

# Tax Morale and Conditional Cooperation

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*Abstract:* Why so many people pay their taxes, even though fines and audit probability are low, is a central question in the tax compliance literature. Positing a *homo economicus* having a refined motivation structure sheds light on this puzzle. This paper provides empirical evidence for the relevance of conditional cooperation, using survey data from 30 West and East European countries. We find a high correlation between perceived tax evasion and tax morale. The results remain robust after exploiting endogeneity and conducting several robustness tests. We also observe a strong positive correlation between institutional quality and tax morale.

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## 1. Introduction

Nobody likes paying taxes. The most popular instrument to force people to pay their taxes is deterrence policy. In line with the economics of crime approach and based on expected utility maximization, Allingham and Sandmo (1972) present a formal model showing that the extent of tax evasion is correlated negatively with the probability of detection and the degree of punishment. However, their model has many shortcomings. People who exhibit empirically observed levels of risk aversion normally pay their taxes, although there is a low probability of getting caught and being penalized. Thus, people are more honest than deterrence models would predict. Graetz and Wilde (1985), Alm, McClelland and Schulze (1992) and Frey and Feld (2002) find that there is a wide gap between the risk aversion that would guarantee such a high compliance and the much lower individual risk aversion observed in reality. Alm (1999) and Torgler (2002) show that tax compliance experiments also indicate that individuals report a higher level of income than the expected utility model would predict. This high level of co-operation is not specific to the tax compliance literature. According to Ochs and Roth (1989) and Roth (1995), many ultimatum experiments have shown that the modal offer is (50,50), that the mean offer is somewhere around (40,60), and that the smaller the offer, the higher the probability that the offer will be rejected. Moreover, according to Ledyard (1995) and Davis and Holt (1993), public good experiments indicate that, on average, subjects contribute between 40 and 60 percent of their endowment to a public good. Baldry (1987) identifies a need to revise the theory rather than questioning the experimental method.

Traditional models also have the disadvantage that they treat taxation as an isolated case. However, Alm et al. (1992) and Wenzel and Taylor (2004) indicate that subjects do not act as isolated individuals playing a game against nature. In this paper, we emphasize the relevance of the social context in which tax compliance takes place. The behavior of other

taxpayers is important to understand taxpayers' compliance. As a consequence, theories of pro-social behavior, which take the behavior of others into account, may be promising. Taxpayers may be willing to pay their taxes conditionally, depending on the pro-social behavior of other taxpayers. Therefore, the more other taxpayers are perceived to be honest, the more willing individuals are to pay their own taxes. The extent to which others also contribute triggers more or less cooperation and systematically influences the willingness to contribute. We use survey data to test whether conditional cooperation can be identified. Section 2 provides a brief overview of the existing literature on social comparisons. In Section 3, we present our theoretical approach and develop our hypotheses. Section 4 contains the empirical results. Section 5 concludes with a summary and discussion of the main results.

## **2. The existing literature on pro-social behavior**

Standard expected utility theory has difficulty in explaining taxation behavior. In addition, empirical evidence in the tax compliance literature testing the effects of social comparisons is lacking. In the 1980s, two studies ran experiments to investigate social comparisons, but they obtained mixed results. Spicer and Becker (1980) told 57 participating students that their own tax tables were based on a tax rate of 40 percent. Of these, 19 participants were told that the average tax rate was 65 percent and a further 19 students were told that the average tax rate was 15 percent. Finally, the remaining 19 participants were told that all participants had the same tax rate of 40 percent, which was the truth. On average, 23 percent of the total taxes due were evaded. The group having the perceived high average taxation evaded by 32 percent; the group with the apparently low taxation evaded by 12 percent and the group with the medium taxation evaded by 25 percent. Hence, their results suggest that social comparisons are relevant. Webley, Robben and Morris (1988) use a

similar experimental design but alter the information on taxation by informing the participants that their individual tax rate is 30 percent and the average tax rate is  $x$ ; where  $x$  covers the values of 15 percent, 30 percent, and 45 percent. In contrast to Spicer and Becker (1980), altering the information did not have a significant effect on tax evasion. Thus, according to these papers, the effect of social comparisons on tax compliance is unclear.

However, these two experiments were designed to analyze the causal relationship between inequity and tax evasion. Their design is influenced by equity theory, which points out that satisfaction and behavior are linked, as Tyler and Smith (1998) show not only for objective outcome levels but also for subjective outcome levels which were judged to be fair. Furthermore, a lack of equity between the taxpayer's own tax rate and the tax rate of others causes a sense of distress. Being at a disadvantage in such a situation creates anger, according to Adams (1965) and Homans (1961), while being at an advantage creates feelings of guilt. People will engage in certain behavior, such as tax evasion, in an effort to restore equity. Neither study analyzes the interaction between taxpayers.

Tax compliance experiments with a public good structure provide a better opportunity to analyze social interactions within a group. Alm, Jackson and McKee (1993) implement various treatments in which a public good was provided. Taxes paid in one round were multiplied by a certain factor and the resulting amount was then redistributed in equal amounts to the members of the group. Their data indicate that average compliance is always higher in the presence of a public good. However, their study is not able to distinguish between the effect of public goods and the effect of taxpayers' interaction. Kim (1994) stresses that one way to deal with this problem is to build an experimental design having in addition to the Alm, Jackson and McKee (1993) design a fixed public transfers treatment, regardless of how much tax subjects pay.

More evidence on pro-social behavior is provided from laboratory public good experiments such as Croson (1998), Sonnemans, Schram and Offermann (1999), and Keser and van Winden (2000).<sup>1</sup> Fischbacher, Gächter and Fehr (2001) designed an experiment to provide a better way of checking the extent to which subjects are conditional cooperators compared to previous studies. Participants had to indicate their contribution to the public good for different average levels of contributions by other group members. They found that 50 percent of the subjects were conditionally cooperative.

Several theories try to explain conditional cooperation. Most papers, e.g., Rabin (1998) and Falk and Fehr (2002), propose theories of reciprocity. Adapted to the tax compliance context reciprocity means that, if many citizens pay their taxes, an individual taxpayer would also feel obligated to contribute and pay taxes. Alternatively, if many individuals evade taxes, an individual taxpayer will not feel obligated to pay taxes. Henrich (2004) provides an overview of another promising concept, namely conformity. Conformity means that the motivation of behaving in a conditionally cooperative way may be influenced by the taxpayer's wish to fulfill the social norm of paying taxes and behaving according to society's rules. Thus, the second concept is less connected to incentives and benefits than is the first. Bardsley and Sausgruber (2006) point out that a conformist is someone who is willing to contribute to a useless public good that doesn't benefit anyone, so long as he observes that enough others are contributing. Alternatively, a reciprocally motivated agent does not contribute because he receives no benefits. Henrich (2004) stresses that individuals want their behavior to conform with normal behavior.

Two recent laboratory studies of Bohnet and Zeckhauser (2004) and Bardsley and Sausgruber (2006) indicate the strength of conformity compared to reciprocity. In contrast, the study by Falk, Fischbacher and Gächter (2003) indicates considerable support for reciprocity. These authors created a laboratory situation in which each subject was a member

of two economically identical groups for which only the members were different. They observed that the same subjects contributed differently depending on the behavior of the group. Contributions were larger if group cooperation was higher. In an experimental paper Kurzban et al. (2001) find that subjects don't want to make larger contributions than other group members. Furthermore, individuals use their own contribution to elicit cooperation from others, which corresponds to reciprocal behavior. A further reason for cooperation exists if charitable organizations are present. Vesterlund (2003) reports that charitable organizations have an incentive to ask approval from donors for the use of their name when a gift is made, because the announcement is likely to have a positive effect on contributions from others and thus helps to overcome the problem of free-riding. The announcement also sends a signal about the quality of the public good.<sup>2</sup>

Pro-social behavior has been analyzed mainly in laboratory experiments, and hardly any evidence outside the laboratory setting is available. Frey and Meier (2004a) analyze patterns of pro-social behavior outside the lab setting. They investigate students' decisions regarding contributions to two social funds administered by the University of Zurich. This situation corresponds to an n-person public good setting, involving around 33,000 persons and a panel set of 136,000 observations. The field observations were supplemented with surveys. Many students behaved pro-socially, providing evidence of conditional cooperation. The more individuals expected others to cooperate, the more they cooperated. In a companion paper, Frey and Meier (2004b) observe that conditional cooperation depends on past behavior. People who never contributed in the past do not change their behavior. The strongest reaction to the information about others' behavior was observed from individuals who were indifferent regarding the contribution. Surprisingly, Frey and Meier find that, if students were informed that few other students contributed to the social funds, they did not respond as expected, but rather tended to give more, not less.

Heldt (2005) conducted a natural field experiment on conditional cooperation, in which cross-country skiers in two Swedish ski resorts were faced with the decision of whether or not to contribute to ski track funding. His results indicate that the percentage of subjects making a contribution was higher if a higher percentage of others were also making a contribution. Shang and Croson (2005) conducted a field experiment at an anonymous public radio station during an on-air fund raising campaign. The study was designed so as to communicate to potential donors how much a donor had given. Hence, the authors could investigate the influence of social information on the level of an individual's contribution. The results indicated that social information does influence contributions. Another natural field experiment by Martin and Randal (2005) occurred at an art gallery for which admission was free but a donation could be placed in a transparent box in the foyer. Four treatments were investigated, namely very few large denomination bills, several small denomination bills, a large number of coins, and an empty box. Contrary to the previously discussed studies, this one provides indirect information on social context, because donors could draw their own conclusions from the donation box. The results show that visitors donate significantly more if there is already some money in the box.

### **3. The theoretical approach**

In contrast to experimental studies, this paper uses survey data provided by the European Values Survey (EVS) 1999/2000, which is a European-wide investigation of socio-cultural and political change. The survey has assessed the basic values and beliefs of people throughout Europe. The EVS was first carried out from 1981 to 1983, then in 1990 to 1991 and again in 1999 through 2001, with an increasing number of countries participating over time. The EVS methodological approach is explained in detail in the European Values Survey (1999) source book, which provides information on response rates, the stages of

sampling procedures, the translation of the questionnaire, and field work, along with measures of coding reliability, reliability, and data checks. All country surveys were carried out by experienced professional survey organizations, with the exception of the one in Greece, and were performed through face-to-face interviews among samples of adult citizens aged 18 years and older. Tilburg University coordinated the project and provided the guidelines to guarantee the use of standardized information in the surveys and the national representativeness of the data. To avoid framing biases, the questions were asked in the prescribed order. The response rate varies from one country to another; in general, the average response rate was around 60%.

Because the EVS asks the identical set of questions to people in various European countries, the survey provides a unique opportunity to examine the impact of conditional cooperation on tax morale. Our study considers 30 representative national samples of at least 1'000 individuals in each country. Surveys allow us to work with a representative set of individuals, which is not often the case in experimental studies as many have students as participants. Fehr et al. (2003) report that the problem with using students is that they have a higher level of education and a higher IQ than average citizens. In addition, they often come from families with a higher than average income and their age range is limited. With respect to the tax compliance context, students do not have much experience in filling out tax forms. Thus, whether results obtained with students can be generalized across subject pools is problematic. However, some studies investigate whether students form a satisfactory representative group for examining taxpayer behavior and the results are mixed. On the one hand, Baldry (1987) finds that students' responses are no different from those of other subjects regarding tax compliance. On the other hand, Gërxhani and Schram (2001) show differences across subject pools in their cross-country experiments in The Netherlands and Albania. In another context, Frey and Meier (2004a) observe that people differ in their pro-

social attitudes. The donation to funds varies strongly among students with different majors after controlling for other personal characteristics, e.g., age and gender.

Conditional cooperation also depends on environmental and institutional settings. However, the effect of institutions on pro-social behavior has not been analyzed intensively. In a large cross-cultural study of behavior, Henrich et al. (2001) use ultimatum, public good, and dictator games. These authors find a large variation across the different cultural groups and argue that preferences and expectations are affected by group-specific conditions, such as institutions or cultural fairness norms. Surveys conducted in several countries are a good instrument for investigating conditional cooperation in different societies. In our study, we differentiate between Western and Eastern European countries. In general, surveys help to complement previous studies on conditional cooperation that used laboratory experiments.

Our dependent variable is tax morale, defined as the intrinsic motivation to pay taxes. It measures an individual's willingness to pay taxes, in other words, the moral obligation to pay taxes or the belief that paying taxes contributes to society. To assess the level of tax morale from the EVS, we use the following question.

*Please tell me for each of the following statements whether you think it can always be justified, it can never be justified, or it falls somewhere in between: ... Cheating on tax payments if you get the chance.*

For this question, a ten-scale index of tax morale is used with the two extremes being “never justified” and “always justified”. The scale was recoded into a four-point scale (0, 1, 2, 3), with the value 3 standing for “never justified”. Responses 4 through 10 were combined into a value 0 due to a lack of variance among them.

Many researchers, e.g., Lewis (1982), Pommerehne, Hart and Frey (1994), Frey (1997 and 2003a), Alm, McClelland and Schulze (1992 and 1999), Frey and Feld (2002), Torgler (2001a and 2002) argue that tax morale helps to explain the high degree of tax compliance.

However, many of these studies treat tax morale as an exogenous residual. Using tax morale as a dependent variable allows us to go beyond treating it as a black box or a residuum. Thus, we can analyze which factors help shape or maintain tax morale. The EVS has been designed as a wide-ranging survey, so that the probabilities of participants being suspicious and of creating framing effects, are reduced compared with other contexts relevant for taxation. Of course, the measurement of tax morale is not free of bias. The available data are based on self-reports so that subjects may tend to overstate their degree of compliance, according to Andreoni, Erard, and Feinstein (1998). However, no objective or observable measure of tax morale is available.

Elffers, Weigel, and Hessing (1987) find marked differences between the assessment of tax evasion and reported tax evasion in survey responses. Nonetheless, because the way we define tax morale is less embarrassing than asking whether a person has evaded taxes, we expect the degree of honesty to be higher. Moreover, a taxpayer who has evaded tax payments in the past may tend to excuse this kind of behavior and report higher tax morale in the survey. Furthermore, the survey question used to measure tax morale may allow other forms of interpretation. For example, an individual may think that cheating on taxes is justifiable if he believes that the government is not to be trusted. In countries in which tax revenues are collected to finance a dictator's war machine, tax evasion might be considered to be justifiable so that an individual could even feel a moral duty not to pay taxes.

Torgler (2001b) stresses that people will search for voice or exit mechanisms via tax resistance to express their preferences in authoritarian political systems. In such cases, a measure of tax morale would also capture external factors. Hence, taking an index is preferable to using a single question to measure tax morale or tax compliance. Furthermore, tax morale is a multidimensional concept so that a multi-item index is less likely to be affected adversely by random errors and more likely to produce reliable measures. Thus, we

recognize that single-item measures should be treated with caution. However, the use of a single question has the advantage of reducing complexity problems of index construction, especially with regard to measurement procedure or low correlation between items. Moreover, several previous studies, e.g., Cummings et al. (2005) and Alm and Torgler (2006), find consistent results between surveys and laboratory experiments, using single-item survey measurements.

A further bias may arise when people ignore the clause “if you get the chance”, in the tax morale question and answer assuming that they would never get the chance because income taxes are deducted at source by the employer for most people. In general, the fact that the EVS includes the hypothetical question allows to argue that such a bias is less likely to occur than if the question did not include the clause. Furthermore, the independent variable measuring self-employed status allows us to control somewhat for the relative ease of tax evasion in a multivariate analysis.

We use the following question to investigate the impact of conditional cooperation.

*“According to you, how many of your compatriots do the following: Cheat on taxes if they get the chance?” (4=almost all, 1=almost none)*

Lewis (1982, p. 144) argues for the possible existence of a “tax subculture, with its own set of unwritten rules and regulations. Thus I am more likely to evade not only because I have friends who, I know, have got away with it (so why shouldn’t I?) but also because evasion is ethically acceptable among my friends ... Furthermore, ‘no friends of mine can be criminals’ ... ‘What’s good enough for fine, upstanding citizens like Fred Bloggs, John Doe, Donald Campbell, Herman Schmitt and Hans Anderson is good enough for me’”. On the basis of these considerations, we state the hypothesis that tax morale decreases if people perceive tax evasion to be common. Alternatively, if people believe that others are honest, their own willingness to pay taxes increases.

Our study uses an attitudinal variable, namely perceived tax evasion, to explain tax morale, which is itself an attitudinal variable. However, several studies in the tax compliance literature and the literature on illegal activities, e.g., Lewis (1982), Groenland and Veldhoven (1983), Weigel, Hessing and Elffers (1987), Webley et al. (1991) and Schneider and Enste (2002), construct theoretical models in which perceptions affect tax attitudes. Moreover, in other areas, such as the literature on social capital, corruption and happiness, investigate the causes of attitudes using other attitudinal variables as independent factors, e.g., Diener and Suh (2000), Brewer and Steenbergen (2002), Uslaner (2004), Brewer (2004), and Chang and Chu (2006). We investigate the correlation between perceived tax evasion and tax morale in a multivariate analysis, controlling for other factors to isolate the relationship better. A specification based on multivariate analysis has the obvious advantage of presenting a more balanced view of the role of conditional cooperation by separating out the effects of other exogenous variables. However, if conditional cooperation differs systematically in some other way that also affects tax morale, the results could be misleading.

Causality remains an issue because one's own willingness to pay taxes may lead to the expectation that others behave in the same way. However, results from strategy method experiments done by Fischbacher et al. (2001) and Fischbacher and Gächter (2006) that investigate carefully the causality problem suggest that causality goes from beliefs about others' cheating to one's own behavior rather than vice versa. In our empirical work, we also present two-stage least squares (2SLS) estimations with different instruments and include several diagnostic tests to deal with the causality problem. In general, the EVS is not a panel survey. A survey that follows individuals over time would allow us to study the dynamics of adjustment better. In addition, the question referring to conditional cooperation has been asked only in the last EVS wave of 1999 through 2001. Longitudinal data would help reduce problems of unobserved individual heterogeneity. However, we test for the relevance and

validity of the instruments and the overidentifying restrictions. Moreover, we try to filter out a possible systematic bias in our conditional cooperative effect by correcting for differences between what an individual thinks and what that individual projects on others.<sup>3</sup> This provides a possible way of correcting parts of such a potential bias. Such a procedure helps to isolate better the existence of a conditional cooperative effect by correcting for parts of this bias.

Our multivariate analysis includes a vector of control variables at the individual level that covers demographic, economic, and religious variables.<sup>4</sup> Previous tax compliance studies demonstrate the relevance of considering socio-demographic and socio-economic variables along with the level church attendance, e.g., Torgler (2003a) and Torgler (2006). In the first estimations, we don't include income. The ten-point income scale in the EVS is based on national currencies, which reduces the possibility of comparing nations in a cross-country comparison.<sup>5</sup> A proxy for an individual's economic situation could be the self-classification of respondents into various economic classes. However, this variable has not been collected in all countries. Thus, we include economic status sequentially in the specification, but the main results remain robust. In a second approach, we include the income variable based on national currencies in 30 single country regressions. Again, the variable is included sequentially, because of missing variables.

To isolate better a possible conditional cooperative effect, we consider two variables that measure generalized trust among taxpayers, namely trust1 and trust2.<sup>6</sup> Furthermore, instead of focusing only on horizontal trust, i.e., trust among taxpayers, we include variables that measure vertical trust (trust between taxpayers and the state). Trust in the state may influence the willingness to pay taxes but it is not necessarily related to conditional cooperation among the citizens. Smith (1992) and Smith and Stalans (1991) show that positive actions by the state are intended to improve taxpayers' attitudes and their commitment to the tax system and lead to compliant behavior. If the state acts in a

trustworthy way, taxpayers are more willing to comply with taxes.<sup>7</sup> To check for robustness, we use two trust variables, trust in the justice system and trust in the parliament.<sup>8</sup> These variables allow us to analyze trust at the constitutional level, e.g., trust in the legal system, thereby focusing on how the relationship between the state and its citizens is established. They also allow us to analyze trust more closely at the current politico-economic level, e.g., trust in the parliament.

In addition, we analyze the impact on tax morale of individuals' satisfaction with the way democracy is developing in a country, namely satisfaction with democracy.<sup>9</sup> In general, a government that pre-commits to democratic rules imposes restraints on its own power and thus signals its willingness to treat responsible persons. Strong democratic rules indicate that citizens are not perceived to be ignorant or uncomprehending voters, which may create or maintain social capital stock. If taxpayers think they are in a better position to monitor and control politicians, their willingness to cooperate and pay taxes increases. Therefore, a higher degree of satisfaction with a country's democratic institution should lead to higher tax morale. Pommerehne and Weck-Hannemann (1996), Frey (1997 and 2003a), Alm, McClelland and Schulze (1999), Frey and Feld (2002), Feld and Tyran (2002), Torgler, Schaltegger and Schaffner (2003), and Torgler (2005) show that more extensive possibilities for direct political participation lead to lower tax evasion and higher intrinsic motivation to pay taxes

We differentiate between Western and Eastern Europe because the reform process in the transition countries caused disorientation and a heavy economic burden according to Kasper and Streit (1999) and Gërxhani (2002). The rapid collapse of institutional structures produced a vacuum in many countries that led to large social costs, especially in terms of worsening income inequality and poverty rates and bad institutional conditions based on uncertainty and high transaction costs. Alm, Martinez-Vazquez and Torgler (2006) report that

governments faced difficult policy choices in this new era regarding the role of the public sector in general and the structure of the tax system in particular. Furthermore, Kornai (1990) and Martinez-Vazquez and McNab (2000) report that citizens in many transition countries were not used to paying taxes at the beginning of the transition process. Thus, taxpayers may have reacted strongly to the tax policy changes necessary for the transition from a centrally controlled economy to a market economy.

Torgler (2003b) and Alm, Martinez-Vazquez and Torgler (2006) show that such circumstances have an impact on tax morale. Therefore, we expect the residents of Eastern European countries to exhibit a lower tax morale than residents of the Western European countries, other things being equal. However, country dummy variables also allow us to discern differences between Central Eastern European (CEE) and Former Soviet Union (FSU) countries. The countries in CEE may have more secure property rights, because the transition process occurred earlier and more rapidly. Thus individual uncertainty was reduced leading to a better transition process with more stable institutions. Campos and Coricelli (2002) stress that reforms progressed much faster in CEE countries than in FSU countries. Moreover, Martinez-Vazquez and McNab (2000) argue that, in countries negotiating their accession to the European Union, e.g., Poland, Romania, and Slovenia, the accession intention acted as a catalyst for rapid tax reform move shaped along western lines. As a consequence, we predict a significantly lower tax morale in FSU economies than in CEE economies.

Table 1 reports higher institutional quality in CEE countries, than in FSU countries using six proxies of the governance indicators developed by Kaufmann, Kraay, and Mastruzzi (2004). The variables measure the process by which governments are selected, monitored, and replaced (voice and accountability, political stability and absence of violence), the capacity of the government to formulate and implement sound policies

(government effectiveness, regulatory quality) and the respect of citizens and the state for the institutions that govern economic and social interactions (rule of law and control of corruption). All scores estimated by Kaufmann, Kraay, and Mastruzzi (2004) range between -2.5 and 2.5 with higher scores corresponding to better institutions or outcomes. Moreover, the last column shows that share of the shadow economy in GDP of CEE countries is smaller than in FSU countries. A large shadow economy reduces the state's ability to collect taxes and thus affects the revenues that the government has to provide public goods and to build trustworthy institutions. The incentive for enterprises to evade taxes increases and more bribes are paid in exchange for a promise of protection as Levin and Satarov (2000) discuss.

The issue of including further factors in the estimations remains. Traditional tax evasion models indicate the relevance of deterrence variables. However, we aren't testing a model of tax evasion but a model of tax morale. Thus, a consideration of deterrence factors is not obvious. Only if tax morale is a good indicator of tax compliance would incorporating deterrence factors be appropriate. Several case studies, e.g., Torgler (2005), show that deterrence factors are not likely to affect tax morale significantly. Perceived deterrence factors may have a greater impact on tax morale than objective measurable factors. For example, Scholz and Pinney (1995), find that the subjective risk of getting caught is related more closely to a sense of duty than to objective risk factors. However, such information is not available in EVS.

To investigate the impact of institutions on tax morale, we use six proxies for institutional quality. If taxpayers perceive that their interests and preferences are represented properly by political institutions and they receive an increased supply of public goods, their willingness to contribute increases. Alternatively, if corruption is rampant, citizens have little incentive to cooperate with the state. A more encompassing and legitimate state may be an essential precondition for a higher level of tax morale. The following next section will

demonstrate that the quality of political institutions has a strong observable impact on tax morale.

#### **4. Econometric results**

In general, an ordered probit model ranking information of the scaled dependent variable, i.e. tax morale, is appropriate. To measure the quantitative effect of this variable, we calculate the marginal effects because the equation is nonlinear. The marginal effect indicates the change in the percentage or probability of taxpayers having a specific level of tax morale when the independent variable increases by one unit. For simplicity, the marginal effects in all estimates are presented for the highest value of tax morale only. Weighted ordered probit estimates are conducted to make the samples correspond to the national distribution.<sup>10</sup> Furthermore, answers such as “don’t know” and missing values have been eliminated in all estimations.

The first two columns of Table 2 present the estimated coefficients using two different estimation techniques to identify the effect of the determinants on tax morale. Equation (1) uses robust standard errors while equation (2) uses standard errors adjusted for the clustering on 30 countries, which accounts for unobservable country-specific characteristics. Clustering leads to a decrease in the  $z$ -values but it has no impact on the marginal effects. The last two columns report two-stage least squares (2SLS) estimations. Recent laboratory experiments indicate that causality goes from beliefs about cheating by others to one’s own behavior rather than vice versa. The Hausman specification test indicates that the hypothesis of an inconsistent estimator cannot be rejected. However, the Hausman test is based on the assumption that the instruments are valid. Therefore, Table 2 reports two 2SLS specifications along with several diagnostic tests.

To check for robustness, two different instruments are used in the 2SLS estimations. In the first one, we take perceptions regarding cash payments to avoid taxes as an instrument.<sup>11</sup> In the second one, we use perceived bribing as an instrument.<sup>12</sup> Table 2 also reports the results of the Anderson canonical correlation likelihood-ratio test to test whether the equation is identified as a measure of instrument relevance. The test shows that the null hypothesis can be rejected, indicating that the model is identified and the instruments are relevant in all cases. Table 2 further shows that the *F*-tests for the instrument exclusion set in the first-stage regression are statistically significant in all cases. In addition, we test for the validity of the instruments using a Sargan test of overidentifying restrictions. Table 2 indicates that the null hypothesis that the excluded instruments are not correlated with the error term, and therefore are correctly excluded from the equation, cannot be rejected. Thus, the results confirm the validity of the instruments.

Consistent with our main hypothesis, the estimation results indicate that the higher is the perceived tax evasion of other persons, the lower is the tax morale. Moreover, the size of the effect is substantial; if perceived tax evasion rises by one unit, the percentage of persons reporting high tax morale falls by 7.4 percentage points as column 1 shows. In addition, the coefficient of perceived tax evasion remains statistically significant in both 2SLS models.

The estimated coefficient for the Western Europe dummy, suggests that the institutional crisis in many transition countries in Eastern Europe after the collapse of communism, tended to affect negatively the tax morale of citizens. The marginal effects in eq. (1) indicate that being a citizen of a Western European country rather than an Eastern European country increases the probability of responding that tax evasion is never justified by 3.5 percentage points.

Regarding the control variables, older people and women exhibit higher tax morale. Education affects tax morale negatively, but the coefficient is not statistically significant in

two of four estimations. Divorced and separated persons have the lowest tax morale, perhaps because they have become more cynical or perhaps because persons who are cynical by nature are more likely getting divorced. Self-employed persons have lower tax morale, while church attendance is correlated with higher tax morale. In sum, the results indicate the relevance of including a broad set of control variables.

Rather than using a dummy variable to differentiate between Western and Eastern Europe, we consider country fixed effects. The results are not reported but indicate that the coefficient of the variable perceived tax evasion remains highly statistically significant showing a marginal effect of 9.7 percentage points. The coefficients of the control variables are also similar to those in Table 2. Among the Western European countries, Belgium exhibits the lowest and Malta the highest tax morale. Regarding CEE countries, Hungary, the Czech Republic, the Slovak Republic, Bulgaria, Croatia, and Poland exhibit relatively high values for tax morale. However, FSU countries, e.g., Russia, Belarus, Ukraine, Lithuania, Estonia or Latvia, have lower tax morale than CEE countries. Hence, our results suggest that CEE countries have been more successful than FSU countries at designing tax systems, tax administrations, and government structures in which taxpayers can place their trust. Such institutional improvements and observable changes may help to explain the high willingness to cooperate in CEE countries, some of which exhibit higher values of tax morale than some Western European countries.

Although the relevant variable is only available in 14 countries, we also include proxies for the economic situation of individuals. The coefficient on perceived tax evasion remains highly statistical significant with similar marginal effects at 10.8 percentage points. However, the coefficients on upper class and middle class are not statistically significant, and indicate a tendency for individuals in upper classes to have a lower willingness to pay taxes.

To investigate whether institutional quality matters we include the six governance variables in regressions previously reported in Table 2. Recognizing that including aggregated country variables produces downwardly biased standard errors, we address the problem of heteroscedasticity by presenting standard errors adjusted for clustering on cantons in Table 3. In all estimations, the coefficients of the institutional variables have a statistically significant positive effect on tax morale. The strongest quantitative effects are observable for voice and accountability, political stability and regulatory quality. The coefficient on perceived tax evasion remains statistically significant with high marginal effects.

In Table 4, we try to isolate better a possible conditional cooperative effect in the first two estimations. Thus, two proxies, namely trust1 and trust2, measuring the level of trust among taxpayers are included to investigate whether conditional cooperation may be driven by higher generalized trust. The first trust variable is statistically significant with a positive sign; however, only a limited number of countries are available for this variable. In contrast, the second trust variable is not statistically significant and the coefficient has a negative sign. Nonetheless, the perceived tax evasion variable is statistically significant in all estimations having marginal effects between 7.4 and 10.9 percentage points. To measure the impact of trust in the state, we consider two variables in turn in columns 3 and 4 of Table 4. Each variable has a statistically significant positive effect on tax morale. An increase in trust in the justice system or in the parliament by one unit raises the percentage of persons reporting the highest tax morale by more than 3 percentage points. Finally, in column 5, we report that a one-unit increase in satisfaction with the way democracy is developing raises the proportion of persons stating that tax evasion is never justified by 1.5 percentage points. These results demonstrate the relevance of institutions that enhance political participation and trust in the parliament and the justice system. Such institutions have beneficial effects on social capital and the political outcome not only in Western Europe but also in Eastern Europe as Frey

(2003b) shows. Moreover, introducing these variables does not affect the size and the significance of the main variable. The marginal effects of perceived tax evasion are still between 7.1 and 7.7 percentage points and the coefficient is highly statistically significant. Thus, the effect of conditional cooperation remains robust.

The observed impact of conditional cooperation may be driven by only one of the two regions, i.e., Eastern or Western Europe. For the robustness, we consider the two regions independently and find the conditional cooperative effect to be stronger in Western Europe, although the coefficient for Eastern Europe stays statistically significant. An increase in the perceived tax evasion scale by one unit reduces the percentage of persons stating that tax evasion is never justified by around 10 percentage points in Western Europe and more than 4 percentage points in Eastern Europe. These results suggest that conditional cooperation is not driven by only responses from Western Europe. The trust and democracy variables are statistically significant in both regions, although the marginal effects indicate that they have a stronger impact on tax morale in Western Europe than in Eastern Europe. The estimated coefficients for the trust and democracy variables indicate the importance of involving taxpayers in the decision process to maintain or improve tax morale. Hence, social capital is both a precondition and consequence of a higher political participation.

To deal with a potential causality problem, we filter out a possible bias in the conditional cooperative effect. The causality problem may arise because my willingness to pay taxes might lead to the expectation that others behave in the same way. Thus, individuals with a higher tax morale have a lower perception that others cheat on taxes. To deal with this possibility, we calculate first the average perceived tax evasion for each country. In the next step, we calculate the average perceived tax evasion in each country for individuals having the highest tax morale, stressing that cheating on taxes is never justifiable. In a further step, we build on the difference between both average values which is positive. This variable may

measure a particular bias in perceived tax evasion due to the level of tax morale. In a last step, we add this bias to the individual values of the group with the highest tax morale. As a consequence, each of the individuals with the highest tax morale now has higher perceived tax evasion. Hence, the values between the group with higher and lower tax morale are brought closer together, depending on the perceived tax evasion situation in each country. This procedure may help to isolate better the existence of a conditional cooperative effect. Table 5 presents the results for the filtered perceived tax evasion variable on fourteen different specifications. The coefficients remain highly statistically significant and, although the marginal effects have decreased from previous estimates, still are very high.

Finally, we test whether the large impact of the variable perceived tax evasion on tax morale is driven by a subset of countries and present the results for the coefficient of perceived tax evasion in Table 6. First, we use the specification in eq. (1) and estimate it separately for each country in our sample. The results of the 30 regressions are presented in the first column to illustrate the robustness of pro-social behavior in the countries under investigation. In 27 of the 30 countries, the coefficients are highly statistically significant and have a negative sign. The estimates reveal higher marginal effects for Western European countries than for Eastern European countries. In 11 of 16 cases, the marginal effects exceed 10 percentage points in Western Europe, compared to only 3 of 14 cases in Eastern Europe. Nevertheless, we find strong evidence of conditional cooperation in most European countries. The more individuals expect others to cooperate, the higher is the intrinsic motivation to pay taxes. In the second group of estimations presented in the second column, a variable measuring income in national currency on a ten-point scale is included. The next consideration consists of 30 2SLS estimations. Column 3 indicates that impact of perceived tax evasion remains strong. The statistical significance of the coefficient tends to decrease, but they remain significant with a negative sign in 24 out of 30 countries. The last column

uses the filtered perceived tax evasion variable. Again, the z-statistics decrease but the conditional cooperative effect is still strong in 72 percent of the cases.

In sum, after a check for endogeneity and several checks for robustness, the significant impact of perceived tax evasion remains unaffected.

## **5. Conclusion**

In this paper we consider taxation to be a social act so that conditional cooperation is an important determinant of the extent of tax morale and of tax evasion. An individual taxpayer is influenced strongly by his perception of the behavior of other taxpayers. If taxpayers believe tax evasion to be common, tax morale decreases. Alternatively, if they believe others to be honest, tax morale increases. Using recent data for Western and Eastern European countries, we find strong empirical support for the hypothesis. The size of the effect is substantial and the results remain robust. The econometric estimates also suggest that the institutional crisis that took place in many transition countries after the collapse of communism affected negatively tax morale of the citizens. Within Eastern Europe, the taxpayers in the countries of the Former Soviet Union, i.e., Russia, Belarus, Ukraine, Lithuania, Estonia or Latvia, exhibit a lower tax morale than taxpayers in Central Eastern European countries, i.e., Hungary, the Czech Republic, the Slovenian Republic, Bulgaria, Croatia and Poland. Our results also show that the quality of political institutions has a strong observable effect on tax morale. All six variables measuring this effect, namely, voice and accountability, political stability and absence of violence, government effectiveness, regulatory quality, rule of law and control of corruption, have a strong impact on tax morale.

Our analysis extends the standard economic theory of tax evasion, which is based on a narrow concept of *homo oeconomicus* acting in isolation. The concept of tax morale bridges

the perception individual taxpayers have about the behavior of other taxpayers and their own personal decision on whether, and to what extent, to evade their own taxes by stressing the importance of institutions. In various empirical studies, tax morale is shown to be a crucial determinant of taxpaying behavior. However, in most studies, tax morale is treated as an exogenous factor. By introducing the determinants of tax morale, in particular the concept of conditional cooperation and institutions, we gain a better understanding of the considerations underlying tax payment and tax evasion.

In sum, the results in this paper underscore the relevance of social interactions and the importance of political institutions. Both aspects are essential for understanding citizen's willingness to pay taxes.

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## **Endnotes**

<sup>1</sup> Sausgruber (2003) analyzes team spirit in an experiment and finds that subjects contribute significantly more, the higher is the average contribution within their team, excluding their own contribution.

<sup>2</sup> However, according to Potters et al. (2001), announcements only have an effect if the quality of the public good is not common knowledge.

<sup>3</sup> We are thankful to Francesc Pujol for suggesting the idea of filtering.

<sup>4</sup> The demographic variables age, gender, and education. As a proxy for education, we use the answers to the following question. At what age did you complete or will you complete your full time education, either at school or at an institution of higher education? Please exclude apprenticeships. As a measure of religiosity, we use answers to the following question. Apart from weddings, funerals and christenings, how often do you attend religious services these days? More than once a week, once a week, once a month, only on special religious days,

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once a year, less often, practically never or never. (8=more than once a week to 1=practically never or never.)

<sup>5</sup> Moreover, income is coded on a scale from 1 to 10 and these income intervals are not fully comparable across countries.

<sup>6</sup> These variables depend on responses to the following two questions, respectively. Could you tell me how much you trust [own country, e.g., British] people in general? (5=Trust them completely, 4=trust them a little, 3=Neither trust nor distrust them, 2=Do not trust them very much, 1=Do not trust them at all.). Generally speaking, would you say that most people can be trusted or that you can't be too careful in your dealings with people? (1=most people can be trusted, 0=can't be too careful.).

<sup>7</sup> Using Swiss data, Frey and Feld (2002) find that a respectful treatment of taxpayers by the tax administration reduces tax evasion.

<sup>8</sup> These variables depend on responses to the following two questions, respectively. Could you tell me how much confidence you have in the justice system: Do you have a great deal of confidence, quite a lot of confidence, not very much confidence or no confidence at all? (4=a great deal of confidence to 1=no confidence at all.). Could you tell me how much confidence you have in the parliament: Do you have a great deal of confidence, quite a lot of confidence, not very much confidence or no confidence at all? (4=a great deal of confidence to 1=no confidence at all.).

<sup>9</sup> This variable depends on responses to the following question. On the whole, are you very satisfied, quite satisfied, not very satisfied or not at all satisfied with the way democracy is developing in your country? (4=very satisfied to 1=not at all satisfied.)

<sup>10</sup> The weighting variable is provided by the EVS.

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<sup>11</sup> This variable depends on responses to the following question. According to you, how many of your compatriots do the following: Pay cash for services to avoid taxes? (4=almost all to 1=almost none.)

<sup>12</sup> This variable depends on responses to the following question. According to you, how many of your compatriots do the following: Accept a bribe in the course of their duties? (4=almost all to 1=almost none.).

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Table 1

## Institutional Quality in Former Soviet Union and Eastern European Countries

Former Soviet Union and Eastern European Countries	Aggregate Governance Indicators 1998						Shadow Economy in % of GDP (1999)
	Voice and Accountability	Political Stability	Government Effectiveness	Regulatory Quality	Rule of Law	Control of Corruption	
<i>FSU countries</i>							
Belarus	-0.98	-0.15	-0.83	-2.01	-1.08	-0.60	48.1
Estonia	0.82	0.95	0.45	1.06	0.54	0.49	38.40
Latvia	0.72	0.54	0.19	0.72	0.08	-0.10	39.90
Lithuania	0.84	0.54	0.18	0.21	0.19	0.07	30.30
Russia	-0.26	-0.62	-0.62	-0.37	-0.78	-0.69	46.10
Ukraine	-0.14	-0.19	-0.97	-0.89	-0.76	-0.89	52.20
<i>CEE countries</i>							
Bulgaria	0.40	0.44	-0.94	0.47	-0.22	-0.50	36.9
Croatia	-0.30	0.46	0.30	0.34	-0.04	0.04	33.4
Czech Republic	1.14	0.97	0.72	0.78	0.62	0.35	19.1
Greece	0.92	0.38	0.78	0.83	0.66	0.85	28.70
Hungary	1.15	1.19	0.78	1.15	0.78	0.69	25.10
Poland	1.01	0.80	0.86	0.83	0.57	0.49	27.60
Romania	0.24	0.20	-0.61	0.30	-0.25	-0.38	34.40
Slovakian Republic	0.45	0.95	0.08	0.29	0.13	-0.08	18.90

Notes:

- i. Aggregated governance indicators taken from Kaufmann et al. (2004). The values range between -2.5 and 2.5, with higher scores corresponding to better institutions or outcomes.
- ii. Data for the share of the shadow economy are from Schneider (2004, p. 24), using the DYMIMIC and Currency Demand Method.

Table 2  
Determinants of Tax Morale in Europe

	<i>Coeff.</i>	<i>z-Stat.</i>	<i>Marg. Effects</i>	<i>Coeff.</i>	<i>z-Stat.</i>	<i>Marg. Effects</i>	<i>Coeff.</i>	<i>z-Stat.</i>	<i>Coeff.</i>	<i>z-Stat.</i>
	<i>WEIGHTED ORDERED PROBIT</i>			<i>WEIGHTED ORDERED PROBIT</i>			<i>WEIGHTED 2SLS</i>		<i>WEIGHTED 2SLS</i>	
<i>INDEPENDENT V.</i>	<i>Robust standard errors</i>			<i>Standard errors adjusted for clustering on countries</i>						
	1			2			3		4	
<b>PERCEIVED TAX EVASION</b>	-0.186***	-18.11	-0.074	-0.186***	-4.71	-0.074	-0.159***	-8.69	-0.299***	-10.8
<b>CONTROL VARIABLES</b>										
<b>(1) Demographic Factors</b>										
AGE 30-39	0.099***	3.89	0.039	0.099***	2.65	0.039	0.102***	3.54	0.204***	5.09
AGE 40-49	0.216***	7.97	0.085	0.216***	5.22	0.085	0.235***	7.77	0.350***	8.27
AGE 50-59	0.298***	10.15	0.116	0.298***	6.18	0.116	0.328***	10.20	0.427***	9.4
AGE 60-69	0.318***	8.63	0.124	0.318***	4.86	0.124	0.341***	8.76	0.448***	8.14
AGE 70+	0.446***	10.34	0.171	0.446***	5.74	0.171	0.451***	10.41	0.504***	7.97
WOMAN	0.123***	7.8	0.049	0.123***	6.02	0.049	0.143***	8.34	0.125***	5.17
EDUCATION	-0.004**	-2.53	-0.001	-0.004	-1.04	-0.001	-0.003**	-2.09	0.002	0.72
<b>(2) Marital Status</b>										
WIDOWED	-0.048	-1.59	-0.019	-0.048	-1.64	-0.019	-0.063**	-2.12	-0.031	-0.74
DIVORCED	-0.174***	-6.2	-0.069	-0.174***	-5.23	-0.069	-0.197***	-6.30	-0.195***	-4.66
SEPARATED	-0.187***	-3.43	-0.075	-0.187***	-3.93	-0.075	-0.174***	-2.86	-0.213**	-2.2
NEVER MARRIED	-0.084***	-3.74	-0.034	-0.084**	-2.16	-0.034	-0.098***	-3.91	-0.052	-1.46
<b>(3) Employment Status</b>										
PART TIME EMPLOYED	-0.083***	-2.94	-0.033	-0.083**	-2.25	-0.033	-0.082**	-2.58	-0.042	-0.97
SELFEMPLOYED	-0.106***	-3.29	-0.042	-0.106**	-2.34	-0.042	-0.118***	-3.25	-0.084*	-1.73
UNEMPLOYED	0.131***	4.32	0.052	0.131***	2.9	0.052	0.135***	4.42	0.157***	3.56
AT HOME	0.019	0.64	0.008	0.019	0.37	0.008	0.004	0.12	-0.014	-0.28
STUDENT	-0.055	-1.51	-0.022	-0.055	-1.13	-0.022	-0.063	-1.49	-0.052	-0.85
RETIRED	-0.091***	-3.07	-0.036	-0.091**	-2.24	-0.036	-0.104***	-3.07	-0.183***	-3.88
OTHER	0.083	1.5	0.033	0.083	1.39	0.033	0.080	1.32	0.189**	2.23
<b>(4) Religiosity</b>										
CHURCH ATTENDANCE	0.041***	13.59	0.016	0.041***	3.63	0.016	0.045***	13.96	0.031***	6.52
<b>(5) Culture/Regions</b>										
WESTERN EUROPE	0.089***	6.00	0.035	0.089	0.86	0.035	0.097***	5.93	0.148***	6.46
<i>F</i> -test for excluded IVs							11019***		3025***	
Anderson canon. corr. LR statistic							14000***		7263***	
Hansen J statistic									0.485	
Pseudo R2	0.029			0.029						
Centered R2							0.066		0.08	
Number of observations	32,610			32,610			30,984		16,413	
Prob > chi2 / Prob > F	0.000			0.000			0.000		0.000	

Notes:

- i. The dependent variable is tax morale measured on a four point scale from 0 to 3.
- ii. The reference group consists of AGE<30, MAN, MARRIED, FULL-TIME EMPLOYED, EASTERN EUROPE.
- iii. The symbols \*, \*\*, \*\*\* represent statistical significance at the 10%, 5% and 1% levels, respectively.
- iv. We report the marginal effects of the highest tax morale score (3).
- v. The instrument in column 3 is perceived cash payments to avoid taxes. The instruments in the last column are perceived cash payments and bribes. Missing countries: France, The Netherlands, Denmark, Spain, Ireland, Northern Ireland, Hungary, Sweden, Bulgaria, Romania, Portugal, Latvia, Estonia, Slovakia, and Malta.

Table 3  
Tax Morale and Institutional Quality

<i>WEIGHTED ORDERED PROBIT</i>	<i>Coeff.</i>	<i>z-Stat.</i>	<i>Marg. Effects</i>	<i>Coeff.</i>	<i>z-Stat.</i>	<i>Marg. Effects</i>	<i>Coeff.</i>	<i>z-Stat.</i>	<i>Marg. Effects</i>	<i>Coeff.</i>	<i>z-Stat.</i>	<i>Marg. Effects</i>	<i>Coeff.</i>	<i>z-Stat.</i>	<i>Marg. Effects</i>				
<i>INDEPENDENT V.</i>	1			2			3			4			5			6			
<b>PERCEIVED TAX EVASION GOVERNANCE</b>	-0.193***	-18.62	-0.077	-0.192***	-18.57	-0.076	-0.184***	-17.76	-0.073	-0.190***	-18.38	-0.076	-0.186***	-17.93	-0.074	-0.185***	-17.87	-0.074	
Voice and Accountability	0.189***	15.99	0.075																
Political Stability				0.221***	18.75	0.088													
Government Effectiveness							0.079***	10.80	0.031										
Regulatory Quality										0.160***	14.97	0.064							
Rule of Law													0.093***	12.03	0.037				
Control of Corruption																0.061***	9.20	0.024	
<b>OTHER VAR. INCLUDED</b>																			
Pseudo R2	0.033			0.034			0.030			0.032			0.031			0.030			
Prob > chi2	0.000			0.000			0.000			0.000			0.000			0.000			
<i>clustering on countries</i>																			
<b>PERCEIVED TAX EVASION GOVERNANCE</b>	-0.193***	-5.25	-0.077	-0.192***	-5.49	-0.076	-0.184***	-4.73	-0.073	-0.190***	-5.23	-0.076	-0.186***	-4.80	-0.074	-0.185***	-4.78	-0.074	
Voice and Accountability	0.189**	2.59	0.075																
Political Stability				0.221**	3.27	0.088													
Government Effectiveness							0.079*	1.77	0.031										
Regulatory Quality										0.160***	2.63	0.064							
Rule of Law													0.093**	2.12	0.037				
Control of Corruption																0.061*	1.69	0.024	
<b>OTHER VAR. INCLUDED</b>																			

Notes:

- i. The dependent variable is tax morale measured on a four point scale from 0 to 3.
- ii. The reference group consists of AGE<30, MAN, MARRIED, FULL-TIME EMPLOYED.
- iii. The symbols \*, \*\*, \*\*\* represent statistical significance at the 10%, 5% and 1% levels, respectively.
- iv. We report the marginal effects of the highest tax morale score (3).

Table 4  
Generalized Trust and Trust in the State

<i>WEIGHTED ORDERED PROBIT</i>	<i>Coeff.</i>	<i>z-Stat.</i>	<i>Marg.</i>	<i>Coeff.</i>	<i>z-Stat.</i>	<i>Marg.</i>	<i>Coeff.</i>	<i>z-Stat.</i>	<i>Marg.</i>	<i>Coeff.</i>	<i>z-Stat.</i>	<i>Marg.</i>	<i>Coeff.</i>	<i>z-Stat.</i>	<i>Marg.</i>
	<i>Effects</i>			<i>Effects</i>			<i>Effects</i>			<i>Effects</i>			<i>Effects</i>		
<i>INDEPENDENT V.</i>	1			2			3			4			5		
<b>PERCEIVED TAX EVASION</b>	-0.275***	-21.51	-0.109	-0.187***	-4.74	-0.074	-0.178***	-4.59	-0.071	-0.179***	-4.65	-0.071	-0.187***	-4.77	-0.074
<i>Trust and Democracy</i>															
TRUST1	0.067***	4.37	0.027												
TRUST2				-0.037	-1.23	-0.015									
TRUST IN THE JUSTICE SYSTEM							0.082***	4.51	0.033						
TRUST IN THE PARLIAMENT										0.094***	4.79	0.037			
SAT. WITH DEMOCRACY													0.039**	2.42	0.015
<b>ALL OTHER VARIABLES INCLUDED</b>															
Number of observations	8,352			31,444			30,915			31,371			30,915		
Prob > chi2	0.000			0.000			0.000			0.000			0.000		

Notes:

- i. The dependent variable is tax morale measured on a four point scale from 0 to 3.
- ii. The reference group consists of AGE<30, MAN, MARRIED, FULL-TIME EMPLOYED, EASTERN EUROPE.
- iii. The symbols \*, \*\*, \*\*\* represent statistical significance at the 10%, 5% and 1% levels, respectively.
- iv. We report the marginal effects of the highest tax morale score (3).
- v. The variable Trust1 is not available for France, The Netherlands, Denmark, Belgium, Spain, Ireland, Northern Ireland, Hungary, Sweden, Iceland, Finland, Poland, Belarus, Czech Republic, Bulgaria, Romania, Portugal, Lithuania, Latvia, Estonia, Ukraine, Russia, Croatia, Slovakia, Greece, and Malta. Standard errors are adjusted for clustering on countries.

Table 5  
 Estimations with a Filtered Perceived Tax Evasion Variable

<i>WEIGHTED ORDERED PROBIT</i>	<i>Coeff.</i>	<i>z-Stat.</i>	<i>Marg. Effects</i>
<i>DEPEND. V.: TAX MORALE</i>			
<b><i>INDEPENDENT V. (ALL OTHERS CONTROLLED)</i></b>			
<b><i>ESTIMATION TOTAL DATA SET</i></b>			
<i>WEST EUROPE (WE) DUMMY VAR.</i>			
FILTERED PERCEIVED TAX EVASION	-0.108***	-10.09	-0.041
<i>CLUSTERING ON COUNTRIES</i>			
FILTERED PERCEIVED TAX EVASION	-0.108***	-3.66	-0.043
<i>COUNTRY DUMMY VARIABLES</i>			
FILTERED PERCEIVED TAX EVASION	-0.168***	-10.37	-0.067
<i>WE DUMMY VAR., INCL. ECONOMIC STATUS</i>			
FILTERED PERCEIVED TAX EVASION	-0.118***	-8.12	-0.047
<i>CLUST. ON C., INCL. EC. STATUS</i>			
FILTERED PERCEIVED TAX EVASION	-0.107**	-2.49	-0.042
<i>COUNTRY DUMMY VARIABLES, INCLUDE EC. STATUS</i>			
FILTERED PERCEIVED TAX EVASION	-0.171***	-10.66	-0.067
<i>WE DUMMY VAR., INCL. TRUST2</i>			
FILTERED PERCEIVED TAX EVASION	-0.104***	-9.86	-0.041
<i>INCL. TRUST2, CLUSTERING ON COUNTRIES</i>			
FILTERED PERCEIVED TAX EVASION	-0.107***	-3.66	-0.043
<b><i>ESTIMATION ONLY WEST EUROPE</i></b>			
FILTERED PERCEIVED TAX EVASION	-0.152***	-10.38	-0.060
<i>INCL. COUNTRY DUMMY VARIABLES</i>			
FILTERED PERCEIVED TAX EVASION	-0.174***	-11.20	-0.069
<i>INCLUDING TRUST 2</i>			
FILTERED PERCEIVED TAX EVASION	-0.154***	-10.29	-0.061
<b><i>ESTIMATION EAST EUROPE</i></b>			
FILTERED PERCEIVED TAX EVASION	-0.051***	-3.55	-0.02
<i>INCL. COUNTRY DUMMY VARIABLES</i>			
FILTERED PERCEIVED TAX EVASION	-0.150***	-5.26	-0.058
<i>INCLUDING TRUST2</i>			
FILTERED PERCEIVED TAX EVASION	-.0105***	-6.71	-0.042

Notes:

- i. The results are presented with robust standard errors.
- ii. The symbols \*, \*\*, \*\*\* represent statistical significance at the 10%, 5% and 1% levels, respectively.
- iii. We report the marginal effects of the highest tax morale score (3).

Table 6

## Conditional Cooperation in the Evaluated Countries

<i>WEIGHTED ORDERED PROBIT</i>	<i>Coeff.</i>	<i>z-Stat.</i>	<i>Marg.</i>	<i>Coeff.</i>	<i>z-Stat.</i>	<i>Marg.</i>	<i>Coeff.</i>	<i>z-Stat.</i>	<i>Coeff.</i>	<i>z-Stat.</i>	<i>z-Stat.</i>
	<i>Effects</i>			<i>Effects</i>							
<i>CONDITIONAL COOPERATION</i>	<i>WEIGHTED ORDERED PROBIT ESTIMATIONS</i>			<i>WEIGHTED ORDERED PROBIT ESTIMATIONS</i>			<i>WEIGHTED 2SLS ESTIMAT.</i>	<i>WEIGHTED ORDERED PROBIT ESTIMATIONS</i>			
<i>VARIABLE: PERCEIVED TAX EVASION</i>				Income included				Filtered perceived tax evasion			
	1			2			3	4			
<b>COUNTRIES</b>											
<b>Western European Countries</b>											
Germany	-0.330***	-6.47	-0.129	-0.450***	-7.66	-0.178	-0.154*	-1.8	-0.192***	-3.82	-0.075
Austria	-0.290***	-4.22	-0.113	-0.241***	-3.22	-0.095	-0.611***	-3.94	-0.178***	-2.62	-0.069
Belgium	-0.406***	-9.36	-0.152	-0.413***	-8.57	-0.156	-0.587***	-6.77	-0.199***	-4.61	-0.075
Great Britain	-0.346***	-3.75	-0.136	-0.360***	-3.27	-0.139	-0.433***	-3.27	-0.251***	-2.69	-0.099
Denmark	-0.479***	-7.72	-0.174	-0.499***	-7.74	-0.182	-0.519***	-5.02	-0.349***	-5.60	-0.127
Finland	-0.318***	-4.48	-0.126	-0.300***	-4.01	-0.119	-0.345***	-2.87	-0.177**	-2.51	-0.070
France	-0.211***	-4.35	-0.084	-0.206***	-3.79	-0.082	-0.330***	-3.47	-0.116**	-2.40	-0.046
Iceland	-0.250***	-3.37	-0.098	-0.267***	-3.4	-0.105	-0.294***	-3.22	-0.145**	-2.00	-0.057
Ireland	-0.373***	-5.63	-0.145	-0.380***	-5.33	-0.148	-0.441***	-3.92	-0.242***	-3.62	-0.094
Italy	-0.303***	-6.47	-0.119	-0.394***	-7.14	-0.155	-0.490***	-5.65	-0.191***	-4.12	-0.075
Malta	-0.587***	-5.2	-0.154	-0.600***	-4.56	-0.147	-0.218	-1.63	-0.485***	-4.38	-0.126
Netherlands	-0.480***	-7.47	-0.19	-0.516***	-7.81	-0.204	-0.363**	-2.48	-0.295***	-4.67	-0.117
North Ireland	-0.150*	-1.96	-0.058	-0.236***	-2.8	-0.092	-0.346***	-2.6	-0.064	-0.83	-0.025
Portugal	0.162**	2.12	0.064				0.699***	5.14	0.129*	1.69	0.051
Spain	-0.086*	-1.68	-0.034	-0.085	-1.4	-0.033	-0.052	-0.59	-0.052	-1.02	-0.021
Sweden	-0.395***	-5.28	-0.157	-0.392***	-5.21	-0.156	-0.617***	-3.96	-0.255***	-3.39	-0.101
<b>Eastern European Countries</b>											
Belarus	-0.235***	-4.59	-0.074	-0.233***	-4.53	-0.073	-0.212***	-2.74	-0.119**	-2.31	-0.037
Bulgaria	-0.167**	-2.32	-0.061	-0.163**	-2.19	-0.06	-0.154	-1.45	-0.095	-1.33	-0.035
Croatia	-0.385***	-4.33	-0.145	-0.376***	-4.12	-0.14	-0.402***	-3.02	-0.211**	-2.36	-0.080
Czech Republic	-0.282***	-5.74	-0.109	-0.272***	-5.29	-0.106	-0.373***	-4.22	-0.184***	-3.73	-0.071
Estonia	-0.196***	-3.46	-0.075	-0.156**	-2.56	-0.061	-0.251***	-3.02	-0.109*	-1.94	-0.042
Greece	-0.114**	-2.08	-0.043	-0.09	-1.55	-0.034	-0.091	-0.52	-0.049	-0.90	-0.019
Hungary	-0.236**	-2.43	-0.085	-0.246**	-2.51	-0.088	-0.200*	-1.8	-0.163*	-1.73	-0.059
Latvia	-0.101**	-1.99	-0.04	-0.116**	-2.19	-0.045	-0.114*	-1.77	-0.048	-0.95	-0.019
Lithuania	-0.267***	-3.7	-0.1	-0.223***	-2.92	-0.086	-0.314***	-3.08	-0.140*	-1.92	-0.053
Poland	-0.294***	-4.11	-0.114	-0.297***	-4.08	-0.116	-0.523*	-1.9	-0.219	-3.04	-0.085
Romania	0.059	0.83	0.023	0.059	0.8	0.023	0.394**	2.23	0.042	0.59	0.016
Russia	-0.188***	-4.6	-0.074	-0.168***	-4.01	-0.066	-0.321***	-4.38	-0.088**	-2.16	-0.035
Slovak Republic	-0.009	-0.18	-0.003	-0.019	-0.37	-0.007	-0.173**	-2.08	-0.019	-0.40	-0.007
Ukraine	-0.227***	-3.67	-0.075	-0.243***	-3.91	-0.093	-0.012	-0.1	-0.107*	-1.73	-0.041

Notes:

- i. The results are presented with robust standard errors.
- ii. The symbols \*, \*\*, \*\*\* represent statistical significance at the 10%, 5% and 1% levels, respectively.
- iii. We report the marginal effects of the highest tax morale score (3).
- iv. The first specification is based on eq. (1) considering each country value for the coefficient of the variable PERCEIVED TAX EVASION. The second specification includes the income variable scaled from 1 to 10 in the national currency.
- v. No income information is available for Portugal in column 2.
- vi. The instrument in all estimations in columns is perceived cash payments.