# 9. Do we really know much about tax non-compliance?

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## INTRODUCTION

Social norms have been a central theme in economics for many years. Indeed, the norms that guide individual behavior in the market place (and beyond) belonged to the main concerns of Adam Smith when he analyzed the role of morale for the functioning of societies in his *Theory of Moral Sentiments* (1759), long before he published his *Wealth of Nations* (1776 [1976]). Since Hayek (1960), economists also know that norms of reciprocity provide for a crucial precondition of market exchange even in large groups. According to Buchanan (2005, Chapter 2, p. 15 et seq.) such a Kantian norm generally forms the basis of modern market economies: 'The Kantian norm dictates constraints on behavior in accordance with fairness criteria, defined in terms of respect for the other person in some basic ethical sense' (p. 15), 'I can scarcely imagine an interaction setting in which persons refrain from cheating, stealing and keeping promises only because of some fear of punishment' (p. 16).[1] Without a basic individual willingness to reciprocate in market exchange, far less contracts between private parties will be concluded as the enforcement of each claim to the contracts in society becomes extremely expensive. Societies with properly working social norms thus obtain an economic advantage as compared to societies in which contract partners cannot rely as heavily on social norms.

Only recently has this importance of social norms in studying compliance with the law been rediscovered in law and economics (Ellickson, 1991). In addition to the direct deterrence effects of legal sanctions, other ways of how lawmaking may influence behavior have been suggested (Sunstein, 1996; Cooter, 1998). For example, Posner (1998, 2000a, 2000b) argues that deterrence signals social norms to citizens in order to educate them as to what they should do. Smith and Mackie (2000, p. 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.' From that perspective, social norms may reinforce the effects of deterrence on compliance, but may also be the outcome of reciprocity and other continuing experiences

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women's black activities as well as a marginally significant effect on men's black activities. According to the most recent results reported in Feld and Larsen (2008, forthcoming), the perceived risk of being detected negatively affects undeclared work of women significantly in 2004–05 and 2006–07, while it has the same effect on men's undeclared work only in 2004–05. Perceived sanctions do not turn out to be significant in any of the years studied. Social norms do, however, have a consistent and significant effect on undeclared work: the higher the tax morale, the lower the probability that individuals work in the shadow economy. Deterrence is therefore not totally unimportant for tax non-compliance in the sense of undeclared work, but reveals a clearly less robust effect than tax morale.

Without stretching these results too far, as much further analysis is necessary, they are in line with those obtained by Feld et al. (2007), mentioned before. They are also supported by the further analyses conducted on tax morale and deterrence for Germany (Feld et al., 2008). Also, experimental evidence supports this view (Tyran and Feld, 2006). Finally, the results are in line with Buchanan's (2005, Chapter 2, p. 16) assessment mentioned at the beginning of this chapter: 'I can scarcely imagine an interaction setting in which persons refrain from cheating, stealing and keeping promises only because of some fear of punishment.'

## CONCLUDING REMARKS

In this chapter, I have argued that, from a theoretical perspective, the most important unresolved issue in the analysis of tax non-compliance is on the impact of deterrence. On the one hand, and fully in line with the traditional view of the economic theory of crime and punishment, deterrence provides incentives to behave honestly. On the other hand, people comply with the (tax) law because they follow social norms. These social norms are not exogenously given, for example as the result of education and socialization during childhood, but are endogenous. They could be influenced by the way the state shapes its relationships with its citizens. The social norm of honestly paying taxes, that is, tax morale, is first influenced by deterrence. Sanctions in the criminal tax code signal how taxpayers are expected to behave, but deterrence could also crowd out tax morale if it is perceived to be unfair or intrusive. Second, fiscal exchange according to a psychological tax contract matters for tax compliance. The psychological tax contract has elements of gain (or distributive justice), of participation (or procedural justice) and of respect (or interactional justice).

Experimental evidence and field evidence for Switzerland on tax compliance support the theoretical underpinnings of the psychological tax contract. The evidence reported for Germany, though much less direct than the Swiss evidence, is also in line with this broader perspective on tax compliance. It turns out that deterrence has only an inconclusive effect on the shadow economy and on undeclared work, while developments of German tax morale are even less compatible with changes in deterrence. Tax morale, in turn, appears to have a much more robust and consistent moderating impact on undeclared work than deterrence. Given the recent increase in the intensity with which German authorities fight tax non-compliance, these results provide some cautionary advice as to the success of the most recent campaign.

Focusing on the theoretically most interesting question, that is the impact of deterrence on non-compliance behaviour, different routes for future research remain open. First, extended time series on the shadow economy in different countries could be studied if deterrence has sufficiently fluctuated across time. Second, further improved survey evidence could be used as it allows the inclusion of questions on perceived deterrence and social norms. Regarding the results reported in this chapter, additional robustness analyses and replication are necessary. While the previous literature has focused on the usefulness of different approaches to measure non-compliance from a statistical or econometric perspective, it will be useful to ask which approach allows for an investigation of the deterrence hypothesis. This is particularly important as deterrence measures appear to be the policy of choice in most OECD countries. Without any proper empirical evidence on the impact of deterrence on non-compliance, let alone any proper evaluation of recent deterrence policies, governments contend that this is the only way to fight undeclared work, tax evasion and the shadow economy. Policy-makers seldom acknowledge that deterrence might have its drawbacks on the functioning of a civic society. These drawbacks could be severe. Hence, my emphasis on studying the effect of deterrence.



## NOTE

1. For recent analyses of reciprocity norms in modern (experimental) game theory see Sugden (1984), Fehr and Gächter (2000) or Falk and Fischbacher (2006).

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tax morale slowly converged to the lower West German levels in subsequent years (Figure 9.2), a development which cannot be explained by other variables according to the multivariate regression models of Feld et al. (2008). It should be noted, however, that this convergence process did not only result from a reduction in East German tax morale, but also from a significantly higher tax morale in West Germany in 1999 as compared with 1990.

Given that the German federal government started intensifying its fight against tax non-compliance with a public campaign at the end of the 1990s, the increase of tax morale in West Germany is remarkable. More interestingly, the decline of East German tax morale took place despite the efforts of the federal government to increase its deterrence levels, for example by higher penalties and prison sentences. In addition unification may have been seen as a shock for West German tax morale. In order to find out whether this is the case, Feld et al. (2008) use tax morale data from the 1981 World Values Survey and compare them with those from 1990. They report that tax morale in West Germany was significantly lower in 1990 than in 1981. West Germans simply capitalized to a certain extent the expected costs of unification, and they anticipated a loosening of the positive exchange relationship between the state and its West German citizens.

Overall, the analysis of tax morale in Germany after unification hints at the complicated interaction between deterrence and social norms in the context of a psychological tax contract. The evidence is unfortunately not sufficiently conclusive to support the predictions of the psychological tax contract, although does not provide support for the pure deterrence model of tax compliance.

## Evidence from the Surveys on Undeclared Work

In a sequence of studies, Feld and Larsen (2005, 2006, 2008, forthcoming) analyze the impact of deterrence and social norms on tax non-compliance using survey data on undeclared work for representative samples of German citizens in each year since 2004. The survey is oriented at the contingent valuation method used to elicit non-use values in environmental economics (see Kopp et al., 1997 for an earlier reference). It is divided into three parts, of which the first part contains questions on household services in general, the second part is focused on undeclared work and the third part concludes with socio-demographic questions. In the second part, respondents are asked directly about their undeclared work. Based on the survey data, Feld and Larsen (2005) calculate that undeclared work in Germany amounted to 3.1 percent of GDP in 2004. This is much less than the 16.1 percent of GDP Schneider obtains on the basis of the DYMIMIC cum currency demand approach for the German shadow economy in the same year. Feld and Larsen (2006) attribute these differences to the facts that only households, but not firms, are included in the survey; that the shadow



economy comprises additional illegal behavior apart from undeclared work; and that respondents to the survey may not completely tell the truth despite the careful interview techniques employed.

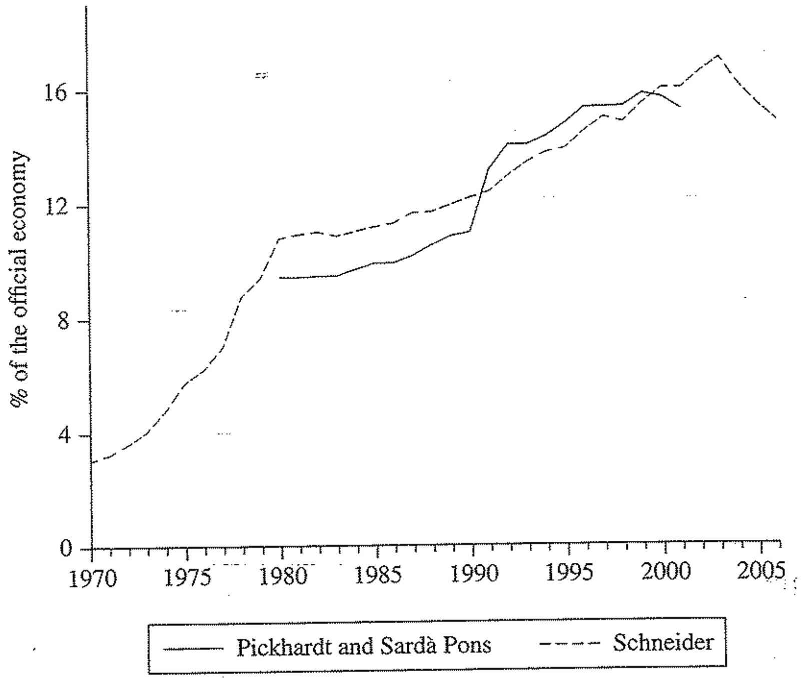
Still, the most important advantage of direct methods such as survey data must be attributed to the possibility to ask questions on perceived deterrence and on social norms, and thus evaluate their differential impact. Regarding these variables, the results of the logistic regressions conducted by Feld and Larsen (2005) are summarized in Table 9.1. It turns out that subjectively perceived deterrence is largely insignificant and does not affect the probability of carrying out black activities, while social norms have a highly significant impact on

*Table 9.1 Summary of logistic regressions of the probability of participating in black activities (18–74-year-olds, Germany, 2004)*

| | Men 2004 | | Women 2004 | |
|---|---|---|---|---|
| | With full deterrence | With social norms | With full deterrence | With social norms |
| Age | *** | *** | *** | *** |
| Marital status | *** | *** | *** | *** |
| Children under 6 | * | * | ns | ns |
| Occupation | ns | ns | ** | ** |
| Education | *** | *** | ns | ns |
| Income | * | * | ns | ns |
| Length of unemployment (months) | ns | ns | *** | *** |
| Region | * | * | ns | ns |
| Owner-occupier / tenant | ns | ns | ns | ns |
| Perceived risk of discovery | ns | ns | * | ns |
| Perceived penalty | ns | ns | ns | ns |
| Social norms | – | * | – | *** |

*Notes:*
The dependent variable has the value 1 if the respondent has carried out black activities within the last 12 months, and the value 0 otherwise.
***: The variable is significant at the 1% level.
**: The variable is significant at the 5% level.
*: The variable is significant at the 10% level.
ns: The variable is not significant.
Joint significance of several variables has been tested by likelihood ratio tests. The sample has been drawn at the household level, and a weight has been applied to make the sample representative as to sex and age distribution and other characteristics of the total population.

*Source:* Feld and Larsen (2005), Table 10.2, p. 87.




*Source:* Feld et al. (2007).

*Figure 9.1 The size of the German shadow economy, 1970–2006*

deterrence has however not been discussed until recently. Feld et al. (2007) were the first to study the impact of deterrence on the German shadow economy, using time series data between 1974 and 2001. Their data on deterrence indicate that the sum of penalties and prison sentences in Germany increased between 1974 and 2001, but that audit capabilities of tax authorities, in particular regarding small firms and self-employed taxpayers, declined in the same time period.

In a time series analysis, the authors investigate whether deterrence and the shadow economy determine each other. According to their results, deterrence does not have any consistent effect on the German shadow economy. According to Granger causality tests, the direction of causation (in the sense of precedence) is also ambiguous, leaving room for an impact of the shadow economy on deterrence instead of deterrence on the shadow economy. While there is some evidence of a negative effect of a higher tax morale on the shadow economy for

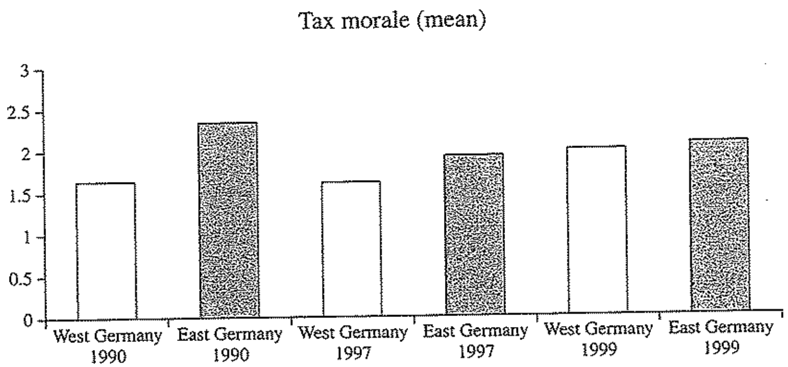


Organisation for Economic Co-operation and Development (OECD) countries, its influence on the German shadow economy has not been analyzed yet. Körner et al. (2006) find such a significant positive effect of tax morale in the OECD. Although their study is focused on Germany, they do not establish any empirical evidence on deterrence, tax morale and the shadow economy for Germany specifically.

## Evidence from the Surveys on Tax Morale

While there are many recent empirical studies analyzing tax morale (see in particular Torgler, 2007, and for Germany, Torgler, 2003), there is not much evidence on its interaction with deterrence. Torgler (2005) is the only study explicitly testing on this relation, using data for Switzerland without finding any robust effect. Regarding deterrence and tax morale, Germany is interesting because reunification between its western and eastern parts induced the adoption of the German criminal tax code by the new *Länder*. They thus shifted from a dictatorial regime with high penalties for tax offences, but remarkable room for black market activities and undeclared work (that is, for the shadow economy), to a system with the rule of law and clearly defined incentives to comply with the tax code. An old system of deterrence for tax non-compliance was replaced by another which was well known in advance.

As Figure 9.2 shows, East Germany started with significantly higher tax morale levels than West Germany in 1990 which may also reflect, as Feld et al. (2008) suggest, that East Germans offered a lot of trust which the West German state had to prove being worthy of afterwards. Indeed, the higher East German




*Source:* Feld et al. (2008).

*Figure 9.2 Tax morale (WVS) over time in Germany*

2006). In contrast to the income gap method, the latter three approaches capture activities in the shadow economy, but not overall tax evasion as they are not able to account for undeclared income from capital.

There are three main direct methods. The first focuses on black activities, as a part of the shadow economy, by using surveys in which individuals are directly asked whether they have carried out black activities, either for cash payments or payments in kind (Feld and Larsen, 2005). The second direct method, applied by the US Internal Revenue Service (IRS), is based on actual tax auditing and other compliance methods (Engel and Hines, 1999). In 1963 the IRS started to conduct periodic tax audits (Taxpayer Compliance Measurement Program – TCMP) measuring understatement of income, overstatement of deductions and exemptions, and so on, for a random sample of individual income taxpayers. The data are used to calculate tax evasion for the whole population. The IRS also applies an income gap method for non-filers by calculating the discrepancy between the declared income and actual income of randomly audited individuals (Andreoni et al., 1998). The third direct method aims at measuring tax morale instead of tax evasion in surveys. For instance, the World Values Survey elicits tax morale for a representative sample of individuals by asking whether cheating on tax can be justified (Torgler, 2007).

Any of these indirect and direct methods has disadvantages. The income gap method has to cope with the unreliability of statistical errors. The monetary methods may overestimate the rationality of the money market. In addition, many transactions in the shadow economy take place without cash payments. As indirect methods minimize strategic problems that emerge if individuals are directly confronted with questions about tax honesty, it could be argued that the indirect methods provide for an upper boundary of tax evasion or the shadow economy. The survey approach is sensitive to the formulation of questions, and participants in the survey may behave strategically and simply not tell the truth. Even in face-to-face interviews, which promote the greatest degree of participation in the survey, a respondent may simply lie. Moreover, household surveys include black activities by professional firms at most incompletely. The survey method may thus measure a lower limit of black activities in the economy. The tax auditing method is prone to sample selection bias, because the selection for audit is based on the properties of the tax returns submitted to the tax office and thus not independent of the probability of evading taxes. Those taxpayers identified as tax cheaters could be only the tip of the iceberg because it is highly improbable that tax authorities would detect all tax cheaters even if they wanted to (Erard and Feinstein, forthcoming). The survey of individual tax morale measures hypothetical tax morale and not real tax compliance. Nevertheless all methods taken together to some extent measure the phenomenon and provide insights into its determinants.



## THE EVIDENCE ON DETERRENCE, SOCIAL NORMS AND TAX COMPLIANCE IN GERMANY

In the case of Germany, several of these methods have been applied, but only the hidden variable approach, surveys of tax morale and of undeclared work (black activities) have been used to analyze tax non-compliance in recent times. Each one of these methods offers interesting results on the impact of social norms and deterrence.

### Evidence from the Hidden Variable Approach

Schneider (2007) provides the most extensive and consistent data on tax non-compliance in Germany. For each year since 1970, he reports the size of the shadow economy in Germany based on a combination of the hidden variable approach (using DYMIMIC techniques) and the currency demand approach. Figure 9.1 reproduces his estimates of the size of the German shadow economy together with concurring results provided by Pickhardt and Sardà Pons (2006). Both time series reveal an increasing trend in the German shadow economy until the new millennium.

Schneider's estimates show three periods. A first subperiod from 1970 to 1980 is characterized by a steep increase of the shadow economy in Germany with a significantly higher slope of the curve than afterwards. During this time, the social welfare state was extended, effective marginal income tax rates (including social security contributions) increased and labor market regulation was significantly tightened. A second subperiod from 1980 to 2003 indicates growth rates of the shadow economy lower than before, but still remarkably positive. While the tax burden was somewhat lightened, a real and significant relief of individual incomes was not achieved. Similarly, the tight labor market regulation was only negligibly lifted. This overall assessment of the economic situation in Germany was not affected by reunification according to Schneider's estimates, while reunification increased the shadow economy further according to Pickhardt and Sardà Pons (2006). The third subperiod as of 2003 onwards reveals a turning point in the series with a decline of the shadow economy for the first time since 1970. These years followed the first income tax reform in Germany with a real reduction of the tax burden. Labor market regulation remained tight, but active labor market policies and unemployment benefits were considerably reformed. According to Pickhardt and Sardà Pons, the decline in the shadow economy began in 1999.

This description of the data and the general economic situation suggests mainly an influence of tax rates, social security and labor market regulation on the size of the shadow economy. Indeed, Schneider (2007) provides evidence that these are its three main determinants ('causal factors'). The impact of goods. In Allingham and Sandmo (1972) and the subsequent literature on tax evasion, in contrast, the effects of marginal income taxes (and true individual income) depend on the underlying risk preferences of individuals and the shape of the income tax schedule such that tax increases could even have negative effects on tax evasion. Public-good effects are however not considered. Moreover, morality is also included in the analysis of Kanniainen et al. (2004). But the costs for individual non-compliers resulting from moral norms appear to be mainly captured by state punishment, although self-esteem also plays a role.

A shortcoming common to both papers consists in the neglected endogeneity of tax morale and good governance. Based on the insights of Feld and Frey (2007), it could be argued that tax compliance is the result of a complicated interaction between tax morale and deterrence measures. While it must be clear to taxpayers what the rules of the game are, and as deterrence measures serve as signals for the tax morale a society wants to elicit (Posner, 2000a, 2000b), deterrence could also crowd out the intrinsic motivation to pay taxes. Moreover, tax morale is not only increased if taxpayers perceive the public goods received in exchange for their tax payments to be worth it. It also increases if political decisions on public activities are perceived to follow fair procedures or if the treatment of taxpayers by the tax authorities is perceived to be friendly and fair. Tax morale is thus not exogenously given, but is influenced by deterrence, the quality of state institutions and the constitutional differences among states.

This leaves us with a rich set of variables that might influence tax non-compliance. On the one hand, marginal tax rates and income determine the potential benefits of (income) tax non-compliance. Their signs are, however, indeterminate depending on risk preferences and the shape of the income tax schedule. On the other hand, fines and audits provide for the costs of tax non-compliance. Their signs are also indeterminate as they first serve their traditional deterrence purposes but, second, potentially crowd out tax morale as the intrinsic motivation to pay taxes. Finally, tax morale has a positive influence on tax compliance. It is shaped by many factors ranging from exogenously given religious and social norms to government action supporting fiscal exchange under procedural fairness. Empirical results could thus help to find responses as to what should be expected with respect to the determinants of tax non-compliance.

## DATA ON TAX NON-COMPLIANCE

Unfortunately, reliable data on tax non-compliance are more difficult to obtain than data in other areas of economic research. The quest for empirical enlightenment is thus particularly burdensome in that area. Each alternative measurement



approach faces its own problems which might similarly lead to biased estimates. If economic research does not want to abstain totally from measuring the unmeasurable, there is only the choice between several imperfect approaches.

There are indirect and direct methods of measurement. The first indirect method is called the income gap approach. It uses the basic definition in national accounts that the income measure should be the same as the expenditure measure of the domestic product. If there are statistical discrepancies, they might occur because the quality of the data is insufficient. However, it is highly implausible that these statistical discrepancies increase substantially over time. Thus, tax evasion explains why people in an economy buy more products and services than they officially have money for, given their earned income according to income tax declarations. In Europe, Larsen (2002) uses this method for Denmark, and Gorodnichenko et al. (forthcoming) for Russia. Pommerehne and Weck-Hannemann (1996) and Feld and Frey (2002b) apply it to measure Swiss tax evasion.

The second indirect measurement method is based on monetary approaches. On the one hand, the transactions approach, starting from the Fisher equation of the quantity theory of money, relates total nominal gross national product (GNP) to total transactions. The GNP of the shadow economy is obtained by subtracting official GNP from total nominal GNP, assuming a base year in which the ratio of total transactions to total nominal GNP was normal, that is, no shadow economy existed (Feige, 1989). On the other hand, the currency demand approach assumes that transactions in the shadow economy are more often made in cash than transactions in the official economy in order to leave no accounting traces (Schneider, 2007; Kirchgässner, 1983). The size of the shadow economy is then inferred by simulating currency demand with and without tax variables.

The third indirect method is the electricity consumption method (Schneider and Enste, 2000). It assumes that electricity serves as a good indicator of overall economic activity also assuming an electricity-to-gross domestic product (GDP) elasticity of close to one. Then, a calculation can be made of how large the actual total GDP of a country is. The difference from official GDP provides an estimate of the shadow economy.

The fourth indirect method is the hidden variable approach (Frey and Weck, 1984). Macroeconomic indicators, usually the labor participation rate, real GDP growth, currency demand and working hours, are used as indicator variables for the shadow economy and linked to explanatory variables such as tax rates or the regulatory burden using LISREL techniques (structural causal modelling techniques, or the DYMIMIC approach; see Schneider and Enste, 2000). With the hidden variable approach, only a relative assessment of the size of the shadow economy is possible such that analyses using this method often relate their estimates to the currency demand approach (Piekhardt and Sardà Pons, with pro-social behavior. Social norms are thus endogenous and not simply exogenously given as the result of socialization during childhood.

Similar considerations have led many researchers of tax compliance to think about the impact of tax morale as a particular aspect of social norms, and how it is determined. Feld and Frey (2007) speak of a psychological tax contract between the state and its citizens, under which an exchange takes place between public goods and services provided by the state, and tax payments undertaken by citizens. This psychological tax contract goes beyond pure monetary exchanges and also involves aspects of loyalty and affection. Citizens are willing to comply with the psychological tax contract and pay their taxes accordingly if the state and the other citizens as contract partners also stick to the contractual content. With respect to the other citizens this means that taxpayers pay taxes honestly if they expect others to be honest as well. With respect to the state this means that it can shape the psychological tax contract by: (1) providing public goods and services in exchange for tax payments which taxpayers evaluate positively; (2) relying on procedural fairness in decisions about public policies, in particular about income redistribution; and (3) treating citizens as contract partners instead of subordinates in a hierarchical relationship. Regarding deterrence, the theoretical idea of a psychological tax contract allows for underlining a potential adverse influence of deterrence measures: deterrence may crowd out individuals' tax morale as an intrinsic motivation to pay taxes according to the psychological tax contract (Frey, 1997).

While there is some experimental evidence (Feld and Tyran, 2002; Tyran and Feld, 2006) and field evidence for Switzerland (Feld and Frey, 2002a, 2002b; Frey and Feld, 2002) supporting the claim that deterrence shapes tax morale, much less evidence exists on this relation in other countries. In this chapter, the role of deterrence and social norms for tax compliance is elaborated for the German case. Germany is interesting in several respects. First, the federal government has followed a strict deterrence policy since the beginning of the new millennium in order to fight tax evasion and the shadow economy (Feld and Larsen, 2008; Feld et al., 2007). Second, reunification in 1990 united two parts of Germany with formerly quite different political, legal and social constitutions, but similar cultural traditions. Torgler (2003) highlights the differences in tax morale between East and West Germany, but he does not have a closer look at the role of deterrence. I draw on different types of evidence to gain some insights as to the influence of deterrence (and thus the success of recent policies), but also to consider its interaction with social norms.

The remainder of the chapter is organized as follows. First, I discuss the theoretical background underlying the analysis. Second, the data restrictions posed in the context of tax compliance for the German case are considered. I then summarize the evidence on deterrence, social norms and tax compliance. Finally, some remarks on policies fighting tax non-compliance conclude this chapter.



## THE THEORETICAL BACKGROUND

There are different forms of tax non-compliance which can usually be attributed to different groups in society. Tax evasion by wealthy people not declaring their capital incomes received in foreign tax havens may nurture particular prejudices of what is involved, but is far from providing a comprehensive picture. Tax non-compliance also comprises the taxes evaded when individuals work in the shadow economy; or tax avoidance by multinational firms becoming illegal when a (financial) court reaches a final verdict on particular tax saving schemes; or the sophisticated trading schemes which allow for evading commodity taxes; or donations by family members to their supposed heirs to evade inheritance taxes; and so on. Tax compliance is moreover related to the broader concept of tax morale, which also includes the attitudes of honest taxpayers who have never under-reported their true incomes, and potential tax non-compliance of their dishonest fellow citizens.

Given these different facets of tax non-compliance, a useful starting point for a theoretical discussion of non-compliance behavior is the paper by Allingham and Sandmo (1972) on income tax evasion. While the shadow economy and tax evasion are not congruent, activities in the shadow economy in most cases imply the evasion of direct or indirect taxes, such that the factors affecting tax evasion will also affect the shadow economy. Allingham and Sandmo argue that the decision to comply with the tax laws depends on the expected costs and benefits of non-compliance. The benefits of tax non-compliance result from the expected marginal income change and thus from the individual marginal tax rate and the true individual income. In the case of the shadow economy, the individual marginal tax rate is obtained by calculating the overall marginal tax burden from indirect and direct taxes including social security contributions. The individual income generated in the shadow economy is usually categorized as labor income, but – less probably – also as capital income. The expected costs of non-compliance derive from the countermeasures imposed by the state. Tax non-compliance could be detected and punished, such that the expected costs depend on the state's auditing activities raising the probability of detection and the fines individuals face when they are caught. As individual morality also plays a role in compliance, additional costs could pertain beyond pure punishment by the tax administration in the form of psychic costs like shame or regret, but also additional pecuniary costs if, for example, reputation loss results.

Kanniainen et al. (2004) incorporate many of these earlier insights in their model of the shadow economy by also considering labor supply decisions. They obtain a direct positive effect of taxes on the size of the shadow economy; that is, tax increases unambiguously increase the shadow economy, while the effect of public goods financed by those taxes on the shadow economy depends upon the ability of those with activities in the shadow economy to access public