

Torgler, Benno; Werner, Jan

**Working Paper**

## Fiscal Autonomy and Tax Morale: Evidence from Germany

CREMA Working Paper, No. 2005-07

**Provided in Cooperation with:**

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

*Suggested Citation:* Torgler, Benno; Werner, Jan (2005) : Fiscal Autonomy and Tax Morale: Evidence from Germany, CREMA Working Paper, No. 2005-07, Center for Research in Economics, Management and the Arts (CREMA), Basel

This Version is available at:

<https://hdl.handle.net/10419/214321>

**Standard-Nutzungsbedingungen:**

Die Dokumente auf EconStor dürfen zu eigenen wissenschaftlichen Zwecken und zum Privatgebrauch gespeichert und kopiert werden.

Sie dürfen die Dokumente nicht für öffentliche oder kommerzielle Zwecke vervielfältigen, öffentlich ausstellen, öffentlich zugänglich machen, vertreiben oder anderweitig nutzen.

Sofern die Verfasser die Dokumente unter Open-Content-Lizenzen (insbesondere CC-Lizenzen) zur Verfügung gestellt haben sollten, gelten abweichend von diesen Nutzungsbedingungen die in der dort genannten Lizenz gewährten Nutzungsrechte.

**Terms of use:**

*Documents in EconStor may be saved and copied for your personal and scholarly purposes.*

*You are not to copy documents for public or commercial purposes, to exhibit the documents publicly, to make them publicly available on the internet, or to distribute or otherwise use the documents in public.*

*If the documents have been made available under an Open Content Licence (especially Creative Commons Licences), you may exercise further usage rights as specified in the indicated licence.*



Center for Research in Economics, Management and the Arts

**FISCAL AUTONOMY AND TAX MORALE:  
EVIDENCE FROM GERMANY**

Benno Torgler

Jan Werner

Working Paper No. 2005 – 07

# FISCAL AUTONOMY AND TAX MORALE: EVIDENCE FROM GERMANY

by

Benno Torgler and Jan Werner\*

**Abstract:** This paper analyses fiscal autonomy in Germany. First, it provides an overview of fiscal autonomy. What is novel in this paper compared to previous studies is the development of a fiscal autonomy coefficient for the states, based on communal data. The basic intention in the empirical part is to analyse how fiscal autonomy affects tax morale, defined as the intrinsic motivation to pay taxes, in Germany. Strong evidence has been found that a higher fiscal autonomy leads to a higher tax morale, controlling in a multivariate analysis for additional factors. Thus, this paper fills a gap in the tax compliance literature, which has rarely analysed the impact of fiscal autonomy on compliance

*JEL Classification:* H260; H730; D700

*Keywords:* Tax Morale, Tax Compliance, Fiscal Autonomy, Germany

---

\* 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 (USA) and CREMA Center for Research in Economics, Management and the Arts (Switzerland); email: [benno.torgler@yale.edu](mailto:benno.torgler@yale.edu). Jan Werner, Johann Wolfgang Goethe-University, Chair of Public Finance, Zeppelinallee 29, Frankfurt on the Main, Germany, email: [jan.werner@publicfinance.de](mailto:jan.werner@publicfinance.de). Support from the Department "Gemeindeverzeichnis" and "Steuerstatistiken" of the Federal Statistic Office as well as the Oberfinanzdirektion Münster. is gratefully acknowledged. We are grateful for helpful comments by Lars P. Feld, William F. Fox and Paul Bernd Spahn. The authors have additionally benefited from comments of participants of the Annual Congress of the Verein für Socialpolitik in Dresden (09/2004).

## I. INTRODUCTION

During the last few years, countless studies have looked at decentralisation trends worldwide and at the practical implementation of fiscal federalism. Numerous studies have analysed the impact of fiscal federalism on the size of government (for a good overview see Feld, Kirchgässner and Schaltegger 2003). Further studies also analysed 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 and 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.

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.<sup>1</sup>

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, Torgler 2002). Recent studies claim the relevance to considering how tax morale might arise or how it might be maintained (see

---

<sup>1</sup> Compared to corresponding publications by the OECD, the World Bank or USAID, however, the GFS by the IMF is unique worldwide.

Feld and Frey 2002 and Feld and Tyran 2002). In fact, this means that it is essential to get more empirical insights, analyzing tax morale as a dependent variable and to search for factors that shape tax morale. For Germany, Torgler (2003b) 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 a higher tax morale in East Germany than in West Germany. However, tax morale in the East seems to erode over time. Around three quarters of the East-West differential disappeared in just seven years.

Furthermore, there are not many studies which systematically analyse the influence of decentralization on tax morale or tax compliance. Torgler (2003a) analysed 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 analyse 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 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. The World Values Survey of 1997 and the European Values Survey 1999 provide the basis for the evaluation of tax morale in our paper<sup>2</sup>.

This paper goes a step further using 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. Higher local fiscal autonomy has the advantage that citizens' preferences can be met better. 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

---

<sup>2</sup> 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).

of decentralized systems is a better transparency of this input-output relationship. Thus, we would hypothesize that a higher local autonomy leads to higher tax morale.

SECTION II gives an outline of the structure and the historical development of the financial system of Germany's municipalities, while SECTION III is dedicated to the development of the fiscal autonomy variable, which we define as LRR based on the financial code numbers of the municipalities, with the classification based on the sixteen federal states.

SECTION IV presents the model and empirical evidence, using tax morale as dependent variable. The paper finishes with some concluding remarks and policy implications in SECTION V.

## II. GERMAN FISCAL AUTONOMY – A SURVEY

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.<sup>3</sup>

The towns and municipalities, which after numerous territorial reforms in the respective federal states between 1970 and 1977 have become very compact<sup>4</sup> by now in terms of their inhabitant structures, are the smallest local units in Germany.<sup>5</sup>

In Germany, tax revenues are distributed among the individual regional administrative bodies both using own assigned revenues<sup>6</sup> 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

---

<sup>3</sup> A subdivision of the numbers of inhabitants in Germany's municipalities in 2000 is located in the Appendix (*Table A1*).

<sup>4</sup> 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.

<sup>5</sup> Moreover a number of regional administrative bodies exist in Germany. Within the regional administrative bodies in Germany, a further distinction is made between the regional planning associations, the administrative districts, the cities which are administrative districts in their own right (incorporated cities) and the municipalities, which form part of the administrative districts.

<sup>6</sup> According to article 106 of Germany's constitution.

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*.

*Table 1*

Tax revenues assignments between the central government, the federal states and the municipalities in 2003

	Central Government	Federal States	Communities	Revenues in 2001
Consumption tax <sup>7</sup>	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 <sup>8</sup>
Interest rebate	44 %	44 %	12 %	€29.846 billion
Trade tax <sup>9</sup>	14.8%	7.7%	77.5 %	€24.533 billion

Source: Werner (2004, p. 83)

### *1. Historical Development*

When the Federal Republic of Germany was established, the municipalities were granted self-government under Germany's constitution (version of 23<sup>rd</sup> May 1949, article 28, section 2), but they were not granted revenue-generating autonomy. As its most important source of taxes, the central government received the revenues from the value added tax, and the federal states the revenues from the personal income tax (PIT), corporate income tax and the taxes on economic assets. The municipalities were regarded as part of the federal states, and under the state laws they were able to receive a share of the taxes on economic assets and of the local excise duties.

<sup>7</sup> Tax on mineral oil, electricity, tobacco, spirits, coffee and sparkling wine.

<sup>8</sup> 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.

<sup>9</sup> The breakdown refers to the 2001 tax year. The municipal share of the "German Unity" fund as well short survey of the equalisation between federal states and municipalities is located in the Appendix.

The reform of Germany's finances in 1955 replaced the hitherto practised arrangement of tax revenue distribution in Germany's constitution and from then on allocated a third of the PIT and corporate income taxes to the federal government. At the same time, the creation of the fiscal equalisation system among Germany's federal states provided an instrument designed to compensate for any additional financial burden arising for the states.

In the course of the financial reform of 1956, the municipalities were explicitly referred to in Germany's constitution, with the revenues derived from the taxes on economic assets, the property tax and the trade tax specifically assigned to them.

The central decision of the 1969 reform of the municipalities' finances was the inclusion of the municipalities among the recipients of the PIT, which included the tax on wages and the assessed tax on income earned. Moreover the federal government and the states were granted a 50% entitlement each to the trade tax via a share that the municipalities had to hand over to the states and the central government ("trade tax hand-over rate"). So as to ensure that the municipalities were equipped with sufficient funds, they were also given the revenue from local excise duties and expenditure taxes. These are the so-called "petty taxes", such as the dog licence tax, the alcohol beverage tax, the pub licence tax and the entertainment tax.

On 1<sup>st</sup> January 1980, the payroll tax was abolished in West Germany as one of the three assessment bases of the trade tax. At the same time, the revenue losses of the municipalities were compensated for by a reduction of their trade tax hand-over rate and an increase in their share of the revenues of the PIT from 14 per cent to 15 per cent.

From 1<sup>st</sup> January 1994 onwards, the municipalities were given a share of 12 per cent of the interest income tax in compensation, since the interest income tax reduced the municipalities share of the income tax.

In 1998, the trading capital tax as another component of the trade tax was abolished in West Germany<sup>10</sup> and the municipalities were given a 2.2 per cent share of value added tax revenues to compensate for the shortfall.

---

<sup>10</sup> In the new federal states of east Germany, the trading capital tax was never imposed.



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, e.g., by the BDI / VCI or the municipal associations, 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.

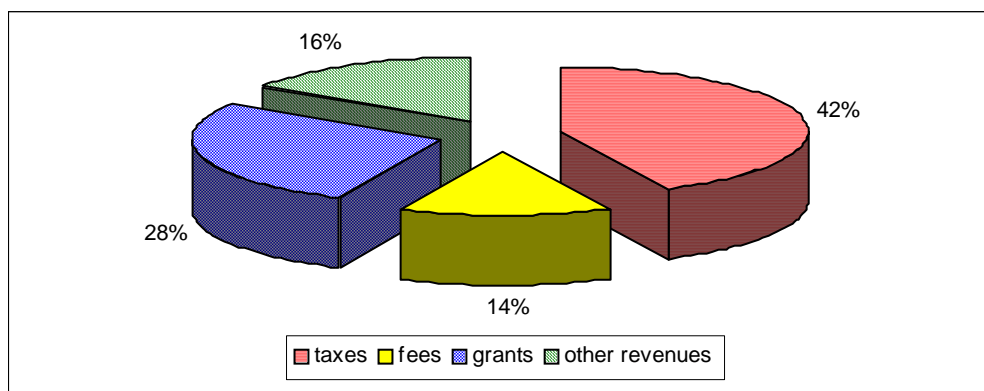
The following sub-chapters will therefore explain the revenue structure of the German cities/towns and municipalities and in addition will give an outline of the most important local taxes, i.e., the trade tax and the real property tax.

## 2. Revenue Structure of Germany's Municipalities

Although the two parts of Germany were reunited more than a decade ago, there are still enormous inequalities between the West and East German states in many aspects of every day life. Due to these economic disparities, the income structures of the West German and East German municipalities are quite different. In 2001, West German municipalities had revenues of €105.1 billion, which can be sub-divided as follows:

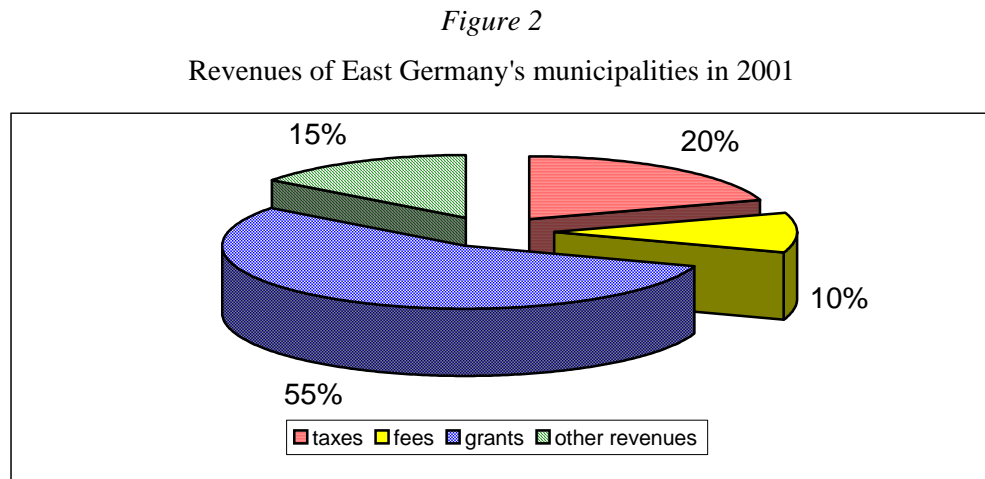
*Figure 1*

Revenues of West Germany's municipalities in 2001



Source: BMF (2002, p. 1)

East German municipalities had revenues of €19.9 billion in 2001, which consisted of the following revenue items:

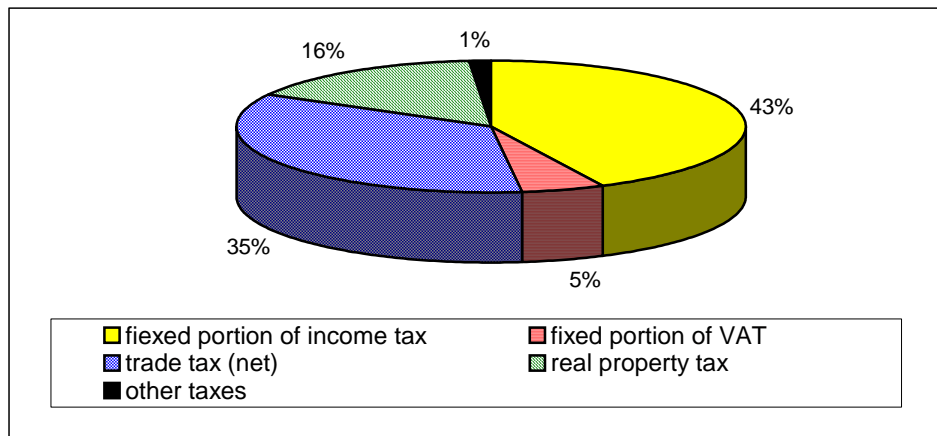


Source: BMF (2002, p. 1)

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 income tax and the trade tax. For the East German municipalities, on the other hand, the trade tax and the real property tax constitute the biggest revenue items. *Figure 3* and *4* show the respective structure of the tax revenues in 2001.

*Figure 3*

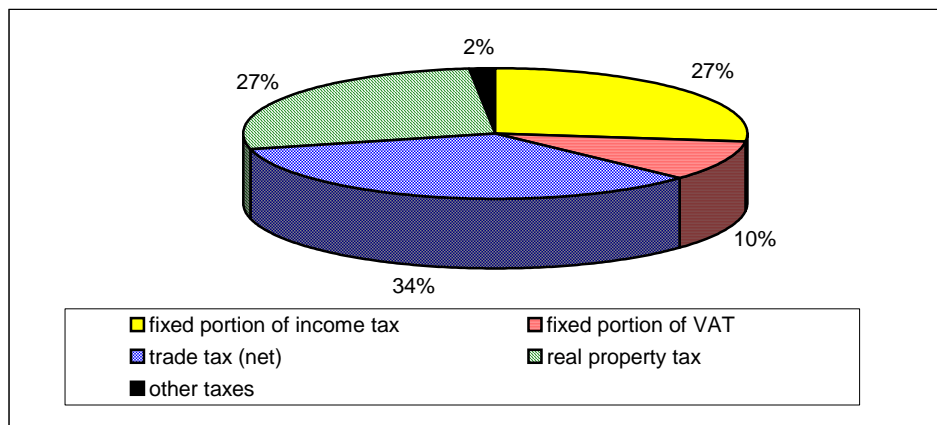
Tax revenues of West Germany's municipalities in 2001



Source: BMF (2002, p. 7)

*Figure 4*

Tax revenues of East Germany's municipalities in 2001



Source: BMF (2002, p. 7)

### *3. Taxation Powers of German Municipalities*

In addition to their fixed share of the income tax and value added tax, 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.

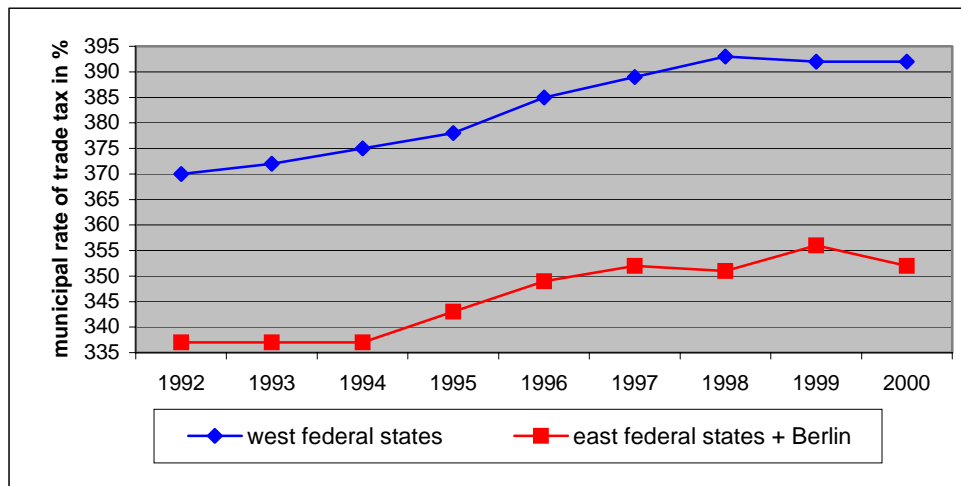
#### **1. Trade Tax**

All German businesses are subject to the trade tax; however, freelance work is exempted from this tax. The trade tax is determined by deducting the tax-exempt amount from the trading profit and then multiplying this figure by

the tax assessment figure, which is at most 5 per cent and fixed by a federal law. This interim result, also known as tax assessment amount, is then multiplied by the respective municipal tax rate. *Figure 5* reports the development of the municipal tax rates, which the municipalities are allowed to determine independently, in the last few years.

*Figure 5*

Development of the local tax rates of the trade tax



Source: BMF (2002, p. 14)

In the fiscal year 2002 the local tax rates of trade tax of all 191 cities in Germany, which have more than 50,000 inhabitants, range between 337% and 490%. Due to the standardised "preliminary multiplication" of the profits of companies in the whole of Germany, as prescribed by a federal law, the different monetary effects of the tax rate differentials in the cities are almost negligible (see *Table 2*).

A small level of tax competition between local authorities exists in densely populated areas between the core cities and the surrounding municipalities. For example in the area around Frankfurt am Main some tax competition exists with Eschborn (300%), Bad Vilbel (300%) and Rüsselsheim (340%), cities, which have been successful in reducing the tax revenues of the city of Frankfurt (490%). The same situation can be illustrated near Hamburg (470%) with the city Winsen (280%). But only the small Nordic township of Norderfriedrichskoog can afford to levy a zero tax rate on the trade tax as well as on the real property tax. But this small township is truly an exception.

Table 2

Local tax rates of the trade tax in the fiscal year of 2002

Local rates in %	Cities with more than 50,000 inhabitants	in %	Cities with more than 500,000 inhabitants	in %
Less than 300	0	0	0	0
300-319	0	0	0	0
320-349	4	2.1	0	0
350-369	23	12.0	0	0
370-389	29	15.2	0	0
390-409	29	15.2	0	0
410-429	35	18.3	3	25.0
430-449	35	18.3	0	0
450-469	26	13.6	4	33.3
470-489	7	3.7	3	25.0
490-510	3	1.6	2	11.7
More than 510	0	0	0	0
Total	191	100	12	100

Source: IFST (2002, pp. 40, 63-68)

## 2. Real Property Tax

Under the German real property taxation system, the value of the property – irrespective of the economic profit generated on this property – is taxed.

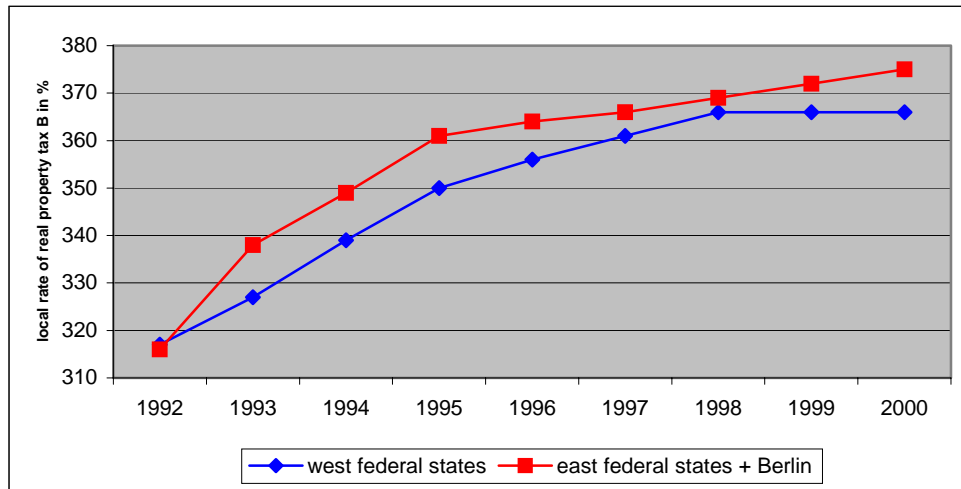
Property used for agriculture or forestry is subject to real property tax A, while all other properties are subject to property tax B. Publicly-owned real property is not taxed. Similar to the trade tax, under the real property tax system the value of the property is multiplied by a tax assessment figure,<sup>11</sup> which is determined by the central government. This tax assessment figure is then multiplied by the municipal tax rate.

Although the tax assessment amount of real property tax B is lower than under property tax A, the tax revenues from real property tax B are significantly higher than from real property tax A, as the municipalities usually set a higher local tax rate for real property tax B. During the last few years, the German municipalities have raised their rates for real property tax B considerably (see *Figure 6* for the development over time).

<sup>11</sup> Which is 0.6 % for real property tax A and 0.35 % for real property tax B.

Figure 6

Development of the local tax rate of the real property tax



Source: BMF (2002, p. 18)

### III. 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 A3a* and *A3b*).

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 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<sup>12</sup> of the revenues from the value added tax, and it will thus help to avoid distortions when examining the years 1997 vs. 1999.<sup>13</sup>

The municipalities' revenues 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 of 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, as 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 and Spahn 2000).<sup>14</sup> 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

---

<sup>12</sup> 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 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.

<sup>13</sup> 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.

<sup>14</sup> Similar budget structures can be found in Austria for the municipality of Vienna and the federal state of Vienna.

account of the extensive data available in connection with the fiscal equalisation system (LFA) among Germany's states.<sup>15</sup>

A prime example of the distinction problems can be found in the trade tax, for which only estimates can be drawn up if one wishes to determine in 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 fees budgets, the current state budgets do not distinguish 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 LRR (Local Revenue Ratio), which is defined as follows:

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

The fiscal autonomy variable LRR 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.<sup>16</sup>

#### IV. EMPIRICAL EVIDENCE

In order to examine the correlation between tax morale and fiscal autonomy, the following estimation equation is postulated:

$$TM_i = \beta_0 + \beta_1 \cdot p_L + \beta_2 \cdot CTL_i + \beta_3 FISCAUT_L + \varepsilon_i$$

---

<sup>15</sup> However, one can equally only draw up estimates regarding the extent of the municipal fiscal equalisation of the three city-states, as in Germany every state determines its own municipal fiscal equalisation (KFA). A short survey of the equalisation between federal states and municipalities can be found in Table A4 in the Appendix.

<sup>16</sup> The development of the fiscal autonomy variable LRR and the average GDP per capita of each federal state is located in the Appendix (see Table A5).



where  $TM_i$  denotes the individual degree of tax morale measured with the World Values Survey and European Values Survey using the following question to assess the level of tax morale:

“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.

The independent variables are specified as follows:

1.  $p_L$ : As an approximation for the probability of detection, the number of tax clerks per 1000 taxpayers is used<sup>17</sup> (see *Table A6* in the Appendix).
2.  $CTL_i$ : a panel of control variables at the individual level covering age, gender, marital status, employment status, economic situation.
3.  $FISCAUT_L$ : Fiscal autonomy variable of the local authorities, see Section III.

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

---

<sup>17</sup> 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.

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

To check the robustness of the results, we are going to use two different time periods in the empirical analysis. Furthermore, in one estimation we excluded the city-states Berlin, Hamburg and Bremen (see discussion in Section III). First we will report the correlation between tax morale and fiscal autonomy with the most recent data from 1999. As the fiscal autonomy variables are aggregated values among the state, no further aggregated (among the states) values can be integrated into the 1999 estimations (lack of degrees of freedom). However, pooling the 1999 and 1997 data together allows us to add additional variables. In line with the economic-of-crime models we include a proxy for the AUDIT PROBABILITY.

*Table 3* presents the results. The fiscal autonomy coefficients show in all estimations a statistically significant positive effect on tax morale, with similar quantitative effects. Thus, our hypothesis cannot be rejected. However, the statistical significance and quantitative effects are lower excluding the three city-states (see Eq. 3).

*Table 3*  
Determinants of Tax Morale in Germany

<i>WEIGHTED ORDERED</i> <i>PROBIT</i> <i>DEPEND. V.: TAX</i> <i>MORALE</i>	<i>1999</i>			<i>pooled 1997 and</i> <i>1999</i>			<i>pooled 1997 and</i> <i>1999 (without cities</i> <i>states)</i>		
	<i>Coeff.</i>	<i>z-Stat.</i>	<i>Marg.</i> <i>Effects</i>	<i>Coeff.</i>	<i>z-Stat.</i>	<i>Marg.</i> <i>Effects</i>	<i>Coeff.</i>	<i>z-Stat.</i>	<i>Marg.</i> <i>Effects</i>
<i>INDEPENDENT V.</i>	<i>Eq. 1</i>			<i>Eq. 2</i>			<i>Eq. 3</i>		
<i>a) Deterrence</i>									
AUDIT PROBABILITY				0.057***	2.70	0.023	0.107***	3.60	0.043
<i>b) Demographic Factors</i>									
AGE	0.010**	2.42	0.004	0.009***	3.76	0.004	0.010***	3.82	0.004
WOMAN	0.123	1.56	0.048	0.149***	3.00	0.059	0.144***	2.81	0.057
<i>c) Economic Variable</i>									
UPPER CLASS	0.136	1.06	0.053	-0.013	-0.20	-0.005	0.003	0.04	0.001
MIDDLE CLASS	0.038	0.49	0.015	-0.042	-0.79	-0.017	-0.025	-0.46	-0.010
<i>d) Marital Status</i>									
MARRIED	0.064	0.56	0.025	0.123*	1.94	0.049	0.139**	2.12	0.055
DIVORCED	0.101	0.65	0.039	0.079	0.83	0.032	0.096	0.96	0.038
SEPARATED	0.249	0.83	0.094	0.101	0.53	0.04	0.144	0.73	0.057
WIDOWED	0.105	0.60	0.041	0.091	0.85	0.036	0.073	0.65	0.029
<i>e) Employment Status</i>									
PART TIME EMPLOYED	0.133	0.94	0.051	0.056	0.66	0.022	0.093	1.04	0.037
SELFEMPLOYED	0.224	1.20	0.085	0.019	0.14	0.008	-0.006	-0.04	-0.002
UNEMPLOYED	-0.236*	-1.82	-0.094	-0.016	-0.19	-0.006	-0.014	-0.17	-0.006
AT HOME	0.370**	2.57	0.14	0.285***	2.91	0.111	0.277***	2.74	0.108
STUDENT	0.308	1.56	0.116	0.09	0.78	0.036	0.119	0.98	0.047
RETIRED	0.176	1.31	0.068	0.267***	3.09	0.105	0.252***	2.82	0.099
OTHER	0.089	0.37	0.034	0.192	1.06	0.075	0.285	1.52	0.111
<i>f) FISCAL AUTONOMY</i>									
LRR	3.862***	3.03	1.513	2.863***	2.90	1.139	1.866*	1.70	0.742
<i>g) Time</i>									
YEAR 1999				0.209***	4.61	0.083	0.225***	4.77	0.089
Number of observations	1905			3702			3475		
Prob > chi2	0.000			0.000			0.000		

Notes: 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).

The audit probability variable performs in line with the traditional theoretical model of Allingham and Sandmo (1972), which shows that higher audit probabilities discourage cheating. This result is in line with many previous empirical findings, which indicate that a higher probability of being caught discourages 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, Beck et al. 1991, Alm, Jackson and McKee 1992a, 1992b, Alm, Cronshaw, and McKee 1993; for a survey see Torgler 2002).

In line with previous studies (for an overview see Torgler 2003b) 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). Eq. 2 and 3 also indicate 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.<sup>18</sup> Finally, our findings indicate a significant increase of tax morale over time in Germany.

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 level of autonomy is 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 rule out causality problems, we conduct a Hausman Chi-square test for all three regressions. In our case, it is not easy

---

<sup>18</sup> 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).

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. All Hausman Chi-square tests reject the hypothesis that local autonomy is endogenous.<sup>19</sup> Nevertheless, we run two 2SLS regression using the fuller specifications (pooled estimations). The coefficient of fiscal autonomy remained highly statistically significant with t-values of 3.24 in Eq. 2 and 2.72 in Eq. 3.

All in all our results indicate a strong correlation between tax morale and the degree of fiscal autonomy, controlling in a multivariate analysis for other factors.

## V. CONCLUSIONS AND POLICY IMPLICATIONS

This paper analyses fiscal autonomy in Germany. First an overview about fiscal autonomy has been offered. Novel in this paper, compared to previous studies is the development of the fiscal autonomy coefficient (LRR) for states, based on communal data.<sup>20</sup> The basic intention in the empirical part is to analyse how fiscal autonomy affects tax morale in Germany. 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 data from

---

<sup>19</sup> 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. The Prob>chi2 values are 1.000 for Eq. 1, 0.932 for Eq. 2 and 0.945 for Eq. 3. This clearly indicates that our used regression is a consistent estimator for this equation.

<sup>20</sup> 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).

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. Strong evidence has been found that higher fiscal autonomy leads to higher tax morale. This effect tends to persist after controlling for basic variables from traditional tax evasion models (probability of detection) and socio-demographic and socio-economic factors. However, it should be noticed that the lack of disparities in rules and institutions at the state level in Germany, reduces the possibility to fully address the effect of fiscal decentralization on tax morale.

Consequently, our result has a strong policy implication for the actual federalism discussion in Germany. It seems to be essential to increase the level of fiscal autonomy to maintain or improve the level of tax morale and thus the willingness of citizens to pay taxes and thus to contribute to the society.

During the last few years, Germany'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.<sup>21</sup>

Besides of some initial reforms in the fiscal equalisation system among Germany's states following the "Solidarity Pact II", there is still no workable solution when it comes to the problem of Germany's municipal finances. The two best-known current proposals submitted by the BDI/VCI<sup>22</sup> and by the Bavarian Convention of Municipal Authorities<sup>23</sup> are different

---

<sup>21</sup> The states of Baden-Württemberg, Bavaria and Hesse have filed successfully a lawsuit at Germany's Constitutional Court in Karlsruhe. For this reason, on 23<sup>rd</sup> 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.

<sup>22</sup> The BDI model envisages the abolition of the trade tax, the trade tax hand-over rate, and the municipal share of the income tax of 15%. At the same time the municipalities would be entitled to impose proportional and uniform surcharges on the PIT and Corporate Income tax. The BDI model would shift the tax burden from the business community to the residential community and therefore the municipalities will no longer have the incentive to encourage companies to settle in their area.

from each other in their conceptual orientation and do not solve the problems of local taxation completely.

According to our estimations a reform of local taxation might have an impact on communal revenues. Thus, a revision of the property tax could be a key element (see, e.g., Werner 2003).<sup>24</sup> But a local tax reform including only the real property tax is too short winded and needs more pillars. Thus, positive experiences of Switzerland and Scandinavian countries with local surcharges at the PIT might stress the relevance to change the local taxation system in Germany. The municipal right to impose a tax surcharge<sup>25</sup> on the one hand increases the tax competition between the local administrative bodies, and on the other hand makes the inhabitants contribute directly towards the costs of the municipal infrastructure. For the inhabitants, in particular, this makes things much more transparent, as they no longer contribute towards the financing of communal facilities<sup>26</sup> in an indirect fashion via a fixed percentage of the income tax, but via the "noticeable" municipal tax rates.

Empirical evidence with Swiss data has shown that tax competition position effectively restricts government in the case of income and property (wealth) taxes (Feld, Kirchgässner and Schaltegger 2003). Therefore, federalism is an instrument to better monitor and control politicians. The fulfillment of voters' preferences can be achieved, if unsatisfied individuals tend to leave (exit) jurisdictions (voting with one's feet, see Tiebout 1956, Buchanan 1965, and Hirschman 1970). Countries, such as Denmark and Croatia have practices that reduce a possible "race to the bottom".<sup>27</sup>

---

<sup>23</sup> The Jarass proposal does not scrap the trade tax but rather develops it further as a municipal business tax, and thus "revitalises" the trade tax. The model of the Bavarian Convention of Municipal Authorities may become tricky when it comes to cross-border trade, as in many business sectors it is very difficult to fiscally trace the extent to which the respective value enhancement was generated in the corresponding business location.

<sup>24</sup> However in an international comparison, the taxation of real property by the German municipalities is very moderate. Compared to Canada, Croatia, Denmark, France, Ireland, Spain, UK and USA real property is lower taxed in Germany.

<sup>25</sup> One possibility could be that municipalities levy a surcharge on the PIT, but the federal government determine the tax base and the tax exemptions. In Belgium and Canada this kind of local or rather a provincial surcharges provoke enough tax competition and political accountability; see (Heyndels and Vuchelen 1998, Esteller-More and Sole-Olle 1998)

<sup>26</sup> Kindergartens, club subsidies, municipal roads, public swimming pools, social and cultural facilities.

<sup>27</sup> In Denmark the combined tax rate of the central government and the local authorities is restricted to altogether 59%. In Croatia the local surcharges at the PIT depends on the number of inhabitants in the municipalities.

However, Feld (2000) shows for Switzerland that the welfare system has not collapsed due to strong tax competition. Migration between the Swiss cantons is not strong, although there is a tendency that high income people in particular choose their residence according to fiscal incentives. Feld (2000) points out that

“The strong fiscal competency of local jurisdictions and cantons may not lead to the problems associated with fiscal competition if they are accompanied by elements of direct democracy at least on fiscal issues” (p. 154).

Fair procedures such as taxpayers’ active role in the decision process increase the acceptance and guarantee a certain level of redistribution. More participation rights also help to control situations in which sub-central governments try to form tax or expenditure cartels under the protection of the central government (Frey and Stutzer 2003).

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.



## APPENDIX

Table A1

Numbers of inhabitants in Germany's municipalities in 2000

Number of inhabitants	Number of municipalities
less than 100	226
100-499	3,454
500-999	2,521
1,000-4,999	4,809
5,000-9,999	1,288
10,000-49,999	1,348
50,000-99,999	109
100,000-199,999	43
200,000-499,999	27
500,000 and more	12

Source: Statistisches Bundesamt, 2002, page 56

Table A2

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 A3a

The revenue breakdown of the German local authorities classisised of each federal state of 1997

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

Table A3b

The revenue breakdown of the German local authorities classisised of each federal state of 1999

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

Table A4

The local financial equalisation between federal states and municipalities in 2001

	Obligatory tax sharing	Gew.St.	motor vehicle tax	conveyance duty	wealth tax	LFA	BEZ-1	BEZ-2
S-A	24,00	23,00	23,00	23,00	23,00	23,00	23,00	26,30
MV	26,99	-	26,99	26,99	26,99	26,99	26,99	26,99
THUE	23,00	23,00	23,00	23,00	23,00	23,00	23,00	40,00
SACH	25,799	25,799	25,799	25,799	25,799	25,799	-	25,799
BRG	25,00	25,00	25,00	25,00	25,00	25,00	25,00	25,00
SAAR	20,00	-	20,00	20,00	20,00	20,00	20,00	20,00
NDS	17,01	-	17,01	17,01	17,01	17,01	17,01	17,01
RP	21,00	-	21,00	21,00	21,00	21,00	21,00	21,00
SH	19,78	19,78	19,78	19,78	19,78	19,78	19,78	19,78
NRW	23,00	-	-	13,43	-	-	-	-
BW	23,00	23,00	23,39	55,00	-	23,00	-	-
BAY	11,54	11,54	65,00	38,00	-	11,54	-	-
HE	23,00	23,00	23,00	23,00	23,00	23,00		

Notes: BEZ-1: vertical grants for deficit coverage

BEZ-2: vertical grants for special requirement

Gew.St: federal portion on trade tax (without the portion of the central government)

LFA: fiscal equalisation among Germany's federal states.

Obligatory tax sharing: obligatory portion of the municipalities at the compound system according Article 107, section 1 GG

Source: Werner (2003, p. 28)

Table A5

Development of the fiscal autonomy variable LRR and the average GDP per capita of each federal state of 1997 and 1999

	1997		1999	
	GDP per capita	LRR	GDP per capita	LRR
NRW	23,507	0.101747	24,615	0.103572
BAY	26,027	0.08129	28,135	0.086851
BW	25,801	0.080549	27,529	0.089631
NDS	21,141	0.098916	22,121	0.106658
HE	28,445	0.081527	29,672	0.085822
SACH	15,570	0.131831	16,508	0.131469
RP	21,408	0.08497	21,928	0.108117
S-A	14,828	0.144608	15,936	0.173445
SH	22,088	0.097503	22,992	0.099141
THUE	15,339	0.125076	16,212	0.140814
BRG	15,793	0.156967	16,141	0.158002
M-V	15,348	0.139974	16,028	0.140598
SAAR	22,744	0.093183	21,519	0.089751
BE	22,078	0.120174	22,176	0.11964
HH	39,255	0.096651	40,918	0.091445
HB	29,148	0.110272	30,330	0.108332

Table A6

AUDIT PROBABILITY IN GERMAN STATES FOR THE YEARS 1997 AND  
1999

	1997	1999
NRW	4.71255	4.4731515
BAY	3.85792	3.7885001
BW	4.39388	4.1519066
NDS	4.37292	4.4472924
HE	4.73701	4.6529072
SACH	4.89705	4.8849013
RP	4.81786	4.7529658
S-A	5.41163	5.2080417
SH	4.27887	4.2064463
THUE	5.0373	4.8945202
BRG	5.27095	4.8932231
M-V	5.71429	5.4771242
SAAR	4.8601	4.7840633
BE	8.27718	8.5805896
HH	7.09002	6.7643208
HB	7.31852	6.4148148

Note: The audit probability has been defined as the number of tax clerks per 1000 taxpayers.

## REFERENCES

- Allingham, M. G. and A. Sandmo (1972). Income Tax Evasion: A Theoretical Analysis, *Journal of Public Economics*. 1: 323-338.
- 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., M. B. Cronshaw and M. McKee (1993). Tax Compliance with Endogenous Audit Selection Rules, *KYKLOS*. 1: 27-45.
- Alm, J., B. Jackson and M. McKee (1992a). Deterrence and Beyond: Toward a Kinder, Gentler IRS, in: J. Slemrod (ed.), *Why People Pay Taxes*. Ann Arbor: University of Michigan Press: 311-329.
- Alm, J., B. R. Jackson and M. McKee (1992b). Estimating the Determinants of Taxpayer Compliance with Experimental Data, *National Tax Journal*. 45: 107-115.
- Bahl, R. (1999). Implementation Rules For Fiscal Decentralization, Working Paper, International Studies Program, School of Policy Studies, Georgia State University, Atlanta.
- Beck, P. J., J. S. Davis and W. Jung (1991). Experimental Evidence on Taxpayer Reporting Behavior, *The Accounting Review*. 66: 535-558.
- Buchanan, J. M. and G. Tullock (1962). *The Calculus of Consent. Logical Foundations of Constitutional Democracy*. Ann Arbor: University of Michigan Press.
- Bundesministerium der Finanzen – BMF (2002). Eckdaten zur Entwicklung und zur Struktur der Kommunalfinanzen, Berlin
- Crane, S. and F. Nourzad (1987). On the Treatment of Income Tax Rates in Empirical Analysis of Tax Evasion, *KYKLOS*. 40: 338-348.
- Davoodi, H. and H. Zou (1998) Fiscal Decentralization and Economic Growth: A Cross-Country Study, *Journal of Urban Economics*. 43: 244–257.
- Dubin, J. A. and L. L. Wilde (1988). An Empirical Analysis of Federal Income Tax Auditing and Compliance, *National Tax Journal*. 41: 61-74.
- Ebel, R. and S. Yilmaz (2001). Concept of fiscal Decentralization and worldwide overview, Paper for the International Symposium Québec Commission on Fiscal Imbalance

- Esteller-More, A. and A. Sole-Olle (1998). Tax Setting in a Federal System: The Case of Personal Income Taxation in Canada, *International Tax and Public Finance*. 9:235-257.
- Feld, L. P. (2000). Tax Competition and Income Redistribution: An Empirical Analysis for Switzerland, *Public Choice*. 105: 125-164.
- Feld, L. P. and B. S. Frey (2002). Trust Breeds Trust: How Taxpayers are Treated, *Economics of Governance*. 3: 87-99.
- Feld, L. P., G. Kirchgässner and C. A. Schaltegger (2003). Decentralized Taxation and the Size of Government: Evidence from Swiss State and Local Governments, Working Paper, Phillips-University of Marburg.
- Feld, L. P. and J.-R. Tyran (2002). Tax Evasion and Voting: An Experimental Analysis, *KYKLOS*. 55: 197-222.
- Fisman, R. and R. Gatti (2002). Decentralization and Corruption: Evidence Across Countries. *Journal of Public Economics*. 83: 325-345.
- 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 L. P. Feld (2002). Deterrence and Morale in Taxation: An Empirical Analysis, CESifo Working Paper No. 760, August 2002.
- Frey, B. S. and A. Stutzer (2003). Direct Democracy: Designing a Living Constitution, Working Paper No. 167, University of Zurich.
- Friedland, N., S. Maital and A. Rutenberg (1978). A Simulation Study of Income Tax Evasion, *Journal of Public Economics*. 10: 107-116.
- Fukasaku, K. and L. de Mello (1998). Fiscal Decentralization and Macroeconomic Stability: The Experience of Large Developing Countries and Transition Economies in: K. Fukasaku and R. Hausmann R. (eds.), *Democracy, Decentralisation and Deficits in Latin America*. Paris: OECD: 121-148.
- Heyndels, B. and J. Vuchelen (1998). Tax Mimicking Among Belgian Municipalities, *National Tax Journals*. 51:89-101.
- Hirschman, A. O. (1970). *Exit, Voice and Loyalty*. Cambridge, MA: Harvard University Press.
- Huther, J. and A. Shah (1998). Applying a Simple Measure of Good Governance to the Debate on Fiscal Decentralization in World Bank Policy Research Working Paper No. 1894

- Institut „Finanzen und Steuern“ – IFST (2002) Entwicklung der Realsteuersätze der Gemeinden mit 50000 und mehr Einwohner in 2002 gegenüber 2001, Bonn.
- Joulfaian, D. and M. Rider (1996). Tax Evasion in the Presence of Negative Income Tax Rates, *National Tax Journal*. 49: 553-570.
- Lewis, A. (1982). *The Psychology of Taxation*. Oxford: Martin Robertson.
- Marlow, M. (1988). Fiscal Decentralization and Government Size, *Public Choice*. 56 (March): 259-269
- Pommerehne, W. W., A. Hart and B. S. Frey (1994). Tax Morale, Tax Evasion and the Choice of Policy Instruments in Different Political Systems, *Public Finance*. 49 (Supplement): 52-69.
- Prud'homme, R. (1995). Dangers of Decentralization in *World Bank Research Observer*. 10: 201-210.
- Roth, J. A., J. T. Scholz and A. D. Witte (eds.) (1989). *Taxpayer Compliance*. Vol. 1 and Vol. 2. Philadelphia: University of Pennsylvania Press.
- Seitz, H. (2000). Fiscal Policy, Deficits and Politics of Subnational Governments: The Case of the German Laender, *Public Choice*. 102: 183-218.
- Schwartz, R. and S. Orleans (1967). On Legal Sanctions, *University of Chicago Law Review*. 34: 282-300.
- Spahn P. and Werner J. (2004) Germany at the Junction between Solidarity and Subsidiarity in R. Bird and R. Ebel (ed.), *Fiscal Fragmentation in Decentralized Countries: Subsidiarity, Solidarity and Asymmetry*, forthcoming.
- Spahn, P. (2000). Zwischenstaatliche Kooperation und die Reform des Finanzausgleichs in Deutschland, *Wirtschaftsdienst*. 80: 713-721.
- Statistisches Bundesamt (2002). Statistisches Jahrbuch 2002, Wiesbaden.
- Tanzi, V. (2000). Some Politically Incorrect Remarks on Decentralization and Public Finance in J. Dethier, (ed.), *Governance, Decentralization and Reform in China, India and Russia*. Dordrecht, Kluwer Academic Publisher: 47-64.
- Tiebout, C. M. (1956). A Pure Theory of Local Expenditure, *Journal of Political Economy*. 64: 416-424.
- Treisman, D. (2000). The Causes of Corruption: A Cross-National Study, *Journal of Public Economics*. 76: 399-457
- Torgler, B. (2002). Speaking to Theorists and Searching for Facts: Tax Morale and Tax Compliance in Experiments, *Journal of Economic Surveys*. 16: 657-684.

- Torgler, B. (2003). Does Culture Matter? Tax Morale in an East-West-German Comparison, *FinanzArchiv*. 59: 504-528.
- Torgler, Benno (2004). Tax Morale and Institutions, YCIAS Working Paper, LP05, Yale Center for International and Area Studies, New Haven.
- Werner, J. (2003). The German Fiscal Federalism: in a State of Flux, World Bank Working Paper,  
<http://www1.worldbank.org/wbiep/decentralization/ecalib/werner.pdf>.
- Werner, J. (2004). El Federalismo Fiscal Aleman:En Estado de Fluctuacion, Zergak – Gaceta Tributaria Del Pais Vasco. 25: 81-113.
- Witte, A. D. and D. F. Woodbury (1985). The Effect of Tax Laws and Tax Administration on Tax Compliance, *National Tax Journal*. 38: 1-14.