC 2014). The unwillingness to pay taxes negatively affects economies and household welfare and prevents the decrease of social exclusion, because insufficient collecting of public income in terms of taxes results in an inability to provide sufficient public goods and security.

The factors affecting collection of public sector's income and balancing the budget are important to secure fulfillment of the contract between the public and private sectors. Thus, the tax base, tax rates and taxation systems in general are and will be the subject of interest in searching for the most efficient taxation model or a policy that enables the state to maximize the public income. A classic taxation model suggests looking at the taxpayer as a decision maker whose aim is to maximize benefit. Thus, before paying taxes, the economic agent performs a cost and benefit analysis and looks for two possible options. One of them is not to pay taxes and pay a fine if audited by tax authorities, and the second – to pay taxes. However, a number of unanswered questions remains. For instance, why economic agents tend to pay taxes and why not; what are the main factors behind their decisions; how these factors could be influenced; what role could be played by the government; etc. Based on this, the increasing numbers of researchers are looking for ways to explain the so-called “soft factors” – other than tax base and rate – behind taxpayers' behavior.

## FACTORS BEHIND TAX COLLECTION

In the contemporary economic theory, payment of taxes is a bilateral agreement between an economic agent and the state, because the latter is basically founded on precisely this way of funding. Economic agents agree to pay taxes to the state to receive specific goods and security in return. At the same time, economic agents are rational seekers of cost-to-benefit situation and will try to avoid or minimize paying taxes while simultaneously seeking public goods and security. Samuelson (1954) argued that private

provision of public goods would be inefficient and low, because each individual will have an incentive to take a “free ride” on the private purchases of others. The theory of general reluctance to pay taxes also brings arguments that are contrary to the concept of conscious taxpayers’ agreement with the state. Fiscal illusion theory provides that a rational economic agent realizes the need to have balanced public finances (the expenditures on public goods and security should not exceed state revenue in a long run). Notwithstanding, a rational economic agent tends to seek financial benefits from the state while avoiding paying for public goods and services via taxes. Thus, this behavior is assessed as irrational.

The public sector uses legal powers to force economic agents give up part of their income or wellbeing via taxes. There are three possible ways to deal with taxation: 1) agree to pay taxes; 2) evade taxes; 3) avoid taxes. Agreement to pay taxes is not the aim of this research, thus will not be further assessed in this article. Tax evasion and tax avoidance have at once similar and different meanings that must be clarified. According to Organization for Economic Cooperation and Development, tax evasion is linked to illegal agreements among parties in order to conceal taxable income or elude fulfilment of tax liabilities. On the other hand, tax avoidance is linked to searching for legal factors enabling the taxpayer to lower tax payments (OECD 2015). For the purpose of this article, differences between tax evasion and tax avoidance are not that important, as what’s under scrutiny is the result of general unwillingness to pay taxes and not the its type (evasion or avoidance). By taking this into account, in the scope of this article, tax evasion and tax avoidance have been treated as synonyms.

The most famous income tax avoidance model was presented in 1972 by M. Allingham and A. Sandmo. Their research was based on G. S. Becker “Crime and Punishment: An Economic Approach.” In his paper, G. S. Becker proposes to look at the tax payment as the optimal portfolio formation exercise, where the taxpayer rather chooses to take risky position and not pay taxes, but faces a possibility to be audited by tax authority. On the other hand, a taxpayer can choose a safe portfolio and pay taxes as it is stated in applicable laws. S. Yitzhaki (1974) complemented the model with a fine added if the fact of tax evasion is detected. Such an approach allows investigating the sensitivity of taxpayer’s behavior to factors like a possibility to be audited, fines, tax rate, etc. However, this model gets some critique, which is acknowledged by authors. The weakest point is the assumption that a taxpayer receives benefits only by avoiding paying taxes, because the classic model does not take into accounts the economic goods and services that are provided by the state. Thus, the only rational outcome in this case would be to avoid paying taxes and getting a free ride as it is suggested by Samuelson (1954). This drawback is well perceived by the authors, however, because of its simplicity, it is commonly used to explain the unwillingness to pay taxes.

Therefore, why are people paying taxes? This question has been raised by J. Alm et al. (1992) and the results of their experiment suggest that compliance occurs, because some individuals weight a low probability of audit, although such weighing is not universal. Compliance does not occur simply because individuals believe that evasion is wrong, since the behavior is unchanged by the use of either neutral or loaded terms. Moreover, there is evidence that individuals pay taxes because they value the public goods that their taxes finance. An increase in the amount that individuals receive from a given tax payment increases their compliance rate. At this stage, it should be noted

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that individuals exhibit a remarkable diversity in their behavior. They sometimes appear to be weighted with low probabilities, sometimes they appear to be risk-seeking, on occasion they are cooperative and at other times they are freeloaders (for instance, Figure 2 presents a positive relation between the unwillingness to pay taxes and claiming state benefits and supports the idea of irrational behavior of households).

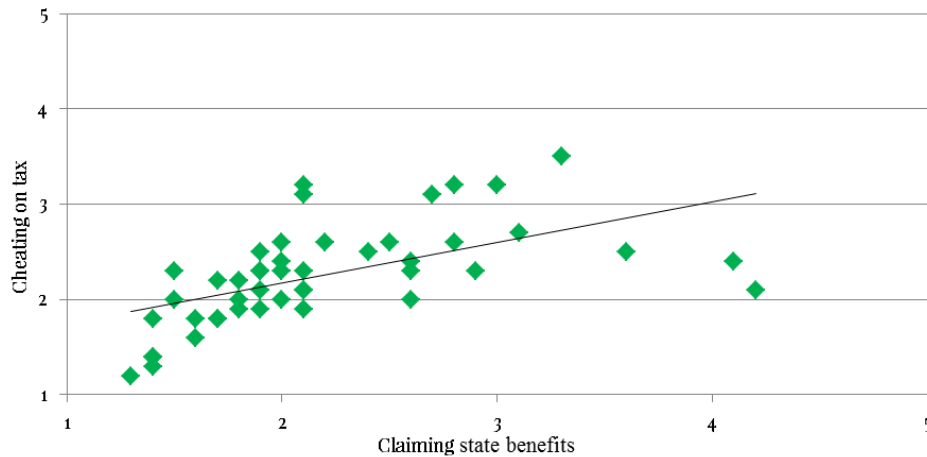


Figure 2. Relation between cheating on tax and claiming state benefits

Sources: European Value Study (2008) and author's calculations.

Note: growth in number represents greater justification.

Recent research results in tax payment field recognize that models like M. Allingham's and A. Sandmo's lack the explanatory power on some occasions. It is suggested that behavioral economics theory could add more realistic factors to the classic model, such as psychological comfort, the prestige of paying taxes and others. Daude et al. (2012) explain that tax morale is based on the aspiration to be honest with the state and other taxpayers and trust the government. On the contrary, dishonesty and distrust towards government are directly linked to tax evasion. For instance, a poor quality of public goods could be perceived by taxpayer as a dishonest behavior by the authorities and thus result in the unwillingness to buy public goods by avoiding tax payment. T. O. Weber et al (2014) claim that the main challenge when investigating the tax morale is the criminal background of such activity. Models and field experiments confirm the positive relation between the quality of public goods and willingness to pay taxes. In addition, correlation is found of tax payment and social norms like belonging to a social group or a country, patriotism and justice. Field experiments confirm that relations between taxpayers and tax collectors as robbers vs cops do not encourage paying taxes, therefore should be avoided.

## QUANTITATIVE ASSESSMENT OF PAYING TAXES

Among a number of issues that are challenging the assessment of tax avoidance, are criminal consequences of such activity. As a result, researchers find a scarcity of data in

the field of tax morale. Two of the commonly used data sources are World Values Survey (WVS) and European Values Study (EVS). These globally performed regular surveys investigate respondents' opinion in different fields like living conditions, family, religion, society, policy, economy, etc. Martínez-Vázquez and Torgler (2005), Alm and Torgler (2006), Torgler and Schneider (2006), Lago-Peñas and Lago-Peñas (2010) have used WVS and EVS data for investigating tendencies in the willingness to pay taxes and other indicators. WVS and EVS are based on the common methodology, thus data are comparable in terms of time and countries.

Dependent variables for analyzing individual answers to the question "Cheating on taxes if you have a chance" are possible answers varying from 1 ("never") to 10 ("always"). Taking into account that answer data are categorical variables according to Gujarati (2004) a simple linear regression is not suitable and instead the logit-probit regression model should be used. Moreover, such an approach is supported by a number of researchers in the tax morale field. A summary of the previously made researches in tax morale field (Table 1) shows that the main independent variables are age, gender, religiosity, employment, marital status, trust in public institutions and democracy.

Table 1. Quantitative assessment of factors behind the tax morale

Reference	Sample and econometrics	Tested variables	Significant variables
B. Torgler (2005)	Switzerland. Data from the ISSP. Year 1998. Weighted ordered probit estimation	Gender, age, marital status, education, employment status, personal income, church attendance, direct democracy, trust in court and legal system, tax rate, fine rate and audit probability, culture variables (language dummy variables)	Education (+) Students and pensioners (+) Trust in court and legal system (+) Religiosity (+) Democracy (direct) (+)
J. Martínez-Vázquez, B. Torgler (2005)	Spain. Data from WVS and EVS. Years 1981, 1990, 1995 and 1999/2000. Weighted ordered probit estimation.	Gender, age, marital status, employment status, religiosity, trust in the parliament, the national pride, time dummy variables	Tax morale is stronger in the 90's than in the 80's Age and religiousness (+) Upper-class individuals (-) Trust in the parliament and the national pride (+)
J. Prieto et al. (2006)	Spain. Data from the ISSP. Year 1998	Gender, age, marital status, education, self-employed, social class, size of municipality of residence, voted political party	Age (+) Self-employed (-) Voters to nation-wide parties (+)

B. Torgler, F. G. Schneider (2006)	Spain, Switzerland and Belgium. Data from the WVS (1995-97) and the EVS (1999-2000). Weighted ordered probit estimation	Gender, age, marital status, education, employment status, social class, personal income, church attendance, direct democracy, the national pride, trust in political institutions and government, attitude towards democracy, personal income tax rate, fine rate and audit probability (for Switzerland), culture variables (regional and language dummy variables).	Cultural and regional differences affect tax morale in both Switzerland and Spain Trust in legal system, government, and parliament, the national pride, and pro-democratic attitudes (+) Religiosity (Belgium and Switzerland) (+) Direct democracy (Switzerland) (+) Women (+)
B. Torgler (2006)	32 world countries (mainly EU). Data from the WVS (1995-1997). Weighted ordered probit estimation	Gender, age, marital status, education, employment status, social class, financial situation, risk aversion, religiosity (church attendance, religious education, active in church group, importance of religion, religious guidance, trust church), corruption, trustworthiness	Religiosity (+) Age (+) Risk aversion (+) Upper-class individuals (-) Financial satisfaction (+) Retired, home workers, and part time employed (+) Women (+) Married (+) Living together (-) Education (-) Trustworthiness (+) Perceived corruption (-)
J. Alm, B. Torgler (2006)	USA and Spain. Data from the WVS. 1999-2000. Common cross-country slopes are imposed. Weighted ordered probit estimation	Gender, age, marital status, education, employment status, church attendance, trust in parliament, country dummy variables	Tax morale is lower in Spain than in the USA Age (+) Religiosity (+) Women (+) Married (+)
J. Alm, B. Torgler (2006)	16 EU countries. Data from the WVS (1990-93). Common cross-country slopes are imposed. Weighted ordered probit estimation	Gender, age, marital status, employment status, church attendance, country dummy variables	Age (+) Religiosity (+) Self-employed (+) Pensioners (+) Married (+)



R. G. Cummings et al. (2007)	Botswana (1999) and South Africa (2000). Data from Afrobarometer. Common cross-country slopes are imposed. Ordered probit estimation	Gender, age, education, employment status, country dummy variables	Age (+)
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Sources: author based on Lago-Peñas and Lago-Peñas (2010).

For the researchers in tax morale field, it is common to use dichotomous (binary) instead of multinomial logit-probit regressions. According to Torgler and Schneider (2006), the main reason is the lack of depended categorical indicators to perform reliable analysis. In order to explain the main factors behind taxpayers' behavior for every combination of variables, at least 20% of opposite indicators should appear (the same rule is applied in other types of logit-probit regressions). Otherwise the explanatory power of the model decreases sharply. However, some categories lack data to ensure this 20% rule, thus it is common to use dichotomous instead of multinomial logit-probit regressions (or putting it differently: use two possible answers to a question rather than ten). On the one hand, this ensures explanatory power of the model, on the other, the data received from WVS and EVS are based on surveys, thus on the opinions of the respondents and not on the factual data. This is especially important to tax morale researches as the object contains criminal activity.

Research of tax morale factors in Euro zone countries is based on WVS and EVS data. 86 surveys of individual households in all 19 Euro zone countries were conducted between 1981 and 2013. The most researched country, with eight surveys in the above-mentioned period is Spain and the least – Greece and Luxembourg. Data received for every single country have been assessed separately by applying dichotomous logit-probit regression analysis. Ten independent variables (based on the results from earlier researches shown in Table 1) and one dependent variable have been adopted to investigate the importance of different factors to tax morale for every single Euro zone country and 3-6 are selected as significant. The significance of independent variables is based primarily on the measure of p-value. The suitability of the whole model is assessed not by coefficient of determination as it is common for linear regressions, but by the share of classified cases (a case in this research is equal to one individual answer). The case is assessed as classified, when the results received by the model are the same as actually collected during the survey. As Gujarati (2004) suggests, more than 50% of classified cases by the model, allow assessing the model as suitable.

Moreover, independent model variables are assessed according to the odds ratio. Odds ratio is a specific ratio for logit-probit models and shows how a dependent variable (in this case cheating on taxes if you have a chance) could change if one of independent variables increases by 1 and all the others will remain unchanged. Odds ratio is defined as the ratio of the probability of success  $P(Y=1)$  and failure  $P(Y=0)$  or  $P(Y=1)/P(Y=0)$ . This ratio is assumed as the main ratio in assessing the importance of independent variables while assessing dependent ones. The value of odds ratio could vary from close to 0 (if the probability of failure is approaching 100) to infinity (if the probability of success is approaching 100).

When analyzing dependent variables, it is important to observe whether the value of independent variable odds ratio is below or above 1. If the odds ratio is 1, the probabilities of success and failure are equal to 0.5. The growth of value of an independent variable by 1 with odds ratio below 1 means that the dependent variable has a higher probability of success ( $P(Y=1)$ ) than failure ( $P(Y=0)$ ). On the contrary, a growth of value of an independent variable by 1 with the odds ratio above 1 means that the dependent variable has a lower probability of success ( $P(Y=1)$ ) than failure ( $P(Y=0)$ ). Table 2 presents the results of logit–probit regression analysis for each country and delivered odds ratios. Take, for example, of the most covered country in the research period, namely, Spain. The eight logit–probit equations show that the most important variable effecting cheating on taxes is acceptance of bribe, the national proud, religiosity and age. On the average, the odds ratio for an independent “acceptance of bribe” variable is equal to 2.5, meaning that if the respondent’s attitude to the acceptance of bribe is greater by 1, the ceteris paribus probability that this person will cheat on taxes ( $P(Y=1)$ ) is equal to 0.71 as the probability of not to cheat ( $P(Y=0)$ ) is equal to 0.29 (remember, that odds ratio is  $P(Y=1)/P(Y=0)$  or  $0.71/0.29$  that is close to 2.5).

Table 2. Variation of most important odds ratio factors

Country	Gender	Age*	Marital status	Level of education	Employment status	Income	Religiosity	Confidence in Parliament	National pride	Acceptance of bribe
Austria			1.2				1.2		1.3-1.6	1.9-2.5
Belgium	0.6-0.8							1.3	1.3	1.3-1.4
Cyprus					0.9-1.1		1.2		1.2-1.4	2.6-4.5
Estonia	0.6-0.8	1.0							1.2-1.4	1.5-7.0
Finland	0.5-0.7	1.0					1.2-1.6			1.9-2.3
France	0.6-0.7	1.0							1.2-1.5	1.3-1.5
Germany		1.0			0.9-1.1				1.2-1.5	1.4-3.0
Greece									1.2	1.5-2.0
Ireland	0.6-0.7	1.0							1.4-1.8	1.7-2.3
Italy		1.0							1.2-1.3	1.2-2.8
Latvia	0.7	1.0							1.1-1.3	1.5-2.0
Lithuania		1.0				0.9-1.1			1.3-1.5	1.3-2.8
Luxembourg				1.2-1.3						1.4-1.8
Malta							1.4-2.2			2.3-5.7
Netherlands	0.6-0.8	1.0								1.6-3.4
Portugal		1.0					1.2			1.3-3.2
Slovakia		1.0							1.1-1.5	1.4-2.2
Slovenia	0.6-0.8	1.0							1.2-1.5	2-10
Spain		1.0					1.2-1.3		1.2-1.5	1.7-3.3

\* Odds ratio for age is 0.94-0.99.

Source: author’s calculations.

Surveys in *Austria* were conducted in 1990, 1999 and 2008. The main factors behind tax evasion as suggested by dichotomous logit-probit regression analysis are perception of corruption, the national pride, religion and marital status (Table 2). All these factors are statistically significant (the only exception is the national pride factor in 2008, where p-value reached 0.12) wherein it ensures 69–72% of positive cases by the models. Based on the odds ratio, the most significant factor behind tax evasion is the perception of corruption – the more a person will be willing to accept a bribe, the more one will try to evade paying taxes. The case of Austria suggests that citizens who feel less national pride will tend to evade taxes more, as it is the case with religiosity. Moreover, unmarried (single) persons are less likely to avoid taxes.

Surveys in *Belgium* were conducted in 1981, 1990, 1999 and 2009. The main factors behind tax evasion as suggested by dichotomous logit-probit regression analysis are gender, the national pride, trust in parliament and the perception of corruption (Table 2). All these factors are statistically significant (based on p-value) and ensure 66–71% of positive cases by the models. Based on the odds ratio, the most significant factor behind tax evasion is the perception of corruption – the more a person will be willing to accept a bribe, the more one will try to evade paying taxes. The case of Belgium suggests that citizens who feel less national pride or less trust in parliament will tend to evade taxes more. Moreover, men are more probable to avoid taxes than women in Belgium.

Surveys in *Cyprus* were conducted in 2006, 2008 and 2011. The main factors behind tax evasion as suggested by dichotomous logit-probit regression analysis are perception of corruption, the national pride, religion and employment status (Table 2). Not all factors are statistically significant for Cyprus, however, they all have been kept in the model to ensure consistency in years and substantial share of positive cases (79–90%). Based on the odds ratio, the most significant factor behind tax evasion is the perception of corruption – the more a person will be willing to accept a bribe, the more one will try to evade paying taxes. The case of Cyprus suggests that citizens who feel less national pride will tend to evade taxes more, as is the case with religiosity.

Surveys in *Estonia* were conducted in 1990, 1996, 1999, 2008 and 2011. The main factors behind tax evasion as suggested by dichotomous logit-probit regression analysis are perception of corruption, the national pride, religion and marital status (Table 2). All these factors are statistically significant and ensure 66–76% of positive cases by the models. Based on the odds ratio, the most significant factor behind tax evasion is the perception of corruption – the more a person will be willing to accept a bribe, the more one will try to evade paying taxes. The case of Estonia suggests that citizens who feel less national pride will tend to evade taxes more. Moreover, male and younger persons are more probable to avoid taxes.

Surveys in *Finland* were conducted in 1981, 1990, 1996, 2000, 2005 and 2009. The main factors behind tax evasion as suggested by dichotomous logit-probit regression analysis are perception of corruption, age, gender, and religion (Table 2). All these factors are statistically significant as measured by p-value and ensure 66–70% of positive cases by the models. Based on the odds ratio, the most significant factor behind tax evasion is the perception of corruption – the more a person will be willing to accept a bribe, the more one will try to evade paying taxes. The case of Finland suggests that more religious citizens tend to evade taxes less. Moreover, women and older persons are less likely to avoid taxes in Finland.

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Surveys in *France* were conducted in 1981, 1990, 1999, 2006 and 2008. The main factors behind tax evasion as suggested by dichotomous logit-probit regression analysis are perception of corruption, age, gender, and the national pride (Table 2). All these factors are statistically significant as measured by p-value and ensure 66-70% of positive cases by the models. Based on the odds ratio, the most significant factor behind tax evasion is the perception of corruption – the more a person will be willing to accept a bribe, the more one will try to evade paying taxes. The case of France suggests that with more national pride, people tend to evade taxes less. Moreover, women and older persons are less likely to avoid paying taxes.

Surveys in *Germany* were conducted in 1981, 1990, 1997, 1999, 2006, 2008 and 2013. The latest survey is not suitable for this research, because there were no data on the dependent variable, thus the summary of results below is given only for six surveys. The main factors behind tax evasion as suggested by dichotomous logit-probit regression analysis are perception of corruption, age, status of employment, and the national pride (Table 2). All these factors are statistically significant as measured by p-value and ensure 67-76% of positive cases by the models. Based on the odds ratio, the most significant factor behind tax evasion is the perception of corruption – the more a person will be willing to accept a bribe, the more one will try to evade paying taxes. Close to the odds ratio of perception of corruption in Germany is the national pride – the more a person feels the national pride, the more he/she will pay taxes. The case of Germany suggests that unemployed persons or those with lower salaries will tend to evade taxes less. Moreover, older persons are less likely to avoid taxes.

Surveys in *Greece* were conducted in 1999 and 2008. The main factors behind tax evasion as suggested by dichotomous logit-probit regression analysis are perception of corruption and the national pride (Table 2). All these factors are statistically significant (with exception for the national pride in 1999 as p-value exceeds 0.05 threshold) and ensure 65-77% of positive cases by the models. Based on the odds ratio, the most significant factor behind tax evasion is the perception of corruption – the more a person is willing to accept a bribe, the more one will try to evade paying taxes. Moreover, the case of Greece suggests that persons who feel a higher national pride will tend to avoid cheating on taxes more.

Surveys in *Ireland* were conducted in 1981, 1990, 1999 and 2008. The main factors behind tax evasion as suggested by dichotomous logit-probit regression analysis are perception of corruption, age, gender, and the national pride (Table 2). All these factors are statistically significant as measured by p-value and ensure 66-70% of positive cases by the models. Based on the odds ratio, the most significant factor behind tax evasion is the perception of corruption – the more a person will be willing to accept a bribe, the more one will try to evade paying taxes. The case of Ireland suggests that the more citizens feel the national pride, they will tend to evade taxes less. Moreover, women and older persons are less likely to avoid taxes.

Surveys in *Italy* were conducted in 1981, 1990, 1999, 2005 and 2008. The main factors behind tax evasion as suggested by dichotomous logit-probit regression analysis are perception of corruption, age, and national proud (Table 2). All these factors are statistically significant as measured by p-value and ensure 65-72% of positive cases by the models. Based on the odds ratio, the most significant factor behind tax evasion is the perception of corruption – the more a person will be willing to accept a bribe, the more

one will try to evade paying taxes. The case of Italy suggests that citizens with a greater national pride tend to evade paying taxes less. Moreover, older persons are less likely to avoid taxes.

Surveys in *Latvia* were conducted in 1990, 1996, 1999 and 2008. The main factors behind tax evasion as suggested by dichotomous logit-probit regression analysis are perception of corruption, age, gender and the national pride (Table 2). All these factors are statistically significant (with exception of one year's model for the national pride indicator) as measured by p-value and ensure 70-76% of positive cases by the models. Based on the odds ratio, the most significant factor behind tax evasion is the perception of corruption – the more a person will be willing to accept a bribe, the more one will try to evade paying taxes. The case of Latvia suggests a more successful tax collection from persons who feel a greater national pride. Moreover, women and older persons are less likely to avoid taxes.

Surveys in *Lithuania* were conducted in 1990, 1997, 1999 and 2008. The main factors behind tax evasion as suggested by dichotomous logit-probit regression analysis are perception of corruption, age, income and the national pride (Table 2). All these factors are statistically significant as measured by p-value and ensure 65-74% of positive cases by the models. Based on the odds ratio, the most significant factor behind tax evasion is the perception of corruption – the more a person will be willing to accept a bribe, the more one will try to evade paying taxes. The case of Lithuania suggests that the national pride plays a significant role in citizens in making a decision to pay taxes or not: a higher national pride is directly linked to stronger tax payments. Moreover, persons with higher income tend to avoid taxes more.

Surveys in *Luxembourg* were conducted in 1999 and 2008. The main factors behind tax evasion as suggested by dichotomous logit-probit regression analysis are perception of corruption and the level of education (Table 2). All these factors are statistically significant as measured by p-value and ensure 60-67% of positive cases by the models. Based on the odds ratio, the most significant factor behind tax evasion is the perception of corruption – the more a person will be willing to accept a bribe, the more one will try to evade paying taxes. The case of Luxembourg suggests that tax evasion increases in line with the increase of education level.

Surveys in *Malta* were conducted in 1983, 1991, 1999 and 2008. The main factors behind tax evasion as suggested by dichotomous logit-probit regression analysis are perception of corruption and religion (Table 2). All these factors are statistically significant as measured by p-value and ensure 83-86% of positive cases by the models. Based on the odds ratio, the most significant factor behind tax evasion is the perception of corruption – the more a person will be willing to accept a bribe, the more one will try to evade paying taxes. The case of Malta suggests that more religious citizens tend to evade taxes less.

Surveys in the *Netherlands* were conducted in 1981, 1990, 1999, 2006, 2008 and 2012. The main factors behind tax evasion as suggested by dichotomous logit-probit regression analysis are perception of corruption, age and gender (Table 2). All these factors are statistically significant as measured by p-value and ensure 63-74% of positive cases by the models. Based on the odds ratio, the most significant factor behind tax evasion is the perception of corruption – the more a person will be willing to accept a bribe, the more one will try to evade paying taxes. The case of Netherlands suggests that older citizens

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will tend to evade taxes less (however, the last survey showed slightly opposite estimates). Moreover, women tend to avoid taxes less.

Surveys in *Portugal* were conducted in 1990, 1999 and 2008. The main factors behind tax evasion as suggested by dichotomous logit-probit regression analysis are perception of corruption, age and religiosity (Table 2). All these factors are statistically significant as measured by p-value (except for the age in the last survey) and ensure 61-79% of positive cases by the models. Based on the odds ratio, the most significant factor behind tax evasion is the perception of corruption – the more a person will be willing to accept a bribe, the more one will try to evade paying taxes. The case of Portugal suggests that more religious and older people tend to avoid taxes less.

Surveys in *Slovakia* were conducted in 1991, 1998, 1999 and 2008. The main factors behind tax evasion as suggested by dichotomous logit-probit regression analysis are perception of corruption, age and the national pride (Table 2). All these factors are statistically significant as measured by p-value (except age for the first survey) and ensure 64-76% of positive cases by the models. Based on the odds ratio, the most significant factor behind tax evasion is the perception of corruption – the more a person will be willing to accept a bribe, the more one will try to evade paying taxes. The case of Portugal suggests that older people and those who feel a greater national pride tend to avoid taxes less.

Surveys in *Slovenia* were conducted in 1992, 1996, 1999, 2005, 2008 and 2011. The main factors behind tax evasion as suggested by dichotomous logit-probit regression analysis are perception of corruption, gender, age and the national pride (Table 2). All these factors are statistically significant as measured by p-value (except gender for the fourth survey) and ensure 68-86% of positive cases by the models. Based on the odds ratio, the most significant factor behind tax evasion is the perception of corruption – the more a person will be willing to accept a bribe, the more one will try to evade paying taxes. The case of Slovenia suggests that women, older people and those who feel a greater national pride tend to avoid taxes less.

Surveys in *Spain* were conducted in 1981, 1990, 1995, 1999, 2000, 2007, 2008 and 2011. The main factors behind tax evasion as suggested by dichotomous logit-probit regression analysis are perception of corruption, age, religiosity and the national pride (Table 2). All these factors are statistically significant as measured by p-value (except religiosity for the fourth survey) and ensure 65-80% of positive cases by the models. Based on the odds ratio, the most significant factor behind tax evasion is the perception of corruption – the more a person will be willing to accept a bribe, the more one will try to evade paying taxes. The case of Spain suggests that older, more religious citizens and those who feel a greater national pride tend to avoid taxes less.

These empirically assessed variables of tax morale in Euro zone countries are guidelines for tax authorities in particular and public sector in general for seeking to increase tax collection. As the robust results of this research suggest (all regressions have more than 50% of positive cases) the main efforts in order to increase tax collection should be directed to fight corruption and foster the national pride. More efforts of national authorities investigating tax evasion should be given to men and younger citizens. Additionally, highly educated persons and those with a higher income tend to evade taxes more; however, this has been evidenced only for some of countries under investigation. Moreover, religiosity is closely linked to the proper payment of taxes.

According to Weber (2014), tax morale could be increased by signing a “taxpayers honor code” as this in general will increase the dependence on society (thus the national pride). Trust in government and tax authority plays noticeable role for tax morale, thus the image of public institutions should find place in the agenda. Moreover, quality of public goods is not the least important to be considered while making decisions to pay taxes or not, thus the quality of goods as well as quality of the institutions themselves should be constantly monitored and increased (in part it is linked to corruption). Weber (2014) continues that public institutions with reputation of coercive mechanism should find the way to earn the reputation of high quality service providers. E. F. Luttmer and M. Singhal (2014) add that cooperation between the state and individual taxpayer increases the tax morale and dependency on the group and cultural effects, which in the long, run could lead to a higher tax compliance. Also, for tax authorities, it should be important to investigate more deeply the taxpayers who are younger and male, with a higher education and a higher income. As this research suggests and as other authors confirm, payment of taxes could be increased not only by applying pressure on taxpayers, but also by employing soft measures.

## CONCLUSION

The main share of public sector income is based on tax contributions. However, rational economic agents tend simultaneously to avoid tax payments and consume public goods, thus free-riding on public goods and services. According to different research types, unpaid taxes constitute nearly one-fifth of all tax income receivables, causing imbalances in state budget, debt accumulation and even busts of the entire countries. Classic models of unwillingness to pay taxes are not always able to explain the factors behind the weak tax morale as taxation rates and a lack of basic explanatory power to derive proper conclusions. Thus, the gap in this field is filled with alternative methods suggested by tax morale research and in this paper is assessed quantitatively by employing dichotomous logit-probit regression analysis.

The results of tax morale analysis in all 19 Euro zone countries suggest that the main factors behind weak tax payment are corruption and a low national pride. More efforts of national authorities while investigating tax evasion should be given to men and taxpayers of younger age. Additionally, more educated persons and those with a higher income tend to evade taxes more; however, this has been evidenced only for some of countries under investigation. In addition, religiosity has a direct and strong positive link (especially in some countries) to the willingness to pay taxes. Based on the results of this research, it could be confirmed that the main factor behind a weak tax morale in Euro zone is corruption, which additionally is closely interlinked with the shadow economy. Moreover, this suggests that the willingness to pay taxes is conceptually a broader issue to be investigated and assessed.

Systematic assessment of factors behind a weak tax payment should form guidelines for public authorities to create a stronger tax morale and tax collection in the country. Different measures like taxpayer honor code, better quality of public goods, greater trust in state, patriotism and feeling of community should be employed in order to increase the tax morale. After employing different measures, the public sector could

expect closing the gap between the actual and planned tax collection, thus ensuring a better standing of public finance and the ability to provide goods and services. Moreover, this could be done without changing tax rates or taxation base as empirical analysis suggests the existence of negative correlation between the tax payment gap and taxes collected.

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