Tax Morale and Conditional Cooperation

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Abstract: Why so many people pay their taxes, although fines and audit probability are low, has become a central question in the tax compliance literature. A homo economicus, with a more refined motivation structure, helps us to shed 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.

(99 words)

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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, based on the expected utility maximization calculus, Allingham and Sandmo (1972) presented a formal model, showing that the extent of tax evasion is negatively correlated with the probability of detection and the degree of punishment. However, this groundbreaking 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. 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 (see Graetz and Wilde 1985, Alm, McClelland and Schulze 1992, Frey and Feld 2002). Tax compliance experiments also indicate that individuals report a higher level of income than the expected utility model would predict (for an overview see Alm 1999, Torgler 2002). Many years ago, Baldry (1987, p. 377) pointed out: "Rather than question the experimental method, these results suggest that it is perhaps the theory which needs revision (...)" (p. 377).

Similarly, the high co-operation observed is not specific to the tax compliance literature. Ultimatum experiments have shown that, in many of the experiments, the modal offer is (50,50), the mean offer somewhere around (40,60), and that the smaller the offer, the higher the probability that the offer is rejected (see Ochs and Roth 1989, Roth 1995). Public good experiments indicate that, on average, subjects contribute between 40 and 60 percent of their endowment to a public good (see, e.g., Ledyard 1995, Davis and Holt 1993).

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

is of great importance in understanding taxpayers' compliance. As a consequence, theories on pro-social behavior, that take the behavior of others into account, may be a promising concept. Taxpayers are willing to pay their taxes *conditionally,* depending on the pro-social behavior of other taxpayers; 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 gives an overview of the existing literature on social comparisons. In Section 3, we present our theoretical approach and develop our hypotheses. Section 4 presents the empirical results and Section 5 finishes with some concluding remarks.

2. Brief overview of the existing literature on pro-social behavior

Standard expected utility theory has difficulty in explaining taxation behavior well. In contrast, there is a lack of empirical evidence in the tax compliance literature testing the effects of social comparisons. Two studies in the 80s ran experiments to investigate *social comparisons,* with mixed results. In the experiment by Spicer and Becker (1980), 57 students participated and they were told that their own tax tables were based on a tax of 40 percent. 19 participants were told that the average tax rate was 65 percent, a further 19 participants were told that the average tax rate was 15 percent, and finally another 19 participants were told that all participants had the same tax rate (truth value, 40 percent). On average, 23 percent of total taxes payable were evaded. The group with the perceived high 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. The results suggest that social comparisons are relevant. Another study uses a similar design, altering the information about taxation: "Your tax rate is 30 percent and the average tax rate is x". The variable x had the values 15 percent, 30 percent and 45 percent (see Webley,

Robben and Morris 1988). In contrast to Spicer and Becker (1980), altering the information did not have a significant effect on tax evasion. Thus, the effect of social comparisons on tax compliance seems unclear, according to these papers.

However, these two experiments were designed to analyze the causal relationship between *inequity* and *tax evasion*. The design is influenced by equity theory, which points out that satisfaction and behavior are linked not only to the objective outcome levels, but also to outcomes received in relation to those which were judged to be fair (see Tyler and Smith 1998). 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, whilst being at an advantage creates feelings of guilt (see Adams 1965, Homans 1961). 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 would give us a better opportunity of analyzing social interactions within a group. Alm, Jackson and McKee (1993) implemented 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 shares to the members of the group. The data indicates that the average compliance is always higher in the presence of a public good. However, the study is able to distinguish between the effect of public goods and the effect of taxpayers' interaction. One way to deal with this problem would be to build an experimental design with fixed public transfers treatment, regardless of how much taxes subjects pay, and a treatment where public transfers depend on the amount of taxes paid, and where subjects take the others' compliance into account (see Kim 1994).

More evidence on pro-social behavior is provided by laboratory public good experiments (see, e.g., Croson 1998, Sonnemans, Schram and Offermann 1999, Keser and van Winden

2000).[1] Fischbacher, Gächter and Fehr (2001) designed an experiment that, compared to previous studies, tried to provide a better way of checking the extent to which subjects are conditional cooperators. 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.

In general, several theories try to explain conditional cooperation. Most of the papers propose theories of *reciprocity* (for an overview, see e.g., Rabin 1998, Falk and Fehr 2002). Adapted to the tax compliance context, this would mean that, if many citizens pay their taxes, a taxpayer would also feel obligated to contribute and pay his/her taxes. On the other hand, if many individuals evade taxes, a taxpayer will not feel obligated to pay his/her taxes. Another promising concept is *conformity* (for an overview, see Henrich 2004). This means that the motivation of behaving in a conditionally cooperative way may be influenced by the taxpayers' wish to fulfill the social norm of paying their taxes and behaving according to society's rules. Thus, the second approach is less connected to *incentives* and *benefits*. Bardsley and Sausgruber (2006) point out that: "a conformist would contribute to a useless public "good", which benefits no-one, if he observes enough others making contributions. A reciprocally motivated agent would not, since he does not benefit from their behavior" (p. 4). Individuals want their behavior to conform to normal behavior (Henrich 2004). Two recent laboratory studies indicate the strength of "conformity" compared to "reciprocity" (see Bohnet and Zeckhauser 2004, and Bardsley and Sausgruber 2006). On the other hand, the study by Falk, Fischbacher and Gächter (2003) indicates considerable support for reciprocity. They created a laboratory situation in which each subject was a member of two economically identical groups, where only the members varied. They observed that the same subjects contributed differently, depending on the behavior of the group (contributing more to the group when cooperation was higher). Kurzban et

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[1] Sausgruber (2003), who analyzed team spirit in an experiment, also found that subjects contribute significantly more, the higher the average contribution within their team (excluding their own contribution).

al. (2001) found in their experimental paper that subjects don't want to contribute more than other group members. Furthermore, individuals used their own contribution to elicit others' cooperation, which corresponds to reciprocal behavior.

A further reason for cooperation can be found when charitable organizations are observed. They have an incentive to ask donors to give approval to announce their gifts, as the announcement is likely to have a positive effect on others' making a contribution and thus helps to overcome the problem of free-riding. It also sends out a signal about the quality of the public good (see Vesterlund 2003).[2]

Pro-social behavior has mostly been analyzed in laboratory experiments. Thus, evidence outside the laboratory setting is hardly available. Frey and Meier (2004a) analyzed patterns of *pro-social behavior* outside the lab setting. They investigated students' decisions regarding the contribution to two Social Funds administered by the University of Zurich. This situation corresponded to an n-person public good setting, involving around 33'000 persons (and a panel set of 136'000 observations). The field observations were also supplemented with surveys. Many students seemed to behave pro-socially. Frey and Meier found evidence of conditional cooperation. The more individuals expected others to cooperate, the more they cooperated. However, Frey and Meier (2004b) observed 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 with individuals who were indifferent regarding the contribution. Surprisingly, Frey and Meier found that when students were informed that few other students contributed to the Social Funds, they did not respond as expected. If anything, they tended to give more, not less.

Heldt (2005) conducted a natural field experiment on conditional cooperation where cross-country skiers in two Swedish ski resorts were faced with the decision of whether or not to

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[2] However, according to Potters et al. (2001), "announcing" only has an effect when the quality of the public good is not common knowledge.

contribute to ski track funding. Such a field context permits work with a non-student population. The results indicated that the share of subjects making a contribution was higher when faced with a higher share of others making a contribution. Shang and Croson (2005) conducted a field experiment in an anonymous public radio station during the radio station's on-air fund raising campaign. The study was designed in such a way as to communicate to potential donors how much a donor had given, and investigated the influence of this social information on the level of contribution ("We had another member, they contributed $75, $180 or $300", p. 8). The results indicated that social information does influence contributions. Another natural field experiment took place at an art gallery where admission was free, but where a donation could be placed in a transparent box in the foyer (Martin and Randal 2005). Four treatments were investigated (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 provided indirect information on the social context, as donors could draw their own conclusions from the donation box. The results show that visitors donate significantly more when there is already money in the box.

However, our discussion of the existing literature suggests that the question of whether, and to what extent, individuals as taxpayers react to the behavior of other taxpayers, is still wide open.

3. Theoretical approach

In contrast to most previous studies, this paper uses survey data provided by the *European Values Survey* (EVS) 1999/2000. It is a European wide investigation of socio-cultural and political change. The survey has assessed the basic values and beliefs of people all over Europe. The EVS was first carried out in 1981-83, then in 1990-91 and again in 1999-2001, with an increasing number of countries participating. The EVS methodological approach is explained in detail in the European Values Survey source book, providing information on different aspects,

such as response rates, stages of sampling procedures, translation of the questionnaire, field work, data (e.g., measures of coding reliability, reliability and data checks) etc. (see European Values 1999). All country surveys were carried out by experienced professional survey organizations (with the exception of 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, guaranteeing standardized information of the surveys and the national representativeness of the data. To avoid framing biases, the questions were mostly asked in the prescribed order. The response rate varies from one country to another, showing, in general, average values around 60%.

Because the EVS asks the identical set of questions in various European countries, the survey gives us a unique opportunity to examine the impact of conditional cooperation on tax morale. Our study considers 30 representative national samples of at least 1000 individuals per country. Surveys allow us to work with a representative set of individuals, an aspect not often seen in experimental studies. Many experiments are done with students as participants. The problem with students is that they correspond to a subject pool with a higher level of education and a higher IQ than average citizens. They often come from families with a higher than average income and their age range is limited (Fehr et al. 2003). Considering the tax compliance context, it can be argued that students do not have much experience in filling out tax forms. Thus, the question is whether results obtained with students can be generalized across subject pools. However, few studies investigate whether students form a satisfactory representative for studies carried out on taxpayer behavior, and the results are mixed. On the one hand, Baldry (1987) found that students' responses are no different from those of other subjects when it comes to tax compliance experiments. On the other hand, Gërxhani and Schram (2001), in their cross-country experiments in The Netherlands and Albania, showed the importance of subject pools. In another context, Frey and Meier (2004a) observed that people differ in their pro-social attitudes. The

donation to funds strongly varies among students with different majors, controlling in a multivariate analysis for other personal characteristics, such as 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. Henrich et al. (2001) undertook a large cross-cultural study of behavior, using ultimatum, public good, and dictator games. They found a large variation across the different cultural groups and argued that preferences and/or expectations are affected by group-specific conditions, such as institutions or cultural fairness norms. Surveys conducted in several countries, such as the EVS, are a good instrument for investigating conditional cooperation in different societies. Our study enables us to differentiate between Western and Eastern European countries. In general, surveys may help to *complement* previous studies on conditional cooperation, which used laboratory experiments.

Our dependent variable is *tax morale*, defined as the intrinsic motivation to pay taxes. It is the individuals' willingness to pay taxes or, in other words, the moral obligation to pay taxes, or the belief in contributing to society by paying taxes. To assess the level of tax morale from the EVS, we used 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".*

The question leads to a ten-scale index of tax morale, where the two extremes are "never justified" and "always justified". The scale has been recoded into a four-point scale (0, 1, 2, 3), with the value 3 standing for "never justified". The points 4-10 have been integrated into the value 0 due to a lack of variance.

Many researchers have argued that tax morale helps to explain the high degree of tax compliance (Lewis 1982, Pommerehne, Hart and Frey 1994, Frey 1997, 2003a, Alm, McClelland

and Schulze 1992, 1999, Frey and Feld 2002, Torgler 2001a, 2002). However, many of the studies treat tax morale as an exogenous residual. Using tax morale as a dependent variable allows us to go beyond treating tax morale as a black box or a residuum, and thus analyze which factors help shape, or maintain, tax morale. The EVS has the advantage that it has been designed as a wide-ranging survey. This reduces the probability of participants being suspicious and of creating framing effects with other contexts relevant for taxation. Of course, the measurement of tax morale is not free of bias. Because the available data are based on self-reports, in which subjects may tend to overstate their degree of compliance (Andreoni, Erard, and Feinstein 1998), no objective or observable measure of tax morale is available. Elffers, Weigel, and Hessing (1987) found marked differences between the assessment of tax evasion and the 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. It can also be argued that a taxpayer who has evaded tax payments in the past will tend to excuse this kind of behavior and report a higher tax morale in the survey. Furthermore, the survey question to measure tax morale may make way for other forms of interpretation. For example, an individual may think that cheating on taxes is justifiable in case he/she believes that the government is not to be trusted. In countries where tax revenues are collected to finance a "dictator's war machine", tax evasion might be justifiable, and there could even be a "moral duty" not to pay taxes. Similarly, in authoritarian political systems, people will search for "voice" or "exit" mechanisms via tax resistance in order to express their preferences (Torgler 2001b). In such cases, the statement for measuring tax morale would also capture external factors. This suggests that it's a good idea to use an index rather than a single question to measure tax morale or tax compliance. Furthermore, it can be argued that tax morale is a multidimensional concept that requires a multi-item measurement tool, and the likelihood of a multi-item index being adversely affected by random errors will produce more reliable measures.

Thus, we recognize that single-item measures should be treated with some caution. On the other hand, the use of such a single question has the advantage of reducing problems of index construction complexity, especially with regard to measurement procedure or low correlation between items. Moreover, several previous studies have found consistent results, using single-item survey measurements in line with our approach and laboratory experiments (e.g., Cummings et al. 2005, Alm and Torgler 2006). A further bias may arise when people ignore that the tax morale question contains the clause "if you get the chance", answering therefore on the basis that they anyway never get the chance, because, for most people, income tax is usually deducted at source by the employer. In general, the fact that the EVS has included the hypothetical question allows to argue that the possibility of such a bias is less likely to occur if the question does not include the clause "if you get the chance", although it is difficult to be completely sure. Furthermore, it can be argued that the independent variable self-employed allows, to some extent, to control for the relative ease of tax evasion in the multivariate analysis.

The following question in the EVS allows us to investigate *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) pointed out already many years ago that there might be 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 can derive the hypothesis that tax morale decreases if people perceive that tax evasion is common. On the other hand, if people believe that others are honest, their own willingness to pay taxes increases.

The correlation between perceived tax evasion and tax morale will be investigated in a multivariate analysis, controlling for other factors to better isolate the relationship. A specification based on a multivariate analysis has the obvious advantage of presenting a more balanced view of the role of conditional cooperation, separating the effects of other exogenous variables. If conditional cooperation differed systematically in another way that also affects tax morale, the results could be misleading.

The question remains whether there is a causality problem. It might be argued that one's own willingness to pay taxes might lead to the expectation that others behave in the same way. However, it is interesting to note that the results from strategy method experiments, that carefully investigated the causality issue, suggest that causality goes from beliefs about others' cheating to one's own behavior rather than vice versa (see Fischbacher et al. 2001, Fischbacher and Gächter 2006, Gächter 2006). In the empirical part, we also present 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, and so a survey that follows individuals over time would have allowed us to study the dynamics of adjustment better. Besides, the question referring to conditional cooperation has only been asked in the last EVS wave of 1999-2001. Longitudinal data would help reduce problems of unobserved individual heterogeneity. However, we test in detail the relevance and validity of instruments and the overidentifying restrictions. Moreover, in a further approach, we try to filter out a possible bias in our conditional cooperative effect. The idea is to correct a possible systematic bias between what I think and what I project on others[3]. This provides a possible way of correcting parts of such a potential bias. Thus, such a procedure helps to better isolate the existence of a conditional cooperative effect.

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[3] We are thankful to Francesc Pujol for providing us with the idea of filtering.

Our multivariate analysis includes a vector of control variables at the individual level, covering demographic[4], economic and religious variables[5]. Previous tax compliance studies have shown the relevance of considering socio-demographic, socio-economic variables and proxies for religiosity (for an overview, see Torgler 2003a, Torgler 2006). In the first estimations, we don't include income in our study. 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[6]. A proxy for the economic situation could be the self-classification of the respondents into the various economic classes. However, the variable has not been collected in all countries. Thus, we include the economic status sequentially in the specification. As will be seen, the main results remain robust. In a second approach, we include at the end of the paper the income variable based on national currencies in 30 single country regressions . Also here, the variable has been included sequentially, due to the fact that the variable has a certain amount of variables missing.

Besides these control factors, we consider two variables that measure generalized trust among taxpayers (TRUST1[7] and TRUST2[8]). This allows to better isolate a possible conditional cooperative effect. Furthermore, instead of focusing only on horizontal trust (trust among taxpayers), we also include variables that measure vertical trust (trust between taxpayers and the state). Trust in the state might be important in understanding the willingness to pay taxes, but is not necessarily related to conditional cooperation among the citizens. Positive actions by the state are intended to increase taxpayers' positive attitudes and their commitment to the tax system and thus to compliant behavior (Smith 1992, Smith and Stalans 1991). If the state acts in

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[4] Variables such as age, gender or education. Proxy for education: 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.

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

[6] A further disadvantage is the fact that income has been coded as a scale from 1 to 10 (income intervals). Thus, scale systems are not fully comparable among countries.

[7] 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).

[8] 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).

a trustworthy way, then taxpayers might be more willing to comply with the taxes[9]. We use two trust variables, TRUST IN THE JUSTICE SYSTEM[10] and TRUST IN PARLIAMENT[11], to check the robustness of the trust variables. 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 parliament). We also analyze whether individuals' satisfaction with the way democracy is developing in a country (SATISFACTION WITH DEMOCRACY[12]), has an impact on tax morale. In general, a government that commits itself ahead of time with democratic rules imposes restraints on its own power and thus sends out a signal that taxpayers are treated as responsible persons. Strong democratic rules signal that citizens are not ignorant or uncomprehending voters, which might create or maintain a certain social capital stock. If taxpayers feel they are in a better position to monitor and control politicians, their willingness to cooperate and pay taxes increases. It can therefore be supposed that a higher degree of satisfaction with a country's democratic institution leads to a higher tax morale. Previous studies show that more extensive possibilities for direct political participation lead to lower tax evasion and higher intrinsic motivation to pay taxes (see Pommerehne and Weck-Hannemann 1996, Frey 1997, 2003a, Alm, McClelland and Schulze 1999, Frey and Feld 2002, Feld and Tyran 2002 and Torgler, Schaltegger and Schaffner 2003, and Torgler 2005).

This paper differentiates between Western and Eastern Europe. The reform process in the transition countries caused disorientation and a heavy economic burden (see Kasper and Streit 1999 and Gërxhani 2002). The rapid collapse of institutional structures produced a vacuum in

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[9] Frey and Feld (2002), using Swiss data, make the empirical finding that a respectful treatment of taxpayers by the tax administration reduces tax evasion.

[10] Question: 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).

[11] Question: Could you tell me how much confidence you have in 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).

[12] 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 our country? (4=very satisfied, 1=not at all satisfied).

many countries, followed by large social costs, especially in terms of worsening income inequality and poverty rates and bad institutional conditions, based on uncertainty and high transaction costs. Difficult policy choices had to be faced in this new era in such areas as the role of the public sector in general and the structure of the tax system in particular (Alm, Martinez-Vazquez and Torgler 2005). Furthermore, at the beginning of the transition process, citizens in many transition countries were not used to paying taxes (see, e.g., Kornai 1990, Martinez-Vazquez and McNab 2000). Thus, taxpayers may have reacted strongly to tax policy changes necessary for the transition from a centrally controlled economy to a market economy. Torgler (2003b) and Alm, Martinez-Vazquez and Torgler (2005) showed that these circumstances have an impact on tax morale. We therefore expect that residents of Eastern European countries will, other things being equal, exhibit a lower TAX MORALE than residents of the Western European countries. However, country dummy variables also allow us to see whether there are differences between Central Eastern European and Former Soviet Union countries. It can be argued that Central and Eastern European countries' have made property rights more secure, as the transition process came earlier and more rapidly, thus reducing individuals' uncertainty and guaranteeing a better transition process with more stable institutions. Reforms have progressed much faster in CEE countries than in FSU countries (see, e.g., Campos and Coricelli 2002). In countries negotiating their accession to the European Union, such as Poland, Romania, and Slovenia, the accession intention has acted as a catalyst for a rapid tax reform move shaped along western lines (see Martinez-Vazquez and McNab 2000). FSU countries have possibly been stimulated by the collapse of communism and are more strongly involved with the economic crisis. As a consequence, we predict a significantly lower tax morale in FSU economies than in CEE economies. Table 1 reports the institutional quality of CEE and 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) lie between –2.5 and 2.5, with higher scores corresponding to better institutions (outcomes). Table 1 indicates a higher institutional quality in CEE countries compared to FSU countries. Moreover, the last column shows that the shadow economy of CEE countries is smaller in size than that of FSU countries. A large shadow economy reduces the state's tax collection, thus affecting the revenues governments need 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 (see Levin and Satarov 2000).

The question remains whether further factors should be included in the estimations. Traditional tax evasion models suggest the relevance of deterrence variables. However, we aren't testing a model of tax evasion but a model of tax morale. Thus, it isn't so obvious that we should consider deterrence factors in our main model. Only if tax morale is seen as a good indicator of tax compliance might one suggest incorporating deterrence factors into the model. Several previous case studies show that deterrence factors are less likely to affect tax morale (see, e.g., Torgler 2005). The *perceived* deterrence factors may determine tax morale to a much greater extent than the objective measurable factors used in this paper. Scholz and Pinney (1995), for example, find support in their study for the idea that the subjective risk of getting caught is more closely related to a sense of duty than to objective risk factors. However, we are not able to collect this information in our study EVS.

[TABLE 1 ABOUT HERE]

In our empirical analysis, we also investigate the impact of institutions on tax morale, using six proxies for institutional quality. If taxpayers perceive that their interests (preferences) are properly represented in political institutions, and they receive an increased supply of public goods, their willingness to contribute increases. On the other hand, in a state where corruption is rampant, citizens have little incentive to cooperate. A more encompassing and legitimate state may be an essential precondition for a higher level of tax morale. Our results demonstrate that the quality of political institutions has a strong observable impact on tax morale.

4. Econometric results

In general, in our case, an ordered probit model ranking information of the scaled dependent variable *tax morale* is appropriate. To measure the quantitative effect of a variable on tax morale, the marginal effects are calculated, as the equation has a nonlinear form. The marginal effect indicates the change in the percentage of taxpayers (or the probability of) having a specific tax morale level, when the independent variable increases by one unit. For simplicity, the marginal effects in all estimates are only presented for the highest tax morale value. *Weighted* ordered probit estimates are conducted in order to correct the samples and thus to get a reflection of the national distribution[13]. Furthermore, it should be noted that answers, such as "don't know", and missing values have been eliminated in all estimations.

Table 2 presents the estimated coefficients first using two different estimation techniques to identify the effect of the determinants discussed above on tax morale. Equation (1) uses robust standard errors while equation (2) uses standard errors adjusted for the clustering on 30 countries, thus taking into account unobservable country specific characteristics. Clustering leads to a decrease in the z-values, but has no impact on the marginal effects. The last two columns report 2SLS estimations. As already mentioned above, recent laboratory experiments have

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[13] The weighting variable is provided by the EVS.

shown that causality goes from beliefs about others' cheating to one's own behavior rather than vice versa. The Hausman specification test indicates that the hypothesis of an inconsistent estimator for the equation cannot be rejected. However, the Hausman test is based on the assumption that the instruments are valid. Therefore, Table 2 reports two 2SLS estimations, together with several diagnostic tests. To check for robustness, two different 2SLS estimations are used. In the first one, perceived cash payments to avoid taxes is employed as an instrument[14]. In the second one, perceived bribing is included as an instrument[15]. Table 2 also reports the results of an Anderson canonical correlation LR for whether the equation is identified as a measure of instrument relevance. The test shows that the null hypothesis can be rejected, indicating that, in all cases, the model is identified and the instruments are relevant. 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, a test for the validity of the instruments is applied, 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 indicate the presence of valid instruments.

The estimation results most importantly suggest that the higher the perceived tax evasion of other persons, the lower the tax morale. This is consistent with our main hypothesis of tax morale decreasing if people perceive that tax evasion is a common phenomenon. The size of the effect is substantial: when perceived tax evasion rises by one unit, the percentage of persons reporting a high tax morale falls by 7.4 percentage points (see first estimation). In addition, the coefficient PERCEIVED TAX EVASION remains statistically significant for both 2SLS.

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[14] According to you, how many of your compatriots do the following: Pay cash for services to avoid taxes? (4=almost all, 1=almost none)

[15] According to you, how many of your compatriots do the following: Accept a bribe in the course of their duties? (4=almost all, 1=almost none)

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

According to the control variables, older people and women exhibit higher tax morale. Education negatively affects tax morale, without being statistically significant in two out 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 to end up being divorced. Self-employed persons have lower tax morale while church attendance is correlated with higher tax morale.

[TABLE 2 ABOUT HERE]

Instead of constructing a dummy variable that differentiates between Western and Eastern Europe, it might be interesting to take a closer look at differences between particular countries. Table 3 includes country dummies in the estimation equation, using GERMANY as a reference. The coefficient of the variable PERCEIVED TAX EVASION remains highly statistically significant with an increase in the marginal effects. The control variables are in line with the estimates reported in Table 2 and are therefore not explicitly reported. Among the Western European countries, Belgium exhibits the biggest negative difference compared to Germany, with marginal effects of around 20 percentage points. Malta has the highest tax morale of all countries. It is interesting to note that the Central Eastern European (CEE) countries, Hungary, Czech Republic, Slovak Republic, Bulgaria, Croatia, and Poland exhibit *higher* tax morale than Germany. The coefficient of the first four countries is statistically significant. Table 3 also

reveals that Former Soviet Union (FSU) countries, such as Russia, Belarus, Ukraine, Lithuania, Estonia or Latvia, have lower tax morale than Central Eastern European (CEE) countries. It seems 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, showing, in some cases, even higher tax morale values than for some of the Western European countries. In the second estimation in Table 3, proxies for the economic situation of the individuals are included. As can be seen, the coefficient PERCEIVED TAX EVASION remains highly statistical significant with similar marginal effects (10.8 percentage points in estimation 6 compared to 9.7 in estimation 5). On the other hand, the coefficients UPPER CLASS and MIDDLE CLASS are not statistically significant.

[TABLE 3 ABOUT HERE]

Table 4 investigates whether institutional quality matters. As it may be argued that including aggregated country variables produces downwardly biased standard errors, the problem of heteroscedasticity is addressed by presenting standard errors adjusted for clustering on cantons in the last six estimations (see eq. 7b –12b). As can be seen in all 12 estimations, the coefficients of the institutional variables have a statistically significant positive effect on tax morale. The strongest quantitative effects are observable for the variables VOICE AND ACCOUNTABILITY, POLITICAL STABILITY and REGULATORY QUALITY. The coefficient PERCEIVED TAX EVASION remains statistically significant with high marginal effects.

[TABLE 4 ABOUT HERE]

In Table 5, the first two estimations try to better isolate a possible conditional cooperative effect. Thus, two proxies, namely TRUST1 and TRUST2, measuring the level of trust among taxpayers, are included. This allows us to see whether conditional cooperation may be driven by higher generalized trust. The first trust variable is statistically significant with a positive sign, but covers only a limited number of countries. On the other hand, the second trust variable is not statistically significant and even shows a negative sign. The PERCEIVED TAX EVASION variable is statistically significant in all estimations, with marginal effects between 7.4 and 10.9 percentage points. The next step includes two variables that measure the impact of trust in the state. The results indicate that the variables have a statistically significant positive effect on tax morale. An increase in trust in the justice system or in parliament by one unit raises the percentage of persons indicating the highest tax morale by more than 3 percentage points. A further estimation shows that an increase in individuals' satisfaction with the way democracy is developing by one unit raises the proportion of persons stating that tax evasion is never justified by 1.5 percentage points. The trust and democracy variables generally show the relevance of institutions that enhance political participation and trust in 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 (see Frey 2003b). Introducing these variables does not affect the size and the significance of the variable PERCEIVED TAX EVASION. The marginal effects 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.

[TABLE 5 ABOUT HERE]

It may be argued that the observed effect of conditional cooperation may be driven by one of the two regions (Eastern or Western Europe). To test the robustness of conditional cooperation, it is worthwhile to investigate the two regions independently, using the specifications presented previously. The conditional cooperative effect is stronger in Western Europe, but 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 the results of Western Europe. The trust and democracy variables are statistically significant in both regions, but 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 point to the importance of involving the taxpayers in the decision process in order to maintain or improve tax morale. Social capital is both a precondition and consequence of a higher political participation.

[TABLE 6 ABOUT HERE]

To deal with the causality problem, a possible bias in the conditional cooperative effect is filtered out. The idea is to correct a possible systematic bias between what I think and what I project on others. Thus, the causality problem arises, 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. How is it possible to estimate such a bias? To deal with this problem, we calculate the average PERCEIVED TAX EVASION for each country. In the next step, we calculate the average PERCEIVED TAX EVASION in each country for the individuals with 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 (value has a positive sign). This variable may catch a certain bias in the variable PERCEIVED TAX EVASION due to the level of tax morale. In a last step, we add such a possible 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 a higher PERCEIVED TAX EVASION, bringing the values between the group with higher and lower tax morale closer together, depending on the perceived tax evasion situation in each country. Thus, such a procedure may help to better isolate the existence of a conditional cooperative effect. Table 7 presents results, using the filtered PERCEIVED TAX EVASION variable on 14 different specifications. As can be seen, the coefficients remain highly statistically significant. The marginal effects have decreased, but are still 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. The results are presented in Table 8. First, we use the specification derived in eq. (1) and estimate it separately for each country in our sample. The results of the 30 regressions are presented in the first result column. This allows us to get a robust picture of pro-social behavior in the countries under investigation. For simplicity, only the coefficient for the variable PERCEIVED TAX EVASION is reported. In 27 of the 30 countries, the coefficients are highly statistically significant with a negative sign (exceptions are Portugal, Romania and the Slovak Republic). The estimates reveal higher marginal effects for Western European countries than for Eastern European countries. In 11 out of 16 cases, the marginal effects exceed 10 percentage points in Western Europe, compared to only 3 out of 14 cases in Eastern Europe. Nevertheless, there is strong evidence of conditional cooperation in most European countries. The more individuals expect that others will cooperate, the higher is the intrinsic motivation to pay taxes. The second group of estimations is presented in the second result column. A ten-point scale income variable (in national currency) is included. As can be

seen, the results remain robust. A next step conducts 30 2SLS estimations. Again, the impact of the PERCEIVED TAX EVASION remains valid. The statistical significance tends to decrease, but the coefficient is still 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, in line with the previous columns, the conditional cooperative is still very strong and valid in 72 percent of the cases.

5. Concluding remarks

This paper proposes that taxation is a social act and that conditional cooperation is an important factor, explaining the extent of tax morale and tax evasion. An individual taxpayer is strongly influenced by what he or she perceives to be the behavior of other taxpayers. If taxpayers believe tax evasion to be common, their tax morale decreases; if they believe others to be honest, their tax morale increases. Recent data for Western and Eastern European countries are in line with these hypotheses. The size of the effect is substantial. The results remain robust after exploiting endogeneity and conducting several robustness tests. The econometric estimates also suggest that the institutional crisis, which took place in many transition countries after the collapse of communism, negatively affected the tax morale of their citizens. Within Eastern Europe, the taxpayers in countries of the Former Soviet Union (FSU, including Russia, Belarus, Ukraine, Lithuania, Estonia or Latvia) exhibit a lower tax morale than those in Central Eastern European countries (CEE, including 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 (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 tries to go one step further than the standard economic theory of tax evasion, based on a narrow concept of Homo Oeconomicus acting in isolation. The concept of tax morale has been introduced to build a bridge between the perception individual taxpayers have about the behavior of other taxpayers, and their personal decision on whether, and to what extent, to evade their own taxes, and stressing the importance of institutions. As has been shown in various empirical studies, tax morale is a crucial determinant of taxpaying behavior, but in most studies so far, it has been treated as an exogenous factor. The determinants of tax morale introduced in this paper, in particular the concept of conditional cooperation and institutions, help us to gain a better understanding of the considerations underlying tax-paying and tax evasion.

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TABLES

Table 1

Institutional Quality in Former Soviet Union and Eastern European Countries

Former Soviet Union and Eastern European Countries	Aggregate Governance Indicators 1998[a]						Shadow Economy[b] in % of GDP (1999)
	Voice and Accountability	Political Stability	Government Effectiveness	Regulatory Quality	Rule of Law	Control of Corruption	
Belarus	-0.98	-0.15	-0.83	-2.01	-1.08	-0.60	48.1
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
Estonia	0.82	0.95	0.45	1.06	0.54	0.49	38.40
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
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
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
Russia	-0.26	-0.62	-0.62	-0.37	-0.78	-0.69	46.10
Slovakian Republic	0.45	0.95	0.08	0.29	0.13	-0.08	18.90
Ukraine	-0.14	-0.19	-0.97	-0.89	-0.76	-0.89	52.20

Notes: [a] Kaufmann et al. (2004). Values between –2.5 and 2.5, with higher scores corresponding to better institutions (outcomes). [b] Schneider (2004, p. 24), using the DYMIMIC and Currency Demand Method.

Table 2: Determinants of Tax Morale in Europe

	Coeff.	*z-Stat.*	*Marg. Effects*	*Coeff.*	*z-Stat.*	*Marg. Effects*	*Coeff.*	*z-Stat.*	*Coeff.*	*z-Stat.*
	WEIGHTED ORDERED PROBIT			*WEIGHTED ORDERED PROBIT*			*WEIGHTED 2SLS[a]*		*WEIGHTED 2SLS[b]*	
INDEPENDENT V.	*Robust standard errors*			*Standard errors adjusted for clustering on countries*						
	Eq. 1			*Eq.2*			*Eq.3*		*Eq.4*	
PERCEIVED TAX EVASION	-0.186***	-18.11	-0.074	-0.186***	-4.71	-0.074	-0.159***	-8.69	-0.299***	-10.8
CONTROL VARIABLES										
(1) Demographic Factors										
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
(2) Marital Status										
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
(3) Employment Status										
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
(4) Religiosity										
CHURCH ATTENDANCE	0.041***	13.59	0.016	0.041***	3.63	0.016	0.045***	13.96	0.031***	6.52
(5) Culture/Regions										
WESTERN EUROPE	0.089***	6.00	0.035	0.089	0.86	0.035	0.097***	5.93	0.148***	6.46
F-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	32610			32610			30984		16413	
Prob > chi2 / Prob > F	0.000			0.000			0.000		0.000	

Dependent variable: tax morale on a four point scale (0 to 3). In the reference group are AGE<30, MAN, MARRIED, FULL-TIME EMPLOYED, EASTERN EUROPE. Significance levels: * 0.05 < p < 0.10, ** 0.01< p < 0.05, *** p < 0.01. Marginal effect = high tax morale score (3). [a] Instrument: perceived cash payments to avoid taxes. [b] Instruments: perceived cash payments and bribes. Missing countries: France, Netherlands, Denmark, Spain, Ireland, Northern Ireland, Hungary, Sweden, Bulgaria, Romania, Portugal, Latvia, Estonia, Slovakia, and Malta.

Table 3

Tax Morale Among Different Countries

WEIGHTED ORDERED PROBIT	Coeff.	z-Stat.	Marg. Effects	Coeff.	z-Stat.	Marg. Effects
INDEPENDENT V.	Eq. 5			Eq. 6		
PERCEIVED TAX EVASION	-0.243***	-21.92	-0.097	-0.276***	-17.10	-0.108
ECONOMIC SITUATION						
UPPER CLASS				-0.048	-1.45	0.001
MIDDLE CLASS				-0.028	-1.12	-0.019
COUNTRIES						
Western European Countries						
Germany	ref. group			ref. group		
Austria	0.083*	1.65	0.033	0.083	0.032	1.62
Belgium	-0.530***	-11	-0.206	-0.551***	-10.93	-0.217
Great Britain	0.002	0.04	0.001	0.019	0.33	0.008
Denmark	0.246***	4.63	0.096			
Finland	-0.048	-0.87	-0.019			
France	-0.288***	-5.83	-0.114	-0.297***	-5.82	-0.118
Iceland	0.185***	3.41	0.073			
Ireland	0.072	1.22	0.028			
Italy	0.099**	2.16	0.039	0.107**	2.23	0.042
Malta	0.737***	12.38	0.264	0.741***	11.96	0.257
Netherlands	-0.251***	-4.76	-0.1			
North Ireland	0.026	0.41	0.01			
Portugal	0.044	0.65	0.017			
Spain	-0.124**	-2.38	-0.049	-0.136**	-2.54	-0.054
Sweden	-0.067	-1.15	-0.027	-0.074	-1.15	-0.029
Eastern European Countries						
Belarus	-0.835***	-14.76	-0.308			
Bulgaria	0.217***	3.69	0.085			
Croatia	0.065	0.9	0.026	0.052	0.70	0.020
Czech Republic	0.189***	4.06	0.074	0.187***	3.91	0.072
Estonia	-0.409***	-7.66	-0.161			
Greece	-0.200***	-3.84	-0.08			
Hungary	0.536***	8.65	0.2	0.558***	8.72	0.202
Latvia	-0.018	-0.32	-0.007			
Lithuania	-0.592***	-8.79	-0.228			
Poland	0.083	1.47	0.033	0.070	1.19	0.027
Romania	-0.011	-0.2	-0.004			
Russia	-0.272***	-6.1	-0.108			
Slovakian Republic	0.115**	2.27	0.045	0.111**	2.13	0.043
Ukraine	-0.473***	-8.94	-0.185			
ALL OTHER VARIABLES INCLUDED						
Number of observations	32610			16760		
Prob > chi2	0.000			0.000		

Dependent variable: tax morale on a four point scale (0 to 3). In the reference group are AGE<30, MAN, MARRIED, FULL-TIME EMPLOYED, GERMANY, LOWEST CLASS. Significance levels: * 0.05 < p < 0.10, ** 0.01< p < 0.05, *** p < 0.01. Marginal effect = highest tax morale score (3).

Table 4

Tax Morale and Institutional Quality

WEIGHTED ORDERED PROBIT	Coeff.	z-Stat.	Marg. Effects	Coeff.	z-Stat.	Marg. Effects	Coeff.	z-Stat.	Marg. Effects	Coeff.	z-Stat.	Marg. Effects	Coeff.	z-Stat.	Marg. Effects	Coeff.	z-Stat.	Marg. Effects
INDEPENDENT V.	*Eq. 7a*			*Eq. 8a*			*Eq.9a*			*Eq. 10a*			*Eq. 11a*			*Eq. 12a*		
PERCEIVED TAX EVASION	-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
GOVERNANCE																		
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
OTHER VAR. INCLUDED																		
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		
clustering on countries	*Eq. 7b*			*Eq. 8b*			*Eq.9b*			*Eq. 10b*			*Eq. 11b*			*Eq. 12b*		
PERCEIVED TAX EVASION	-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
GOVERNANCE																		
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
OTHER VAR. INCLUDED																		

Dependent variable: tax morale on a four point scale (0 to 3). In the reference group are AGE<30, MAN, MARRIED, FULL-TIME EMPLOYED. Significance levels: * $0.05 < p < 0.10$, ** $0.01 < p < 0.05$, *** $p < 0.01$. Marginal effect = high tax morale score (3).

Table 5

Generalized Trust and Trust in the State

WEIGHTED ORDERED PROBIT	Coeff.	z-Stat.	Marg. Effects	Coeff.	z-Stat.	Marg. Effects	Coeff.	z-Stat.	Marg. Effects	Coeff.	z-Stat.	Marg. Effects	Coeff.	z-Stat.	Marg. Effects
INDEPENDENT V.	*Eq. 13*			*Eq. 13*			*Eq. 14*			*Eq. 15*			*Eq. 16*		
PERCEIVED TAX EVASION	-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
Trust and Democracy															
TRUST1[a]	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
ALL OTHER VARIABLES INCLUDED															
Number of observations	8352			31444			30915			31371			30915		
Prob > chi2	0.000			0.000			0.000			0.000			0.000		

Dependent variable: tax morale on a four point scale (0 to 3). In the reference group are AGE<30, MAN, MARRIED, FULL-TIME EMPLOYED, EASTERN EUROPE. Significance levels: * $0.05 < p < 0.10$, ** $0.01 < p < 0.05$, *** $p < 0.01$. Marginal effect = highest tax morale score (3).[a] The variable trust has not been collected in France, 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 adjusted for clustering on countries.

Table 6
Determinants of Tax Morale in Western and Eastern Europe

WEIGHTED ORDERED PROBIT	Coeff.	z-Stat.	Marg. Effects	Coeff.	z-Stat.	Marg. Effects	Coeff.	z-Stat.	Marg. Effects
INDEPENDENT V.									
WESTERN EUROPE	*Eq. 17a*			*Eq. 18a*			*Eq. 19a*		
PERCEIVED TAX EVASION	-0.252***	-5.430	-0.100	-0.239***	-5.240	-0.095	-0.241***	-5.450	-0.095
(6) Trust and Democracy									
TRUST IN THE JUSTICE SYSTEM				0.120***	5.240	0.048			
TRUST IN THE PARLIAMENT							0.124***	4.960	0.049
SATISFACTION WITH DEMOCRACY									
ALL OTHER V. INCLUDED									
Number of observations	17807			17415			17244		
Prob > chi2	0.000			0.000			0.000		
EASTERN EUROPE	*Eq. 17b*			*Eq. 18b*			*Eq. 19b*		
PERCEIVED TAX EVASION	-0.116**	-2.240	-0.046	-0.112**	-2.160	-0.045	-0.110**	-2.140	-0.044
(6) Trust and Democracy									
TRUST IN THE JUSTICE SYSTEM				0.063**	2.390	0.025			
TRUST IN THE PARLIAMENT							0.040**	1.970	0.016
SATISFACTION WITH DEMOCRACY									
ALL OTHER V. INCLUDED									
Number of observations	14803			14187			14127		
Prob > chi2	0.000			0.000			0.000		

Dependent variable: tax morale on a four point scale (0 to 3). In the reference group are AGE<30, MAN, MARRIED, FULL-TIME EMPLOYED. Significance levels: * $0.05 < p < 0.10$, ** $0.01 < p < 0.05$, *** $p < 0.01$. Marginal effect = highest tax morale score (3). Standard errors adjusted for clustering on countries.

Table 7

Estimations with a Filtered Perceived Tax Evasion Variable

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

Notes: Robust standard errors. Significance levels: * $0.05 < p < 0.10$, ** $0.01 < p < 0.05$, *** $p < 0.01$. Marginal effect = highest tax morale score (3).

Table 8

Conditional Cooperation in the Evaluated Countries

WEIGHTED ORDERED PROBIT	*Coeff.*	*z-Stat.*	*Marg. Effects*	*Coeff.*	*z-Stat.*	*Marg. Effects*	*Coeff.*	*z-Stat.*	*Coeff.*	*z-Stat.*	*z-Stat.*
CONDITIONAL COOPERATION	*WEIGHTED ORDERED PROBIT ESTIMATIONS*			*WEIGHTED ORDERED PROBIT ESTIMATIONS[a]*			*WEIGHTED 2SLS ESTIMAT.[b]*		*WEIGHTED ORDERED PROBIT ESTIMATIONS*		
VARIABLE: PERCEIVED TAX EVASION				Income included					Filtered perceived tax evasion		
COUNTRIES											
Western European Countries											
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
Eastern European Countries											
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: Robust standard errors. Significance levels: * $0.05 < p < 0.10$, ** $0.01 < p < 0.05$, *** $p < 0.01$. Marginal effect = highest tax morale score (3). The first specification is based on eq. (1), considering each country value for the coefficient of the variable PERCEIVED TAX EVASION. The second one includes the income variable (scale from 1 to 10, national currency). [a] No income information in Portugal. [b] Instrument in all estimations: perceived cash payments.