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Center for Research in Economics, Management and the Arts

# **Attitudes Towards Paying Taxes in Austria: An Empirical Analysis**

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Working Paper No. 2004 - 27

# Attitudes Towards Paying Taxes in Austria: An Empirical Analysis\*

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**Abstract.** People mostly pay their taxes although there is a low probability of getting caught and being penalized. Thus, new attempts in the tax compliance literature try to go beyond standard economic theory. This paper examines citizens' attitudes toward paying taxes – what is sometimes termed their “tax morale”, or the intrinsic motivation to pay taxes. Tax morale may be a key determinant to explain why people are honest. However, there are very few papers that explore the concept of tax morale theoretically and empirically. This study, based on the World Values Survey and the European Values Survey, therefore attempts to fill this gap in the literature, focusing on tax morale in Austria. Societal institutions such as trust or pride have been identified as key determinants that shape tax morale in Austria. Furthermore, a lower perceived compliance leads to a decrease of tax morale, which indicates that social comparisons are relevant. The results also show a decrease of tax morale between 1990 and 1999, although Austria's taxpayers still have a very high tax morale compared to other European countries.

**Keywords:** Tax Morale, Societal Institutions, Austria

**JEL codes:** H260, H730, D640

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## I. Introduction

One of the key puzzles in the tax compliance literature is to understand why so many people pay their taxes, although there is a low probability of being detected. Expected utility models emphasizing the role of deterrence factors failed to convincingly solve this puzzle. Most tax compliance experiments report a higher level of income declaration than an expected utility maximization calculus would predict (see Alm, 1999; Torgler, 2002). Furthermore, in many countries the level of deterrence is too low to explain the high degree of tax compliance. It can be argued that risk aversion may help explain the high level of compliance. However, studies in Switzerland and the United States indicate that there is a big gap between the degree of risk aversion that would grant such a compliance and the degree effectively reported (see Graetz and Wilde, 1985; Alm, McClelland and Schulze, 1992; and Frey and Feld, 2002).

Including findings of other sciences such as psychology or sociology without losing the spirit of the economic foundation seems to be a promising step towards solving this puzzle. A few studies have tried to extend the traditional models incorporating psychological costs or social norms (Gordon, 1989; Bordignon, 1993; Erard and Feinstein, 1994, or Schnellenbach, 2002). In a broader sense these studies try to investigate attitudes towards paying taxes which can be seen as a proxy for *tax morale*: the intrinsic motivation to comply and pay taxes and thus voluntarily contribute to the public good. However, most of the attempts failed to consider how tax morale may arise or which factors have an impact on it. Thus, tax morale is used as a residuum to capture unknown influences on tax evasion (see Frey and Feld, 2002). Another promising line is to consider empirically citizens' attitudes toward paying taxes as a proxy for tax morale and search for factors that shape it. Relatively new surveys such as the *World Values Surveys* or *International Social Survey* allow to find a proxy for and thus to check the impact on tax morale. This attempt is in line with the growing inclination among economists to use surveys (see, e.g., Knack and Keefer, 1997, for social capital studies, or Frey and Stutzer, 2002, who intensively investigated happiness). One reason might be that survey research now uses more sophisticated statistical techniques and designs compared to early years. Furthermore, a main advantage is that surveys include many socio-economic, demographic and attitudinal variables. In general, evidence on tax compliance and tax morale in countries outside the United States is still rare (exceptions, see, e.g., Gërkhani, 2002; Orviska and Hudson, 2002; Torgler, 2003a, 2003b, 2004). Reviewing the whole literature, Andreoni, Erard and Feinstein (1998) stress that empirical literature on tax compliance "is still in its youth, with many of the most important behavioral hypotheses and policy questions yet to be adequately investigated" (p. 835-836).

Little is known about general tendencies of tax morale in Austria, a gap this paper intends to fill. Some information is available about the deterrence mechanism.<sup>1</sup> <sup>2</sup>However, this is the first paper that makes an explicit empirical analysis of the tax morale for the case of Austria. It contains a number of interesting empirical results and hence makes a small contribution to our understanding of why so many people pay honestly their taxes. Furthermore, Austria is an interesting country to investigate as there is a high degree of tax morale over time (see next section). The study analyses a cross-section of individuals throughout Austria using the World Values Survey data of 1990 and 1999. Working with two datasets collected at two different points in time allows us to observe trends over time and it also allows us to assess the robustness of some main independent variables. The findings from these data suggest that tax morale has decreased over time. This result parallels the findings of an increase in the size of shadow economy between 1990 and 1999 (see Schneider and Enste, 2002). Furthermore, it will be shown among other results that a higher trust in the state, a stronger identification with the country, and a higher perceived compliance have a positive impact on tax morale.

Before considering the findings in detail, however, Section II of the paper first introduces the way tax morale is defined, provides thus information about the World Values Surveys, and presents the level of tax morale in Europe for the years 1990-1993 and 1999-2000. Section III then introduces the models and presents our main hypotheses. In Section IV we present the empirical findings, and Section V finishes with some concluding remarks.

## II. Data

The data used in the present study are taken from the 1990 World Values Survey (WVS) and the 1999 European Values Survey (EVS). The World Values Survey is a worldwide investigation of socio-cultural and political change, based on representative national samples. It was first carried out in 1981-83, and subsequently in 1990-91, 1995-96 and 1999-2001. Data from these surveys are made publicly available for use by researchers interested in how views change with time. However, economists have just started to work with the WVS/EVS.

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<sup>1</sup> For example, the punishment (mostly an extra-payment - a fine) for having avoided taxes depends on the following circumstances: Amount evaded, for the first time or repeatedly, and whether it was done with intention or by accident. In any case the amount of avoided taxes has to be paid together with a punishment of another 100% (same amount). If the tax evasion has been done with intention and repeatedly, this fine can be raised.

To assess the level of tax morale in the WVS and the EVS we use the following question throughout the whole paper:

“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”.

The question leads to a ten-scale index of tax morale with the two extreme points “never justified” and “always justified”. In our case, the natural cut-off point is at the value 1, as a high amount of respondents assert that the cheating on tax is “never justifiable”. Thus, our tax morale variable takes the value 1 if the respondent says that cheating on tax is “never justified”, and zero otherwise.

The used data sets have the advantage that they are designed as wide-ranging surveys, which reduces the probability of participants being suspicious and of creating framing effects by other tax context questions. Certainly it can be discussed whether it is more adequate to use an index instead of 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. Furthermore, an index might be constructed so that it fits best the theoretical argumentations. As we analyze one specific country, problems based on differences in the interpretation of the question or a variation in the political institution which may influence the justifiability of evading taxes do not occur<sup>3</sup>. Working with more than one survey and thus considering different time periods allows for some determinants to reduce biases due to a “time specific mood”. Certainly, there is still the problem that some individuals may excuse their non-cooperative behavior in the past by declaring relatively high tax morale values.

First we provide a comparison of Austria’s tax morale levels to those of other western European countries. This allows to check whether tax morale in Austria was substantially lower or higher in 1990 or 1999 than in any other western European country. We will only present a basic descriptive analysis showing the mean level of tax morale (% of people stating that tax evasion is never justifiable) in relation to the other countries. *Table 1* indicates that in 1990, Austria had one of the highest tax morale values. Only Switzerland and Northern Ireland had higher values. Similarly, in 1999, only Northern Ireland and Denmark had a

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<sup>2</sup> The justification of contributing may change if the tax revenues are collected under a dictatorship and the revenue is, e.g., used to finance war (see Torgler, 2001).

higher tax morale than Austria. However, while tax morale in Austria decreased, the average value of tax morale in western European countries increased over time.<sup>4</sup>

*Table 1. Tax morale in Western Europe*

<b>Countries</b>	<b>WVS 1990-1993</b>	<b>EVS 1999-2001</b>
<b>Austria</b>	<b>0.623</b>	<b>0.604</b>
Belgium	0.343	0.392
Denmark	0.573	0.656
Finland	0.403	0.504
France	0.465	0.490
Germany	0.536	0.577
Great Britain	0.534	0.555
Iceland	0.56	0.579
Ireland	0.488	0.591
Italy	0.552	0.566
Northern Ireland	0.679	0.607
Netherlands	0.441	0.467
Norway	0.431	
Portugal	0.394	0.544
Spain	0.561	0.527
Sweden	0.564	0.502
Switzerland	0.634	
<i>Average</i>	0.517	0.544

Source: authors' calculations from the WVS/EVS. Unweighted averages.

Interestingly, the size of shadow economy in Austria has also increased over time. Schneider and Klinglmair (2004, p. 13) report that the size of shadow economy measured in % of GDP using the Currency Demand and DYMIMIC Method increased from 6.9 (average 1989/1990) to 9.8 (average 1999/2000) percent. However, further evidence on these changes presented in Table 1, which tests whether the different samples have the same distribution using the Wilcoxon rank-sum test (Mann-Whitney), indicates that the difference between 1990 and 1999 is not statistically significant.

*Table 2. Two-Sample Wilcoxon Rank-Sum (Mann-Whitney) Test*

<b>Hypothesis</b>	<b>z-value</b>	<b>Prob &gt;  z </b>
H <sub>0</sub> : Tax Morale Austria 1999 = Tax Morale Austria 1990	-1.085	0.2779

<sup>3</sup> It is interesting to notice that neglecting Switzerland and Norway in the earlier 90s data would yield almost the same average value. Thus, a full comparison also indicates an increase of tax morale over time.

The high values observed for Austria make it interesting to take a closer look at tax morale and thus to search for factors that shape tax morale in Austria.

### III. Models and Hypotheses

#### 1. Models

If tax morale is supposed to be an explanation why tax compliance rates are so high, it might be interesting to analyze what *shapes* tax morale. The descriptive analysis only gave information about the *raw effects* and not the *partial effects*. Thus, in this section we introduce the model and develop the hypotheses to analyze in the next section in a multivariate analysis<sup>5</sup>. We will use three specifications to check the determinants of tax morale in Austria: one for 1999, one for 1990 and a pooled considering both years using a time dummy variable. There is a certain variation in the amount of collected variables for both years and the way the variables are collected. Thus, we cannot present all the estimations with the same variables. Presenting three specifications also has the advantage to check the robustness of the impact of the independent variables on tax morale:

SPECIFICATION 1999:

$$TM_i = \beta_0 + \beta_1 \cdot AGE_i + \beta_2 \cdot GENDER_i + \beta_3 \cdot MARITAL_i + \beta_4 \cdot INCOME_i + \beta_5 \cdot EMPLOY_i + \beta_6 \cdot TRUST_i + \beta_7 \cdot PRIDE_i + \beta_8 \cdot REL_i + \beta_9 \cdot EDU_i + \beta_{10} \cdot PERCTE_i + \beta_{11} \cdot RISK_i + \varepsilon_i \quad (1)$$

SPECIFICATION 1990:

$$TM_i = \beta_0 + \beta_1 \cdot AGE_i + \beta_2 \cdot GENDER_i + \beta_3 \cdot MARITAL_i + \beta_4 \cdot INCOME_i + \beta_5 \cdot EMPLOY_i + \beta_6 \cdot TRUST_i + \beta_7 \cdot PRIDE_i + \beta_8 \cdot REL_i + \beta_9 \cdot EDU_i + \varepsilon_i \quad (2)$$

POOLED SPECIFICATION (1999 and 1990):

$$TM_i = \beta_0 + \beta_1 \cdot AGE_i + \beta_2 \cdot GENDER_i + \beta_3 \cdot MARITAL_i + \beta_4 \cdot INCOME_i + \beta_5 \cdot EMPLOY_i + \beta_6 \cdot TRUST_i + \beta_7 \cdot PRIDE_i + \beta_8 \cdot REL_i + \beta_9 \cdot YEAR_i + \varepsilon_i \quad (3)$$

where  $TM_i$  denotes the individual degree of tax morale. The independent variables are specified as follows:

#### DEMOGRAPHIC FACTORS

Contrary to economics social psychology has put more weight on analyzing theoretically and empirically the effect of demographic factors on honesty or compliance (see Tittle 1980):

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<sup>4</sup> For an overview of variables not fully explained in the main text see *Table A1* in the Appendix.



- $AGE_i$  (continuous variable, predicted sign: +): Older people may have acquired more social capital (see Tittle, 1980). They are often strongly attached to the community (see Pommerehne and Weck-Hannemann, 1996). Thus, they have a stronger dependency on others' reactions, which may act as a restriction imposing higher potential (social) costs of sanctions. Criminology findings also indicate that age is negatively correlated with rule breaking (see Gottfredson and Hirschi, 1990; Hirschi and Gottfredson, 2000; Torgler and Valev, 2004). Thus, we would predict that there is a positive correlation between age and tax morale.
- $GENDER_i$  (Dummy: WOMAN, MAN in the reference group, predicted sign: +): Although there is still a lack of empirical and experimental evidence, there is the tendency that women are more honest and also more compliant than men (e.g., Tittle, 1980). Evidence from the tax compliance literature shows the tendency that men are less compliant than women (for survey studies see, e.g., Vogel, 1974; Minor, 1978; Aitken and Bonneville, 1980; Tittle, 1980; for experiments, Spicer and Becker, 1980; Spicer and Hero, 1985; Baldry, 1987). The criminology literature and some papers on corruption have shown that females are on average more compliant than males (see Tittle, 1980; Junger, 1994; Gottfredson and Hirschi, 1990; Dollar et al., 2001; Swamy et al., 2001; Mocan, 2004; Torgler and Valev, 2004).
- $EDUCATION_i$  (continuous variable, scale from 1-9 WVS 1990, scale from 1-8, EVS 1999, predicted sign: +/-): More educated individuals are more likely to know more about tax law and fiscal connections and thus are better aware of the benefits and services the state provides than uneducated taxpayers, but they may also be more critical about how the state acts and especially spends the tax revenues. Furthermore, they better understand opportunities for evasion and avoidance, which negatively influences tax morale. Thus, a clear prediction is difficult to make. As the scales in 1990 and 1999 are not identical (see Appendix *Table A1*), we don't integrate this variable in the pooled estimations.
- $MARITAL_i$  (marital status, dummy variables: married, divorced, separate, widowed, single/living together/never married=reference group): Marital status might influence legal or illegal behavior depending on the extent to which individuals are constrained by their social networks (see Tittle, 1980). Such a constraint might have an impact on tax morale. Thus, we would predict that individuals with stronger social networks (e.g., married people) would have a higher tax morale than singles (predicted sign: +).

- *INCOME<sub>i</sub>* (proxy: economic situation, predicted sign: -): As a proxy for income, we have integrated a variable where people had to classify themselves in different economic classes (lower class/working class, middle class, upper class)<sup>6</sup>. The income variable contained too many missing values. As we find it important to maximize the number of observations and guarantee the comparability over time, we choose an alternative measure of income. The effects of income on tax morale are difficult to assess theoretically. Depending on risk preferences and the progression of the income tax schedules, income may increase or reduce tax morale. In countries with a progressive income tax rate, taxpayers with a higher income realize a higher dollar return by evading, but with possibly less economic utility. On the other hand, lower income taxpayers might have lower social “stakes” or restrictions but are less in the position to take these risks, because of a high marginal utility loss (wealth reduction) if they are caught and penalized (Jackson and Milliron, 1986) (predicted sign: +/-, but with a stronger tendency to be negative).
- *EMPLOYMENT STATUS (EMPLOY<sub>i</sub>*, dummy variables: part-time employed, self-employed, unemployed, at home, student, retired, other, full-time employed in the reference group): In the tax compliance literature there is the strong argument that self-employed persons have higher compliance costs than employees (see, e.g., Lewis 1982). Taxes are more visible for self-employed people and a higher opportunity to evade or avoid taxes leads to the prediction that self-employed people have a lower tax morale than employees (full-time employees are in the reference group) (predicted sign: -).
- *RISK AVERSION (RISK<sub>i</sub>)*: Dummy variable (1=RISK AVERSE). Individual tax compliance decisions could also be a function of risk attitudes. Prior survey studies did rarely control for risk attitudes. Risk aversion reduces the incentive to act illegally. Furthermore, controlling for risk attitudes allows to gain better insights regarding the variables age, gender, or economic situation. It could be argued that the obtained difference between women and men, or between different age groups is influenced by different risk attitudes. This makes it important to control for risk attitudes (predicted sign: +)<sup>7</sup>.

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<sup>5</sup> The classes have been coded slightly differently in the years 1990 and 1999.

<sup>6</sup> This variable is only available for the year 1999. Thus, we cannot control for it in the estimation for 1990 and the pooled estimation.

- *YEAR<sub>t</sub>*: Year dummy variable, t=1990 and 1999. The year 1990 is in the reference group. The descriptive evaluation presented in Table 1 indicated that we observe a decay of tax morale between 1990 and 1999. However, the difference was not statistically significant. It will be interesting to see in a multivariate analysis whether the coefficient is statistically significant or not (predicted sign: -).

SOCIETAL INSTITUTIONAL variables. Societal institutions can be seen as i) an indicator of the extent to which citizens can identify themselves with the state, the national institutions or the country itself. It measures the degree of individuals' trust in institutions (*TRUST<sub>i</sub>*) such as TRUST IN THE LEGAL/JUSTICE SYSTEM and thus is closely linked to the way taxpayers feel they are treated by the system. As a proxy for national identification we use NATIONAL PRIDE (*PRIDE<sub>i</sub>*); ii) norms that cover taxpayers' judgments on what is acceptable or common in a society (*PERCTE<sub>i</sub>*: PERCEIVED TAX EVASION<sup>8</sup>) or norms enforced by non-governmental institutions such as the church that promote compliance and punish misbehavior (*REL<sub>i</sub>*: RELIGIOSITY, proxy: CHURCH ATTENDANCE). As one of the main contributions in this paper is to investigate the correlation between societal institutions and tax morale, several testable hypotheses are developed in the next subsection.

## 2. Hypotheses

### *TRUST IN THE LEGAL/JUSTICE SYSTEM:*

This variable allows us to analyze trust at the constitutional level (e.g., trust in the legal<sup>9</sup>/justice system<sup>10</sup>), thereby focusing on how the relationship between the state and its citizens is established. If the state is seen to be acting in a trustworthy way, taxpayers' trust increases and also their willingness to comply with their tax obligations. Thus, the relationship between them and the state (relational contract) can be maintained by positive actions, well functioning institutions, implementing a positive social capital atmosphere. Such a strategy will be honored with a higher tax morale. Scholz and Lubell (1998), e.g., found that if American taxpayers trusted government or other citizens, they were more likely to comply with their tax obligations than taxpayers who did not trust. Thus trust influences citizens'

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<sup>7</sup> As the variable that measures risk attitudes, this variable is available for the year 1999 only and thus cannot be controlled for in the estimation for 1990 and the pooled estimation.

<sup>8</sup> Could you tell me how much confidence you have in the legal 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) (WVS 1990).

<sup>9</sup> Could you tell me how much confidence you have in the justice: 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) (EVS 1999).

incentives to commit themselves to obedience. Therefore, the following hypothesis can be developed:

*Hypothesis 1: The more the citizens trust the legal/justice system, the higher their intrinsic motivation to pay taxes.*

#### *NATIONAL PRIDE<sup>11</sup>:*

Identification with the state may induce cooperation among taxpayers and thus induces similar mechanisms as the trust variables. Tyler (2000) argues that pride influences people's behavior in groups, organizations and societies. It gives a basis for encouraging cooperative behavior. However, contrary to the trust variables, which have been thoroughly analyzed by *social capital* researchers, the variable pride has been completely neglected although it is a widespread phenomenon. The following hypothesis can be developed:

*Hypothesis 2: Pride might be a basis for encouraging cooperative behaviour through national identification, which leads to a higher tax morale.*

#### *PERCEIVED TAX EVASION<sup>12</sup>:*

The existence of social norms suggests that citizens will comply as long as they believe that compliance is widespread and thus an accepted social norm. On the other hand if individuals notice that many others evade taxes, their willingness to pay taxes may decrease, crowding out their intrinsic motivation to comply with taxes (see Frey and Torgler, 2004; Alm and Martinez-Vazquez, 2003). Taxpayers get the feeling that they can as well be opportunistic. The moral costs of evading taxes decrease. Evasion is a signal that intrinsic motivation is not recognized.

*Hypothesis 3: 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.*

**CHURCH ATTENDANCE<sup>13</sup>:** This variable is a proxy for religiosity. It has the advantage to measure the approximation of how much time individuals devote to religion, instead of asking

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<sup>10</sup> How proud are you to be an AUSTRIAN ? (4= Very proud, 1=Not at all proud)

<sup>11</sup> 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). It should be noticed that the variable is available in the EVS only.

<sup>12</sup> For the whole description see Appendix *Table A1*.

directly the degree of religiosity. The church as an institution induces behavioral norms and moral constraints among their community. Some papers in the criminology literature found a negative correlation between religious membership and crime (see, e.g., Hull, 2000; Hull and Bold, 1989; Lipford, McCormick and Tollison, 1993). Religiosity seems to affect the degree of rule breaking. Religiosity can thus be a restriction on engaging in tax evasion. Based on this assertion, the following hypothesis can be developed:

*Hypothesis 4: Austrians with a higher church attendance are more likely to have higher levels of tax morale.*

#### IV. Empirical Results

As already pointed out, in our multiple regression analysis we will use attitudes toward paying taxes defined as tax morale as the dependent variable. Regressions help isolate the effects of different factors from each other and thus to get the correlation of a single factor with tax morale when all other factors are constant. We use a *weighted* probit estimation to correct the samples and thus to get a reflection of the national distribution for the data of 1999 and the pooled estimation.<sup>14</sup> The natural cut-off point at the value 1, showing that many respondents point out that cheating on tax is “never justifiable”, allows to work with probit models. To obtain the quantitative impacts of the explanatory variables, we calculate the marginal effects of each variable.

*Table 3* presents the results of all three estimations, 1999 in Eq.1, 1990 in Eq. 2 and the pooled estimation in Eq. 3. The pooled estimation has the big advantage that it allows not only to investigate the development of tax morale over time, but gives us also a better insight regarding the effects of the independent variables, which show now general tendencies rather than time specific influences.<sup>15</sup> Thus, it is not a surprise that the pooled estimations results are nearest to our developed predictions in the theoretical part.

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<sup>13</sup> The 1990 data already reflects national distribution.

<sup>14</sup> However, it should be noticed that such a procedure will reduce the number of observable variables as not all independent variables have been coded the same way in 1990 and 1999 (see Appendix *Table A2*).

Table 3. Determinants of tax morale

<i>ESTIMATIONS</i>	<i>1999</i>			<i>1990<sup>a</sup></i>			<i>pooled 1990 and 1999</i>		
<i>WEIGHTED PROBIT</i>	<i>Coeff.</i>	<i>z-Stat.</i>	<i>Marg. Effect</i>	<i>Coeff.</i>	<i>z-Stat.</i>	<i>Marg. Effect</i>	<i>Coeff.</i>	<i>z-Stat.</i>	<i>Marg. Effect</i>
<i>INDEPENDENT V.</i>	<i>Eq. 1</i>			<i>Eq. 2</i>			<i>Eq. 3</i>		
<b>a) Demographic Factors</b>									
AGE	-0.002	-0.470	-0.001	0.010***	2.780	0.004	0.005*	1.670	0.002
WOMAN	0.216**	2.210	0.084	-0.002	-0.020	-0.001	0.150**	2.340	0.058
EDUCATION	-0.090***	-3.470	-0.035	-0.121**	-2.160	-0.046			
<b>b) Marital Status</b>									
MARRIED	0.332**	2.490	0.188	0.092	0.810	0.035	0.231***	2.670	0.089
DIVORCED	0.101	0.500	0.162	0.190	0.980	0.069	0.126	0.910	0.047
SEPARATED	0.537	0.700	0.101	0.174	0.370	0.064	0.247	0.590	0.090
WIDOWED	0.448**	1.970	0.059	0.305	1.580	0.109	0.367**	2.520	0.133
<b>c) Economic Situation</b>									
UPPER CLASS	0.266*	1.750	0.129	-0.192	-1.290	-0.074	-0.247***	-3.210	-0.096
MIDDLE CLASS	0.153	1.530	0.039	-0.165*	-1.780	-0.062	-0.075	-1.120	-0.029
<b>d) Employment Status</b>									
PART TIME EMPLOYED	-0.287*	-1.760	-0.113	-0.055	-0.330	-0.021	-0.230*	-1.990	-0.090
SELFEMPLOYED	-0.236	-1.290	-0.093	-0.210	-1.520	-0.081	-0.215*	-1.930	-0.084
UNEMPLOYED	0.418*	1.760	0.151	0.171	0.590	0.062	0.256	1.420	0.094
AT HOME	-0.371**	-2.360	-0.147	0.216*	1.670	0.079	-0.047	-0.470	-0.018
STUDENT	-0.236	-1.060	-0.093	-0.084	-0.380	-0.032	-0.148	-0.980	-0.058
RETIRED	0.062	0.420	0.024	-0.163	-1.210	-0.062	-0.029	-0.300	-0.011
OTHER	-0.038	-0.130	-0.015	-0.303	-1.580	-0.118	-0.166	-1.110	-0.065
<b>e) Religiosity</b>									
CHURCH ATTENDANCE	0.026	1.360	0.010	0.019	0.950	0.007	0.030*	1.960	0.011
<b>f) Trust and Pride</b>									
TRUST IN THE LEG./JUS. SYSTEM	0.101*	1.730	0.039	0.018	0.400	0.007	0.074**	2.110	0.029
PRIDE	0.247***	4.060	0.096	0.238***	4.270	0.090	0.274***	6.770	0.105
<b>g) Social norms</b>									
PERCEIVED TAX EVASION	-0.214***	-2.940	-0.083						
<b>h) Risk</b>									
RISK AVERSE	0.134	1.340	0.053						
<b>i) Time</b>									
AUSTRIA 1999							-0.101*	-1.780	-0.039
Number of observations	1339			1354			2713		
Pseudo R2	0.082			0.061			0.054		
Log pseudo-likelihood	-833.605			-841.987			-1719.466		
Prob > chi2	0.000			0.000			0.000		

Notes: Dependent variable: tax morale. In the reference group are in all three equations: AGE < 30, MAN, SINGLE/LIVING TOGETHER/NEVER MARRIED, FULL TIME EMPLOYED, LOWEST CLASS. In equation 1 furthermore NOT RISK AVERSE and in equation 3: AUSTRIA 1990. Significance levels: \* 0.05 < p < 0.10, \*\* 0.01 < p < 0.05, \*\*\* p < 0.01. <sup>a</sup> Probit estimation, the data for Austria in the WVS 1990 already reflect national distribution.

In general, we find in all estimations support to the hypothesis that societal institutions have a strong impact on tax morale. Especially the variables PERCEIVED TAX EVASION and PRIDE have a strong effect on tax morale. An increase in the scale of the perceived tax evasion reduces the share of individuals stating that tax evasion is never justifiable by around 8 percentage points, which is very high. There seems to be a crowding out effect when individuals notice that others are not honest. Thus, 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. The variable PRIDE is robust throughout all estimations with marginal effects of more than 9 percentage points. This means that an increase in the pride scale by one unit increases the share of subjects indicating the highest tax morale by more than 9 percentage points. TRUST IN THE LEGAL/JUSTICE SYSTEM has also a positive impact on tax morale, a strong impact especially in the pooled estimation. Church attendance has a positive effect on tax morale, but the coefficient is only statistically significant in the pooled estimation. However, the tendencies observed in *Table 1* clearly indicate that societal institutions are highly relevant to understand individuals' tax morale.

The findings regarding the control variables are somehow less robust. There is the tendency that a higher age leads to a higher tax morale without being statistically significant for the year 1999 (even with a negative sign). Similarly, women report a higher morale than men, but the coefficient is statistically significant for the year 1999 and the pooled estimations and not for 1990. The 1999 estimation also allows to take into consideration that women may exhibit greater aversion to cheating on tax controlling for risk attitudes. Interestingly, the 1999 estimation shows the strongest gender effect. Not surprisingly, a higher risk aversion is correlated with a higher tax morale. However, the coefficient is not statistically significant. Consistent findings can be observed for the variable EDUCATION. A higher education leads to a lower tax morale, being statistically significant in both years. Married people seemed to have a higher tax morale than singles, especially visible in the year 1999. The economic situation shows even a switch in the sign between the years 1990 and 1999, but for the estimations where the coefficient is significant there is a negative correlation between tax morale and the economic situation, which is in line with our prediction. Differences in the employed status are clearly observable in the pooled estimation. Being self-employed and part-time employed rather than a full time employee lowers the probability of a person stating that tax evasion is never justifiable by around 8, respectively 9 percentage points.

The descriptive analysis in *Table 1* showed that tax morale has decreased over time. However, *Table 2* indicated that the difference between 1990 and 1999 was not statistically significant. In a further step we check whether the decay is statistically significant, controlling in a multivariate analysis for additional factors. Therefore, we pool the data using a time dummy variable. We observe that inhabitants of Austria had a lower probability of reporting the highest tax morale in 1999 than in 1990. The coefficient is now statistically significant, but only at the 0.1 level. Nevertheless, the marginal effect of 3.9 percentage points is relatively high. Certainly, we do not know whether the decrease in tax morale over time has equated to substantially lower levels of tax compliance. However, a decrease of tax morale goes in line with an increase in the size of shadow economy. In making this claim it should be noted though that the present study certainly has its limitations. The data contained within the World Values Survey and the European Values Survey is somewhat general in focus and as a result, attitudes and issues specifically related to taxation do not figure highly. For example, it was not possible to control for expectations regarding the consequences of being detected as a cheater or the individuals' tax burden. However, it should be noted that this study has provided the first ever detailed statistical analysis of tax morale as dependent variable in Austria, analyzing how it differs from other countries in Europe, and how it has changed between 1990 and 1999. As a result, it offers the reader important insight into Austrians' attitudes towards paying taxes.

## V. CONCLUSIONS

Using data from the World Values Survey and the European Values Survey, the aim of the present study was to investigate tax morale among Austrian citizens between 1990 and 1999. Thus, this paper contributes to the tax compliance literature, which still lacks empirical evidence (especially outside the United States). In the last few years economists have been showing an increasing interest in working with survey data. New survey data sources offer a good opportunity to closely investigate variables that have been neglected or strongly disregarded in the past. The aspect of tax morale gains importance because the act of paying taxes cannot be fully explained by a standard economic expected utility approach. People pay their taxes, although there is a low probability of getting caught and being penalized. Thus, it makes sense to work with the concept of Homo Oeconomicus that is endowed with a more refined motivation structure and goes beyond a self-interested materialistic pay-off maximizer. In this paper we found evidence that societal institutions such as trust, national pride or religiosity have an impact on tax morale. There is a mix of internal and external



norms that affects individuals' compliance attitudes. We also observe among Austria's people that "conditional cooperation" (see Frey and Meier, 2004; Frey and Torgler, 2004) is relevant. If people perceive that tax evasion is a common phenomenon, their intrinsic motivation to contribute to the society decreases. Finally, we also find a decay of tax morale over time, which is statistically significant at the 0.1 level, controlling in a multivariate analysis for additional factors. Nevertheless, Austrian taxpayers have still a high tax morale, compared to other western European countries. But it is worthwhile to notice that the tax morale trend observed in Austria corresponds to the increase in the size of shadow economy between 1990 and 1999. All in all, the paper provides new detailed insights into Austrians' attitudes towards paying taxes and thus contributes to understanding why so many people are willing to pay their taxes.

## APPENDIX

*Table A1*  
Derivation of Some Variables

Variable	Derivation
ECONOMIC SITUATION (CLASSES)	<p>People sometimes describe themselves as belonging to the working class, the middle class, or the upper or lower class. Would you describe yourself as belonging to the:</p> <p>WVS 1990 (working class and lower class in the reference group are defined as: LOWEST CLASS; upper middle and lower middle class as MIDDLE CLASS)</p> <ol style="list-style-type: none"> <li>1. Upper class</li> <li>2. Upper middle class</li> <li>3. Lower middle class</li> <li>4. Working class</li> <li>5. Lower class</li> </ol> <p>EVS 1999 (value 3 and 4 in the reference group; value 2 as middle class)</p> <ol style="list-style-type: none"> <li>1. Upper, upper middle class</li> <li>2. Middle, non-manual workers</li> <li>3. Manual workers, -skilled, -semi-skilled</li> <li>4. Manual workers, -unskilled, unemployed</li> </ol> <p>BOTH DATA SETS TOGETHER</p> <ul style="list-style-type: none"> <li>- Upper and upper middle class: UPPER CLASS</li> <li>- Middle, non-manual workers, lower middle class: MIDDLE CLASS</li> <li>- Lower values (reference group, defined as LOWEST CLASS)</li> </ul>
EDUCATION	<p>WVS 1990</p> <ol style="list-style-type: none"> <li>1. No formal education</li> <li>2. Incomplete primary school</li> <li>3. Complete primary school</li> <li>4. Incomplete secondary school: technical/vocational type</li> <li>5. Completed secondary school: technical/vocational type</li> <li>6. Incomplete secondary: university-preparatory type</li> <li>7. Complete secondary: university-preparatory type</li> <li>8. Some university-level education, without degree</li> <li>9. University-level education with degree</li> </ol> <p>EVS 1999</p> <ol style="list-style-type: none"> <li>1. Inadequately completed elementary education</li> <li>2. Completed (compulsory) elementary education</li> <li>3. (Compulsory) elementary education and basic vocational qualification</li> <li>4. Secondary, intermediate vocational qualification</li> <li>5. Secondary, intermediate general qualification</li> <li>6. Full secondary, maturity level certificate</li> <li>7. High education – lower-level tertiary certificate</li> <li>8. High education – upper-level tertiary certificate</li> </ol>
RELIGIOSITY (CHURCH ATTENDANCE)	<p>Apart from weddings, funerals and christenings, about 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, never practically never.</p> <p>WVS 1990</p> <p>More than once a week (coding 7)</p> <p>Once a week (6)</p>

	<p>Once a month (5)  Only on special holy days (4)  Once a year (3)  Less often (2)  Never, practically never (1)</p> <p>EVS 1999</p> <p>More than once a week (coding 8)  Once a week (7)  Once a month (6)  Christmas/Easter day (5)  Other special holy days (4)  Once a year (3)  Less often (2)  Never, practically never (1)</p> <p>BOTH DATA SETS TOGETHER</p> <p>In with WVS 1990, Christmas/Easter day and Other special holy days in the same group (thus values between 1 and 7)</p>
MARITAL STATUS	<p>WVS</p> <ol style="list-style-type: none"> <li>1. married</li> <li>2. divorced</li> <li>3. separated</li> <li>4. widowed</li> <li>5. single/living together</li> </ol> <p>EVS</p> <ol style="list-style-type: none"> <li>1. married</li> <li>2. divorced</li> <li>3. separated</li> <li>4. widowed</li> <li>5. never married</li> </ol> <p>BOTH DATA SET TOGETHER</p> <p>-never married, single and living together coded in the same class</p>
RISK AVERSION	<p>Here are some aspects of a job that people say are important. Please look at them and tell me which ones you personally think are important in a job?  ... Good job security (1=mentioned, 0=not mentioned).</p> <p>A dummy variable was built with the value 1, if someone has mentioned job security.</p>

Source: Inglehart et al. (2000) and EVS (2000).

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