

**The Evolution of Tax Morale  
in Modern Spain**

Jorge Martinz-Vazquez

Benno Torgler

Working Paper No. 2005 - 33

# The Evolution of Tax Morale in Modern Spain

by

Jorge Martinez-Vazquez and Benno Torgler\*

**Abstract:** This paper studies the evolutions of tax morale in Spain in the post-Franco era. Tax morale, defined as the intrinsic motivation to pay taxes, might be a key determinant of the actual degree of tax compliance in a country. But despite its potential significance, most studies in the previous literature have treated tax morale as an exogenous residual. In contrast to the previous tax compliance literature, the current paper investigates tax morale as the dependent variable and attempts to answer what actually shapes tax morale. The empirical analysis uses survey data from two sources: the World Values Survey (WVS) and the European Values Survey (EVS). The data allow us to observe tax morale in Spain for the years 1981, 1990, 1995, and 1999/2000. The study of the evolution of tax morale in Spain over nearly a 20-year span is particularly interesting because it provides close to a natural experiment setting. Constitutional and political changes after Franco died in 1975 and the advent of a fully democratic state, deep tax reforms, a significant push for decentralization, joining the European Community, and so on, provide excellent benchmarks for institutional changes that are expected in the compliance literature to change tax morale.

*JEL classification:* H260, H730, K420, O170, Z130

*Keywords:* Spain, Tax morale, Tax compliance, Constitutional and political changes

---

\* Jorge Martinez-Vazquez, Andrew Young School of Policy Studies, Georgia State University, Atlanta, GA 30303; email: jorgemartinez@gsu.edu. Benno Torgler, Benno Torgler: Yale Center for International and Area Studies, Leitner Program in International & Comparative Political Economy, 34 Hillhouse Avenue, P.O. Box 208206, New Haven, CT 06520, and CREMA Center for Research in Economics, Management and the Arts, Switzerland; email: benno.torgler@yale.edu. Financial support from Spain's Instituto de Estudios Fiscales (Martinez-Vazquez) and the Swiss National Science Foundation (Torgler) is gratefully acknowledged.

## 1. Introduction

Spain has undergone fundamental changes in the role and effectiveness of the public sector since the transition to a democratic system after the death of General Francisco Franco in 1975. These very significant changes in Spanish society during the last 30 years offer an opportunity to examine citizens' attitudes toward paying taxes – what is sometimes termed their “tax morale,” or the intrinsic motivation to pay taxes – and especially to analyze the ways in which these attitudes are affected by (or reflected in) changes in government policies and institutions. In this paper we use survey data from two sources: the World Values Survey (WVS) and the European Values Survey (EVS), which allow us to observe the evolution of tax morale in Spain at four benchmark years: 1981, 1990, 1995, and 1999/2000. Although these years do not coincide with any particular key event in the recent history of Spain, they cover a period long enough to incorporate many of the important reforms of the Spanish public sector.

The study of the evolution of tax morale in modern Spain is particularly interesting because it provides close to a natural experiment setting. Constitutional and political changes after Franco died in 1975 and the advent of a fully democratic state, deep tax policy and tax administration reforms, a significant push for decentralization, joining the European Community and so on provide excellent benchmarks for institutional changes that are expected in the compliance literature to change tax morale.

The issue of tax morale in Spain so far has attracted little attention in the literature. To our knowledge there have not been many previous studies in this area. In an interesting recent paper Prieto Rodriguez et al. (2005) analyze the status of tax morale throughout the Spanish regions (Comunidades Autónomas) using cross-section data for 1998 from the International Social Survey Programme (ISSP). Their most significant finding is the important role played by political or ideological factors in explaining variations in tax morale across the Spanish

regions. In particular, tax morale is especially low among the supporters of the nationalist regional parties in Catalonia and the Basque Country, who may feel disenfranchised from the central government in Madrid. In another study, Alm and Torgler (2005) investigate in a cross-country analysis tax morale differences between the USA and Spain and find similar results obtained in experiments that reported a higher tax compliance in the USA. Finally, Molero and Pujol (2005) investigate the determinants of tax morale using a sample of university students covering 617 observations. Their results indicate that individuals' perceived grievance has a strong impact on tax morale. Interestingly, they also investigate grievance in relative terms finding strong support for the proposition that higher perceived tax evasion levels lead to decreases in tax morale, a result that is consistent with previous findings in this literature (see Frey and Torgler 2004, Torgler and Schneider 2005, Alm et al. 2005).

In contrast to these studies, in this paper we focus on the inter-temporal evolution of tax morale in the country and use panel data to analyze individual responses from different sources, the World Values Survey (WVS) and the European Values Survey (EVS).

The rest of the paper is organized as follows. In section two we briefly review the issue of tax morale in the literature. Section three provides an overview of institutional change in Spain, with a focus on the fiscal system, from the death of General Franco to present times, with the view to provide a background for external factors that may have affected the tax morale of ordinary citizens. Section four describes the available data on the level of tax morale in Spain used in this paper. Section five examines the evolution of the aggregated proxy of tax morale in Spain. Section six presents an econometric analysis of the individual determinants of tax morale in Spain. Section seven offers some concluding comments.

## **2. A brief review of the tax morale literature**

Some researchers have argued that tax morale—the intrinsic motivation one has to pay his/her tax—can help to explain the high degree of tax compliance observed in many

countries (e.g., Schwartz and Orleans 1967, Lewis 1982, Roth, Scholz and Witte 1989, Alm et al. 1992, 1999, Pommerehne, Hart and Frey 1994, Pommerehne and Weck-Hannemann 1996, Frey 1997, 2003, Frey and Feld 2002, Feld and Tyran 2002, Torgler 2006a). If tax morale is thought to be an explanation for why tax compliance rates are so high, it would be of interest to analyse what may shape tax morale among taxpayers. Surprisingly, however, there is very little evidence available on this topic. Feld and Tyran (2002, p. 199), for example, argue: “All in all, too little is known about which motivations of citizens shape tax morale.”

More than 100 years ago, Georg von Schanz (1890) stressed the relevance of taking taxpayers as partners in the tax contract between the state and its citizens. Sixty years later, the German ‘Cologne school of tax psychology’ conducted surveys and tried to measure tax morale among taxpayers (see Schmolders 1952, 1960, 1962, Strümpel 1969). These researchers tried to lay the bridge between economics and social psychology, emphasizing that economic phenomena should not only be analyzed from the traditional narrow economic point of view. They saw tax morale as an important and integral attitude that was related to tax non-compliance (see, Schmolders 1960). A certain amount of preliminary research on tax morale was conducted during the 1950s and 1960s by the ‘Cologne school of tax psychology’, but since that time the concept of tax morale has been largely neglected by tax researchers. A number of contemporary researchers studying tax compliance have mentioned the concept of tax morale in their papers or books (e.g., Lewis 1982, Vogel 1974), but only a few have examined tax morale in any detail (see for example, Kirchler 1997, 1998, 1999, Torgler 2003, 2005a, 2005b, 2006a, 2006b).

### **3. An overview of institutional change in Spain**

Because we want to study the evolution of tax morale in Spain during much of the transition to democracy it is important to have an understanding of the institutional changes

the country has gone through during all of this period with the potential of affecting the level of tax morale of ordinary citizens.

The last 30 years represent a period of radical transformation for Spain, which could have affected profoundly the way citizens view the state and ultimately their tax morale. The state of tax morale was quite low at the end of Franco's regime. As reported by Comin (2005) at the end of the 1970s tax evasion in Spain was estimated at 40 percent of tax receipts and above 90 percent of all Spanish taxpayers recognized the existence of fiscal fraud. In addition, at the time the fiscal system provided ample tax evasion opportunities for the wealthy, there was no political will to prosecute fiscal fraud. In particular, tax evasion was not a criminal offense and evaders only received small administrative sanctions. After Franco's death, the first democratic elections took place in 1977 and were won by a center-right coalition (the UCD—Unión de Centro Democrático). The highlight of this period was the coalescence of all political forces in the country in what became known as the Moncloa Pacts of 1977.<sup>1</sup> These Pacts set the foundations for political reform, with a new Constitution being approved in 1978. These Pacts set the blueprints for deep fiscal reform, including legislation making tax evasion a crime. The goals of the Moncloa Pacts were to introduce policy and institutional reforms in the public and private sectors that would bring Spain to par with the system Spain's European neighbors had put in place almost three decades earlier following the end of World War II.<sup>2</sup> The period immediately following the Moncloa Pacts was one of political indecision, poor economic performance, and political turmoil, including a failed coup by a small group of security forces in 1981. It appeared that the government had withdrawn from its commitments

---

<sup>1</sup> The palace of the Moncloa, the residence of the president of the Spanish government, is where the meetings leading to the Pacts took place.

<sup>2</sup> The "Economic Reparation and Reform Programme" signed with the Moncloa Pacts aimed first at correcting several basic economic imbalances, second to redistributing income on the expenditure side of the budget (social insurance, education, health, housing and so on) and on the revenue side through tax reform measures, and third to liberalizing the economy through structural reforms of financial markets, labor markets, agriculture, and so on. See Comin (2005).

made in the Moncloa Pacts in terms of policy reforms, including the modernization of the tax administration and the fight against tax evasion.<sup>3</sup>

Fiscal and other institutional reforms gained momentum with the new Socialist Party (PSOE) government after their election victory in 1982. The PSOE would stay in power until the general elections of 1996. Several important changes and reforms took place during this period. Perhaps the most significant event was joining the European Economic Community (EEC) in 1986. The accession to the EEC meant, among other things, the introduction for the first time in Spain of the Valued Added Tax (VAT), required by the harmonization of Spain's tax system with EEC rules.

But even before the accession to the EEC the government embarked on a series of fiscal reforms supported by the political majority it had won in the 1982 election. The first Socialist government tax reforms that took place between 1983 and 1987 developed the vision of the Moncloa Pacts. Besides the introduction of the VAT, the Personal Income Tax was overhauled with an emphasis on vertical equity and progressivity. Also important for the evolution of tax morale in this period, a major effort got under way to modernize the tax administration apparatus. These reforms in tax administration included the territorial reorganization of the tax agency, the computerization of services, upgraded professional careers for tax officials, and setting up other instruments for increasing voluntary taxpayer compliance and fighting tax evasion.<sup>4</sup> Following the Supreme Court ruling declaring unconstitutional the use of the "family" as the unit of taxation, the 1998 tax reform sought to slow down the pace of government growth, lower tax rates and broaden tax bases to increase economic efficiency and horizontal fairness, and in general to bring the Spanish tax system in line with the then existing reform trends in OECD countries.

---

<sup>3</sup> Nevertheless, in the tax policy arena new personal income and corporate income taxes were introduced in 1978.

<sup>4</sup> As part of the tax administration reforms the central government turned the State tax administration into a semi-autonomous State Tax Agency in 1991. This process of modernization lasted until 1996. See Onrubia (2005).

As noted by Comin (2005), the 1998 reform package represented an end to the Spanish welfare state even before the task had been completed. In a way, Spain was still trying to catch up with its European peers when the rules of the game shifted. Thus, the fiscal reforms of the first twenty years of democracy were now also in need of reform. Although many of these needed reforms were introduced by the Socialist government, some had to wait for the change in government. After the right-center Partido Popular (PP) took office in 1996, fiscal reform continued to move in the direction of increasing the relative importance of indirect over direct taxes and reducing budget deficit and debt levels in order to join the European Monetary Union. The PP would remain in power until the general elections of March 2004 in the aftermath of the tragic terrorist attacks of Madrid by Muslim radicals. When the PP won the general elections in 1996 the need for reform was still present, imposed by capital mobility and other globalization forces. These economic realities had already forced many of Spain's European neighbors to follow suit with tax changes in the United States and elsewhere in the world lowering rates, broadening tax bases, putting more emphasis on consumption taxes, and containing the costs associated with social insurance contributions. Potentially more important for tax morale, these reforms worldwide were now accepting the limitations of significant income redistribution through progressive income taxes. The tax reforms initiated by the PP embraced all these principles. For example, tax rates on capital gains were reduced in 1996 and in 1998, and a new, more favorable, tax regime for small and medium sized companies was enacted in 1998. The PP reforms of the Personal Income Tax in the first years of the new millennium were further oriented to reducing the tax burden, especially at the low end of the income distribution; more visible were the reductions of marginal tax rates across the board, including the top rate.<sup>5</sup> Also important for how the PP's policies were perceived by taxpayers was the fact that the government at the time pursued strict budget discipline, generating low deficits or surpluses and the reduction of the

---

<sup>5</sup> In Spain like in many other countries, these reforms were ostensibly justified as the means to reducing the negative effects of income taxes on savings, investment, and labor supply.

outstanding public debt, in order to comfortably meet the EU's requirements in the Stability and Growth Pact.

Aside from these reforms, there were many other events that potentially shaped ordinary citizens' views of the state. These included the already mentioned coup attempt in 1981; a sizable bout of corruption by public officials, especially during the Last Socialist government; and a profound fiscal, administrative and political decentralization enabled by the 1978 Constitution. The state also had to contend with centrifugal separatist forces in the historical regions but especially in the Basque Country with significant levels of terrorist activity by ETA. On the side of general performance of the economy, the country witnessed massive privatization of state-owned enterprises and in other cases the closing of these enterprises and a significant rise in the unemployment rate. In spite of that, the Spanish economy continued to experience high rates of economic growth for most of the transition period.

#### **4. Some data on tax morale in Spain**

Spain is a particularly interesting country to analyze because there have been a number of major changes that have occurred in its system over the past 20-30 years. Whether some major changes such as these have served to increase or decrease tax morale is the focus of the present study. Isolating the reasons for possible differences in tax morale is not an easy task. However, the existence of several data sets, the World Values Survey (WVS) and the European Values Survey (EVS), allows us to empirically examine at the individual level tax morale development over time and some of the factors that may affect citizens' tax morale. The WVS builds on the European Values Surveys, first carried out in 1981-1984. A second wave of surveys was completed in 1990-1993, a third one in 1995-1997 and a fourth in 1999-2001. The latest European Values Survey has been conducted in 1999-2000. Both are based on representative national samples of at least 1000 individuals in a country, and have been

conducted meanwhile in more than 80 countries. All surveys are done via face-to-face interviews at the respondents' homes and in their respective national languages. The sampling design consists of a multi-stage, random selection of sampling points with a number of individual observations drawn from all administrative regional units, after stratification by region and by degree of urbanization. The survey results can be weighted to represent national population parameters.<sup>6</sup> Both surveys have been widely used by political scientists (e.g., Inglehart 2000) and also by economists (e.g., Knack and Keefer 1997).

Spain, contrary to many other countries, participated in all these surveys. This brings us the unique opportunity of investigating the development of tax morale over time, as we have said, focusing on the four time periods 1981, 1990, 1995 and 1999-2000.<sup>7</sup> We use a multivariate analysis setting with several independent variables to better isolate a possible time effect.

The general question used in the surveys 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 taxes if you have the chance (% “never justified” – code on a scale of 1 to ten, where 1=never and 10=always).”*

It should be noted that our tax morale variable is not free of biases. Subjective surveys are always prone to significant reporting errors. A taxpayer who has engaged in some illegal behavior in the past may tend to excuse (even justify) this kind of behavior and so declare a high tax morale. Furthermore, people might overstate their willingness to pay taxes, as there are no sanctions involved; similarly, individuals may be reluctant to respond honestly to a survey question, given the delicate nature of tax compliance. However, the way by which the tax morale variable is generated is less intrusive than if we were to ask more directly whether a person has or has not evaded taxes. A further advantage of our approach is that both the

---

<sup>6</sup> For a comprehensive discussion of the WVS, see Inglehart et al. (2000).

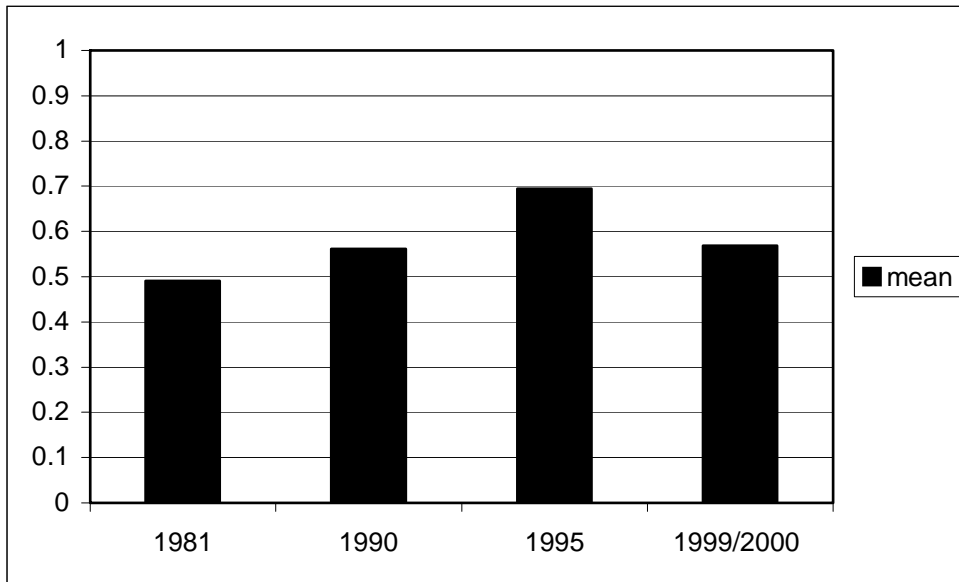
<sup>7</sup> This allows us to study the evolution of tax morale for a more extended period of time than is usually the case in the literature. In fact, we are not aware of a study in the previous literature that investigates tax morale over time using four different time periods.

WVS and EVS data sets cover a wide variety of questions on different topics, which helps reduce framing effects that may be present in surveys based only on tax compliance questions. We recognize that there may be advantages to working with a multi-item index instead of a single question to measure tax morale (see Kirchler 1997, 1999). However, a single question approach also has the advantage of avoiding the problems associated with the construction of an index, especially regarding issues of measurement procedure, low correlation between the items included in the index, overall complexity, and so on.

## **5. Evolution of aggregate levels of tax morale**

Before examining the determinants of individual tax morale using multiple regression analysis, it is instructive to examine the distribution of aggregate tax morale scores in Spain for the years 1981, 1990, 1995, and 1999/2000. *Figure 1* presents the mean values in these four time periods, calculated as the simple average across all individuals in the data sets. In our case, the natural cut-off point is at the value 1 because many respondents assert that cheating on tax is “never justified”. Our TAX MORALE variable therefore takes the value 1 if the respondent says that cheating on tax is “never justified” and 0 otherwise. This justifies the use in the next section of a probit model to estimate the determinants of tax morale. We observe a strong increase in tax morale in Spain between 1981 and 1990 and a further increase between 1990 and 1995. On the other hand, there is a decrease observable between 1995 and 1999-2000.

***Figure 1. Aggregate Tax Morale in Spain over Time (1981-2000)***



Further evidence on the nature of these changes is presented in *Table 1*, which tests whether the different samples have the same distribution using the Wilcoxon rank-sum (Mann-Whitney) test. The results indicate that there is a significant difference between 1981 and all the other years. The differences between 1990 and 1995 are also statistically significant at conventional levels. Thus, these results also confirm that there was a strong increase of tax morale between 1981 and 1995. On the other hand, the differences between 1990 and 1999/2000 are not statistically significant, but 1999/2000 shows a significantly lower tax morale compared 1995. Thus, tax morale decreased between 1995 and 1999/2000 reaching a level comparable to the one existing in 1990.

*Table 1.* Two-sample Wilcoxon Rank-sum (Mann-Whitney) Tests

| Hypothesis   | z-value | Prob >  z |
|--|---------|-----------|
| $H_0$ : Tax Morale Spain 1990 = Tax Morale Spain 1981      | 5.326   | 0.000     |
| $H_0$ : Tax Morale Spain 1995 = Tax Morale Spain 1981      | 11.405  | 0.000     |
| $H_0$ : Tax Morale Spain 1999/2000 = Tax Morale Spain 1981 | 5.224   | 0.000     |
| $H_0$ : Tax Morale Spain 1995 = Tax Morale Spain 1990      | 8.232   | 0.000     |
| $H_0$ : Tax Morale Spain 1999/2000 = Tax Morale Spain 1990 | 0.544   | 0.587     |
| $H_0$ : Tax Morale Spain 1999/2000 = Tax Morale Spain 1995 | -7.293  | 0.000     |

The changes in the overall level of tax morale would seem to fit well, perhaps with the possible exception of the downswing in the last half of the 1990s, with what had been happening to and around Spanish citizens in the transition years to a democratic regime and thereafter.<sup>8</sup>

In 1981 citizens' tax morale was relatively low. By that date the fiscal system had advanced little from its dismal performance during the late years of Franco's dictatorship, with widespread perceptions of tax evasion, failing economic performance and an inadequate social welfare system, all of which naturally should have reduced any intrinsic motivation to pay taxes. In addition, at the beginning of the transition to democracy Spain lacked a tradition of voluntary compliance and self-filing. Another legacy from the Franco years was that the connection between the payment of taxes and the provision of public goods had been largely concealed also reducing the willingness to pay taxes.

Our results show a sharp increase in tax morale from our first year of observation in 1981 through 1995. The increase in tax morale during these 14 years would seem to be consistent with the relevance of social norms in tax compliance. The socio-economic conditions for Spanish citizens improved across the board, as the level and quality of public services also improved steadily. The strengthening of institutional structures, in particular the reform of the tax system and tax administration with increased overall fairness likely produced an affirmation of the public beliefs in government, at the same time income opportunities improved for a large share of the population. Quite likely, taxpayers reacted favorably to the economic and tax policy changes and public expenditure initiatives that were intended for bringing Spain closer to the economic performance of most of its European

---

<sup>8</sup> However, not every thing related to tax compliance improved over this period. It is interesting to contrast these improvements in reported tax morale with the evolution of the size of the underground economy in Spain. In the most recent study of the scale of the underground economy in Spain, Gomez de Antonio and Alañón Pardo (2004) find that the relative size of the underground economy in Spain kept growing from 1980 through 2000. The ratio of the gross value added in the underground to the formal sector was 15.5 percent and had increased to 19.8 percent in 1990. Subsequent changes were smaller with the ration standing at 20.1 percent in 1995 and 20.9 percent in 2000.

partners. In summary, the restoration of democracy, the strengthening of social and economic institutions, the process of fiscal decentralization and the creation of a welfare state could have brought a higher level of trust in the state and more positive individual attitudes toward paying taxes through 1995.

However, there was some backtracking in the level of tax morale between the surveys conducted during 1995 and those conducted during 1999/2000. It is not clear what may have been the cause of this relatively small drop, but nevertheless significant, in the level of tax morale. Politically, the big change in this period was the change in government when the PSOE lost the elections to the PP in 1996. But more than this democratic political change, the underlying causes for the decline in tax morale may lie in a series of factors, including the corruption scandals in the last years of the Socialist government, the high unemployment rate during this period, the partial dismantling of the never fully achieved welfare state, or perhaps the perception of unfairness in the tax systems associates with the tax reforms reducing rates and broadening tax bases that started right in this period.<sup>9</sup>

## **6. Individual determinants of tax morale**

The analysis above provides information about the *aggregate* effects of political events and economic policies on tax morale, but do not help us identify the determinants of tax morale at the *individual* level. In this section we analyze factors that shape these individual attitudes toward paying taxes in the different years, controlling for the conventional determinants of tax morale used in the previous literature.

If high tax morale is supposed to be an explanation of why tax compliance rates are high, it might be interesting in turn to “endogenize” tax morale and analyze what forces

---

<sup>9</sup> Tax amnesties may have an impact on tax morale (see Torgler and Schaltegger 2005). However, there were no tax amnesties in Spain over this period. Lopez-Laborda and Rodrigo (2003) have examined the impact of the main Spanish tax amnesty that took place in 1991 within the context of the 1989-1991 reform program of the personal income tax and concluded that the amnesty had no short or long terms effects on income tax compliance and collections.

*shapes* it. The descriptive analysis in the previous section only gives us information about the *raw effects* and not the *partial effects*. The natural question is what may have changed over time in Spain that can explain the steady increases in the overall level of tax morale from 1980 to 1985 and then the decline observed in 1999/2000. Was it changes in the political and fiscal environments? Or may it have been some thing else? Actually the observed differences over time might be explained in terms of a number of factors than can be controlled in a multivariate regression analysis. Doing that should enable us to disentangle the effects of other factors from a possible time effect.

As mentioned, *Figure 1* indicated that the natural cut-off point for TAX MORALE is at the value 1, showing that many respondents believe that cheating on taxes is never justifiable. We therefore utilize a probit estimation approach.<sup>10</sup> In the estimations we also use a weighting variable on all observations to adjust the data to reflect the national population. In order to control for differences in the number of participants between the different time periods, the observations are also weighted to get an equal number of observations for each wave.<sup>11</sup> To obtain the quantitative impacts for each of the explanatory variables, below we calculate the marginal effects corresponding to each of the variables. One final issue with the data is that “I don’t know” answers and missing values were omitted in all estimations.

In the regressions below we include a wide range of independent variables as determinants of TAX MORALE, although it is justifiable to state that further variables could have been included. However, using all four waves reduced the number of possible independent variables to include. There is no established theory on the determinants of tax morale that can guide us in the election of relevant explanatory variables. In the choice of

---

<sup>10</sup> Note that we also used a weighted order probit model, in which the ten-point scale is recoded into a four-point scale (0 to 3), with the value 3 standing for “never justified” and where the value of 0 is an aggregation of the last seven scale points of the original variable. Our results are unaffected from those obtained with a binomial dependent variable and a simple probit model.

<sup>11</sup> This was done by taking the original weighting variable and multiplying it by a constant for each survey. If the data were not weighted, the resulting pooled estimates could be biased. The weighting variable is provided by the WVS.

explanatory variables we are also limited by the other information or other variables included in the World Values Survey and the European Values Survey. The explanatory variables chosen can be grouped in three categories.<sup>12</sup> First, we include personal/family characteristics and income status. This type of variables is routinely used in tax evasion studies.<sup>13</sup> Second, we include a set of variables representing individual human capital, such as employment status and so on. Third, we include a set of variables that measure the level of “social capital”, measuring such things as trust in government institutions or the level of national pride. Our main interest is to establish whether, after controlling for these potential determinant factors of tax morale, the time dummy variables (TIME 1990, TIME 1995, TIME 1999) are still statistically significant. Given the important changes in the political regimes and the fiscal and economic environments over all these years, we expect the time dummies to be significant. Of course using time dummies does not allow us to identify what particular changes in fiscal policy and overall governance may have produced the changes in tax morale. In fact we cannot separate among any effects coming from those sources and any other changes that may have happened in Spanish society over the intervening years, other than those captured by our control variables. The descriptive statistics of the independent variables are presented in Appendix Table A1.

The regression results are presented in Table 2. As a test of robustness we report the results from a number of alternative specifications. In the basic specification, in column 1 of Table 2, we introduce as control variables age, gender, marital status, and employment status. In addition we include our variables of interest, the dummy variables to investigate time effects (with 1981 as the reference period): TIME 1990, TIME 1995 and TIME 1999.

The results for the control variables are in line with those found in previous studies in tax morale and tax evasion. A higher age is correlated with higher tax morale, although the marginal effects are small—less than one percentage point. We checked for non-linearity for

---

<sup>12</sup> Previous studies have discussed the relevance of control variables. See, for example, Torgler (2003, 2006b).

<sup>13</sup> See, for example, Alm (1998) and Andreoni et al. (1998).

age including a quadratic term, but the results clearly indicated that there is a linear relationship between age and tax morale. We also observe a significant effect for gender; the coefficient for FEMALE is positive and statistically significant in all regressions, with the marginal effects as high as 4 percentage points. On the other hand, the relationship between marital status and tax morale, with MARRIED status being the control group, is not a strong one; although SEPARATED and SINGLE individuals may show relatively lower tax morale than the control group, in most cases the estimated coefficients are not statistically significant. Similar results are obtained for employment status. Although the estimated coefficients for SEL-FEMPLOYED and UNEMPLOYED are negative, which would show a lower level of tax morale than for the control group (full time employed), these coefficients are not statistically significant; therefore no differences in the level of tax morale are observable.

For the time effects, in the basic regression all coefficients are statistically significant which indicates that tax morale was at the lowest level in 1981. Thus, after controlling for other potential determinants of tax morale, our main finding is that tax morale in Spain was significantly higher in 1990, 1995 and 1999/2000 than in 1981. The marginal effects are high, especially for the year 1995 showing a value of 19.3 percentage points.

In the second specification (column 2 of Table 2), we further investigate whether the differences over time are largely driven by changes in the level of social capital. With that goal we add several variables to the basic specification; these social capital variables can be seen as indicating the extent to which citizens can identify themselves with the state, the national institutions or the country itself. The first variable in this group measures the degree of individuals' TRUST IN THE PARLIAMENT and thus is closely linked to the way taxpayers feel they are treated by the state.<sup>14</sup> As a proxy for national identification we use

---

<sup>14</sup> The question asked in the surveys is "Could you tell me how much confidence you have in the Parliament: is it a great deal of confidence, quite a lot of confidence, not very much confidence or none at all? (1 = 'none at all'; 4 = 'a great deal')." "

NATIONAL PRIDE.<sup>15</sup> Finally, as a measure of norms enforced by non-governmental institutions or values that promote compliance and punish misbehavior we use RELIGIOSITY.<sup>16</sup>

We would expect that if the parliament is seen to be acting in a trustworthy way, taxpayers' trust in the state increases and so would their willingness to comply with their tax obligations. Identification with the state such as national pride may induce cooperation among taxpayers and thus induces similar mechanisms as the trust variables. Religiosity and the church as an institution induce behavioral norms and moral constraints among individuals. Religiosity can thus be seen as a restriction on engaging in tax evasion (see Torgler 2006b). The empirical results indicate that social capital variables matter in determining tax morale. The estimated coefficients for the three variables are positive and highly statistically significant. An increase in religiosity by one unit increases the probability of stating tax evasion is never justifiable by not less than 8.5 percentage points. The variable PRIDE indicates marginal effects of more than 7.6 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 7.6 percentage points. Finally, TRUST IN THE PARLIAMENT has also a positive impact on tax morale, with marginal effects of 3.1 percentage points. Using a Wald-test for coefficient restrictions testing for joint significance we can conclude that social capital plays a significant role in the determination of individuals' tax morale.

As can be seen from the second column of Table 2, the time effects are still quite visible in the presence of social capital variables. All coefficients remain highly statistically significant; only the marginal effects of the strongest effect observable in 1995 decreases from 19.3 to 17.1 percentage points.

---

<sup>15</sup> This question in the survey asked: "How proud are you to be a citizen of SPAIN? (4= Very proud; 1=Not at all proud).

<sup>16</sup> This question in the survey asked: "Independently of whether you go to church or not, would you say you are: 1. A convinced atheist, 2. Not a religious person, 3. A religious person."

In the final specification (column 3 of Table 2) we add the economic status variables to the regressions.<sup>17</sup> The interesting result here is that “lowest economic status class” appears to have the highest tax morale, while the “upper class” has the lowest tax morale followed by the upper-middle and lower-middle classes, in that order. Being in the upper class rather than the lower class reduces the probability of stating that tax evasion is never justifiable by 7.2 percentage points. The Wald-test also provides supportive evidence on the relevance of the economic status situation in understanding individuals’ differences in tax morale. One may speculate as to why the results for economic status are stacked in this way; it could be different moral standings or could be different perceptions of what the balance of expenditures and taxes brings to different groups; of course, we have no information to differentiate between these or other alternative explanations.

Personal characteristics and social capital factors remain statistically significant in this set of regressions. The results for the time effects remain also statistically significant, showing the robustness of these estimates; interestingly, the marginal effects of the 1999/2000 dummy variable increase from 6.6 to 7.2 percentage points. On the other hand, the marginal effects of the year 1995 decrease from 17.1 to 15.8 percentage points.

To better visualize tax morale differences over time, we change twice the reference group (year 1990 instead of 1981 in the first part, in the second part 1999 instead of 1981). These results are shown in Table 3. For simplicity, we only report the time variables. Of course, the regression results are perfectly comparable to the findings presented in Table 2 and reproduce the results shown in Table 1. We can observe a significant increase in tax morale between 1990 and 1995, but a decay of tax morale over time between 1995 and 1999/2000. On the other hand, the differences between 1990 and 1999/2000 are not statistically significant.

---

<sup>17</sup> As can be seen at the bottom of Table 2, the economic status variables contain a relatively high number of missing values.

It is interesting to compare our results with those obtained by Prieto Rodríguez et al. (2005) using a different data set for a cross-section analysis of tax morale in 1998. In general, the results concerning the determinants of individual tax morale in the two papers are quite similar, even though in some cases the variables used are different. The results for personal characteristics (demographic factors) are similar; for example, both papers find age to be positively correlated with tax morale. However, we find that economic status plays a role in tax morale, whereas Prieto Rodríguez et al. (2005) find that not to be the case. The most interesting comparison of the results has to do with our use of the social capital variables (trust in parliament, pride of citizenship, and religiosity) and Prieto Rodríguez et al. (2005) use of political party affiliation variables.<sup>18</sup> These authors find that affiliation with the large mainstream parties is correlated with higher tax morale, especially for the case of the right-centre party (Partido Popular); in contrast, affiliation with the nationalist regional parties is associated with lower tax morale. We believe that these two sets of results in the two papers are quite complementary in the sense that our variables “trust in parliament” and “pride of citizenship” are likely to be highly positively correlated with affiliation to the major countrywide parties as opposed to the case of regional nationalist parties. In addition, our variable “religiosity” is likely to be highly correlated with affiliation to centre-right Partido Popular.

---

<sup>18</sup> Their regression includes variables for the two major country-wide parties: the Socialist party (PSOE) and the centre-right Partido Popular (PP), a smaller coalition party of the left and communists Izquierda Unida (IU) and two nationalist regional parties for Catalonia and the Basque Country.

**Table 2. Determinants of Tax Morale in Spain**

|                                     | <i>Coeff.</i> <i>z-Stat.</i> <i>Marg.</i> |       |        | <i>Coeff.</i> <i>z-Stat.</i> <i>Marg.</i> |       |        | <i>Coeff.</i> <i>z-Stat.</i> <i>Marg.</i> |       |        |
|-------------------------------------|---|-------|--------|---|-------|--------|---|-------|--------|
| <i>WEIGHTED PROBIT</i>              | <i>Effects</i>                            |       |        | <i>Effects</i>                            |       |        | <i>Effects</i>                            |       |        |
| <i>INDEPENDENT V.</i>               | <i>1</i>                                  |       |        | <i>2</i>                                  |       |        | <i>3</i>                                  |       |        |
| <b><i>Demographic Factors</i></b>   |   |       |        |   |       |        |   |       |        |
| AGE                                 | 0.008***                                  | 6.05  | 0.003  | 0.005***                                  | 3.37  | 0.002  | 0.005***                                  | 3.07  | 0.002  |
| FEMALE                              | 0.119***                                  | 3.17  | 0.046  | 0.064                                     | 1.57  | 0.025  | 0.083*                                    | 1.89  | 0.032  |
| <b><i>Economic Variable</i></b>     |   |       |        |   |       |        |   |       |        |
| UPPER CLASS                         |   |       |        |   |       |        | -0.183***                                 | -2.66 | -0.072 |
| UPPER MIDDLE CLASS                  |   |       |        |   |       |        | -0.105**                                  | -2.11 | -0.041 |
| LOWER MIDDLE CLASS                  |   |       |        |   |       |        | -0.078*                                   | -1.77 | -0.030 |
| <b><i>Marital Status</i></b>        |   |       |        |   |       |        |   |       |        |
| DIVORCED                            | -0.154                                    | -0.91 | -0.061 | -0.063                                    | -0.36 | -0.025 | -0.141                                    | -0.75 | -0.055 |
| SEPARATED                           | -0.245**                                  | -2.02 | -0.097 | -0.163                                    | -1.22 | -0.064 | -0.174                                    | -1.21 | -0.068 |
| WIDOWED                             | 0.076                                     | 1.18  | 0.029  | 0.105                                     | 1.57  | 0.040  | 0.106                                     | 1.49  | 0.040  |
| SINGLE                              | -0.110**                                  | -2.50 | -0.043 | -0.080*                                   | -1.67 | -0.031 | -0.063                                    | -1.22 | -0.024 |
| <b><i>Employment Status</i></b>     |   |       |        |   |       |        |   |       |        |
| PART TIME EMPLOYED                  | 0.027                                     | 0.36  | 0.011  | 0.017                                     | 0.21  | 0.007  | -0.023                                    | -0.26 | -0.009 |
| SELF-EMPLOYED                       | -0.070                                    | -1.25 | -0.027 | -0.085                                    | -1.43 | -0.033 | -0.088                                    | -1.37 | -0.034 |
| UNEMPLOYED                          | -0.056                                    | -0.93 | -0.022 | -0.035                                    | -0.54 | -0.014 | -0.068                                    | -0.96 | -0.027 |
| AT HOME                             | 0.088*                                    | 1.72  | 0.034  | 0.031                                     | 0.57  | 0.012  | -0.011                                    | -0.19 | -0.004 |
| STUDENT                             | -0.051                                    | -0.79 | -0.020 | -0.082                                    | -1.15 | -0.032 | -0.098                                    | -1.25 | -0.038 |
| RETIRED                             | 0.020                                     | 0.32  | 0.008  | 0.009                                     | 0.14  | 0.003  | -0.032                                    | -0.44 | -0.012 |
| OTHER                               | 0.122                                     | 0.66  | 0.047  | 0.088                                     | 0.44  | 0.034  | 0.414                                     | 0.87  | 0.147  |
| <b><i>Social Capital</i></b>        |   |       |        |   |       |        |   |       |        |
| RELIGIOSITY                         |   |       |        | 0.219***                                  | 7.37  | 0.085  | 0.238***                                  | 7.31  | 0.092  |
| TRUST IN THE PARLIAMENT             |   |       |        | 0.079***                                  | 4.13  | 0.031  | 0.076***                                  | 3.66  | 0.029  |
| PRIDE                               |   |       |        | 0.197***                                  | 9.11  | 0.076  | 0.198***                                  | 8.46  | 0.076  |
| <b><i>Time</i></b>                  |   |       |        |   |       |        |   |       |        |
| SPAIN 1990                          | 0.216***                                  | 6.21  | 0.083  | 0.229***                                  | 6.18  | 0.088  | 0.233***                                  | 6.13  | 0.088  |
| SPAIN 1995                          | 0.519***                                  | 10.73 | 0.193  | 0.458***                                  | 8.89  | 0.171  | 0.424***                                  | 7.76  | 0.158  |
| SPAIN 1999/2000                     | 0.175***                                  | 4.51  | 0.067  | 0.174***                                  | 4.21  | 0.066  | 0.191***                                  | 3.72  | 0.072  |
| Wald-Test: Joint for TIME FACTORS   | 117.76***                                 |       |        | 84.67***                                  |       |        | 69.40***                                  |       |        |
| Wald-Test: Joint for SOCIAL CAPITAL |   |       |        | 204.41***                                 |       |        | 182.00***                                 |       |        |
| Wald-Test: Joint for ECONOMIC CLASS |   |       |        |   |       |        | 8.41**                                    |       |        |
| Number of observations              | 9753                                      |       |        | 8780                                      |       |        | 7501                                      |       |        |
| Prob > chi2                         | 0.000                                     |       |        | 0.000                                     |       |        | 0.000                                     |       |        |
| Pseudo R2                           | 0.041                                     |       |        | 0.059                                     |       |        | 0.062                                     |       |        |

Notes: Dependent variable: tax morale on a four-point scale. In the reference group are MALE, MARRIED, FULL TIME EMPLOYED, LOWEST CLASS, SPAIN 1981. Marginal effect = highest tax morale score (1). Significance levels: \* 0.05 < p < 0.10, \*\* 0.01 < p < 0.05, \*\*\* p < 0.01.

**Table 3. Time Effects and Tax Morale**

| <i>PROBIT</i>                            | <i>Coeff.</i>  | <i>z-Stat.</i> | <i>Marg.</i> | <i>Coeff.</i>  | <i>z-Stat.</i> | <i>Marg.</i> | <i>Coeff.</i>  | <i>z-Stat.</i> | <i>Marg.</i> |
|--|----------------|----------------|--------------|----------------|----------------|--------------|----------------|----------------|--------------|
|  | <i>Effects</i> |                |              | <i>Effects</i> |                |              | <i>Effects</i> |                |              |
| <i>INDEPENDENT V.</i>                    | <i>1b</i>      |                |              | <i>2b</i>      |                |              | <i>3b</i>      |                |              |
| <b><i>All other factors included</i></b> |                |                |              |                |                |              |                |                |              |
| <b><i>Time</i></b>                       |                |                |              |                |                |              |                |                |              |
| SPAIN 1981                               | -0.216***      | -6.21          | -0.085       | -0.229***      | -6.18          | -0.090       | -0.233***      | -6.13          | -0.091       |
| SPAIN 1990                               | ref. group     |                |              | ref. group     |                |              | ref. group     |                |              |
| SPAIN 1995                               | 0.303***       | 6.77           | 0.115        | 0.229***       | 4.82           | 0.087        | 0.191***       | 3.75           | 0.073        |
| SPAIN 1999/2000                          | -0.041         | -1.21          | -0.016       | -0.055         | -1.48          | -0.021       | -0.042         | -0.87          | -0.016       |
| <b><i>All other factors included</i></b> |                |                |              |                |                |              |                |                |              |
| <b><i>Time</i></b>                       |                |                |              |                |                |              |                |                |              |
| SPAIN 1981                               | -0.175***      | -4.51          | -0.068       | -0.174***      | -4.21          | -0.068       | -0.191***      | -3.72          | -0.074       |
| SPAIN 1990                               | 0.041          | 1.21           | 0.016        | 0.055          | 1.48           | 0.021        | 0.042          | 0.87           | 0.016        |
| SPAIN 1995                               | 0.345***       | 7.26           | 0.130        | 0.284***       | 5.59           | 0.108        | 0.233***       | 3.98           | 0.088        |
| SPAIN 1999/2000                          | ref. group     |                |              | ref. group     |                |              | ref. group     |                |              |

Notes: Dependent variable: tax morale on a four point scale. In the reference group are MALE, MARRIED, FULL TIME EMPLOYED, LOWEST CLASS, SPAIN 1981. Marginal effect = highest tax morale score (1). Significance levels: \*  $0.05 < p < 0.10$ , \*\*  $0.01 < p < 0.05$ , \*\*\*  $p < 0.01$ .

## 7. Conclusion

The transition and further consolidation of the democratic state in Spain and deep reforms of its fiscal system provide a quasi-natural experiment setting for studying evolution of citizens' attitudes toward paying taxes, or tax morale.

In this paper we analyze tax morale in Spain over the period 1981-2000 using survey data from the World Values Survey and the European Values Survey. Our estimation results support the conjecture that during this time Spain succeeded in designing general institutional reforms, including tax policy and tax administration reforms that led to significant increases in tax morale, even though some deterioration of tax morale was present between the 1995 and 1999/2000 observations.

At the individual level we also find other factors that are important determinants of tax morale. Personal characteristics such as age and gender (female) are correlated with higher tax morale, results that are in line with previous studies of tax morale and tax evasion in Spain and elsewhere. What we have called "social capital" variables, the extent to which citizens can identify themselves with the state, the national institutions or the country itself, play a strong positive effect on tax morale.

The most important empirical result in this paper is the significant changes in tax morale in Spain over time as reflected by the time effects estimated across the four time periods when the surveys were conducted. The time effects remain statistically significant in different specifications of the estimating equation. Tax morale increased steadily from 1981 to 1995 and then declined slightly but nevertheless significantly through 1999/2000. The tax and other institutional reforms that got started with the Moncloa Pacts and continued through the accession to the European Economic Community quite likely helped boost Spanish citizens' tax morale. The small but significant decline in tax morale during the second half of the 1990s remains somewhat of a puzzle although some likely causes include institutional changes such

as corruption in the public sector, a perception of lower levels of tax fairness, or even high levels of unemployment in the economy.

There can be little doubt that the tremendous success of Spanish tax reforms and tax administration modernization efforts in practically doubling tax effort for general revenues in the country from 22 percent of GDP in 1976 to 39.9 percent of GDP in 2002 has a lot to do with improved tax morale of Spanish citizens. We have argued that the level of tax morale is an endogenous variable affected by, among other things, tax policy and tax administration reforms. Clearly, keeping tax morale high is a valuable asset for the entire country.

It is our hope that this paper will provoke further research on the evolution of tax morale in Spain and that future studies will be able to lead us to a better understanding of citizens' attitude toward paying taxes.

## REFERENCES

- Alm, J. (1998). Tax Compliance and Administration. In *Handbook on Taxation*, edited by W. Bartley Hildreth and James A. Richardson (pp.741-768). New York: Marcel Dekker, Inc.
- Alm, J. and B. Torgler (2005). Culture Differences and Tax Morale in the United States and Europe, forthcoming in: *Journal of Economic Psychology*.
- Alm, J., McClelland, G. H. and Schulze, W. D. (1992). Why Do People Pay Taxes?, *Journal of Public Economics*, 48, 21-48.
- Alm, J., G. H. McClelland and W. D. Schulze (1999). Changing the Social Norm of Tax Compliance by Voting, *KYKLOS*, 48, 141-171.
- Alm, J., J. Martinez-Vazquez and B. Torgler (2005). Russian Attitudes Toward Paying Taxes – Before, During, and After the Transition, Leitner Working Paper 2005-21, New Haven, Yale University.
- Andreoni, J., B. Erard, and J. Feinstein (1998). Tax Compliance, *Journal of Economic Literature* 36 No. 2 (June): 818-60.
- Comin, F. (2005) Reaching A Political Consensus in Spain: The Moncloa Pacts, Joining the European Union and The Rest of the Journey. Working Paper, International Studies Program, Andrew Young School of Policy Studies, Georgia State University.
- Feld L. P. and Tyran, J. R. (2002). Tax Evasion and Voting: An Experimental Analysis, *Kyklos*, 55, 197-222.
- Frey, B. S. (1997). *Not Just for the Money: An Economic Theory of Personal Motivation*. Cheltenham, UK, Edward Elgar Publishing.
- Frey, B. S. (2003). The Role of Deterrence and Tax Morale in Taxation in the European Union, Jelle Zijlstra Lecture, Netherlands Institute for Advanced Study in the Humanities and Social Sciences (NIAS).
- Frey, B. S. and Feld, L. P. (2002). Deterrence and Morale in Taxation: An Empirical Analysis, CESifo Working Paper No. 760, August 2002.
- Frey, B. S. and B. Torgler (2004). Taxation and Conditional Cooperation, CREMA Working Paper 2004-20, Basel, Center for Research in Economics, Management and the Arts.
- Gomez de Antonio, M. and A. Alañón Pardo. (2004) Evaluación y Analisis Espacial del Grado de Incumplimiento Fiscal para las Provincias Españolas (1980-2000). *Hacienda Pública Española/Revista de Economía Pública* , 171(4), 9-32.
- Kirchler, E. (1997). The Burden of New Taxes: Acceptance of Taxes as a Function of Affectedness and Egoistic Versus Altruistic Orientation, *Journal of Socio-Economics*, 26, 421-436.
- Kirchler, E. (1998). Differential Representations of Taxes: Analysis of Free Associations and Judgments of Five Employment Groups, *Journal of Socio-Economics*, 27, 117-131.

- Kirchler, E. (1999). Reactance to Taxation: Employers' Attitudes Towards Taxes, *Journal of Socio-Economics*, 28, 131-138.
- Knack, S., and P. Keefer (1997). Does Social Capital Have an Economic Payoff: A Cross-Country Investigation., *Quarterly Journal of Economics*, 112, 1251-1288.
- Inglehart, R. (2000). Globalization and Postmodern Values, *Washington Quarterly*, 23, 215-228.
- Inglehart, R. et al. (2000). *Codebook for World Values Survey*. Ann Arbor: Institute for Social Research.
- Lewis, A. (1982). *The Psychology of Taxation*. Oxford, Martin Robertson.
- Lopez-Laborda, J. and F. Rodrigo (2003) Tax Amnesties and Income Tax Compliance: The Case of Spain , *Fiscal Studies*, 24 (1) (March), 73-96.
- Molero, J. C. and F. Pujol (2005). Walking Inside the Potential Tax Evader's Mind, Working Paper N. 01/05, Facultad de Ciencias Económicas y Empresariales, Universidad de Navarra, Spain.
- Onrubia, J. (2005) The reform of the tax administration in Spain Working Paper, International Studies Program, Andrew Young School of Policy Studies, Georgia State University
- Pommerehne, W. W. Hart, A. and Frey, B. S. (1994). Tax Morale, Tax Evasion and the Choice of Policy Instruments in Different Political Systems, *Public Finance*, 49(Supplement), 52-69.
- Prieto Rodríguez, J., M.J. Sanzo Pérez and J. Suárez Pandiello (2005) Análisis Económico de la Actitud hacia el Fraude en España. Working Paper, Universidad de Oviedo.
- Roth, J. A., Scholz, J. T., and Witte, A. D. (eds.) (1989). Taxpayer Compliance, Vol. 1 and Vol. 2. Philadelphia, University of Pennsylvania Press.
- Schanz, G. von (1890). *Die Steuern der Schweiz in ihrer Entwicklung seit Beginn des 19. Jahrhunderts, Vol I to V*, Stuttgart.
- Schmölders, G. (1951/1952). Finanzpsychologie, *Finanzarchiv*, 13, 1-36.
- Schmölders, G. (1960). *Das Irrationale in der öffentlichen Finanzwissenschaft*. Hamburg: Rowolt.
- Schmölders, G. (1962). *Volkswirtschaftslehre und Psychologie*. Berlin: Reinbek.
- Schwartz, R. and Orleans, S. (1967). On Legal Sanctions, *University of Chicago Law Review*, 34, 282-300.
- Strümpel, B. (1969). The Contribution of Survey Research to Public Finance. In A. T. Peacock (ed.), *Quantitative Analysis in Public Finance* (pp. 14-32). New York: Praeger Press.
- Torgler, B. (2003). To Evade Taxes or Not: That Is the Question, *Journal of Socio-Economics*, 32, 283-302.
- Torgler, B. (2003). Does Culture Matter? Tax Morale in an East-West-German Comparison, *FinanzArchiv*.,59,504-528.
- Torgler, B. (2005a). Tax Morale in Latin America, *Public Choice*, 122,133-157.
- Torgler, B. (2005b). Tax Morale and Direct Democracy, *European Journal of Political Economy*, 21,525-531.
- Torgler, B. (2006a). *Tax Compliance and Tax Morale: A Theoretical and Empirical Analysis*, forthcoming: Edward Elgar.

- Torgler, B. (2006b). The Importance of Faith: Tax Morale and Religiosity, forthcoming in: *Journal of Economic Behavior and Organization*.
- Torgler, B. and F. Schneider (2005). Attitudes Towards Paying Taxes in Austria: An Empirical Analysis, *Empirica*, 32, 231-250.
- Torgler, B. and C. A. Schaltegger (2005). Tax Amnesties and Political Participation, *Public Finance Review*, 33, 403-431.
- Vogel, J. (1974). Taxation and Public Opinion in Sweden: An Interpretation of Recent Survey Data, *National Tax Journal*, 27, 499-513.

## APPENDIX

*Table A1. Summary Statistics*

| <b>Variable</b>         | <b>Observations</b> | <b>Mean</b> | <b>Standard Deviation</b> | <b>Minimum</b> | <b>Maximum</b> |
|-------------------------|---------------------|-------------|---------------------------|----------------|----------------|
| AGE                     | 10062               | 43.484      | 17.731                    | 18             | 97             |
| FEMALE                  | 10070               | 0.523       | --                        | 0              | 1              |
| UPPER CLASS             | 8519                | 0.079       | --                        | 0              | 1              |
| UPPER MIDDLE CLASS      | 8519                | 0.238       | --                        | 0              | 1              |
| LOWER MIDDLE CLASS      | 8519                | 0.370       | --                        | 0              | 1              |
| DIVORCED                | 10064               | 0.008       | --                        | 0              | 1              |
| SEPARATED               | 10064               | 0.015       | --                        | 0              | 1              |
| WIDOWED                 | 10064               | 0.078       | --                        | 0              | 1              |
| SINGLE                  | 10064               | 0.279       | --                        | 0              | 1              |
| PART TIME EMPLOYED      | 10051               | 0.045       | --                        | 0              | 1              |
| SELFEMPLOYED            | 10051               | 0.083       | --                        | 0              | 1              |
| UNEMPLOYED              | 10051               | 0.074       | --                        | 0              | 1              |
| AT HOME                 | 10051               | 0.255       | --                        | 0              | 1              |
| STUDENT                 | 10051               | 0.081       | --                        | 0              | 1              |
| RETIRED                 | 10051               | 0.142       | --                        | 0              | 1              |
| OTHER                   | 10051               | 0.006       | --                        | 0              | 1              |
| RELIGIOSITY             | 9642                | 2.607       | 0.575                     | 1              | 3              |
| TRUST IN THE PARLIAMENT | 9730                | 2.337       | 0.833                     | 1              | 4              |
| NATIONAL PRIDE          | 9659                | 3.355       | 0.786                     | 1              | 4              |