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GERMANY:  
RESULTS FROM A QUASI-NATURAL EXPERIMENT

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# TAX MORALE AFTER THE REUNIFICATION OF GERMANY: RESULTS FROM A QUASI-NATURAL EXPERIMENT

## Abstract

This paper provides a comparison of tax morale between inhabitants of East and West Germany in its post-reunification period, using three World Values Survey/European Values Survey waves between 1990 and 1999. German reunification is particularly interesting for the analysis of tax morale as it is close to a natural experiment. Many factors can be controlled because they are similar, as, e.g., a common language, similar education systems and a shared cultural and political history prior to the separation after the Second World War. As a consequence, an East-West comparison has a methodological advantage compared to cross-country studies. Our findings show higher tax morale in East than in West Germany. However, in only 9 years after reunification, tax morale values strongly converged, especially due to a strong change in the level of tax morale in the East. We suggest that this convergence in tax morale between East and West Germany, despite efforts of the federal government to increase deterrence, indicates that tax morale is more strongly driven by other factors than deterrence.

JEL Code: H26, H73, D78, C93.

Keywords: tax morale, tax evasion, deterrence, quasi-natural experiment.

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## INTRODUCTION

According to the seminal paper by Allingham and Sandmo (1972), tax morale is one of the factors *explaining* tax compliance. In addition to deterrence, as the main cost related factor, and income and marginal tax rates, as the main determinants of benefits from tax evasion, tax morale is interpreted as comprising different social norms that shape individual behavior. These social norms may originate from earlier phases of taxpayers' socialization and could thus be deemed to be *exogenous* from an economic point of view. Recent research indeed reveals that tax morale depends positively on religiosity which is evidence for the socialization view of tax morale (Torgler 2006). Tax morale may however also be *endogenous* to the economic factors affecting tax compliance, i.e. deterrence and tax rates (Torgler 2005), or even to the behavior of fiscal authorities in general, e.g. the provision of public goods and services, participation possibilities for citizens in political decisions or the treatment of taxpayers by tax authorities (Feld and Frey 2002, 2002a, 2007, Feld and Tyran 2002, Frey 1997a, Frey and Feld 2002, or, from a theoretical perspective, Schnellenbach 2006, 2007).

While there is a broad discussion in the literature on the impact of deterrence on *tax compliance* (see the surveys by Andreoni, Erard and Feinstein 1998, Slemrod and Yitzhaki 2002, Slemrod 2003, Torgler 2007), the impact of auditing and fines on *tax morale* is much less intensively elaborated. A majority of theoretical studies predicts a negative impact of deterrence on tax evasion, but the empirical evidence looks less convincing. For example, Dubin, Graetz and Wilde (1987), Dubin and Wilde (1988), Beron, Tauchen and Witte (1992) and Slemrod, Blumenthal and Christian (2001) found a significant positive impact of the probability of detection on tax evasion at least for some income groups thus contradicting traditional theory. Schwartz and Orleans (1967), Friedland, Maital and Rutenberg (1978), Klepper and Nagin (1989), De Juan, Lasheras and Mayo (1994), Alm, Sanchez and De Juan (1995) and Blackwell (2002) reported a positive impact of fines on tax compliance supporting the traditional theory of tax evasion. But Spicer and Lundstedt (1976), Friedland (1982), Elffers, Weigel and Hessing (1987), Pommerehne and Weck-Hannemann (1996), Varma and Doob (1998) and Wenzel (2004) again present ambiguous evidence. Scholz and Lubell (2001) even found a crowding out of tax compliance when fines are introduced. Feld and Frey (2002) also provided support for the ambiguous impact of deterrence on tax compliance. For a panel of Swiss cantons, they report evidence that a higher intensity of control increases tax evasion while fines and penalties reduce tax evasion. Similar evidence is reported by Torgler (2005) on the impact of deterrence on tax morale in the Swiss cantons.

In contrast to tax compliance, the impact of deterrence on tax morale is, however, also theoretically open. Allingham and Sandmo (1972) assume that tax morale is exogenous and thus implicitly perceive it as the result of individual socialization or cultural and historical predispositions. Deterrence does not have any impact on tax morale in their model. It is unlikely though that tax morale does not endogenously depend on deterrence, as the ethical concern what should and what should not be done does not drop from heaven. Social norms must emerge in order to influence behavior and their emergence is shaped by the legal and political environment. Posner (1998, 2000a, b) argues that deterrence signals social norms to citizens in the sense that they are educated by deterrence measures what they should do. Smith and Mackie (2000: 377) note: “Norms must be brought to mind before they can guide behavior. They can be activated by deliberate reminders or by subtle cues, such as observations of other people’s behavior.” Similarly, recent experimental evidence by Fehr and Rockenbach (2004) shows that individuals adopt strategies to punish free riding behavior even if punishment is costly leading to an evolutionary dominant strategy. According to these arguments, deterrence can be hypothesized to raise tax morale (*deterrence view*).

Deterrence could also influence tax morale negatively. As Frey (1997b) has argued, deterrence may crowd out intrinsic motivation. Generalizing concepts from social psychology according to which monetary (external) rewards undermine intrinsic motivation under certain conditions,<sup>1</sup> he contends that all types of external interventions may negatively affect intrinsic motivation. Not only offering rewards but also issuing commands, imposing rules and regulations as well as punishments may undermine individuals’ tax morale being interpreted as their intrinsic willingness to comply with tax laws. External interventions undermine intrinsic motivation when they are perceived to be intrusive by the individuals concerned, and they maintain or raise intrinsic motivation when they are perceived to be supportive. Increasing monitoring and penalties for noncompliance, individuals notice that extrinsic motivation has increased, which on the other hand crowds out intrinsic motivation to comply with taxes. If the intrinsic motivation is not recognized, taxpayers get the feeling that they can as well be opportunistic. On the other hand, tax morale is not expected to be crowded out if the honest taxpayers perceive the stricter policy to be directed against dishonest taxpayers. Regulations which prevent free riding by others, reducing the possibility to escape from their tax payments may help to preserve tax morale. In general, tax audits as intrusion by tax authorities can be hypothesized to undermine tax morale more strongly if the taxpayers’ sense of self-determination is

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1. See Deci (1971, 1972, 1975), Deci and Ryan (1980, 1985, 1987) or the survey by Lane (1991, ch. 19).

high (*crowding-out view*). Overall, it is thus theoretically open whether deterrence has a positive or negative impact on tax morale.

In this paper, the development of tax morale in Germany is explained by relying on a comparison between inhabitants of East and West Germany after its post-reunification period, using three World Values Survey/European Values Survey waves between 1990 and 1999. German reunification constitutes a natural experiment and is thus particularly interesting for the analysis of tax morale. Many factors can be controlled because they are similar between the two parts of Germany as, e.g., a common language, similar education systems and a shared cultural and political history prior to the separation after the Second World War. As a consequence, an East-West comparison has a methodological advantage compared to cross-country studies. Our findings indicate higher tax morale in East than in West Germany. However, in only 9 years after reunification, tax morale values strongly converged, especially due to a strong reduction in the level of tax morale in the East. The initial differences in tax morale between both German regions may be either explained by taxpayers' former (tax) system experiences, e.g., deterrence strategies in the GDR and the FRG, or by the initial willingness of East German taxpayers to support the and participate in the West German welfare state, while West German citizens anticipated the high costs of German reunification. The convergence in tax morale between East and West Germany to lower levels than in 1990, despite efforts of the federal government to increase deterrence since, indicates however that tax morale is more strongly driven by other factors than deterrence.

The remainder of the paper is organized as follows: The next section provides an overview on deterrence and tax morale in Germany. The differences in tax morale across Germany are afterwards explained in an empirical analysis by, first, conducting simple non-parametric tests, second, a multivariate analysis of the development of tax morale over time and, third, of cross sections of tax morale in the single years. Moreover, we discuss whether re-unification resulted in a tax morale shock for Germany. Finally, conclusions are drawn.

## DETERRENCE AND TAX MORALE IN GERMANY

### *Deterrence in West and Reunified Germany<sup>2</sup>*

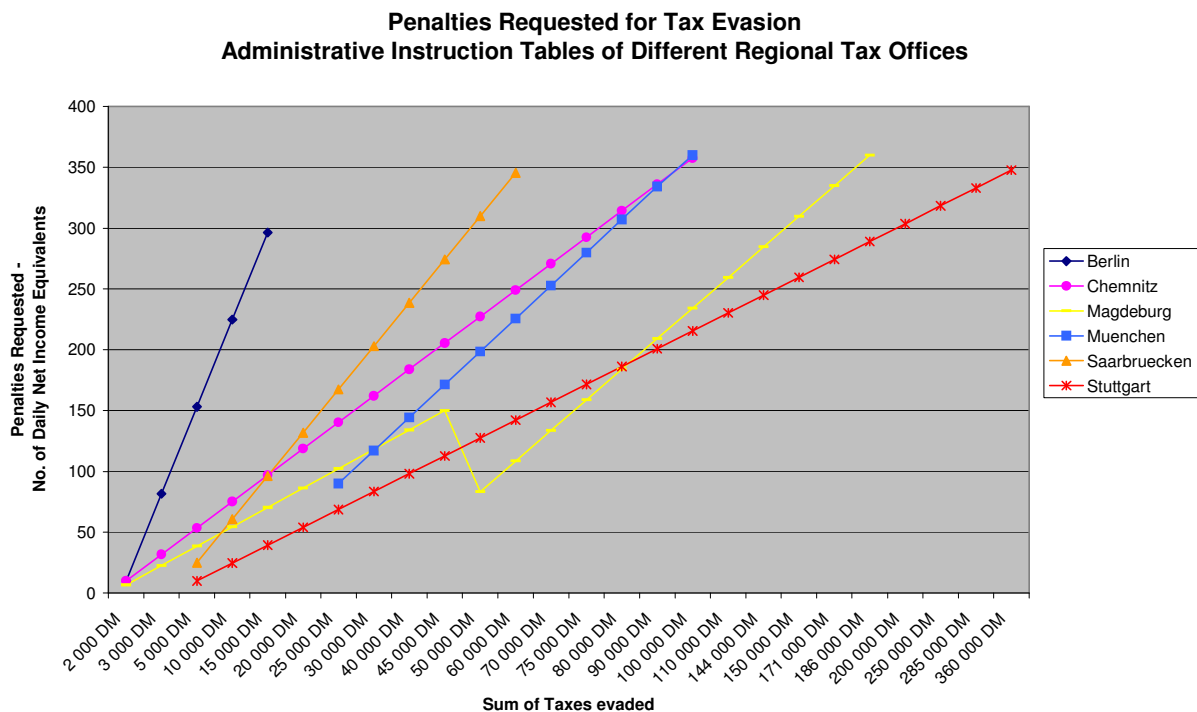
The legal foundation of the prosecution of tax evasion in Germany is the general fiscal code (AO). Below this level of statutory law, administrative instructions and the case law based on the decisions of the Federal Finance Court (which functions as appellate court) are of impor-

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2. In a recent paper, Feld, Schmidt and Schneider (2006) provide an overview of deterrence for tax evasion in Germany. This section summarizes their main descriptive parts.

tance. According to §370 AO, possible punishments for tax evasion range from a fine to a prison sentence up to 5 years. In serious cases of tax evasion, in combination with the abuse of official authority or with fraud, the possible sentences increase and range from a minimum of 6 months up to a maximum of 10 years of imprisonment. The fines depend on the amount of taxes evaded, cooperation in the proceedings, and the individual daily net income of the tax evader. Fines range from the equivalent of six to 360 times the tax evader's daily net income. Regional Tax Offices (OFD) developed sentence tables for standard cases of tax evasion. Six examples for mild, average and severe sentencing are shown in *Figure 1*. The large regional differences result from the high degree of administrative autonomy of the regional tax offices.

Figure 1



Source: Feld, Schmidt and Schneider (2006).

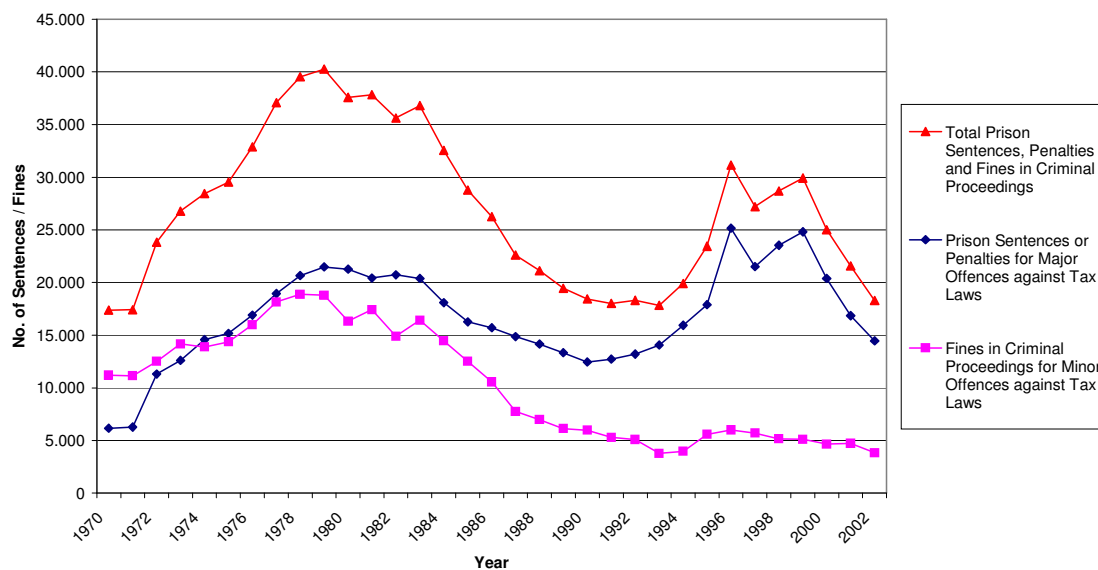
The main offence within the category of tax misdemeanors could be literally translated as “tax shortening” (§378 AO *Leichtfertige Steuerverkürzung*). In comparison to tax evasion, tax “shortening” does not result from a deliberate act, but from gross negligence. Gross negligence is presumed if, for example, the taxpayer does not hand in a tax return, does not inform himself about his tax duties, or does not scrutinize the tax statement prepared by his tax advisor. Tax “shortening” can also be an offence by tax advisors or accountants if they do not pay the necessary professional attention. In contrast to the Anglo-American system, the situation in Germany is that tax misdemeanors can only be punished by fines. For “tax shortening” a fine of up to

€50,000 can be imposed. The statutory limitation period for prosecution of tax misdemeanors is 5 years (§384 AO).

The German general criminal tax code remained relatively unchanged after 1969. Apart from editorial revisions, only three changes seem to be relevant. First, in 1993, taxes and customs duties of the European Union fiscal code became taxes in the sense of the German criminal tax code. Second, in 2001, the maximum fine for evasion of withholding taxes was increased from €5,000 to €25,000. Third, in 2002 the possibility of handing in amended returns was extended to tax evasion committed by accountants or in relation to organized crime (§370a StGB). This change is intended to support whistle-blowing in criminal organizations. A person handing in an amended return can only be sentenced to half of the usual sentence. For the period 1982-2002, the developments in case law due to decisions of the Finance Courts, especially the Federal Finance Court, are listed by Bilsdorfer (2003).

Figure 2

**Number of Sentences and Fines in Criminal Proceedings for Tax Evasion**  
(All Tax Types)

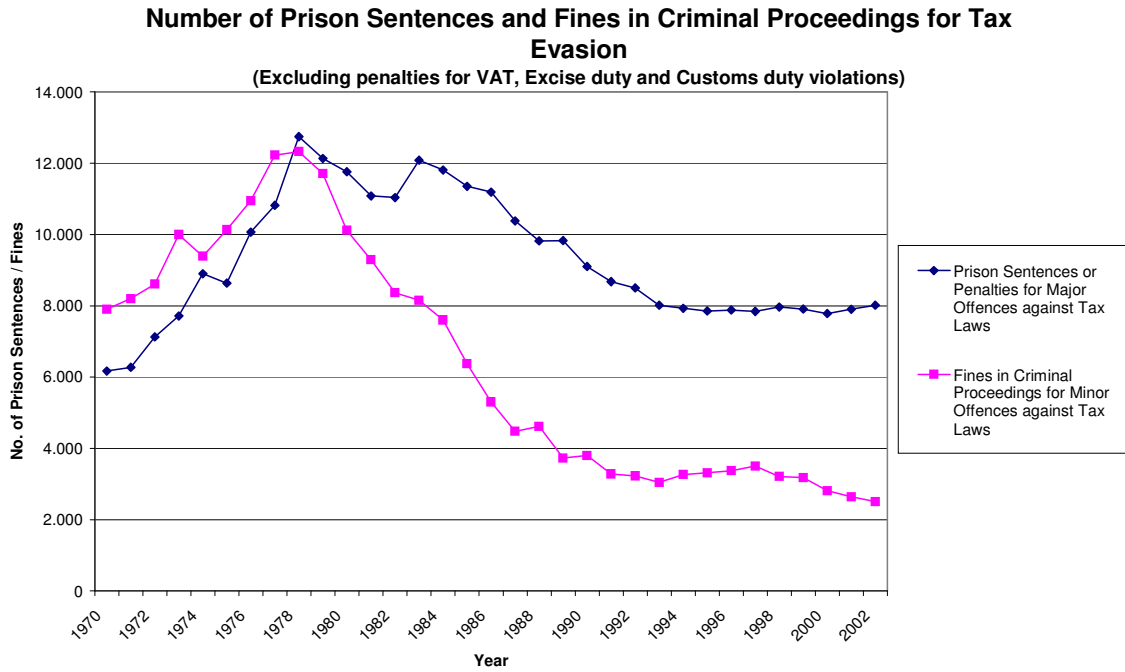


Source: Feld, Schmidt and Schneider (2006).

Considering the developments of the overall number of sentences and fines imposed for tax evasion in criminal proceedings in long time-series (*Figure 2*), i.e. the number of cases that were actually prosecuted, the figures show peaks in severe punishment at the beginning of the 1980s as well as in the mid and late 1990s. The changes in the 1990s mainly result from offences in VAT, customs duties and excise duties (*Figure 3*), and thus reflect the change in the law in 1993. With regard to the punishment of minor and major offences, it seems evident that the

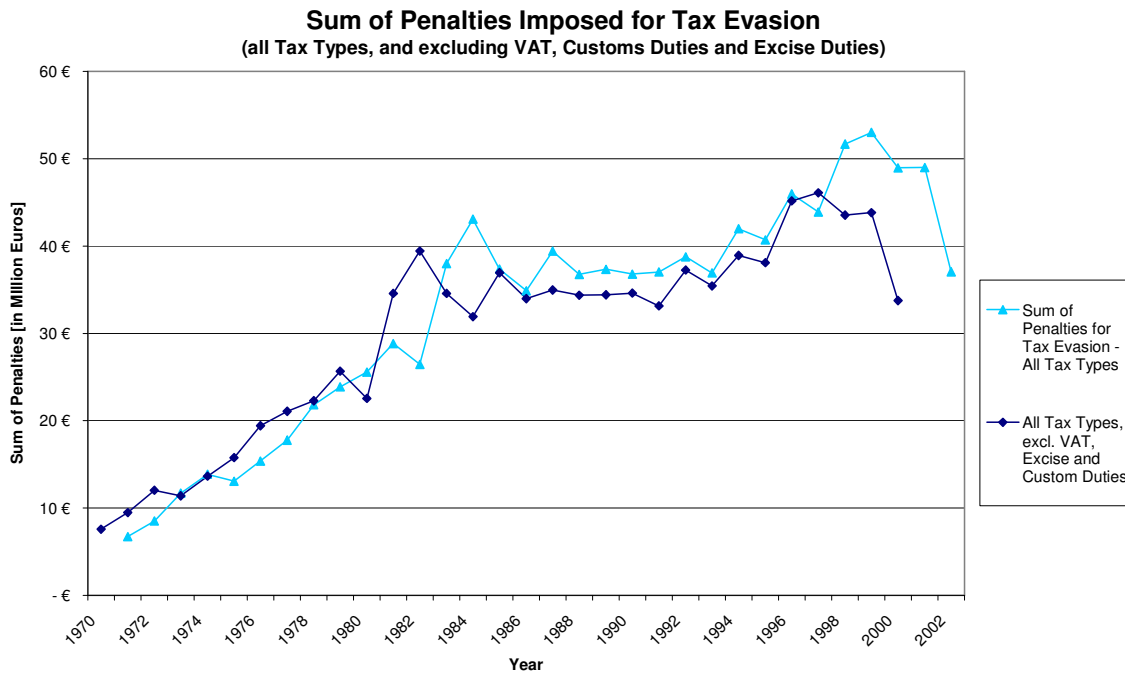
number of cases with fines for minor tax offences decreased a lot more than the number of those with prison sentences or penalties for major tax offences.

Figure 3



Source: Feld, Schmidt and Schneider (2006).

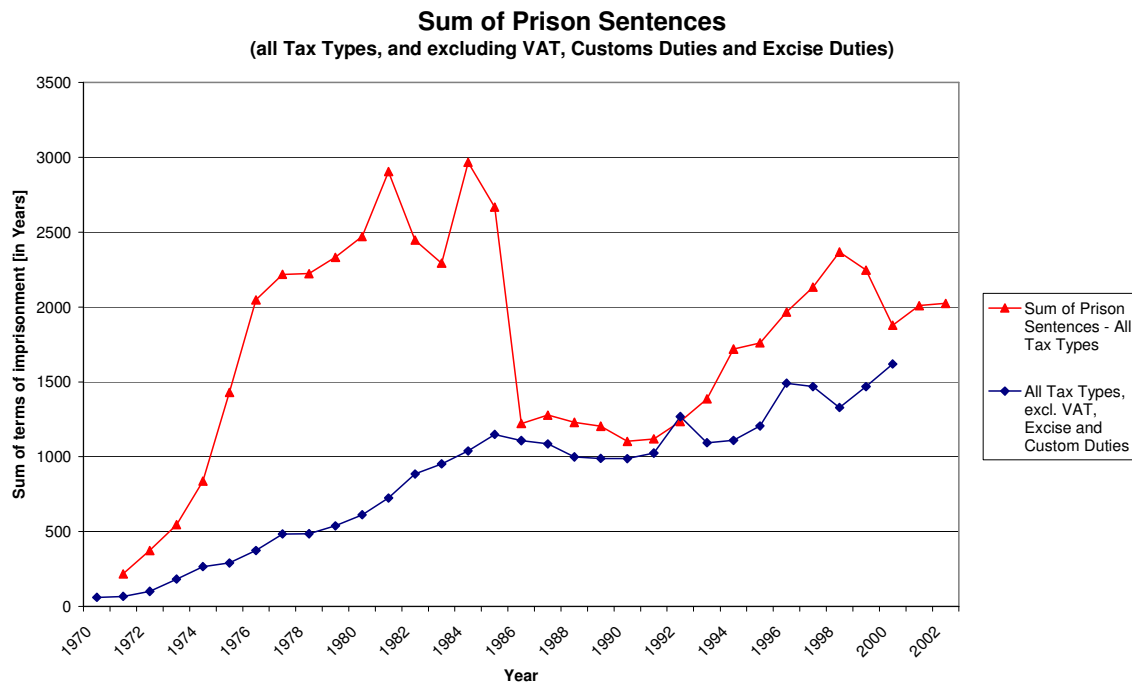
Figure 4



Source: Feld, Schmidt and Schneider (2006).



Figure 5



Source: Feld, Schmidt and Schneider (2006).

*Figures 4 and 5* indicate that these offences have been more severely punished since the middle of the 1980s. Since the beginning of the 1970s, a steadily increasing trend can be observed for the sum of nominal penalties imposed for tax evasion (*Figure 4*). For the sum of prison sentences (*Figure 5*), i.e. in more serious cases of tax evasion, there is a decline which is first observable in the beginning of the 1980s and which became steeper during the end of the 1980s. When offences in cases of indirect taxation are excluded, the figures show a steady increase. This could of course reflect the fact that the extent of tax evasion has increased over time as well. But taking these figures together with those shown in *Figures 2 and 3*, it becomes clear that the lower number of offences punished with prison and fines was more than weighed up by more severe sentences (higher fines and longer imprisonment). This leads us to state a first stylized fact:

*Fact 1: Deterrence has increased in (West) Germany from the mid 1980s until 2001.*

#### *Deterrence in East Germany (GDR) before Reunification*

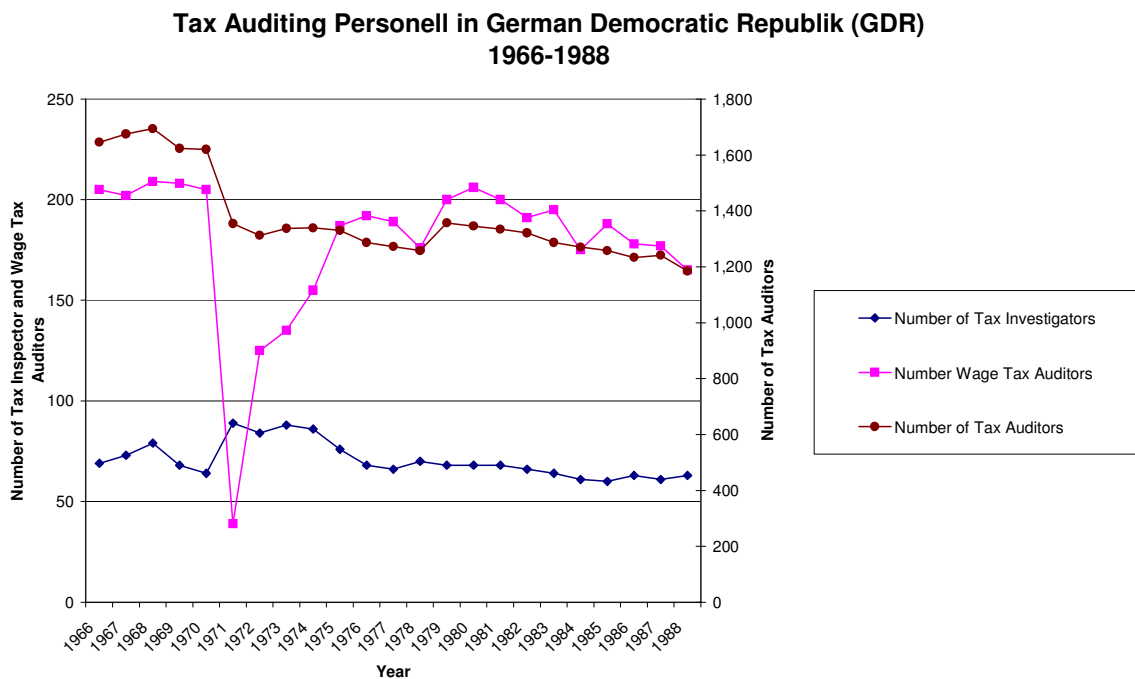
German reunification provides a good opportunity to analyze the long-lasting influence of tax system experience and socialization by political culture on taxpayer behavior.<sup>3</sup> A crucial difference between East and West Germany lies in the definition of the tax state. The tax system in the GDR state-directed planned economy played a minor role and served other purposes than in market-economies like West Germany (Schulz 1990, Kruse 1985). The main

3. See Nerré and Pallas (2005) for an historical overview of the tax systems in East and West Germany.

part of government revenues, in 1989 about 81%, came from “deductions for public households” in nationally owned enterprises and cooperatives. Only 4.4% of taxes were paid by individual taxpayers (wage tax, motor vehicle tax, municipal and inheritance taxes). An additional 1.6% is collected from private companies (Müssener 1990). Similar to the direct deductions in nationally owned enterprises (and to wage taxes in West Germany), wage taxes of workers and employees were withheld in the companies. In general, worker’s income tax liabilities were settled by deduction and no further declaration or assessment took place.

In the socialist GDR, institutions of tax administration were structured like the general administration. The fiscal divisions of the municipal councils functioned as local tax offices, the fiscal divisions of district councils (19 incl. Berlin) functioned as panels for taxpayers’ complaints. Tax investigation bureaus were also organized at district level and employed about 2-4 tax investigators, altogether about 70 investigators. The whole tax investigation procedure was planned and headed by a division in the Ministry of Finance of the GDR. It is important to note that no Finance courts existed, and aside from complaints at the local level and an appeal at the district level, taxpayers could not take legal action against a tax assessment

Figure 6

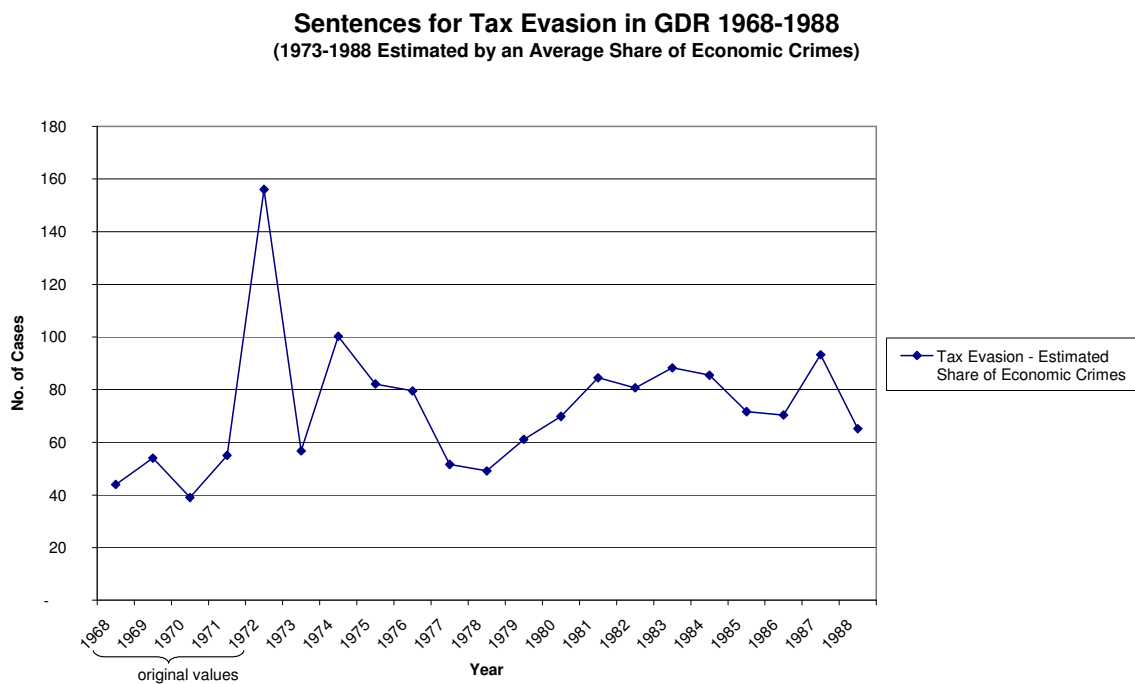


Source: Report about Tax Audits and Tax Investigation, Ministry of Finance of the GDR, German Federal Archives (DN1 22762, 1-3).

Similar to West Germany, the GDR’s criminal tax code distinguished tax offences in tax crimes and tax misdemeanor. The possible consequence for tax crimes, literally translated, “Shortening of taxes, duties, deductions to public treasury and social security contributions”

(§176 StGB of the GDR) ranged from a public demerit to a penalty of up to two years of imprisonment. In severe cases, imprisonment of two to eight years had to be inflicted. Negligent tax evasion could be punished like a simple tax misdemeanor. Possible punishment for tax misdemeanors in GDR ranged broadly from a rebuke without any further consequence to heavy fines of 10'000 Mark (§§ 21, 22 Ordnungswidrigkeitenverordnung (OWVO) of the GDR). In the GDR's authoritarian system, enhanced prosecution and investigation possibilities could be found in reality and in the code of law. The proceedings for tax crimes took place before court, and state attorneys were in charge of the investigation and prosecution procedure. They had extended investigation possibilities. Authorities of the Ministry of State Security (Ministerium für Staatssicherheit, abbr. MfS), the Ministry of Interior and the GDR's people's police could assist their investigations (§88 StPO of the GDR). Especially, the surveillance and denunciation system of the MfS could be used, according to statements from contemporary officials. Accordingly, overall cases of sentencing for tax evasion remained approximately stable and in comparison to West Germany on a low level. Unfortunately we could not reveal the level of sentencing in terms of penalty and years of imprisonment.

Figure 7



Source: Crime Statistic of the General Attorney of GDR, German Federal Archives (DP 3/740-743).

Overall, these considerations amount to a second stylized fact:

*Fact 2: Deterrence, as the product of fines and the intensity of control, in East Germany before reunification was higher than in West Germany, while opportunities for taxpayers to evade taxes were relatively lower.*

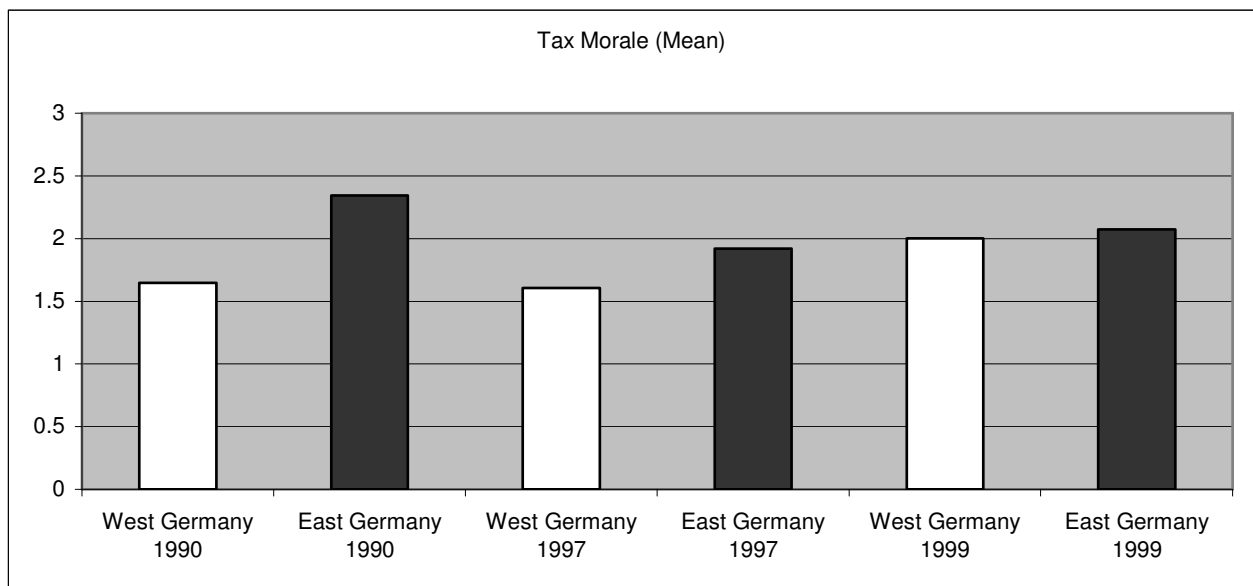
*Tax Morale in Reunified Germany*

Given these strong differences in deterrence levels and in opportunities to evade taxes, it could be expected that tax compliance significantly dropped in East Germany after reunification. Could such a development be observed with respect to tax morale as well? To assess the level of tax morale in East and West Germany we use the following question from the WVS throughout the whole paper:

“Please tell me for each of the following statements whether you think it can always be justified, never be justified, or something in between: ...Cheating on tax if you have the chance.”

The question leads to a ten-scale index of tax morale with the two extreme points “never justified” and “always justified”. The scale has been recoded into a four-point scale (0, 1, 2, 3), with the value 3 standing for “never justifiable”. 4-10 have been integrated in the value 0 due to a lack of variance.

Figure 8  
Tax Morale over Time in Germany (Means)



The development of tax morale in reunified Germany is presented in *Figures 8 to 11* for the three waves of the WVS between 1990 and 1999. *Figure 8* displays the mean values for West and East Germany in each year, while *Figure 9*, *Figure 10* and *Figure 11* refer to the distribution of tax morale scores in East and West Germany for the years 1990, 1997 and 1999, respectively. These figures reveal higher tax morale for East Germans than for West Germans in all years. However, East Germans’ highest tax morale score declined from 1990 to 1997. On the other hand, tax morale development in West Germany seems to be quite stable between 1990 and 1997. Between 1997 and 1999, we observe a general increase of tax mo-

rale, which is strong in West Germany, but less so in the Eastern part. In the 9 years after reunification, tax morale in East and West Germany converged, until being almost identical in 1999. Hence, the third stylized fact:

*Fact 3: Tax morale in East Germany, which was initially higher, converged to the lower West German levels between 1990 and 1999.*

Figure 9  
Tax Morale in East and West Germany in 1990

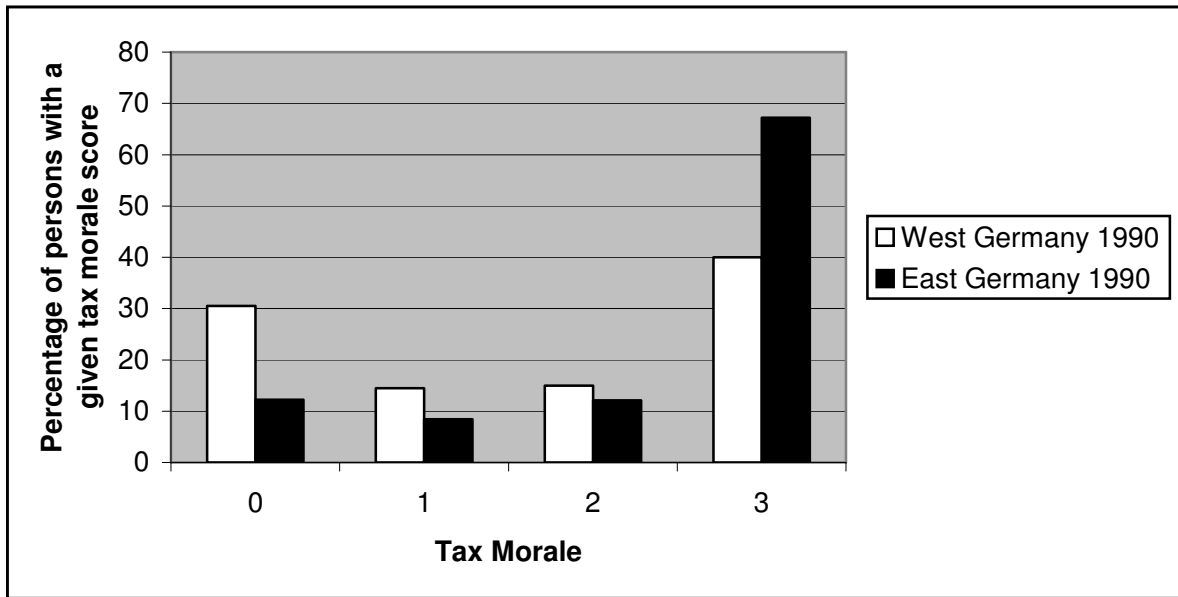


Figure 10  
Tax Morale in East and West Germany in 1997

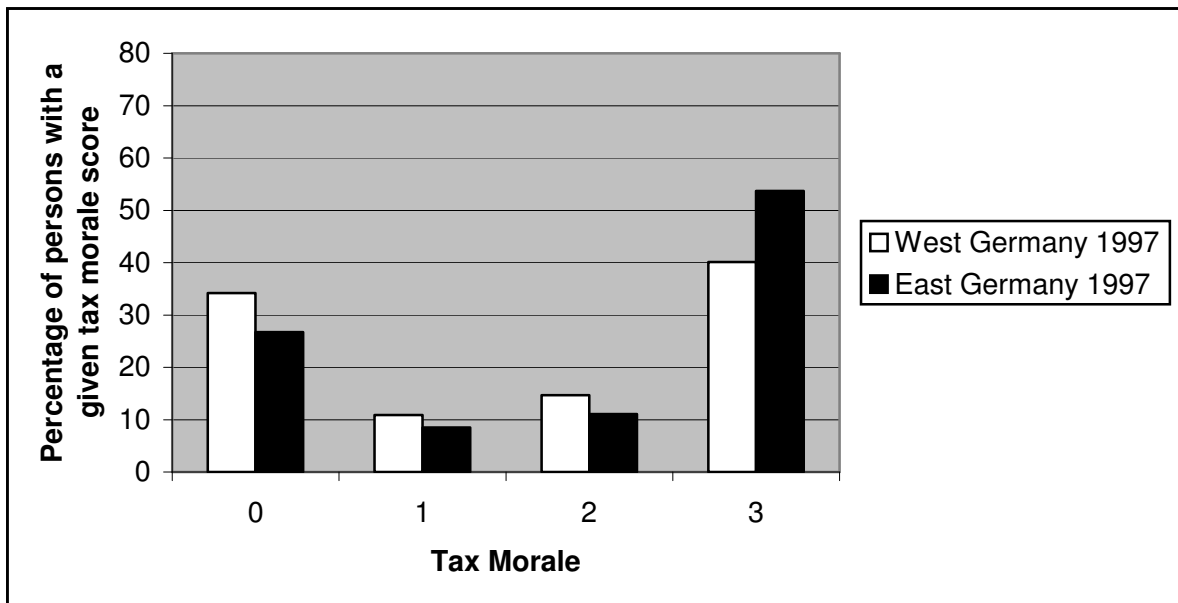
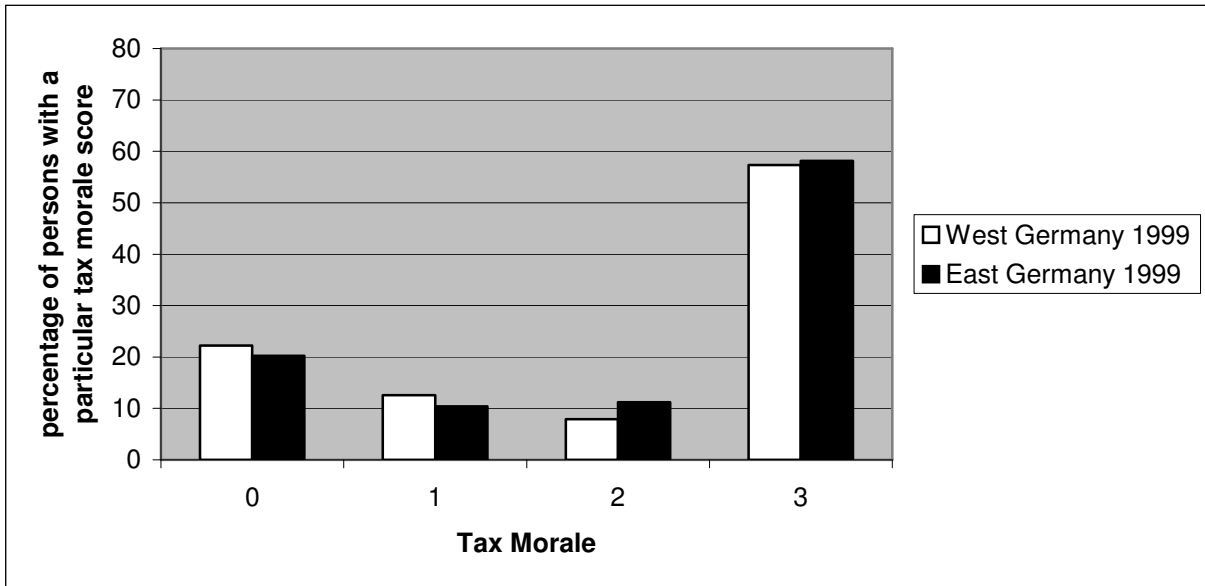


Figure 11  
Tax Morale in East and West Germany in 1999



### THE EMPIRICAL ANALYSIS

Given these stylized facts, it is important to find out whether the differences in tax morale between the two parts of Germany and its development after reunification are, first, statistically significant, and, second, could be attributed to changes in deterrence levels. If the deterrence view holds, we should observe an immediate drop of tax morale in the East as compared to the West as deterrence in East Germany declined considerably due to reunification. The efforts of the German federal government to increase deterrence after reunification could be expected to raise tax morale overall from 1990 to 1999. If the crowding-out view of tax morale holds, the impact of the policy change implied by reunification on tax morale depends on the identification of East German citizens with the state in a reunified Germany. The increase of deterrence after reunification could be hypothesized to reduce tax morale. We explore these questions in turn.

#### *Wilcoxon Rank-Sum Test (Mann-Whitney)*

As a first step, we test whether our different samples have the same distribution using the Wilcoxon rank-sum test (Mann-Whitney). The results are presented in *Table 1*. The upper part of *Table 1* presents the test results for a comparison between East and West Germany for the whole sample, while the lower part shows the results for comparison for each year within each German region. In an east-west comparison there are significant differences in tax morale for the years 1990 and 1997, while these differences are not statistically significant for the year 1999. It seems as if tax morale within Germany had converged lending support to the third stylized fact. It is however important to note the differences across time for each region. In East Germany, tax morale was significantly lower in the years 1997 and 1999 than in 1990,

while it increased significantly between 1997 and 1999. Such a significant increase between 1997 (1990) and 1999 could also be observed for West Germany.

Table 1  
Two-Sample Wilcoxon Rank-Sum (Mann-Whitney) Test

<b>Hypothesis</b>	<b>z-value</b>	<b>Prob &gt;  z </b>
<b><i>East-West Comparison</i></b>		
H <sub>0</sub> : TM West Germany 90 = TM East Germany 90	-16.159	0.000
H <sub>0</sub> : TM West Germany 97 = TM East Germany 97	-5.602	0.000
H <sub>0</sub> : TM West Germany 99 = TM East Germany 99	-0.892	0.372
<b><i>Over Time</i></b>		
<b>East Germany</b>		
H <sub>0</sub> : TM East Germany 90 = TM East Germany 97	7.914	0.000
H <sub>0</sub> : TM East Germany 90 = TM East Germany 99	5.199	0.000
H <sub>0</sub> : TM East Germany 97 = TM East Germany 99	-2.576	0.010
<b>West Germany</b>		
H <sub>0</sub> : TM West Germany 90 = TM West Germany 97	0.812	0.417
H <sub>0</sub> : TM West Germany 90 = TM West Germany 99	-7.864	0.000
H <sub>0</sub> : TM West Germany 97 = TM West Germany 99	-7.399	0.000

*Multivariate Analysis: Development over Time*

In order to test whether these regional differences are robust to the inclusion of other determinants of tax morale, we conduct a multivariate analysis in two steps: First, the development of tax morale across time is explained for East and West Germany separately and together. Second, tax morale is explained in a cross section analysis for reunified Germany in the single years 1999, 1997 and 1990. The model we propose to test is estimated using weighted ordered probit analysis and is standard in tax morale research (see Torgler 2005, 2006, 2007). The tax morale variable obtained from the WVS (EVS) is explained by a vector of demographic variables (age, sex and education), marital status, employment status, income, religiosity, trust and the time or regional dummy variables being for particular years (zero otherwise) or particular regions (East or West Germany) in these years.

Before turning to the estimation results, a few remarks should be made concerning the different proxies used. Firstly, we had to revert to a relatively crude proxy for income, as unfortunately, the income variable was scaled differently in East and West Germany in 1990 and 1997, as well as differently coded in 1990/1997 and 1999 (see Appendix). Income could thus be included in the estimations only for the year 1999. In order to get a proxy for the economic situation, a variable is used where people classified themselves into the groups (1) upper or upper middle class; (2) middle or lower middle class; (3) all others (see Appendix). Ma-

rital status has also been coded slightly differently in the year 1999. The “living together” class of the World Values Survey is missing in 1999 (EVS). Instead a “never married” class is included. Thus, living together/single (WVS 1990/97) and never married (EVS 1999) are now in the same class which is used as the reference group (see *Appendix*).

Table 2  
Tax Morale Development in East Germany (1990, 1997, 1999)

<i>WEIGHTED ORDERED PROBIT</i>	<i>Coeff.</i>	<i>z-Stat.</i>	<i>Marg. Effects</i>	<i>Coeff.</i>	<i>z-Stat.</i>	<i>Marg. Effects</i>	<i>Coeff.</i>	<i>z-Stat.</i>	<i>Marg. Effects</i>
<i>INDEPENDENT V.</i>	<i>1a</i>			<i>2a</i>			<i>3a</i>		
<b>a) Demographic Factors</b>									
AGE 30-39	0.209***	2.74	0.077	0.221***	2.88	0.081	0.218***	2.83	0.080
AGE 40-49	0.437***	5.26	0.155	0.446***	5.34	0.158	0.450***	5.39	0.159
AGE 50-59	0.546***	6.23	0.189	0.565***	6.39	0.194	0.574***	6.45	0.197
AGE 60-69	0.639***	4.90	0.214	0.644***	4.90	0.214	0.616***	4.72	0.207
AGE 70+	0.774***	4.89	0.247	0.792***	5.00	0.250	0.753***	4.75	0.241
FEMALE	0.298***	5.93	0.112	0.299***	5.87	0.113	0.291***	5.68	0.110
EDUCATION				-0.011*	-1.88	-0.004	-0.010*	-1.73	-0.004
<b>b) Economic Variable</b>									
UPPER CLASS	-0.163**	-2.08	-0.062	-0.131	-1.58	-0.050	-0.147*	-1.77	-0.056
MIDDLE CLASS	-0.008	-0.14	-0.003	0.028	0.46	0.011	0.010	0.16	0.004
<b>c) Marital Status</b>									
MARRIED	0.017	0.25	0.006	0.0005	0.01	0.0002	-0.008	-0.11	-0.003
DIVORCED	0.022	0.20	0.008	0.009	0.08	0.003	0.012	0.10	0.005
SEPARATED	-0.130	-0.40	-0.050	-0.148	-0.46	-0.057	-0.149	-0.47	-0.057
WIDOWED	-0.063	-0.53	-0.024	-0.092	-0.76	-0.035	-0.106	-0.87	-0.040
<b>d) Employment Status</b>									
PART TIME EMPLOYED	-0.108	-0.99	-0.041	-0.111	-1.00	-0.042	-0.118	-1.07	-0.045
SELFEMPLOYED	-0.041	-0.28	-0.015	-0.043	-0.29	-0.016	-0.037	-0.25	-0.014
UNEMPLOYED	0.042	0.44	0.016	0.030	0.31	0.011	0.036	0.38	0.013
AT HOME	0.121	0.70	0.045	0.113	0.65	0.042	0.106	0.60	0.039
STUDENT	0.059	0.40	0.022	0.239	1.40	0.086	0.182	1.04	0.066
RETIRED	0.244	2.17	0.090	0.255***	2.25	0.093	0.274**	2.43	0.100
OTHER	0.347	1.78	0.121	0.375*	1.85	0.130	0.364*	1.79	0.126
<b>e) Religiosity</b>									
CHURCH ATTENDANCE	0.028**	2.04	0.010	0.029**	2.09	0.011	0.028**	2.05	0.011
<b>f) Time</b>									
EASTERN 97	-0.456***	-7.88	-0.174	-0.407***	-6.46	-0.155	-0.399***	-6.29	-0.152
EASTERN 99	-0.378***	-5.85	-0.147	-0.367***	-5.52	-0.142	-0.389***	-5.81	-0.151
<b>g) Trust</b>									
TRUST IN THE LEGAL SYSTEM/JUSTICE							0.125***	3.89	0.047
Number of observations	3132			3085			3046		
Prob > chi2	0.000			0.000			0.000		

Notes: Dependent variable: tax morale on a four point scale. In the reference group are AGE < 30, MAN, SINGLE, FULL TIME EMPLOYED, LOWEST CLASS, EASTERN 90. Significance levels: \* 0.05 < p < 0.10, \*\* 0.01 < p < 0.05, \*\*\* p < 0.01. Marginal effect = highest tax morale score (3).



Furthermore, from the set of standard variables according to the Allingham/Sandmo tax evasion model only income is explicitly included as an explanatory variable. Unfortunately, no information is available as to the (true or perceived) marginal tax rates of the respondents in the sample. Deterrence measures are also not included explicitly. *Figures 4 and 5* above suggest however that the time dummies have a particular deterrence connotation. While deterrence slowly increased between 1990 and 1997, the slopes of the deterrence curves became steeper in the following years and declined afterwards. According to the first hypothesized impact of deterrence on tax morale outlined in the introduction, we should thus observe an increase in tax morale in 1999 compared to the two other years. The regional dummy variables could be either interpreted as capturing cultural differences between East and West Germany, but given path dependencies, they could also reflect the differences in deterrence experiences and exposition to state coercion in the two parts of Germany. It could thus be conjectured that tax morale in East Germany is higher than in West Germany, at least in 1990.

*Table 2* contains the estimation results for East German tax morale in 1990, 1997 and 1999. There are three different specifications: The baseline model is presented in the first three columns. The next three columns show the estimates including education, and the final three columns additionally include a variable capturing trust in the legal system or in justice. Age and sex prove to have significant effects on East German tax morale. The older the persons are, the higher is their tax morale. The marginal effects increase with an increase of age. Women also have significantly higher tax morale. These results remain robust across the three specifications. The effect of income on tax morale is significantly negative only for those who define themselves as members of the upper class. Neither marital nor employment status have significant effects on East German tax morale, although the values for retired people are significantly higher (keeping age constant). As expected from the introductory remarks, religiosity has the expected positive effect on tax morale also for East German citizens. The observed differences in tax morale across time for East Germany are robust to the inclusion of covariates: The dummy variables for East Germany in 1997 and in 1999 are significantly negative. Tax morale in East Germany in these two years is significantly lower than in the year 1990. The estimated marginal effects indicate that the decline of East German tax morale from 1990 to 1997 is slightly more pronounced than that from 1990 to 1999.

Including education does not alter these results. Education turns out to have only a marginally significant negative effect. Trust has a significantly positive effect on East German tax morale. Including trust in the legal system/in justice leaves the socio-demographic effects unchanged and does not affect the significance of the time dummies. But it reduces their mar-

ginal effects. In particular, it leads to the result that the quantitative impact of both dummy variables as measured by the marginal effects is almost the same.

*Table 3*  
*Tax Morale Development in West Germany (1990, 1997, 1999)*

<i>WEIGHTED ORDERED PROBIT</i>	<i>Coeff.</i>	<i>z-Stat.</i>	<i>Marg. Effects</i>	<i>Coeff.</i>	<i>z-Stat.</i>	<i>Marg. Effects</i>	<i>Coeff.</i>	<i>z-Stat.</i>	<i>Marg. Effects</i>
<i>INDEPENDENT V.</i>	<i>1b</i>			<i>2b</i>			<i>3b</i>		
<b>a) Demographic Factors</b>									
AGE 30-39	0.009	0.13	0.003	0.018	0.27	0.007	0.015	0.22	0.006
AGE 40-49	0.050	0.69	0.020	0.050	0.68	0.020	0.062	0.83	0.024
AGE 50-59	0.153*	1.94	0.061	0.135*	1.69	0.054	0.131	1.63	0.052
AGE 60-69	0.315***	3.05	0.125	0.308***	2.95	0.122	0.293***	2.77	0.116
AGE 70+	0.293**	2.50	0.117	0.282**	2.38	0.112	0.247**	2.07	0.098
FEMALE	0.135***	2.93	0.053	0.122**	2.56	0.048	0.128***	2.67	0.050
EDUCATION				-0.018***	-3.11	-0.007	-0.019***	-3.24	-0.008
<b>b) Economic Variable</b>									
UPPER CLASS	-0.020	-0.29	-0.008	0.054	0.76	0.021	0.032	0.44	0.013
MIDDLE CLASS	-0.075	-1.23	-0.030	-0.049	-0.79	-0.019	-0.054	-0.86	-0.022
<b>c) Marital Status</b>									
MARRIED	0.223***	3.86	0.088	0.203***	3.39	0.080	0.183***	3.05	0.072
DIVORCED	0.217**	2.23	0.086	0.204**	2.08	0.081	0.201**	2.02	0.080
SEPARATED	0.163	0.84	0.065	0.174	0.88	0.069	0.180	0.90	0.072
WIDOWED	0.251***	2.69	0.100	0.233**	2.46	0.093	0.220**	2.30	0.088
<b>d) Employment Status</b>									
PART TIME EMPLOYED	-0.013	-0.17	-0.005	-0.011	-0.15	-0.004	-0.014	-0.18	-0.006
SELFEMPLOYED	0.011	0.09	0.004	0.007	0.06	0.003	0.022	0.18	0.009
UNEMPLOYED	-0.287**	-2.57	-0.110	-0.281**	-2.48	-0.108	-0.259**	-2.26	-0.100
AT HOME	0.125*	1.71	0.050	0.119	1.60	0.047	0.128*	1.71	0.051
STUDENT	0.021	0.22	0.009	0.082	0.73	0.033	0.073	0.64	0.029
RETIRED	0.104	1.16	0.041	0.098	1.09	0.039	0.113	1.24	0.045
OTHER	0.064	0.24	0.026	0.077	0.29	0.031	0.097	0.39	0.039
<b>e) Religiosity</b>									
CHURCH ATTENDANCE	0.073***	6.47	0.029	0.072***	6.24	0.028	0.065***	5.58	0.026
<b>f) Time</b>									
WESTERN 97	0.038	0.79	0.015	0.102*	1.94	0.040	0.134**	2.52	0.053
WESTERN 99	0.299***	5.52	0.118	0.327***	5.93	0.130	0.336***	6.03	0.133
<b>g) Trust</b>									
TRUST IN THE LEGAL SYSTEM/JUSTICE							0.177***	6.13	0.070
Number of observations	3923			3799			3765		
Prob > chi2	0.000			0.000			0.000		

Notes: Dependent variable: tax morale on a four point scale. In the reference group are AGE < 30, MAN, SINGLE, FULL TIME EMPLOYED, LOWEST CLASS, WESTERN 90. Significance levels: \* 0.05 < p < 0.10, \*\* 0.01 < p < 0.05, \*\*\* p < 0.01. Marginal effect = highest tax morale score (3)

*Table 4*  
*Tax Morale Development in Germany (1990, 1997, 1999)*

<i>WEIGHTED ORDERED</i> <i>PROBIT</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>1c</i>			<i>2c</i>			<i>3c</i>		
<b>a) Demographic Factors</b>									
AGE 30-39	0.076	1.48	0.030	0.085	1.64	0.034	0.084	1.60	0.033
AGE 40-49	0.180***	3.21	0.071	0.182***	3.22	0.072	0.192***	3.40	0.076
AGE 50-59	0.292***	4.90	0.115	0.286***	4.75	0.113	0.287***	4.74	0.113
AGE 60-69	0.427***	5.11	0.167	0.426***	5.06	0.166	0.410***	4.82	0.160
AGE 70+	0.430***	4.49	0.167	0.426***	4.43	0.166	0.394***	4.05	0.154
FEMALE	0.196***	5.65	0.078	0.186***	5.26	0.074	0.186***	5.21	0.074
EDUCATION				-0.016***	-3.82	-0.006	-0.015***	-3.76	-0.006
<b>b) Economic Variable</b>									
UPPER CLASS	-0.062	-1.21	-0.025	0.0001	0.00	0.00003	-0.022	-0.40	-0.009
MIDDLE CLASS	-0.076*	-1.72	-0.030	-0.046	-1.02	-0.018	-0.055	-1.20	-0.022
<b>c) Marital Status</b>									
MARRIED	0.157***	3.56	0.063	0.141***	3.13	0.056	0.125***	2.74	0.050
DIVORCED	0.143*	1.93	0.057	0.133*	1.77	0.053	0.131*	1.73	0.052
SEPARATED	0.052	0.31	0.021	0.059	0.34	0.023	0.064	0.37	0.025
WIDOWED	0.155**	2.09	0.062	0.137*	1.83	0.055	0.125	1.64	0.050
<b>d) Employment Status</b>									
PART TIME EMPLOYED	-0.034	-0.55	-0.014	-0.033	-0.52	-0.013	-0.036	-0.57	-0.015
SELFEMPLOYED	0.007	0.07	0.003	0.004	0.04	0.002	0.015	0.15	0.006
UNEMPLOYED	-0.130*	-1.80	-0.052	-0.137*	-1.90	-0.055	-0.123*	-1.69	-0.049
AT HOME	0.113*	1.76	0.045	0.106	1.65	0.042	0.115*	1.77	0.046
STUDENT	0.044	0.53	0.018	0.129	1.34	0.051	0.110	1.13	0.044
RETIRED	0.147**	2.03	0.058	0.144**	1.98	0.057	0.159**	2.16	0.063
OTHER	0.167	0.96	0.066	0.180	1.01	0.071	0.186	1.10	0.074
<b>e) Religiosity</b>									
CHURCH ATTENDANCE	0.059***	6.59	0.023	0.058***	6.40	0.023	0.053***	5.82	0.021
<b>f) Time</b>									
WESTERN 90	-0.755***	-17.09	-0.293	-0.763***	-17.13	-0.296	-0.827***	-18.24	-0.320
WESTERN 97	-0.715***	-13.28	-0.270	-0.665***	-11.91	-0.254	-0.703***	-12.48	-0.266
EASTERN 97	-0.384***	-6.89	-0.151	-0.317***	-5.42	-0.125	-0.305***	-5.17	-0.121
WESTERN 99	-0.471***	-8.21	-0.185	-0.454***	-7.85	-0.179	-0.510***	-8.70	-0.200
EASTERN 99	-0.298***	-4.86	-0.117	-0.272***	-4.38	-0.108	-0.306***	-4.88	-0.121
<b>g) Trust</b>									
TRUST IN THE LEGAL SYSTEM/JUSTICE							0.164***	7.44	0.066
Number of observations	7055			6884			6811		
Prob > chi2	0.000			0.000			0.000		

Notes: Dependent variable: tax morale on a four point scale. In the reference group are AGE < 30, MAN, SINGLE, FULL TIME EMPLOYED, LOWEST CLASS, EASTERN 90. Significance levels: \* 0.05 < p < 0.10, \*\* 0.01 < p < 0.05, \*\*\* p < 0.01. Marginal effect = highest tax morale score (3)

The estimation results for West German tax morale are presented in *Table 3*. It should be noted that there are remarkable differences between the East and West German estimation

results regarding socio-demographic and economic variables. The impact of age is less clear-cut in West than in East Germany. Education has a significantly robust negative effect on tax morale. Income does not have any significant effect on West German tax morale, while marital status turns out to be significant. Compared to singles, married, divorced and widowed individuals report significantly higher tax morale. Regarding the employment status, tax morale of the unemployed is significantly lower. Like in East Germany, religiosity has a significantly positive impact also on West German tax morale. The time pattern of tax morale is however rather different in West Germany. While tax morale in 1997 does – *ceteris paribus* – not differ significantly from that in 1990, tax morale in 1999 is significantly higher. This corresponds to the deterrence efforts of the federal government that have intensified during the late the 1990s. When controlling for trust in the legal system the difference in tax morale between 1990 and 1997, as captured by the respective dummy variables, is significantly positive, and the variable has a highly significant positive effect. This result also corresponds to the slow, but steady increase of deterrence between 1990 and 1997.

The results for the whole German sample (*Table 4*) support the results obtained for each part of Germany. Age, marital status, sex and education have the expected effects, but they are more pronounced than before. Income and employment status are more or less insignificant. Religiosity and trust in the legal system raise tax morale significantly. The most interesting effects are observed for the regional and time dummies. The estimation results strongly support the descriptive evidence and the results from the Mann-Whitney test. Tax morale is on average significantly lower in West Germany than in East Germany. However, East and West Germany appear to converge in their tax morale levels. The estimated differences between East and West decrease over time as can be seen when focusing on the marginal effects. Such a convergence can however only be identified more exactly when we turn to the single cross sections.

#### *Multivariate Analysis: Cross Sections in Different Years*

When analyzing the cross section results for the single years, it is possible to include additional variables that are not available for the whole sample. For example, income instead of the dummy variables capturing economic status could be included in the cross section analysis for 1999. In addition, a variable measuring perceived tax evasion (of the other taxpayers) is included in the 1999 cross section. This variable captures the question: According to you, how many of your compatriots cheat on taxes if they have the chance (4 = almost all, 1 = almost none)? It could be expected that tax morale decreases if people perceive that tax evasion

is common. On the other hand if people believe that others are honest their willingness to pay taxes increases. Thus, the extent to which others are perceived to contribute triggers more or less cooperation and systematically influences the willingness to contribute (Frey and Torgler 2007). The results in *Table 5* reveal that while income does not have any significant effect on tax morale, perceived tax evasion has the expected negative effect and is highly significant. It is interesting to note however that the general pattern of results for socio-demographic and economic effects reported in the section before does not show up in 1999. This holds for age, sex or religiosity while trust in the justice of the system keeps its significantly positive effect on tax morale. Most interestingly, East and West German tax morale do not prove to be significantly different from each other.

This is still different for the years 1997 and 1990. In both years, tax morale is significantly lower in West Germany than in East Germany with larger quantitative differences in 1990, as can be seen when looking at the marginal effects. Both sets of estimation results, in *Table 6* for 1997 and in *Table 7* for 1990, exhibit the pattern of results for the socio-demographic variables reported before for the full sample. In 1997, it is possible to additionally include a variable which captures perceived corruption. It displays the answers to the question: How widespread do you think bribe taking and corruption is in this country (1 almost no public officials are engaged in it, to 4 almost all public officials are engaged in it)? It is expected that a higher perceived size of corruption crowds out the public spirit, which reduces tax morale. Furthermore, the variable trust in government is available and has been included. Perceived corruption has the expected negative sign and is highly significant. Trust in government has the expected positive impact on tax morale and is also highly significant. In each of the years analyzed, trust in the legal system has a statistically significant and positive impact on tax morale.

Summarizing these results, there is significantly lower tax morale in West Germany as compared to East Germany for the whole sample of individuals and the years 1990, 1997 and 1999. However, East German tax morale converges to the West German one in 1999 such that no significant differences between both countries remain any more. These differences are robust to the inclusion of standard socio-demographic and economic characteristics of the respondents, but also to variables like religiosity, trust in government and the legal system, perceived tax evasion or corruption which shape social norms and thus tax morale. It turns out that perceived tax evasion has a significantly negative effect on tax morale.

*Table 5*  
*Determinants of Tax Morale in 1999*

<i>WEIGHTED ORDERED PROBIT</i>	<i>Coeff.</i>	<i>z-Stat</i>	<i>Marg.</i>	<i>Coeff.</i>	<i>z-Stat</i>	<i>Marg.</i>	<i>Coeff.</i>	<i>z-Stat</i>	<i>Marg.</i>	<i>Coeff.</i>	<i>z-Stat</i>	<i>Marg.</i>	<i>Coeff.</i>	<i>z-Stat</i>	<i>Marg.</i>
<i>INDEPENDENT V.</i>			<i>Effects</i>			<i>Effects</i>			<i>Effects</i>			<i>Effects</i>			<i>Effects</i>
<b>a) Demographic Factors</b>															
AGE 30-39	0.149	1.03	0.058	0.130	0.88	0.051	0.270	1.65	0.105	0.248	1.49	0.097			
AGE 40-49	0.320**	2.03	0.122	0.324**	2.02	0.124	0.306*	1.71	0.118	0.311*	1.71	0.121			
AGE 50-59	0.321*	1.83	0.122	0.308*	1.72	0.117	0.283	1.44	0.110	0.269	1.34	0.104			
AGE 60-69	0.327	1.50	0.124	0.260	1.17	0.100	0.431*	1.74	0.164	0.390	1.55	0.150			
AGE 70+	0.313	1.31	0.119	0.241	0.98	0.092	0.536**	1.99	0.201	0.492*	1.80	0.186			
FEMALE	0.090	1.08	0.035	0.099	1.16	0.039	0.053	0.56	0.021	0.064	0.66	0.025			
EDUCATION	0.010	1.05	0.004	0.010	1.04	0.004	0.008	0.76	0.003	0.008	0.76	0.003			
<b>b) Economic Variable</b>															
UPPER CLASS	0.037	0.26	0.015	0.026	0.18	0.010									
MIDDLE CLASS	0.020	0.24	0.008	0.024	0.29	0.009									
INCOME							0.023	0.82	0.009	0.026	0.91	0.010			
<b>c) Marital Status</b>															
MARRIED	-0.189	-1.35	-0.074	-0.270	-0.93	-0.105	-0.244	-0.72	-0.096	-0.234	-0.70	-0.092			
DIVORCED	-0.114	-0.64	-0.045	-0.214	-0.68	-0.085	0.056	0.16	0.022	0.049	0.14	0.020			
SEPARATED	0.070	0.21	0.027	-0.067	-0.21	-0.026	0.003	0.01	0.001	0.010	0.03	0.004			
WIDOWED	0.182	1.25	0.070	0.170	1.14	0.066	0.265	1.48	0.102	0.244	1.33	0.095			
<b>d) Employment Status</b>															
PART TIME EMPLOYED	0.306	1.62	0.116	0.305	1.62	0.115	0.161	0.54	0.063	0.148	0.50	0.058			
SELFEMPLOYED	-0.221	-1.62	-0.088	-0.183	-1.33	-0.072	-0.194	-1.39	-0.077	-0.149	-1.00	-0.059			
UNEMPLOYED	-0.215	-1.18	-0.085	-0.292	-0.95	-0.116	-0.288	-0.82	-0.114	-0.272	-0.70	-0.108			
AT HOME	0.372**	2.39	0.140	0.377**	2.40	0.142	0.468***	2.77	0.177	0.465***	2.75	0.176			
STUDENT	0.211	1.03	0.081	0.178	0.86	0.069	0.154	0.67	0.060	0.140	0.60	0.055			
RETIRED	0.319*	1.82	0.122	0.367**	2.05	0.140	0.252	1.25	0.099	0.279	1.36	0.109			
OTHER	0.106	0.42	0.041	0.106	0.44	0.041	-0.230	-0.72	-0.092	-0.216	-0.71	-0.086			
<b>e) Religiosity</b>															
CHURCH ATTENDANCE	-0.010	-0.45	-0.004	-0.016	-0.70	-0.006	-0.020	-0.78	-0.008	-0.025	-0.94	-0.010			
<b>f) Culture</b>															
WESTERN 99	-0.097	-1.31	-0.038	-0.114	-1.53	-0.044	-0.009	-0.11	-0.004	-0.022	-0.27	-0.009			
<b>g) Perceived Tax Evasion/Trust</b>															
PERCEIVED TAX EVASION	0.303***	-5.87	-0.119	-0.279***	-5.32	-0.109	-0.449***	-7.61	-0.178	-0.423***	-7.01	-0.168			
TRUST IN THE JUSTICE S.				0.136***	2.60	0.053				0.106*	1.83	0.042			
Number of observations	1831			1786			1461			1426					
Prob > chi2	0.000			0.000			0.000			0.000					

Notes: Dependent variable: tax morale on a four point scale. In the reference group are AGE < 30, MAN, SINGLE, FULL TIME EMPLOYED, LOWEST CLASS, EASTERN 99. Significance levels: \* 0.05 < p < 0.10, \*\* 0.01 < p < 0.05, \*\*\* p < 0.01. Marginal effect = highest tax morale score (3).

*Table 6*  
*Determinants of Tax Morale in 1997*

<i>WEIGHTED ORDERED PROBIT</i>	<i>Coeff.</i>	<i>z-Stat.</i>	<i>Marg. Effects</i>	<i>Coeff.</i>	<i>z-Stat.</i>	<i>Marg. Effects</i>	<i>Coeff.</i>	<i>z-Stat.</i>	<i>Marg. Effects</i>
<i>INDEPENDENT V.</i>									
<b>a) Demographic Factors</b>									
AGE 30-39	0.090	0.94	0.036	0.110	1.13	0.044	0.089	0.92	0.035
AGE 40-49	0.152	1.41	0.060	0.176	1.61	0.070	0.153	1.41	0.061
AGE 50-59	0.260**	2.26	0.103	0.271**	2.32	0.107	0.265**	2.29	0.105
AGE 60-69	0.499***	2.75	0.194	0.518***	2.82	0.201	0.481***	2.65	0.188
AGE 70+	0.354*	1.83	0.140	0.347*	1.77	0.137	0.342*	1.76	0.135
FEMALE	0.115*	1.69	0.046	0.121*	1.76	0.048	0.119*	1.74	0.047
EDUCATION	-0.022***	-4.24	-0.009	-0.021***	-3.99	-0.008	-0.022***	-4.17	-0.009
<b>b) Economic Variable</b>									
UPPER CLASS	-0.065	-0.74	-0.026	-0.091	-1.02	-0.036	-0.082	-0.92	-0.033
MIDDLE CLASS	-0.176**	-2.30	-0.070	-0.194**	-2.50	-0.077	-0.185**	-2.40	-0.074
<b>c) Marital Status</b>									
MARRIED	0.060	0.74	0.024	0.044	0.54	0.017	0.051	0.63	0.020
DIVORCED	0.105	0.79	0.042	0.104	0.77	0.041	0.095	0.71	0.038
SEPARATED	0.007	0.03	0.003	0.017	0.06	0.007	-0.006	-0.02	-0.003
WIDOWED	-0.005	-0.03	-0.002	-0.002	-0.02	-0.001	-0.006	-0.04	-0.002
<b>d) Employment Status</b>									
PART TIME EMPLOYED	0.062	0.56	0.025	0.025	0.22	0.010	0.058	0.52	0.023
SELFEMPLOYED	-0.488**	-2.38	-0.187	-0.487**	-2.39	-0.186	-0.476**	-2.31	-0.182
UNEMPLOYED	0.094	0.86	0.037	0.126	1.14	0.050	0.096	0.87	0.038
AT HOME	0.100	0.78	0.040	0.091	0.71	0.036	0.096	0.76	0.038
STUDENT	-0.139	-0.64	-0.055	-0.049	-0.22	-0.019	-0.134	-0.60	-0.053
RETIRED	0.324**	2.31	0.128	0.333**	2.36	0.132	0.346**	2.48	0.137
OTHER	0.435*	1.70	0.169	0.467*	1.79	0.181	0.440*	1.69	0.171
<b>e) Religiosity</b>									
CHURCH ATTENDANCE	0.073***	4.10	0.029	0.064***	3.48	0.025	0.072***	4.05	0.029
<b>f) Culture</b>									
WESTERN 97	-0.336***	-4.89	-0.133	-0.330***	-4.77	-0.131	-0.367***	-5.21	-0.145
<b>g) Trust and Corruption</b>									
PERCEIVED CORRUPTION	-0.154***	-3.38	-0.061	-0.135***	-2.88	-0.054	-0.132***	-2.84	-0.053
TRUST IN THE GOVERNMENT				0.130***	2.89	0.052			
TRUST IN THE LEGAL SYS.							0.102**	2.27	0.041
Number of observations	1614			1588			1600		
Prob > chi2	0.000			0.000			0.000		

Notes: Dependent variable: tax morale on a four point scale. In the reference group are AGE < 30, MAN, SINGLE, FULL TIME EMPLOYED, LOWEST CLASS, EASTERN 97. Significance levels: \* 0.05 < p < 0.10, \*\* 0.01 < p < 0.05, \*\*\* p < 0.01. Marginal effect = highest tax morale score (3). No weighting variable required.

*Table 7*  
*Determinants of Tax Morale in 1990*

<i>WEIGHTED ORDERED</i>	<i>Coeff.</i>	<i>z-Stat.</i>	<i>Marg.</i>
<i>PROBIT</i>			<i>Effects</i>
<i>INDEPENDENT V.</i>			
<b><i>a) Demographic Factors</i></b>			
AGE 30-39	0.070	1.02	0.028
AGE 40-49	0.136*	1.83	0.054
AGE 50-59	0.269***	3.44	0.107
AGE 60-69	0.459***	4.14	0.180
AGE 70+	0.478***	3.69	0.187
FEMALE	0.266***	5.45	0.106
EDUCATION	-0.033***	-3.30	-0.013
<b><i>b) Economic Variable</i></b>			
UPPER CLASS	-0.021	-0.23	-0.008
MIDDLE CLASS	-0.060	-0.75	-0.024
<b><i>c) Marital Status</i></b>			
MARRIED	0.191***	3.14	0.076
DIVORCED	0.209*	1.81	0.083
SEPARATED	0.037	0.12	0.015
WIDOWED	0.151	1.45	0.060
<b><i>d) Employment Status</i></b>			
PART TIME EMPLOYED	-0.167*	-1.93	-0.066
SELFEMPLOYED	-0.022	-0.16	-0.009
UNEMPLOYED	-0.267**	-1.97	-0.105
AT HOME	-0.069	-0.82	-0.028
STUDENT	0.068	0.58	0.027
RETIRED	-0.035	-0.34	-0.014
<b><i>e) Religiosity</i></b>			
CHURCH ATTENDANCE	0.074***	6.19	0.029
<b><i>f) Culture</i></b>			
WESTERN 90	-0.837***	-16.82	-0.322
<b><i>g) Trust</i></b>			
TRUST IN THE LEGAL SYSTEM	0.182***	6.29	0.073
Number of observations	3330		
Prob > chi2	0.000		

Notes: Dependent variable: tax morale on a four point scale. In the reference group are AGE < 30, MAN, SINGLE, FULL TIME EMPLOYED, LOWEST CLASS, EASTERN 97. Significance levels: \* 0.05 < p < 0.10, \*\* 0.01 < p < 0.05, \*\*\* p < 0.01. Marginal effect = highest tax morale score (3)





## DISCUSSION OF THE RESULTS

As outlined in the introduction, there are basically two main explanations for these regional differences and the differences across time. The first explanation follows from standard economic theory. As the Iron Curtain fell, former GDR citizens became exposed to the West German system including the social welfare state, the tax system and the whole set of formal and informal rules. As discussed, deterrence, in particular the probability of detection, was higher in East than in West Germany before reunification. Moreover, the opportunities for tax evasion increased after reunification due to the market economy and tighter limitations for criminal investigations by the state. Before, activities in the official, planned economy were highly regulated and additional income earned could not easily be used for additional consumption. With lower costs and higher benefits of tax evasion, tax morale (if interpreted as the flip side of the same coin) decreased. The slowness of this decay in tax morale could be attributed to path dependencies: East Germans needed to get accustomed to the West German way of life. Kasper and Streit (1999) indeed argue that East Germans had to unlearn the old institutions and to learn new ones, which takes time and practice.

In addition, it should be noted that an important aim of the GDR regime was the adherence to norms. The regime served as norm entrepreneur. The East German regime tried to integrate the population into its structure in order to exert full control (e.g., by mass organizations). Interpreting their findings, Mummert and Schneider (2002) for example point out that living in a totalitarian state for many years had led to a strong subordination under state authority. People gradually internalized norms they were forced to respect for years. Once norms are internalized, a person feels guilty when not acting according to them. Thus, people develop a preference for not violating norms (Posner 2000a, b). Polinsky and Shavell (2000) argue that social norms can be seen as a general alternative to law enforcement in channeling individuals' behavior. The violation of social norms has consequences like internal sanctions (guilt, remorse) or external legal and social sanctions as gossip and ostracism. In support of such arguments, Paldam and Svendsen (2001, p. 21) cite Bulat Okudzhava who states in 1989: "During the past 70 years, a new man has been created who is obedient and easily frightened. What has been created over the decades cannot be undone in a day". Support for the argument that norms are learned, may be found when observing tax morale to decrease in the East after reunification, but to increase with age as older individuals were exposed for a longer time to an environment where norm adherence was important. In a dictatorship there is the intention to control and thus achieve an atomization of individual human relationships

(see Wintrobe 1998). Paldam and Svendsen (2001) argue that a dictatorship such as the Communist one created conditions that favor the building of negative social capital, which may act as a brake on economic development as soon as the dictatorship is abolished.

Such arguments of path dependencies, however, contradict economic theory properly taken. The process of German reunification could be fairly well interpreted as a *quick* introduction and adoption of West German formal and informal rules in the East German economy and society. Economists would not expect anything else given rational expectations of individuals. The former experiences with an autocratic state and its ability to enforce laws and compliance will not matter any more under rational expectations. Instead, as the West German model was relatively well known to East Germans in 1990, they could build their expectations on how West Germany worked in the previous decades. This view casts doubts on the impact of deterrence in the GDR on reported tax morale in East Germany after reunification. A less hard-nosed rational expectations view could add that East Germans were heavily involved in black activities before. Although they would not necessarily expect payment in cash, trade in kind is well documented by observers of the East German black economy during the existence of the GDR. Why then is tax morale higher in East Germany than in West Germany in 1990?

A second explanation for higher reported tax morale by the citizens of the new Länder relies on the enthusiasm with which East Germans embraced the new situation. East Germany expected that the West would take care of it and would help it quickly recover economically so that a fast economic convergence would result. In addition, the possibilities for participating in democratic decision-making processes and thus co-determining fiscal policy outcomes have certainly contributed to the higher tax morale in East Germany. Tyler (1990) emphasized how important procedural fairness could be for compliance with the law. This view is somewhat surprisingly corroborated by experimental evidence on public good and solidarity games in East and West Germany in which the environmental conditions are fully controlled: Ockenfels and Weimann (1999) report significantly less cooperative behavior of East Germans as compared to their fellow citizens from the West casting doubts on the argument of an *innately* higher willingness to cooperate in the East or on the internalization of the norms imposed on them by a state nomenclature. The effect we identify for tax morale is thus rather the result of the different environment directly after reunification.

The more East Germans were disappointed by their situation, the more strongly their initial tax morale has become eroded, however, and the stronger it converged to the West German level. For example, by 1997 the East German GDP per capita was with 57% of the West

German GDP still relatively low, the unemployment rate was twice as high, and wages were on 75% of the Western level (Hunt 2000). This development is in line with recent results on black activities in Germany. While Mummert and Schneider (2001) report a significantly lower share of black activities in East Germany in 1995, Feld and Larsen (2005) find significantly less black activities in West Germany in 2004.

If this interpretation of the facts is correct, deterrence plays a subordinate role for tax morale. Other factors like the exchange relationship between citizens and the state would be more important. The results on tax morale over time suggest however that deterrence has not been totally unimportant to shape tax morale. There is a steady moderate increase of deterrence in reunified Germany since the beginning of the nineties until 1997 that subsequently intensified. West German tax morale at least responds to that increase in deterrence as the increase in tax morale by the end of the 1990s indicates.

### REUNIFICATION: A TAX MORALE SHOCK FOR WEST GERMANY?

The final question that needs to be addressed is the following then: Did reunification induce lower tax morale in West Germany? Was reunification perhaps even a shock for West German tax morale? In order to find out whether this is the case we use tax morale data from the 1981 WVS and compare them with those from 1990, employing the same weighted ordered probit model as before. The results are presented in *Table 8*. Interestingly, the results for the standard socio-demographic and economic controls are more or less in line with the previous regressions. This also holds for religiosity and trust in the legal system. Both appear to be long-term robust explanatory factors for tax morale in Germany. It is most interesting to note however that tax morale in Western Germany is significantly lower in 1990 than in 1981. Regarding the marginal effects, this time dummy variable has one of the quantitatively most important effects on tax morale. Reunification may thus have been an actual shock to West German tax morale such that East German tax morale in that year was not necessarily exceptionally high, but West German tax morale was exceptionally low. It might only be conjectured whether West Germans simply capitalized the expected costs of reunification and the subsequent tax increases in lower tax morale or whether they anticipated a loosening of the exchange relationship between the state and its West German citizens. For example, in the period from 1991 until 1995, around 440 billion US\$ were transferred from west to east (around 26'000\$ for every inhabitant in the east) (Kasper and Streit 1999).

*Table 8:*  
*Tax Morale in West Germany 1981 and 1990*

<i>WEIGHTED ORDERED</i>	<i>Coeff.</i>	<i>z-Stat.</i>	<i>Marg.</i>	<i>Coeff.</i>	<i>z-Stat.</i>	<i>Marg.</i>
<i>PROBIT</i>			<i>Effects</i>			<i>Effects</i>
<i>INDEPENDENT V.</i>						
<b>a) Demographic Factors</b>						
AGE 30-39	-0.017	-0.19	-0.007	-0.012	-0.14	-0.005
AGE 40-49	0.053	0.58	0.021	0.042	0.46	0.017
AGE 50-59	0.199*	1.96	0.079	0.197*	1.94	0.078
AGE 60-69	0.275**	2.34	0.109	0.269**	2.26	0.107
AGE 70+	0.237	1.59	0.094	0.216	1.44	0.086
FEMALE	0.168***	2.83	0.067	0.167***	2.80	0.066
EDUCATION	-0.022*	-1.68	-0.009	-0.018	-1.39	-0.007
<b>b) Economic Variable</b>						
UPPER CLASS	0.038	0.36	0.015	0.018	0.17	0.007
MIDDLE CLASS	0.004	0.04	0.002	-0.012	-0.12	-0.005
<b>c) Marital Status</b>						
MARRIED	0.212***	2.70	0.084	0.205***	2.60	0.081
DIVORCED	0.062	0.42	0.025	0.103	0.69	0.041
SEPARATED	-0.082	-0.30	-0.033	-0.052	-0.18	-0.021
WIDOWED	0.248**	2.04	0.098	0.237*	1.96	0.094
<b>d) Employment Status</b>						
PART TIME EMPLOYED	-0.125	-1.26	-0.050	-0.150	-1.50	-0.059
SELFEMPLOYED	-0.032	-0.20	-0.013	-0.011	-0.07	-0.004
UNEMPLOYED	-0.290	-1.57	-0.113	-0.247	-1.33	-0.097
AT HOME	0.167*	1.87	0.067	0.188**	2.09	0.075
STUDENT	0.158	1.41	0.063	0.162	1.47	0.064
RETIRED	0.112	1.02	0.045	0.132	1.18	0.053
<b>e) Religiosity</b>						
CHURCH ATTENDANCE	0.093***	6.52	0.037	0.087***	6.14	0.035
<b>f) Time</b>						
WESTERN 90	-0.271***	-5.20	-0.107	-0.255***	-4.89	-0.101
<b>g) Trust</b>						
TRUST IN THE LEGAL SYSTEM/JUSTICE				0.168***	4.65	0.067
Number of observations	3295			3285		
Prob > chi2	0.000			0.000		

Notes: Dependent variable: tax morale on a four point scale. In the reference group are AGE < 30, MAN, SINGLE, FULL TIME EMPLOYED, LOWEST CLASS, WESTERIN 81. Significance levels: \* 0.05 < p < 0.10, \*\* 0.01 < p < 0.05, \*\*\* p < 0.01. Marginal effect = highest tax morale score (3).

## CONCLUSION

In this paper, we have explored the differences in tax morale between East and West Germany and their convergence across time. While tax morale was significantly higher in East Germany than in West Germany in 1990, both regions do not differ significantly in their

tax morale levels in 1999. This result holds whether the descriptive analysis, non-parametric tests or a differentiated multivariate analysis is conducted. Though these regional and time differences appear to be of transitory nature, religiosity and trust in the legal system/ in justice of the system are secular determinants of tax morale. This result is also corroborated when the WVS data of 1981 are additionally considered.

In our discussion of the results, we suggest that these differences between both parts of Germany result from the perception of the exchange relationship between the state and its citizens. While East German citizens may have embraced the Western economic model initially and expected to gain from its introduction in East Germany, the West German citizens anticipated the high costs of German reunification (and subsequent) tax increases and capitalized them in lower tax morale. The latter result is suggested by a comparison between West German tax morale in 1981 and 1990. According to these results, it appears that reunification was a real tax morale shock to West Germans.

Although these results cast doubts on the importance of deterrence for the level of tax morale, the increase of tax morale in West Germany during the 1990s suggests that deterrence may at least affect the changes in tax morale somewhat. The deterrence policy of the German federal government steadily, but modestly increased between 1990 and 1997, and intensified thereafter. Our results provide some indirect suggestive evidence that this policy has not been totally worthless.

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## APPENDIX

Variable	Derivation
TAX MORALE (dependent variable)	Please tell me for the following statement whether you think it can always be justified, never be justified, or something in between: Cheating on tax if you have the chance (4=never and 1=always)
INCOME	<p>Here is a scale of incomes (1-10). We would like to know in what group your household is, counting all wages, salaries, pensions and other incomes that come in. Just give the letter of the group your household falls into, before taxes and other deduction.</p> <p>West Germany</p> <ol style="list-style-type: none"> <li>1. Below 2.000 DM per month</li> <li>2. 2.000-2.999 DM</li> <li>3. 3.000-3.999 DM</li> <li>4. 4.000-4.499 DM</li> <li>5. 4.500-4.999 DM</li> <li>6. 5.000-5.499 DM</li> <li>7. 5.500-5.999 DM</li> <li>8. 6.000-6.999 DM</li> <li>9. 7.000-7.999 DM</li> <li>10. 8.000 DM and over</li> </ol> <p>East Germany</p> <ol style="list-style-type: none"> <li>1. Under 1.000 Marks per month</li> <li>2. 1.000-1.299 Marks</li> <li>3. 1.300-1.599</li> <li>4. 1.600-1.799</li> <li>5. 1.800-1.999</li> <li>6. 2.000-2.199</li> <li>7. 2.200-2.499</li> <li>8. 2.500-2.799</li> <li>9. 2.800-3.199</li> <li>10. 3.200 Marks or more per month</li> </ol> <p>West and East Germany 1999</p> <ol style="list-style-type: none"> <li>1 DE: unter 1.000 Dmarks per month</li> <li>2 DE: 1.000-2.000 DMarks</li> <li>3 DE: 2.000-3.000 DMarks</li> <li>4 DE: 3.000-4.000 DMarks</li> <li>5 DE: 4.000-5.000 DMarks</li> <li>6 DE: 5.000-6.000 DMarks</li> <li>7 DE: 6.000-7.000 DMarks</li> <li>8 DE: 7.000-8.000 DMarks</li> <li>9 DE: 8.000-9.000 DMarks</li> <li>10 DE: 9.000 und mehr DMarks</li> </ol>
CLASS	<p>People sometimes describe themselves as belonging to the working class, the middle class, or the upper or lower class. Would you describe yourself as belonging to the:</p> <p>WVS 1990/1997</p> <ol style="list-style-type: none"> <li>1. Upper class</li> <li>2. Upper middle class</li> <li>3. Lower middle class</li> <li>4. Working class</li> <li>5. Lower class</li> </ol>

	<p>EVS 1999</p> <ol style="list-style-type: none"> <li>1. Upper, upper middle class</li> <li>2. Middle, non-manual workers</li> <li>3. Manuel workers, -skilled, -semi-skilled</li> <li>4. Manuel workers, -unskilled, unemployed</li> </ol>
EDUCATION	At what age did you or will you complete your full time education, either at school or at an institution of higher education? Please exclude apprenticeships
RELIGIOSITY (CHURCH ATTENDANCE)	Apart from weddings, funerals and christenings, about how often do you attend religious services these days? More than once a week, once a week, once a month, only on special holy days, once a year, less often, never practically never. (7= more than once a week to 1=never, practically never)
MARITAL STATUS	<p>WVS</p> <ol style="list-style-type: none"> <li>1. married</li> <li>2. living together</li> <li>3. divorced</li> <li>4. separate</li> <li>5. single</li> </ol> <p>EVS</p> <ol style="list-style-type: none"> <li>1. married</li> <li>2. divorced</li> <li>3. separate</li> <li>4. widowed</li> <li>5. never married</li> </ol>

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