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IS TAX MORALE HOMOGENEOUS IN BULGARIA?[6]

The article argues that tax morale is an essential component of social capital with a significant impact on tax compliance and tax collection. Against this backdrop, the results of the study are based on a questionnaire survey in Bulgaria, conducted among 1280 employed individuals. They work in enterprises that are representative of the country's economy in terms of economic activity, size, and geographical location. We design an index to assess the tax morale of the respondents and use it to address a series of questions. What is the tax morale of the Bulgarian population currently? What factors possibly influence it? Are there any differences between various population groups, based on socio-demographic or socio-economic characteristics? The results show that tax morale in Bulgaria is heterogeneous. Such findings lead to certain conclusions about economic policy reforms. By influencing the tax morale of the population, policymakers can improve tax collection. Our estimations show that a relatively large share of the population in Bulgaria has average or low tax morale. We point out that one of the most effective ways to increase tax revenues is through targeted measures to improve the tax morale of specific groups of people with a high inclination to participate in the shadow economy and evade taxes. Using statistical tests and ordinal regression models, this article provides empirical evidence that the profile of these individuals includes low income, living in regional cities, younger age and poor education.

Keywords: tax morale; tax collection; shadow economy; economic policy; ordinal regression model; Bulgaria
JEL: H26; H30; K42; O17

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Introduction

Tax collection is fundamental for every country. The development of a civilized society is impossible without a respective mechanism to provide resources for building and maintaining infrastructure, defence, security and law enforcement, education, health care and other public goods, which are provided more eefficiently by the state rather than by the free markets.

The funding of these public goods is ensured through the state and local budgets, that in turn are funded through taxes and other revenues. But tax collection is associated with costs and for a number of reasons, taxpayers do not always pay in full what they owe to the public authorities. From this perspective, it is clear that the effective management and provision of public goods requires a deep understanding of the underlying motivations that encourage or discourage taxpayers to fulfil their tax obligations.

What motivates economic agents to pay taxes? Undoubtedly, the mechanism of coercion plays a role in this process. Individuals and firms are obliged to declare their income and pay their due taxes. Otherwise, they would face some sanctions. This very mechanism provides a possible explanation for their motivations. If economic agents do not comply with their tax obligations, they will certainly benefit financially, but at the same time, there might be penalties and costs. The benefit is related to tax rates, and the cost of incurring penalties is related to the likelihood of tax audits and the severity of the penalties. If the expected benefit is lesser than the expected cost, then rational economic agents will be motivated to pay their tax obligations, and vice versa.

This point of view, along with the assumption of the rational economic agent, provides an explanation for the mechanism that motivates the payment of taxes. It is on the basis of the understanding that if the collection of taxes is insufficient, then the sanctioning measures should be strengthened. Following this logic, increasing the number of tax audits and raising penalties will make the expected costs of tax evasion higher and this will increase the motivation to comply with tax obligations. The same effect would be achieved by reducing tax rates, which in turn leads to a reduction in the benefit of tax evasion. The same logic is often applied in practice by the tax administration, and it is formalized in the baseline model of Allingham and Sandmo (1972).

Nevertheless, this viewpoint is not sufficient to fully explain the taxpayers' motivation. In recent years, another possibility has been increasingly discussed in economic literature: a motivational mechanism based on, broadly speaking, moral considerations, as a complementary one to the mechanism generated by the assumptions of rational behaviour. In this regard, the concept of "tax morale" is considered and is regarded as a set of motives influencing the tax behaviour of individuals. These motives, however, are not related to monetary benefits and rational behaviour in the sense presented in the model of Allingham and Sandmo (1972).

There are plenty of examples of such motives. First of all, on a theoretical level, a number of publications show that actual tax collection is higher than that predicted by the Allingham and Sandmo (1972) model (Alm e*t al.* 1992). However, it is not only that, but there are also many practical examples. Such is the case with the church tax in Bavaria, collected by the Protestant Church. According to the official tax code, it is mandatory, but there is no penalty

mechanism, and this is well known among taxpayers. Despite of this, 20% of people do pay it (Dwenger *et al*. 2016). Another such example can be observed from the empirically documented differences in the tax behaviour of economic agents with different cultural profiles operating under the same economic conditions (Torgler and Schneider 2007).

Motives for voluntary tax payment, without coercion and fear of sanctions, can be triggered by various factors. Social norms, traditions, cultural environment and education can all play a role in this regard. Such motives can be, for example, an internal conviction that this is the right thing to do, or the understanding that in this way more and better public goods will be obtained, or possibly a positive or negative attitude from people whose opinion the relevant taxpayer values (for more details see Luttmer and Singhal 2014). These very motives shape tax morale, and since it affects tax behaviour and the collection of public funds and hence economic development, tax morale is clearly an important component of social capital.

The indisputable importance of tax morale as an element of social capital highlights the need for it to be studied and evaluated. At the same time, as far as we know, there are no in-depth studies in this area for Bulgaria. What is the tax morale of the Bulgarian population at the present moment? What factors possibly influence it? Are there differences between different population groups? Is it possible to increase tax compliance by improving tax morale? These are the questions on which this article focuses as a scientific objective. Our task is to design a quantitative measure, based on a questionnaire survey, to assess the tax morale of different groups of the population. In order to address the above questions, we raise the general hypothesis that different groups of the population have different levels of tax morale and we test statistically several forms of this hypothesis. The fact that for our analysis we use the results from a questionnaire survey imposes some natural limitations. The survey is conducted among 1280 employed individuals, which leaves out of its scope employers and self-employed. Therefore, technically the obtained results should be pertained to the population of employed individuals. Nevertheless, we believe that the results can be applied with high confidence to the entire population, because employed individuals represent the vast majority of the economically active population.

The text in the remaining parts of the article is organized as follows. In Section 1, we discuss the importance of tax morale as a component of social capital influencing taxpayers' behaviour. In Section 2, we show the data we use and design a quantitative index that we consider as a measure of individuals' tax morale. Section 3 contains three sub-sections. In sub-section 3.1. we examine the homogeneity of tax morale from the judgment point of view for various scenarios involving damage to public funds. In addition, in sub-sections 3.2 and 3.3., we examine the homogeneity of tax morality from the point of view of different groups of the population of employed individuals, distinguished based on socio-demographic and socio-economic characteristics. Section 4 presents the main conclusions of our study.

1. Why is Tax Morale Important? A Short Literature Review

As stated in the Introduction of this article, economic agents make their decisions based on two different motivational mechanisms: whether to pay their taxes due or evade them. State coercion is one of these mechanisms and the other one is that of internal conviction, which

is shaped under the influence of social norms, education, upbringing, and the cultural environment. Both mechanisms are important, as they complement each other, and taxpayer behaviour is ultimately shaped by the overall combined influence of these two mechanisms.

It is very difficult to estimate in a quantitative way the exact impact of each of the mechanisms on tax compliance because they interact with each other, and the respective interaction can change according to the circumstances. But the exact quantification of the size of the influence of one or the other mechanism is not so important. The important thing is to accept that both of them exist, because this understanding provides a more complex and accurate explanation of the taxpayers' behaviour.

If tax morale plays a role in taxpayers' behaviour, then through policies, targeted towards its improvement, an increase in tax compliance can be achieved**.** This could be done at minimal cost and would be effective not only from a financial perspective, but also with respect to economic development. This is so, as morale values are stable over time and are usually preserved in the long run. In this context, understanding tax morale and recognizing its characteristics can lead to better and more successful tax policy. Such an approach is recommended to tax administrations by international institutions – OECD (2013).

A number of empirical studies show that tax morale has a significant effect on the behaviour of taxpayers. Higher levels of tax morale correlate with lower rates of tax evasion and vice versa. Stark and Kirchler (2017) found such a relationship, for example, in the study of inheritance taxes. Based on an analysis of portfolio investment flows from 138 countries to 21 developed OECD member countries, Kemme *et al*. (2020) find evidence of tax avoidance through cross-border operations for countries that have low tax morale estimates. In a more general context, an inverse relationship between tax morale and tax evasion is confirmed by data for the US and Turkey in the study by Torgler *et al*. (2008), from data for Costa Rica and Switzerland in Torgler (2004), as well as in other studies.

A relationship between tax morale and tax evasion automatically implies the existence of a relationship also between tax morale and various manifestations of the shadow economy, as one of the main reasons for the existence of the shadow economy is precisely the benefit that tax evasion presents. Higher tax morale is associated with less undeclared work, which is one of the main forms of manifestation of the shadow economy (Windebank, Horodnic 2017). Higher tax morale is also associated with lower "envelope wages" (Williams, Horodnic 2017). Against the background of these results, higher tax morale naturally correlates with smaller sizes of the shadow economy in general (Halla 2010). The size of the shadow economy is related to the level of corruption, since money generated by the shadow economy is often the source of funds for corrupt practices.

Tax morale affects individual manifestations of the shadow economy, as well as its size as a whole; therefore, it is of essential importance for Bulgaria. Recent research works show that the size of the shadow economy in the country is relatively large compared to the other countries of the European Union (Petranov et al. 2022b, Kelmanson et al. 2019). In turn, the large size of the shadow economy has a negative impact on the accumulation of productive

capital and on total factor productivity, which leads to low economic growth[7] and, thus, slows down the economic development of the country.

2. Data and Variables

This article is based on data from a survey prepared and conducted in the first half of 2020.[8] The survey itself is designed on a two-stage nested sampling model. In the first stage, the nests are selected – 600 enterprises throughout Bulgaria, selected in such a way, as to be representative from the point of view of business demographics according to the following three criteria: economic activity, size of the enterprise, and geographical location. In the second stage, between one and five employees are selected from each enterprise, while the specific number of employees to be interviewed depends on the enterprise's size. In 325 micro enterprises (with a staff of up to 9 people), only a single employee from each enterprise has completed the survey. Concerning the 166 small enterprises with a staff between 10 and 49 people, the survey has been completed by three people from each. In 82 medium-sized enterprises with a staff of between 50 and 249 people, four people from each participated. Finally, in 27 large enterprises with a staff greater than 250 people, five people from each were selected as respondents.[9]

After conducting the survey, the total number of respondents is 1283. When the questionnaire is filled out only by a single person, a scheme of alternation is being followed, so that the respondent from each enterprise is firstly a person with a higher or semi-higher education, then a person with a secondary education, and then another one with a lower education. When the survey is completed by three people, two of them have a higher or semi-higher education (at least a bachelor's degree), and the last one has a secondary or lower education. When there are four respondents, two of them have higher or semi-higher education and the other two are with secondary or lower education. In large enterprises, where there are five respondents, their selection was made in such a way that two of them have a higher or semi-higher education, and three have a secondary or lower education. In the selection of respondents, the principle of selecting persons proportionally from a gender point of view has been also implemented, based on the ratio between males and females in the respective enterprise.

The comparison between the sample of respondents and the data on the distribution of the country's population by various indicators from the National Statistical Institute (NSI) shows that in the data we have, the male/female ratio is practically identical to the ratio for the entire Bulgarian population. Regarding the age structure, the relative share of the group 15-24-year-

[7] *The inverse relationship between the size of the shadow economy and the macroeconomic production factors is studied in Petranov et al. (2022a).*

[8] *The survey is conducted online by the Bulgarian Industrial Capital Association in partnership with the Confederation of Independent Syndicates in Bulgaria, the Ministry of Labor and Social Policy, and labor market institutions, in execution of project BG05M9OP001-1.051-0001 „Improving the Access to Employment and the Quality of Workplaces by Limiting and Preventing Undeclared Employment ".*

[9] *The selection of enterprises, according to the number of their personnel, corresponds to the classification of micro, small, middle, and large enterprises that is adopted in Bulgaria.*

olds in our sample is smaller than on a national scale, but this is due to the fact that individuals at this age are primarily engaged in pursuing their education, and not so much with labour activity. Therefore, it is natural that the share of this age group in a sample of employed individuals is significantly smaller than the share of the same group in the population as a whole. Regarding education, the share of respondents who have completed higher or semi-higher education is greater than the corresponding share of the country's population with the same level of education, but this does not hinder the representativeness, because the deviations are not large. Greater differences are only noticeable according to the criteria of a place of residence, with about 90% of the individuals in the sample living in cities: a regional centre or the capital, compared to about 41% nationally.

The main object of this study is tax morale. This characteristic of individuals cannot be measured directly, so we use a psychometric approach to obtain an estimate of it. In this case, we assess respondents' tax morale with a set of questions revealing their attitude to certain events that, generally speaking, damage public funds. Respondents are invited to evaluate eight different scenarios using a 10-point Likert scale with numbers from 1 to 10, with a score of 1 indicating "absolutely unacceptable behaviour" and a score of 10 indicating "absolutely acceptable behaviour." The numbers between 1 and 10 enable expressing a more nuanced attitude: the closer the number is to 10 (and, accordingly, further from 1), the more acceptable the described behaviour is.

The scenarios that the respondents evaluate are shown in Table 1. For each of them, the respondents are invited to express their attitude by answering the question: "How acceptable, in your opinion, is the following behaviour?".

Table 1. Scenarios from the Psychometric Test for the Estimation of Tax Morale

Scenarios	Description
C1	Someone receives social benefits, without being entitled to such a right.
C2	Someone is using public transport without a ticket.
C3	Someone is hired by a given family for completing a certain house or domestic activity in return of payment (private lessons, household care, cleaning, repair works, etc.), but does not declare this income to the tax authorities.
C4	A firm is hired by a family for certain domestic work (cleaning, gardening, repair works, etc.), but does not declare this revenue to the tax authorities.
C5	A firm is hired by another firm for certain work and does not account for the revenue received.
C6	A firm hires a worker and pays his/hers remuneration "in an envelope" (cash), without including it in its official accounts.
C7	Someone does not pay fully or partially the taxes and social contributions due with respect to his/her income.
C8	Someone sells homemade products (fruits, vegetables, sausages, wine, etc.) and does not declare the income to the tax authorities.

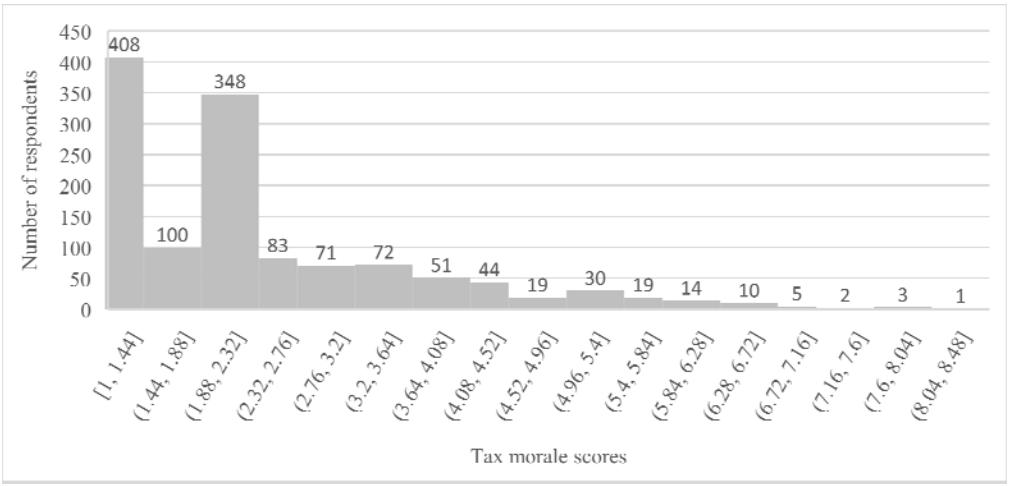
Source: Survey's Questionnaire.

There is no internal contradiction in the questions and answers of the respondents. The evaluation of the compatibility, non-contradiction, and internal consistency of the psychometric test questions, based on Cronbach's alpha coefficient, shows a value of 0.81, which is considered reliable in scientific literature. This high value gives us a ground to design a composite indicator (index) for each individual. We obtain each respondent's tax

morale index as an unweighted average of the response scores for each of the eight scenarios. Thus, we obtain scores for the tax morale of each of the respondents, which vary between 1 and 10, with values close to 1 corresponding to high tax morale, and values close to 10 corresponding to low tax morale.

Three of the respondents refused to answer these questions and were removed from the database. Three others gave partial answers – i.e., they rated only some of the cases and did not provide answers for other cases. In order not to lose the information provided by some partial responses, we calculate an estimate of their tax morale by filling in the missing responses with the arithmetic mean of their responses to the other situations to which they expressed an attitude. Thus, in the end, we have the opportunity to work with a sample of 1280 individuals.

Figure 1. Distribution of the Index of Tax Morale



Source: Authors' Calculations.

The results regarding respondents' tax morale scores are shown in Figure 1, which depicts the empirical distribution of the tax morale index. A priori, one might expect that this distribution would be illustrated by a monotonically decreasing pattern, but the results show otherwise. One would expect that most scores would cluster near the value one (expressing high tax morale), and then moving toward the value ten, smaller and smaller groups of respondents would be associated with decreasing tax morale. But as seen in the figure, the distribution has a two-peaked (bimodal) shape. It shows that among the respondents, the largest group consists of 408 individuals (31.9%) with a tax morale score between 1 and 1.44. This is the group of people who have high and close to high tax morale, and it forms one of the peaks of the distribution. It is the largest group, but still, its share – only 31.9% is relatively low considering the score for the tax morale.

The other relatively large group of respondents, which forms the second peak of the distribution, consists of 348 individuals (27.2%) that cluster around the mean[10] – they have a tax morale index of 1.88 to 2.32. These are people who are ready to make compromises for some of the scenarios considered, but not big ones and not for all scenarios. But again, keeping in mind that the score is about tax morale, the share of this group is relatively high. A relatively large group (33.1%) are people who have a score above 2.32. This corresponds to tax morale which is lower compared to the average for all respondents. In addition, in this group, there are 69 individuals (5.4%) who have a very low score for tax morale – above 5.0. This means that for them, literally any form of damage to public funds, be it by companies or individuals, is acceptable and they are tolerant to such behaviour.

Tax morale is shaped under the influence of certain factors. Therefore, in addition to obtaining a quantitative assessment of tax morale as a characteristic, it is valid to investigate the possible influence of certain factors on it. The factors whose possible influence on tax morale we examine in this article are gender, age, financial situation, marital status, education, and place of residence.

Other authors have also researched the impact of these and other similar factors on taxpayers' readiness and willingness to pay their taxes. A publication by the Organization for Economic Cooperation and Development (Daude et al. 2012) focusing on developing economies shows that different socio-economic characteristics in these countries influence individuals' tax morale. For example, individuals who identify as religious have higher tax morale. The study also shows that women generally demonstrate higher levels of tax morale. Moreover, age also affects the results, as people's tolerance for tax evasion decreases as they age. Education and employment status also positively influence tax morale. Highly educated individuals show lower tolerance for tax fraud. Such results might be expected because people with higher education have a deeper understanding of fiscal policy instruments and that tax revenues are used to finance public services. The results of the analysis in this publication also show that part-time employees and the self-employed have lower tax morale than full-time employees. According to the authors, the quality of institutions and the transparency of governance also play an important role. Those who perceive democracy as the best system of governance for their country believe that tax evasion is unjustified. Likewise, those individuals who express higher trust in their national government generally exhibit higher tax morale.

For his research, Sipos (2015) put an emphasis on the tax morale of Hungarians and found that men have a relatively high and persistent tax morale because they appear to be willing to undertake a greater tax burden to increase municipal revenues, having in mind that these funds will subsequently be used to finance public services on a local level. At the same time, his analysis shows a moderate relationship between age and respondents' evaluation of tax morale. The results show that the tax morale of older respondents is much higher than that of younger ones, but the author cautions that this does not prove that tolerance for tax evasion necessarily decreases, as age increases.

[10] *The mean value of the respondents' tax morale score is 2.32 and the standard deviation is 1.36.*

In turn, Rishava and Zidkova (2021) analyze the influence of selected factors on the tolerance of tax fraud in the Czech Republic, Poland, and Spain. The first factor examined is gender. The results of the analysis show a relationship between gender and tolerance of tax evasion in the Czech Republic and Poland. In both countries, women are less likely than men to justify tax evasion. According to the authors, this is due to psychological factors and women's lower willingness to take risks, as well as the fact that women are more aware of the benefits of larger public funds, since they benefit from them equally with men, but also in additional circumstances, such as motherhood, for example. In Spain, the test does not show a dependence on this ground. Another factor studied for possible correlation with tax morale is age. Such a relationship has been proven only in the Czech Republic. The reason for the correlation, according to the authors, can be found in the fact that the data they have from the Czech Republic is mostly from pensioners who receive benefits from a social system, so it is natural that they do not justify tax evasion. At the same time, the level of education did not show a relationship with the estimates of tax morale of individuals in any of the countries included in the study. On the other hand, in all three countries, religious people tend to tolerate tax evasion less than non-religious people.

Within the survey at our disposal, data on the distribution of respondents, according to the characteristics of the factors under study, are in the form of categorical variables. The relevant categories are presented in Table 2, and the content of the categories is clear from their names which are shown in the row corresponding to each variable. The number of categories varies between two and six. For example, the variable "Gender" has only two categories (male, female), while the variable "Age" has six categories for six different age groups.

Table 2. Variables, Analyzed for Their Impact on Tax Morale

Variable/Categories	*Categories*					
Gender	male	female				
Age	15-24	25-34	35-44	45-54	55-64	Over 65
Financial status	I can't cover my needs, I'm in debt	It's hard for me to cover my needs	I can cover my needs, but I don't save money	I'm fairly well off financially, I can save money	I don't have any financial difficulties	
Marital status	Not married	Married or living in a concubinage	Divorced	Widowed		
Education status	Low education*	Secondary education	Secondary professional education	University education		
Place of living	Village or small town	District centre	Capital city			

* Including people with primary or lower education.
Source: Questionnaire

3. Methodology, Results and Analysis

This article aims to address the fundamental question in its title – is the tax morale in Bulgaria homogenous or not? To do so, we design our analysis on the data with the respondents' distribution, which is in accordance with their demographic characteristics from Table 2 and

the answers to the questions displayed in Table 1. In theory, it is possible for the tax morale to be homogenous, meaning that distinctive groups of the population demonstrate no significant differences in their predisposition to paying taxes. Yet, the opposite hypothesis is also feasible, implying that various socio-demographic and socio-economic factors influence tax morale and contribute to the formation of separate groups in society with dissimilar levels of tax morale. If the latter is the case, it would have determining consequences in terms of tax collection efficiency.

3.1. Attitude Towards Different Scenarios

In the present section, the analysis intends to determine the degree of homogeneity of tax morale by assessing whether the attitude of the employed population is equally tolerant (or intolerant) to different scenarios of direct harm to public funds. Eight hypothetical scenarios, displayed in Section 2 (Table 1), are used to evaluate the tolerance levels of respondents towards tax-evading behaviours and to assess if acceptance of such actions depends on a particular context, or if the behaviour is regarded as tolerable in any of the mentioned situations.

Each of the eight scenarios is investigated on its own, thus, we could examine and differentiate the attitude of individuals towards each specific case. Table 3 shows the average tax morale scores and their standard deviation of all responses for each separate situation (scenario).

Table 3. Descriptive Statistics per Response Case

	C1	C2	C3	C4	C5	C6	C7	C8
Average	1.55	1.76	2.12	1.94	1.82	1.94	1.98	5.46
Std. dev.	1.27	1.47	1.89	1.67	1.58	1.69	1.81	3.92

Source: Authors' Calculations.

The derived values exhibit certain differences, but the calculations in such form do not allow for an instant estimation if the differences are statistically significant. Therefore, the methodology proceeds with further testing and subsequent operations in two stages. Initially, the analysis employs ANOVA and F-test to determine the presence of equal (or unequal) sample variances among the responses for each of the eight scenarios. In the second phase, the empirical analysis conducts a two-sample T-test to check for equality of means. The T-tests are performed in correspondence with the acquired results from the F-tests and the indicated equal or not sample variances. Therefore, the T-test enables us to outline statistically significant differences between the means, which would reflect divergent average attitudes of the relevant groups to the different scenarios. This methodology facilitates to assess if the respondents perceive tax evasion as invariable, or their attitude changes upon specific situations.

The T-test results are summarized in Appendix (Table A1.).[11] The empirical findings delineate five distinctive sets of scenarios that imply statistically significant differences in attitude. The basis for distinction is that respondents have demonstrated different tolerance levels between the five sets, but the scenarios within each set are regarded by them as equivalent. The reported differences between the means prove that the tax morale is heterogeneous. This means that people's propensity to engage in or tolerate shadow practices is based upon their judgement of a particular situation and not on the universal principle of what could damage public funds.

The first set of scenarios that tested to be statistically different from all others includes only one scenario – the case in which people receive social benefits without having such a right (C1). This situation is perceived with the lowest level of tolerance and, among all scenarios, is considered the most unacceptable. The average attitude of respondents towards the receipt of social benefits without legal eligibility is conceived differently from all other cases. One possible explanation for such an attitude could be linked to the fact that abuse of the Social security fund is a crucial societal issue. Cases of Social security fund abuse are manifestations of the shadow sector of the economy in the country, as there are several common types of practices harming the social system. A major one involves receiving unemployment benefits, while at the same time, the compensated individual performs paid work without a formal contract. Evidently, such economic phenomenon is clearly not tolerated by the respondents who are employed individuals. Another key practice of social fund abuse is through the illegal issuance of a certificate documenting a disability or chronic disease. Since 1990, the number of disabled people in Bulgaria has increased 3 times, and the number of newly registered handicapped persons is double the EU average, being one of the highest in the world (Pashev, 2007). The third main procedure used to obtain support from the Social security fund is by falsely registering as a single parent with minor children, while still living together with a partner. It is also important to note that during the last decades, certain minority groups have been extensively involved in such practices, resulting in the increased dependence on social assistance of these groups (Christidis 2020).

The next set of grey practices with statistically distinctive levels of intolerance among respondents includes two cases – using public transport without a ticket (C2) and business-to-business transactions out of the official accounting. (C5). Engaging in such wrongdoing actions is perceived with a high degree of disapproval, as individuals have reported comparatively higher tax morale in such situations. Some of the main drivers for participation in practices from this set encompass the explicit financial gains and the issues with law enforcement and tax control in such cases. The probable prerequisites for the higher tax morale against these actions are analogous to the ones in the previous set and include the scale of prevalence and the presumed size of the impact on the state budget.

The third set of cases consists of the following scenarios: hiring a company for domestic works without receiving an invoice or proof of payment while the company does not declare

[11] *Table A1. shows the t-statistic obtained from testing for equality of means from the responses for every pair of scenarios. In cases where the null hypothesis for equality of means is rejected, the level of significance is marked with the symbol (*). The table contains results only in the cells below the main diagonal because the results are not affected by the order of the tested data.*

the income (C4), payment of renumeration "under the table" (C6), and partial or full non-payment of due taxes and social security (C7). In this group, the respondents' tolerance levels are higher than those of the previous two groups. Yet, the reduced tax morale in the mentioned scenarios could be attributed to the fact that such actions are relatively widespread and numerous Bulgarians have encountered and engaged in one or more of these practices at least once. Contracting a company for domestic work without any financial documentation and receipts often comes with price incentives for the customer, which makes the service more affordable and accessible to a wider range of households. Likewise, the payment of wages unofficially ("under the table") is regarded as one of the most common and proliferating aspects of the shadow economy in Bulgaria. We assume that as respondents are all employed individuals, they might have had first-hand experience or even received additional undeclared remuneration over their professional careers. A reasonable explanation of the increased tolerance for such practices could be that many individuals have taken part in tax-evading activities of this kind (by their will or forced by the circumstances) without legal consequences and now regard them as somewhat permissible.

The analysis further outlines in a separate group the employment of a natural person to provide a service in domestic conditions for payment, but without declaring the income (C3). Examples of such services are private tutoring, home repairs, cleaning, caregiving, etc., for which the data shows a high degree of tolerance and lower tax morale. It should be noted that hiring an individual for domestic work would have a huge difference in price, compared to hiring a company. The price, therefore, does not reflect payment of VAT, profit for the company and profit tax, which could be equal to at least 34.5% without any additional costs a business would have to account for. Undoubtedly, this contributes to a significant price difference, attracts customers to such practices and leads to a more tolerating attitude. An interesting fact should also be emphasized here – the contrasting attitudes towards companies and individuals engaged in shadow practices. The results prove that people are more willing to tolerate individuals who do not declare their income than legal entities with unregistered profits. Although both acts violate and harm public finances in an identical manner, respondents reveal different attitudes. They perceive it as most unacceptable (high tax morale) if a company does not declare income received from another company (business-to-business transaction) (C5). At the same time, they are more tolerant when a company does not register profits received from individuals (C4), while the scenario with the lowest tax morale tested to be when a natural person does not report income (C3). It is possible to associate the differences in attitude between firms and individuals to the perception of the scale of operations. Respondents perhaps presume firms serve more customers, thus the harm caused to the state finances is greater than the one caused by individuals. Issues with control and sanctioning tax violations, alongside with substantial price differential for the services, further incentivize people to engage in those practices. Once individuals take part in the discussed situations, their tolerance threshold grows respectively.

The last set is represented by only one scenario – selling homegrown grocery products without any fiscal document and without declaring income (C8). The results for this case differ significantly from all other situations, as the highest level of tolerance is reported. The average acceptability rate of (C8) is 2.5 times higher, i.e., the tax morale for not registering income from selling homegrown products is 2.5 times lower than the one demonstrated towards the previous group – (C4), C7), (C8). We should mention that purchasing fruits and

vegetables from home farms, individuals or acquaintances is a widely accepted practice by consumers in Bulgaria. People's perception is the most fundamental contributing factor to the highest degree of tolerant attitude. The social aspect of this practice is of huge importance and determines the low tax morale. Consumers usually want to encourage and support homegrown products from families, micro-farmers, acquaintances, or roadside traders, because agricultural work is considered as strenuous and risky for the output. Also, consumers often regard homegrown products to be of supposedly higher quality and sometimes at a lower price, due to the shorter supply chain. Another factor for tolerating such practice is the traditions from the past, as, during socialist times, part of the production from the 'cooperative' farms was sold for supplemental income. All these aspects of consumer psychology reflect on the overall low tax morale for purchasing groceries from small private farms without any fiscal document.

3.2. Analysis of Tax Morale by Demographic Indicators

In addition to individuals' subjective judgment about specific situations, tax morale could hypothetically be influenced by demographic characteristics. The current section analyzes the role of demographic and economic factors such as gender, age, education, financial situation, location, and marital status in the formation of tax morale among respondents. Putting these characteristics into models would allow us to depict profiles of individuals with the highest and lowest tax morale.

The methodology of the analysis follows the trajectory of tests used for the eight hypothetical scenarios in Section 3.1. Analogously, the empirical calculations include ANOVA and F-test to check for equality of variances between each pair of categories of the demographic and economic indicators. Then adhering to the results, the analysis continues with a T-test to determine if the subgroups, determined by the relevant categories, have equal or unequal means. The tested subgroups are based on the categorization shown in Table 2. The analysis carried out according to the described procedure shows that 4 out of the 6 tested indicators have an effect on the formation of tax morale.

The test results reveal that two demographic indicators, namely gender and marital status, do not have a statistically significant effect on the tax morale of individuals. The gender variable is divided into two categories of male and female, and as displayed in Appendix Table A2. and Table A8., the analysis determines no statistical difference in tax morale between the two gender groups.[12] In other words, both men and women in Bulgaria have an equal attitude when it comes to tax evasion. This result distinguishes Bulgaria from other countries like Hungary (Sipos, 2015), the Czech Republic and Poland (Rishava, Zidkova, 2021), where tax morale levels change with gender. As already mentioned in Section 2, Sipos (2015) unfolds

[12] *Table A8 presents averages, as well as other descriptive statistics for the tax morale indices by categories of respondents. Tables A2-A7 in the Appendix show the T-statistic obtained from testing data for each pair of categories of respondents, based on the relevant demographic indicator. In cases where the null hypothesis for equality of means is rejected, the level of significance is marked with the symbol (*). The tables contain results only in the cells below the main diagonal because the results are not affected by the order of the tested data.*

the Hungarian case, in which males have higher tax morale than females. The opposite is evident in the Czech Republic and Poland, as Rishava and Zidkova (2021) empirically illustrate the higher morale inclination of women towards their tax obligations.

According to our research, such a gender difference in tax morale is not observed in Bulgaria. One of the major reasons for this outcome could be linked to the relatively high degree of equality between men and women in the country. The historical and socio-economic development of the state (mainly during socialist times) has added up to women now having equal participation in politics, science, culture, business, and as a result of this to similar tax mentality for both genders.[13]

The other demographic indicator, for which the results found no particular influence over tax morale in Bulgaria, is marital status (see Appendix, Table A3. and Table A4.). In general, civil status is a crucial factor, because it provides access to state financial aid and other public goods. Having family and dependents also implies greater responsibility and greater tax morale. Yet, the present study does not find any statistical evidence to confirm such a hypothetical relationship.

The T-test results indicate no statistical difference of the means of tax morale among the four categories of marital status – single, married, divorced and widowed. Another parallel could be drawn with other countries, as, for example, in Spain and the US, the highest tax morale is observed for single individuals (Alm and Torgler 2004). In those countries, the differences in tax morale are attributed to the separate taxation policy for a civil status of people and to their social circle. Another study demonstrates that in Brazil, individuals in stable unions have lower average tax morale compared to singles, divorced or widowed.[14] We assume the findings for Bulgaria are connected to the similar perceptions of tax obligations of both men and women, discussed previously, as well as to the lack of tax legislation which treats people differently based on their marital status.[15]

The empirical analysis proves that the other four examined demographic indicators – education, age, location and financial status, indeed, influence the tax morale of individuals. Education is a fundamental factor for the formation of tax morale, as our tests show a significant difference between people with university degrees and all others. University graduates have the highest average tax morale, whereas other educational groups with post-secondary diplomas and secondary or lower education do not differ statistically (see Appendix, Table A4. and Table A8.). This gives us ground to conclude that higher education has a significant impact on tax morale in Bulgaria. One explanation for this phenomenon is

[13] According to the index of European Institute for Gender Inequality for 2021, Bulgaria has 59.9 points out of 100. In comparison the Czech Republic has 57.7, Poland 56.6 and Hungary 53.4. Regardless of the possible subjectiveness of such indices, they still convey certain information, i.e., we have a reason to believe that in Bulgaria there is higher degree of equality between genders than in the other mentioned countries.

[14] The definition of a stable union in Brazil is linked to the existence of a durable, public and continuous relationship of a couple who live as if they were married, including homosexual relationships. http://www.vistoparaestrangeiros.com.br/en/visa-stable-union.htm

[15] The Bulgarian jurisdiction on income tax uses a taxation system with flat income tax rate of 10%, regardless of the income levels or marital status of individuals.

the fact that people with a university education are often better informed about the way state finances function. They are often usually more aware that their contribution to the state budget and the funding of public goods is through taxes. Highly educated people are generally more informed about the legal consequences of tax evasion. Another explanation again relates to the social circle and environment of more educated individuals, as their communities and social groups are often less tolerant to tax-evading practices. Therefore, the internal and external motivations of highly educated people add up to higher tax morale.

Other researchers have produced similar results about the correlation between educational levels and tax morale. In Brazil, data shows that the more educated people are, the higher their tax morale they have (Martinez and Coelho 2019). Knok and Yip (2018) conducted a comparative study in Hong Kong with groups of students, regarding education and tax compliance. They conclude that higher levels of education and understanding of tax legislation have a positive effect on tax morale and compliance.[16]

The next indicator that has a reflection on the tax morale is the location (in terms of place of residence) and the urban-rural typology. A statistically significant difference was identified between the "district centre city" and the other two categories – "capital city" and "village and small town" (see Appendix, Table A5. and Table A8.). The results of the T-test show that the lowest tax morale is in the district centres. Contrary to our expectations, a difference between the capital and villages and small towns was not detected by our calculations. We assume the national tax agency units manage to monitor and control better in the capital and smaller towns than in district centres. Another possible explanation is the sectoral structure of employment, based on location. In the capital, there is a large number of people employed in the state administration, financial services, telecommunications, education and other sectors, in which the share of shadow practices is somewhat minimal or not existing at all. A similar result could be found in a publication by Bejakovic and Bezeredi (2019), who report that individuals in the capital have higher tax morale in Croatia.

The financial status also has a profound effect on the tax morale of respondents. It is an integral part of the socio-economic profile of individuals, which in many cases predetermines the likelihood of participating in the shadow economy. From the five income categories disclosing the financial status of the population, the results delineate three groups with statistically different tax morale levels (see Appendix, Table A6. and Table A8.). Evidently, the individuals with the highest tax morale are those who do not have any financial problems or are fairly well off and have savings. The representatives of these categories are those who disapprove most the shadow practices. One reason is that the sums paid for taxes do not affect their overall financial well-being.

The second income group that statistically differs from the previous one includes the people who can cover their financial needs but cannot save money. Their tax morale is lower than the one exhibited by the first two categories. Representatives of this group may try to achieve greater financial stability by engaging in transactions of the shadow economy.

[16] *An interesting finding of the study is that compliance with tax legislation is less dependent on tax education among postgraduates than among undergraduate students. The authors explain this with the presence of general courses on taxation in undergraduate programs.*

The tax morale of individuals who have difficulties meeting their needs, or cannot do so and take loans, is correspondingly the lowest and statistically different from that of the other groups. The hard financial situation of these individuals constitutes their desire to ensure their physical survival, even at the cost of harming public funds. A large number of representatives of this group live near or below the poverty line and it could be expected that they have the highest predisposition to employ in shadow sector operations. Our results about the effect of the financial status on tax morale in Bulgaria correspond to the results of other comparative studies, showing a positive correlation between tax morale and income (Peñas and Peñas 2010).

The last investigated demographic indicator for possible relation with tax morale is age. The respondents are divided into six age categories, starting with individuals at the age of 15 to 24 and each covering 10 years. The analysis proves that people between the age of 25 to 34, and 35 to 44 have the highest tax morale, which distinguishes them from all other groups (see Appendix, Table A7. and Table A8.). At the same time, individuals over the age of 65 show the lowest tax morale, similar to that of persons between the ages of 15 and 24. Representatives of the other two subcategories (45-54 and 55-64) also have lower tax morale than the younger groups of 25-34- and 35-44-years old individuals.

The low tax morale of the employed between the ages of 15 and 24 is no surprise. This is a group of individuals who are relatively uninformed about social funds and are far from their active use (pensions, health care, etc.) As the youngest group, it also has a low degree of membership in the trade union. People from 15 to 24 are considered one of the vulnerable groups for participation in undeclared work and for remuneration received “under the table”.

Nevertheless, the results for the older groups are not expected and distinguish Bulgaria from other countries in a comparative plan. In the Czech Republic, for example, age has a positive effect on tax morale levels (Rishava and Zidkova 2021). The same trend is observed in the United States and Turkey, according to Torgler *et al.* (2008), who prove the existence of a positive correlation between age and tax morale. In general, the age increase is expected to lead to reduced tolerance for tax-evasive practices, as older individuals often receive more tax-financed social benefits. Our results do not confirm the presence of such a relationship in Bulgaria. We interpret them as a sign of accumulated distrust of older cohorts in the efficiency of state institutions in the management of public funds which is a result of the transition period for the Bulgarian economy.

3.3. Tax Morale Regression Model

The last part of this paper presents the empirical findings from a regression analysis, using tax morale as a dependent variable. We consider the regression model an essential element of our methodology, because it allows for a comprehensive multidimensional assessment of the combined impact of the discussed socio-demographic factors on tax morale. The importance of the regression analysis is that it measures the simultaneous influence of all evaluated indicators on the dependent variable. Moreover, the regression model is also used as an additional instrument to cross-check the results of the performed T-tests.

Due to the nature of the available data, we designed an ordered regression model, instead of the standard linear regression. Several characteristics of the dependent variable, which is tax morale, prompted the use of an ordered model. The observations for the dependent variable are derived from discrete responses of the respondents, but more importantly, it is bounded in the interval between 1 and 10, making it unsuitable for analysis as a dependent variable in a linear regression model. Also, the empirical distribution (Section 2, Figure 1) portrays that the answers for some points of the 10-point Likert scale are very few or even zero. Thus, employing the data without any transformations would lead to unreliable results.

In this case, it is more convenient from a technical standpoint to convert the resulting index, which stands for the tax morale of a particular respondent from Section 2, into a categorical variable. Starting from the empirical distribution of Figure 1, and adhering to an approach applied by other researchers[17], we form a categorical variable in the following way. Respondents who have a tax morale score exactly equal to 1 are assigned to the category of "high tax morale". The criterion for the first category is undisputable – perfect score for tax morale. People who believe that it is inadmissible to harm public funds in any form are classified as the "high tax morale" group. The second category incorporates scores bigger than 1, but lower than 2.5 and assigns them to the "average tax morale" category. This group of people has a score close to the sample average – a little bit more or a little bit less. Such a score reveals some degree of tolerance for certain practices from the shadow economy. It shows some flexibility, also judgement depending on the situation but not on the general principle of possible damages for the public funds. In their view, some shadow practices might be tolerated on a limited scale.

Respondents with a score equal to or above 2.5 are assigned to the "low tax morale" category. This group includes people who have relatively high average estimates on the 10-point scale. Here we include those with scores which are explicitly in the range of 5 or above, because so high score signalizes that such individuals perceive tax evasion as more permissible than being not permissible. In this group, we also include individuals with a score above 2.5. We assume that such a result is high enough to classify them as being with low tax morale. It is clear that such a categorical division is conditional because, in reality, the boundaries between high, average and low tax morale might be subjective and are not as clear-cut. To fit the ordered logistic regression, the categorical variable is formed to take values of (0), (1) or (2), defining respectively "high", "average" and "low" tax morale.

The indicators of gender, age, education, marital status, and location are used as independent variables in the regression analysis. They are categorical variables but have been converted to dummy ones and each variable with code 1 from Table 2, Section 2 is left out as a reference category. With N number of observations for the dependent variable, the 'ordered' regression model has the following general equation:

$$y_i^* = \beta x_i + \varepsilon_i, \forall i = 1, \dots, N$$

as y_i^* is an unobserved latent variable, y_i is the observed ordinal variable that takes values from 0 to 2, according to the following rule:

[17] *See for example Torgler et al. (2008) or Kemme et al. (2020).*

$y_i = j$ if $l_{j-1} < y_i^* < l_j, j = 0 \div 2$

In the above equations x_i is a column vector of the explanatory variables, β is a row vector of regression parameters to be estimated, and ε_i is a random error. The parameters l_j also are to be estimated as $l_{-1} = -\infty, l_2 = \infty$.

To fulfil the objectives of the study, we have applied three types of ordinal regression – logit, probit and extreme values, to check for the consistency and robustness of results, regardless of the specification of each applied model. Model calculations were made using the method of maximum likelihood estimation.

The results of the three regression models are presented in Appendix, Table A9. They, to a large extent, confirm the derived relations in Section 3.2 about the impact of demographic and economic variables on tax morale. As the results show, all three model specifications affirm that gender and marital status do not have a statistically significant effect on tax morale. Therefore, it can be concluded that various employed population subgroups, categorized by those two characteristics, do not have statistically different tax morale.

The models further determine the most substation and statistically significant contributor to tax morale to be financial status and, more precisely, the situations when individuals do not have financial problems or are relatively well off and can increase savings. The negative signs of the coefficients mean that the dependent and independent variables are inversely related, meaning that an increase in the financial status will bring the tax morale score closer to 1 (high tax morale). The identified inverse relationship validates the findings that higher income levels are associated with more intolerant individuals to shadow practices. Justified by the regression models, the results about the correlation between tax morale and financial status correspond to both the conclusions of this paper in Section 3.2 and to existing scientific literature with similar findings for Portugal (Sa *et al.* 2013).

Another demographic characteristic that the model proved to have a significant impact on tax morale is age, and particularly the age group of people in the category between 25 and 34 years. Various reasons fuel the intolerance of individuals in this age group, mainly social factors like different mentally formed among younger people under the influence of EU membership. Economic factors such as income level also contribute, as representatives of the 25-34 age group are seeking jobs in high-paying sectors with many international companies, for example, IT, financial services, telecommunications, etc. The regression model results also confirm the findings of Section 3.2, where we emphasized that younger cohorts have different and specifically higher tax morale than one of older groups.

The extreme values regression model showed statistical significance also for the location variable in the category of regional cities. It is important to note that the regression coefficient for this category is positive. All other things being equal, the positive coefficient means that if an individual belongs to this group, this fact increases the value of the dependent variable, i.e. increases the probability to that he will end up with relatively low tax morale. Such a conclusion is in accordance with the findings in Section 3.2 and points out to regional cities as critical locations for boosting control and educational programs to increase tax morale.

The only demographic characteristic that the regression models do not confirm to have an influence on tax morale is education. In Section 3.2, our results indicate that individuals with

higher education, have, on average higher tax morale, but this was not proved by the regressions. We assume this is partially connected with the large number of categorical variables in the models. From a technical perspective, the influence of education in the model might be accounted for by the other variables (for example, financial status, as university graduates tend to have higher incomes). Another explanation could be found in some methodological shortcomings which come with regression models of this type.

5. Conclusion

In the current paper, we argue that tax morale is an important component of social capital and that its study can yield useful results for both economic policy and research. It is with this understanding that in this article, we present the results of a research project based on a survey conducted in Bulgaria.

Tax morale is not necessarily always and for everyone reflected in relevant tax compliance. Nevertheless, there is convincingly enough documented evidence in the literature that this characteristic, in general, as a tendency, plays an important role in tax collection. Therefore, from the point of view of economic policy, it is important to understand what tax morale is and what factors ultimately shape it. In this way, we can understand whether, by improving tax morale, it is possible to increase tax collection. The results presented in this article give reasons to answer this question positively.

Our analysis shows that tax morale in Bulgaria is heterogeneous from at least two points of view. On the one hand, the public's perception of acceptable and unacceptable in terms of behaviour (from a tax perspective) is quite heterogeneous. The data show that respondents judge differently situations damaging public funds in essentially the same way. People perceive as acceptable or unacceptable equivalent situations whose only differences are their respective participants. In addition, heterogeneity is manifested in terms of tolerance for different practices related to the damage of public funds. According to the perspective of society, the decision of whether a given practice is acceptable or not is based on people's judgment of a particular situation, not on the general notion of whether public interests are violated.

On the other hand, tax morale is also heterogeneous from the point of view of individual groups. According to our analysis, tax morale is influenced by certain socio-demographic and socio-economic factors, with the result that some population groups have, on average, higher tax morale and other population groups have lower tax morale. The results of Section 3.2. and Section 3.3. show that individuals who have a higher level of income, those who are relatively young in age (but over 24), those living in the capital and those with higher education tend to have higher tax morale. At the same time, people with a low level of income, the elderly (65+), the very young (under 24 years old), those living in district centres, and those with low education tend to have low tax morale. We find no difference in tax morale between men and women, nor between groups separated by marital status.

Based on these results, certain conclusions can be drawn. Above all, it is clear that the good knowledge of tax morale and the factors that shape it, expand the opportunities that the

administration has to improve tax collection. Traditional approaches of more checks or tougher punishments for non-conformists are not the only option. The tax administration in Bulgaria also implements other measures related to various information campaigns, but tax morale analyses can provide more tools to increase collection, because the information from them can be used for implementing targeted measures. Well-grounded and implemented targeted measures aimed at certain groups are always more effective from an organizational and financial point of view than large-scale measures aimed at the entire population.

In this sense, in terms of economic policy, our results show two things. First, that by influencing the tax morale of the population, tax collection can be improved. There is an ample scope for this, as our estimates show that a relatively large proportion of the population currently has average or low tax morale. And secondly, that the most effective way to do this would be through targeted measures for improving the tax morale of specific groups of the population: people with low incomes, the youngest, those living in regional centres and the poorly educated. Such measures may include information campaigns, sending letters, educational courses, etc.

Another implication for economic policy is that research such as the one presented here should be done regularly for tax administration purposes. If targeted measures are undertaken to reduce tax evasion and non-payment, they should be based on research results that are up to date, because tax morale and its characteristics, as well as the factors that shape them, can change over time.

From the perspective of theory, our study also has certain results that can be used as a starting point for future research. Of particular interest to sociology would be to investigate why certain groups of the population have higher or lower tax morale than other groups. For example, why do younger cohorts in Bulgaria have higher tax morale than older cohorts? Alternatively, also, why some factors that influence tax morale in other countries do not influence Bulgaria – for example, such is the gender factor. We have suggested possible explanations for these results in the text of the relevant sections, but other explanations are also possible.

Another aspect of our research that has implications for theory is related to the research on tax morale, which would focus on the possible influence of institutional or cultural factors on it, such as, for example, religious affiliation, trust in government or parliament, trust in the judicial system, corruption, etc. Such studies would inevitably rely on econometric models, and they may use the socio-demographic and socio-economic factors analyzed in this article as part of the explanatory variables, insofar as our results show that they have a certain role in the formation of tax morale.

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APPENDIX

Table A1. T-test Results: Tax Morale Differences for Different Behavioural Scenarios

	C1	C2	C3	C4	C5	C6	C7	C8
C1	X							
C2	-3.90***	X						
C3	-9.03***	-5.43***	X					
C4	-6.69***	-2.90***	2.60***	X				
C5	-4.84***	-1.03	4.38***	1.84*	X			
C6	-6.68***	-2.92***	2.54**	-0.04	-1.87*	X		
C7	-7.06***	-3.44***	1.90*	-0.64	-2.42*	-0.59	X	
C8	-33.94***	-31.60***	-27.40***	-29.55***	-30.79***	-29.45***	-28.78***	X

*Notes: *p-value <0.10; ** p-value <0.05; ***p-value<0.01.*
Source: Authors' Calculations

Table A2. T-test Results: Tax Morale Differences by Gender

	Male	Female
Male	X	
Female	0,26	X

Source: Authors' Calculations.

Table A3. T-test Results: Tax Morale Differences by Marital Status

	Not married	Married or living in a concubinage	Divorced	Widowed
Not married	X			
Married or living in a concubinage	0,55	X		
Divorced	-1,42	-1,19	X	
Widows	-0,96	-0,76	-0,22	X

Source: Authors' Calculations.

Table A4. T-test Results: Tax Morale Differences by Education

	Low education*	Secondary education	Secondary professional education	University education
Low education	X			
Secondary education	-0,51	X		
Secondary professional education	0,75	0,45	X	
University education	2,36**	3,10***	4,71***	X

Notes: *p-value <0.10; ** p-value <0.05; ***p-value<0.01.
Source: Author's Calculations

Table A5. T-test Results: Tax Morale Differences by Place of Leaving

	Village or small town	Regional city	Capital
Village or small town	X		
Regional city	-1.8414*	X	
Capital	-0.1333	3.2455***	X

Notes: *p-value <0.10; ** p-value <0.05; ***p-value<0.01.
Source: Authors' Calculations

Table A6. T-test Results: Tax Morale Differences by Financial Status

T-test – Financial Status	I can't cover my needs, I'm in debt	It's hard for me to cover my needs	I can cover my needs, but I don't save money	I'm fairly well off financially, I can save money	I don't have any financial problems
I can't cover my needs, I'm in debt	X				
It's hard for me to cover my needs	-2.1488**	X			
I can cover my needs, but I don't save money	-2.6762***	-0.8943	X		
I'm fairly well off financially, I can save money	-4.923***	-5.771***	-5.5823***	X	
I don't have any financial problems	-4.8756***	-4.6662***	-4.3055***	-0.6324	X

Notes: *p-value <0.10; ** p-value <0.05; ***p-value<0.01.
Source: Authors' Calculations

Table A7. T-test Results: Tax Morale Differences by Age

	15-24	25-34	35-44	45-54	55-64	65 and up
15-24	X					
25-34	2,01*	X				
35-44	1,89*	-0,53	X			
45-54	1,04	-2,85***	-3,07***	X		
55-64	1,19	-1,77*	-1,60	0,48	X	
65 and up	-0,75	-3,06***	-3,33***	-1,98**	-2,03**	X

Notes: *p-value <0.10; ** p-value <0.05; ***p-value<0.01.
Source: Authors' Calculations

Table A8. Descriptive Statistics of Tax Morale Scores by Categories of Respondents

Variable	Categories	Average	Standard deviation	Minimum	Maximum	Number of observations
Gender	Male	2,29	1,28	1,00	8,00	638
	Female	2,31	1,41	1,00	8,25	642
Age	15-24	2,81	1,83	1,00	7,00	32
	25-34	2,13	1,25	1,00	8,25	183
	35-44	2,19	1,20	1,00	6,88	480
	45-54	2,46	1,45	1,00	8,00	407
	55-64	2,40	1,51	1,00	7,88	160
	65 and up	3,15	1,36	1,75	6,63	18
Financial status	I don't have any financial problems	1,77	1,24	1,00	8,25	98
	I'm fairly well off financially, I can save money	1,86	1,10	1,00	6,38	189
	I can cover my needs, but I don't save money	2,40	1,37	1,00	8,00	591
	It's hard for me to cover my needs	2,49	1,37	1,00	7,38	343
	I can't cover my needs, I'm in debt	2,91	1,52	1,00	8,00	59
Marital status	Not married	2,25	1,29	1,00	7,00	267
	Married or living in a concubinage	2,30	1,35	1,00	8,25	728
	Divorced	2,42	1,44	1,00	7,25	250
	Widows	2,48	1,60	1,00	6,63	35
Education status	Low education	2,70	1,23	1,00	6,50	25
	Secondary education	2,56	1,75	1,00	8,25	171
	Secondary professional education	2,49	1,35	1,00	7,88	464
	University education	2,11	1,21	1,00	8,00	620
Place of living	Village and small town	2,18	1,35	1,00	8,00	110
	District center	2,45	1,45	1,00	8,25	620
	Capital	2,20	1,24	1,00	8,00	550

Source: Authors' calculations

Table A9. Probit, Logit and Extreme Values Regression Models Results

	LOGIT	PROBIT	EXTREME VALUES
25-34	-0.7355**	-0.4271*	-0.5260**
35-44	-0.5945	-0.3351	-0.4087
45-54	-0.2751	-0.1461	-0.1671
55-64	-0.3447	-0.1883	-0.2045
65 and up	0.5596	0.4188	0.3004
Secondary education	-0.5649	-0.3685	-0.1734
Secondary professional education	-0.2406	-0.1584	-0.1237
University education	-0.3447	-0.2385	-0.1135
It's hard for me to cover my needs	-0.0304	-0.0174	-0.0392
I can cover my needs, but I don't save money	-0.0244	-0.0228	0.0270
I'm fairly well off financially, I can save money	-0.7329***	-0.4429***	-0.4611***
I don't have any financial problems	-1.1953***	-0.7189***	-0.7311***
Gender	0.0417	0.0226	-0.0532
District center	0.3122	0.1849	0.3156**
Capital	0.1035	0.0587	0.1599
Married or living in a concubinage	-0.1429	-0.0860	-0.1320
Divorced	-0.0628	-0.0399	-0.0644
Widows	-0.0526	-0.0516	-0.0714

Notes: *p-value <0.10; ** p-value <0.05; ***p-value<0.01
Source: Authors' Calculations