THE IMPACT OF SOCIAL CAPITAL ON TAX MORALE IN 44 COUNTRIES

by

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Kyiv School of Economics

Abstract

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According to some estimations, tax avoidance and evasion cost about $427 billion for governments worldwide. While most of the recent studies on this problem are focused on tax havens, large corporations, and political elites, the individuals are proved to be also involved in significant tax evasion.

Using the dimension reduction methods and the data from World Values Survey, I study the intrinsic motivation of people to pay taxes and how different dimensions of social capital affect it. I look at the differences of these effects across different groups of countries depending on their economic and political freedom development. Regression analysis shows the importance of differences in social capital in countries with cultural, historical, and economic distinctions affecting the tax morale of individuals.

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Chapter 1

INTRODUCTION

According to some estimations, tax avoidance and evasion cost about $427 billion for governments worldwide (Cobham et al., 2020). Most of the recent studies on tax avoidance are focused on tax havens, large corporations, and political elites (Crivelli et al., 2015; Cobham & Janský, 2018). However, other researchers note that individuals are also involved in significant tax evasion (Zucman, 2017; James Henry, 2016).

Given that economists believe that governments' capacity to collect taxes is the pivotal aspect of economic prosperity (Besley & Persson, 2011), the issue of tax compliance and evasion goes beyond an issue of losses to budget. This is one of the most crucial aspects of how economies and political institutions function.

Tax compliance and tax evasion have been the subject of economists' research for decades (Torgler & Schneider, 2009; Srinivasan, 1973). Nevertheless, the literature on this topic continues to grow, adding more and more to the understanding of these phenomena (Alstadsæter et al., 2019; Joel Slemrod, 2019). Most importantly, there has been a significant increase in studies of the attitudes and behavior of individuals. Economic theory has suggested that attitudes are also important in shaping the economy (Torgler & Schneider, 2009). While studies of firms and corporations have been developed quite well (Zucman 2017), there are still a lot of debates regarding why some people comply with tax policies and others do not. My dissertation is focused on this scholarship.

Since it is difficult to measure tax compliance at the individual level, tax morale is usually used for this purpose being a proxy to tax compliance. Tax morale is a relatively new term in the economic literature that has already attracted the

attention of many researchers. Tax morale is a measure of individual attitude towards taxes which has been shown to shape the shadow economy. It is often referred to as an intrinsic motivation of people to pay taxes (Alm et al., 2006).

In this literature, tax compliance is determined as people's willingness to pay taxes in good faith to their government, which is responsible for redistributing taxes to improve the quality of life of its citizens. A vast array of literature is devoted to improving the practice of tax collection and the consequences of introducing or canceling certain tax procedures.

Tax collection is the primary responsibility of the government and is often accompanied by many problems, especially in developing and transition countries, which are often characterized by poor administration. Such countries usually face problems with tax evasion, a high level of the shadow economy, and general economic instability. The size of the shadow economy in developing and transition countries is usually much larger than in high-income countries (Dreher et al., 2010). High degree of tax evasion reduces the efficiency of public services and government administration.

There are several well-known determinants of the level of the shadow economy: tax burden, quality of institutions, level of corruption, quality of public services. Over time, however, researchers realized that country-level variables are only part of the story. Socioeconomic profile, personality types, and social connections with peers or relatives has been shown to be significant as well. Among the many socioeconomic characteristics of individuals, social capital has proven to be an important factor in explaining tax compliance as a determining factor in an individual's tax morale (Alm & Gómez, 2008; Torgler, 2003).

However, the latest studies are still incomplete and have some limitations. First, most of the research which addresses social capital lacks systematic definitions of social capital. Some studies refer to social capital as a level of trust and

cooperation within a group of people. Others define it through moral values in a society. And some scholars measure it with the level of trust and support toward authorities. Moreover, most of the existing studies in economics do not justify the selection of their variables by the empirical criteria but using ad-hoc variables due to their availability. Many studies approximate social capital with one or few variables describing trust in people or perception of the efficiency of government, which do not cover all sides of social capital. Social capital has many more dimensions than that. Finally, previous studies are often focused on single countries case studies.

Using the data from World Values Survey 7, I examine the effect of different dimensions of social capital on tax morale, as a proxy for tax compliance, in 44 countries. I use principal component analysis to extract the most valuable socio-economic characteristics of individuals and construct several factors that describe different dimensions of social capital. To this end, I follow the most recent advances in the scholarship of social capital (Elgar et al., 2011) and contribute to the literature by testing recent models for the large-scale data and using more control variables.

Using the ordered logistic regression, I test several hypotheses about the role of social capital on tax morale. I assume that different aspects of social capital have a positive effect on tax morale across countries. Another assumption concerns the difference in the importance of different types of social capital between high-income countries, countries with economies in transition, and developing countries.

The rest of this article is organized as follows. Chapter 2 describes the latest literature on this topic. Chapter 3 provides a description of the data used in the analysis. Methodology of the thesis is described in Chapter 4. The result and its

discussion are included in Chapter 5. Chapter 6 summarizes the main findings and discusses their implications.

Chapter 2

LITERATURE REVIEW

Why do people pay taxes? Several economic factors have been suggested in the literature, including government enforcement, fines, tax audits, "behavioral economics" factors, and, recently, the notion of 'tax morale'.

L.P. Feld and B.S. Frey in their study of the 26 Swiss cantons indicated that: "…most studies treat "tax morale" as a black box without discussing or even considering how it might arise or how it might be maintained. It is usually perceived as being part of the meta-preferences of taxpayers and used as the residuum in the analysis capturing unknown influences to tax evasion" (Feld & Frey, 2002). Since then, the literature on tax compliance has been expanded by various authors. Tax morality is commonly understood as a term that encompasses all motives for compliance with tax laws that go beyond the standard scope of expected utility. In this regard, it is important to note the significant contribution to the study of this phenomenon by Benno Torgler and James Alm in collaboration with various studies. Their works on tax morale in different countries allow assessing the impact of tax morale and provide a good basis for further research.

Many studies show that tax compliance varies from country to country and that this may be due to differences in tax morale among citizens of those countries. Studying the attitudes toward paying taxes in Russia Alm, Martinez-Vazque, and Torgler showed a strong negative correlation between the level of tax morale and the size of shadow economy in transition countries (Alm et al., 2006). The same dependency was discovered in other developing countries (Torgler, 2005). They analyzed the changes in tax morale in Russia in the period after the collapse of

the USSR. Changes in the political system and institutions were reflected in the change in the cultural values of the population. Using data from the World Values Survey, they investigated the determinants of tax morale. Tax morale, as a dependent variable was approximated with the question:

"Please tell me for each of the following statements whether you think it can always be justified, never be justified, or something in between: . . . Cheating on tax if you have the chance".

Trust in government and legal institutions was found to be the main determining factor, which is consistent with other studies. In addition, they found significant differences across regions in the level of tax compliance.

Indeed, the suggestion that high institutional quality and high tax morale leads to smaller size of shadow economy found strong support in the literature. Torgler and Schneider argue convincingly that tax morality is an equally important factor in determining the size of the shadow economy among such factors as the rule of law, the effectiveness of government regulation, and the security of property rights (Torgler, Schneider, 2009). Thus, a deeper understanding of tax morale by policymakers can provide access to a wider range of tools that affect compliance than is implied by standard enforcement models.

In their research, authors state: "It is important to consider the moral dimension of complying with societies' rules. Social norms or social capital are key factors to understanding why people comply" (Torgler, Schneider, 2009). Using the cross-section data on individual level from World Values Survey, Alm and Torgler showed that cultural differences have an impact on tax morale, which differs across countries (Alm & Torgler, 2006). High level of social capital may enforce people to pay taxes even with the low probability of detection of concealment of non-payment of taxes. Social norms and social capital are important factors in understanding people's consent, which cannot be fully

explained by traditional economic analysis, which focuses mainly on containment.

It may seem to us that social capital as a definition has existed as long as the science of sociology itself, but this is not at all the case. Social capital gained real popularity among scientists only in the late 1980s with the appearance of works by scientists such as Bourdieu, Coleman, and Putnam. After that, social capital became the third type of capital after human and physical capital and is viewed by economists as an equally important aspect of productivity development (Coleman, 1988; 1994).

In recent decades social capital has become a widely used concept in a wide variety of fields. The idea of social relations as an important factor in explaining various economic, political and sociological actions of people has turned out to be attractive to many scientists. Modern literature hasn't come to a single definition of social capital, and we can find hundreds of different ways to define it in literature. For example, Coleman define it as "a variety of different entities having two characteristics' in common: They all consist of some aspect of social structure, and they facilitate certain actions of individuals who are within the structure." (Coleman, 1990). Bourdieu and Wacquant refer to it as the "sum of the resources, actual or virtual, that accrue to an individual or a group by virtue of possessing a durable network of more or less institutionalized relationships of mutual acquaintance and recognition" (Bourdieu & Wacquant, 1992). But economists usually understand social capital as those persistent and shared beliefs and values that help a group overcome the free-rider problem in the pursuit of socially valuable activities (Guiso, et al, 2010).

The study of social capital as a determinant of tax morality is relatively new and has not yet been studied in depth. Alm and Gomez examined the impact of social capital on tax morale in Spain using micro-level data from a 2005 survey.

Tax morale, as a dependent variable, was approximated with a question:

'Do you mostly agree or mostly disagree with the following statements?... Actually, it is not that bad to hide part of your income since nobody is really affected by it.'

which is considered compatible with previous works.

For social capital variables, the authors selected different types of questions about the perception of fiscal fraud, the impact of public services, and government performance assessments that were directly used as an indicator of social capital. Their results show that the individual level of tax morale is significantly and positively related to the level of benefits received in society.

Until recently, the economic thinking considered only two dimensions of social capital. *Bonding capital* - refers to the degree to which people join groups, trust and cooperate with people in those groups; *bridging capital* - refers to open networks that link heterogeneous groups (Putnam, 2000). Bridging social capital links diverse groups of people with weak associations (colleagues, people of different cultures, etc.)

Szreter and Woolcock suggested the third dimension of social capital to account for differences in status and power between groups (Szreter and Woolcock, 2004; p. 655). It is called *linking capital* and refers to the "degree to which people are willing to trust and support formal authority" (Elgar et al., 2011).

In the recent study of social capital, health, and life satisfaction, Elgar et al. used data from the World Values Survey to assess social capital. Using exploratory principal axis factor analysis, they separate the bridging, bonding, and linking social capital variables to examine the impact of different dimensions of social capital (Elgar et al., 2011). This methodology used as a baseline for the exploratory factor analysis in the current study.

Chapter 3

DATA DESCRIPTION

The focus of this work is to examine the role of different types of social capital in tax compliance. I use micro-level data from World Values Surveys 7 for the empirical analysis. The survey was conducted in 2017-2021 in 80 countries. The World Values Surveys are conducted as face-to-face interviews to monitor cultural values, social trust, attitudes, and beliefs in society. It includes several hundred questions from various fields, which makes it widely used among researchers across the world. This study is based on the data from 44 countries (see Annex), that includes 51,762 observations. According to the World Bank indicator, this set of countries is divided into two income groups: high and middle-income countries.

3.1 Dependent variable

The dependent variable for this study is created from the survey's question as a proxy for intrinsic motivation to pay taxes:

"Please tell me for each of the following statements whether you think it can always be justified, never be justified, or something in between: . . .

Cheating on tax if you have the chance".

The question leads to a ten-scale answer, where 1 means – "Never justifiable", and 10 – "Always justifiable". For the sample I use the distribution of answers is:

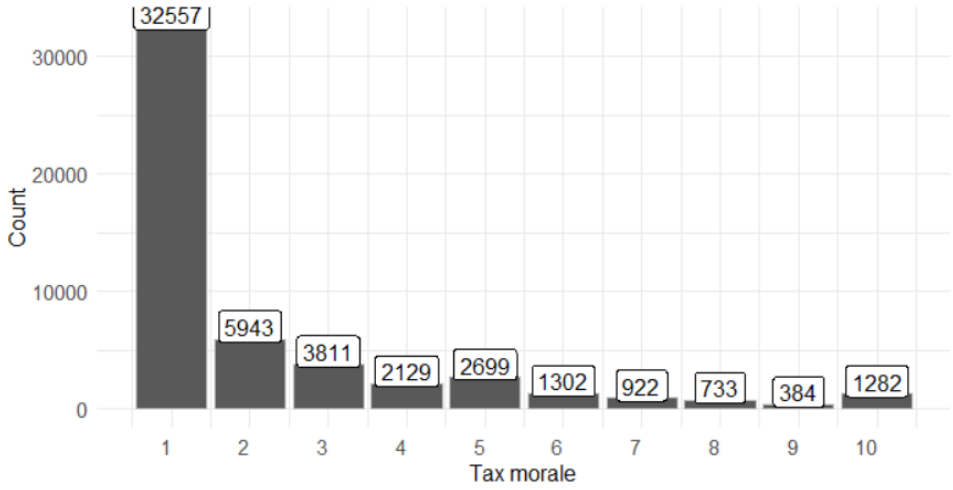

Figure 1. Histogram of the initial distribution in answers

Following the methodology of previous literature and due to the scarce answers for the points 5-10, the variable was recorded into 0-4 scale, where 0 stands for "Always justifiable" and 4 – "Never justifiable" (Alm et al., 2006). The points 5-10 in the original scale were combined and recorded as 0 in the new scale. Thus, the higher score indicates a higher level of "taxpayer ethics" of the individual:

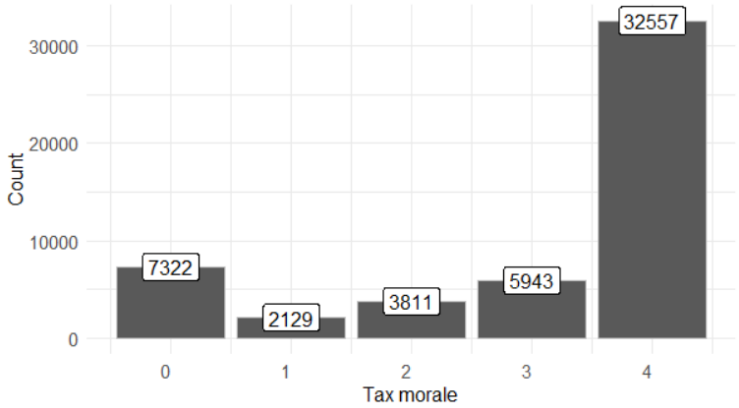

Figure 2. Histogram of the initial distribution in answers

This way of approximation of tax morale is not free of biases. For example, it is possible that individuals may overstate or underestimate their real level of compliance. But since the question is not asked directly about whether an individual is paying taxes, it is assumed that this bias is not large. The fact that the question is asked with a group of other non-tax questions helps to avoid the framing effect and does not raise suspicion in the respondent. Besides, this way of approximation of tax morale is used in various previous studies (Alm et al., 2006; Alm & Torgler, 2005).

In the map (Figure 3), we see the difference in average tax morale in the countries covered by this study.

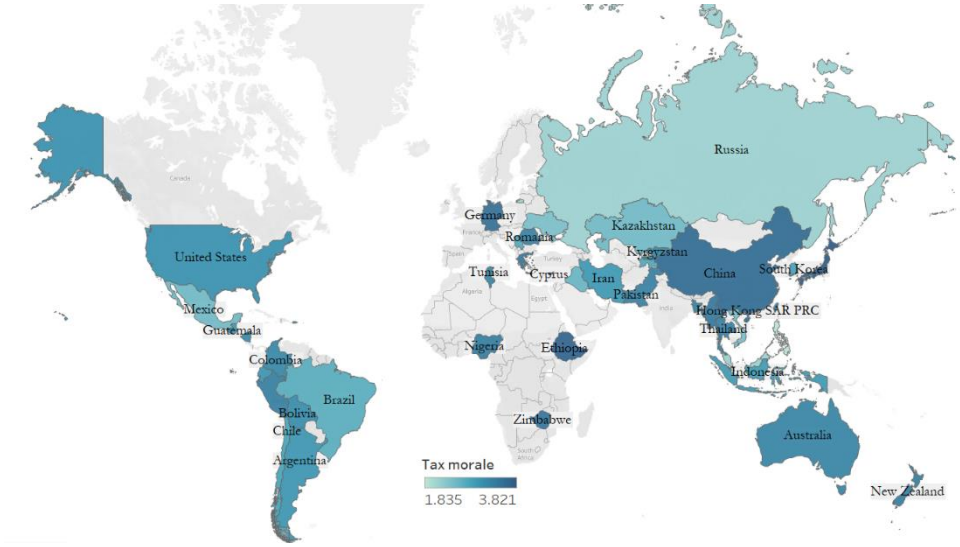

Figure 3. The distribution of average tax morale across countries

In this study, I look at differences between high-income and middle-income countries that are defined in the World Bank methodology. There are 14 high-income and 28 middle-income countries in the dataset (Appendix A). High-

income countries, highlighted in yellow, tend to have slightly higher average tax morale (Figure 4).

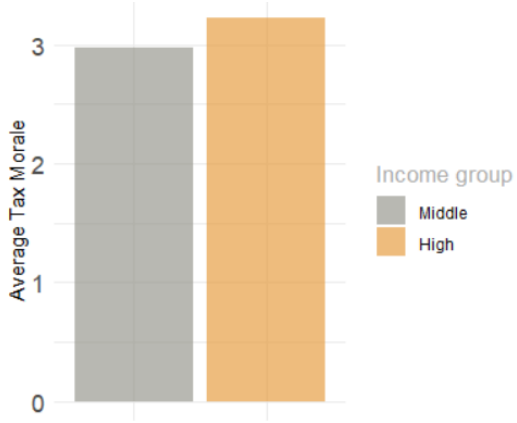

Figure 4. The distribution of average tax morale across income groups

Difference in average tax morale across countries can be explained by various cultural, historical, and socio – economic differences existing in the societies.

3.2 Independent variables

3.2.1 Social capital variables

I use a set of questions from the WVS that captures the cultural and social characteristics of the respondent to construct various dimensions of social capital. The survey contains dozens of questions, of which 18 questions were selected to explain most of the variation. This was done using the exploratory factor analysis technique. Those questions can be divided into four groups.

1) *Questions about respondent' believes in others.*

Respondents were asked to evaluate their trust into their neighborhood, people they know personally, people they meet for the first time, people of another religion, and people of another nationality by the scale from 1 to 4. Where 1 stands for *Trust completely*, 4 - *Do not trust at all.*

2) *Questions about respondent' believes in institutions.*

Respondents were asked to evaluate their confidence in the police, justice system, and the government by the scale from 1 to 4. Where 1 stands for *A great deal*, 4 - *None at all.*

3) *Questions about respondent' membership in different organizations.*

Respondents were asked about their membership in religious, sport, art, environmental, professional, and charitable organizations. There were three options to choose from: 0 – *Don't belong*, 1 – *Inactive member*, 2 – *Active member.*

4) *Questions about respondent' ethical values.*

Respondents were asked to evaluate their justification of: *Claiming government benefits to which they are not entitled; avoiding a fare on public transport; stealing property; someone accepting a bribe in the course of their duties* by the scale from 1 to 10. Where 1 – *Never justifiable*, 10 – *Always justifiable.*

Questions on respondent' believes in institutions, membership, and ethical values have been rewritten in reverse order for better interpretation.

To differentiate countries on their level of income, freedom, and other features, I use the country-level data from World Bank, Ease of Doing Business, Freedom House (Appendix A).

Table 1. Descriptive statistic on respondents' answers

1- Always justifiable; 10 - Never justifiable	**1**	**2**	**3**	**4**	**5**
Claiming government benefits to which you are not entitled	5.6%	1.8%	3.4%	3.5%	5.2%
Avoiding a fare on public transport	4.8%	1.4%	2.8%	2.9%	3.9%
Cheating on taxes	2.5%	0.7%	1.4%	1.8%	2.5%
Someone accepting a bribe in the course of their duties	1.8%	0.7%	1.1%	1.4%	2.0%
1- Always justifiable; 10 - Never justifiable	**6**	**7**	**8**	**9**	**10**
Claiming government benefits to which you are not entitled	9.4%	6.1%	8.6%	10.3%	46.2%
Avoiding a fare on public transport	7.8%	5.5%	8.5%	11.7%	50.7%
Cheating on taxes	5.2%	4.1%	7.4%	11.5%	62.8%
Someone accepting a bribe in the course of their duties	4.1%	3.4%	6.2%	10.8%	68.6%

1 - Do not trust at all; 4 - Trust completely	**1**	**2**	**3**	**4**
Your neighborhood	7.8%	23.8%	52.4%	15.9%
People you know personally	6.2%	21.1%	53.3%	19.5%
People you meet for the first time	33.0%	43.5%	21.1%	2.4%
People of another religion	21.4%	37.1%	36.1%	5.4%
People of another nationality	27.3%	37.5%	31.1%	4.1%

Confidence: 1 - None at all; 4 - A great deal	**1**	**2**	**3**	**4**
The Police	14.6%	28.2%	39.4%	17.9%
Justice System/Courts	15.7%	29.3%	38.0%	17.0%
The Government	22.3%	30.0%	31.6%	16.1%

0 – Don't belong; 1 – Inactive member; 2 – Active member	**0**	**1**	**2**
Church or religious organization	57.7%	19.1%	23.1%
sport or recreational org	73.6%	14.0%	12.4%
art, music, educational organization	78.3%	11.3%	10.4%
Environmental organization	85.2%	8.6%	6.2%
professional organization	82.8%	9.4%	7.8%
charitable/humanitarian organization	80.5%	10.1%	9.4%

3.2.2 Other socio-economic variables

48% of the sample are men, and 58% of the sample are married. The distribution of age and other socio-economic categorical variables presented in Table 2 and Table 3.

Table 2. Descriptive statistic on individuals' socio-economic characteristics

Variable	Percent
Education (highest level attained)	
Early childhood education (ISCED 0) / no education	5.50%
Primary education (ISCED 1)	12.79%
Lower secondary education (ISCED 2)	16.20%
Upper secondary education (ISCED 3)	25.45%
Post-secondary non-tertiary education (ISCED 4)	8.62%
Short-cycle tertiary education (ISCED 5)	8.00%
Bachelor or equivalent (ISCED 6)	16.16%
Master or equivalent (ISCED 7)	5.61%
Doctoral or equivalent (ISCED 8)	1.67%
Employment status	
Full time (30 hours a week or more)	35.50%
Part time (less than 30 hours a week)	8.19%
Self employed	15.50%
Retired/pensioned	11.17%
Housewife not otherwise employed	15.22%
Student	5.60%
Unemployed	7.73%
Other	1.10%
Social class (subjective)	
Upper class	1.57%
Upper middle class	18.93%
Lower middle class	39.50%
Working class	27.27%
Lower class	12.74%

Table 3. The descriptive statistics on age of respondents

	Min	**Pctl (25)**	**Median**	**Mean**	**Pctl (75)**	**Max.**	**St. dev**
Age	16	29	40	42.35	54	103	16.11

Chapter 4

METHODOLOGY

The test of the hypothesis that different dimensions of social capital affect tax compliance requires two main steps. First, to create the proxy for tax compliance, which was described in the previous section. Second, to construct indicators of different dimensions of social capital.

Fortunately, the World Values Survey contains a lot of cultural and social capital variables which allows to perform one of the methods in analyzing different types of social capital. For this task I use the Exploratory principal axis factor analysis and Confirmatory factor analysis, which were performed using IBM SPSS Statistics (IBM Corp., Somers, NY) and R-studio (RStudio PBC, Boston) software.

4.1 Exploratory Principal Axis Factor Analysis (EFA)

Factor analysis is a dimension reduction method that aims at reducing the number of variables by summarizing them into relatively few factors (latent variables) that include as much as possible variations of original variables. Factor is an unobservable variable which explains most of the variation of the several observed measures (indicators). Thus, using factor analysis, we assume that the set of indicators is influenced by the common latent factor.

The advantage of EFA is that it does not assume the existence of a specific latent factor and finds all possible factors that can explain the variation in the variables.

The mathematical representation of factor analysis can be written as follows:

$$x_1 = \beta_{11}f_1 + \beta_{12}f_2 \ldots + \beta_{1k}f_k + u_1 \quad (1)$$
$$x_2 = \beta_{21}f_1 + \beta_{22}f_2 \ldots + \beta_{2k}f_k + u_2$$
$$\vdots$$
$$x_q = \beta_{q1}f_1 + \beta_{q2}f_2 \ldots + \beta_{qk}f_k + u_q$$

Where, $x_1, x_2, \ldots\ x_q$ - set of observed variables; $f_1, f_2, \ldots\ f_k$ – common factors.

The regression coefficients β_i are *factor loadings*, and u_i are the error terms – the part of the observed variables that is not accounted for by the factors. Error terms are assumed to be independent, meaning that the correlation between indicators comes from their relations with factor variables.

Following the methodology of Elgar et al., I do not assume any specific number of factors that explain different dimensions of social capital and use the EFA method to tackle this problem (Elgar et al., 2011). The analysis was performed on randomly selected half of the data (n = 25,881). The oblique rotation method was used so that the factors could be correlated since it is most likely that the types of social capital can be correlated.

I obtained four factors by inspecting the scree plot of eigenvalues (Figure 5). An 18 – item, four-factor model explains 55,6% of variation. Other items, except these 18 items (trust in most people, trust in family, etc.), were excluded from the following analysis for not having enough loadings on all factors. The result is consistent with those attained in previous studies using similar data (Elgar et al., 2011).

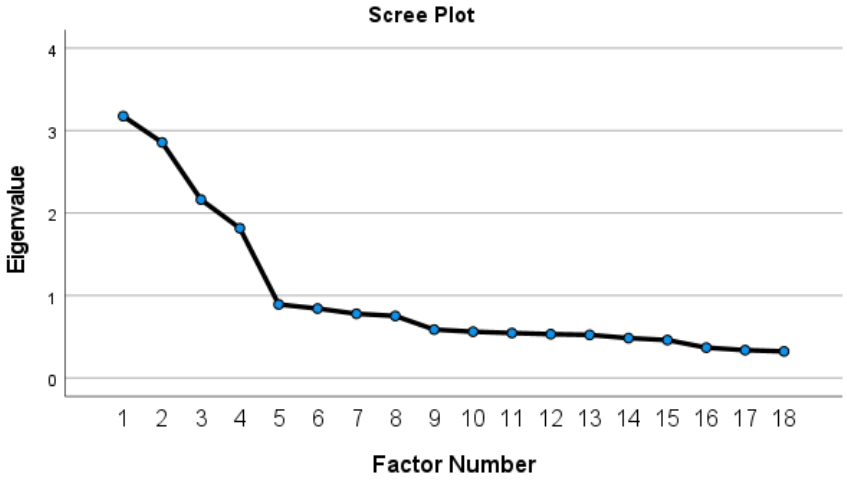

Figure 5. Scree-plot from Exploratory Factor Analysis

The rotated pattern matrix for social capital variables demonstrates variables that are loaded in one of the factors and have low load on others (Table 4).

Factor loadings are consistent with the study of Elgar et al. The names of the factors reflect their content. *Trust* factor reflects people trust in the society they live; *Linking* factor describes the confidence of individuals in their governmental system and institutions; *Civic* factor reflects cultural peculiarities and attitudes of people towards unjustifiable actions; and *Group* factor represent individuals' proactive position in their society. These four factors describe different dimensions of social capital. Trust, Civic, and Group social capital reflect bridging and bonding sides of social capital, which refers to inter-personal relationship, readiness to participate in group activity and cooperation, and trust within the society. Meanwhile, the Linking social capital reflects "norms of respect and networks of trusting relationships between people who are interacting across explicit, formal or institutionalized power or authority gradients in society" (Szreter & Woolcock, 2004, p.655).

Table 4. *Rotated pattern matrix for social capital variables from EFA*

Item	Factors			
	Trust	**Group**	**Civic**	**Linking**
Trust:				0.194
Your neighborhood	**0.442**			
People you know personally	**0.525**			
People you meet for the first time	**0.644**			-0.117
People of another religion	**0.764**			-0.119
People of another nationality	**0.792**			
Active/Inactive membership:				
Church or religious organization		**-0.435**		
Sport or recreational org		**-0.544**		
Art, music, educational organization		**-0.638**		
Environmental organization		**-0.689**		
Professional organization		**-0.619**		
Charitable/humanitarian organization		**-0.664**		
Justifiable:				
Claiming government benefits to which you are not entitled			**0.528**	
Avoiding a fare on public transport			**0.614**	
Cheating on taxes			**0.770**	
Someone accepting a bribe in the course of their duties			**0.743**	
Confidence:				
The Police				**0.724**
Justice System/Courts				**0.844**
The Government				**0.699**
% Variance	*17.64%*	*15.87%*	*12.02%*	*10.09%*

Extraction Method: Principal Axis Factoring. Rotation Method: Oblimin with Kaiser Normalization.
Rotation converged in 5 iterations.

The correlation between the factors is insignificant, except for the social capital *Trust* and *Linking*, although it is very low, which is consistent with EFA theory.

Table 5. Factor correlation matrix from EFA

Factor	**Trust**	**Group**	**Civic**	**Linking**
Trust	1.000	-0.077	0.094	0.283
Group	-0.077	1.000	0.134	-0.011
Civic	0.094	0.134	1.000	0.037
Linking	0.283	-0.011	0.037	1.000

4.2 Confirmatory factor analysis (CFA)

Like EFA, the goal of CFA is to determine underlying factors which explain most of the variation of the several observed indicators. However, while EFA is an exploratory procedure that allows identifying all possible underlying factors, CFA is used to test the prespecified by the researcher model of factor composition. CFA is used in the later stages of the research and is based on a solid theoretical or empirical foundation of factor composition.

I perform CFA on the remaining part of the data (n = 25,881). I test the composition of factors based on results obtained from EFA.

Different tests on CFA indicate a good fit of the model and moreover, all the indicators turn out to be significant in the respective factors which confirms results from EFA.

Table 6. Confirmatory Factor Analysis tests result

Test	Value
$\chi 2$ (df = 129)	11916.530
RMSEA	0.059
NFI	0.907
CFI	0.907

Figure 6 presents CFA diagram, where square nodes indicate observed variables. Values shown on paths between variables represent standardized β coefficients. Bidirectional arrows indicate covariances. Other values are error terms.

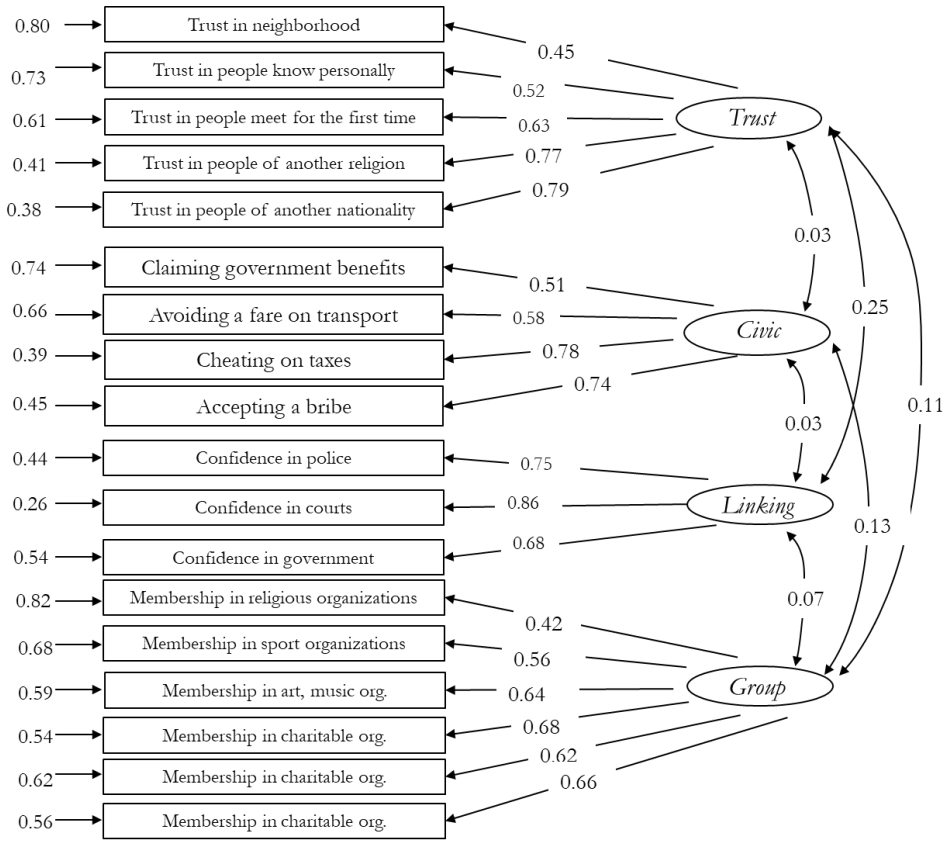

Figure 6. CFA diagram

4.3 Factor construction

Based on the results obtained with the EFA and CFA and following the methodology from the previous literature (Beugelsdijk and van Schaik, 2005; Doh and Zolnik, 2011)., I construct the factors by averaging their constituent variables.

Table 7. Social capital variables descriptive statistics

Statistic	N	Mean	St. Dev.	Min	Pctl(25)	Pctl(75)	Max
Trust	51,762	4.62	1.99	0	3.3	6	10
Civic	51,762	8.55	1.72	1	7.8	10	10
Linking	51,762	5.10	2.72	0.00	3.33	6.67	10.00
Group	51,762	1.76	2.22	0	0	2.5	10

4.4 General model

The dependent variable for this analysis is a categorical and ordered. We do not expect the levels of tax morale to have a linear relation. Thus, I use the ordered logistic regression to take into account for the ranking of this scaled variable. The same approach was used in a number of previous studies with a scaled dependent variable (Torgler, 2003; Torgler, 2010). Because of the non-linear nature of the equation, the coefficients of the output cannot be interpreted in their size, but rather in their sign.

Ordered logistic model for a single latent variable y^* that is a categorical variable (we only know when it crosses the threshold):

$$y^* = x_i'\beta + u_i \quad (2)$$

In our case, the dependent variable forms five groups with four thresholds, which are cut – off points between these five categories.

$$y_i = j \;\; if \;\; \propto_{j-1} < y_i^* \leq \propto_j \tag{3}$$

Where α are those thresholds. $y_i = j$ if the underlying latent variable y^* falls between two thresholds $\propto_{j-1}$ and $\propto_j$. Passing a threshold means that an individual falls to another category.

The probability that observation i will be an alternative j is:

$$p_{ij} = p(y_i = j) = p\left(\propto_{j-1} < y_i^* \leq \propto_j \right) = \\ = F\left(\propto_j - x_i'\beta\right) - F(\propto_{j-1} - \; x_i'\beta) \tag{4}$$

Where F is a logistic cdf function:

$$F(z) = \frac{e^z}{(1 + \; e^z)} \tag{5}$$

General model of this study has the next specification:

$$y \; = \; \beta_1 X \; + \; \beta_2 Trust + \; \beta_3 Civic + \; \beta_4 Linking \\ + \beta_5 Group + Country \tag{6}$$

Where *y* is a variable for Tax Morale, *X* constitutes for different socio-economic variables (age, gender, marital status, level of education, employment, social status). *Trust*, *Civic*, *Linking*, and *Group* variables represent different dimensions of social capital. *Country* – country fixed effect.

Different socio-economic variables are included into the regression as independent variables. It allows to overcome the omitted variable bias and to "absorb" the residual variance in the outcome, resulting in more precise estimates of the predictor coefficients. Moreover, it allows us to investigate whether the level of tax morale differs across different groups of people.

For example, age can have a significant impact on tax morale, as older people tend to have an established outlook on life due to their greater experience. This life experience can affect the level of tax morale at different ages. More educated people may have different moral values, as a result of which the level of education can influence the level of tax morale. As well as the subjective assessment of his social status by individuals can have an important impact on tax morale in people from different social groups.

Each of the countries may have specific characteristics that affect tax morale, which are called fixed effects. To control for country-level heterogeneity I included a *Country* dummy variable for each of the countries into the regression. Moreover, I use the unemployment rate and average tax rate in each country to control for country specifics.

Despite fixed country effects, there may be differences between groups of countries grouped according to their economic characteristics. Around 25% of the world's population lives in the countries that were exposed to communism previously (Martinez-Vazquez & McNaby, 1997). Communist state is usually characterized by suppression of people's economic and political freedom, which stamps a mark on a society for decades. Such restrictions are not typical for countries with free economies. Previous studies found significant differences in level of civic engagement and network capital, political and social participation between post-communist societies and free economies (Mondak & Gearing, 1998; Kolankiewicz, 1996). Moreover, in post-communist societies, there is

usually a weak development of state institutions, which leads to a decrease in people's trust in the state. World Values Survey 7 include data from five post-communist countries, which are: Ukraine, Russia, Kazakhstan, Kyrgyzstan, and Tajikistan. To account for possible differences between post-communist and other countries, I split the data and perform separate econometric analysis for this group of countries.

Another difference between groups of countries could exist between income groups of countries. I use the World Bank indicator for the group of high-income countries (see Appendix) to test whether there is a difference in this group comparing to others. Although tax morale is not always higher in high-income countries, previous studies found many differences between countries from different groups of income in terms of culture and socio-economic activity (Ali et al., 2017; Elgar et al., 2011). To compare potential differences in these groups, another econometric analysis was performed for both groups.

Using the country rating of Freedom House on people's access to political and civil rights I also split the countries into three groups: Free, Partly Free, and Not Free. It allows measuring the effect of social capital on tax morale in countries with different levels of individual freedoms and democracy. Freedom House's way of grouping countries is based on an assessment of the level of freedom in media, religion, expression, assembly, level of democratic development in countries across the world (Appendix A).

Chapter 5

ESTIMATION RESULTS

Since scaled categorical dependent variable does not imply the use of any other model except the ordered logistic model, for the sake of interpretation I stick to this model for the whole analysis. The estimation process consists of 7 different models for a different sampling of data with different specifications.

Table 8 presents the first set of ordered logistic regressions for all the samples and allows to investigate the difference in effects of socio-economic variables on tax morale in these groups of countries.

Table 8. Estimation result of ordered logistic model (dependent variable – Tax Morale)

	Ordered logistic						
	Pool	Post-communist	High-income	Middle-income	Free	Partially free	Not free
Age	0.006***	-0.001	0.008***	0.002**	0.007***	0.004***	-0.0002
	(0.001)	(0.002)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
Married	0.060***	0.061	0.117***	0.057**	0.226***	0.021	0.015
	(0.019)	(0.060)	(0.037)	(0.023)	(0.038)	(0.030)	(0.037)
Female	0.091***	0.114**	0.257***	0.014	0.189***	0.033	0.018
	(0.019)	(0.058)	(0.036)	(0.023)	(0.037)	(0.031)	(0.034)
Retired/pensioned	0.267***	0.161*	0.577***	-0.022	0.332***	0.317***	-0.189***
	(0.037)	(0.092)	(0.062)	(0.048)	(0.065)	(0.073)	(0.068)
Secondary education	0.077***	0.365***	-0.016	0.041	0.003	0.264***	-0.259***
	(0.022)	(0.100)	(0.055)	(0.025)	(0.051)	(0.034)	(0.040)
Post-Secondary education	0.021	0.228**	-0.028	-0.036	-0.022	0.195***	-0.412***
	(0.024)	(0.099)	(0.057)	(0.029)	(0.055)	(0.039)	(0.044)
Observations	51,762	4,665	15,127	36,635	14,225	19,845	15,981
Note:			*p<0.1; **p<0.05; ***p<0.01				

As was assumed, socio-economic variables have different effects on tax morale in each of the group. The most interesting result from these regressions is that females are associated with higher tax morale in most groups of the countries.

Retired individuals prone to have higher tax morale. The explanation could be in the increasing dependency of aging individuals on government. Once retired, you are no longer in the workforce and live on government pension payments or your savings. With the comprehension of this dependence, older people tend to have a higher level of tax compliance. Finally, individuals with higher level of education tend to have higher level of tax morale across all the groups, except group of *Not – free* countries. Since citizens of *Not – free* countries are exposed to different state restrictions, educated individuals in those countries are not prone to finance authoritarian regimes.

For further investigation of the results I present partial tables with variables of interest included for regression analysis. The whole tables are available in the Appendix B. The next set of regression presents a fully specified model for pooled sample, High-income, Middle-income, and post-communist countries.

After the inclusion of social capital variables in the regression (Table 9), some of the socio-economic explanatory variables become insignificant. The most educated people turned out to have lower probability of being in a group with high level of tax morale after controlling for their social capital characteristics.

The result on females having higher level on tax morale in *High-income* countries from previous regression is proven. The coefficient on *Housewife* in regression for *High-income* countries has the same magnitude since females constitute the overwhelming majority in this group.

Table 9. Estimation result of ordered logistic model with social capital variables

	Dependent variable: Tax Morale				
	Ordered logistic				
	Pool	Pool	Post-communist	High-income	Middle-income
Female	0.084***	0.086***	0.021	0.266***	0.012
	(0.022)	(0.023)	(0.065)	(0.041)	(0.027)
Self employed	-0.093***	-0.080**	-0.204	-0.231***	-0.096***
	(0.033)	(0.034)	(0.134)	(0.081)	(0.036)
Retired/pensioned	0.089**	0.112**	0.012	0.346***	-0.036
	(0.043)	(0.045)	(0.106)	(0.072)	(0.056)
Housewife not otherwise employed	-0.027	-0.023	-0.063	0.274***	-0.072*
	(0.037)	(0.038)	(0.119)	(0.080)	(0.043)
Tax rate		-0.157***			
		(0.006)			
Unemployment rate		-0.007			
		(0.024)			
Trust	-0.004	-0.002	0.022	0.009	-0.007
	(0.006)	(0.006)	(0.016)	(0.013)	(0.007)
Group	-0.015***	-0.015***	0.026	-0.022**	-0.013**
	(0.005)	(0.005)	(0.016)	(0.010)	(0.006)
Civic	0.942***	0.942***	0.981***	1.174***	0.877***
	(0.008)	(0.008)	(0.024)	(0.018)	(0.009)
Linking	0.039***	0.041***	0.045***	0.060***	0.033***
	(0.005)	(0.005)	(0.013)	(0.010)	(0.005)
Observations	51,762	47,771	4,665	15,127	36,635
Note:					*p<0.1; **p<0.05; ***p<0.01

Retired people seem to have a higher tax morale only in high-income countries, while in post-communist and middle-income countries the coefficient become insignificant. There is an intuition behind this result. Post-communist countries presented in my sample have a low level of economic development and GDP per capita. Thus, governments do not provide a good pension payment for retirees

in those countries. People have no feeling of having a decent life on the money they receive from the government and have no reason to have higher tax morale.

Another important outcome comes from the negative coefficient on *Self Employed* group of people in all groups of countries, except post-communist. The reason is that self-employed people work for themselves and, as no one else, know how much, to whom, and for what they are obliged to pay taxes. This outcome corresponds to economic theory. Behavioral economics defines it as an effect of mental accounting. People tend to weight losses more heavily than gains. Those who obliged to pay taxes out of their own pockets resist this more than people for whom the same money is paid to the state by the company in which they are employed.

Social capital variables demonstrate interesting results. Different dimensions of social capital have different magnitude and sign across those groups of countries. *Civic* social capital is positively associated with tax morale and has the largest magnitude among social capital variables. There is a straightforward intuition behind this result. *Civic* social capital reflects cultural peculiarities and attitudes of people towards unjustifiable actions. The higher the level of a person's disagreement with illegal actions, the higher his tax morale. And this principle works for all groups of countries.

The coefficient on *Group* variable is not significant in post-communist countries. *Group* social capital represent individuals' proactive position in their society. Post-communist countries are characterized by low level of social activity and participation in humanitarian organizations than other groups of countries. That explains the absence of association of Group social capital and tax morale in these countries.

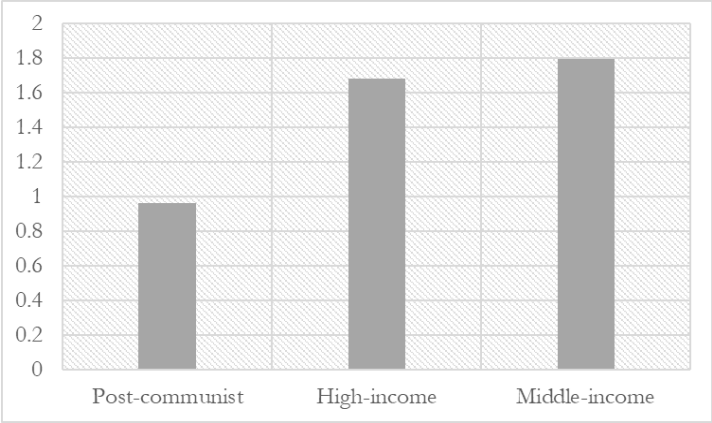

Figure 7. The distribution of average *Group* social capital across country groups

Although being significant in other groups of countries, *Group* social capital has a negative effect on tax morale, but the magnitude of the coefficient is small for all groups of countries.

The level of *Linking* social capital positively affects tax morale in all the groups of countries. A high level of trust in government institutions increases the intrinsic motivation of people to pay taxes since they are assured of the proper redistribution of their money.

Trust social capital is unexpectedly insignificant in all groups of countries. This indicates that the level of bonding social capital in society has little effect on an individual's tax morale.

Including the unemployment rate and tax rate for a particular country in the regression does not affect social capital variables, which is a strong indicator of their robustness.

Table 10 presents the regressions outcomes on splits of data according to Freedom House methodology. It mostly confirms the result of previous regressions.

Table 10. Estimation result of ordered logistic model

	Dependent variable: Tax morale		
	Free	Partially Free	Not Free
Female	0.225***	0.042	0.015
	(0.042)	(0.036)	(0.041)
Self employed	-0.222***	-0.003	-0.133**
	(0.070)	(0.048)	(0.061)
Retired/pensioned	0.238***	0.166**	-0.117
	(0.072)	(0.084)	(0.080)
Trust	0.026**	-0.006	-0.019*
	(0.012)	(0.009)	(0.010)
Group	-0.021*	0.001	-0.042***
	(0.011)	(0.007)	(0.010)
Civic	1.027***	0.842***	1.026***
	(0.018)	(0.012)	(0.015)
Linking	0.067***	0.021***	0.052***
	(0.010)	(0.007)	(0.008)
Observations	14,225	19,845	15,981
Note:		*p<0.1; **p<0.05; ***p<0.01	

In *Free* group of country, which highly overlap with high-income group of countries, females are associated with higher level of tax morale. Self-employed people tend to have lower probability of high level of tax morale in *Free* and *Not-Free* groups. Retired group of people is associated with higher tax morale in *Free* and *Partially Free* countries.

Variables on social capital demonstrate similar result with *Civic* social capital having the largest magnitude and positive sign. *Linking* social capital has a significant coefficient in each of the group, although in *partially free* group of countries the magnitude of this coefficient is lower. Coefficients on *Trust* and *Group* variables turn out to be negative in most cases, although their value is small.

To summarize, we can say that different measures of social capital show interesting and even unexpected results. Regression analysis proved the importance of differences in social capital in countries with cultural, historical, and economic distinctions affecting tax morale. It turned out that trust in others and active participation in volunteer and other organizations have little effect on an individual's tax morale, while the internal principle of people in relation to the unjustified actions of others in society is of great importance.

Chapter 6

CONCLUSIONS

This study examines the effect of different dimensions of social capital on tax morale, as a proxy for tax compliance using the data from the World Values Survey on 44 countries. Using the principal axis factor analysis, I created 4 measures of social capital from 18 variables. Four-factor measures are based on the underlying theory of social capital, covering traditional bonding and bridging dimensions of social capital, and the linking social capital proposed by Szreter and Woolcock (2004). By allowing data to estimate its factor structure via factor analysis, this research produces a broader examination of social capital than is usually performed in the literature on tax morale.

Drawing on a series of ordered logistic regression, I tested hypotheses of social capital having a positive effect on tax morale in different groups of countries based on their economical, historical, and cultural peculiarities. The result of this study confirms some of my hypotheses and helps to explain tax compliance of people in different societies. Moreover, the data clarify the relationship between social capital and tax morale by showing more complex statistical associations than was expected drawing on the literature.

First conclusion is that measures of social capital in different groups of countries affect tax morale in different ways. In post-communist countries, *Group* social capital, reflecting the active position of the individual in society, is insignificant. Second, not all types of social capital affect tax morale in the same way, and some of them are not even significant. Third, some dimensions of social capital have a negative impact on tax morale in some groups of countries. Trust in other people

and active participation in different types of organization tend to have negative effect on tax morale, although the magnitude of this effect is not large.

The results of the analysis show that the internal principles and personality traits have the greatest influence on the level of tax morale, regardless of the development of the country and the level of income in it. In addition, the level of linking social capital has a positive effect on tax morale in all groups of countries, which suggests that trust in government institutions is an important factor in explaining the level of tax morale.

Considering the limitations of my study, I used cross-section data on only one wave of the World Values Survey. Using more data and looking at countries through time may add additional value to the research. My control variables do not cover the political or historical context of each country, which probably may affect the result significantly.

In general, my research confirms the importance of social capital in explaining variations in categories of tax morale. While this result is consistent with previous literature, it expands the understanding of the phenomenon of social capital by analyzing it as separate parts of a single whole, allowing to disentangle different aspects of it and measure their effect on tax compliance of individuals.

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APPENDIX A

DATA DESCRIPTION

Table 11. Split of countries according to the Freedom House methodology

Free	Partly - Free	Not - Free
Argentina	Bangladesh	China
Australia	Bolivia	Ethiopia
Brazil	Colombia	Iran
Chile	Ecuador	Iraq
Cyprus	Guatemala	Kazakhstan
Germany	Hong Kong	Kyrgyzstan
Greece	Indonesia	Myanmar
Japan	Malaysia	Nicaragua
New Zealand	Mexico	Russia
Romania	Nigeria	Tajikistan
South Korea	Pakistan	Thailand
Taiwan ROC	Peru	Vietnam
Tunisia	Philippines	Zimbabwe
United States	Serbia	
	Ukraine	

Source: https://freedomhouse.org/

Table 12. Split of countries according to World Bank methodology

High-income countries	Middle-income countries		Other
Australia	Argentina	Malaysia	Tajikistan
Chile	Bangladesh	Mexico	Ethiopia
Cyprus	Bolivia	Myanmar	
Germany	Brazil	Nicaragua	
Greece	China	Nigeria	
Hong Kong	Colombia	Pakistan	
Japan	Ecuador	Peru	
Macao SAR PRC	Kyrgyzstan	Philippines	
New Zealand	Guatemala	Russia	
Puerto Rico	Indonesia	Serbia	
Romania	Iran	Thailand	
South Korea	Iraq	Tunisia	
Taiwan ROC	Kazakhstan	Ukraine	
United States	Zimbabwe	Vietnam	

Table 13. The list of post-communist countries

Post-Communist
Ukraine
Russia
Kazakhstan
Kyrgyzstan
Tajikistan

Table 14. Descriptive statistics on country-level variables

Statistics	**Tax rate**	**Unemployment rate**
N	44	44
Mean	40.85	6.20
Median	36.70	4.60
Std. Deviation	12.80	4.21
Minimum	20.00	0.50
Maximum	71.20	17.31
Percentile 25	31.75	3.31
Percentile 75	47.23	8.53

APPENDIX B

ESTIMATION RESULT

Table 15. Estimation results. Set of regressions - 1

	Dependent variable: Tax Morale							
	Ordered logistic							
	Pool	Pool	Post-communist	Post-communist	High-income	High-income	Middle-income	Middle-income
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Age	0.001	0.001	-0.001	-0.001	-0.006***	-0.006***	0.004***	0.003***
	(0.001)	(0.001)	(0.003)	(0.003)	(0.002)	(0.002)	(0.001)	(0.001)
Married	0.025	0.018	-0.047	-0.047	0.072*	0.045	0.014	0.015
	(0.024)	(0.025)	(0.070)	(0.070)	(0.043)	(0.046)	(0.029)	(0.030)
Female	0.084***	0.086***	0.021	0.021	0.266***	0.295***	0.019	0.018
	(0.022)	(0.023)	(0.065)	(0.065)	(0.041)	(0.044)	(0.027)	(0.028)
Employment: Part time	-0.047	-0.059	0.052	0.052	-0.061	-0.081	-0.068	-0.076
	(0.040)	(0.041)	(0.111)	(0.111)	(0.072)	(0.077)	(0.049)	(0.050)
Self employed	-0.093***	-0.080**	-0.204	-0.204	-0.231***	-0.232***	-0.105***	-0.094**
	(0.033)	(0.034)	(0.134)	(0.134)	(0.081)	(0.088)	(0.037)	(0.038)
Retired/pensioned	0.089**	0.112**	0.012	0.012	0.346***	0.370***	-0.032	-0.002
	(0.043)	(0.045)	(0.106)	(0.106)	(0.072)	(0.076)	(0.059)	(0.061)
Housewife not otherwise employed	-0.027	-0.023	-0.063	-0.063	0.274***	0.313***	-0.080*	-0.078*
	(0.037)	(0.038)	(0.119)	(0.119)	(0.080)	(0.086)	(0.044)	(0.045)
Student	0.086*	0.088*	0.255	0.255	0.139	0.117	0.036	0.049
	(0.049)	(0.052)	(0.175)	(0.175)	(0.102)	(0.110)	(0.058)	(0.061)
Unemployed	0.053	0.046	0.027	0.027	0.212**	0.214**	0.0001	-0.009
	(0.042)	(0.043)	(0.116)	(0.116)	(0.100)	(0.105)	(0.050)	(0.052)
Other	0.068	-0.029	-0.735	-0.735	0.308	0.320	-0.023	-0.180
	(0.109)	(0.123)	(0.452)	(0.452)	(0.213)	(0.227)	(0.133)	(0.155)
Secondary education	0.022	0.036	0.121	0.121	-0.053	-0.021	0.028	0.037
	(0.028)	(0.029)	(0.110)	(0.110)	(0.067)	(0.074)	(0.032)	(0.033)

TABLE 15 - Continued

	Pool	Pool	Post-communist	Post-communist	High-income	High-income	Middle-income	Middle-income
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Post-Secondary education	-0.070**	-0.060*	0.060	0.060	-0.236***	-0.196**	0.001	-0.0001
	(0.031)	(0.033)	(0.110)	(0.110)	(0.070)	(0.077)	(0.037)	(0.038)
Social class: Upper middle class	-0.010	0.015	0.021	0.021	-0.162	-0.136	0.090	0.120
	(0.085)	(0.086)	(0.190)	(0.190)	(0.178)	(0.181)	(0.099)	(0.101)
Social class: Lower middle class	0.017	0.026	-0.006	-0.006	-0.036	-0.011	0.063	0.069
	(0.083)	(0.085)	(0.189)	(0.189)	(0.177)	(0.179)	(0.097)	(0.098)
Social class: Working class	0.074	0.092	0.075	0.075	0.052	0.093	0.107	0.123
	(0.084)	(0.086)	(0.192)	(0.192)	(0.180)	(0.183)	(0.098)	(0.099)
Social class: Lower class	0.059	0.083	0.315	0.315	-0.075	-0.070	0.109	0.134
	(0.088)	(0.089)	(0.235)	(0.235)	(0.191)	(0.195)	(0.101)	(0.103)
Tax rate		-0.157***		-0.016***		-0.049***		-0.112***
		(0.006)		(0.005)		(0.007)		(0.011)
Unemployment rate		-0.007		-0.006		-4.005***		0.088***
		(0.024)		(0.031)		(0.016)		(0.020)
Trust	-0.004	-0.002	0.022	0.022	0.009	0.009	-0.006	-0.003
	(0.006)	(0.006)	(0.016)	(0.016)	(0.013)	(0.013)	(0.007)	(0.007)
Group	-0.015***	-0.015***	0.026	0.026	-0.022**	-0.026**	-0.020***	-0.020***
	(0.005)	(0.005)	(0.016)	(0.016)	(0.010)	(0.010)	(0.006)	(0.006)
Civic	0.942***	0.942***	0.981***	0.981***	1.174***	1.141***	0.855***	0.866***
	(0.008)	(0.008)	(0.024)	(0.024)	(0.018)	(0.019)	(0.009)	(0.009)
Linking	0.039***	0.041***	0.045***	0.045***	0.060***	0.071***	0.032***	0.032***
	(0.005)	(0.005)	(0.013)	(0.013)	(0.010)	(0.010)	(0.005)	(0.005)
Observations	51,762	47,771	4,665	4,665	15,127	13,263	34,445	32,318

Note: *p<0.1; **p<0.05; ***p<0.01

Note: 1) All of the regressions presented include country fixed - effects.

Table 16. Estimation results. Set of regressions - 2

	Dependent variable: Tax Morale					
	Ordered logistic					
	Free	Free	Partially Free	Partially Free	Not Free	Not Free
	(1)	(2)	(3)	(4)	(5)	(6)
Age	-0.006***	-0.006***	0.004***	0.003**	0.002	0.002
	(0.002)	(0.002)	(0.001)	(0.001)	(0.002)	(0.002)
Married	0.086**	0.071	0.044	0.042	-0.080*	-0.080*
	(0.043)	(0.046)	(0.037)	(0.039)	(0.046)	(0.046)
Female	0.225***	0.237***	0.042	0.048	0.015	0.015
	(0.042)	(0.045)	(0.036)	(0.037)	(0.041)	(0.041)
Employment: Part time	-0.093	-0.094	-0.058	-0.074	-0.047	-0.047
	(0.074)	(0.078)	(0.062)	(0.065)	(0.076)	(0.076)
Self employed	-0.222***	-0.260***	-0.003	0.028	-0.133**	-0.133**
	(0.070)	(0.078)	(0.048)	(0.050)	(0.061)	(0.061)
Retired/pensioned	0.238***	0.288***	0.166**	0.212**	-0.117	-0.117
	(0.072)	(0.078)	(0.084)	(0.086)	(0.080)	(0.080)
Housewife not otherwise employed	0.106	0.148*	-0.044	-0.048	-0.069	-0.069
	(0.075)	(0.080)	(0.056)	(0.058)	(0.070)	(0.070)
Student	0.082	0.069	0.050	0.066	0.095	0.095
	(0.104)	(0.111)	(0.071)	(0.077)	(0.094)	(0.094)
Unemployed	0.102	0.091	0.077	0.070	0.003	0.003
	(0.089)	(0.094)	(0.066)	(0.069)	(0.074)	(0.074)
Other	0.131	0.118	0.330*	0.244	-0.361*	-0.361*
	(0.207)	(0.218)	(0.186)	(0.274)	(0.186)	(0.186)
Secondary education	-0.006	0.023	-0.009	-0.005	0.056	0.056
	(0.062)	(0.068)	(0.041)	(0.042)	(0.051)	(0.051)
Post-Secondary education	-0.177***	-0.151**	-0.069	-0.077	0.021	0.021
	(0.068)	(0.074)	(0.048)	(0.051)	(0.057)	(0.057)
Social class: Upper middle class	-0.187	-0.131	0.123	0.146	-0.060	-0.060
	(0.187)	(0.192)	(0.135)	(0.138)	(0.143)	(0.143)
Social class: Lower middle class	-0.040	-0.024	0.115	0.141	-0.130	-0.130
	(0.186)	(0.191)	(0.132)	(0.135)	(0.140)	(0.140)
Social class: Working class	0.037	0.073	0.154	0.177	-0.039	-0.039
	(0.188)	(0.194)	(0.134)	(0.138)	(0.140)	(0.140)
Social class: Lower class	-0.046	-0.025	0.075	0.111	0.167	0.167

TABLE 16 - Continued

	Free	Free	Partially Free	Partially Free	Not Free	Not Free
	(1)	(2)	(3)	(4)	(5)	(6)
	(0.197)	(0.203)	(0.136)	(0.139)	(0.152)	(0.152)
Tax rate		0.043*		-0.105***		-0.080***
		(0.023)		(0.016)		(0.012)
Unemployment rate		-0.080		-0.053***		0.162***
		(0.051)		(0.016)		(0.028)
Trust	0.026**	0.026**	-0.006	0.001	-0.019*	-0.019*
	(0.012)	(0.013)	(0.009)	(0.009)	(0.010)	(0.010)
Group	-0.021*	-0.027**	0.001	0.004	-0.042***	-0.042***
	(0.011)	(0.012)	(0.007)	(0.007)	(0.010)	(0.010)
Civic	1.027***	1.015***	0.842***	0.866***	1.026***	1.026***
	(0.018)	(0.019)	(0.012)	(0.012)	(0.015)	(0.015)
Linking	0.067***	0.073***	0.021***	0.020***	0.052***	0.052***
	(0.010)	(0.010)	(0.007)	(0.007)	(0.008)	(0.008)
Observations	14,225	12,377	19,845	18,391	15,981	15,981

Note: *p<0.1; **p<0.05; ***p<0.01

Note: 1) All of the regressions presented include country fixed - effects.

Table 17. Estimation results. Set of regressions - 3

	Dependent variable: Tax Morale						
	Ordered logistic						
	Pool	Post-communist	High-income	Middle-income	Free	Partially free	Not free
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Age	0.006***	-0.001	0.008***	0.002**	0.007***	0.004***	-0.0002
	(0.001)	(0.002)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
Married	0.060***	0.061	0.117***	0.057**	0.226***	0.021	0.015
	(0.019)	(0.060)	(0.037)	(0.023)	(0.038)	(0.030)	(0.037)
Female	0.091***	0.114**	0.257***	0.014	0.189***	0.033	0.018
	(0.019)	(0.058)	(0.036)	(0.023)	(0.037)	(0.031)	(0.034)
Employment: Part time	0.027	0.533***	0.143**	-0.019	0.012	-0.032	0.070
	(0.034)	(0.095)	(0.064)	(0.041)	(0.066)	(0.054)	(0.063)
Self employed	0.094***	0.175	0.050	0.126***	-0.215***	0.226***	0.119**
	(0.027)	(0.117)	(0.071)	(0.030)	(0.062)	(0.040)	(0.048)
Retired/pensioned	0.267***	0.161*	0.577***	-0.022	0.332***	0.317***	-0.189***
	(0.037)	(0.092)	(0.062)	(0.048)	(0.065)	(0.073)	(0.068)
Housewife not otherwise employed	0.089***	-0.049	0.247***	0.093***	0.010	0.253***	-0.043
	(0.031)	(0.107)	(0.069)	(0.036)	(0.066)	(0.047)	(0.057)
Student	0.185***	0.091	0.220**	0.173***	0.083	0.173***	0.227***
	(0.042)	(0.159)	(0.089)	(0.048)	(0.092)	(0.063)	(0.079)
Unemployed	0.061*	-0.061	0.280***	0.035	0.055	0.058	-0.001
	(0.035)	(0.100)	(0.085)	(0.039)	(0.079)	(0.056)	(0.059)
Other	0.249***	-0.678	0.391**	0.213*	0.121	0.434***	-0.019
	(0.094)	(0.415)	(0.181)	(0.110)	(0.182)	(0.157)	(0.162)
Secondary education	0.077***	0.365***	-0.016	0.041	0.003	0.264***	-0.259***
	(0.022)	(0.100)	(0.055)	(0.025)	(0.051)	(0.034)	(0.040)
Post-Secondary education	0.021	0.228**	-0.028	-0.036	-0.022	0.195***	-0.412***
	(0.024)	(0.099)	(0.057)	(0.029)	(0.055)	(0.039)	(0.044)
Social class: Upper middle class	0.105	-0.420***	0.214	0.033	0.233	0.262**	-0.196*
	(0.071)	(0.159)	(0.152)	(0.081)	(0.165)	(0.116)	(0.117)
Social class: Lower middle class	0.165**	-0.672***	0.245	0.137*	0.245	0.351***	-0.096
	(0.070)	(0.158)	(0.150)	(0.079)	(0.163)	(0.113)	(0.114)
Social class: Working class	0.224***	-0.495***	0.499***	0.134*	0.450***	0.443***	-0.166
	(0.071)	(0.160)	(0.153)	(0.080)	(0.165)	(0.115)	(0.114)

TABLE 17 - Continued

	Pool	Post-communist	High-income	Middle-income	Free	Partially free	Not free
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Social class: Lower class	0.208***	-0.295	0.085	0.226***	0.028	0.338***	0.358***
	(0.074)	(0.197)	(0.163)	(0.083)	(0.173)	(0.116)	(0.123)
Observations	51,762	4,665	15,127	36,635	14,225	19,845	15,981

Note: *p<0.1; **p<0.05; ***p<0.01

Note: 1) All of the regressions presented include country fixed - effects.