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Research Papers

How do institutional, social, and individual factors shape tax compliance behavior? Evidence from 14 Eastern European countries

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Abstract

This paper uses micro-level data from a nationally representative survey of 22,000 individuals in 14 Eastern European countries to investigate the effects of institutional, social, and individual factors on taxpayers' perceptions of power, motivations to comply, and non-compliant behaviors. The results indicate that taxpayer behavior is a multifaceted phenomenon: attitudes of peers, individual compliance norms, and the tax burden impact on non-compliance. Moreover, I find several effects of the subjective appraisal of the interaction with tax administrations. Positive experiences strengthen perceptions of power and intrinsic motivations to comply. They also increase the propensity to report non-compliant behavior in the past, suggesting educational effects of taxpayer services and tax audits.

Keywords:

Tax compliance behavior, enforcement, fairness, peer norms, taxpayer services

JEL-Classification:

C83, H26

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1. Introduction

This paper investigates determinants of tax compliance behavior. I examine how institutional, social, and personal factors shape taxpayers' perceptions of power, motivations to comply, and non-compliant behaviors. Behavioral research on tax compliance indicates that the standard economic theory of tax evasion (Alingham & Sandmo, 1972) does not sufficiently explain high compliance levels in the aggregate (Alm, McClelland, & Schulze, 1992). Alm et al. argue that taxpayers comply because they value public goods and overestimate audit probabilities. Similarly, Guala and Mittone (2005) observe "bomb crater effects" in experimental studies, where participants reduce their compliance in response to tax audits, presumably because they underestimate the probability of future audits, or because they want to make up for past losses. Against this background, a growing body of literature explores the behavioral determinants of tax compliance.

Ayres and Braithwaite (1992), for instance, differentiate taxpayers according to their motivations to comply. They assume that only a minority generally opposes paying taxes, while most taxpayers are willing to cooperate, so that different regulatory strategies should be applied to promote compliance (Braithwaite, 2003). Likewise, Kirchler, Hoelzl, and Wahl (2008) argue that a combination of effective enforcement (power) and mutual trust between taxpayers and revenue bodies increases compliance. Audits are necessary to detect non-compliance and enforce cooperation from disengaged or reactant taxpayers, but a trusting relationship between authorities and taxpayers likely elevates voluntary cooperation and intrinsic motivations to comply. Taken together, the literature suggests that institutional, social, and individual factors affect taxpayers' willingness to comply (for an overview see Kirchler, 2007).

Research on institutional factors has predominantly analyzed the effects of enforcement activity on compliance behaviors. Various studies analyze the deterrent effect (Alm, Jackson, & McKee, 2009) of tax audits (e.g. DeBacker, Heim, Tran, & Yuskavage, 2015). Gemmell and Ratto (2012) provide initial indication of the ambiguous effects of audits on reporting compliance and Beer, Kasper, Kirchler, and Erard (2015) investigate behavioral responses to tax audits among self-employed taxpayers in the US. While audits show to have a deterrent effect on taxpayers who received additional tax assessments, sole proprietors who were not found to be non-compliant reduced their tax payments in subsequent years. Similarly, Mendoza, Wielhouwer, and Kirchler (2015) observe that audits might weaken voluntary compliance when they are conducted excessively. Refining the literature on deterrence effects of audits, several authors explore the social and individual dimension of tax compliance.

Alm, McClelland, & Schulze (1999), for instance, provide experimental evidence of the effects of social norms and group communication on individual reporting decisions. They find that social norms impact on tax compliance behavior. Likewise, Fehr, Fischbacher, and Gächter (2002) identify strong behavioral responses to perceptions of fair treatment. Their study participants showed a tendency to cooperate voluntarily and to punish non-cooperators, indicating that fairness considerations affect compliance behavior and reciprocity facilitates the enforcement of social norms. Wenzel (2005) investigates the dynamics between tax ethics, social norms, and motivations to comply. He finds that social norms shape tax compliance behavior only when taxpayers identify with the relevant social group, indicating a mediating effect of personal compliance norms.

This is in line with findings on the effects of personal tax norms on compliance. Alm and Torgler (2006) observe a negative correlation between the degree of tax morale and the size of the shadow economy. Moreover, they find a strong relationship between tax morale and trust, supporting the assumptions of Kirchler et al. (2008). Feld and Frey (2002) analyze the effects of political participation on tax morale and find that the relationship between taxpayers and tax authorities shapes tax morale. Taxpayers trust the authorities, if they treat them fair and respectfully, which in turn has positive effects on compliance. Some scholars have moreover argued that taxpayer services educate taxpayers and thus facilitate compliance (e.g. Braithwaite, 2003). But despite this broad body of evidence on the effects of institutional, social, and individual determinants of tax compliance, rather little is known about the relative effects of these factors on compliance behavior.

This paper aims to add to the existing research by exploring the relative effects of a variety of determinants of tax compliance behavior that have been identified in the literature. Most studies focus on few selected factors when trying to explain tax compliance, yet taxpayer behavior is a multifaceted phenomenon (Andreoni, Erard, & Feinstein, 1998; Kirchler, 2007). I use micro-level data from a nationally representative survey of 22,000 individuals in 14 Eastern European countries to investigate the impact of institutional, social, and individual factors on taxpayers' perceptions of power, motivations to comply, and non-compliant behaviors. Investigating large scale, representative survey data allows to assess a variety of behavioral dimensions that are not observable otherwise. Specifically, it provides insights into perceptions of institutional factors such as the quality of public services, the effectiveness of legal systems, and tax system characteristics, social factors such as social norms and the prevalence of bribery, and individual factors such as personal norms and trust in institutions.

The paper proceeds as follows. In the next section, I describe the data and empirical strategy. In Section 3, I present my empirical results. Section 4 discusses the main findings and concludes.

2. Data and empirical strategy

Data

I use data from the “Public Goods through Private Eyes” (PGPE) survey¹, an EU funded project that explores attitudes towards public goods and the state in 14 Eastern European countries² (Letki, 2015). The survey was developed by an international research group and covers nine dimensions: (1) local community, (2) social trust and social cohesion, (3) personality and commitment (4) public goods, (5) institutional quality, (6) tax behavior and compliance, (7) green behavior, (8) political participation, and (9) socio-economic background. Some survey items were adapted from previous studies. The tax behavior and compliance section, for instance, comprises several questions from the tax compliance inventory (Kirchler & Wahl, 2010). All items were translated according to the European Social Survey Round 5 (ESS Round 5) translation guidelines³ and tested with a representative sample in each country.

The data was collected by fieldwork companies between November 2013 and August 2014. All national samples are representative. The sample selection process (stratified clustered random samples) was standardized across all countries. First, primary sampling units (PSUs), were randomly selected on the basis of census information for regions and population sizes. Second, using a random route algorithm and taking into account expected response rates, households (secondary sampling units) were identified. Based on the Kish grid or the next (last) birthday principle, one respondent (aged 15+) was then randomly selected from each household and surveyed in a face-to-face setting.⁴ The final sample comprises approximately 1,500 subjects per country. The total number of respondents is 22,039 (58% female; age $M=51.47$, $SD=17.86$).

The survey covers a variety of dimensions and includes a great number of items. I apply a two-step approach to identify those items that are relevant for the analysis. First, based on the literature on tax compliance behavior, I select questions that capture relevant institutional, social, and individual factors. Subsequently, I run main component analyses for each construct to identify underlying factors. I retain all survey items that load higher than 0.5 on the first factor

¹ Project homepage: <http://www.is.uw.edu.pl/pl/badania-i-konferencje/public-goods-through-private-eyes/>

² Bulgaria, Croatia, Czech Republic, Estonia, Hungary, Latvia, Lithuania, Moldova, Poland, Romania, Serbia, Slovakia, Slovenia, and Ukraine.

³ Available at http://www.europeansocialsurvey.org/docs/round5/methods/ESS5_translation_guidelines.pdf

⁴ Only one method was applied per country. Participants in Poland and Romania were aged 18+.

identified (Field, 2009). This results in 19 scales with 1 to 8 items each. Finally, I run reliability analyses. Scale reliabilities range from 0.62 to 0.96. Appendix A depicts survey items as well as the results of the main component and reliability analyses. Variable descriptions are provided in Appendix B. Correlations are displayed in Appendix C.

Explanatory variables: institutional, social, and individual factors

Table 1 displays descriptive statistics for all variables used in the analyses. Ten scales capture institutional factors (Cronbach's alpha = 0.74 – 0.86). These include quality of public services (*public_services*), legal effectiveness (*legal_system*), enforcement capacity (*capacity*), tax system complexity (*complexity*), satisfaction with the tax system (*satisfaction*), tax system fairness (*fairness*), effectiveness of public spending (*effectiveness*), waste of public funds (*waste*), and the perceived tax burden (*abs_burden* and *rel_burden*). Three scales assess social factors (Cronbach's alpha = 0.62 – 0.90). They capture national compliance levels (*country*), social norms (*society*), and the prevalence of corruption and bribery (*corr_brib*). Finally, five scales measure individual factors (Cronbach's alpha = 0.92 – 0.96): personal experience with bribery (*brib_exp*), individual norms (*compliance*), trust in institutions (*trust*), peer norms (*peers*)⁵, and self-employment (*self_emp*). Additionally, the quality of taxpayer services (*tax_services*) is assessed (Cronbach's alpha = 0.96). Respondents were asked to evaluate the tax office on seven dimensions such as competence, helpfulness, and politeness. However, these questions were only asked if respondents stated that they had interacted with the tax office in the last year.

⁵ Clearly, peer norms have a social dimension. I consider them as an individual factor because they have been found to affect behavior much more strongly than social norms (e.g. Schultz, Nolan, Cialdini, Goldstein, & Griskevicius, 2007).

Table 1 Descriptive statistics

Dimension	Factor	Scale	Mean (SD)	Obs.
Institutional	Public_services	0 – 10	4.96 (1.83)	17,846
	Legal_system	1 – 5	2.32 (0.85)	20,763
	Capacity	1 – 5	2.85 (1.06)	21,234
	Complexity	1 – 5	2.18 (1.07)	19,757
	Satisfaction	1 – 5	2.85 (1.09)	19,963
	Fairness	1 – 5	2.50 (1.09)	19,874
	Effectiveness	1 – 5	3.72 (1.16)	20,236
	Waste	1 – 5	2.09 (1.12)	20,414
	Abs_burden	1 – 6	3.03 (1.73)	17,436
	Rel_burden	1 – 5	3.28 (0.95)	12,157
Social	Country	1 – 5	3.52 (0.97)	19,714
	Society	0 – 10	5.25 (2.30)	17,242
	Corr_brib	1 – 5	3.63 (0.88)	17,263
Individual	Brib_exp	Dummy	15.58%	3,433
	Compliance	1 – 5	1.76 (0.70)	19,675
	Trust	0 – 10	4.27 (2.26)	18,435
	Peers	0 – 10	3.86 (3.24)	15,768
	Self_emp	Dummy	7.19%	1,577
	Tax_services	1 – 5	2.02 (0.92)	3,539
	Female	Dummy	58.36%	12,860
Controls	Age		51.47 (17.86)	22,039
	Edu	1 – 8	3.52 (1.81)	21,943
	Religion	1 – 8	3.57 (2.01)	21,463
	Perceived power	1 – 5	3.67 (0.84)	11,283
Dependent	Intrinsic motivations to comply	1 – 5	3.90 (0.72)	13,922
	Non-compliant behaviors	0 – 3	0.25 (1.68)	20,229
Income types	Wages & salaries			9,512
	Self-employed income			909
	Farming income			682
	Pensions or disability benefits			8,223
	Unemployment benefits			667
	Other social benefits			1,034
	Investment or savings income			256
	Other income			1,056
	No income			2,121
N				22,039

Notes: Variable descriptions are provided in Appendix B. *Edu* indicates the level of education on a scale from 1 (early childhood education) to 8 (doctoral or equivalent), *Religion* captures church attendance (net of weddings or funerals) on a 8-point scale ranging from 1 (never) to 8 (several times a week), *Income types* indicates sources of income (multiple answers possible). Variable descriptions are provided in Appendix B.

Dependent variables: perceptions of power, intrinsic motivations to comply, and non-compliant behaviors

I use respondents' views on the frequency of audits to measure perceived power of tax authorities. The scale comprises three 5-point Likert scale items (Cronbach's alpha = 0.73). Five items capture intrinsic motivations to comply (Cronbach's alpha = 0.82). They assess subjects' readiness to contribute to everyone's good and the willingness to pay taxes because it is perceived as a civic duty. Non-compliant behaviors are assessed in three dichotomous items that are summed up to a 4-point scale (Cronbach's alpha = 0.62). The items ask about different forms of non-compliant behavior in the past (under-declaration of income, over-deduction of expenses, and non-declaration of labor income).

Empirical strategy

I investigate how institutional, social, and individual factors affect perceptions of power, intrinsic motivations to comply, and compliance behaviors. Despite a substantial body of literature on the determinants of tax compliance, the drivers of compliance behavior are yet not entirely clear (Alm, 2012). Scholars have investigated the role of institutional factors such as enforcement capacity (Andreoni et al., 1998; Wahl, Kastlunger, & Kirchler, 2010), social factors such as social norms (e.g. Alm et al. 1999, Wenzel, 2005), and individual factors such as individual's intrinsic willingness to pay taxes (e.g. Alm & Torgler, 2006). But while all of these factors have been found to affect tax compliance, little is known about their relative importance in shaping taxpayer behavior. I explore large-scale survey data to investigate how these factors impact on taxpayers' attitudes and compliance choices in the aggregate. Therefore, I refrain from between-country comparisons in this analysis.⁶

3. Results

In the following sections I present results from OLS regressions. Five specifications are displayed for each dependent variable. The first three columns illustrate the effects of institutional, social, and individual factors respectively. Column four includes the effects of all explanatory variables except satisfaction with taxpayer services, because only a small share of taxpayers interacted with the tax office in the past year. Specification five incorporates all explanatory variables. All models control for gender, age, education, and religiousness.⁷

⁶ Means and standard deviations on country levels are provided in Appendix D.

⁷ I do not account for income effects because income was not assessed on the individual level.

Perceived power

Regression results for perceived power are presented in Table 2. In line with findings of Kasper, Kogler, and Kirchler (2015), I find that institutional factors have a significant impact on perceived power (column 1). Specifically, an increase in the quality of public services, enforcement capacity, satisfaction with the tax system, effectiveness of public spending, and the absolute tax burden go along with higher levels of perceived power. The coefficient of tax system satisfaction, however, is highly significant and negative. With regard to social factors, coefficients for country level compliance and prevalence of corruption and bribery are significant (specification 2). Respondents indicate higher perceived power if national compliance levels are high, but surprisingly also if corruption and bribery are widespread. Column 3 shows the effects of individual factors on perceptions of power. The coefficients of personal experience with bribery, attitudes towards compliance, trust, peer norms, and self-employment are significant and positive. This provides an additional perspective to the findings of Kogler et al. (2013) who observe positive effects of trust on perceived power.

I obtain similar results when considering institutional, social, and individual factors simultaneously (column 4). Again, *satisfaction* shows to be the strongest institutional predictor, while the coefficients of *public_services*, *capacity*, *fairness*, *effectiveness*, and *abs_burden* are also highly significant. As to social factors, coefficients of *country*, and *corr_brib* are significant and positive, whereas the effect of *society* is significant and negative. On the individual level, *compliance*, *peers*, and *self_emp* explain perceptions of power, with individual compliance norms being the strongest predictor of perceived power among all variables. That is, as personal compliance norms increase by 0.70 scale points (one standard deviation), perceived power increases by 0.13 scale points. In specifications 1 to 4, the coefficients of age and education are positive and significant. They are not significant, however, in specification 5, where I additionally incorporate respondents' evaluation of taxpayer services (*tax_services*) in the regression. Once again, institutional factors such as *public_services*, *capacity*, and *abs_burden* and individual factors such as *compliance* and *peers* have positive effects on perceptions of power, while the coefficients of social factors are not significant.⁸

⁸ *Country* is marginally significant (p=0.097).

Table 2 Regression results: Perceived power

Dependent variable: Perceived power					
Expl. Variable	(1)	(2)	(3)	(4)	(5)
Pubic_Services	0.04** (0.01)			0.06*** (0.01)	0.09* (0.02)
Legal_system	0.03 (0.01)			0.03 (0.02)	-0.01 (0.04)
Capacity	0.07*** (0.01)			0.05** (0.01)	0.09** (0.03)
Complexity	0.02 (0.01)			0.02 (0.01)	-0.01 (0.02)
Satisfaction	0.12*** (0.01)			0.11*** (0.01)	0.03 (0.02)
Fairness	-0.05** (0.01)			-0.08*** (0.01)	-0.05 (0.03)
Effectiveness	0.05*** (0.01)			0.05** (0.01)	0.03 (0.02)
Waste	0.01 (0.01)			-0.02 (0.01)	0.04 (0.02)
Abs_burden	0.06*** (0.01)			0.05*** (0.01)	0.06* (0.03)
Rel_burden	0.02 (0.01)			-0.01 (0.01)	-0.03 (0.03)
Country		0.11*** (0.01)		0.08*** (0.01)	0.05 (0.03)
Society		0.02 (0.01)		-0.03* (0.01)	0.03 (0.01)
Corr_brib		0.04** (0.01)		0.09*** (0.02)	0.01 (0.03)
Brib_exp			0.03* (0.03)	0.02 (0.03)	0.01 (0.06)
Compliance			0.13*** (0.02)	0.17*** (0.02)	0.16*** (0.04)
Trust			0.05*** (0.01)	0.03 (0.01)	-0.06 (0.02)
Peers			0.07*** (0.01)	0.05** (0.01)	0.08* (0.01)
Self_emp			0.03** (0.03)	0.03* (0.04)	0.02 (0.06)
Tax_services					0.08* (0.03)
Male	-0.01 (0.02)	-0.01 (0.02)	-0.02 (0.02)	-0.01 (0.02)	-0.02 (0.05)
Age	0.01 (0.00)	0.02 (0.01)	-0.02 (0.01)	-0.03* (0.01)	-0.03 (0.01)
Edu	0.05*** (0.01)	0.05*** (0.01)	0.02* (0.01)	0.06*** (0.01)	0.01 (0.01)
Religion	0.07*** (0.01)	0.08*** (0.01)	0.08*** (0.01)	0.05*** (0.01)	0.03 (0.01)
Adj. r²	0.04	0.02	0.05	0.09	0.08
Obs.	7,560	8,205	7,840	5,255	1,161

Notes: Coefficients are standardized. Standard errors in parentheses. *, **, and *** indicate significance at the 5%, 1%, and 0.1% level. Inter-scale correlations are displayed in Appendix C.

The impact of *tax_services* on perceived power is positive and significant at the 5% level. This indicates that taxpayers who have positive experiences with the tax office perceive tax authorities as more powerful.

The number of observations is relatively small in specification five, because only few taxpayers interacted with the tax administration during the last year. However, the model explains substantially more variance than, for instance, the first three specifications, suggesting that perceptions of power are not explained by institutional, social, or individual factors alone.

Intrinsic motivations to comply

Table 3 depicts OLS regression results for respondents' intrinsic motivation to comply. Column 1 indicates that institutional factors, such as *public_services*, *capacity*, *satisfaction*, and *fairness* have significant positive effects on respondents' intrinsic motivations to comply, while the effects of *abs_burden* and *rel_burden* are negative and significant. This is in line with findings reported by Feld and Frey (2002). Surprisingly, the coefficients of *complexity* and *waste* are positive and significant as well, indicating that the more complex the tax system and the more public funds are wasted, the higher subjects' intrinsic motivations to comply. Building on the results reported by Kirchler (2007) and Kogler et al. (2013), I find that social (specification 2) and individual factors (specification 3) shape taxpayers' compliance motivations. Specifically, the coefficients of social norms (*society*), individual norms (*compliance*), and trust in institutions (*trust*) are highly significant and positive. Corruption and bribery (*corr_brib*), on the other hand, have negative and significant effects on intrinsic motivations to comply.

These results do not change substantially when considering institutional, social, and individual factors simultaneously (column 4), where besides *religion*, *edu*, and *age* also *male* shows to have a positive and significant effect on intrinsic motivations to comply. Specification 5 additionally incorporates *tax_services*. Being positive and highly significant, the coefficient of *tax_services* partly explains taxpayers' intrinsic motivations to comply. That is, respondents who report positive experiences with the tax office exhibit higher intrinsic motivations to comply. In addition to the institutional, social, and individual factors that affect respondents' intrinsic motivations to comply, the coefficient of religiousness (*religion*) is significant and positive.⁹

⁹ *Male* is marginally significant (p=0.068).

Table 3 Regression results: Intrinsic motivations to comply

Dependent variable: Intrinsic motivations to comply					
Expl. Variable	(1)	(2)	(3)	(4)	(5)
Pubic_Services	0.06*** (0.01)			0.04** (0.01)	0.08* (0.01)
Legal_system	-0.02 (0.01)			-0.01 (0.01)	-0.02 (0.03)
Capacity	0.13*** (0.01)			0.07*** (0.01)	0.08** (0.02)
Complexity	0.03** (0.01)			0.04*** (0.01)	0.02 (0.02)
Satisfaction	0.11*** (0.01)			0.10*** (0.01)	0.10*** (0.02)
Fairness	0.05*** (0.01)			-0.01 (0.01)	-0.04 (0.02)
Effectiveness	0.01 (0.01)			0.02 (0.01)	0.01 (0.02)
Waste	0.04*** (0.01)			0.02 (0.01)	0.01 (0.02)
Abs_burden	-0.11*** (0.01)			-0.09*** (0.01)	-0.11*** (0.02)
Rel_burden	-0.06*** (0.01)			-0.06*** (0.01)	-0.07** (0.02)
Country		0.03* (0.01)		0.01 (0.01)	0.02 (0.02)
Society		0.09*** (0.01)		-0.02 (0.01)	0.03 (0.02)
Corr_brib		-0.10*** (0.01)		0.04* (0.01)	0.04 (0.02)
Brib_exp			-0.01 (0.02)	0.02 (0.02)	0.01 (0.04)
Compliance			0.38*** (0.01)	0.40*** (0.02)	0.36*** (0.03)
Trust			0.17*** (0.01)	0.12*** (0.01)	0.08* (0.01)
Peers			0.05*** (0.01)	0.03* (0.01)	-0.01 (0.01)
Self_emp			0.03*** (0.02)	0.03* (0.03)	-0.01 (0.04)
Tax_services					0.14*** (0.02)
Male	0.01 (0.01)	0.01 (0.01)	0.01 (0.01)	0.02* (0.02)	0.05 (0.04)
Age	0.10*** (0.01)	0.11*** (0.01)	0.05*** (0.01)	0.02* (0.01)	0.01 (0.01)
Edu	0.09*** (0.01)	0.08*** (0.01)	0.07*** (0.01)	0.07*** (0.01)	0.02 (0.01)
Religion	0.14*** (0.01)	0.13*** (0.01)	0.10*** (0.01)	0.08*** (0.01)	0.09*** (0.01)
Adj. r²	0.11	0.06	0.24	0.29	0.31
Obs.	8,587	9,297	8,970	5,674	1,232

Notes: Coefficients are standardized. Standard errors in parentheses. *, **, and *** indicate significance at the 5%, 1%, and 0.1% level. Inter-scale correlations are displayed in Appendix C.

In comparison to the results for perceptions of power (reported in Table 1), the models explain a significant share of the variation in intrinsic motivations to comply with specification five accounting for almost one third of variance in the data. However, driven by the strong effects of trust and personal attitudes towards compliance, r^2 differs substantially between specification two and specification three. Individual factors explain four times more variance in intrinsic motivations to comply than social factors, indicating a potential common method bias (Podsakoff, MacKenzie, Lee, & Podsakoff, 2003).

Non-compliant behaviors

The main results are presented in Table 4. It depicts the effects of institutional, social, and individual factors on non-compliant behaviors. Column 1 indicates that institutional factors reduce non-compliant behaviors. Confirming the results of Beer et al. (2015), coefficients of *capacity*, *fairness*, and *effectiveness* are negative and highly significant, which suggest that institutional quality promotes compliance. The coefficient of *rel_burden*, however, is negative and significant, suggesting that respondents who perceive their tax burden as relatively low are more likely to report past non-compliance. With regard to the effects of social factors on non-compliant behaviors, specification 2 reveals that *country* and *society* have negative effects on non-compliant behavior, indicating that high national compliance levels and strong social norms increase compliance. This is in line with the findings of Alm et al. (1999). The effect of *Corr_brib* on non-compliant behaviors, on the other hand, is positive and highly significant. Column 3 shows that all individual predictors have significant effects on non-compliant behaviors, supporting the results of Alm and Torlger (2006). *Brib_exp* and *self_emp* increase non-compliant behaviors, whereas the effects of *compliance*, *trust*, and *peers* are negative.

The fourth specification illustrates the simultaneous effect of institutional, social, and individual factors on non-compliant behaviors. It shows that *public_services*, *fairness*, *rel_burden*, *country*, *brib_exp*, *compliance*, and *peers* have significant and negative effects on non-compliant behaviors, whereas the effects of *legal_system*, *brib_exp*, *self_emp*, and *male* are positive.

Table 4 Regression results: Non-compliant behaviors

Dependent variable: Non-compliant behaviors					
Expl. Variable	(1)	(2)	(3)	(4)	(5)
Pubic_Services	-0.02 (0.01)			-0.04** (0.01)	-0.08* (0.01)
Legal_system	0.01 (0.01)			0.06*** (0.01)	0.09** (0.01)
Capacity	-0.04** (0.01)			-0.01 (0.01)	0.01 (0.01)
Complexity	0.01 (0.01)			0.01 (0.01)	0.01 (0.01)
Satisfaction	-0.01 (0.01)			0.02 (0.01)	0.04 (0.02)
Fairness	-0.06*** (0.01)			-0.05*** (0.01)	-0.09** (0.01)
Effectiveness	-0.03** (0.01)			-0.02 (0.01)	-0.01 (0.01)
Waste	-0.01 (0.01)			0.01 (0.01)	0.02 (0.01)
Abs_burden	0.03 (0.01)			0.01 (0.01)	-0.03 (0.01)
Rel_burden	-0.07*** (0.01)			-0.04*** (0.01)	-0.10*** (0.01)
Country		-0.10*** (0.01)		-0.07*** (0.01)	-0.02 (0.01)
Society		-0.03** (0.01)		-0.01 (0.01)	-0.02 (0.01)
Corr_brib		0.04*** (0.01)		-0.02 (0.01)	-0.01 (0.01)
Brib_exp			0.10*** (0.01)	0.09*** (0.01)	0.10*** (0.02)
Compliance			-0.10*** (0.01)	-0.10*** (0.01)	-0.16*** (0.01)
Trustb			-0.02* (0.01)	0.01 (0.01)	0.02 (0.01)
Peers			-0.25*** (0.01)	-0.26*** (0.01)	-0.28*** (0.01)
Self_emp			0.08*** (0.01)	0.08*** (0.01)	0.05 (0.02)
Tax_services					0.06* (0.01)
Male	0.11*** (0.01)	0.09*** (0.01)	0.07*** (0.01)	0.06*** (0.01)	0.08** (0.01)
Age	-0.12*** (0.01)	-0.09*** (0.01)	-0.04*** (0.01)	-0.07*** (0.01)	-0.03 (0.01)
Edu	0.03** (0.01)	0.06*** (0.01)	0.05*** (0.01)	0.02 (0.01)	0.01 (0.01)
Religion	-0.04*** (0.01)	-0.04** (0.01)	-0.02 (0.01)	-0.02 (0.01)	0.03 (0.01)
Adj. r²	0.04	0.04	0.14	0.17	0.19
Obs.	8,771	13,811	13,106	5,742	1,240

Notes: Coefficients are standardized. Standard errors in parentheses. *, **, and *** indicate significance at the 5%, 1%, and 0.1% level. Inter-scale correlations are displayed in Appendix C.

While these results indicate that high institutional quality and strong social and individual norms have positive effects on compliance behaviors, the positive coefficient of *legal_system*, as well as the negative coefficient of *rel_burden* are counter-intuitive and will be discussed in the following section. Incorporating *tax_services* in the analysis (specification 5) does not change the results. Peer norms show to be the strongest predictor of compliance behavior, where an increase by 3.24 scale points decreases non-compliance by 0.47 scale points. Importantly, the effect of *tax_services* on non-compliant behaviors is positive and significant. This indicates that taxpayers' who have positive experiences with tax authorities are more likely to report non-compliant behavior in the past. Furthermore, *male* respondents are more likely to report non-compliant behaviors.¹⁰

Again, specification three explains significantly more variance in the dependent variable than specifications one and two, indicating that individual factors such as personal attitudes towards compliance and peer norms are particularly relevant for compliance behavior. This is in line with the results from specifications four and five where personal attitudes and peer norms show to be the strongest predictors of non-compliant behaviors.

4. Discussion

This paper analyzes institutional, social, and individual factors to explain perceptions of tax authorities' power, taxpayers' motivations to comply, and non-compliant behaviors. Micro-level data from a nationally representative survey of 22,000 individuals in 14 Eastern European countries provides evidence that all three dimensions have significant effects on perceived power, intrinsic motivations to comply, and tax compliance behavior. These results add to a growing body of literature on the behavioral determinants of tax compliance, indicating that tax system characteristics, social norms, and individual attitudes shape taxpayer behavior. This has several implications for the design of tax policies.

First, sound administrative structures are critical. While I do not find a significant direct effect of enforcement capacity on non-compliant behavior, efficient enforcement regimes might elevate fairness perceptions and reduce the prevalence of bribery. In line with prior studies (Feld & Frey, 2002), these factors show to affect non-compliant behaviors. Surprisingly, I find a positive effect of the effectiveness of legal systems and a negative effect of the relative tax burden on non-compliance. One potential explanation for this counterintuitive result is an unobserved factor that affects explanatory and dependent variables. Subjects with high income,

¹⁰ The coefficient of *self_emp* is marginally significant (p=0.052).

for instance, have a higher propensity to exhibit non-compliant behaviors. At the same time, they are more likely to use legal services to reduce their tax burden. But as the survey captures income only on the family level, I do not control for income effects.

Second, compliance behavior has a social dimension. I find that attitudes of peers are the strongest predictor of compliance behaviors. That is, the less respondents think that people they know well find non-compliant behavior acceptable, the less likely they report past non-compliance. This provides an additional perspective to the empirical observation that non-compliance is more common in some professions and less so in others.

Third, individual experiences and personal norms shape compliance behavior. The estimates indicate that personal experience with bribery increases non-compliance, whereas individual compliance norms show to have the opposite effect.

Fourth, my findings refine recent empirical evidence on the differential effects of tax audits on sole proprietors' reporting compliance (Beer et al., 2015). The authors observe that tax audits have negative effects on subsequent reporting compliance, if they do not result in additional tax assessments. While Beer et al. are unable to pinpoint the motivational origins of these behaviors, my results indicate that positive interactions with tax authorities have positive effects, as they increase perceived power and intrinsic motivations to comply. Providing taxpayer services thus likely builds trust between taxpayers and the authorities. At the same time, pleasant experiences with revenue bodies elevate respondents' propensity to report non-compliant behavior in the past. This indicates that taxpayer services have educational effects. Adding to experimental evidence from Guala & Mittone (2005), taxpayer services and tax audits should therefore target companies during their first years in business.

Finally, I address some limitations and potential extensions of the above analysis. I investigate the relative effects of several determinants of tax compliance behavior that have been identified in the literature. However, when exploring cross-sectional data, the causality between explanatory and dependent variables might not be entirely clear. Moreover, survey studies on tax compliance behavior are sometimes criticized for their lack of external validity, as respondents tend to understate undesired behaviors, for instance. My estimates of non-compliance might thus be biased. This study, however, does not aim to estimate levels of non-compliance but to explore the relative effects its determinants. Because obtaining objective measures of these determinants is not possible in many cases, using representative survey data from several countries is instructive to obtain statistically powerful estimates of the drivers of tax compliance. On the other hand, I am evidently unable to verify self-reported compliance behavior, and to rule out a

potential common method bias, without external data sources. Incorporating exogenous information on tax compliance behavior such as tax gap estimates would thus strengthen the credibility of the results. Likewise, additional analyses of country effects could provide interesting insights. The countries in my sample are former members of the Soviet Union. Their shared history, as well as the ongoing transition in the region might impact on taxpayers' norms and attitudes towards taxation. Today, however, these countries differ substantially on several social and economic dimensions, so that I am confident about the representativeness of my findings.

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Appendix

A Survey Items

Institutional factors

Public_services

Item	Factor loadings
How do you evaluate the public education system (e.g. preschools, schools, universities)?	0.76
... the public healthcare system (e.g. doctor's practices, hospitals, rehabilitation centers)?	0.79
... social benefits (e.g., unemployment benefits, disability benefits, pensions)?	0.78
... the police?	0.82
... your countries' judiciary?	0.76
... the army and defense system?	0.77
... the public infrastructure?	0.76
... the environment protection?	0.78
Eigenvalue	4.83
% of variance	53.69
Cronbach's alpha	0.86

Notes: 10-point scale ranging from 0 (very low) to 10 (very high).

Legal_system

Item	Factor loadings
The law in your country benefits influential people but not ordinary citizens.	0.59
One can be sure that in your country people who break the law will get punished.*	0.73
Citizens' rights in our country are well protected by law.*	0.82
In this country law is applied to everyone equally.*	0.84
Eigenvalue	2.28
% of variance	45.53
Cronbach's alpha	0.74

Notes: 5-point scale ranging from 1 (strongly agree) to 5 (strongly disagree). *recoded item.

Single item scales

Item	Factor
Authorities in your country, such as police, courts, or tax offices work to make people comply with the law.	Capacity
Your countries' tax system is overly complex.	Complexity
The tax system in your country may not be perfect, but it works well for most people.	Satisfaction
Your countries' tax system is unfair.	Fairness
The government spends taxpayers' money effectively.	Effectiveness
The government is wasting a lot of public money.	Waste
The amount of taxes you are required to pay is...	Abs_burden
How do you feel, in comparison with other people, are you required to pay...	Rel_burden

Notes: *Capacity* is a 5-point scale ranging from 1 (definitely not) to 5 (definitely yes). *Fairness* is a 5-point scale ranging from 1 (strongly agree) to 5 (strongly disagree). *Complexity*, *Satisfaction*, *Effectiveness*, and *Waste* are 5-point scales ranging from 1 (strongly disagree) to 5 (strongly agree). *Abs_burden* is a 6-point scale ranging from 1 (no taxable income) to 6 (very high). *Rel_burden* is a 5-point scale ranging from 1 (much lower) to 5 (much higher).

Social factors

Country

Item	Factor loadings
Most people in this country always declare all their income to the tax office?	0.86
Most people in this country who work for cash in hand payments pay taxes on this income?	0.82
Eigenvalue	1.46
% of variance	48.53
Cronbach's alpha	0.62

Notes: 5-point scale ranging from 1 (definitely not) to 5 (definitely yes).

Society

Item	Factor loadings
How common are the following types of behavior? Paying for goods or services without a bill or invoice in order to avoid VAT.	0.76
... claiming a welfare benefit one is not entitled to.	0.82
... avoiding fare on public transport.	0.72
... using personal connections to get a job for a member of one's family.	0.71
... giving a bribe to a public official.	0.78
Eigenvalue	3.25
% of variance	46.48
Cronbach's alpha	0.84

Notes: 10-point scale ranging from 0 (extremely common) to 10 (nonexistent).

Corr_brib

Item	Factor loadings
Most senior public officials take bribes in return for government contracts.	0.84
Most members of parliament accept bribes in return for passing laws favoring some companies or interest groups.	0.84
Most judges and policemen take bribes in return for help with getting around the law.	0.85
Most policemen, doctors, and teachers take bribes in return for preferential treatment.	0.80
In the current situation giving bribes cannot be avoided.	0.69
Without a bribe, you will not get what you need.	0.77
To get what you need, you have to know the right people.	0.66
Eigenvalue	4.63
% of variance	51.42
Cronbach's alpha	0.90

Notes: 5-point scale ranging from 1 (strongly disagree) to 5 (strongly agree).

Individual factors

Compliance

Item	Factor loadings
One should always declare all income to the tax office.	0.44
How acceptable or unacceptable do you find the following types of behavior: Paying for goods or services without a bill or invoice in order to avoid VAT.	0.73
... claiming a welfare benefit one is not entitled to.	0.80
... avoiding the fare on public transport.	0.80
... giving a bribe to a public official.	0.75
Eigenvalue	2.84
% of variance	31.59
Cronbach's alpha	0.76

Notes: Item 1 of this scale is measured on a 5-point scale ranging from 1 (definitely not) to 5 (definitely yes). Items 2-5 are measured on a 10-point scale ranging from 1 (completely acceptable) to 10 (completely unacceptable) and transformed to a 5-point scale in order to calculate the *compliance* scale.

Trust

Item	Factor loadings
How much trust do you have in the parliament?	0.78
How much trust do you have in the government?	0.78
How much trust do you have in the local government?	0.79
How much trust do you have in the tax office?	0.84
How much trust do you have in the social security agency?	0.83
How much trust do you have in the police?	0.82
How much trust do you have in courts and the legal system?	0.82
Eigenvalue	5.64
% of variance	62.61
Cronbach's alpha	0.92

Notes: 10-point scale ranging from 0 (not at all) to 10 (A great deal of trust).

Peers

Item	Factor loadings
Think about three adults you know best, like your close friends or family members. What would they think if they learnt that you did not declare all of your income to the tax office?	0.96
... you claimed more tax deductions than you were entitled to?	0.93
... you worked for cash in hand payments and did not pay tax on this income?	0.95
Eigenvalue	2.71
% of variance	89.22
Cronbach's alpha	0.94

Notes: 10-point scale ranging from 0 (They'd think there is nothing wrong with it) to 10 (They'd find it completely unacceptable).

Tax_services

Item	Factor loadings
People working at the Tax Office treated me politely and with respect.	0.86
They tried hard to do what was best for me.	0.90
They acted as I expected.	0.85
Overall I was treated fairly.	0.90
They were competent and efficient.	0.89
They took into account my needs and the situation I was in.	0.90
I am happy with the result of my contacts with the tax office.	0.92
Eigenvalue	5.51
% of variance	78.76
Cronbach's alpha	0.96

Notes: 5-point scale ranging from 1 (strongly disagree) to 5 (strongly agree).

Single item scales

Item	Factor
Within the last couple of years was there a situation when you or a member of your family had to give a bribe?	Brib_exp
Did you earn self-employed or farming income within the last 12 months?	Self_emp

Notes: *Brib_exp* is a dummy that takes the value of one if subjects have personal experience with bribery. *Self_emp* is a dummy that takes the value of one if subjects report self-employed or farming income.

Dependent Variables

Perceived power

Item	Factor loadings
In my opinion the tax office carries out many audits.	0.79
I know I will be audited by the tax office.	0.73
Tax returns are checked by the tax office very often.	0.83
Eigenvalue	2.21
% of variance	42.28
Cronbach's alpha	0.73

Notes: Recoded 5-point scale ranging from 1 (strongly disagree) to 5 (strongly agree).

Intrinsic motivations to comply

Item	Factor loadings
Paying taxes for me is an obvious thing to do.	0.77
I like contributing to everyone's good.	0.72
I consider paying taxes to be my civic duty.	0.84
I am happy that by paying taxes I support the state and other citizens.	0.69
Paying taxes for me is a natural thing to do.	0.82
Eigenvalue	2.97
% of variance	59.35
Cronbach's alpha	0.82

Notes: Recoded 5-point scale ranging from 1 (strongly disagree) to 5 (strongly agree).

Non-compliant behaviors

Item	Factor loadings
Has it ever happened that you did not declare all of your income to the tax office?	0.86
... you claimed larger tax deductions than you were entitled to?*	0.56
... you worked for a cash in hand payment and did not pay taxes on this income?	0.82
Eigenvalue	1.73
% of variance	57.52
Cronbach's alpha	0.62

Notes: 4-point scale ranging from 0 (subjects state they never under-reported income, over-deducted expenses, or did not declare labor income in the past) to 3 (subjects state they under-reported income, over-deducted expenses, and did not declare labor income in the past).

B. Scales and Survey Items Variable Description

Dimension	Factor	Description
Institutional	Public_services	Satisfaction with public services (e.g. education, healthcare)
	Legal_system	Captures the effectiveness of the legal system
	Capacity	Measures authorities' capacity to make people comply with the law
	Complexity	Indicates tax system complexity
	Satisfaction	Captures how well the tax system works for most people
	Fairness	Perceived fairness of the tax system
	Effectiveness	Captures effectiveness of public spending
	Waste	Perceived extent of wasting of public funds
Social	Abs_burden	Captures perception that tax burden is too high
	Rel_burden	Perception that tax burden is too high relative to other people
	Country	Captures tax compliance behavior on the national level
Individual	Society	Social norm of tax compliance
	Corr_brib	Captures prevalence of corruption and bribery
	Brib_exp	Dummy that takes the value of one if subjects have personal experience with bribery
	Compliance	Captures attitudes towards compliance behaviors
	Trust	Captures trust in institutions (e.g. parliament, government, tax administration)
	Peers	Compliance norm within peer group
	Self_emp	Dummy that takes the value of one if subjects report self-employed or farming income
Controls	Tax_services	Satisfaction with tax payer services (interaction with tax administration in the last year)
	Male	Dummy that takes the value of one if subjects are male
	Age	Age in years
	Edu	Indicates the level of education
	Religion	Captures church attendance (net of weddings or funerals)
Dependent	Perceived power	Measures perceived power of tax authorities
	Intrinsic motivations to comply	Captures taxpayers' intrinsic motivations to comply
	Non-compliant behaviors	Indicates non-compliant behaviors in the past (under-reporting, over-deducting, or non-declaration of labor income)

C. Correlations

	Pub	Leg	Cap	Com	Sat	Fair	Eff	Was	Abs	Rel	Cou	Soc	Cor	Bri	Com	Tru	Pee	Sel	Tax	Mal	Age	Edu	Rel	Per	Int	Non
Public_services	1																									
Legal_system	.27**	1																								
Capacity	.20**	.37**	1																							
Complexity	-.12**	-.20**	-.13**	1																						
Satisfaction	.19**	.27**	.21**	-.14**	1																					
Fairness	.19**	.30**	.20**	-.39**	.28**	1																				
Effectiveness	.17**	.36**	.19**	-.12**	.28**	.21**	1																			
Waste	-.13**	-.30**	-.17**	.26**	-.16**	-.35**	-.29**	1																		
Abs_burden	-.13**	-.07**	-.02*	.06**	-.05**	-.09**	-.03**	.04**	1																	
Rel_burden	-.02	-.09**	-.05**	.05**	-.10**	-.12**	-.12**	.08**	.21**	1																
Country	.11**	.27**	.19**	-.10**	.19**	.15**	.23**	-.15**	-.02*	-.05**	1															
Society	.05**	.19**	.14**	-.07**	.09**	.10**	.16**	-.12**	-.03**	-.12**	.22**	1														
Corr_brib	-.32**	-.38**	-.22**	.26**	-.12**	-.31**	-.20**	.29**	.10**	.05**	-.12**	-.25**	1													
Brib_exp	-.10**	-.10**	-.07**	.07**	-.07**	-.09**	-.08**	.07**	.08**	.00	-.06**	-.08**	.27**	1												
Compliance	.02*	-.02**	.07**	.00	.07**	.07**	-.02**	.00	-.04**	.01	.01	.24**	-.11**	-.11**	1											
Trust	.54**	.42**	.34**	-.20**	.23**	.28**	.23**	-.23**	-.14**	-.05**	.12**	.13**	-.46**	-.12**	.10**	1										
Peers	.05**	.14**	.12**	-.08**	.08**	.13**	.09**	-.10**	-.07**	.00	.18**	.24**	-.14**	-.10**	.48**	.13**	1									
Self_emp	-.01	-.01	.00	.01	-.01	.00	-.02**	.01	.12**	.01	-.03**	.00	.00	-.06**	-.02**	.00	-.06**	1								
Tax_services	.26**	.17**	.19**	-.12**	.23**	.16**	.11**	-.06**	-.06**	-.05**	.08**	.11**	-.18**	-.15**	.18**	.35**	.16**	-.04*	1							
Male	-.02**	-.02**	-.02*	.01	-.04**	-.02**	-.03**	.02*	.06**	.01	-.02**	-.02**	.04**	.02**	-.06**	-.03**	-.07**	.09**	-.06**	1						
Age	.04**	-.01	.00	.03**	.03**	.00	.00	-.02*	-.33**	.01	.02**	.08**	-.05**	-.09**	.18**	.08**	.17**	-.07**	.06**	-.07**	1					
Edu	-.02**	-.05**	-.02*	-.10**	.00	.07**	-.05**	-.03**	.15**	-.01	-.03**	-.01	-.09**	.07**	.01	.02**	-.05**	.05**	.03	-.02**	-.15**	1				
Religion	-.05**	.00	.04**	.07**	.03**	.01	.04**	.02**	.01	-.08**	.03**	.02*	.05**	.04**	.11**	-.03**	.08**	.01	.02	-.17**	.10**	-.01	1			
Perceived_power	.06**	.08**	.12**	.02*	.14**	.01	.08**	-.01	.05**	.01	.11**	.05**	.02	.00	.17**	.06**	.15**	.03**	.13**	-.03**	.02*	.03**	.10**	1		
Intrinsic_motivations	.12**	.09**	.16**	-.03**	.17**	.12**	.08**	-.04**	-.14**	-.11**	.06**	.12**	-.12**	-.07**	.42**	.21**	.27**	.01	.25**	-.03**	.13**	.07**	.15**	.38**	1	
Non_compliant_behavior	-.06**	-.05**	-.04**	.03**	-.05**	-.07**	-.04**	.03**	.06**	-.05**	-.10**	-.07**	.06**	.13**	-.23**	-.07**	-.32**	.10**	-.08**	.12**	-.11**	.07**	-.07**	-.07**	-.12**	1

Notes: * (**) indicates significance at the 5% (1%) level (2-tailed)

D. Means and standard deviations (country level)

	BGR	HRV	CZE	EST	HUN	LVA	LTU	MDA	POL	ROU	SRB	SVK	SVN	UKR
Public_Services	4.20 (1.70)	5.41 (1.66)	6.10 (1.61)	5.82 (1.33)	5.02 (1.70)	5.67 (1.65)	5.72 (1.7)	3.44 (2.2)	4.74 (1.42)	5.08 (1.7)	4.69 (1.78)	4.87 (1.65)	5.02 (1.49)	3.78 (1.52)
Legal_system	1.87 (0.76)	2.35 (0.75)	2.53 (0.86)	2.71 (0.84)	2.72 (0.84)	2.41 (0.92)	2.32 (0.72)	2.32 (0.87)	2.19 (0.77)	2.42 (0.85)	2.30 (0.84)	2.46 (0.87)	1.91 (0.66)	2.01 (0.70)
Capacity	3.12 (1.10)	3.18 (1.05)	3.33 (1.02)	3.21 (0.92)	3.25 (0.96)	3.20 (1.06)	3.06 (1.00)	3.27 (1.11)	2.89 (1.05)	3.53 (1.01)	3.24 (1.12)	3.15 (1.02)	2.67 (1.01)	2.93 (1.03)
Complexity	3.56 (1.21)	3.93 (0.97)	3.60 (1.15)	3.06 (1.20)	3.72 (1.12)	3.89 (1.06)	3.89 (0.94)	3.88 (1.03)	4.11 (0.99)	4.12 (0.98)	4.06 (0.99)	3.82 (0.98)	4.12 (0.80)	3.72 (0.99)
satisfaction	3.34 (1.09)	3.16 (1.09)	3.25 (1.04)	3.44 (0.93)	2.76 (1.16)	3.30 (1.04)	3.30 (0.95)	3.29 (1.11)	3.11 (1.11)	3.16 (1.11)	3.09 (1.09)	3.45 (0.99)	2.48 (1.03)	2.94 (0.98)
Fairness	2.70 (1.15)	2.56 (1.06)	2.82 (1.05)	2.88 (1.11)	2.28 (1.16)	2.29 (1.08)	2.57 (0.96)	2.40 (1.13)	2.37 (1.08)	2.34 (1.09)	2.45 (1.07)	2.68 (1.04)	2.16 (0.98)	2.46 (0.99)
Effectiveness	2.24 (1.25)	2.31 (1.20)	1.97 (1.01)	2.43 (1.02)	2.63 (1.23)	2.35 (1.12)	2.10 (1.05)	2.57 (1.20)	2.50 (1.33)	2.15 (1.09)	2.36 (1.14)	2.26 (1.2)	1.84 (1.05)	2.17 (0.98)
Waste	3.84 (1.18)	4.11 (0.99)	3.94 (1.18)	3.41 (1.12)	3.60 (1.21)	3.90 (1.09)	4.17 (0.94)	3.77 (1.09)	4.21 (1.01)	3.81 (1.17)	3.79 (1.08)	3.97 (1.14)	4.37 (0.89)	3.81 (1.15)
Abs_burden	4.80 (0.76)	3.33 (1.83)	3.28 (1.87)	3.59 (1.71)	3.47 (1.89)	4.39 (1.75)	3.63 (1.86)	4.58 (1.27)	4.79 (0.81)	5.04 (0.86)	3.83 (1.53)	3.06 (2.07)	4.10 (1.67)	3.86 (1.75)
Rel_burden	3.48 (0.78)	3.30 (0.82)	3.38 (0.83)	3.31 (0.77)	3.43 (0.97)	3.79 (0.93)	3.32 (0.95)	3.19 (1.10)	2.95 (0.84)	3.29 (0.94)	3.30 (0.74)	3.30 (0.90)	3.45 (0.99)	2.56 (1.09)
Country	2.45 (1.02)	2.53 (0.90)	2.54 (0.97)	2.46 (0.84)	2.62 (0.96)	2.50 (0.94)	2.65 (0.89)	2.62 (1.04)	2.19 (0.83)	2.71 (1.00)	2.15 (1.03)	2.65 (1.05)	2.07 (0.80)	2.44 (0.97)
Society	4.36 (2.06)	4.60 (2.08)	3.99 (2.02)	5.80 (1.76)	4.77 (2.13)	4.88 (2.20)	4.11 (2.26)	6.37 (2.63)	4.45 (2.19)	5.06 (2.76)	3.93 (1.97)	4.32 (2.19)	5.30 (1.81)	4.36 (2.30)
Corr_brib	3.96 (0.76)	3.46 (0.88)	3.36 (0.85)	2.71 (0.77)	3.55 (0.88)	3.42 (1.03)	3.81 (0.72)	4.08 (0.69)	3.37 (0.85)	3.85 (0.78)	3.72 (0.88)	3.80 (0.74)	3.39 (0.77)	4.04 (0.72)
Brib_exp	0.06 (0.24)	0.06 (0.23)	0.14 (0.34)	0.03 (0.17)	0.20 (0.40)	0.10 (0.30)	0.27 (0.44)	0.31 (0.46)	0.15 (0.35)	0.23 (0.42)	0.09 (0.29)	0.17 (0.38)	0.02 (0.15)	0.34 (0.47)
Compliance	4.46 (0.62)	4.27 (0.62)	3.89 (0.78)	4.19 (0.61)	3.98 (0.79)	4.05 (0.75)	4.22 (0.69)	4.42 (0.62)	4.26 (0.64)	4.38 (0.66)	4.32 (0.67)	4.19 (0.68)	4.34 (0.62)	3.81 (0.75)
Trust	3.24 (2.20)	3.82 (2.01)	5.47 (2.09)	5.53 (1.79)	5.13 (2.25)	5.18 (2.17)	4.56 (2.01)	3.03 (2.43)	3.90 (1.96)	4.47 (2.10)	4.35 (2.27)	4.44 (2.18)	3.58 (2.01)	3.11 (1.90)
Peers	6.57 (3.34)	6.00 (3.24)	5.50 (2.93)	5.76 (3.16)	7.13 (2.74)	4.98 (3.62)	5.39 (3.48)	6.27 (3.15)	5.54 (3.29)	7.43 (2.64)	6.34 (3.25)	5.56 (2.95)	6.72 (3.17)	4.43 (2.99)
Self_emp	0.05 (0.22)	0.03 (0.17)	0.08 (0.26)	0.07 (0.26)	0.04 (0.21)	0.06 (0.23)	0.06 (0.23)	0.08 (0.27)	0.13 (0.34)	0.09 (0.29)	0.10 (0.31)	0.0 (0.22)	0.06 (0.24)	0.10 (0.30)
Tax_services	8.17 (0.94)	7.90 (1.02)	7.95 (0.73)	8.19 (0.85)	7.67 (0.96)	8.27 (0.85)	8.20 (0.81)	7.66 (0.97)	8.01 (0.91)	7.92 (0.97)	7.60 (1.14)	8.05 (0.69)	7.69 (0.86)	7.71 (0.72)
Male	39.51%	41.05%	50.93%	36.71%	44.73%	39.38%	40.60%	45.08%	41.56%	42.04%	43.67%	40.40%	41.51%	35.20%
Age	54.18 (17.26)	51.52 (17.84)	47.88 (17.75)	54.38 (18.06)	51.07 (17.28)	49.95 (17.88)	54.61 (19.47)	46.19 (17.59)	51.01 (16.95)	53.96 (17.55)	52.58 (17.47)	51.13 (16.81)	54.96 (17.76)	47.42 (17.14)
Edu	3.43 (1.75)	3.21 (1.62)	3.47 (1.40)	4.13 (1.86)	2.52 (1.44)	4.12 (1.67)	3.90 (1.88)	3.46 (1.67)	3.49 (2.06)	3.04 (1.55)	3.00 (1.50)	3.63 (2.20)	3.20 (1.53)	4.81 (1.81)
Religion	3.22 (1.59)	4.12 (1.99)	2.07 (1.56)	2.41 (1.35)	2.64 (1.77)	2.87 (1.77)	3.71 (1.76)	3.84 (1.6)	5.56 (1.98)	4.48 (1.73)	3.44 (1.57)	4.43 (2.52)	3.23 (2.22)	3.84 (1.62)

	BGR	HRV	CZE	EST	HUN	LVA	LTU	MDA	POL	ROU	SRB	SVK	SVN	UKR
Perceived	3.81	3.86	3.39	3.94	3.55	3.67	3.69	3.80	3.90	3.96	3.48	3.70	2.89	3.41
_power	(0.84)	(0.72)	(0.88)	(0.73)	(0.80)	(0.84)	(0.8)	(0.75)	(0.75)	(0.81)	(0.88)	(0.80)	(0.83)	(0.73)
Intrinsic	4.05	4.02	3.59	4.12	3.58	3.75	3.94	3.87	4.04	4.14	4.17	3.79	3.62	3.79
_motivations	(0.70)	(0.67)	(0.81)	(0.64)	(0.80)	(0.84)	(0.63)	(0.71)	(0.62)	(0.65)	(0.65)	(0.64)	(0.58)	(0.66)
Non_compliant_	0.04	0.06	0.07	0.12	0.05	0.19	0.09	0.11	0.09	0.04	0.06	0.06	0.03	0.15
behavior	(0.16)	(0.17)	(0.19)	(0.25)	(0.18)	(0.25)	(0.21)	(0.22)	(0.21)	(0.15)	(0.17)	(0.17)	(0.14)	(0.25)
N	1,732	1,615	1,502	1,501	1,500	1,521	1,596	1,879	1,540	1,608	1,596	1,505	1,532	1,412

Notes: N (total) =22,039 (representative sample). Subjects from Bulgaria (BGR), Croatia (HRV), Czech Republic (CZE), Estonia (EST), Hungary (HUN), Latvia (LVA), Lithuania (LTU), Moldova (MDA), Poland (POL), Romania (ROU), Serbia (SRB), Slovakia (SVK), Slovenia (SVN), and Ukraine (UKR).