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**Working Paper**

## Taxation and Conditional Cooperation

CREMA Working Paper, No. 2004-20

**Provided in Cooperation with:**

CREMA - Center for Research in Economics, Management and the Arts, Zürich

*Suggested Citation:* Frey, Bruno S.; Torgler, Benno (2004) : Taxation and Conditional Cooperation, CREMA Working Paper, No. 2004-20, Center for Research in Economics, Management and the Arts (CREMA), Basel

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Center for Research in Economics, Management and the Arts

# Taxation and Conditional Cooperation

Bruno S. Frey

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Working Paper No. 2004 – 20

# Taxation and Conditional Cooperation

Bruno S. Frey and Benno Torgler\*

*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. Concepts of Homo Economicus, endowed with a more refined motivation structure, help to shed light on the tax compliance puzzle. This paper provides empirical evidence for the relevance of conditional cooperation, using survey data from 30 European countries. The findings suggest that a higher perceived tax evasion leads to a lower tax morale, also when controlling for additional factors in a multivariate analysis.

JEL classification: H260, H730, D640

Keywords: tax morale, tax compliance, tax evasion, pro-social behavior

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## I. TAXATION AS A SOCIAL ACT

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 pathbreaking model has many shortcomings. People who exhibit empirically observed levels of risk aversion on average 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 experiments, the modal offer is (50,50), the mean offer somewhere around (40,60), and 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 act. Subjects do not act as isolated individuals playing a “game against nature”. In this paper, we emphasize the relevance that taxation is a *social act*. 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 pay their taxes *conditionally*, depending on the pro-social behavior of other taxpayers, being more willing to pay their taxes, the more others are perceived to be honest. 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 II gives an overview of the existing literature on social comparisons. In Section III, we present our theoretical approach and develop our hypotheses. Section IV presents the empirical results and Section V finishes with some concluding remarks.

## II. OVERVIEW OF THE EXISTING LITERATURE

Standard expected utility theory has difficulties 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 same tax rate (truth value, 40 percent). On average, 23 percent of total taxes payable were evaded. The group with the perceived high tax evaded 32 percent, the group with the apparently low tax 12 percent and the group with the medium taxation 25 percent. The results suggest that social comparisons are relevant. Similarly, Webley, Morris and Amstutz (1985) used a 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. In contrast to Spicer and Becker (1980), altering the information did not have a significant effect on tax evasion (see also Webley, Robben and Morris 1988). Thus, the effect of social comparisons on tax compliance seems not to be clear, 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 the 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 taxpayer’s own exchange and those of others creates a sense of distress. Disadvantage in such a situation creates anger, whilst advantage creates feelings of guilt (see Adams 1965, Homans 1961). People will engage in 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 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 failed to distinguish between the effect of public goods and the effect of taxpayers' interaction. One way to deal with this problem would have been 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, 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., Cronson 1998, Sonnemans, Schram and Offerman 1999, Keser and van Winden 2000)<sup>1</sup>. Fischbacher, Gächter and Fehr (2001) designed an experiment that, compared to previous studies, tried to carry out an improved check on 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' contribution. They found that 50 percent of the subjects were conditionally cooperative.

In general, several theories try to explain conditional cooperation. Most of the papers proposed 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 their taxes. On the other hand, if many individuals evade taxes, a taxpayer will not feel committed to pay their taxes. Another promising concept is *conformity* (for an overview see Heinrich 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 thus to behave according to society's rules. Thus, the second approach is less connected to *incentives* and *benefits*. Bardsley and Sausgruber (2003) 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 be matched with the common behavior (Heinrich 2004). Two recent laboratory studies indicate the

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<sup>1</sup> 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).

strength of “conformity” compared to “reciprocity” (see Bohnet and Zeckhauser 2004, and Bardsley and Sausgruber 2003). 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 group behavior (contributing more to the group when cooperation was higher). Kurzban et 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 charity organizations are observed. They have an incentive to ask donors for permission to announce their gifts, as the announcement is likely to have a positive effect on others’ 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)<sup>2</sup>.

Pro-social behavior has mostly been analyzed in laboratory experiments. However, laboratory experiments have been criticized because of not being an accurate reflection of the choices in “the outside world”, as the setting is artificial. Furthermore, experiments that analyze social interactions may be more sensitive to an experimenter effect, which reduces the validity of the experiment, influencing participants’ view of what to do or creating the incentive to outwit the experimenter and seeing the whole situation as a “gamelike” atmosphere (see, e.g., Starmer 1999, Cross 1980). Frey and Meier (2004a) analyze 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 corresponds to an n-person public good setting, covering around 33’000 persons (and a panel set of 136’000 observations). The field observations are also supplemented with surveys. Many students seemed to behave pro-socially. They 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, they

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<sup>2</sup> However, according to Potters et al. (2001), “announcing” only has an effect when the quality of the public good is not common knowledge.

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.

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

### III. Theoretical Approach and Testable Hypotheses

Contrary to most of the previous studies, we are going to work with 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 participating countries. 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 often not met in experimental studies. Many experiments are done with students as participants. The problem is that students 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 income than the average and their age ranges are 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. However, only a few studies investigate whether students are a satisfactory sample for studies of tax behavior, and the results are mixed. On the one hand, Baldry (1987) finds that students' responses are no different from those of other subjects in tax compliance experiments. On the other hand, Gërxhani and Schram (2001), in their cross-country experiments in The Netherlands and Albania, show the importance of subject pools. In another context, Frey and Meier (2004a) also observe 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. Heinrich 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 argue 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 to investigate conditional cooperation in different societies. Our study allows 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 use the following question:

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

The question leads to a ten-scale index of tax morale, with the two extreme points “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. 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 is 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. It can certainly be discussed whether it is more appropriate to use an index rather than a single question to measure tax morale. However, a single question has the advantage that problems associated with the construction of an index can be avoided. The measurement of tax morale is also not free of biases. It could be argued that a taxpayer, who has been evading in the past, will tend to excuse this kind of behavior when reporting a higher tax morale.

The following question in the EVS allows us to investigate *conditional cooperation*:

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

Lewis (1982, p. 144) pointed out many years ago already 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, our main hypothesis is:

H: *Tax morale decreases if people perceive that tax evasion is common. On the other hand, if people believe that others are honest, their willingness to pay taxes increases.*

The correlation between the 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 some other characteristic that also affects tax morale, the results could be misleading.

Using a cross-section of individuals with the EVS does not allow us to reduce causality problems and thus to give complete information about the direction of the relationship defined in the hypothesis. The direction of causality is open. It might be argued that one’s own willingness to pay taxes might lead to the expectation that others behave in the same way. There is a lack of adequate variables that could serve as instruments to control for endogeneity of our main independent variable using a 2SLS model/IV method<sup>3</sup>. The EVS is not a *panel* survey, and thus a survey that follows individuals over time, which would have better allowed us to study the dynamics of adjustment. Furthermore, the question referring to conditional cooperation has only been asked in the last wave of 1999-2001. Longitudinal data would help reduce problems of unobserved individual heterogeneity<sup>4</sup>. In general, in our case, an ordered probit model ranking information of the scaled dependent variable *tax morale* is appropriate. To measure the

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<sup>3</sup> The relevance of the IV method depends strongly on the predictive power of the instruments in the first stage equation. Furthermore, it is relevant to first conduct a Hausman Chi-square test in order to see whether exogeneity cannot be rejected.

<sup>4</sup> Individual fixed effects would help to control for the individual specific characteristics not captured by the control variables. However, there would still be the problem of biases, due to unobserved individual heterogeneity that varies over time. This would make it relevant to employ an IV method.

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. Furthermore, it should be noticed that answers, such as “don’t know”, and missing values have been eliminated in all estimations.

The following econometric model captures the basic relationship between tax morale and perceived tax evasion:

$$TM_i = \beta_0 + \beta_1 \cdot CTL_i + \beta_2 \cdot PTE_i + \varepsilon_i \quad (1)$$

where  $TM_i$  denotes the individual degree of tax morale.

$CTL_i$  is a vector of control variables at the individual level, covering demographic, economic and religious variables, and  $PTE_i$  is our main independent variable (perceived tax evasion). 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 2003b). *Table 1* discusses the hypothesized impact of the control variables on tax morale.

Income could not be included in our study. The income scale in the EVS is based on national currencies, which reduces the possibility of comparing nations in a cross-country comparison. A proxy for the economic situation could be the self-classification of the respondents into the various economic classes. However, there are too many missing values for this variable, based also on the fact that the variable has not been collected in some countries. The variable EDUCATION provides quite a good proxy for the economic situation. The variable is highly correlated in our data set with the income variable ( $r=0.34$ , statistically significant at the 0.001 level).

*Table 1*  
The Predicted Impact of the Control Variables

<i>Variables</i>	<i>Hypothesis</i>	<i>Interpretation</i>
AGE (under 30, 30-39, 40-49, 50-59, 60-70, 70+), with under 30 as reference group	+	Higher age leads to a higher tax morale Older people have acquired greater social stakes, such as material goods, status, and a stronger dependency on the reactions of others, raising the potential costs of a sanction increase. This leads to a higher tax morale.
GENDER (men/women), with men in the reference group	-	Women have a higher tax morale than men. Previous studies show the tendency that women are more compliant and less self-reliant than men.
EDUCATION (continuous variable, see Appendix, <i>Table A1</i> ).	+/-	More educated individuals... + are better aware of the services the state provides; - are more critical about how the state acts or spends tax revenues; - better understand opportunities for evasion and avoidance, which negatively influence tax morale and are in a better position to take risks; -/+ As a proxy of income: depending on risk preferences and the progression of the income tax schedules, income may increase or reduce tax morale (tendency to be negative); + have higher social stakes and are subject to stronger social pressure and therefore take less risk.
MARITAL STATUS (married, divorced, separated, widowed, single), with married in the reference group	+	Individuals with stronger social networks try to have a higher tax morale. Thus, e.g., married people have a higher tax morale than singles.
EMPLOYMENT STATUS (full-time employed, part-time employed, self-employed, unemployed, at home, student, retired, other), with full-time employed in the reference group).	-	Self-employed taxpayers have lower tax morale than full-time employees. They have higher compliance costs and taxes are more visible.
RELIGIOSITY (proxy: CHURCH ATTENDANCE), measures how much time individuals devote to religion.	+	Higher religiosity leads to higher tax morale. Studies have shown that religiosity leads to higher compliance with the law, and reduces tax evasion.
REGIONS (WESTERN AND EASTERN EUROPE), with Eastern Europe in the reference group	+	The reform process caused disorientation and a heavy economic burden (see Kasper and Streit 1999 and Gërkhani 2002). The rapid collapse of institutional structures produced a vacuum in 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. Furthermore, citizens in many transition countries at the beginning of the transition process were not used to paying taxes (see, e.g., Kornai 1990, Martinez-Vazquez and McNab 2000). Thus, taxpayers may have strongly reacted to tax policy changes necessary for the transition from a centrally controlled to a market economy. Torgler (2003c) and Alm, Martinez-Vazquez and Torgler (2004) show that these circumstances have an impact on tax morale. Our expectation is therefore that residents of Eastern European countries will, other things being equal, exhibit a lower TAX MORALE than residents of the Western European countries.

#### IV. ECONOMETRIC RESULTS

*Table 2* presents the estimated coefficients 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 estimation results most importantly suggest that the higher the tax evasion of other persons is perceived, the lower tax morale is. 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.

In order to reach an unbiased test of our hypotheses, the estimates of the effect of the perceived tax evasion by other persons on tax morale takes into account a large number of control variables. They are grouped into five sets: demographic factors, marital status, employment status, religiosity, social norms and living in Western Europe. The estimated coefficients are consistent with the hypotheses listed in *Table 1*. In particular, older persons and women exhibit higher tax morale. Education negatively affects tax morale, suggesting that persons with higher education are more critical of the way the government spends the tax revenues, and are better able to evade taxes. Divorced and separated persons have the lowest tax morale, perhaps because they have become more cynical, or because persons who are cynical by nature are more likely to end up being divorced. As predicted, the self-employed have a lower tax morale. Not surprisingly, church attendance is correlated with higher tax morale. The estimated coefficient for WESTERN EUROPE suggests that the institutional crisis in many transition countries in Eastern Europe, after the collapse of communism, negatively affected the tax morale of the citizens living there. The marginal effects in eq. (1) indicate that being from Western Europe rather than from Eastern Europe reduces the probability of stating that tax evasion is never justified by 3.5 percentage points.

Table 2

## Determinants of Tax Morale in Europe

<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>Robust standard errors</i>				<i>Standard errors adjusted for clustering on countries</i>		
<i>INDEPENDENT V.</i>	<i>Eq. 1</i>				<i>Eq.2</i>		
<b>PERCEIVED TAX EVASION</b>	-0.186***	-18.110	-0.074		-0.186***	-4.710	-0.074
<b>CONTROL VARIABLES</b>							
<i>(1) Demographic Factors</i>							
AGE 30-39	0.099***	3.890	0.039		0.099***	2.650	0.039
AGE 40-49	0.216***	7.970	0.085		0.216***	5.220	0.085
AGE 50-59	0.298***	10.150	0.116		0.298***	6.180	0.116
AGE 60-69	0.318***	8.630	0.124		0.318***	4.860	0.124
AGE 70+	0.446***	10.340	0.171		0.446***	5.740	0.171
WOMAN	0.123***	7.800	0.049		0.123***	6.020	0.049
EDUCATION	-0.004**	-2.530	-0.001		-0.004	-1.040	-0.001
<i>(2) Marital Status</i>							
WIDOWED	-0.048	-1.590	-0.019		-0.048	-1.640	-0.019
DIVORCED	-0.174***	-6.200	-0.069		-0.174***	-5.230	-0.069
SEPARATED	-0.187***	-3.430	-0.075		-0.187***	-3.930	-0.075
NEVER MARRIED	-0.084***	-3.740	-0.034		-0.084**	-2.160	-0.034
<i>(3) Employment Status</i>							
PART TIME EMPLOYED	-0.083***	-2.940	-0.033		-0.083**	-2.250	-0.033
SELFEMPLOYED	-0.106***	-3.290	-0.042		-0.106**	-2.340	-0.042
UNEMPLOYED	0.131***	4.320	0.052		0.131***	2.900	0.052
AT HOME	0.019	0.640	0.008		0.019	0.370	0.008
STUDENT	-0.055	-1.510	-0.022		-0.055	-1.130	-0.022
RETIRED	-0.091***	-3.070	-0.036		-0.091**	-2.240	-0.036
OTHER	0.083	1.500	0.033		0.083	1.390	0.033
<i>(4) Religiosity</i>							
CHURCH ATTENDANCE	0.041***	13.590	0.016		0.041***	3.630	0.016
<i>(5) Culture/Regions</i>							
WESTERN EUROPE	0.089***	6.000	0.035		0.089	0.860	0.035
Number of observations	32610				32610		
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, EASTERN EUROPE. Significance levels: \* 0.05 < p < 0.10, \*\* 0.01 < p < 0.05, \*\*\* p < 0.01. Marginal effect = high tax morale score (3).

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 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 put their trust.

One reason may be that FSU countries experienced a higher decline of output during the years of transition than CEE countries. Furthermore, reforms have progressed much faster in CEE countries than in FSU countries (see Campos and Coricelli 2002). FSU countries have been more affected by the collapse and the economic crisis. For transition countries, it is difficult to find an acceptable level of state activity, as the collapse of communism saw the collapse of a vast state apparatus. As a consequence, it is no surprise that CEE has a higher tax morale. This finding is in line with the results obtained by Schneider (2002), who finds 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 to protect themselves (see Levin and Satarov 2000).

Table 3

## Tax Morale Among Different Countries

<i>WEIGHTED ORDERED PROBIT</i>	<i>Coeff.</i>	<i>z-Stat.</i>	<i>Marg. Effects</i>
<i>INDEPENDENT V.</i>	<i>Eq. 3</i>		
<b>PERCEIVED TAX EVASION COUNTRIES</b>	-0.243***	-21.92	-0.097
<b>Western European Countries</b>			
Germany	ref. group		
Austria	0.083*	1.650	0.033
Belgium	-0.530***	-11.000	-0.206
Great Britain	0.002	0.040	0.001
Denmark	0.246***	4.630	0.096
Finland	-0.048	-0.870	-0.019
France	-0.288***	-5.830	-0.114
Iceland	0.185***	3.410	0.073
Ireland	0.072	1.220	0.028
Italy	0.099**	2.160	0.039
Malta	0.737***	12.380	0.264
Netherlands	-0.251***	-4.760	-0.100
North Ireland	0.026	0.410	0.010
Portugal	0.044	0.650	0.017
Spain	-0.124**	-2.380	-0.049
Sweden	-0.067	-1.150	-0.027
<b>Eastern European Countries</b>			
Belarus	-0.835***	-14.760	-0.308
Bulgaria	0.217***	3.690	0.085
Croatia	0.065	0.900	0.026
Czech Republic	0.189***	4.060	0.074
Estonia	-0.409***	-7.660	-0.161
Greece	-0.200***	-3.840	-0.080
Hungary	0.536***	8.650	0.200
Latvia	-0.018	-0.320	-0.007
Lithuania	-0.592***	-8.790	-0.228
Poland	0.083	1.470	0.033
Romania	-0.011	-0.200	-0.004
Russia	-0.272***	-6.100	-0.108
Slovakian Republic	0.115**	2.270	0.045
Ukraine	-0.473***	-8.940	-0.185
<b>ALL OTHER VARIABLES INCLUDED</b>			
Number of observations	32610		
Prob > chi2	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. Significance levels: \* 0.05 < p < 0.10, \*\* 0.01 < p < 0.05, \*\*\* p < 0.01. Marginal effect = highest tax morale score (3).



It may be argued that conditional cooperation may be driven by higher trust. To analyze this proposition, we add several trust variables to the previous specification presented in *Table 2* (eq. 2). Positive actions by the state are intended to increase taxpayers' positive attitudes and commitment to the tax system and thus to compliant behavior (Smith 1992, Smith and Stalans 1991). If the state acts in a trustworthy way, then taxpayers might be more willing to comply with the taxes<sup>5</sup>. We use two trust variables, TRUST IN THE JUSTICE SYSTEM and TRUST IN PARLIAMENT, 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 are also going to analyze whether individuals' satisfaction with the way democracy is developing in a country (SATISFACTION WITH DEMOCRACY, see *Table A1* in the *Appendix*), and their attitudes regarding a democratic political system (defined as PRO DEMOCRACY 1 and PRO DEMOCRACY 2, see also *Table A1*), have 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 signalize that citizens are not ignorant or uncomprehending voters, which might create or maintain a certain social capital stock. If taxpayers 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 have shown that more possibilities of direct political participation lead to a lower tax evasion and a 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 2003d).

The results in *Table 4* indicate that both trust 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. Furthermore, 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. There is also a positive correlation between tax morale and the

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<sup>5</sup> Frey and Feld (2002), using Swiss data, make the empirical finding that a respectful treatment of taxpayers by the tax administration reduces tax evasion.

variables PRO DEMOCRACY 1 and PRO DEMOCRACY 2. The trust and democracy variables generally show the relevance of institutions that enhance political participation and trust in parliament and in 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. Additionally, no changes are observed for our control variables. The results are still in line with the predictions in *Table 1*.

It may be argued that the observed effect of conditional cooperation may be driven by one or other 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 in *Table 4*. It can also be supposed that some control variables act differently. For example, Barro and McCleary (2002) point out that Communist countries tried to eradicate organized religion, regarding it as “competitive with the Communist quasi-religion” (p. 13). This may lead to the tendency for the church to have less impact on social norms in Eastern European countries. If this is the case, we should observe a lower impact for the variable CHURCH ATTENDANCE. We may also observe differences regarding the occupation status. In many transition countries, self-employed individuals are confronted with, and restricted by, high transaction costs imposed by inefficient government activities<sup>6</sup>. A situation of interventionism and bureaucracy “over-government” on the one hand – and the lack of sufficiently secured property rights “under-government” on the other hand – may, in particular, have a negative impact on self-employed taxpayers (see Frey and Eichenberger 1999).

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<sup>6</sup> Djankov et al. (2000) show with data from 75 countries that, in general, heavier regulation of entry goes hand in hand with higher corruption and a higher shadow economy. On the other hand, countries with more democratic and limited governments have less entry regulations.

Table 4

Further Determinants of Tax Morale (standard errors adjusted for clustering on countries)

<i>WEIGHTED ORDERED PROBIT</i>	<i>Coeff. z-Stat. Marg. Effects</i>	<i>Coeff. z-Stat. Marg. Effects</i>	<i>Coeff. z-Stat. Marg. Effects</i>	<i>Coeff. z-Stat. Marg. Effects</i>	<i>Coeff. z-Stat. Marg. Effects</i>
<i>INDEPENDENT V.</i>	<i>Eq. 4</i>	<i>Eq. 5</i>	<i>Eq. 6</i>	<i>Eq. 7</i>	<i>Eq. 8</i>
<b>PERCEIVED TAX EVASION</b>	-0.178*** -4.590 -0.071	-0.179*** -4.650 -0.071	-0.187*** -4.770 -0.074	-0.199*** -4.950 -0.079	-0.193*** -4.860 -0.077
<b>(6) Trust and Democracy</b>					
TRUST IN THE JUSTICE SYSTEM	0.082*** 4.510 0.033				
TRUST IN THE PARLIAMENT		0.094*** 4.790 0.037			
SATISFACTION WITH DEMOCRACY			0.039** 2.420 0.015		
PRO DEMOCRACY 1				0.112*** 5.330 0.044	
PRO DEMOCRACY 2					0.072*** 4.470 0.029
<b>ALL OTHER VARIABLES INCLUDED</b>					
Number of observations	31602	31371	30915	29971	30139
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).

*Table 5* presents the separate results for Western and Eastern Europe. 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.

Finally, we test whether the large impact of the variable PERCEIVED TAX EVASION on tax morale is driven by a subset of countries. Therefore, the specification derived in eq. (1) is estimated separately for each country in our sample. The results of the 30 regressions are presented in *Table 6*. This allows us to get a robust picture of pro-social behavior in the countries investigated. 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.

Table 5

Determinants of Tax Morale in Western and Eastern Europe (standard errors adjusted for clustering on countries)

<i>WEIGHTED ORDERED PROBIT</i>	<i>Coeff. z-Stat. Marg. Effects</i>	<i>Coeff. z-Stat. Marg. Effects</i>	<i>Coeff. z-Stat. Marg. Effects</i>	<i>Coeff. z-Stat. Marg. Effects</i>	<i>Coeff. z-Stat. Marg. Effects</i>	<i>Coeff. z-Stat. Marg. Effects</i>
<i>INDEPENDENT V.</i>						
<b>WESTERN EUROPE</b>	<i>Eq. 9a</i>	<i>Eq. 10a</i>	<i>Eq. 11a</i>	<i>Eq. 12a</i>	<i>Eq. 13a</i>	<i>Eq. 14a</i>
<b>PERCEIVED TAX EVASION</b>	-0.252*** -5.430 -0.100	-0.239*** -5.240 -0.095	-0.241*** -5.450 -0.095	-0.251*** -5.550 -0.099	-0.262*** -5.750 -0.103	-0.254*** -5.410 -0.100
<i>(6) Trust and Democracy</i>						
TRUST IN THE JUSTICE SYSTEM		0.120*** 5.240 0.048				
TRUST IN THE PARLIAMENT			0.124*** 4.960 0.049			
SATISFACTION WITH DEMOCRACY				0.047** 2.010 0.019		
PRO DEMOCRACY 1					0.149*** 4.430 0.059	
PRO DEMOCRACY 2						0.086*** 3.250 0.034
<b>ALL OTHER V. INCLUDED</b>						
Number of observations	17807	17415	17244	16895	16907	17004
Prob > chi2	0.000	0.000	0.000	0.000	0.000	0.000
<b>EASTERN EUROPE</b>	<i>Eq. 9b</i>	<i>Eq. 10b</i>	<i>Eq. 11b</i>	<i>Eq. 12b</i>	<i>Eq. 13b</i>	<i>Eq. 14b</i>
<b>PERCEIVED TAX EVASION</b>	-0.116** -2.240 -0.046	-0.112** -2.160 -0.045	-0.110** -2.140 -0.044	-0.117** -2.270 -0.047	-0.125** -2.300 -0.050	-0.122** -2.320 -0.049
<i>(6) Trust and Democracy</i>						
TRUST IN THE JUSTICE SYSTEM		0.063** 2.390 0.025				
TRUST IN THE PARLIAMENT			0.040** 1.970 0.016			
SATISFACTION WITH DEMOCRACY				0.036* 1.760 0.014		
PRO DEMOCRACY 1					0.088*** 4.220 0.035	
PRO DEMOCRACY 2						0.074*** 3.000 0.030
<b>ALL OTHER V. INCLUDED</b>						
Number of observations	14803	14187	14127	14020	13064	13135
Prob > chi2	0.000	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. Significance levels: \* 0.05 < p < 0.10, \*\* 0.01 < p < 0.05, \*\*\* p < 0.01. Marginal effect = 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. Effects</i>
<i>CONDITIONAL COOPERATION</i>			
<i>VARIABLE: PERCEIVED TAX EVASION</i>	<i>Eq. 10</i>		
<b>COUNTRIES</b>			
<b>Western European Countries</b>			
Germany	-0.330***	-6.47	-0.129
Austria	-0.290***	-4.22	-0.113
Belgium	-0.406***	-9.36	-0.152
Great Britain	-0.346***	-3.75	-0.136
Denmark	-0.479***	-7.72	-0.174
Finland	-0.318***	-4.48	-0.126
France	-0.211***	-4.35	-0.084
Iceland	-0.250***	-3.37	-0.098
Ireland	-0.373***	-5.63	-0.145
Italy	-0.303***	-6.47	-0.119
Malta	-0.587***	-5.20	-0.154
Netherlands	-0.480***	-7.47	-0.190
North Ireland	-0.150*	-1.96	-0.058
Portugal	0.162**	2.12	0.064
Spain	-0.086*	-1.68	-0.034
Sweden	-0.395***	-5.28	-0.157
<b>Eastern European Countries</b>			
Belarus	-0.235***	-4.59	-0.074
Bulgaria	-0.167**	-2.32	-0.061
Croatia	-0.385***	-4.33	-0.145
Czech Republic	-0.282***	-5.74	-0.109
Estonia	-0.196***	-3.46	-0.075
Greece	-0.114**	-2.08	-0.043
Hungary	-0.236**	-2.43	-0.085
Latvia	-0.101**	-1.99	-0.040
Lithuania	-0.267***	-3.70	-0.100
Poland	-0.294***	-4.11	-0.114
Romania	0.059	0.83	0.023
Russia	-0.188***	-4.60	-0.074
Slovak Republic	-0.009	-0.18	-0.003
Ukraine	-0.227***	-3.67	-0.075

Notes: Significance levels: \*  $0.05 < p < 0.10$ , \*\*  $0.01 < p < 0.05$ , \*\*\*  $p < 0.01$ . Marginal effect = highest tax morale score (3). The specification is based on eq. (1), considering each country value for the coefficient of the variable PERCEIVED TAX EVASION.

## V. CONCLUDING REMARKS

This paper proposes that taxation is a social act and that conditional compensation is an important factor, explaining the extent of tax morale and therewith 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 West and East European countries are in line with these hypotheses. The size of the effect is substantial: on average, when the extent of tax evasion of other persons rises by one unit (on a scale from 1 to 4), the percentage of persons reporting a high tax morale falls by 7.4 percentage points. 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, Czech Republic, Slovenian Republic, Bulgaria, Croatia and Poland). Trust in the judicial systems and in parliament, as well as positive attitudes towards democracy, tend to raise tax morale, but the effect of conditional cooperation on tax morale is not affected. This suggests that the perception of how far other taxpayers comply is an influence working independently of trust and democratic attitudes.

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. 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, help us to gain a better understanding of the considerations underlying tax paying and tax evasion.

## APPENDIX

*Table A1*  
Description of Variables

<b>Variable</b>	<b>Derivation</b>
TAX MORALE (dependent variable)	Please tell me for each of the following statements whether you think it can always be justified, never be justified, or somewhere in between. Cheating on tax if you have the chance (3=never and 0=always)
PERCEIVED TAX EVASION	According to you, how many of your compatriots do the following: Cheating on tax if they have the chance (4= almost all, 1= almost none).
TRUST IN THE JUSTICE SYSTEM	Could you tell me how much confidence you have in the justice system: is it a great deal of confidence, quite a lot of confidence, not very much confidence or none at all? (4= a great deal to 1=none at all).
TRUST IN PARLIAMENT	Could you tell me how much confidence you have in parliament: is it a great deal of confidence, quite a lot of confidence, not very much confidence or none at all? (4= a great deal to 1=none at all).
SATISFACTION WITH DEMOCRACY	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).
PRO DEMOCRACY1	Would you say that having a democratic political system is a very good (4), fairly good (3), pretty bad (2) or very bad (1) way of governing this country (scale 1 to 4).
PRO DEMOCRACY2	Democracy may have its problems, but it's better than any other form of government (4=strongly agree, 1=strongly disagree).
RELIGIOSITY (CHURCH ATTENDANCE)	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 holy days, once a year, less often, practically never or never. (8= more than once a week to 1=practically never or never)
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.

Source: EVS (1999).



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