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Tax Compliance, Tax Morale and Governance Quality

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Tax Compliance, Tax Morale and Governance Quality

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Working Paper No. 2007 - 17

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TAX COMPLIANCE, TAX MORALE AND GOVERNANCE QUALITY

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Abstract: Taxpayers are more compliant than the traditional economic models predict. Why? The literature calls it the "puzzle of tax compliance". In this paper we use field, experimental and survey data to investigate the empirical evidence on whether presence of tax morale helps to resolve this puzzle. The results reveal a strong correlation between tax morale and tax evasion/compliance which confirms the value of taking the research a step further by looking at the determinants of tax morale. We explore this question with a particular focus on the importance of governance quality.

JEL classification: *H260*

Keywords: *tax morale*, *tax compliance, tax evasion, institutional and governance quality, social capital*

I. INTRODUCTION

Adams' book (1993) begins with the inscription over the entrance to the Internal Revenue Service building: "Taxes are what we pay for a civilized society". An essential question for policymakers is the extent to which individuals are willing to pay this price; given that the probability of being audited by the tax administration is rather low. Elffers (2000) points out

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that "the gloomy picture of massive tax evasion is a phantom" (p. 185). A large share of revenues is collected without a draconian enforcement system. In many countries, the level of deterrence is too low to explain the high degree of tax compliance. Moreover, co-operation in tax compliance experiments is higher than neoclassical models would predict even after controlling for risk attitudes. Thus, the tax compliance literature has shown the necessity of going beyond the neoclassical approach when trying to understand why citizens pay taxes. Allingham and Sandmo's (1972) groundbreaking model assumes that the extent of tax evasion is negatively correlated with both the probability of detection and the degree of punishment, which has since been widely criticized (e.g., Graetz and Wilde 1985, Alm, McClelland, and Schulze 1992).

What are the reasons behind this puzzle of tax compliance? The literature in the last couple of years has stressed that the social norm of compliance or tax morale may help to explain why people willingly conform. An increasing number of studies have therefore explored which factors shape tax morale in an attempt to gain a broader understanding of this issue. However, there is still a lack of empirical evidence on the link between attitudes and behaviour in the tax compliance literature. It is important to address this deficiency because the state and the tax administration have a variety of methods available to influence tax compliance, and traditional approaches such as deterrence can be seen as just one possible instrument. Thus, knowledge about the causes and consequences of tax morale could lead to a better tax policy.

In the first part of the paper we are going to explore the impact of tax morale on tax evasion or tax compliance using survey, laboratory experimental and field data. We will then take the research a step further and explore the *determinants* of tax morale with a particular focus on whether governance and institutions matter.

II. THE IMPACT OF TAX MORALE ON TAX COMPLIANCE

1. Overview and Theoretical Considerations

Since the 90s, the issue of tax morale has increasingly attracted attention. The question of why so many people pay their taxes even though fines and audit probability are low has become a central issue in the tax compliance literature. Erard and Feinstein (1994) stress the relevance of integrating moral sentiments into the models to provide a reasonable explanation of actual compliance behaviour. And Andreoni, Erard and Feinstein (1998) point out that 'adding moral and social dynamics to models of tax compliance is as yet a largely undeveloped area of research' (p. 852). Many researchers maintain that a considerable portion of taxpayers are always honest. There are some taxpayers who are 'simply predisposed not to evade' (Long and Swinger, 1991, p. 130) and thus do not even search for ways to cheat at taxes (see Frey, 1999). Furthermore, Elffers (2000) reasons that not everyone with 'an inclination to dodge his taxes is able to translate his intention into action' (p. 187). Many individuals do not have the opportunity or the knowledge and resources to evade. Frey and Schneider (2000) point out that moral costs could act as a disincentive to be active in the illegal sector: "A good citizen has moral qualms to undertake a forbidden activity. These moral costs are closely related to 'tax morale' which motivates citizens to pay their dues to the state" (p. 6). An increase in tax morale increases the moral costs of behaving illegally and therefore reduces the incentives to evade taxes. Spicer and Lundstedt (1976) claim that the choice between tax compliance and evasion is not only made on the grounds of sanctions but also on the grounds of a set of attitudes and norms. Lewis (1982) contends "it could be that tax evasion is the only channel through which taxpayers can express their antipathy … we can be confident in our general prediction that if tax attitudes become worse, tax evasion will increase" (p. 165, 177). Polinsky and Shavell (2000), who present a survey of the economic theory of public enforcement of law, draw attention to the issue of social norms for future

research. Social norms can be seen as a general alternative to law enforcement in channeling individuals' behaviour. The violation of social norms has consequences including internal sanctions (guilt, remorse) or external legal and social sanctions such as gossip and ostracism. Polinsky and Shavel (2000) explain that there is an expanding literature on social norms because of their influence on behaviour, their role as a substitute for and supplement to formal laws and the possibility that laws themselves can influence social norms. In literature we find interesting theories that enable us to integrate moral constraints in a rational taxpayer model. One theory taking an altruistic approach (e.g., Chung 1976) involves taxpayers who are not only interested in their own welfare but are also concerned about the general welfare. The decision to evade is constrained by the knowledge that their evasion will reduce the amount of resources available for social welfare. Another theory is the 'Kantian' morality approach (see Laffont 1975, Sugden 1984). This methodology is broadly related to Kant's definition of morality and is based on the assumption that a fair tax is a tax which a taxpayer believes to be fair for all other taxpayers to pay. A false declaration will generate anxiety, guilt or a reduction in the taxpayer's self-image. It is assumed that a taxpayer only experiences these detrimental effects if he believes that his tax share is lower than what is defined as fair. If he is paying a higher amount, evasion can be seen as a sort of self-defence. Erard and Feinstein (1994) incorporate shame and guilt directly into the taxpayer's utility. They hypothesise that a taxpayer feels guilty when he under-reports and escapes detection yet conversely also feels ashamed when he under-reports and gets caught. Gordon (1989) modifies the standard model by including non-pecuniary costs of evasion. He appeals to the literature on social customs (see Akerlof 1980, Naylor 1989) to provide a reason why utility loss can be incurred by the act of evading. Non-pecuniary or psychic cost increases as evasion increases, and Gordon develops a model which can explain why some taxpayers refuse a favourable evasion game. Furthermore, dishonesty is endogenised as reputation cost. Non-pecuniary costs have a dynamic component, varying inversely with the number of individuals having evaded in the

previous period. Interestingly, there is a stable interior equilibrium where evaders and honest individuals coexist. However, non-pecuniary costs are exogenous to the analysis so that they can rationalise, but not explain, differences in tax behaviour across consumers or social groups. Myles and Naylor (1996) state that the model developed by Gordon is a step forward but lies outside the mainstream of the social custom literature because psychic costs depend on the extent of evasion. They see no reason why such a relation should hold. They argue that if the psychic cost is due to the shame at prosecution then the extent of evasion is irrelevant, or if it is due to the fear of detection then it should be dependent on the detection probability rather than the extent of evasion. Based on the social custom literature where it is accepted that once a social custom is broken, all utility from it is lost, Myles and Naylor (1996) suggest a model in which a social custom utility is derived when taxes are paid honestly, but is lost when evasion is undertaken. In their model, taxpayers face a choice between evading or not. If a taxpayer chooses evasion, the standard model of tax evasion becomes operative. Myles and Naylor combine social customs and social conformity with the standard model which represents tax evasion as a choice with risk. Since then, further studies have also modelled this puzzle of tax compliance (see, e.g., Schnellenbach 2006).

2. Empirical Results

We are going to work with a varied set of methodologies to explore the impact of tax morale on tax evasion/compliance. This allows us to see the broader picture and get a better idea regarding the robustness of the results, because each of the techniques have their pros and cons (see Torgler 2007).

1. Field/Macro evidence

A number of previous studies have investigated the simple correlation between tax morale and the size of shadow in Western societies, transition countries or Latin America (Alm and

Torgler 2006, Alm, Martinez-Vazquez and Torgler 2006, Torgler 2001, 2005a). The studies report a negative correlation with r values between -0.51 and -0.66. However, these analyses give information about the raw and not the partial effects. The observed correlation might be explained in terms of factors that affect the size of the shadow economy. It is important to investigate the causes as a whole with their interdependencies. An investigation that focuses on a simple correlation has a somewhat limited validity. Thus, multiple regressions help us to disentangle the effects of other factors from a possible tax morale effect (for previous studies see Torgler and Schneider 2007a, 2007b). To measure the shadow economy as a percentage of the official GDP we will use the DYMIMIC-method to estimate the parameters for determining the size of the shadow economy. With the help of the Currency Demand Method we will calibrate the estimated coefficients of the DYMIMIC procedure into absolute coefficients. We build a panel with values for the years 1990, 1995, and 2000. The fundamental principle of the database has been elaborated in many previous studies by Friedrich Schneider and is therefore not further discussed in this paper (see, e.g., Schneider, 2005a, 2005b, Schneider and Enste 2000, 2002). In line with the recent literature on tax morale (see Torgler 2007) we extract the relevant data from the World Values Survey (WVS) 1990-1993, 1995-1997 and 1999-2001 (see Inglehart et al. 2000). The WVS investigates socio-cultural and political change and collects comparative data on values and belief systems. It is based on representative national samples of at least 1000 individuals. The World Values Survey (WVS) is conducted worldwide and covers quite a large number of countries. The general question posed to assess the level of tax morale is:

"*Please tell me for each of the following statements whether you think it can always be justified, never be justified, or something in between: (…) Cheating on tax if you have the chance (% "never justified" – code 1 from a ten-point scale where 1=never and 10=always).*"

The tax morale variable is developed by recoding the ten-point scale into a four-point scale (0 to 3), with the value 3 standing for "never justifiable". The value of 0 is an aggregation of the last 7 scale points, which were rarely chosen. The baseline equation has the following form:

$$SHADOW_{it} = \alpha + \beta_1 CTRL_{it} + \beta_2 TAXMORALE_{it} + \beta_3 TD_t + \beta_4 REGION_i + \varepsilon_{it} \qquad (1)$$

where i indexes the countries in the sample, $SHADOW_{it}$ denotes countries' size of the shadow economy as a percentage of the official GDP over the periods 1990, 1995 and 2000. $TAXMORALE_{it}$ is the level of tax morale. In line with Torgler and Schneider (2007a) the regressions also contain several control variables, $CTRL_i$,[1] including factors such as GDP per capita, the share of agriculture in GDP, the share of urban population, the size of the population, the labor force, and the marginal tax rate. To control for time as well as regional invariant factors, we include fixed time, TD_t, and fixed regional effects, $REGION_i$[2]. The error term is denoted by ε_{it}.

Table 1 presents the results using two different types of empirical methodology: pooling and fixed effect regressions. In the pooled estimations, the *beta* or *standardized* regression coefficients compare magnitude, which reveals the relative importance of a variable. To obtain robust standard errors in these estimations, we use the Huber/White/Sandwich estimators of standard errors. We start with an OLS regression that includes only tax morale together with regional and time fixed effects. We observe that tax morale has a strong impact on the size of the shadow economy (high R^2 values); an increase in tax morale leads to a reduction of the size of the shadow economy. In the second and third specification we then add several control variables. The *beta* coefficient in specification (2)

[1] Variables are taken for the WDI (per capita GDP, trade volume in relation to the GDP, share of agriculture in GDP, population size and urbanization), except the top marginal tax rate where we use the top marginal tax rate (and income threshold at which it applies) provided by the Economic Freedom of the World data base.
[2] We differentiate between developed, Asian, and developing or transition countries.

shows that the quantitative impact of tax morale is comparable to other determinants. In the third specification we also present results with standard errors adjusted for the clustering on countries to account for unobservable country characteristics. Tax morale is also statistically significant in these estimates. In the next three specifications we present a fixed effect model and in specification (6) we also include a proxy for the top marginal tax rate. These results support the overall conclusion that tax morale matters. The last part in *Table 1* explores potential causality problems. It can be argued that a substantial growth of the shadow economy can lead to a crowding out of the willingness to pay taxes. The more taxpayers believe that others work in the shadow economy, the lower the moral costs incurred if they behave dishonestly and evade taxes by transferring their own activities into the shadow economy. We therefore present a 2SLS estimation together with the first stage regression and several diagnostic tests. In the 2SLS regression we also observe a strong correlation between tax morale and the size of the shadow economy.

In line with previous studies such as Schaltegger and Torgler (2007), Torgler and Schneider (2007a) we use a climate proxy as an instrument. Engerman and Sokoloff (1997), Landes (1998) and Sachs (2000) each found a connection between climate and economic development, and the social psychology literature has shown that our instrument of "cloudiness" has a negative impact on individuals' attitudes, their wellbeing and their moods (see, e.g., Eagles 1994 and Tietjan and Kripke 1994). We observe a strong negative correlation between tax morale and cloudiness (r=-0.414) and a low correlation between the shadow economy and cloudiness (-0.028). The *F*-test for the instrument exclusion set in the first-stage regression is also statistically significant, in line with the test for instrument relevance (Anderson canonical correlations LR). Overall, *Table 1* supports the premise that tax morale has a substantial impact on the size of the shadow economy.

Looking at the control variables we can see that a higher GDP per capita is associated with a smaller shadow economy. We also observe a positive correlation between

the share of agriculture in GDP and the shadow economy. On the other hand, there is a general tendency for trade (which is transparent and easier to tax) to be negatively correlated with the size of the shadow economy. Thus, the results indicate that sectors which are difficult to tax will report a larger shadow economy. Finally, we also observe a trend towards positive correlation between urbanization and the size of the shadow economy.

Table 1: Determinants of the Shadow Economy

Dependent Variable: Shadow Economy	OLS[a] (1)	OLS[a] (2)	OLS Clust. on Countries (3)	FE (4)	FE (5)	FE (6)	2SLS (7)	First Stage Regression
A) WILLINGNESS TO PAY								
TAX MORALE	-0.222***	-0.164**	-5.606***	-7.605***	-5.606**	-6.868***	-32.541**	
	(-3.23)	(-2.63)	(-2.24)	(-3.23)	(-2.63)	(-2.75)	(-2.13)	
B) CONTROL VARIABLE								
LOG (GDP PER CAPITA)		-0.578***	-5.372***		-5.372***	-4.536	-1.514	0.157***
		(-3.83)	(-2.97)		(-3.83)	(-2.58)	(-0.51)	(2.66)
AGRICULTURE (% OF GDP)		0.252**	0.333*		0.333**	0.565**	0.456**	0.006
		(2.47)	(1.88)		(2.47)	(2.61)	(2.14)	(1.03)
URBANIZATION		0.244***	0.193**		0.193***	0.189***	0.005	-0.006**
		(3.22)	(2.21)		(3.22)	(2.77)	(0.04)	(-2.39)
LOG (POPULATION)		0.803	7.092		7.092	4.695	18.846*	0.170
		(1.27)	(0.83)		(1.27)	(0.75)	(1.78)	(0.64)
LOG (LABOR FORCE)		-0.962	-8.583		-8.583	-6.670	-20.286*	-0.155
		(-1.52)	(-0.97)		(-1.52)	(-1.06)	(-1.91)	(-0.58)
TRADE (% GDP)		-0.102	-0.040		-0.040	-0.065**	-0.174**	-0.004***
		(-1.46)	(-1.12)		(-1.46)	(-2.05)	(-2.05)	(-3.23)
TOP MARGINAL TAX RATE						-0.015		
						(-0.04)		
Instrument for Tax Morale								
Cloudiness								-0.007**
								(-2.27)
Test of excluded instruments								5.14**
Anderson canon. corr. LR statistic								5.43**
Anderson Rubin test								10.34***
Regional Fixed Effects	YES	YES	YES	YES	YES	YES	YES	YES
Time Fixed Effects	YES	YES	YES	YES	YES	YES	YES	YES
Observations	127	127	127	127	127	105	127	127
R-squared	0.531	0.749	0.749	0.465	0.714	0.701	0.314	0.439
Prob > F	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

Notes: *t*-statistics in parentheses. Significance levels: * 0.05 < p < 0.10, ** 0.01< p < 0.05, *** p < 0.01. Regressions with robust standard errors, [a]beta coefficients reported.

2. Experimental Evidence

There are some problems involved with measuring tax evasion and tax compliance. Tax evaders' behavior could be affected by specific circumstances, which are difficult to control. An experimental approach circumvents the problem by generating data in a controlled environment. One possible approach could be to compare the tax compliance results from experiments with a post-experiment questionnaire that assists in gathering information about subjects' attitudes (e.g., Bosco and Mittone 1997). The main disadvantage of such a method is that behaviour during the experiment might influence people's answers to the questions. In general, laboratory experiments have been criticized as a method that lacks realism. Choices in the laboratory may not accurately reflect the choices in 'the outside world', as the setting is too artificial. Thus, tax experimenters try to increase external validity by making the circumstances of the study more realistic. Important factors in the tax compliance experiments such as audit probability, fine rate, tax rate etc. have been adapted to real values. Researchers have accordingly done an excellent job in improving the realism of the experiments and trying to analyse cognitive processes that might be similar in reality (see Torgler 2002). As a result, we use in this paper the common experimental design structure observed in the literature (see, e.g., Alm 1999 and Torgler 2007). We have conducted experiments in Switzerland, Australia and Costa Rica between 2002 and 2007 (for a detailed discussion see Torgler and Schaltegger 2005, Torgler 2004, and Torgler et al. 2003). All instructions were presented in the same language (English) in each of the three countries. Moreover, the main experimenters (first two authors) were the same in all the trials, to eliminate possible variations arising from uncontrolled procedural differences or uncontrolled personal differences between the experimenters. In total, 239 subjects have taken part in the experiments covering 31 groups or sessions. Participants were aged between 18 and 67 year old (mean=25) and 35 % of these participants were female. Each session lasted either 23 or 25 rounds. Subjects did not know in advance when the experiment would end. Communication was not allowed, except in the

situation where discussion was explicitly promoted by the experimenters. The laboratory currency was lab "dollars". The income distribution was either exogenous (subjects received the same income in every period, namely 200 lab dollars), or endogenous. In those experiments where the income distribution was endogenous, subjects were divided into two income categories (200 lab dollars or 400 lab dollars). The income distribution was based on individual performance on a test in which participants were confronted with numerical series following certain numerical patterns. The experiment lasted about an hour and participants earned up to around $20 from their accumulated wealth during the experiment[3]. Two endogenous audit selection rules were introduced in the experiment. Firstly, if a subject was audited and found to evade taxes, then the previous four periods were assessed. The evader must pay all unpaid taxes plus a penalty on unpaid taxes of the same amount (fine rate = 2). Secondly, if the audited subject had reported all income, the previous periods were not examined. Thus, the tax agency went back in time to previous periods' declarations. Furthermore, the audit probability increased from 5 percent to 10 percent depending on the amount of non-declared income between the present year and the declaration of the year before. In such an experimental design the probability of audit is endogenous, depending on the behavior of taxpayers throughout the experiment. One experimental design investigated the extent to which the recognition of government services has an effect on tax compliance (see Torgler 2004). To measure the appreciation of government services, consumers' surplus derived from the government's provision of public goods was changed by varying the group's surplus multiplier (0/1/2 and 3). The resulting amount was then redistributed in equal shares to the members of the group.[8] After a round, subjects' net income in groups 2, 3, and 4 can be calculated as income after taxes plus a share of the multiplied group tax fund. The first group was used as a control group and thus did not receive any redistribution. The second experimental design investigated the impact of tax amnesties on tax compliance (see Torgler

[3] It should be noted that the experiments in Australia were not conducted with monetary incentives.

and Schaltegger 2005 and Torgler et al. 2003). The tax amnesty experiments also implemented a public good structure by doubling taxes on declared income and redistributing the revenue in equal shares to the members of the group. After every round, each subject's net income could thus be calculated as income less taxes plus the share of the group tax fund. The tax rate was held constant at 20 percent. With the exception of a short instruction sheet at the beginning, the experiment was conducted entirely on computers and was programmed with an interactive experimental software named z-Tree (Zurich Toolbox for Readymade Economic Experiments, Fischbacher 1998). Each subject was informed in every round about the audit probability, the penalty rate, the accumulated income (fortune), and the individual tax redistribution. Before playing 23 or 25 rounds in every session, 3 practice rounds took place to make sure everybody understood the design. Subjects were informed that the performance in the practice periods did not affect their payments and were confronted with an explicit tax context language. We used tax terms such as "income to declare", "tax rate", "audit probability", "fine rate", in order to integrate contextual factors that are important in determining tax reporting behavior. Furthermore, this procedure ensures subjects do not simply perceive the experiment as a mere gamble. Subjects also completed a post-experimental questionnaire, which helped us to investigate the impact of tax morale on tax compliance and to control for other factors (e.g., gender differences) in our econometric estimations. We use two proxies to investigate the impact of tax morale. The first is the same question we have used in our previous macro investigation:

> *Please tell me for the following statement whether you think it can always be justified, never be justified, or something in between. Cheating on tax if you have the chance (10=never and 1=always).*

The second one is an unweighted average value of the following questions:

1. Given present tax burdens, one can hardly blame tax evaders

2. Given the easy availability of opportunities to evade taxes, one can hardly blame tax evaders
3. If in doubt about whether or not to report a certain source of income, I would not report it
4. Since the government gets enough taxes, it does not matter that some people evade taxes.
5. Taxes are so heavy that tax evasion is an economic necessity for many to survive.
6. If I receive $2000 in cash for services rendered, I would not report it.
7. Cheating on taxes is justifiable in light of the unfairness of the tax system
8. Taxes are something which is taken away from me.
9. Since everybody evades taxes, one can hardly be blamed for doing it
10. There is nothing bad about under-reporting taxable income on one's tax return ((1=strongly disagree; 2=disagree; 3=neutral; 4=agree, 5=strongly agree)).

Our two main estimation equations read as:

$$TC_{it} = \alpha + \beta_1\ CTRL_{it} + \beta_2\ TAXMORALE_{it} + \beta_3\ AUDIT_{it} + \beta_4\ TRANSF_{it} + \beta_5\ WEALTH_{it} + \beta_6\ EXP_i + \beta_7\ COUNTR_i + \varepsilon_{it} \quad (2)$$

$$TC_{it} = \alpha + \beta_1\ CTRL_{it} + \beta_2\ TAXMORALE_{it} + \beta_3\ AUDIT_{it} + \beta_4\ TRANSF_{it} + \beta_5\ WEALTH_{it} + \beta_6\ GROUP_i + \varepsilon_{it} \quad (3)$$

where TC_{it} denotes the tax compliance rate. $CTRL_{it}$ covers the control variables age and gender (female=1). $TAXMORALE_{it}$ are our two tax morale variables. We measure deterrence ($AUDIT_{it}$) with two different proxies: The first one is a dummy variable equal to 1 if the individual was audited in the previous round and 0 otherwise; the second measures the number of times a subject has been inspected (adjusted after every audit). For simplicity, we are only going to report the results using the second variable, however, both proxies provide similar results. $TRANSF_{it}$ is the amount an individual obtains from the group fund at the end of the previous round and $WEALTH_{it}$ is the individual's accumulated earnings. In equation (2)

we use dummy variables for the experimental design (EXP_i) and country dummy variables ($COUNTR_i$). In equation (3) we go one step further and use dummy variables for each group/session ($GROUP_i$). Because of the presence of the public good, one subject's payoff depends upon the behavior of all other subjects in a group. As a result, it seems reasonable to add group dummy variables and it also helps to deal with the fact that the number of subjects varies in each session.

Table 2 presents the results. In specifications (1) to (4) we begin by reporting Tobit maximum likelihood estimations, since the compliance rate varies between 0 and 1 and there are many observations with the values 0 and 1. Due to the panel structure of the data, we include a random-effects estimation to control for time-specific effects. The random-effects model is appropriate if we assume that the individual specific constant terms are randomly distributed across cross-sectional units. We add the deterrence variable sequentially (see (1) and (3)) in the specification due to possible causality problems. In the first two specifications we use the WVS tax morale proxy and in regressions (3) and (4) we use the index of tax morale. In the next four specifications ((4) to (8)) we add random-effects GLS regressions to check the robustness of the results. We include the audit probability in all of these regressions. In specification (7) and (8) we use group/session dummy variables instead of country and experimental design dummies. In taking the analysis a step further, we work with OLS models using group and time dummy variables, reporting the *beta* or *standardized* regression coefficients to reveal the relative importance of a variable. Finally, in regression (11) and (12) we present ordered probit models (3=full compliance, 1=zero compliance, 2=values in between). We also report the marginal effects which indicate the change in the share of taxpayers (or the probability) belonging to a specific tax compliance level, when the independent variable increases by one unit. For simplicity, only the marginal effects for the highest tax compliance level are shown. *Table 2* indicates that tax morale has a strong and positive impact on tax compliance and in all estimations the coefficient was statistically

significant at the 1% level. The *beta* coefficient also indicates that the quantitative effect is comparable to the other variables. The ordered probit models indicate that an increase in the tax morale scale by one unit raises the probability of being fully compliant between 2.7 (WVS question) and 11.0 (index) percentage points. Thus, the quantitative effects are quite meaningful.

Looking at the control variables we also observe that females are more compliant than males and that age is negatively correlated with compliance. In addition we find that a higher group transfer is positively correlated with tax compliance and that there is tendency for wealth to affect compliance in a negative manner. Higher transfers give subjects a signal that the group on average behaves honestly, and consequently the moral costs of being opportunistic increase. Finally, we observe a negative correlation between deterrence and compliance which is not consistent with an economics-of-crime approach but in line with some other studies (for an overview see Torgler and Schaltegger 2005). In sum, the experimental results also indicate that tax morale matters.

Table 2: The Impact of Tax Morale on Tax Compliance in Laboratory Experiments

Variables	**Random-Effects Tobit Regressions**[a]				**Random-Effects GLS**				**OLS**[b]		**Ordered Probit**[c]	
TAX MORALE WVS	0.039***	0.034***			0.013***		0.011***		0.071***		0.069***	
	10.75	**9.34**			**6.73**		**5.77**		**5.44**		**9.42**	
											0.027	
TAX MORALE INDEX			0.182***	0.157***		0.058***		0.048***		0.092***		*0.283****
			14.00	**12.11**		**8.89**		**6.98**		**6.91**		**10.35**
												0.110
AUDIT		-0.143***		-0.134***	-0.052***	-0.048***	-0.043***	-0.040***	-0.124***	-0.117***	-0.300***	-0.285***
		-13.04		**-12.28**	**-9.49**	**-8.69**	**-7.83**	**-7.20**	**-8.23**	**-7.72**	**-13.78**	**-13.10**
											-0.116	*-0.111*
GROUP TRANSFER	0.001***	0.001***	0.001***	0.001***	0.0003***	0.0004***	0.001***	0.001***	0.068***	0.068***	0.002***	0.002
	4.30	**3.92**	**5.21**	**4.88**	**3.39**	**4.07**	**3.75**	**3.73**	**2.95**	**2.91**	**2.81**	**2.71**
											0.001	*0.001*
WEALTH	0.000***	0.000**	0.000***	0.000***	0.000	0.000*	0.000	0.000	-0.202***	-0.212***	0.000***	0.000***
	-2.85	**-2.36**	**-3.02**	**-2.90**	**-1.41**	**-1.77**	**-1.11**	**-1.47**	**-6.96**	**-7.20**	**-4.27**	**-4.89**
											0.000	*0.000*
FEMALE	0.282***	0.252***	0.301***	0.271***	0.140***	0.147***	0.158***	0.163***	0.210***	0.216***	0.490***	0.523***
	15.49	**13.86**	**16.61**	**14.89**	**15.10**	**15.86**	**15.83**	**16.31**	**16.61**	**17.19**	**13.06**	**13.92**
											0.191	*0.204*
AGE	-0.003***	-0.004***	-0.001	-0.002	-0.004***	-0.004***	-0.004***	-0.003***	-0.075***	-0.064***	0.004*	0.008***
	-2.19	**-2.91**	**-0.55**	**-1.43**	**-6.08**	**-5.23**	**-5.01**	**-4.18**	**-4.61**	**-4.04**	**1.77**	**3.33**
											0.002	*0.003*
COUNTRY DUMMY[d]	YES	YES	YES	YES	YES	YES	NO	NO	NO	NO	NO	NO
EXP. DESIGN DUMMY[d]	YES	YES	YES	YES	YES	YES	NO	NO	NO	NO	NO	NO
TIME DUMMIES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES
GROUP DUMMIES[e]	NO	NO	NO	NO	NO	NO	YES	YES	YES	YES	YES	YES
Prob > chi2	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Number of Observations	5719	5719	5719	5719	5719	5719	5719	5719	5719	5719	5719	5719
R-squared/Pseudo R-squared					0.101	0.107	0.168	0.170	0.176	0.179	0.123	0.126

Notes: Dependent variable is the compliance rate. [a] 478 left-censored observations, 2848 uncensored observations, 2393 right-censored observations. [b] Beta coefficients reported. [c] Marginal effects: highest tax compliance scale (full compliance).[d] Equation (2) and [e] equation (3). Significance levels: * 0.05 < p < 0.10, ** 0.01< p < 0.05, *** p < 0.01. Regressions with robust standard errors. The z-statistics are in bold and marginal effects in italics. Total number of subjects: 239. Number of groups: 31. Number of rounds: 23 or 25.

3. Survey Evidence: Micro Analysis

To obtain further empirical insights we are going to work with the *Taxpayer Opinion Survey (TOS)*. In general, surveys provide the opportunity to study a variety of factors, especially attitudes. It is even possible to integrate questions about taxpayers' behaviour. However, this approach is not free of biases because the problem with asking delicate questions is knowing whether the answers received are honest. Jackson and Milliron (1986) point out that the technique used to solicit responses and the way questions are framed have an effect on the respondents' answers. One way to deal with this problem is to conduct and evaluate a variety of surveys to get a *general picture* of the main variables. An excellent method would be to conduct panels or to do regular surveys in different countries, similar to the structure of the TOS. In recent years, social researchers have intensively used surveys to investigate the causes and consequences of social capital or compliance behaviour. One reason might be that survey research now uses more sophisticated statistical techniques and design compared to those employed in the earlier years. We are going to work with the *Taxpayer Opinion Survey*, collected in the United States in 1987 and providing a broad set of taxpayers' opinions and evaluations of aspects including the tax system, the Internal Revenue Service, tax evasion, and cheating on taxes. Surprisingly, the *TOS* has not been used by many researchers (see, e.g., Smith 1992, Sheffrin and Triest 1992). Even if the data set is relatively old, the large number of questions and the fact that not many papers have utilised the data set makes it attractive for newer research projects (see, e.g., Forest and Sheffrin 2002, using the 1990 *TOS* or Torgler and Schaffner 2007). Unfortunately, further data is not available, as the *TOS* has not been conducted since 1990. The *TOS* allows separate analysis of two methods of tax evasion (overstating of deduction or expenses and underreporting income) as the dependent variable. The advantage of the *TOS* data set is that it poses quite a few questions on tax morale. We are going to use the following questions (scale from 1 to 6, where 6 means not at all acceptable and 1 means perfectly acceptable):

1. Trading or exchanging goods or services with a friend or neighbour and not reporting it on your tax form **(TM 1)**.
2. Reporting your main income fully, but not including some small outside income **(TM 2)**.
3. Being paid in cash for a job and then not reporting it on your tax form **(TM 3)**.
4. Not reporting some earnings from investments or interest that the government would not be able to find out about **(TM 4)**.
5. Stretching medical deductions to include some expenses which are not really medical **(TM 5)**.

Furthermore, the following questions have been asked (6=strongly disagree, 1=strongly agree)

6. With what things cost these days, it's okay to cut a few corners on your tax form just to help make ends meet **(TM 6)**.
7. It's not so wrong to hold back a little bit of taxes since the government spends too much anyway **(TM 7)**.
8. Almost every taxpayer would cheat to some extent if he thought he could get away with it (**TM 8**).
9. In this age of computers, you're bound to get caught if you cheat at all on your taxes (**TM 9**).
10. The chances of getting caught are so low that it is worthwhile trying to cut corners a little on your taxes (**TM 10**).
11. When you're not really sure whether or not you deserve a tax deduction, it makes sense to take a chance and take the deduction anyway (**TM 11**).
12. It's all right to occasionally underreport certain income or claim an undeserved deduction if you are generally a loyal and law-abiding citizen (**TM 12**)
13. When you know you deserve a deduction they won't let you take, it makes sense to take it some other place where they won't catch you on it (**TM 13**)
14. It is not so wrong to underreport certain income since it does not really hurt anyone (**TM 14**)
15. There's nothing wrong with interpreting the ambiguous or gray areas of the tax law to your own advantage (**TM 15**)

Tax evasion is measured with the following two questions:

1. Within the past five years or so, do you think you might have left some reportable income off your federal tax return – even, just a minor amount? (1. Definitely have not, 2. Probably have not, 3. Probably have, 4. Definitely have)

2. Within the past five years or so, do you think you might have overstated any deductions or expenses – like medical, charitable or business deductions, and so forth – even by just a small amount? Would you say you definitely have, probably have, probably have not, or definitely have not overstated any? (1. Definitely have not, 2. Probably have not, 3. Probably have, 4. Definitely have)

There are pros and cons on using such tax evasion measurements. Looking at the empirical data, the advantage is that we hardly ever find data that tries to measure the extent of tax evasion in a survey. Lewis (1982) points out: ”But why not just ask respondents whether they evade tax or not? If they admit it, ask them how much this amounts to and perhaps even why they do it? What could be simpler? (…) Maybe it is worth a try. But some traditional wisdom (and a smattering of social psychology) recommends a tempering of enthusiasm” (p. 140).

On the other hand, Lewis (1982) is aware of problems with such a procedure. People might refuse to answer or to take part in such a survey or they may moderate their views to reduce the possibility that information is used non-confidentially, for example, to prosecute taxpayers. As a consequence, such an approach would induce a tendency to *overestimate* tax compliance. Lempert (1992) criticises the scale used in the *TOS* to catch over-deduction and under-declarations on the grounds that using terms such as ‘probably’ and ‘minor amount’ encourages individuals to state that they have engaged in tax evasion. Finally, it is difficult to ask people about their behaviour five years ago.

We use a common specification that covers socio-demographic and socio-economic variables, risk attitudes and tax morale and we also run specifications with the perceived audit probability. Interestingly, the coefficient was not statistically significant. Thus, due to the high number of missing values we have decided not to report the results of the variable in the following tables. In sum, the two main estimation equations are the following ones:

$$TAXEV1_i = \alpha + \beta_1\, SOCIO_i + \beta_2\, TAXMORALE_i + \beta_3\, RISK_i + \varepsilon_i \qquad (4)$$

$$TAXEV2_i = \alpha + \beta_1\, SOCIO_i + \beta_2\, TAXMORALE_i + \beta_3\, RISK_i + \varepsilon_i \qquad (5)$$

where $TAXEV1_i$ and $TAXEV2_i$ denote the tax evasion variables under-declaration and over-deduction. $SOCIO_i$ is a panel of control variables including age, gender, education, income, marital and employment status. $TAXMORALE_{it}$ are our 15 tax morale variables. In addition, we also measure whether individuals are risk takers[4].

We are going to estimate 30 equations with 15 different tax morale variables. This helps check the sensitivity of the relationship between tax evasion and tax morale. Ordered probit equations are estimated to analyse the ranking information of the scaled dependent variables tax evasion. We also use the weighting variable provided by the TOS to get a representative population size. The *Tables 3* and *4* present the results using under-reporting and over-deducting as the dependent variable. Only the marginal effects for the lower tax evasion values are shown, and this explains the sign of the values. The results indicate a strong negative correlation between tax morale and tax evasion. In 29 out of 30 regressions, the coefficient is statistically significant.

Table 3 indicates that an increase in tax morale by one point increases the share of persons indicating that they have definitely not under-declared between 3 and 7.5 percentage points. *Table 4* also shows that the probability of definitely not over-deducting increases between 0.8 and 6.7 percentage points when tax morale increases by one unit. Thus, we observe substantial quantitative effects which are also relatively high in relation to the other variables. Thus, tax morale seems to be a key determinant in understanding tax compliance.

[4] Question: In order to get ahead in this world a person has to be willing to risk taking some chances (4= strongly agree, 3= mildly agree, 2= mildly disagree, 1=sharply disagree).

Table3: Determinants of Under-Declaration

weighted ordered probit															
Independent Variable	*TM1*	*TM2*	*TM3*	*TM4*	*TM5*	*TM6*	*TM7*	*TM8*	*TM9*	*TM10*	*TM11*	*TM12*	*TM13*	*TM14*	*TM15*
TAX MORALE	-0.10***	-0.13***	-0.16***	-0.13***	-0.10***	-0.13***	-0.14***	-0.11***	-0.09***	-0.11***	-0.08***	-0.22***	-0.13***	-0.16***	-0.13***
(TM1-15)	**-4.48**	**-6.08**	**-7.47**	**-5.45**	**-3.72**	**-5.33**	**-5.58**	**-4.69**	**-3.77**	**-3.94**	**-3.53**	**-8.52**	**-4.93**	**-6.02**	**-5.79**
	0.033	*0.043*	*0.054*	*0.044*	*0.033*	*0.044*	*0.047*	*0.039*	*0.030*	*0.036*	*0.028*	*0.074*	*0.043*	*0.055*	*0.045*
AGE	-0.01***	-0.01***	-0.01***	-0.01***	-0.01***	-0.01***	-0.01***	-0.01***	-0.02***	-0.01***	-0.01***	-0.01***	-0.01***	-0.01***	-0.01***
	-5.79	**-5.06**	**-4.20**	**-4.89**	**-5.61**	**-5.16**	**-4.97**	**-5.13**	**-6.06**	**-5.41**	**-5.87**	**-4.49**	**-4.74**	**-4.48**	**-5.48**
	0.005	0.004	0.004	0.004	0.005	0.004	0.004	0.004	0.005	0.005	0.005	0.004	0.004	0.004	0.005
FEMALE	-0.33***	-0.31***	-0.31***	-0.31***	-0.32***	-0.32***	-0.29***	-0.34***	-0.32***	-0.31***	-0.35***	-0.27***	-0.26***	-0.30***	-0.29***
	-3.71	**-3.51**	**-3.42**	**-3.46**	**-3.54**	**-3.55**	**-3.24**	**-3.77**	**-3.58**	**-3.46**	**-3.92**	**-3.01**	**-2.92**	**-3.33**	**-3.18**
	0.110	0.105	0.102	0.105	0.107	0.106	0.096	0.115	0.108	0.105	0.118	0.091	0.088	0.100	0.097
EDUCATION	0.05**	0.06**	0.06**	0.07***	0.05**	0.06***	0.06**	0.06**	0.06***	0.06**	0.06**	0.07***	0.06***	0.06***	0.03
	2.10	**2.48**	**2.52**	**2.80**	**2.28**	**2.71**	**2.44**	**2.57**	**2.63**	**2.37**	**2.41**	**2.83**	**2.61**	**2.67**	**1.27**
	-0.017	-0.020	-0.020	-0.023	-0.018	-0.022	-0.020	-0.021	-0.021	-0.019	-0.019	-0.022	-0.021	-0.022	-0.011
MARRIED	0.05	0.07	0.08	0.08	0.04	0.05	0.06	0.07	0.04	0.05	0.06	0.12	0.10	0.09	0.07
	0.64	**0.90**	**0.99**	**0.97**	**0.58**	**0.65**	**0.76**	**0.92**	**0.57**	**0.61**	**0.75**	**1.59**	**1.21**	**1.15**	**0.91**
	-0.017	-0.023	-0.026	-0.025	-0.015	-0.017	-0.020	-0.024	-0.015	-0.016	-0.020	-0.041	-0.032	-0.030	-0.024
INCOME	-0.02	-0.02	-0.02	-0.03	-0.02	-0.02	-0.02	-0.03	-0.02	-0.03	-0.03	-0.02	-0.03	-0.02	-0.03
	-1.20	**-1.07**	**-1.06**	**-1.39**	**-1.14**	**-1.14**	**-1.04**	**-1.44**	**-1.08**	**-1.46**	**-1.38**	**-1.15**	**-1.27**	**-1.20**	**-1.60**
	0.008	0.007	0.007	0.010	0.008	0.008	0.007	0.010	0.007	0.010	0.009	0.008	0.009	0.008	0.011
SELFEMPLOYED	0.35***	0.35***	0.38***	0.26**	0.31***	0.30**	0.30***	0.31***	0.32***	0.33***	0.30***	0.34***	0.31***	0.31***	0.27**
	3.09	**3.07**	**3.31**	**2.24**	**2.71**	**2.60**	**2.66**	**2.73**	**2.79**	**2.87**	**2.65**	**2.93**	**2.70**	**2.74**	**2.30**
	-0.127	-0.127	-0.137	-0.092	-0.113	-0.106	-0.107	-0.112	-0.115	-0.121	-0.108	-0.121	-0.109	-0.111	-0.095
RISK ATTITUDES	0.16***	0.12**	0.12**	0.13**	0.13**	0.13**	0.16***	0.13**	0.13**	0.13**	0.15***	0.13**	0.14**	0.16***	0.13**
	3.09	**2.22**	**2.41**	**2.56**	**2.59**	**2.49**	**2.98**	**2.50**	**2.56**	**2.46**	**2.82**	**2.42**	**2.54**	**3.03**	**2.49**
	-0.054	-0.039	-0.041	-0.045	-0.045	-0.044	-0.053	-0.046	-0.045	-0.044	-0.051	-0.043	-0.046	-0.053	-0.045
Observations	1173	1187	1189	1176	1178	1192	1194	1170	1176	1169	1154	1182	1166	1182	1137
Prob > chi2	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Pseudo R2	0.055	0.062	0.071	0.057	0.049	0.057	0.059	0.053	0.049	0.050	0.052	0.075	0.052	0.062	0.060

Notes: Dependent variable: tax evasion on a four point scale. The z-statistics are in bold and the marginal effects in italics (lowest tax evasion scale (0)). Significance levels: * 0.05 < p < 0.10, ** 0.01< p < 0.05, *** p < 0.01.

Table4: Determinants of Over-Deductions

weighted ordered probit															
Independent Variable	*TM1*	*TM2*	*TM3*	*TM4*	*TM5*	*TM6*	*TM7*	*TM8*	*TM9*	*TM10*	*TM11*	*TM12*	*TM13*	*TM14*	*TM15*
TAX MORALE	-0.07***	-0.08***	-0.11***	-0.14***	-0.15***	-0.15***	-0.15***	-0.06**	-0.02	-0.14***	-0.15***	-0.20***	-0.19***	-0.16***	-0.15***
(TM1-15)	**-3.08**	**-3.68**	**-4.93**	**-6.04**	**-6.10**	**-6.30**	**-5.86**	**-2.57**	**-0.99**	**-5.19**	**-6.39**	**-7.52**	**-7.37**	**-5.90**	**-6.36**
	0.021	*0.026*	*0.035*	*0.047*	*0.050*	*0.050*	*0.048*	*0.019*	*0.008*	*0.048*	*0.048*	*0.067*	*0.062*	*0.053*	*0.048*
AGE	-0.01***	-0.01***	-0.01***	-0.01***	-0.01***	-0.01***	-0.01***	-0.01***	-0.01***	-0.01***	-0.01***	-0.01***	-0.01**	-0.01**	-0.01***
	-3.52	**-3.26**	**-2.88**	**-2.71**	**-2.92**	**-2.68**	**-2.74**	**-3.75**	**-3.85**	**-3.38**	**-3.23**	**-2.61**	**-2.47**	**-2.48**	**-2.83**
	0.003	*0.003*	*0.002*	*0.002*	*0.002*	*0.002*	*0.002*	*0.003*	*0.003*	*0.003*	*0.003*	*0.002*	*0.002*	*0.002*	*0.002*
FEMALE	-0.03	-0.02	-0.002	0.01	0.01	-0.01	0.01	-0.05	-0.02	0.00	-0.02	0.04	0.05	0.03	0.07
	-0.34	**-0.24**	**-0.02**	**0.07**	**0.13**	**-0.11**	**0.15**	**-0.61**	**-0.24**	**-0.02**	**-0.26**	**0.42**	**0.50**	**0.37**	**0.71**
	0.010	*0.007*	*0.001*	*-0.002*	*-0.004*	*0.003*	*-0.004*	*0.018*	*0.007*	*0.000*	*0.008*	*-0.012*	*-0.015*	*-0.011*	*-0.021*
EDUCATION	0.08***	0.08***	0.07***	0.09***	0.08***	0.09***	0.08***	0.08***	0.08***	0.08***	0.06**	0.08***	0.09***	0.09***	0.06**
	2.92	**2.97**	**2.84**	**3.50**	**3.14**	**3.41**	**3.22**	**3.09**	**3.04**	**3.02**	**2.41**	**3.19**	**3.37**	**3.35**	**2.18**
	-0.025	*-0.025*	*-0.024*	*-0.030*	*-0.027*	*-0.029*	*-0.028*	*-0.026*	*-0.026*	*-0.026*	*-0.021*	*-0.027*	*-0.029*	*-0.028*	*-0.019*
MARRIED	0.18**	0.21**	0.24***	0.24***	0.17**	0.21**	0.21**	0.21***	0.18**	0.21**	0.20**	0.29***	0.27***	0.24***	0.23***
	2.22	**2.58**	**2.85**	**2.87**	**2.12**	**2.50**	**2.56**	**2.60**	**2.22**	**2.51**	**2.35**	**3.44**	**3.17**	**2.87**	**2.68**
	-0.059	*-0.069*	*-0.076*	*-0.077*	*-0.057*	*-0.066*	*-0.068*	*-0.069*	*-0.059*	*-0.068*	*-0.064*	*-0.092*	*-0.085*	*-0.077*	*-0.073*
INCOME	0.06***	0.06***	0.06***	0.05**	0.06***	0.06***	0.06***	0.06***	0.07***	0.06***	0.06***	0.07***	0.05**	0.06***	0.06***
	2.94	**2.99**	**3.02**	**2.58**	**2.66**	**2.83**	**2.84**	**2.80**	**3.21**	**2.61**	**2.77**	**3.11**	**2.54**	**3.05**	**2.88**
	-0.020	*-0.020*	*-0.021*	*-0.018*	*-0.018*	*-0.019*	*-0.020*	*-0.019*	*-0.022*	*-0.018*	*-0.020*	*-0.021*	*-0.018*	*-0.021*	*-0.020*
SELFEMPLOYED	0.15	0.16	0.16	0.06	0.14	0.11	0.11	0.12	0.12	0.13	0.07	0.11	0.14	0.11	0.02
	1.31	**1.38**	**1.41**	**0.49**	**1.24**	**1.00**	**1.00**	**1.07**	**1.09**	**1.16**	**0.60**	**0.98**	**1.20**	**1.02**	**0.20**
	-0.050	*-0.053*	*-0.055*	*-0.018*	*-0.048*	*-0.038*	*-0.037*	*-0.041*	*-0.042*	*-0.044*	*-0.022*	*-0.037*	*-0.046*	*-0.038*	*-0.008*
RISK ATTITUDES	0.10*	0.08	0.09*	0.09*	0.09*	0.10*	0.10*	0.10*	0.11*	0.09	0.08	0.08	0.07	0.09*	0.07
	1.79	**1.54**	**1.74**	**1.76**	**1.68**	**1.72**	**1.88**	**1.75**	**1.95**	**1.59**	**1.51**	**1.46**	**1.35**	**1.67**	**1.30**
	-0.032	*-0.027*	*-0.030*	*-0.031*	*-0.029*	*-0.031*	*-0.034*	*-0.032*	*-0.035*	*-0.029*	*-0.028*	*-0.026*	*-0.024*	*-0.030*	*-0.024*
Observations	1122	1135	1134	1124	1126	1138	1140	1120	1124	1118	1107	1135	1117	1131	1083
Prob > chi2	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Pseudo R2	0.047	0.048	0.054	0.060	0.058	0.061	0.057	0.046	0.043	0.055	0.060	0.070	0.066	0.057	0.064

Notes: Dependent variable: tax evasion on a four point scale. The z-statistics are in bold and the marginal effects in italics (lowest tax evasion scale (0)). Significance levels: * 0.05 < p < 0.10, ** 0.01< p < 0.05, *** p < 0.01.

Looking at the control variables we observe that elderly people evade taxes significantly less often than younger individuals. On the other hand, a higher education is positively correlated with tax evasion. The coefficient of the variable "married" has lost its significance. In *Table 3* married people evade taxes significantly more often than singles. However, the coefficient is not statistically significant in *Table 4*. An income increase enhances the incentive to over-deduct but not to under-declare the income. Interestingly, self-employed people report a higher level of tax evasion than other individuals and risk-takers are less compliant that risk averse taxpayers.

After working with field data at the macro level, tax compliance experiments and survey data, we can therefore conclude that tax morale is a key factor in determining tax compliance and tax evasion. Thus, to provide further insights it is highly relevant to investigate the determinants of tax morale. The next section will explore the causes of tax morale, focusing in particular on the impact of institutional and governance quality.

III. THE DETERMINANTS OF TAX MORALE

Having found a significant correlation between tax morale and tax evasion we will now consider tax morale as the dependent variable, thus analysing the factors that shape tax morale. Although many researchers have pointed out that tax morale influences tax compliance rates, we find only a couple of studies that specify which characteristics shape tax morale (for an overview, see Torgler 2007). Surveys allow us to work with a representative set of individuals, which is not often the case in experimental studies given that many engage students as participants. We will mainly focus on the impact of institutional/governance quality on tax morale.

It is not only the economic, but also the political system which affects formal and informal economic activities. As such, the outcomes in many countries may be attributed to

underlying political conditions. Bird, Martinez-Vazquez and Torgler (2006) stress that countries may tend to achieve an equilibrium position with respect to the size and nature of their fiscal systems that largely reflects the balance of political forces and institutions, and stay at this position until 'shocked' to a new equilibrium. It is worthwhile investigating whether the recent political economy literature on the importance of governance and institutions provides any insight regarding the level of tax morale. If citizens perceive that their interests (preferences) are properly represented in political institutions and they receive an adequate supply of public goods, their identification with the state and their willingness to pay tax increases. On the other hand, in an inefficient state where corruption is rampant the citizens will have little trust in authority and thus will experience a low incentive to cooperate. A more encompassing and legitimate state increases the citizens' willingness to contribute, yet if the government and the administration hold considerable discretionary power over the allocation of resources, the level of corruption increases. A sustainable tax system is based on a fair tax system and responsive government, achieved with a strong connection between tax payments and the supply of public goods (Bird et al. (2006)). Agents such as the political elite, administration staff, and legislators wield a discretionary power if institutions are neither credible nor working well. The negative consequence of this situation is that citizens' tax morale is crowded out. In countries where corruption is systemic and the government budget lacks transparency and accountability, it cannot be assumed that the obligation of paying taxes is an accepted social norm. Institutional instability, lack of transparency and a weak rule of law undermine the willingness of frustrated citizens to be active in the formal economy. There might be a crowding-out effect of morality among the tax administrators when there are large numbers of corrupt colleagues. Citizens will feel cheated if they believe that corruption is widespread, their tax burden is not spent well, their government lacks accountability, and that they are not protected by the rules of law. This reduces the incentive to pay taxes. Thus, a

more encompassing and legitimate state may be an essential precondition for a higher level of tax morale.

To investigate the impact of institutions on tax morale, we are going to use six proxies of the governance indicators developed by Kaufmann, Kraay, and Mastruzzi (2003)[5]. 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 (2003) range between –2.5 and 2.5 with higher scores corresponding to better institutions or outcomes.

We use survey data provided by the European Values Survey (EVS) 1999/2000, which is a European-wide investigation of socio-cultural and political change. The survey assesses the basic values and beliefs of people throughout Europe. The EVS was first carried out from 1981 to 1983, then in 1990 to 1991 and again in 1999 through 2001, with an increasing number of countries participating over time. The EVS methodological approach is explained in detail in the European Values Survey (1999) source book, which provides information on response rates, the stages of sampling procedures, the translation of the questionnaire, and field work, along with measures of coding reliability, reliability in general, and data checks. All country surveys were carried out by experienced professional survey organizations, (with the exception of the study conducted in Greece), and were performed through face-to-face interviews among samples of adult citizens aged 18 years and older. Tilburg University coordinated the project and provided the guidelines to guarantee the use of standardized information in the surveys and in the national representativeness of the data. To

[5] Aggregate Governance Indicators 1998.

avoid framing biases, the questions were asked in the prescribed order. The response rate varies from one country to another; in general, the average response rate was around 60%.

Because the EVS poses an identical set of questions to people in various European countries, the survey provides a unique opportunity to examine the impact of institutional or governance quality on tax morale. Our study considers 30 representative national samples of at least 1000 individuals in each country. To assess the level of tax morale from the EVS, we use the same question we employed in the field and experimental study:

> *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 if you have the chance.*

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

Our main specifications have the following structure:

$$TM_i = \alpha + \beta_1\, CTRL_i + \beta_2\, GOVQ_i + \beta_3\, COUNTR_i + \varepsilon_i \qquad (6)$$

$$TM_i = \alpha + \beta_1\, CTRL_i + \beta_2\, GOVQ_i + \beta_3\, TRUST_i + \beta_4\, COUNTR_i + \varepsilon_{i,} \qquad (7)$$

where TM_i denotes the level of tax morale. $CTRL_i$ is a panel of control variables[6] including age and gender (female=1), education, marital status, employment status and religiosity (church attendance). Previous tax compliance studies demonstrate the relevance of considering socio-demographic and socio-economic variables along with the level of church attendance (see for example Torgler (2007)). $GOVQ_i$ corresponds to our six governance quality factors. First we consider an index of governance quality (unweighted average of all the factors). In the second stage, we explore the impact of all the sub-factors. Finally, $COUNTR_i$ covers our country dummy variables. In equation (7) we also consider two trust variables, namely trust in the justice system and trust in the parliament.[7] These variables allow us to analyze trust at the constitutional level, e.g., trust in the legal system, thereby focusing on how the relationship between the state and its citizens is established. They also allow us to analyze trust more closely at the current politico-economic level, e.g., trust in the parliament. We do not include income in the reported results. The ten-point income scale in the EVS is based on national currencies, which reduces the possibility of carrying out cross-country

[6] The demographic variables age, gender, and education. As a proxy for education, we use the answers to the following question. At what age did you complete or will you complete your full time education, either at school or at an institution of higher education? Please exclude apprenticeships. As a measure of religiosity, we use answers to the following question. Apart from weddings, funerals and christenings, how often do you attend religious services these days? More than once a week, once a week, once a month, only on special religious days, once a year, less often, practically never or never. (8=more than once a week to 1=practically never or never.)

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

comparisons.[8] A proxy for an individual's economic situation could be the self-classification of respondents into various economic classes. Unfortunately, this variable has not been collected in all countries, however the result of testing on this variable indicate that the main findings are robust. The question of which other factors should be included in the estimations remains an issue. Traditional tax evasion models indicate the relevance of deterrence variables. However, we are not testing a model of tax evasion but a model of tax morale, so it is not obviously necessary to consider deterrence factors. It would only be appropriate to include these factors if tax morale is a good indicator of tax compliance. Several case studies, e.g., Torgler (2005b), show that deterrence factors are not likely to affect tax morale significantly.

In this estimation we use an ordered probit model due to the ranking information of the scaled dependent variable. We also calculate the quantitative effects and therefore report the marginal effects. For simplicity, the marginal effects in all estimates are presented for the highest value of tax morale only. Weighted ordered probit estimates are conducted to ensure the samples correspond to the national distribution.[9] Furthermore, answers such as "don't know" and missing values have been eliminated in all estimations.

Table 5 presents the first estimated coefficients using two different estimation techniques to identify the effect of the determinants on tax morale. Equations (1) and (2) use robust standard errors with country dummy variables while equation (3) uses standard errors adjusted for the clustering on 30 countries, which accounts for unobservable country-specific characteristics while also controlling for regional differences. In general, clustering leads to a decrease in the *z*-values. Consistent with our hypothesis, the estimation results indicate a positive correlation between tax morale and institutional quality. Moreover, the size of the

[8] Moreover, income is coded on a scale from 1 to 10 and these income intervals are not fully comparable across countries.

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

effect is substantial; if the governance quality scale rises by one unit, the percentage of persons reporting the highest tax morale level increases between 8.4 and 11.2 percentage points.

In specifications (1) and (2) we explore the impact of trust. Each variable has a statistically significant positive effect on tax morale. An increase in trust in the justice system or in the parliament by one unit raises the percentage of persons reporting the highest tax morale by more than 2 percentage points.

Regarding the control variables, older people and women exhibit higher tax morale. Education affects tax morale negatively, but the coefficient is not statistically significant in two 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 get divorced. Self-employed persons have lower tax morale, while church attendance is correlated with higher tax morale. Overall, the results point to the significance of including a broad set of control variables.

To check the robustness we explore all six sub-factors independently (*Table 6).* In general, the previous results are supported. The strongest effects can be observed for the variables “voice and accountability” and “rule of law”. An increase in the voice and accountability (rule of law) scale by one unit raises the probability of reporting the highest tax morale level by 11.6 (9.4) percentage points. Similarly, the trust variables are also statistically significant with marginal effects between 2.1 and 2.8 percentage points.

Table 5: Determinants of Tax Morale

	Coeff.	*z-Stat.*	*Marg. Effects*	*Coeff.*	*z-Stat.*	*Marg. Effects*	*Coeff.*	*z-Stat.*	*Marg. Effects*
	WEIGHTED ORDERED PROBIT			*WEIGHTED ORDERED PROBIT*			*WEIGHTED ORDERED PROBIT*		
INDEPENDENT V.	*Robust standard errors*			*Robust standard errors*			*Standard errors adjusted for clustering on countries*		
		(1)			(2)			(3)	
INSTITUTION /GOVERNANCE									
INDEX QUALITY OF GOVERNANCE (WB)	0.281***	13.79	0.112	0.264***	12.39	0.105	0.211**	2.00	0.084
TRUST PARLIAMENT				0.070***	6.74	0.028	0.068***	3.76	0.027
TRUST JUSTICE SYSTEM				0.053***	5.33	0.021	0.055***	3.36	0.022
Demographic Factors									
AGE 30-39	0.130***	5.27	0.051	0.127***	5.00	0.050	0.104***	2.97	0.041
AGE 40-49	0.245***	9.39	0.096	0.242***	9.01	0.095	0.230***	5.78	0.091
AGE 50-59	0.331***	11.71	0.129	0.328***	11.22	0.128	0.305***	6.63	0.119
AGE 60-69	0.388***	10.92	0.150	0.376***	10.27	0.145	0.332***	5.28	0.129
AGE 70+	0.526***	12.82	0.199	0.501***	11.71	0.190	0.446***	5.80	0.171
WOMAN	0.152***	10.06	0.061	0.147***	9.38	0.058	0.133***	6.30	0.053
EDUCATION	0.001	0.98	0.001	0.001	0.35	0.0002	-0.006*	-1.86	-0.002
Marital Status									
WIDOWED	-0.018	-0.63	-0.007	-0.031	-1.02	-0.012	-0.045	-1.35	-0.018
DIVORCED	-0.152***	-5.57	-0.061	-0.146***	-5.16	-0.058	-0.165***	-5.23	-0.066
SEPARATED	-0.142**	-2.58	-0.057	-0.130**	-2.28	-0.052	-0.131***	-2.88	-0.052
NEVER MARRIED	-0.096***	-4.38	-0.038	-0.092***	-4.06	-0.037	-0.088**	-2.29	-0.035
Employment Status									
PART TIME EMPLOYED	-0.021	-0.74	-0.008	-0.027	-0.95	-0.011	-0.094***	-3.01	-0.038
SELFEMPLOYED	-0.146***	-4.51	-0.058	-0.152***	-4.62	-0.061	-0.131**	-2.99	-0.052
UNEMPLOYED	0.139***	4.75	0.055	0.138***	4.56	0.054	0.132***	3.64	0.052
AT HOME	0.019	0.64	0.008	0.006	0.20	0.003	0.010	0.19	0.004
STUDENT	-0.019	-0.56	-0.008	-0.035	-0.97	-0.014	-0.057	-1.10	-0.023
RETIRED	-0.045	-1.54	-0.018	-0.033	-1.11	-0.013	-0.044	-1.04	-0.017
OTHER	0.013	0.24	0.005	-0.013	-0.24	-0.005	0.000	-0.01	-0.0001
Religiosity									
CHURCH ATTENDANCE	0.023***	6.83	0.009	0.020***	5.75	0.008	0.036***	3.21	0.014
REGION	NO			NO			YES		
COUNTRY	YES			YES			NO		
Pseudo R2	0.046			0.046			0.027		
Number of observations	35588			33166			33166		
Prob > chi2	0.000			0.000			0.000		

Notes: The dependent variable is tax morale measured on a four point scale from 0 to 3.The reference group consists of AGE<30, MAN, MARRIED, FULL-TIME EMPLOYED. **S**ignificance levels: * 0.05 < p < 0.10, ** 0.01< p < 0.05, *** p < 0.01. We report the marginal effects of the highest tax morale score (3).

Table 6: The Impact of Institutions on Tax Morale

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.	(4)			(5)			(6)			(7)			(8)			(9)		
VOICE AND ACCOUNTABILITY	0.291***	11.38	0.116															
POLITICAL STABILITY				0.223***	6.93	0.089												
GOVERNMENT EFFECTIVENESS							-0.089***	-4.59	-0.035									
REGULATORY QUALITY										0.214***	12.13	0.085						
RULE OF LAW													0.237***	12.39	0.094			
CONTROL OF CORRUPTION																0.108***	6.14	0.043
TRUST PARLIAMENT	0.070***	6.74	0.028	0.070***	6.74	0.028	0.070***	6.74	0.028	0.070***	6.74	0.028	0.070***	6.74	0.028	0.070***	6.74	0.028
TRUST JUSTICE SYSTEM	0.053***	5.33	0.021	0.053***	5.33	0.021	0.053***	5.33	0.021	0.053***	5.33	0.021	0.053***	5.33	0.021	0.053***	5.33	0.021
OTHER VAR. INCLUDED	Yes			Yes			Yes			Yes			Yes			Yes		
COUNTRY	Yes			Yes			Yes			Yes			Yes			Yes		
Number of observations	33166			33166			33166			33166			33166			33166		
Prob > chi2	0.046			0.046			0.046			0.046			0.046			0.046		

Notes: The dependent variable is tax morale measured on a four point scale from 0 to 3. The reference group consists of AGE<30, MAN, MARRIED, FULL-TIME EMPLOYED. Significance levels: * 0.05 < p < 0.10, ** 0.01< p < 0.05, *** p < 0.01. We report the marginal effects of the highest tax morale score (3).

IV. CONCLUSIONS

Our primary intention in this paper was to verify the correlation between tax compliance and tax morale. A central question in the tax compliance literature is why so many people pay their taxes even though fines and audit probability are low. One key determinant might be tax morale, i.e. the intrinsic motivation to pay taxes. Interestingly, tax morale is not often discussed in the tax compliance literature and is seen as a residual explanation without referring to the factors that shape tax morale. We have used a variety of methodologies to explore this aspect in detail. This allowed us to take into account the fact that every method has its pros and cons, especially when investigating tax evasion, which by its nature is concealed. The results are very consistent. Tax morale has a strong positive effect on tax compliance regardless of which methodology is used. Thus, if tax morale seems to be a key determinant in enhancing tax compliance there are a variety of policies besides coercion that will help to increase tax compliance. Therefore, to derive some policy recommendation from these results it was necessary to go a step further and explore the determinants of tax morale. We focused predominantly on the impact of governance quality. Our results show that the quality of political institutions has a strong observable effect on tax morale. It is clear that not only the overall index, but also the sub-factors of voice and accountability, rule of law, political stability and absence of violence, regulatory quality and control of corruption exercise a strong influence on tax morale. Moreover, trust in the justice system and the parliament also has a highly significant positive effect on tax morale.

In general, our analysis highlights the relevance of extending the standard economic theory of tax evasion, which is based on the narrow principle of *homo oeconomicus*. The concept of tax morale provides answers about the taxpayer's personal decision on whether, and to what extent they evade their own taxes. We have shown that the political economy literature provides an appropriate basis for understanding the determinants of tax morale.

Further empirical work is needed to better understand the causes and consequences of tax morale. For example, an excellent method would be to collect panel data that allows the exploration of shocks and inter-temporal aspects. In general, the results and conclusions obtained in tax morale research are of considerable importance. First, they can provide insight into a more efficient way of raising revenues since the interaction between the taxpayer and the tax authority is taken into account. Second, this research points to a broader understanding of tax compliance using a rich set of theories and methodologies to systematically evaluate the puzzle of tax compliance.

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