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***Tax Morale and Fiscal Autonomy: Evidence from  
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# TAX MORALE AND FISCAL AUTONOMY: EVIDENCE FROM GERMANY

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## Abstract

*Why people pay their taxes voluntarily is a key puzzle in the public finance literature. Some suggest that factors such as the level of tax morale, defined as the intrinsic motivation to pay taxes, affects compliance behaviour. While there have been numerous studies that have explored tax compliance or tax evasion, very few have explored the concept of tax morale in any detail. The basic intention of the empirical part is to analyse how fiscal autonomy affects tax morale in Germany. This also allows fill a gap in the tax compliance literature, which has rarely analysed the impact of fiscal autonomy on tax compliance or tax morale. Strong evidence has been found that a higher fiscal autonomy leads to a higher tax morale, controlling in a multivariate analysis for additional factors.*

## Introduction

Why do people pay taxes? This question has attracted increased attention in the tax compliance literature over the last few years. There is still a lack of empirical evidence about tax morale, defined as the intrinsic motivation to pay taxes, although many researchers stress its relevance to understand the high observed level of compliance. (e.g., Schwartz and Orleans, 1967; Lewis, 1982; Roth, Scholz and Witte, 1989; Alm et al., 1992, 1999; Pommerehne, Hart and Frey, 1994; Frey, 1997, 2003; Frey and Feld, 2002, Feld and Tyran, 2002; Torgler, 2002). In fact,

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this means that it is essential to obtain more empirical insights, analysing tax morale as a dependent variable and to search for factors that shape tax morale.

This paper uses *World Values Survey* (WVS) and *European Values Survey* (EVS) data from 1997 and 1999 to investigate if the degree of local autonomy has an influence on tax morale, controlling for additional variables. Thus, the purpose of this paper is to fill a gap identifying to which extent institutions have an impact on tax morale in Germany.

During the last few years, countless studies have looked at decentralisation trends worldwide and at the practical implementation of fiscal federalism. Numerous studies have analyzed the impact of fiscal federalism on the size of government (for a good overview see Feld, Kirchgässner and Schaltegger, 2003). Further studies also analyzed the impact of decentralization on economic growth (see, e.g., Davoodi and Zou, 1998) and stability (for example, Fukasaku and de Mello (1998) and Prud'homme, 1995). Recent studies also investigated the relationship between decentralization of government activities and corruption (Treisman, 2000; Tanzi, 2000; Fisman and Gatti, 2002) or democratic participation (Huther and Shad, 1998). However, in many areas the empirical evidence is mixed, which indicates the relevance to present more empirical results. Thus, it is highly relevant to investigate the relationship between fiscal autonomy and taxpayers' willingness to contribute and pay taxes.

In spite of numerous publications in this area, some proxies for fiscal decentralization used in the literature, especially in cross-country studies, are not free of biases. For example the databases of the *Government Finance Statistics* (GFS), which have been published annually by the IMF since 1970, contain certain weaknesses. On the revenue side, the GFS does not distinguish whether taxes are collected via shared taxes, piggybacked taxes, and locally determined "own-source" taxes, nor what proportion of intergovernmental transfers is conditional, as opposed to general-purpose transfers (Ebel and Yilmaz, 2001). Moreover, in some cases of the GFS – like Italy or Belgium – the revenues of local and regional authorities are combined. (2) Thus, it may be useful to focus on one specific country such as Germany and try to develop a useful measure for fiscal autonomy. Therefore, novel compared to previous studies is to development a fiscal autonomy coefficient for the German states, based on aggregated communal data.

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We first present a short outline of the structure of the financial system of Germany's municipalities. The next section is dedicated to the development of the fiscal autonomy variable, which we define as *FISCAUT* based on the financial code numbers of the municipalities, with the classification based on the sixteen federal states. We then introduce the theoretical approach and present the empirical evidence, using tax morale as dependent variable. The paper finishes with some concluding remarks.

## **Local Public Finance in Germany**

Germany is a federal state with a three-level administrative structure. In addition to the federal government, whose ministries are based both in Germany's capital, Berlin, and in Germany's former capital, Bonn, there are 16 federal states plus 13,897 municipalities.

The towns and municipalities, which after numerous territorial reforms in the respective federal states between 1970 and 1977 have become very compact with regards to their inhabitant structures. (3) These are the smallest local units in Germany.

In Germany, tax revenues are distributed among the individual regional administrative bodies using both own assigned revenues and revenues sharing. This, for example, means that the tax receipts from the real property tax are available to the municipalities in full, while they also receive a fixed percentage of the tax receipts from the value added tax and the income tax. The distribution of the most important tax revenues is reported in Table 1.

After Germany's fiscal equalisation system was reformed by the so-called "Solidarity Pact II" (Spahn and Werner, 2004), the current discussion on federalism is now focused on the municipalities' finances, and there are numerous proposals for a reform in this context. However, in the field of local taxation, a few different suggestions exist, which do not solve the problems of local taxation completely. In particular, only very few reform proposals for the municipalities' finances take the real property tax into account (Werner, 2003), while the ideas discussed up to now either want to scrap the trade tax completely or "revitalise" it by broadening the assessment basis and the number of taxable people. In 2001, West German municipalities had revenues of 105.1 billion and East German municipalities had revenues of 19.9 billion EURO. Thus,

for the West German municipalities, tax revenues are the biggest revenue item, while the East German municipalities are mainly funded by the allocation of money from the federal states. Within the tax revenue section, the biggest source of income for the West German municipalities is their fixed share of the personal income tax and the (local) trade tax. For the East German municipalities, on the other hand, the trade tax and the real property tax constitute the biggest revenue items. In addition to their fixed share of the PIT and VAT, municipalities in Germany are entitled to stipulate municipal assessment rates within the real property tax and the trade tax, which ensures that at least some basic elements of fiscal autonomy are guaranteed.

**Table 1. Tax Revenues Assignments Between the Central Government, the Federal States and the Municipalities in 2003 (in EURO)**

	Central Government	Federal States	Communities	Revenues in 2001
Consumption tax (4)	100 %	-	-	60.75 billion
Inheritance tax	-	100 %	-	3.069 billion
Property Tax	-	-	100 %	9.076 billion
Personal Income tax	42.5 %	42.5 %	15 %	141.396 billion
Value added tax	51.4 %	46.5 %	2.1 %	138.935 billion
Corporate Income Tax	50 %	50 %	-	- 0.426 billion (5)
Interest rebate	44 %	44 %	12 %	29.846 billion
Trade tax	14.8%	7.7%	77.5 %	24.533 billion

Source: Werner (2003: p.83).

## **Fiscal Autonomy of Germany's Municipalities**

The revenues of the municipalities and the municipal associations can be divided into four categories: tax revenues, revenues from fees, revenues from vertical grants and other revenues (see Table A2a and A2b).

Tax revenues comprise both the tax revenues from local taxes as well as the proportional tax revenues of the regional planning associations derived from the compound taxes. This makes particular

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sense when bearing in mind that in 1998 the trading capital as a component of the trade tax was abolished and simultaneously the municipalities, for the first time, were granted a share (6) of the revenues from the value added tax, and it will thus help to avoid distortions when examining the years 1997 vs. 1999. (7)

The municipalities' revenues are derived from fees, taxes for specific purposes, licence fees, other administrative and business taxes as well as amounts and other similar fees are listed under fees in this paper.

All current transfers from the states and the federal government to the local authorities in the form of vertical grants – regardless of whether they were earmarked for specific purposes or unconditional – have been recorded as grants.

Other revenues of the local authorities include income from business activity, interest income, loan repayments, income from the sale of corporate holdings and income from the sale of fixed assets.

In addition to classifying the total revenues of the municipalities according to their source of income, the municipalities' income from 1997 and 1999 is classified according to the federal states.

When calculating the revenue volume of the municipal budgets of the three city-states of Berlin, Bremen and Hamburg, some distinction problems arise. These three federal states do not separate their municipal budgets from their respective federal budgets and thus only have a federal budget (for a discussion about the political and fiscal federalism see also Seitz, 2000; Spahn, 2000). Particularly when it comes to tax revenues, but also in the field of revenues from fees, the communal assessment of the three city-states makes it difficult to calculate their respective municipal revenues. The vertical grants, on the other hand, present fewer problems, on account of the extensive data available in connection with the fiscal equalisation system (LFA) among Germany's states.

A prime example of the distinction problems can be found in the trade tax. Estimates can be drawn up if one wishes to determine how far the federal state of Berlin would apply a fictitious multiple to collect the trade tax hand-over rate from the municipality of Berlin. When it comes to their budgets fees, the current state budgets do not distinguish

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between fees imposed by the federal state of Hamburg and those imposed by the municipality of Hamburg.

Taking into account the fact that the German states cannot set tax rates individually, we examine fiscal autonomy of Germany's municipalities, introducing the variable *FISCAUT*, which is defined as follows:

$$FISCAUT = \text{total local revenues} / \text{GDP of the respective state}$$

State fiscal autonomy values have been derived, aggregating in a bottom up approach communal data together. Furthermore, the fiscal autonomy variable *FISCAUT* considers the respective federal state GDP to take into account the different economic disparities in West and East Germany, which still exist more than a decade after the reunification. To take into account such differences is important as Torgler (2003) provides a comparison of tax morale between inhabitants of East and West Germany after its post-reunification periods using World Values Survey data of 1990 and 1997. The results indicate statistically significant differences between East Germany and West Germany. However, the differences between East and West seem to erode over time.

The measurement of tax autonomy as local tax revenues relative to total revenues is not reasonable and too short-winded for Germany. First the German local authorities participate in a tax sharing system and therefore they received 15% on the PIT, 12% of the interest income tax and 2.2% on the VAT. Moreover the most important "own local revenues" - the local trade tax - does not belong completely to the local authorities, because since the fiscal reform of 1969, it exists for the local trade tax the instrument "trade tax hand-over rate", which can be compared as a tax sharing between local, state and central government.

Additionally, there are still inequalities between the West and East German in many aspects of every day life, which can be underlined by the fact that East Germany's municipalities are financed only with 20% by taxes, while their western counterparts fund their expenditure with more than 42%.

In Germany exists in every federal state a local equalization system (*kommunaler Finanzausgleich*), which differs extremely between the states (see Werner, 2005). Every state has to transfer an amount of

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its tax revenues to the local authorities; this arrangement is called obligatory tax sharing (*obligatorischer Steuerverbund*). On the one hand, the federal states have to distribute a part of their tax revenues to the cities, the rural districts and the municipalities but on the other hand, the states can fix the volume of their obligatory tax sharing independently. Therefore the value of this amount ranges between 11.54% in Bavaria and 26.66% in Mecklenburg-Western Pomerania. Besides the obligatory tax sharing, the facultative tax sharing exists (*freiwilliger Steuerverbund*), under which the states are able to give the local authorities a share of further revenues, such as the grants from the equalisation system among the federal states, grants from the central government because of economic weakness or the motor vehicle tax. To consider all these facts we measured in our calculations not tax revenues rather all relevant financial source of the local authorities in relation to the GDP of the respective state.

## Theoretical Approach

In this section we introduce the model and develop our main hypothesis and the predicted sign of the control variables to analyze in the next section in a multivariate analysis.

In order to examine the correlation between tax morale and fiscal autonomy, the following two specifications are postulated:

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

$$TM_i = \beta_0 + \beta_1 \cdot p_L + \beta_2 \cdot CTL_i + \beta_3 FISCAUT_L + \varepsilon_i \quad (2)$$

First of all, it is important to note that we test a model of tax morale, not tax evasion or tax compliance. Thus, deterrence factors are not integrated in our first model. It can be argued that tax morale is a concept that reflects the shaping of people's preferences with respect to tax cheating behavior and not a concept such as the audit probability that affects the likelihood of cheating at given preferences. Thus, audit probability affects tax compliance decisions, but not tax morale. Furthermore, it can be assumed that the perceived deterrence factors (especially the perceived probability of detection), which vary among individuals are expected to determine tax morale much stronger than an

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objective measurable proxy used in this paper. But, we were not able to collect this information in our study.

On the other hand, if tax morale is seen as a good indicator of tax compliance, one may suggest to integrate also deterrence factors in the model. Allingham and Sandmo (1972) presented a formal model, showing that the extent of tax evasion is negatively correlated with the probability of detection and the degree of punishment. Thus, in a second estimation we check whether the deterrence plays a significant role in the determination of tax morale. We were only able to investigate the impact of audit probability on tax morale, due to the lack of variance of the punishments among the states. As an approximation for the probability of detection, the number of tax clerks per 1000 taxpayers is used. (8) This proxy has been used in several previous studies (see, e.g., Pommerehne and Weck-Hannemann, 1996; Frey and Feld, 2002; Torgler, 2005), although it can be criticized that the variation in audit probabilities may not be an exact proxy for the level detection probability being related to the presence of large companies or number of firms and thus influenced by the composition of the tax files to be controlled.

Using two specifications has also the advantage to check the robustness of the results, because it can also be criticized that the audit probability may be endogenous.

$TM_i$  denotes the individual degree of tax morale measured with the *World Values Survey* (year 1997) and *European Values Survey* (year 1999) using the following question: (9)

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

The dependent variable TAX MORALE is developed by recoding the ten-point scale into a four-point scale (0 to 3), with the value 3 standing for “never justifiable”. The value of 0 is an aggregation of the last 7 scale points, which were rarely chosen.

One of the advantages of the used data sets is that they are designed as wide-ranging surveys, which reduces the probability of participants being suspicious and of creating framing effects by other tax

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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, using a single question avoids the problems associated with the construction of an index. 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. 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. Furthermore, our data set has the disadvantage that we cannot correct for the tax pressure that an individual experience. It can be pointed out that a person may be again tax cheating if he/she feels that the tax bill is reasonable, but on the other hand be less opposed to it if a high level of tax pressure is experienced.

Our main focus in this paper is to check whether tax morale depends on the type of institutional settings. There are not many studies, which systematically analyze the influence of decentralization on tax morale or tax compliance. Torgler (2004) analyzed the correlation between tax morale and local autonomy in Switzerland. The results indicate that higher local autonomy leads to higher tax morale. Thus, it is essential to analyze the institutional conditions under which citizens are more willing to pay their taxes, controlling in a multivariate analysis for additional factors. This is the backdrop against which this survey examines Germany's fiscal federalism *FISCAUT<sub>L</sub>* and, in particular, the finances of its municipalities, in order to find out to what extent the financial situation of Germany's municipalities influences tax morale. Small structures have the advantage that citizens' preferences can be met better. There is an intensive every-day interaction between taxpayers and the state. Such closeness may induce trust and thus enhance tax morale. Preferences are more visible. Thus, decentralization moves the government closer to the people. Many economists point out the relevance of giving sub-national governments the taxing power (see, e.g., Bahl, 1999). The strength of decentralized systems is a better transparency of this input-output relationship. The tax system must be visible to the local taxpayers. Thus, we would hypothesize that a higher local autonomy leads to higher tax morale.

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We also include a panel of control variables at the individual level. Previous studies have shown the relevance to control for socio-demographic and socio-economic factors (for an overview, see Torgler, 2003). 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, we would predict that age correlates with a higher tax morale. Such a result would also be in line criminology studies that report a negative relationship between age and rule breaking (see, e.g., Gottfredson and Hirschi, 1990). Evidence from the tax compliance literature and previous tax morale studies show the tendency that men are less compliant than women. Also the criminology literature (Gottfredson and Hirschi, 1990) and recent studies investigating corruption (see, e.g., Swamy et al., 2001) indicate such tendencies. Based on the relatively high number of missing values, it was not possible to include the variable INCOME in the estimations. In our analysis it is essential to reduce the number of missing values and thus to maximize the number of observations at the state level to reduce possible biases. Instead of income we used another proxy for a person's economic situation. The *World Values Survey* and the *European Values Survey* asked participants, where they classified themselves in relation to SOCIAL CLASS (i.e., upper class, middle class etc.). Finally, we also control for marital and employment status. The literature shows the tendency that there especially exist strong differences between married and single people (in our estimations the reference group). Differences due to the employment status are less obvious, but showing a certain tendency that self-employed are ceteris paribus less willing to cooperate or to pay taxes compared to other people.

In the analysis of partial correlations we use weighted ordered probit models. Weighted ordered probit estimations are used to correct the samples and thus to get a reflection of the national distribution. The ordered probit models are relevant in such an analysis insofar as they help analyse the ranking information of the scaled dependent variable tax morale. However, as in the ordered probit estimation, the equation has a non-linear form, only the sign of the coefficient can be directly interpreted and not its size. Calculating the marginal effects is therefore a method to find the quantitative effect that a variable has on tax morale. The marginal effect indicates the change in the share of taxpayers (or the probability of) belonging to a specific tax morale level, when the independent variable increases by one unit. In all estimations the marginal effects are presented only for the highest tax morale value.

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

## **Empirical Evidence**

In this section we introduce the model and develop our main hypothesis and the predicted sign of the control variables to analyze in the next section in a multivariate analysis.

Table 2a, 2b and 2c present the first results. To check the robustness of the results, we present several estimations. First, we are going to use two different time periods in the empirical analysis. Eq 1. presents the results focusing on 1997, Eq. 2 on 1999. Eq. 3 pools the data together. In a next we present in Eq. 4 we present an estimation with standard errors adjusted to clustering within states, as it can be criticized that including fiscal autonomy as an aggregated state variable can produce downward biased standard errors (see, e.g., Frey and Stutzer, 2002). Thus, it is useful to check whether a correction regarding the standard errors has an effect on the significance level of our main variable. Eq. 5 and 6 also introduces our model 2, considering also audit probability as a variable. In Eq. 6, we also excluded the city-states Berlin, Hamburg and Bremen (see previous discussion).

In general, the fiscal autonomy coefficients show in all estimations a statistically significant positive effect on tax morale, with similar quantitative effects. Thus, it looks as if our hypothesis cannot be rejected. The statistical significance and quantitative effects are lower excluding the three city-states. Furthermore, clustering leads to lower z-values, but results indicate that the coefficient is still statistically significant at the 0.10 level. In the Tables 3a and 3b we check the robustness of the results conducting further estimations. For simplicity, we only report the coefficient for fiscal autonomy, but we controlled for the other factors. First we present in Table 3a 1997 and 1999 estimations without the city-states. In a next step we add a further variable in the estimations. It may be argued that obtained results may be driven by higher trust in the legal system, which measures how the relationship between the state and its citizens is established. (10) We present estimations with and without the city-states. In Table 3b we present the pooled estimations with and without city-states (also clustering within states and including the trust variable). All in all, the results obtained are quite robust. In most of the cases the fiscal autonomy coefficient

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remains statistically significant with high marginal effects. Only the estimations without city-states clustering within states show z-values on the border of being statistically significant. However, it should be noticed that estimations without city-states have disadvantages of lower degrees of freedom. Interestingly, our trust variable has a strong impact on tax morale. An increase in the trust in the legal/justice system by one unit increases the share of subjects indicating the highest tax morale by around 5 percentage points.

It can be criticized that our institutional variable may be endogenous. For example, better institutions may lead to higher tax morale, but in turn, it can be argued that taxpayers with a higher tax morale may choose places with a higher level of local autonomy. However, first of all the levels of formal institutions such as fiscal autonomy are relatively stable over time. Furthermore, there are only limited possibilities for taxpayers in Germany to change the institutional structure directly via political participation rights. Finally, it can be supposed that the choice of location is strongly influenced by other factors. These arguments suggest that the causality may run from institutions to tax morale and not the other way round. However, to check for possible causality problems, we conduct a Hausman Chi-square test for the fuller specifications (last two pooled estimations). In general, in our case, it is not easy to find a suitable instrument that is uncorrelated with the error term but highly correlated with our institutional variable. As instrument we use the local taxation ratio (local tax revenues / total local revenues) divided by the GDP of their respective federal states. The data indicates that this instrument is not correlated with the error term ( $r=-0.045$  and  $r=-0.054$ ). Hausman Chi-square tests reject the hypothesis that local autonomy is endogenous. (11) Nevertheless, we run 2SLS regressions. The coefficient of fiscal autonomy remained highly statistically significant with t-values of 3.24 in Eq. 5 and 2.72 in Eq. 6.

Looking at our control variables, we observe that audit probability variable is statistically significant with a positive sign. This may indicate the relevance to also consider our model 2, although there are theoretical arguments that speak against it. This result is in line with previous empirical findings focusing on tax evasion (see, e.g., Crane and Nourzad, 1987; Witte and Woodbury, 1985; Dubin and Wilde, 1988; Joulfaian and Rider, 1996). In experiments there is also the tendency that a higher audit rate leads to more compliance (see, e.g., Friedland et al., 1978,

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Beck et al., 1991; Alm, Jackson and McKee, 1992a, 1992b; Alm, Cronshaw, and McKee, 1993; for a survey see Torgler, 2002).

Tables 2a, 2b and 2c also indicate that socio-demographic factors matter. In line with previous studies age is positively correlated with a higher tax morale and women report a higher tax morale than men (statistically significant in the pooled estimation, see Eq. 2 and 3). Being a woman rather than man increases the probability of reporting the highest tax morale scale between 4.8 and 6.6 percentage points. The pooled estimations and the results obtained using the 1997 data show that being married rather than single also increases the share of individuals stating that tax evasion is never justifiable by around 5 percentage points. On the other hand, no differences among the social classes are observed. (12) Finally, our findings indicate the tendency of an increase of tax morale over time in Germany.

**Table 2a. Determinants of Tax Morale in Germany**

<i>WEIGHTED ORDERED PROBIT</i>	<i>1997</i>			<i>1999</i>		
	<i>Coeff.</i>	<i>z-Stat.</i>	<i>Marg.</i>	<i>Coeff.</i>	<i>z-Stat.</i>	<i>Marg.</i>
<i>DEPEND. V.: TAX MORALE</i>	<i>Effect</i>			<i>Effect</i>		
<i>INDEPENDENT V.</i>	<i>Eq. 1</i>			<i>Eq. 2</i>		
AGE	0.009***	3.10	0.004	0.010**	2.42	0.004
WOMAN	0.167***	2.69	0.066	0.123	1.56	0.048
UPPER CLASS	-0.116	-1.47	-0.046	0.136	1.06	0.053
MIDDLE CLASS	-0.163**	-2.32	-0.065	0.038	0.49	0.015
MARRIED	0.136*	1.82	0.054	0.064	0.56	0.025
DIVORCED	0.07	0.56	0.028	0.101	0.65	0.039
SEPARATED	0.035	0.14	0.014	0.249	0.83	0.094
WIDOWED	0.051	0.37	0.02	0.105	0.60	0.041
PART TIME EMPLOY.	0.004	0.04	0.002	0.133	0.94	0.051
SELFEMPLOYED	-0.381**	-2.00	-0.147	0.224	1.20	0.085
UNEMPLOYED	0.111	1.04	0.044	-0.236*	-1.82	-0.094
AT HOME	0.152	1.27	0.06	0.370**	2.57	0.14
STUDENT	-0.168	-1.30	-0.066	0.308	1.56	0.116
RETIRED	0.357***	3.22	0.142	0.176	1.31	0.068
OTHER	0.443**	1.80	0.173	0.089	0.37	0.034
FISCAUT	3.433***	2.75	1.368	3.862***	3.03	1.513
YEAR 1999						
Number of observations	1797			1905		
Prob > chi2	0.000			0.000		

Notes: Robust standard errors. Dependent variable: tax morale on a four point scale. In the reference group are, MAN, SINGLE, FULL TIME EMPLOYED, LOWEST CLASS, YEAR 1997. Significance levels: \* 0.05 < p < 0.10, \*\* 0.01 < p < 0.05, \*\*\* p < 0.01. Marginal effect = highest tax morale score (3). 1997 data (Eq. 1) is already a reflection of the national distribution. Thus, ordered probit has been used.

**Table 2b. Determinants of Tax Morale in Germany (Only Pooled Estimations)**

<i>WEIGHTED ORDERED PROBIT DEPEND. V.: TAX MORALE</i>	<i>pooled 1997 and 1999</i>			<i>pooled 1997 and 1999 clustering within states</i>		
	<i>Coeff.</i>	<i>z-Stat. Marg.</i>		<i>Coeff.</i>	<i>z-Stat. Marg.</i>	
	<i>Effect</i>			<i>Effect</i>		
<i>INDEPENDENT V.</i>	<i>Eq. 3</i>			<i>Eq. 4</i>		
AGE	0.009***	3.73	0.004	0.009***	3.23	0.004
WOMAN	0.147***	2.96	0.058	0.147***	3.65	0.058
UPPER CLASS	-0.012	-0.18	-0.005	-0.012	-0.11	-0.005
MIDDLE CLASS	-0.045	-0.85	-0.018	-0.045	-0.59	-0.018
MARRIED	0.112*	1.78	0.045	0.112*	1.83	0.045
DIVORCED	0.083	0.87	0.033	0.083	0.77	0.033
SEPARATED	0.088	0.46	0.035	0.088	0.49	0.035
WIDOWED	0.088	0.82	0.035	0.088	0.80	0.035
PART TIME EMPLOYED	0.062	0.73	0.025	0.062	0.90	0.025
SELFEMPLOYED	0.038	0.28	0.015	0.038	0.17	0.015
UNEMPLOYED	-0.016	-0.19	-0.006	-0.016	-0.17	-0.006
AT HOME	0.285***	2.91	0.112	0.285***	2.76	0.112
STUDENT	0.091	0.79	0.036	0.091	1.07	0.036
RETIRED	0.265***	3.07	0.104	0.265***	2.86	0.104
OTHER	0.193	1.07	0.076	0.193*	1.66	0.076
FISCAUT	3.991***	4.42	1.588	3.991*	1.65	1.588
YEAR 1999	0.204***	4.50	0.081	0.204	1.51	0.081
Number of observations	3702			3702		
Prob > chi2	0.000			0.000		

Notes: Robust standard errors. Dependent variable: tax morale on a four point scale. In the reference group are, MAN, SINGLE, FULL TIME EMPLOYED, LOWEST CLASS, YEAR 1997. Significance levels: \* 0.05 < p < 0.10, \*\* 0.01 < p < 0.05, \*\*\* p < 0.01. Marginal effect = highest tax morale score (3).

**Table 2c. Determinants of Tax Morale in Germany (Pooled Estimations with Deterrence)**

<i>WEIGHTED ORDERED</i>	<i>pooled 1997 and 1999</i>			<i>pooled 1997 and 1999 without cities states</i>		
	<i>Coef.</i>	<i>z-Stat.</i>	<i>Marg. Effect</i>	<i>Coef.</i>	<i>z-Stat.</i>	<i>Marg. Effect</i>
<i>PROBIT</i>						
<i>DEPEND. V.:</i>						
<i>TAX MORALE</i>	<i>Effect</i>			<i>Effect</i>		
<i>INDEPENDENT V.</i>	<i>Eq. 5</i>			<i>Eq. 6</i>		
AUDIT PROBABILITY	0.057***	2.70	0.023	0.107***	3.60	0.043
AGE	0.009***	3.76	0.004	0.010***	3.82	0.004
WOMAN	0.149***	3.00	0.059	0.144***	2.81	0.057
UPPER CLASS	-0.013	-0.20	-0.005	0.003	0.04	0.001
MIDDLE CLASS	-0.042	-0.79	-0.017	-0.025	-0.46	-0.01
MARRIED	0.123*	1.94	0.049	0.139**	2.12	0.055
DIVORCED	0.079	0.83	0.032	0.096	0.96	0.038
SEPARATED	0.101	0.53	0.04	0.144	0.73	0.057
WIDOWED	0.091	0.85	0.036	0.073	0.65	0.029
PART TIME EMPL.	0.056	0.66	0.022	0.093	1.04	0.037
SELFEMPLOYED	0.019	0.14	0.008	-0.006	-0.04	-0.002
UNEMPLOYED	-0.016	-0.19	-0.006	-0.014	-0.17	-0.006
AT HOME	0.285***	2.91	0.111	0.277***	2.74	0.108
STUDENT	0.09	0.78	0.036	0.119	0.98	0.047
RETIRED	0.267***	3.09	0.105	0.252***	2.82	0.099
OTHER	0.192	1.06	0.075	0.285	1.52	0.111
FISCAUT	2.863***	2.90	1.139	1.866*	1.70	0.742
YEAR 1999	0.209***	4.61	0.083	0.225***	4.77	0.089
Number of observations	3702			3475		
Prob > chi2	0.000			0.000		

Notes: Robust standard errors. Dependent variable: tax morale on a four point scale. In the reference group are, MAN, SINGLE, FULL TIME EMPLOYED, LOWEST CLASS, YEAR 1997. Significance levels: \* 0.05 < p < 0.10, \*\* 0.01 < p < 0.05, \*\*\* p < 0.01. Marginal effect = highest tax morale score (3).

**Table 3a. Robustness Check**

<i>WEIGHTED ORDERED</i>			
<i>PROBIT</i>	<i>Coeff.</i>	<i>z-Stat.</i>	<i>Marg.</i>
<i>DEPEND. V.: TAX MORALE</i>			<i>Effect</i>
<i>INDEPENDENT V. (ALL OTHER CONTROLLED)</i>			
<b><i>ESTIMATION 1997 without city states</i></b>			
FISCAUT	3.532***	2.80	1.407
<b><i>ESTIMATION 1999 without city states</i></b>			
FISCAUT	3.689***	2.89	1.445
<b>INTRODUCING A FURTHER VARIABLE</b>			
<b><i>ESTIMATION 1997</i></b>			
FISCAUT	4.035***	3.16	1.607
TRUST IN THE LEGAL/JUSTICE SYSTEM	0.118***	2.9	0.047
<b><i>ESTIMATION 1997 without city states</i></b>			
FISCAUT	4.049***	3.13	1.613
TRUST IN THE LEGAL/JUSTICE SYSTEM	0.112***	2.69	0.045
<b><i>ESTIMATION 1999</i></b>			
FISCAUT	3.741***	2.89	1.467
TRUST IN THE LEGAL/JUSTICE SYSTEM	2.890***	2.71	0.054
<b><i>ESTIMATION 1999 without city states</i></b>			
FISCAUT	3.554***	2.74	1.392
TRUST IN THE LEGAL/JUSTICE SYSTEM	0.159***	3.05	0.062

Notes: Robust standard errors. In all estimations all other control variables are used previously are included but not reported using specification (1). In the reference group are, MAN, SINGLE, FULL TIME EMPLOYED, LOWEST CLASS. Significance levels: \* 0.05 < p < 0.10, \*\* 0.01 < p < 0.05, \*\*\* p < 0.01. Marginal effect = highest tax morale score (3).

**Table 3b. Robustness Check (Pooled Estimations)**

<i>WEIGHTED ORDERED PROBIT DEPEND. V.: TAX MORALE</i>	<i>Coeff.</i>	<i>z-Stat.</i>	<i>Marg. Effect</i>
<i>INDEPENDENT V. (ALL OTHER CONTROLLED)</i>			
<b><i>POOLED ESTIMATION 1997 and 1999 without city states clustering within states</i></b>			
FISCAUT	3.967	1.59	1.578
<b>INTRODUCING A FURTHER VARIABLE</b>			
<b><i>POOLED ESTIMATION 1997 and 1999</i></b>			
FISCAUT	3.688***	3.95	1.468
TRUST IN THE LEGAL/JUSTICE SYSTEM	0.139***	4.35	0.055
<b><i>POOLED ESTIMATION 1997 and 1999 without city states</i></b>			
FISCAUT	3.628***	3.84	1.444
TRUST IN THE LEGAL/JUSTICE SYSTEM	0.147***	4.46	0.058
<b><i>POOLED ESTIMATION 1997 and 1999 clustering within states</i></b>			
FISCAUT	4.277*	1.69	1.703
TRUST IN THE LEGAL/JUSTICE SYSTEM	0.120**	2.45	0.048
<b><i>POOLED ESTIMATION 1997 and 1999 without city states clustering within states</i></b>			
FISCAUT	4.246	1.62	1.69
TRUST IN THE LEGAL/JUSTICE SYSTEM	0.128**	2.57	0.051

Notes: Robust standard errors. In all estimations all other control variables are used previously are included but not reported using specification (1). In the reference group are, MAN, SINGLE, FULL TIME EMPLOYED, LOWEST CLASS, YEAR 1997. Significance levels: \* 0.05 < p < 0.10, \*\* 0.01 < p < 0.05, \*\*\* p < 0.01. Marginal effect = highest tax morale score (3).

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## Conclusions

Empirical and experimental findings in the tax compliance literature have shown that the standard model of tax evasion based on an expected utility maximization approach predicts a higher degree of tax evasion than observed. Thus, the tax compliance puzzle is why people pay taxes. It has been argued that tax morale might explain such a high compliance. However, hardly any empirical study has analysed what shapes tax morale. This paper tries to fill this gap by analysing tax morale as a dependent variable using German data from 1997 and 1999 to investigate whether there is a correlation between tax morale and fiscal autonomy. Thus, special attention has been given to a constitutional variable, which has rarely been analysed in the empirical tax compliance literature.

It is interesting to investigate Germany because German's fiscal federalism has undergone a process of perpetual reform. On the one hand, the relative tax revenues have decreased due to the economic development in Germany, on the other hand, some tax sources that have existed up to now – the corporate income tax is a good example in this context – will shortly be phased out because of changes in the system. In addition, other incidents, such as the judgement by the Constitutional Court in Karlsruhe, require a constant renewal of Germany's fiscal federalism. (13) Thus, we have developed a proxy that measures fiscal autonomy coefficient (FISCAUT) for German states, based on accumulated communal data. (14) The tendency has been found that higher fiscal autonomy leads to higher tax morale controlling in a multivariate analysis for additional factors. Furthermore, this effect tends to persist after several robustness checks using different specifications. Consequently, it seems to be essential to maintain or increase the level of fiscal autonomy to improve the level of tax morale and thus the willingness of citizens to pay taxes and thus to contribute to the society.

It will be interesting to observe whether fiscal federalism reform tendencies in Germany will have an impact on tax morale in Germany in the future.

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## Appendix

**Table A1. Abbreviations of the German States**

	German	English
S-A	Sachsen-Anhalt	Saxony-Anhalt
MV	Mecklenburg-Vorpommern	Mecklenburg-Western Pomerania
THUE	Thüringen	Thuringia
SACH	Sachsen	Saxony
BRG	Brandenburg	Brandenburg
SAAR	Saarland	Saarland
NDS	Niedersachsen	Lower Saxony
RP	Rheinland-Pfalz	Rhineland-Palatinate
SH	Schleswig-Holdstein	Schleswig-Holstein
NRW	Nordrhein-Westfalen	North Rhine-Westphalia
BW	Baden-Württemberg	Baden-Wuerttemberg
BAY	Bayern	Bavaria
HE	Hessen	Hesse
BE	Berlin	Berlin
HH	(Hansestadt) Hamburg	(Hanseatic city) Hamburg
HB	(Hansestadt) Bremen	(Hanseatic city) Bremen

**Table A2a. The Revenue Breakdown of the German Local Authorities Classified of Each Federal State of 1997 (in 1000 EURO)**

	Tax Revenues	Fees	Grants	Other revenues	Total Revenues
NRW	12,820,440	8,085,160	18,402,930	3,504,750	42,813,280
BAY	8,222,340	4,736,910	10,388,020	2,042,460	25,389,730
BW	7,025,920	3,050,570	8,687,670	2,641,950	21,406,110
NDS	4,501,210	2,628,500	8,000,900	971,660	16,102,270
HE	4,767,490	2,457,320	5,257,410	1,200,050	13,682,270
SACH	1,188,500	1,169,840	5,402,260	1,476,660	9,237,260
RP	2,321,320	764,480	3,444,110	564,520	7,094,430
S-A	654,710	354,530	4,382,590	397,680	5,789,510
SH	1,598,450	1,057,450	2,404,350	754,820	5,815,070
THUE	527,240	492,780	3,150,730	433,930	4,604,680
BRG	690,190	692,440	4,390,970	423,910	6,197,510
M-V	413,790	506,080	2,607,080	340,260	3,867,210
SAAR	580,210	275,430	1,126,530	137,180	2,119,350

**Table A2b. The Revenue Breakdown of the German Local Authorities Classified of Each Federal State of 1999 (in 1000 EURO)**

	Tax Revenues	Fees	Grants	Other Revenues	Total Revenues
NRW	14,001,800	7,821,400	17,689,800	6,122,600	45,635,600
BAY	9,080,900	4,504,300	10,502,400	5,235,800	29,323,400
BW	8,957,500	3,447,600	9,453,800	3,803,100	25,662,000
NDS	4,993,400	2,573,600	8,765,600	2,071,400	18,404,000
HE	5,551,200	2,263,900	5,611,500	1,852,000	15,279,200
SACH	1,474,300	999,100	5,047,100	2,029,300	9,549,800
RP	2,512,100	1,423,100	3,711,300	1,836,800	9,483,300
S-A	788,600	604,500	4,805,600	987,800	7,186,500
SH	1,717,200	926,900	2,508,800	1,001,800	6,154,700
THUE	647,500	462,600	3,677,300	691,800	5,479,200
BRG	804,300	694,800	4,280,700	851,400	6,631,200
M-V	489,600	484,200	2,362,800	719,800	4,056,400
SAAR	571,100	251,800	1,100,100	201,500	2,124,500

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## Notes

1. We are grateful for helpful comments by Lars P. Feld, William F. Fox, Michael Lombardo, Paul Bernd Spahn and two anonymous referees. The authors have additionally benefited from comments of participants of the Annual Congress of the Verein für Socialpolitik in Dresden (09/2004). Financial support from the the Max Geldner-Stiftung, the Janggen-Pöhn-Stifung, the FAG (Freiwillige Akademische Gesellschaft), and the University of Basel (Fonds zur Förderung des Akademischen Nachwuchs) is gratefully acknowledged. Furthermore, we would like to thank the support obtained from the Department “Gemeindeverzeichnis” and “Steuerstatistiken” of the Federal Statistic Office as well as the Oberfinanzdirektion Münster. The findings, interpretations, and conclusions expressed in this paper rare entirely those of the author. They do not necessarily represent the view of the World Bank, its Executive Directors, or the countries they represent.

2. Compared to corresponding publications by the OECD, the World Bank or USAID, however, the GFS by the IMF is unique worldwide.

3. In France, there were altogether 36,679 municipalities in 1999, of which about 32,000 municipalities had fewer than 2,000 inhabitants. Yet, Germany is far from creating a realigned municipal structure, which Denmark did when it reformed its territories in 1970.

4. Tax on mineral oil, electricity, tobacco, spirits, coffee and sparkling wine.

5. The negative revenues of the corporate income are the results of a tax reform, which includes change from the full imputation system to the half-income system.

6. In 1998, the trading capital tax as another component of the trade tax was abolished in West Germany and the municipalities were given a 2.2 per cent share of value added tax revenues to compensate for the shortfall. In the new federal states of east Germany, the trading capital tax was never imposed. The local portion on the VAT is not distributed per capita. In a first step the complete local revenues will be divided by 85:15 between the west and the east federal states. Secondly, the cities and municipalities received their portion on a complex equalisation

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formula. Generally, the main features of this equalisation formula are based on respective local amount from the trade tax and the number of local employees. Therefore, the revenues from the trade tax have an huge impact on the revenues from the fixed portion on VAT of every city, because a city with a high amount of the trade tax also receive high tax revenue from the VAT.

7. Only net tax revenues have been accounted. This means, for example, that the tax sharing of the trade tax between municipalities and rural districts because of apportionment of school buildings or similar circumstances have been stricken from the balance.

8. Tax clerks are defined as the number of occupied position (excluding the vacant positions) in the tax administration. It includes also the employees of the federal ministry of finance and the Oberfinanzdirektionen (OFD) whereas the employees of the custom and duty administration have been struck off this balance. Moreover all staff members of the local tax authorities are included in this balance of the years 1997 and 1999. The number of taxpayers in each state is based on the income and wage statistics 1998.

9. Both surveys cover a worldwide investigation of socio-cultural and political change. These representative surveys have assessed the basic values and beliefs of people around the world and have been carried out in about 80 societies representing over 80 per cent of the world's population. The samples are required to be selected using probability random methods, and the questions contained within the surveys generally do not deviate far from the original official questionnaire. For a sample of a typical World Values Survey see [www.worldvaluessurvey.org](http://www.worldvaluessurvey.org).

10. Could you tell me how much confidence you have in the legal (WVS)/justice system (EVS): 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).

11. The Hausman test allows us to test whether there is a sufficient difference between the coefficients of the instrumental variable regression and those of the used regression. For example, the Prob>chi2 values are 1.000 for Eq. 5, 0.932 and 0.945 for Eq. 6. This indicates that our used regression is a consistent estimator for this equation.

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12. It should be noticed that the social status has been coded slightly different in 1997 (upper class; upper middle class; lower middle class; working class; lower class) compared to 1999 (upper, upper middle class; middle, non-manual workers; skilled and semi-skilled manual workers, unskilled workers, and unemployed used as reference group). Coding in the pooled estimation: Upper, upper middle class: UPPER; middle, lower middle class: MIDDLE, all others: LOWEST (REFERENCE GROUP).

13. The states of Baden-Württemberg, Bavaria and Hesse have filed successfully a lawsuit at Germany's Constitutional Court in Karlsruhe. For this reason, on 23rd June 2001, the states and the central government agreed on a reform of the fiscal equalization system, which will come into force from 2005 onwards and will last until 2019.

14. We have to emphasize again, that the federal states do not have the right to levy a tax rate on one of the major taxes. This missing link of political accountability seems for us the biggest erroneous trend in the German Fiscal Federalism. Therefore we have chosen the local authorities, which are allowed to fix a local tax rate on the trade tax and property tax. Moreover the distribution of the fixed portion on VAT is mainly influenced by the respective local amount from the trade tax (and the number of local employees).

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