

# Survey Evidence on Conditional Norm Enforcement

Christian Traxler\* and Joachim Winter†

November 2011

## Abstract

We analyze survey evidence on individuals' willingness to sanction law violations – such as evading taxes, drunk driving and fare dodging – by disapproval or social exclusion. Our data show that people condition their willingness to sanction a norm violation on their belief about its frequency. The more commonly a norm violation is believed to occur, the lower individuals' inclination to punish it. Our findings are in line with models of social norms and offer an alternative interpretation of the 'broken windows effect'.

*JEL classification:* K42; Z13; D1

*Keywords:* Norm Enforcement; Social Norms; Survey Evidence; Law Violation.

---

\* *Corresponding Author.* Department of Business and Economics, University Marburg. Am Plan 2, 35037 Marburg, Germany. E-mail: traxler@uni-marburg.de

† Department of Economics, University of Munich, E-mail: winter@lmu.de

# 1 Introduction

Over the last decade, a solid body of empirical research in economics has documented the prevalence of conditional cooperation. People who follow this behavioral pattern condition their pro-social conduct on (their belief about) other people's inclination to act pro-socially. Among economists, conditional cooperation has first been discussed in the context of public good experiments (Keser and Van Winden, 2000, Fischbacher et al., 2001). Meanwhile, accumulating evidence from the lab and the field demonstrates that a significant fraction of individuals condition their cooperation on others.<sup>1</sup>

Conditionally pro-social behavior can be explained by the presence of social norms, i.e. rules of conduct which are enforced by internal (e.g., feelings of shame or guilt) or external (e.g., ostracism, public shaming) sanctions (Coleman, 1990). An important assumption of the literature is that these sanctions depend on the level of norm adherence: the more people comply with a norm, the stronger are the sanctions for a norm deviation (see, e.g., Balestrino, 2008). For instance, people feel more guilty about cheating taxes if they (think they) belong to a small minority that violates a social norm for tax compliance (Traxler, 2010). If someone is detected to travel without a ticket on the bus, the angry glances of other passengers feels less embarrassing, if other people get detected at the same time. Following this pattern, social norms can induce conditional norm compliance. In terms of the previous example: if an agent expects many [few] others to dodge the fare, the expected costs from a norm violation are smaller [larger], and she is more [less] inclined to stick to the norm and buy a ticket for the bus.

This paper presents survey evidence which confirms this sanctioning pattern. In a nationally representative survey conducted in Austria, respondents were confronted with eight different law violations, including tax evasion, drunk driving, fare dodging and absenteeism from work. Respondents were then asked how they would react if an acquaintance followed such behavior. The response options offered in the survey cover positive reactions like expressing approval as well as negative reactions like expressing disapproval or cooling down the

---

<sup>1</sup>For a comprehensive survey, see Gächter (2007). Compare also Kelly and Stahelski (1970) for an early study in psychology that pointed out the relevance of what is now called conditional cooperation.

contact. The latter represent norm enforcing sanctions which are well studied in experimental economics<sup>2</sup>

However, surprisingly little is known about the pattern of social sanctions outside of the lab. Notable exception are Dohmen et al. (2009) and Douhou et al. (2011). The former use survey data to study the prevalence, determinants, and consequences of reciprocity. Closely related to our work is the study by Douhou et al. (2011) who discuss survey evidence from The Netherlands on the perceived severity of different small crimes.

Our study adds to this survey evidence and extends existing work on conditional cooperation in several respects. First, we neither focus on severity perceptions nor reciprocal behavior but on norm enforcement by third parties – a behavior which is considered crucial for maintaining pro-social conduct (Fehr and Fischbacher, 2004). Second, we uncover patterns in norm enforcement that have not been documented so far. Our results show that norm violations with the potentially largest negative externalities (e.g. drunk driving, speeding) are punished most frequently. This observation is consistent with Douhou et al. (2011) and evidence from criminology (e.g., Rosenmerkel, 2001), which suggests that ‘harmfulness’ (next to ‘wrongfulness’) is a key determinant of the perceived severity of a crime.<sup>3</sup> We further show that these behaviors are sanctioned independently of the respondents’ beliefs regarding the pervasiveness of the norm violations. The data therefore suggest that people impose sanctions on violations of strong norms unconditionally. For weaker norms, however, we find clear evidence on a conditional enforcement pattern. Individuals who consider violation of a specific norm to be relatively rare are more prone to sanction this behavior. The pattern is particularly pronounced among individuals with higher levels of education.

One might argue that the correlation between beliefs and norm enforcement is simply driven by respondents who engage themselves in such norm violations and are thus not likely to punish or sanction them. At the same time, they may self-justifyingly believe that many others violate these norms as well. To exclude this possible explanation, we employ an instrumental variable approach. The results support the interpretation that the link between

---

<sup>2</sup>See, for instance, Masclot et al. (2003), Carpenter et al. (2004), Falk et al. (2005), Hopfensitz and Reuben (2009).

<sup>3</sup>The observation is also consistent with findings from public goods experiments with punishment, which show that punishment increases with larger deviations from the contribution norm (see Gächter et al., 2010).

beliefs about the frequency of norm violations and the inclination to punish such violations reflects a causal relationship.<sup>4</sup> The policy implications of this finding are straightforward: by changing beliefs about the frequency of a misconduct one might regulate the extent of actual norm enforcement and, thus, norm compliance. In this sense ‘belief management’, as suggested by Fehr and Falk (2002), appears as an attractive policy tool.

All of the anti-social behaviors covered in our survey questions correspond to violations of law. Hence, our study also contributes to the literature on compliance with the law. Research in law and economics suggests that individuals’ compliance is motivated by both legal (formal) and social (informal) sanctions (Ellickson, 1998, Kube and Traxler, 2011). The evidence discussed in the present paper supports this view and highlights that conditional norm enforcement can induce bandwagon effects in non-compliance: society might coordinate on a state with widespread norm violations and very weak norm enforcement or a state with thorough norm compliance supported by the threat of strong social sanctions. Our findings are thus compatible with multiple equilibrium states and social interactions in criminal activity – in particular for petty crimes such as stealing newspapers (see Glaeser et al., 1996). In this vein, our data also offer an alternative interpretation of the ‘broken windows effect’ (Wilson and Kelling, 1982). According to the broken windows theory, information on others’ non-compliance can shape perceptions about the risk of legal sanctions. With rationally anticipated conditional norm enforcement, ‘fixing broken windows’ could be effective, as it alters expectations regarding the informal (rather than formal) consequences of a law violation.

The remainder of the paper is structured as follows. Section 2 discusses the survey and the different norm violations addressed. Section 3 reports our main findings and section 4 establishes the causality underlying conditional norm enforcement. We conclude with a discussion of potential policy implications.

---

<sup>4</sup>Our finding is in line with results of Houser et al. (2011) who show in a controlled laboratory experiment that individuals who believe they were treated unfairly in an interaction with another person (which can be viewed as having experienced the violation of a fairness norm by others) are more likely to cheat in a subsequent unrelated game (which is violating the distinct norm that one should not cheat).

## 2 The Survey

Our data stem from a study on TV licence fee compliance conducted by the Austrian Public Broadcasting Company in 2000. The survey was administered by a commercial survey organization, using computer-assisted personal interviewing. It was targeted at a random sample of the Austrian household population; the sample we analyze comprises 1138 respondents.<sup>5</sup> From each household, the financial decision maker (defined as the person who is in charge of paying regular household expenditures such as the rent or the electricity bill) was asked to answer the survey. The top panel of table 1 contains the socioeconomic characteristics of the respondents. To facilitate interpretation, all characteristics are grouped and coded as dummies. The sample is composed by 59% of females; slightly more than half of the respondents are older than 50 years. 27% have only compulsory education, 55% have completed an apprenticeship or hold an intermediate school degree, and 19% hold a high-school degree or a university diploma. 44% state that they are in contact with their neighbors infrequently, while only one out of five has frequent contact.

Table 1 about here.

In one section of the survey, respondents were confronted with eight different behaviors ('actions') which were described as "*all incorrect but nevertheless occurring more or less frequently.*"<sup>6</sup>

- (1) *Drunk driving*. Driving a car although one is aware of the fact that one has drunk too much and is clearly above the legal blood alcohol limit.
- (2) *Hazardous waste*. Putting hazardous waste like batteries or chemicals into the ordinary household rubbish (instead of a waste separation container).
- (3) *Speeding*. Driving at 160kmph on an interstate highway (legal limit 120kmph) or at 70kmph in a residential area (legal limit 50kmph).

---

<sup>5</sup>The total number of individuals that were successfully contacted is 1628. In our analysis sample, we include only the 1138 financial decision makers. This sample selection criterion might also explain why the proportion of female respondents is almost 60%.

<sup>6</sup>The original sequence of the behaviors in the survey was 2, 4, 7, 6, 8, 5, 3, 1. We re-order the items here to facilitate their discussion. The original structure and the exact wording of the questionnaire is available from the authors upon request.

- (4) *Stealing newspapers*. Stealing newspapers from pay-as-you-take news boxes.
- (5) *Absenteeism from work*. Pretending to be sick to stay away from work for one or two days.
- (6) *Evading TV licence fees*. Not registering for TV licence fees.
- (7) *Fare dodging*. Travelling on public transport without a ticket.
- (8) *Evading taxes*. Hiring craftsmen from the shadow economy without paying taxes.

Among these eight actions, the first three potentially cause the most grave negative externalities. The last three are different forms of evading taxes or other mandatory contributions to public goods. All behaviors constitute violations of Austrian laws.<sup>7</sup> Most of these laws, however, are ‘mild’ in the sense that they are backed by non-deterrent legal sanctions (Tyran and Feld, 2006). Given that compliance with mild laws not only depends on formal law enforcement but also on “*the informal enforcement of social mores by acquaintances, bystanders, trading partners, and others*” (Ellickson, 1998; p. 540), social sanctions might be crucial to deter non-compliance (Kube and Traxler, 2011). This point has been stressed particularly in the context of tax compliance (Orviska and Hudson, 2003, Traxler, 2010).

Respondents were asked to state their beliefs about how widespread these behaviors are on a five-point Likert scale ranging from ‘very infrequent’ [1] to ‘very frequent’ [5]. The distributions of the responses are presented in table 1 (‘Belief about Frequency’). The data show that the beliefs differ both between individuals and between the different norm violations. For example, drunk driving and speeding (actions 1 and 3) are perceived to be more widespread than the evasion of TV licence fees (action 6).

A separate question then asked how the respondent would react if she learned that a close acquaintance has taken one of the eight actions. For each action, the respondent was asked to select one of these five response categories:

---

<sup>7</sup>Austrian citizens are bound by law to bring hazardous waste to waste separation containers (action 2). On Sundays, Austrian newspapers can be bought from pay-as-you-take boxes; these boxes, however, have no lock which would prevent people from stealing the paper (action 4; for a related field experiment, see Pruckner and Sausgruber, 2011). In case of sickness, Austrian employees are allowed to stay at home at full pay for two days without any medical certificate of their sickness (action 5). Owners of operational TVs and radios must register their equipment and pay an annual licence fee of roughly Euro 250 (action 6; see Fellner et al., 2009).

[ 1 ] *“I would be impressed by him/her.”*

[ 2 ] *“She/he should better not be caught.”*

[ 3 ] *“I would not care.”*

[ 4 ] *“I would seriously talk with him/her about this behavior and would try to convince him/her to stop doing it.”*

[ 5 ] *“I would cool down the contact with him/her.”*

These response categories can be ordered from approval [1], (benevolently) ignoring it [2, 3], to sanctions in the form of expressing disapproval [4], or even exclusion [5]. The distributions of the responses are reported in table 2.

Table 2 about here.

The data indicate that a majority would sanction an acquaintance for the first five actions, mostly by expressing disapproval rather than by cooling down the contact. More than 80% would punish the first two actions, still 66% would do so for action 3. Hence, the social norms against these three norm violations – which are also those with the (potentially) most harmful effects (Rosenmerkel, 2001) – are particularly strong, in the sense that at least two-third of the respondents state that they will sanction them. Equivalently, one might call the social norms against the evasion of taxes and other mandatory contributions to public goods (actions 6 through 8) rather weak since evasion behavior is only sanctioned by a minority: 50% or more ignore tax evasion (reactions 2 or 3). Note that none of the eight behaviors is met with approval from more than one in twenty respondents.<sup>8</sup> In line with our notion of strong and relatively weak norms, the fraction of respondents who approve is largest for action 8, evading taxes by hiring labour from the shadow economy. It is also worth noting that for the three actions that are also studied in Douhou et al. (2011), the ordering corresponds to what they find.

---

<sup>8</sup>This finding might be driven by social desirability effects in the interaction between the respondent and the interviewer; we discuss such effects in more detail in section 4 below. It is, however, interesting to observe that the level of approval differs clearly for one action: tax evasion. Thus, at least some survey participants seem to be prepared to reveal their approval for a clear violation from a law.

### 3 Conditional Norm Enforcement

How does sanctioning differ between individuals and how does it relate to their beliefs about the frequency of the different actions? We answer these questions by estimating ordered probit models. We assume that respondent  $i$  has propensity  $\tilde{y}_{ij}$  to sanction action  $j \in \{1, \dots, 8\}$ . These propensities are latent variables which are unobserved in our data. The observed dependent variables, the individual reactions  $y_{ij} \in \{1, \dots, 5\}$ , are determined by the response model

$$y_{ij} = \begin{cases} 1 & \text{if } \tilde{y}_{ij} \leq \lambda_{1j} \\ 2 & \text{if } \lambda_{1j} < \tilde{y}_{ij} \leq \lambda_{2j} \\ \dots & \\ 5 & \text{if } \lambda_{4j} < \tilde{y}_{ij} \end{cases}$$

with

$$\tilde{y}_{ij} = \alpha_j \text{Belief}_{ij} + X_i \beta_j + \varepsilon_{ij},$$

where the vector  $X_i$  contains the socioeconomic characteristics (see table 1) and  $\varepsilon_{ij}$  is a random component which is assumed to be i.i.d. normal across respondents  $i$  and actions  $j$ , conditional on the covariates.

Our key explanatory variable is  $\text{Belief}_{ij}$ , the individuals' belief about the frequency with which the different actions occur. Remember that higher values of  $\tilde{y}_{ij}$  represent a stronger propensity to sanction and that higher values of  $\text{Belief}_{ij}$  mean that action  $j$  is expected to be more common. Hence, if the severity of sanctions declines (and accordingly, reactions are more positive) the more often a norm is violated – as it is assumed in the literature on social norms (e.g. Balestrino, 2008, Traxler, 2010) – we should expect negative coefficients for  $\alpha_j$ .

The results from our estimations are given in table 3. The left part of the table presents the outcome for the full sample. Except for one behavior (action 2, hazardous waste),  $\alpha_j$  has the expected negative sign. The coefficients, however, are only significant for the last five norm violations (actions 4 through 8). For these behaviors we find a clear pattern of conditional norm enforcement: the more widespread norm violations are believed to occur, the lower the individual's inclination to punish the behavior. For deviations from the three

strong norms (actions 1 through 3 which are the most frequently sanctioned), we do not find a significant impact of the individuals' belief.

Table 3 about here.

A closer analysis of the data revealed that conditional norm enforcement is particularly distinct among those with intermediate and high education – an observation that is in line with other evidence.<sup>9</sup> We document this point by replicating the estimations for a restricted sample which excludes individuals with low education. The results are reported in the right part of table 3. For violations of the two strongest norms, we find a weakly significant conditional sanctioning behavior for action 1 (drunk driving) and no significant effect for action 2 (hazardous waste). For the remaining six actions there is a clear conditional sanctioning pattern: the more rarely these norm deviations are expected to occur, the more severely they are sanctioned. This effect is significant at the 1% level (actions 3, 4, 6, 7 and 8) and the 5% level (action 5), respectively.

Note that item non-response and thus the number of observations differs somewhat between the eight actions (see also table 2). Estimating alternative model specifications which control for non-response on the belief question showed that our findings are not affected by item non-responses. We also considered a different ordering of the two response options that indicate a sanction as well as reducing the dependent variable from a five-point to a four- and to a three-point scale (e.g., pooling the two sanction responses 4 and 5 – see table 5 below – and responses 1 and 2, respectively). Estimations using these alternative dependent variables yield results that are qualitatively identical to those reported in table 3 .

To sum up, the findings presented so far show that the response to deviations from strong norms (actions 1 through 3) seems to be unconditionally negative, whereas sanctions for violations of weaker norms are conditioned on the expected prevalence of the respective actions. Table 3 also suggests that conditional norm enforcement is more pronounced among the population with intermediate and high levels of education. The finding is consistent with other survey evidence (Orviska and Hudson, 2003; Douhou et al., 2011). Why does higher

---

<sup>9</sup>Orviska and Hudson (2003), for instance, show that disapproval of tax evasion increases with higher levels of education. The survey by Douhou et al. (2011) finds that more education results in harsher evaluations of norm violations.

education lead to stronger norm enforcement? Douhou et al. (2011) argue that social norms to disapprove (i.e., to contribute to the ‘second-order public good’ norm enforcement) might be stronger among the higher educated. In line with this argument, Orviska and Hudson (2003) discuss that educated people feel more confident to judge for themselves what is an appropriate behavior in which context.

Our data further show that females tend to be more inclined to sanction, in particular deviations from the strong norms. This observation is again consistent with the evidence in Orviska and Hudson (2003) and in Douhou et al. (2011). However, the finding contrasts with those from Dohmen et al. (2009), who find females less likely to be negatively reciprocal. Hence, gender patterns seem to differ between reciprocity and third-party norm enforcement. Regarding the employment status our estimates show that – similar to those in Dohmen et al. (2009) and Douhou et al. (2011) – employed respondents are less engaged in sanctioning. The other socioeconomic characteristics do not show a clear-cut impact on norm enforcement behavior.

## 4 Causality of the Effect

In this section, we establish causality of the link between individuals’ inclination to sanction a behavior and their beliefs. One could think of several reasons for why the propensity to sanction should shape the stated belief about the frequency of a norm violation (rather than the other way around). The sign of the net effect of such mechanisms, however, is not clear: the coefficients reported in table 3 could over or under-estimate the true belief effects. On the one hand, those who are prepared to enforce a certain norm might also be more likely to believe such violations happen only infrequently.<sup>10</sup> If, for instance, a person thinks that evading taxes is outrageous, this will influence her belief about who is doing such a terrible thing and also how she would sanction a tax evader. A different person who considers evading taxes to be just a risky gamble might as well believe that evasion is relatively frequent – also to justify her own evasion – and will not impose sanctions on other evaders. This ‘false consensus’ could, in principle, explain the findings from table 3.

---

<sup>10</sup>For a discussion of self-serving biases, see e.g. Babcock and Loewenstein (1997).

On the other hand, there are also mechanisms that would lead to an underestimation of the effect of conditional norm enforcement. For instance, one might argue that the face-to-face interview could have induced social desirability effects.<sup>11</sup> Some respondents might have tried to be perceived as norm-enforcing individuals – a motive which could be particularly attractive in the presence of widespread norm violations. This would result in a spuriously positive correlation of sanctions and beliefs, working against any ‘true’ negative impact of beliefs.

To address potential biases from false consensus or social desirability, we follow an instrumental variable (IV) approach. Our IV strategy makes use of three additional variables contained in the survey data. (Summary statistics on the instrumental variables are reported in table 1.) First, we employ data on the local level of TV licence fee evasion at the time of the survey.<sup>12</sup> More specifically, we use information on the evasion level in each of the 83 districts where survey participants live. The variable is classified in five categories, as presented in table 4. It turns out that individual beliefs about the pervasiveness of licence fee evasion, but also about other weak norm violations, are strongly correlated with the local evasion levels. This suggests that (a) information on local behavior is considered relevant when individuals form beliefs on overall norm compliance levels and that (b) perceptions are correlated between different items. This later point is also supported by the evidence in Keizer et al. (2008).

Table 4 about here.

Two additional instrumental variables are based on attitude questions regarding TV licence fee (non)compliance that were asked in the survey itself. These questions concern the main arguments for why people cheat and for why people comply with licence fees, respec-

---

<sup>11</sup>Social desirability effects in surveys may arise when there exist social norms governing some behaviors and attitudes which lead respondents to misrepresent themselves to appear to comply with these norms. See Tourangeau and Yin (2007) for a review of this literature.

<sup>12</sup>The public agency governing TV licence fees estimated the level of evasion by comparing the number of households who are paying licence fees with the total number of households in a municipality. Given that nearly all Austrian households own a radio or a TV (and are thus liable to pay TV licence fees), the comparison provides a reasonable proxy for the true number of evading households. See Fellner et al. (2009) for more details on the institution.

tively.<sup>13</sup> Interestingly, those respondents who state that evasion is simply driven by cheaters being ‘notorious deniers’ of the licence fee system also expect *all* norm violations to be more widespread. At the same time, we observe a slightly negative partial correlation of the stated beliefs with an indicator variable for those who answer that compliance is mainly motivated by the fact that ‘one has to pay correctly for proper service’.

We implement our instrumental variables approach using a linear probability model (LPM).<sup>14</sup> The dependent variable is a dummy  $d(y_{ij})$  that takes the value one if individual  $i$  indicates to sanction behavior  $j$  (response categories 4 and 5). We estimate the equation

$$d(y_{ij}) = \alpha_j^{IV} \text{Belief}_{ij} + X_i \beta_j^{IV} + \epsilon_{ij},$$

instrumenting  $\text{Belief}_{ij}$  with the local level of licence fee evasion in respondent  $i$ ’s district,  $\text{LocalEvasion}_i$ , as well as the two attitude indicators discussed above,  $\text{NotoriousDeniers}_i$  and  $\text{PayCorrectly}_i$ . In the following we focus on actions 4 through 8 – i.e., those norm violations for which we found evidence on conditional norm enforcement (see table 3 above).<sup>15</sup> The results from non-instrumented and instrumented estimations of the LPM are presented in table 5.

Let us first compare the non-instrumented LPM estimates with the ordered probit estimates reported in section 3. For four out of the five norm violations, the estimates indicate a significantly negative effect of the respondents’ beliefs on their inclination to sanction the behavior. This observation is in line with the results from table 3. For ‘fare dodging’, the estimated coefficient is negative but insignificant (table 5, column 7). This resembles the estimations obtained from ordered probit which showed only a weakly significant effect (see

<sup>13</sup>The two questions asked ‘What do you think are the most important reasons for people to pay [not to pay] TV licence fees?’ and allowed for multiple answers in ten categories, including ‘because it is unfair to cheat’, ‘because one has to pay correctly for proper service’, ‘because people are afraid of getting detected’, ‘because a good TV program relies on the fees’, etc. [‘they do not pay because they are too lazy to register’, ‘because they are poor’, ‘because they hardly watch TV’, ‘because they are notorious deniers of TV licence fees’, etc. ].

<sup>14</sup>Using instrumented LPM rather than, e.g., IV (ordered) probit estimations allows to evaluate the performance of our instruments according to the standard statistics known from instrumented OLS regressions. Moreover, we replicated all estimations from below using probit and IV probit. Apart from one norm-violation, the alternative IV specifications yield results which are basically identical to those reported below.

<sup>15</sup>For deviations from the three strong norms, the most frequently sanctioned actions 1 through 3, the IV approach does not change the picture from before: beliefs do not have any significant effect on sanctioning.

column 7 in the left panel of table 3). The crucial question is now how the LPM estimates change when we instrument the belief variable.

The IV estimates provide clear-cut evidence on conditional norm enforcement: If survey respondents perceive a norm violation to be more frequent, this reduces their propensity to impose sanctions on norm violators. Table 5 confirms this effect for the case of stealing newspapers, absenteeism from work, licence fee evasion, and fare dodging. For the first three actions, the estimated coefficients of  $\alpha_j^{IV}$  are significant at the 1% level, for the fourth at the 5% level. As the IV approach purges endogeneity in the belief variable resulting from any mechanism (false consensus or social desirability), these estimates establish a causal link between beliefs and the stated willingness to enforce a norm.

The comparison between the LPM and the IV estimates reveals that the negative effect on the beliefs become larger in magnitude after instrumentation. This suggests that self-serving biases do not play an important role in our data. It rather seems that social desirability effects – the desire to appear as norm-enforcing citizen despite widespread norm violations – results in an underestimation of conditional norm enforcement in non-instrumented regressions.

Regarding the performance of our instruments, the lower panel of table 5 displays satisfactory first-stage  $F$ -statistics for the first four norm violations. These statistics indicate that our instruments are sufficiently strong. For the tax evasion item, however, column (10) suggests that the instruments do not work properly. The  $F$ -statistic is only 3.35 and the estimation does not find any significant effect of the belief for this norm violation (column 10).

Table 5 about here.

A potential concern with our IV approach relates to the validity of the exclusion restriction. One might argue that the instruments – the local evasion level as well as attitude indicators on licence fee non-compliance – have a direct impact on the willingness to sanction licence fee evaders and therefore belong into the structural equation. In fact, the Hansen test on overidentification tends to confirm this concern for TV licence fee evasion, rejecting the validity of the exclusion restrictions at the 10% level (see column (6) of table 5). Note,

however, that the Hansen test also indicates that the exclusion assumptions are valid for all other norm violations.

To further investigate the robustness of the results displayed in table 5, we considered several alternative model specifications. Reducing the set of instruments to only the local evasion rate (an objective measure not reported by the respondent), estimating a probit and an IV probit model (instead of the LPM and IV LPM), and restricting the sample to the high-education subgroup did not produce any qualitatively different results.

Summing up, our study establishes a causal relation between beliefs and the stated propensity to sanction norm violations: the more frequent norm deviations are perceived to occur, the less likely they will get punished. Hence, we identify conditional norm enforcement. According to our IV estimates in the linear probability model, a one standard deviation increase in the belief about a norm violation decreases the probability that a survey participant states to impose a sanction by roughly 20 percentage points. Beliefs about the prevalence of norm violations therefore seem to be crucial for the enforcement of social norms.

## 5 Concluding Discussion

The evidence from a national survey presented in this paper supports a central assumption of the literature on social norms: the strength of norm enforcing sanctions depends on the expected level of norm compliance. The more frequently deviations from a social norm are believed to occur, the less likely a norm violation is sanctioned. This pattern is most pronounced for relatively weak norms and among individuals with higher education. In contrast, deviations from very strong norms are punished independently of beliefs about others' norm compliance.

One can draw several lessons from our study that have important implications for the literature on law and economics. Research within the latter field has explained high compliance with 'mild' laws – laws which are backed by non-deterrent legal sanctions – by the fact that people are also governed by social norms: legal and social sanctions together contribute to compliance. If the informal sanctions for the violation of a (legal and social) norm are conditional on the (expected) prevalence of such actions – as suggested by our evidence – it

establishes a rationale for conditional compliance with laws: individuals would comply with the law if many others do, but deviate if sufficiently many others violate the law. ‘Broken windows’, i.e. signals on other’s non-compliance, might then shape beliefs about the expected social rather than legal sanctions. In this respect, our results neatly fit to the recent evidence in Keizer et al. (2008) who show that signs of norm violations trigger further violations of legal regulations – even if the signs are likely not to influence expectations regarding legal sanctions. From a policy perspective, this means that belief management (Fehr and Falk, 2002) – the intended manipulation of beliefs about the behavior of ‘relevant others’ – might work as a tool to enforce compliance with laws. By changing beliefs, one could change social norm enforcement and therefore actual compliance.

Our study provides some first insights into conditional patterns of norm-enforcing sanctions outside of the experimental laboratory. As we work with survey data on stated intentions, the validity of our findings – in terms of behavioral relevance and generalization to other domains regulated by social norms – remains an open issue. We should point out, however, that the results of the field experiment in Fellner et al. (2011), who study compliance with TV licence fees in Austria, are perfectly in line with the notion of conditional norm enforcement found in our survey data. While their behavioral data support our findings, the question to what extent people engage in conditional norm enforcement is left for future research. The combination of survey data with experimental studies of behavior as, e.g., in Dohmen et al. (2009) or Rustagi et al. (2010) thereby appears to be a promising avenue for such investigations.

## References

- Babcock, Linda and George Loewenstein (1997), Explaining Bargaining Impasse: The Role of Self-Serving Biases, *Journal of Economic Perspectives* 11(1), 109–126.
- Balestrino, Alessandro (2008), It Is a Theft But Not a Crime, *European Journal of Political Economy* 24(2), 455–469.
- Carpenter, Jeffrey, Amrita Daniere, and Lois Takahashi (2004), Cooperation, Trust, and Social Capital in Southeast Asian Urban Slums, *Journal of Economic Behavior and Organization* 55(4), 533–551.
- Coleman, James S. (1990), *Foundations of Social Theory*, Harvard University Press, Cambridge (MA).
- Dohmen, Thomas, Armin Falk, David Huffman and Uwe Sunde (2009), Homo Reciprocans: Survey Evidence on Behavioural Outcomes, *The Economic Journal*, 119(536), 592–612.
- Douhou, Salima, Jan R. Magnus and Arthur van Soest (2011), The Perception of Small Crime, *European Journal of Political Economy* 27(4), 749–763.
- Ellickson, Robert (1998), Law and Economics Discovers Social Norms, *The Journal of Legal Studies* 27(2), 537–552.
- Falk, Armin, Ernst Fehr and Urs Fischbacher (2005), Driving Forces Behind Informal Sanctions, *Econometrica* 73(6), 2017–2030.
- Fehr, Ernst and Armin Falk (2002), Psychological Foundations of Incentives, *European Economic Review* 46(4-5), 687–724.
- Fehr, Ernst and Urs Fischbacher (2004), Third-party Punishment and Social Norms, *Evolution and Human Behavior* 25, 63–87.
- Fellner, Gerlinde, Rupert Sausgruber and Christian Traxler (2011), Testing Enforcement Strategies in the Field: Threat, Moral Appeal and Social Information, *Journal of the European Economic Association*, forthcoming.
- Fischbacher, Urs, Simon Gächter and Ernst Fehr (2001), Are People Conditionally Cooperative? Evidence from a Public Goods Experiment, *Economics Letters* 71(3), 397–404.
- Gächter, Simon (2007), Conditional Cooperation: Behavioral Regularities from the Lab and the Field and their Policy Implications, in: Bruno S. Frey and Alois Stutzer (Eds.): *Economics and Psychology*, MIT Press, Cambridge (MA).
- Gächter, Simon, Benedikt Herrmann and Christian Thni (2010), Culture and Cooperation, *Philosophical Transactions of the Royal Society B* 365(1553), 2651–2661.
- Glaeser, Edward L., Bruce Sacerdote and Jose A. Scheinkman (1996), Crime and Social Interaction, *The Quarterly Journal of Economics* 106, 507–548.
- Hopfensitz, Astrid and Ernesto Reuben (2009), The Importance of Emotions for the Effectiveness of Social Punishment, *The Economic Journal* 119, 1534–1559.

- Houser, Daniel, Stefan Vetter and Joachim Winter (2011), Fairness and Cheating, Discussion Paper No. 335, Sonderforschungsbereich SFB/TR 15, University of Munich.
- Kelley, Harold H. and Anthony J. Stahelski (1970), Social Interaction Basis of Cooperators' and Competitors' Beliefs About Others, *Journal of Personality and Social Psychology* 16, 66–91.
- Keser, Claudia and Frans van Winden (2000), Conditional Cooperation and Voluntary Contributions to Public Goods, *Scandinavian Journal of Economics* 102, 23–39.
- Keizer, Kees, Siegwart Lindenberg, and Linda Steg (2008), The Spreading of Disorder, *Science* 322(5908), 1681–1685.
- Kube, Sebastian and Christian Traxler (2011), The Interaction of Legal and Social Norm Enforcement, *Journal of Public Economic Theory* 13(5), 639–660.
- Masclet, David, Charles Noussair, Steven Tucker and Marie-Claire Villeval (2003), Monetary and Nonmonetary Punishment in the Voluntary Contributions Mechanism, *American Economic Review* 93(1), 366–380.
- Orviska, Marta and John Hudson (2003), Tax Evasion, Civic Duty and the Law Abiding Citizen, *European Journal of Political Economy*, 19(1), 83–102.
- Pruckner, Gerald and Rupert Sausgruber (2011), Honesty on the Streets: A Natural Field Experiment on Newspaper Purchasing, *Journal of the European Economic Association*, forthcoming.
- Rosenmerkel, Sean (2001), Wrongfulness and Harmfulness as Components of Seriousness of White-Collar Offenses, *Journal of Contemporary Criminal Justice*, 17, 308–327.
- Rustagi, Devesh, Stefanie Engel and Michael Kosfeld (2010), Conditional Cooperation and Costly Monitoring Explain Success in Forest Commons Management, *Science* 330, 961–965.
- Traxler, Christian (2010), Social Norms and Conditional Cooperative Taxpayers, *European Journal of Political Economy*, 26(1), 89–103.
- Tourangeau, Roger and Ting Yan (2007), Sensitive Questions in Surveys, *Psychological Bulletin* 133, 859–883.
- Tyran, Jean-Robert and Lars Feld (2006), Achieving Compliance when Legal Sanctions are Non-deterrent, *Scandinavian Journal of Economics* 108(1), 135–156.
- Wilson, James and George Kelling (1982), Broken Windows, *The Atlantic Monthly* 249, 29–38.

## Tables

Table 1: Descriptive Statistics for the Covariates

<i>Variable</i>	N	Mean	SD	Min	Median	Max
Female	1138	0.59	0.49	0.00	1.00	1.00
Employed	1135	0.50	0.50	0.00	0.00	1.00
Age						
Age Low (< 29)	1138	0.09	0.29	0.00	0.00	1.00
Age Mid (30–49)	1138	0.39	0.49	0.00	0.00	1.00
Age High (> 50)	1138	0.52	0.50	0.00	1.00	1.00
Education						
Edu Low	1138	0.27	0.44	0.00	0.00	1.00
Edu Mid	1138	0.55	0.50	0.00	1.00	1.00
Edu High	1138	0.19	0.39	0.00	0.00	1.00
Household Net Income						
Inc Low (< €1017)	1114	0.13	0.34	0.00	0.00	1.00
Inc Mid (€1017–2024)	1114	0.47	0.50	0.00	0.00	1.00
Inc High (> €2024)	1114	0.40	0.49	0.00	0.00	1.00
Contact with Neighbors						
Con Low	1136	0.44	0.50	0.00	0.00	1.00
Con Mid	1136	0.35	0.48	0.00	0.00	1.00
Con High	1136	0.20	0.40	0.00	0.00	1.00
Belief about Frequency						
Drunk Driving	1118	3.59	1.01	1.00	4.00	5.00
Hazardous Waste	1095	3.34	1.23	1.00	3.00	5.00
Speeding	1123	4.17	0.91	1.00	4.00	5.00
Stealing Newspapers	1030	3.16	1.25	1.00	3.00	5.00
Absenteeism	1074	3.09	1.17	1.00	3.00	5.00
Evading Licence Fees	1052	2.64	1.09	1.00	3.00	5.00
Fare Dodging	984	2.96	1.15	1.00	3.00	5.00
Evading Taxes	1094	3.81	1.05	1.00	4.00	5.00
Instrumental Variables						
Local Evasion	1098	2.93	1.24	1.00	3.00	5.00
Notorious Deniers	1132	0.31	0.46	0.00	0.00	1.00
Pay Correctly	1134	0.29	0.45	0.00	0.00	1.00

Table 2: Reaction to an Acquaintance's Norm Violation (in Percentages)

	Drunk Driving	Hazard. Waste	Speeding	Stealing Newsp.	Absenteeism	Evading TV Fees	Fare Dodging	Evading Taxes
[1] Would be impressed	0.09	0.09	0.18	0.26	0.79	0.53	0.09	4.04
[2] Better not be caught	5.54	4.04	12.30	9.75	9.40	9.58	15.55	21.70
[3] Would not care	9.58	12.30	20.21	31.11	34.80	40.16	34.71	50.09
[4] Seriously talk about it	78.65	73.11	59.40	42.88	40.07	38.22	34.36	13.27
[5] Cool down contact	4.39	7.82	5.98	13.27	11.69	8.00	9.31	7.29
No Response	1.76	2.64	1.93	2.72	3.25	3.51	5.98	3.60

*Notes:* Responses as percentages of all participants ( $N = 1138$ ). The survey allowed for only one response for each item; columns sum to 100.

Table 3: Ordered Probit Estimations - Dependent Variable: Reaction

	<i>Full Sample</i>								<i>Restricted Sample (Intermediate &amp; High Education)</i>							
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	Drunk Driving	Hazard.Waste	Speeding	Steal.Newsp.	Absenteeism	Licence Fee	Fare Dodging	Tax Evasion	Drunk Driving	Hazard.Waste	Speeding	Steal.Newsp.	Absenteeism	Licence Fee	Fare Dodging	Tax Evasion
Belief	-0.047	0.03	-0.059	-0.095	-0.081	-0.078	-0.062	-0.204	-0.087	-0.006	-0.119	-0.115	-0.086	-0.113	-0.109	-0.234
	[1.22]	[0.94]	[1.52]	[3.19]***	[2.75]***	[2.42]**	[1.88]*	[6.17]***	[1.91]*	[0.17]	[2.58]***	[3.33]***	[2.49]**	[3.12]***	[2.93]***	[5.93]***
Female	0.19	0.118	0.156	0.026	0.063	0.018	-0.056	0.127	0.255	0.188	0.223	0.027	0.03	0.07	-0.01	0.119
	[2.35]**	[1.50]	[2.19]**	[0.36]	[0.89]	[0.26]	[0.77]	[1.78]*	[2.63]***	[2.06]**	[2.67]***	[0.33]	[0.38]	[0.86]	[0.12]	[1.47]
Employed	-0.164	-0.219	-0.177	-0.223	0.09	-0.224	-0.26	-0.039	-0.189	-0.314	-0.215	-0.213	0.033	-0.231	-0.288	-0.048
	[1.65]*	[2.31]**	[1.93]*	[2.50]**	[1.09]	[2.74]***	[2.84]***	[0.47]	[1.58]	[2.90]***	[2.02]**	[2.12]**	[0.35]	[2.57]**	[2.81]***	[0.50]
Con High	-0.086	-0.043	-0.122	0.033	0.036	0.081	-0.013	0.098	-0.092	-0.088	-0.031	0.002	0.065	0.021	-0.046	0.132
	[0.79]	[0.41]	[1.29]	[0.34]	[0.38]	[0.83]	[0.13]	[1.06]	[0.74]	[0.72]	[0.28]	[0.02]	[0.62]	[0.19]	[0.40]	[1.25]
Con Low	0.079	0.055	0.152	0.087	0.046	0.034	0.064	0.064	0.132	0.064	0.248	0.085	0.012	0.024	0.131	0.116
	[0.88]	[0.66]	[1.92]*	[1.09]	[0.60]	[0.45]	[0.78]	[0.82]	[1.21]	[0.64]	[2.66]***	[0.91]	[0.13]	[0.27]	[1.37]	[1.25]
Age High	0.038	-0.05	0.173	0.113	0.237	0.093	0.055	0.089	0.024	-0.096	0.086	0.209	0.18	0.117	0.09	0.065
	[0.38]	[0.50]	[1.87]*	[1.23]	[2.75]***	[1.08]	[0.58]	[1.07]	[0.20]	[0.83]	[0.82]	[2.02]**	[1.83]*	[1.24]	[0.86]	[0.68]
Age Low	0.188	-0.062	-0.107	-0.094	-0.044	-0.116	-0.066	-0.045	0.271	0.07	-0.113	-0.037	-0.065	-0.081	-0.027	-0.139
	[1.63]	[0.44]	[0.78]	[0.79]	[0.34]	[0.88]	[0.50]	[0.35]	[1.91]*	[0.44]	[0.72]	[0.28]	[0.45]	[0.57]	[0.19]	[0.96]
Inc High	0.023	0.01	0.045	0.048	-0.013	-0.02	-0.005	0.046	0.005	-0.016	0.062	0.091	-0.011	-0.023	-0.062	-0.016
	[0.26]	[0.12]	[0.58]	[0.63]	[0.18]	[0.27]	[0.06]	[0.62]	[0.05]	[0.17]	[0.71]	[1.08]	[0.13]	[0.28]	[0.75]	[0.19]
Inc Low	-0.029	0.021	0.124	-0.095	-0.038	0.048	0.021	0.013	0.037	0.011	0.135	-0.026	0.118	0.198	-0.042	0.082
	[0.21]	[0.17]	[1.08]	[0.81]	[0.32]	[0.42]	[0.19]	[0.11]	[0.18]	[0.06]	[0.80]	[0.14]	[0.67]	[1.13]	[0.27]	[0.49]
Edu High	0.15	-0.072	0.062	-0.095	0.135	-0.124	-0.152	0.209	0.141	-0.067	0.047	-0.11	0.124	-0.122	-0.114	0.236
	[1.60]	[0.74]	[0.67]	[0.99]	[1.49]	[1.39]	[1.58]	[2.41]**	[1.33]	[0.65]	[0.47]	[1.13]	[1.32]	[1.33]	[1.19]	[2.64]***
Edu Low	-0.014	-0.016	0.045	0.159	-0.062	0.057	0.099	0.151								
	[0.13]	[0.16]	[0.46]	[1.72]*	[0.69]	[0.62]	[1.05]	[1.71]*								
N	1077	1052	1080	988	1028	1010	937	1041	798	784	799	744	771	750	717	773

Notes: Robust z statistics in squared brackets; \* / \*\* / \*\*\* indicate significance at a 10% / 5% / 1%-level. All estimations include region dummies (estimated coefficients not reported).

Table 4: Estimated Evasion Rate in the Respondents' District.

Evasion Rate	Respondents	Percent
<5%	97	8.83
5–10%	400	36.43
10–20%	274	24.95
20–30%	138	12.57
>30%	189	17.21

*Notes:* The classification correspond approximately to the five quintiles of the distribution of licence fee evasion in Austria at the time of the survey.

Table 5: Non-instrumented and instrumented linear probability model (LPM) estimates

<i>Dependent Variable: Sanction Dummy</i>										
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
	LPM	IV	LPM	IV	LPM	IV	LPM	IV	LPM	IV
Item	Stealing Newspapers		Absenteeism		Licence Fee Evasion		Fare Dodging		Tax Evasion	
Belief	-0.049 [3.91]***	-0.161 [3.71]***	-0.048 [3.63]***	-0.192 [3.26]***	-0.032 [2.24]**	-0.155 [2.61]***	-0.020 [1.41]	-0.096 [2.17]**	-0.050 [3.91]***	-0.193 [1.58]
<i>First-stage results on excluded instruments</i>										
F-statistic	32.87		19.50		20.73		38.49		3.35	
Hansen (p-value)	(0.962)		(0.409)		(0.073)		(0.435)		(0.171)	
IV coefficients:										
Local Evasion	0.237 [7.73]***		0.183 [6.20]***		0.186 [6.55]***		0.232 [8.07]***		0.029 [1.09]	
Notorious Denier	0.390 [4.78]***		0.263 [3.44]***		0.228 [3.13]***		0.415 [5.53]***		0.158 [2.30]**	
Pay Correctly	-0.116 [1.39]		-0.171 [2.15]**		-0.128 [1.76]*		-0.069 [0.90]		-0.148 [2.06]**	
N	988	986	1028	1026	1010	1008	937	936	1041	1038

*Notes:* Robust t and z statistics in squared brackets; \* / \*\* / \*\*\* indicate significance at a 10% / 5% / 1%-level. All estimations include a set of control variables as displayed in the left panel of Table 3 (coefficients not reported). First-stage results display F-statistic on excluded IVs, Hansen overidentification tests (p-values) and first-stage coefficients for the IVs. For each item, the number of observations is slightly lower in the IV estimations due to missing observations.