



The perception of small crime

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ABSTRACT

In this paper we measure perceptions of incorrect behavior or 'small crime', based on a questionnaire administered to a large representative sample from the Dutch population. In the questionnaire we ask the respondents to rate the severity or justifiability of a number of small crimes. We present short questions that only state the nature of the small crime, as well as vignette questions, describing in detail a fictitious person committing the small crime and other factors related to the circumstances in which the small crime is committed. We find that the perceived severity of small crimes varies systematically with characteristics of the respondent as well as of the person committing the crime. Also, the association between respondent characteristics and perceived seriousness changes if the respondents are given more information about the offender and the circumstances of the offense.

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1. Introduction

Living together in a society is guided by formal and informal rules. Violations of these rules can be costly to society and they are, in the case of large crimes, followed by prosecution. Minor misbehaviors – small crimes – do not usually result in legal proceedings, because the cost of enforcing compensation of small crimes would be too high or because the law does not permit prosecution. Although the economic consequences of a single small crime will be low, such crimes are often quite common and can, in the aggregate, generate substantial losses. For example, in the year 2000, surfing the Internet at work for private use may have cost society worldwide \$50 billion per year and employee theft around \$200 billion (Greenberg and Scott, 1996).

In standard economic models of criminal behavior (Becker, 1968), individuals who undertake illegal actions evaluate the probabilities and consequences of being punished, and commit a crime only if the expected value of doing so exceeds the utility of the status quo. Thus, an individual would commit a (small) crime if the risk-sanction trade-off is favorable. The legal sanction acts as a market price, and the individual treats the sanction as an *external* constraint. Alternatively, the individual may *internalize* the obligation associated with the sanction. When many people in a community do this, it becomes a social norm (Cooter, 1998). Since the Becker model is at odds with the data, an extension of this model with social norms seems appropriate.

Balestrino (2008) uses the lack of social norms as an explanation why digital piracy (downloading and copying films or music illegally) is much more common than other types of small crimes. Orviska and Hudson (2002) use survey data on attitudes towards tax evasion to show that social norms affect the tendency to evade taxes. Traxler (2010) introduces a formal model for tax evasion in which the utility of evading taxes depends negatively on the social norm, which in turn depends on how many others evade taxes. Kube and Traxler (2011) emphasize the relevance of social norms for public policy on legal enforcement, since higher penalties not only have a direct effect on the expected gains of non-compliance, but also an indirect effect by changing the social

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norm. The variation in the perception of the severity of small crimes in society, rather than (or, in addition to) the (low) probability of being caught or the punishment in case of being caught, shows how social norms vary across crimes and across socio-economic groups. Social norms are increasingly important in theoretical and empirical work in economics, and the value of our study mainly relies on the link to and the relevance for the social norm literature.

Measuring the perception of crime can be useful to evaluate how sentencing guidelines correspond to public sentiment and to the allocation of police resources (Miethe, 1982). The perception of larger crimes has been studied extensively in the criminology literature (see, for example, the survey of Stylianou, 2003). The first to study the perceptions of ‘crime seriousness’ were Sellin and Wolfgang (1964) who developed a new method to measure seriousness, thus providing new insights on public consensus and relative ordering of criminal acts. The existing literature in criminology focuses on serious crimes or property crimes (Rossi et al., 1974; O’Connell and Whelan, 1996; Rosenmerkel, 2001), and white-collar crimes (Rosenmerkel, 2001; Isenring, 2008; Piquero et al., 2008). This literature ranks crimes in terms of seriousness, and finds that there is relative consensus in the sense that different groups usually give the same ranking, but not absolute consensus in the sense that the seriousness scores are approximately equal. *Harmfulness* and *wrongfulness* are found to be the key dimensions driving perceived seriousness (Warr, 1989; Rosenmerkel, 2001). While harmfulness refers to the perceived consequences for the victims, wrongfulness refers to morality and the social norms in society or a socio-economic group. Differences were sometimes found between groups of different gender, age, education, degree of urbanization, etc., but in many cases the differences were statistically insignificant, so that no clear systematic picture emerges. There is also evidence that the perceived seriousness of crimes may depend on characteristics (such as age or gender) of who commits the crime (Rossi et al., 1985), on whether the crime is committed once or repeatedly (Herzog and Oreg, 2008), and on other circumstances under which the crime is committed. For example, the justifiability of employee theft depends on behavior of superiors and the peer group of co-workers (Jones and Kavanagh, 1996). All this shows that the perceived seriousness not only depends on the consequences for victims but also on social norms in society or an organization. There is more variation in the perceived seriousness of victimless crimes and less serious behaviors (Stylianou, 2003), probably because of larger differences in social norms towards such crimes than towards more violent and more serious crimes. This makes it particularly interesting to study less serious crimes.

Our study differs from the existing literature because we look at incorrect behaviors (‘small crimes’) that are not always condemned by the general public. These small crimes go beyond white-collar crimes committed by individuals within an organization. Our analysis is related to Halman and Luijckx (2008) who examined the public’s opinion on small crimes from a social values point of view. Some of our small crimes are the same as the short descriptions used by Halman and Luijckx (2008), taken from the 1999 and 2008 waves of the European Values Study (EVS). Our approach is different in that it includes both short descriptions and hypothetical settings of specific small crimes (vignettes). This allows us to investigate the influence of offender and offense characteristics on a respondent’s perception in a systematic way.

In this paper we measure perceptions of small crime and relate these to information on crimes committed, based on a questionnaire developed by us and administered to participants of the CentERpanel, a large representative sample from the Dutch population. In the questionnaire we ask the respondents to subjectively rate the severity or justifiability of a number of small crimes. We also ask them to evaluate six small crimes presented in a setting with more (hypothetical) context. In such ‘vignette’ questions, several characteristics of a fictitious person committing the small crime and other factors related to the situation are included in the description.

Using survey questions to measure perceived seriousness of crime is quite common in the criminology literature (see, for example, Rosenmerkel, 2001, or Herzog and Oreg, 2008, and the references in these studies). In the literature on the economics of crime, some studies use survey questions but many others use actual data or experimental data. The use of survey data has both advantages and disadvantages. The main advantages for our purpose are that our survey is representative for a broad population and that many background variables on the respondents are available, such as various indicators of socio-economic status (education, income). A potential disadvantage is that the respondents do not get any incentives to reveal their true opinions. On the other hand, there is no reason why they would give strategically biased answers, and the temptation to give socially desirable answers is likely to be small since the interview is an Internet survey with no personal contacts with an interviewer (see Chang and Krosnick, 2009). Moreover, there is evidence in the experimental economics literature that for relatively simple questions, respondents do not need real incentives to reveal their true preferences (see, for example, Beattie and Loomes, 1997, or Camerer and Hogarth, 1999).

The plan of the paper is as follows. In Section 2 we describe the set-up and framework of the questionnaire and present descriptive statistics, including an ordering of the small crimes by their mean perceived severity. The statistical analysis of the short questions and the vignette questions is presented in Sections 3 and 4. Section 5 discusses some policy implications and concludes. The Appendix provides more details on the vignette questions.

2. Questionnaire and descriptive statistics

The results in this paper are based on a survey conducted in the Summer of 2008 through CentERdata at Tilburg University. CentERdata manages a panel of over two thousand ‘respondents’ (the CentERpanel, hereafter CP), forming a representative sample of the adult Dutch population. The sample is based on a probability sample of the non-institutionalized Dutch population of ages 16 years and older. Selected households without Internet access or without a personal computer are provided with the necessary equipment so that the sample also covers the non-Internet part of the population. Every week a questionnaire is sent out (through the Internet) to all respondents, each week on a different topic. The response rate is generally above 70%. Since respondents have

typically participated in previous surveys, detailed background information is available, including gender, age, income, education, role in the household, and area of residence.

Respondents who did not respond to the survey in the first weekend were asked again a few weeks later. The combined response rate was 83% (1932 respondents). The average completion time was about thirty minutes. It seems reasonable to assume that participating and completing the questionnaire is independent of the variables of interest, conditional on several background variables (gender, age, education) that are used to construct survey weights. CentERdata constructs these weights by comparing the sample with a larger household survey administered by Statistics Netherlands. These weights will be used below in computing some of the descriptive statistics.

2.1. Short questions

Our survey consists of three parts. First, the respondents were asked to rate the severity of 18 offenses and the justifiability of 6 other offenses. The offenses range from taking a ballpoint from the office for private use to accepting a bribe. The wording of the questions for the first 18 offenses is:

Below we list examples of situations that might occur in daily life. Please evaluate the severity of these actions as you perceive them on a scale from 1 (very severe) to 10 (not severe).

The other six offenses are taken from EVS; their wording is comparable but uses 'justifiability' instead of 'severity' (exactly as in EVS). Some of the types of small crime included in the survey were also used by [Traxler and Winter \(2009\)](#), but our list of small crimes is much longer.

In [Table 1](#) we present the means and standard deviations for the answers to the six short questions that appear in both the European Values Study and our CentERpanel survey. Two questions from EVS 1999 were not asked in EVS 2008. Applying for social benefits to which one is not entitled is considered the least justifiable of all offenses considered, followed by accepting a bribe in the course of duty. Remarkably, throwing away litter in public places also ranks quite high.

There seems to be general agreement between the CentERpanel and the EVS data for most questions. An exception is smoking in a public place, which is seen as less justifiable in the CentERpanel than in EVS 1999. This is explained by the nine-year gap between the two data sets. The perception of smoking in The Netherlands has changed in those nine years, because smoking was banned from governmental organizations in 1990 and from the private sector (including restaurants and bars) in July 2008, just after the first weekend that our survey was fielded. A widely publicized event like the introduction of a smoking ban may well lead to a (possibly temporary) change of the social norm ([Ramchand et al., 2009](#)). Comparing the two EVS waves, it appears that people consider most offenses less justifiable in 2008 than in 1999. This particularly applies to cheating on taxes. Surprisingly, the CentERpanel mean for the perceived justifiability of cheating on taxes is much closer to EVS 1999 than to EVS 2008, even though EVS and CP were conducted in the same year. Three of the six offenses in [Table 1](#) (littering, fare dodging, and evading taxes) were also considered by [Traxler and Winter \(2009\)](#), and their ordering corresponds to what we find.

[Table 2](#) describes the 18 short questions on small crimes which were not included in EVS. They are ordered according to their mean severity, from most severe to least severe. The two most severe offenses are harmful to other individuals, stressing the importance of 'harmfulness' for another private person ([Rosenmerkel, 2001](#)). Not cleaning up the dog's pooh (ranked 3) also ranks quite high, in line with the high ranking of throwing away litter in public places, the offense related to polluting the environment in [Table 1](#). Traffic violations like driving 170 km/h on a highway where the speed limit is 120 km/h, are not considered as very severe, suggesting perhaps that many people see the maximum speed rules as unnecessarily strict.

As expected, taking away soap and shampoo from a hotel room is considered the least severe of small crimes. Most respondents do not consider this as a small crime at all, but see the soap and shampoo as a gift from the hotel. Taking a ballpoint home from the office is also one of the least severe small crimes. It is an example of 'internal fraud' and, according to [Greenberg \(2002\)](#), this occurs more frequently when employees feel underpaid or when employees consider the decision-making criteria as unfair. In general, offenses at the cost of the employer seem to be perceived as less severe than offenses at the cost of another individual. Downloading music illegally also appears in the bottom three of the ranking; downloading music is not illegal in The Netherlands

Table 1
European Values Study (EVS) 1999 and 2008 versus CentERpanel (CP) 2008.

Offense	EVS 1999 Mean (Std)	CP Mean (Std)	EVS 2008 Mean (Std)
Claiming government benefits to which one is not entitled	1.52 (1.28)	1.44 (1.04)	1.52 (1.33)
Accepting a bribe at work	1.60 (1.31)	1.65 (1.26)	1.55 (1.23)
Throwing away litter in a public place	1.74 (1.30)	1.98 (1.42)	
Avoiding a fare on public transport	2.79 (2.21)	2.47 (1.81)	2.58 (2.10)
Cheating on taxes if one has a chance	2.74 (2.22)	2.92 (2.14)	2.28 (1.96)
Smoking in a public building	3.81 (2.65)	2.98 (2.16)	

Note: Answers are on a scale from 1 (never justifiable) to 10 (always justifiable).

All statistics are weighted. The number of observations N varies over studies and also (slightly) over offenses. We have 1001–1003 observations for the EVS 1999, 1929 for the CP, and 1542–1549 for the EVS 2008.

Table 2

Ordering of small crimes in terms of perceived severity.

Offense	Mean (Std)
Damaging a car by accident and not informing the owner	2.10 (1.36)
Turning up the volume of music late in the evening	2.15 (1.40)
Walking the dog and not cleaning up the dog's pooh	2.71 (1.73)
Pretending to be sick and staying at home for two days	2.84 (1.90)
Driving 170 km/h on a highway (maximum is 120 km/h)	3.09 (2.13)
Leaving a barking dog alone at home	3.19 (1.78)
Taking cutlery from a canteen	3.21 (1.91)
Taking a bundle of printing paper and 5 ballpoints from the office	3.30 (2.01)
Practicing the piano in an apartment building from 7:00–10:00 am	3.47 (1.96)
Taking software from the office to install it at home illegally	3.94 (2.31)
Taking a bundle of printing paper from the office	4.09 (2.28)
Breaking a coffee mug in a store and not informing the owner	4.13 (2.10)
Making daily private phone calls from the office	4.49 (2.33)
Working two evenings per week without paying income tax	4.51 (2.34)
Driving 60 km/h within town (maximum is 50 km/h)	5.19 (2.56)
Downloading music illegally from time to time	5.98 (2.53)
Taking a ballpoint from the office	6.27 (2.70)
Taking soap and shampoo from a posh hotel room	7.03 (2.66)

Note: Answers are on a scale from 1 (very severe) to 10 (not severe).

All statistics are weighted. The formulation of some offenses is shortened to fit the table. The full survey is available upon request.

as long as it is for private use and from a legal source, but the majority of music offered at peer-to-peer networks comes from illegal sources. Apparently, there is no strong social condemnation of digital piracy as this has no perceived social cost. This is in line with the theoretical arguments of [Balestrino \(2008\)](#).

2.2. Vignettes

In the second part of the survey we asked our respondents in 12 questions to rate the perceived justifiability of six offenses, this time described in short stories (so-called 'vignettes') concerning hypothetical persons in a hypothetical setting. The vignette questions were asked after the short questions to avoid framing effects on the short questions, which would hamper comparing the answers to the short questions with other studies. The six offenses are: (a) not having a valid (train) ticket; (b) accepting a bribe; (c) reporting a lower income than the actual income to the tax authorities; (d) breaking a coffee mug and not reporting it; (e) taking a bundle of printing paper; and (f) driving too fast on a highway.

Each of the six offenses was described in two vignettes with varying characteristics of the hypothetical person (the 'vignette person') committing the offense and of the hypothetical setting. A typical example, concerning offense (a), is:

[Jack] is [27]years old and earns [€2500] per month before tax, a [low] wage for the type of work he does. Each day he takes the train to work, a trip of about [5]min. Today he is in a hurry since he does not want to arrive late at work. He jumps on the train without a valid ticket. It has [not] happened before that he knowingly did not have a valid ticket. The probability that someone will check the tickets on this route is [very small]. Do you think [Jack]'s behavior is absolutely not justifiable (1),..., always justifiable (10)?

The parts in square brackets vary across vignettes. For each situation and each respondent the offender's income is lower in the first variant than in the second, guaranteeing that the two vignettes on the same offense are always different. (In the example above, €2500 in the first variant and €3500 in the second.) The other parts in square brackets are randomized (independently of each other). In the example, the name of the offender is either Jack or Diana, both with probability 0.5; the offender's age is randomly set to 27, 43, or 55 years (with equal probabilities); and the absolute income level (€2500) can be low or usual for the type of work the offender does (both with probability 0.5). The other randomizations do not concern the offender but the context in which the crime is committed: how long does the trip take (5 or 15 min); is the offense committed repeatedly or only once; what are the chances of getting caught (low or 50%)? Similar randomizations are used for the other vignettes. A full description of the vignette questions and the randomizations is provided in the Appendix. The dummy variables that capture the characteristics of the offender and the circumstances in the vignettes are listed in [Table 3](#). These are used as explanatory variables in our models for the vignette justifiability evaluations.

In [Table 4](#) we compare the means and standard deviations of the vignette evaluations for the six offenses with the answers to the corresponding short questions. Accepting a bribe in the course of duty is considered least justified, both in the short questions and in the vignette questions. Avoiding a fare on public transport is considered less justifiable than cheating on taxes in the short questions, but this reverses in the vignette questions, where avoiding a fare is evaluated as the least serious offense of all. The opposite difference between short questions and vignette questions is found for the justifiability (severity) of breaking a coffee mug, taking a bundle of printing paper, or driving too fast on a highway. There are substantial differences between the answers to the short questions and the vignette questions. There may be several reasons for this. Since the vignette questions provide more

Table 3

Binary vignette variables with explanation.

Vign_wage	1 if vignette person (vp) has a high wage
Vign_female	1 if vp is a woman
Vign_27y	1 if vp is 27 years old
Vign_43y	1 if vp is 43 years old
Vign_55y	1 if vp is 55 years old
Vign_freq	1 if small crime has been committed more often before
Vign_catch	1 if the probability of getting caught is 50% (0 if very small)
Vign_distance	1 if the travel distance is 20 min (0 if 5 min)
Vign_boss	1 if the boss of the vp behaves correctly
Vign_entrepr	1 if the vp is an independent entrepreneur
Vign_wage_hi	1 if vp receives substantial wage for type of work, given vign_wage = 1
Vign_wage_us	1 if vp receives usual wage for type of work, given vign_wage = 0

information about the context in which the offense is committed, one explanation is that context matters. This is in line with Riedel (1975) who asked respondents to rate the importance of offense and offender characteristics for judging the seriousness of a described offense. He concluded that respondents need external factors to make a judgment. On the other hand, Rossi et al. (1997) found that the offender's background only has a small impact on sentencing preferences. How context matters will be studied in detail in Section 4. An alternative explanation for differences between the ratings of short questions and vignettes might be framing effects: there are many small crimes in the short questions, and it is likely that respondents try to rank these with their ratings. On the other hand, there are only six small crimes in the vignettes. This may explain differences in the absolute ratings, but it seems implausible that it explains the observed reversal of some of the average ratings.

The sample standard deviations in the answers to the short questions and the vignette questions are of similar size; two of the six standard deviations are larger for the vignette questions; the other four are larger for the short questions. Herzog (2003) argued that when judgments are based on less information regarding the circumstances of the crime (e.g. offender characteristics) respondents will make quick judgments based on shared norms in a society, which would suggest that the dispersion in the answers to the short questions would be smaller than for the vignette questions. We do not find any such evidence in Table 4.

Figs. 1 and 2 provide the complete distributions of the answers. We have almost twice as many observations (3840) for the vignette questions as for the short questions (1930), because the respondents evaluated two vignette questions for each type of offense. As explained above, the income of the person committing each offense is always lower in the first vignette than in the second vignette (while other characteristics are randomized). Fig. 2 shows separate histograms for the answers to these two questions, clearly illustrating that respondents tend to perceive an offense as more severe if the income of the person committing the offense is higher.

2.3. Respondent characteristics

The respondent characteristics used as explanatory variables are presented in Table 5 (definitions and descriptive statistics). Roughly 47% of the sample is female. The age of the respondents ranges from 15 to 93 with a mean of 51. Highly-educated respondents are overrepresented: 36% completed higher vocational school or has a university degree in our sample as compared to 25% in the population in 2006 (Statistics Netherlands, 2008). This is because the higher educated have a larger probability to participate in the CentERpanel. We use sample weights to correct for this.

To capture the effect of how familiar respondents are with crime, we include crime_rate (the number of registered crimes per capita) at the provincial level, which varies from 4.6% to 9.0%. Within a given province, crimes are more common in cities than in rural areas. Hence, we also include the degree of urbanization. About 41% of our respondents live in cities, 20% in larger towns, and 39% in small towns or villages.

Table 4

Mean (standard deviation) of dependent variables.

	Short	Vignette
EVS questions	Justifiability	Justifiability
(a) Avoiding a fare	2.47 (1.81)	3.88 (2.33)
(b) Accepting a bribe	1.65 (1.26)	2.10 (1.59)
(c) Cheating on taxes	2.92 (2.14)	2.81 (1.96)
Our own questions	Severity	Justifiability
(d) Breaking a coffee mug	4.13 (2.10)	3.47 (2.08)
(e) Taking a bundle of printing paper	4.09 (2.28)	3.19 (2.05)
(f) Driving too fast on a highway	3.09 (2.13)	2.73 (1.96)

Note: Answers are on a scale from 1 (very severe/never justifiable) to 10 (not severe at all/always justifiable). All statistics are weighted. *N* varies between 1929 and 1932 for short questions and between 3840 and 3846 for vignette questions.

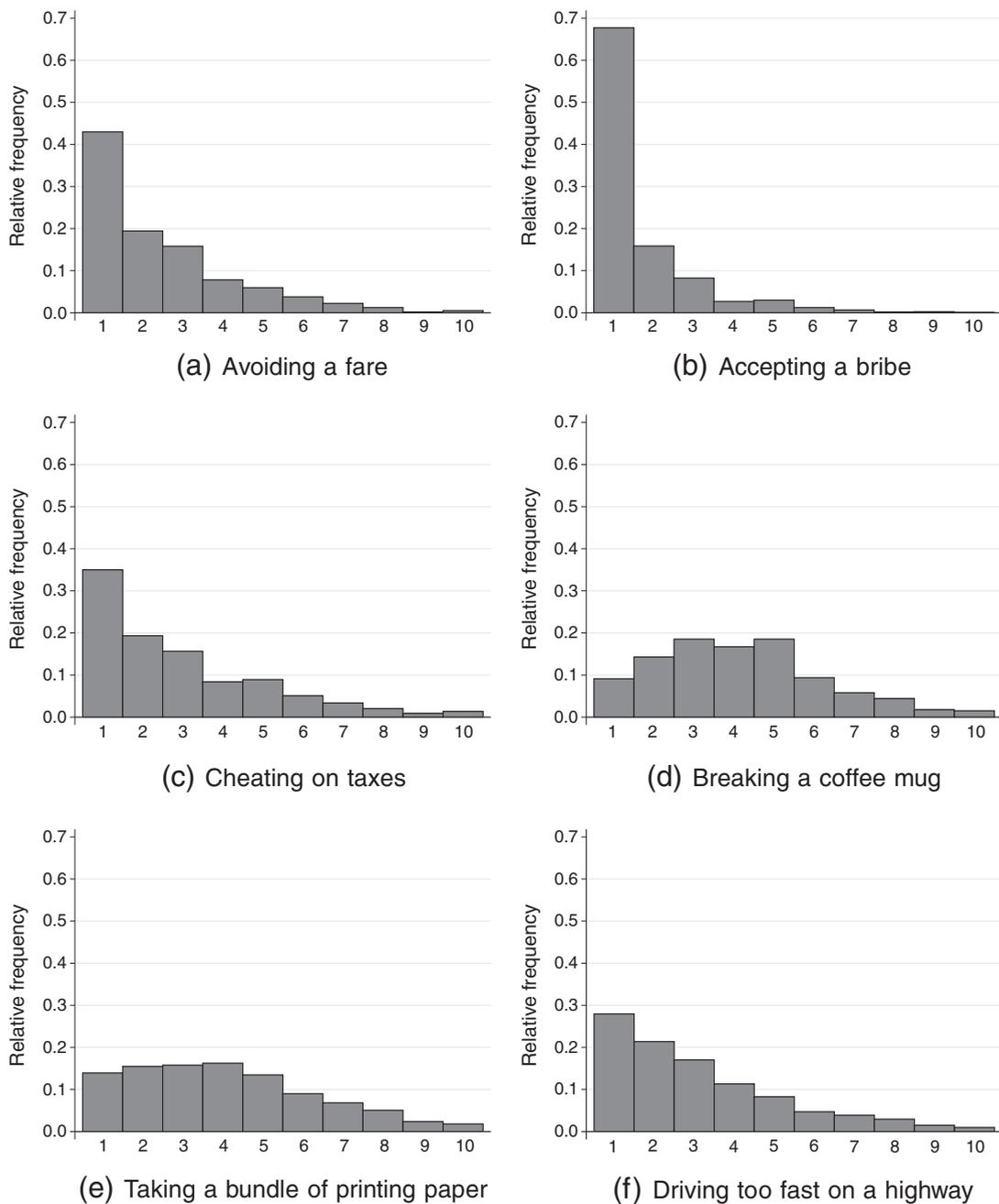


Fig. 1. Answers to selected short questions. (Items (a)–(c) refer to justifiability; items (d)–(f) to severity).

It is likely that one's occupational status influences one's perception of crime. For example, employees may be more sympathetic than others to someone taking a bundle of printing paper from the office for private use, because they are more familiar with this kind of situation. We distinguish between four types of occupations. The largest group (48%) consists of those in paid employment (*occup_empl*).

The majority of the respondents (62%) are head of a household. In about 67% of all cases, household heads live together with a partner (married or unmarried). Being head of a household or the partner of the household head may imply that one's behavior is an example to the rest of the household, which may lead to a different attitude to (small) crimes. About four out of five respondents reported that they support a national political party; the others support a local party or do not feel affiliated with any political party. Of those supporting a national party, about one-quarter supports a Christian party. We included a dummy for supporting a Christian party as a proxy for ethical norms and values that may possibly affect attitudes towards (small) crime.

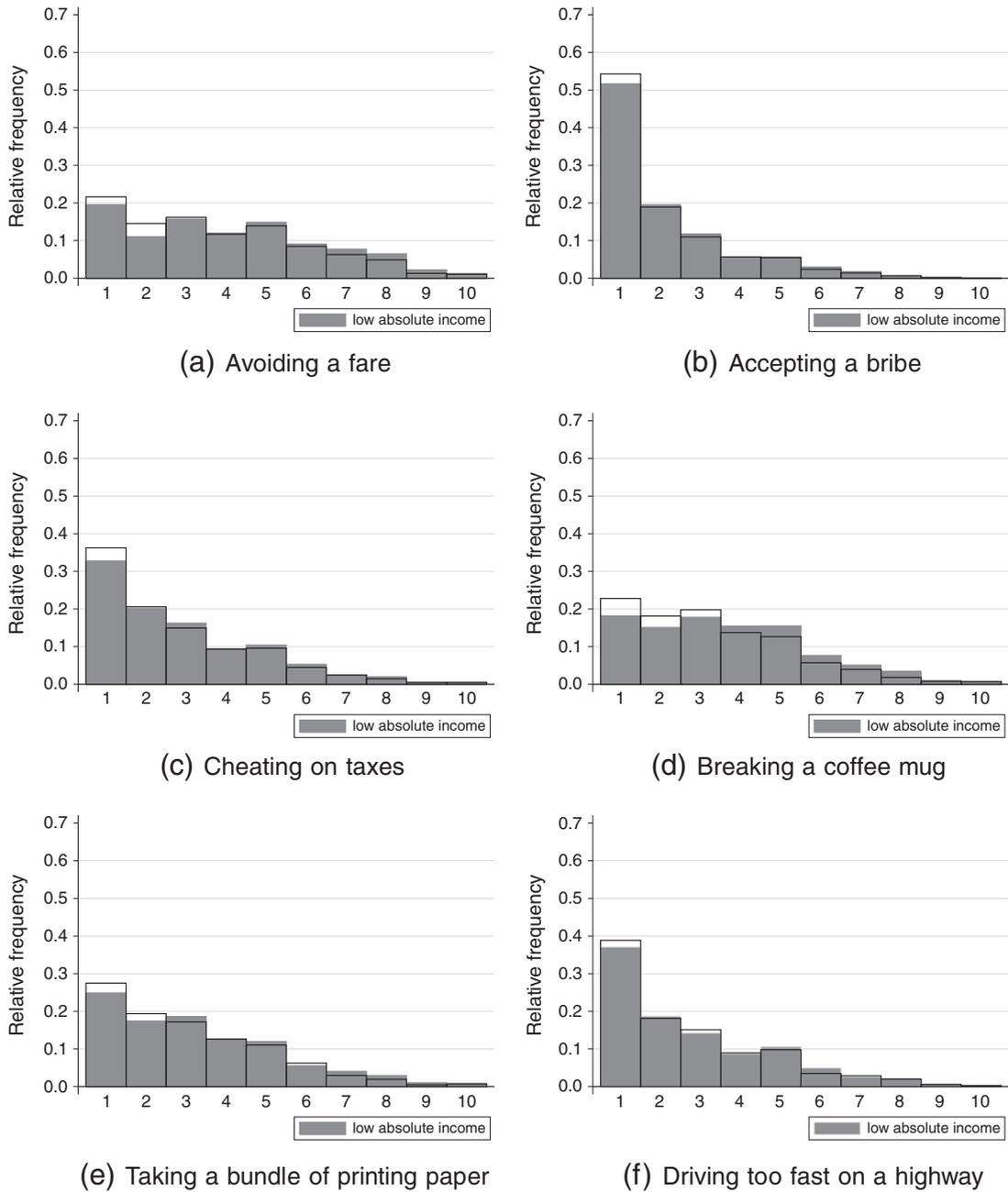


Fig. 2. Answers to vignette questions. (All items refer to justifiability).

Finally, we asked some questions about the respondent's past victimization incidence and exposure to crimes in daily life. These questions are not analyzed in the current paper. The complete survey is available from www.janmagnus.nl/items/small-crime.pdf.

3. Models

We analyze the determinants of the perceived justifiability (and severity in the case of some of the short questions) of small crimes using econometric models. We focus on explaining the answers to the vignette questions, from respondent characteristics, offender characteristics, and other variables describing the context of the offense. In addition, we consider models explaining the answers to the six short questions on the same types of offenses described in the vignettes from respondent characteristics only. This is in order to investigate to which extent providing the context changes the conclusions about the association between perceived seriousness and respondent characteristics. We model the answers to the short questions and the vignette answers to each of the six offenses separately. Since the response scale is discrete and ordered, ranging from never justifiable (1) to always

Table 5

Respondent variables with explanation.

Variable	Mean (Std)	Explanation
<i>Non-binary variables</i>		
Age	50.7 (16.1)	Age of respondent (in years)
Hh_lincome	7.93 (1.43)	Log of gross monthly household income
Crime_rate	7.31 (1.22)	% number of crimes in total population per province
<i>Binary variables</i>		
Female	0.47 (0.50)	1 if respondent is a woman
Edu_prim	0.07 (0.25)	1 if respondent's highest education is primary school
Edu_secon1	0.26 (0.44)	1 if – lower general secondary school
Edu_secon2	0.12 (0.33)	1 if – higher general secondary school
Edu_vocat1	0.19 (0.39)	1 if – intermediate vocational school
Edu_vocat2	0.24 (0.43)	1 if – higher vocational school
Edu_univer	0.12 (0.32)	1 if – university
Urban_low	0.39 (0.49)	1 if respondent lives in a less urbanized area
Urban_high	0.41 (0.49)	1 if – more urbanized area
Urban_middle	0.20 (0.40)	1 if – an intermediate urban character
Occup_empl	0.48 (0.50)	1 is respondent has an (unpaid) job
Occup_pension	0.23 (0.42)	1 if – is retired or ≥ 65 years
Occup_indep	0.05 (0.21)	1 if – works as independent entrepreneur or in a family firm
Occup_nowork	0.24 (0.43)	1 if – has no occupation (incl. students)
Position_head	0.62 (0.49)	1 if respondent is head of the household ^a
Partner	0.79 (0.41)	1 if head of household has a partner (married or unmarried)
Party_nochr	0.59 (0.49)	1 if respondent votes for non-Christian national political party
Party_christ	0.22 (0.42)	1 if – Christian national political party
Party_other	0.19 (0.39)	1 if – local party or does not vote

Statistics are not weighted. N varies between 1918 and 1931.

^a The 'head' is the person who owns the house or signed the rental contract; if this applies to more than one person, then the one with the highest personal income is the head.

justifiable (10) – or from very severe (1) to not severe at all (10) – we use ordered probit models: a standard ordered probit model for each of the short questions, and a panel-data version of this model for the vignettes.

3.1. Model for short questions

The model for each of the short questions describes the reported evaluation as the category containing the value of an unobserved (latent) continuous variable y_i^* , which is driven by a vector of explanatory variables x_i (respondent characteristics, in our case) and an error term ε_i :

$$y_i^* = x_i' \beta + \varepsilon_i,$$

$$y_i = j \quad \text{if } \alpha_{j-1} < y_i^* \leq \alpha_j,$$

where

$$\varepsilon_i \sim N(0, 1) \text{ independent of } x_i,$$

and $i = 1, \dots, N$ denote the respondents, and $j = 1, \dots, m$ are the possible values that y_i can have. We set $m = 10$ and let $\alpha_0 = -\infty$ and $\alpha_m = \infty$.

3.2. Model for vignette questions

The fact that each respondent answers two vignette questions on each offense (with different values of the randomized vignette variables; see Section 2) allows us to use a random-effects panel-data ordered probit model with $T = 2$ 'time periods':

$$y_{it}^* = x_{it}' \beta + \varepsilon_{it}, \quad i = 1, \dots, N, \quad t = 1, 2,$$

$$y_{it} = j \quad \text{if } \alpha_{j-1} < y_{it}^* \leq \alpha_j, \quad j = 1, \dots, m,$$

where

$$\varepsilon_{it} = u_i + v_{it},$$

$$u_i \sim N(0, \sigma_u^2), \text{ independent of } x_{i1}, x_{i2}, v_{i1}, v_{i2},$$

$$v_{it} \sim_{iid} N(0, \sigma_v^2), \text{ independent of } x_{i1}, x_{i2}.$$

Again, we set $m = 10$ and let $\alpha_0 = -\infty$ and $\alpha_m = \infty$. Without loss of generality we normalize $\sigma_\varepsilon^2 (= \sigma_u^2 + \sigma_v^2)$ to 1. For the explanatory variables in x_{it} , we distinguish between respondent characteristics (income, age, gender, education, occupational status), characteristics of the vignette person committing the crime, and variables describing the context in which the crime is committed. This allows us to disentangle the effects of respondent characteristics and characteristics of the offender on the perceived severity of each offense. Note that vignette characteristics vary with i and t , while respondent characteristics vary with i only.

The model is estimated by maximum likelihood, integrating out the random effects. The random effects capture the correlation between the unobservable components in the two vignette questions for each individual, and this correlation is automatically taken into account in computing the standard errors (so that accounting for clustering is not needed).

4. Results

In the baseline model for the vignette questions, x_{it} includes the respondent characteristics that are also used for the short questions (gender, age, household income, education, the crime rate in the province of residence, and the urbanization rate), as well as the vignette characteristics. Because of the design, there is some variation in vignette characteristics across the six situations. An example is *vign_boss*, capturing the effect on perceived justifiability if the boss of the vignette person behaves correctly under the same circumstances. This variable is only included in two of the six situations.

We also estimated models with interactions. For example, it might be that the difference between perceived justifiability of a young and an older person committing an offense varies with the age of the respondent, or it could be the case that the effect of income of the offender on the seriousness perception is different for respondents with lower or higher income. Such interactions, however, were hardly ever significant and adding them did not lead to additional insights. Since the interactions also make it harder to interpret the results, we decided to only present the results of the models without interactions.

The estimation results for the short questions are presented in Table 6, and the results for the baseline model of the vignettes are in Tables 7 and 8. We focus on the results for the vignettes and the differences between the effects (of respondent characteristics) according to the vignette evaluations and the short questions.

4.1. Respondent characteristics

We first consider the respondent characteristics. Some of the earlier studies focus on measuring the degree of consensus between different demographic groups (Sellin and Wolfgang, 1964; Rossi et al., 1974; O'Connell and Whelan, 1996; Kwan et al.,

Table 6
Ordered probit on short questions.

Variable	Situation					
	1	2	3	4	5	6
Female	-0.1887*** (0.0509)	-0.2170*** (0.0477)	-0.1430*** (0.0481)	-0.3282*** (0.0496)	-0.1572*** (0.0575)	-0.2653*** (0.0498)
Age	-0.0153*** (0.0017)	-0.0111*** (0.0016)	-0.0216*** (0.0016)	-0.0192*** (0.0016)	-0.0123*** (0.0018)	-0.0012 (0.0015)
Hh_income	-0.0101 (0.0186)	-0.0059 (0.0185)	-0.0273* (0.0162)	-0.0034 (0.0167)	0.0111 (0.0212)	-0.0191 (0.0184)
Crime_rate	0.0155 (0.0217)	0.0254 (0.0205)	0.0234 (0.0200)	0.0242 (0.0204)	0.0026 (0.0244)	0.0557*** (0.0216)
Edu_secon1	-0.0330 (0.1085)	-0.0662 (0.1048)	-0.0549 (0.1063)	0.1592 (0.1019)	-0.1906* (0.1120)	-0.1030 (0.1012)
Edu_secon2	-0.0693 (0.1198)	-0.0520 (0.1121)	-0.1256 (0.1179)	0.1782 (0.1117)	-0.3303*** (0.1243)	-0.1198 (0.1137)
Edu_vocat1	-0.0718 (0.1090)	-0.1210 (0.1070)	-0.0518 (0.1075)	0.3209*** (0.1025)	-0.1598 (0.1128)	-0.2684*** (0.1041)
Edu_vocat2	-0.2870*** (0.1074)	-0.1863* (0.1032)	-0.1638 (0.1054)	-0.1592 (0.0993)	-0.6597*** (0.1133)	-0.4281*** (0.1032)
Edu_univer	-0.1151 (0.1186)	-0.1348 (0.1115)	-0.0707 (0.1130)	0.2409** (0.1130)	-0.5960*** (0.1305)	-0.2650** (0.1112)
Urban_high	0.0307 (0.0589)	0.1348** (0.0546)	0.1006* (0.0557)	-0.2780*** (0.0582)	-0.1212* (0.0673)	-0.1982*** (0.0583)
Urban_middle	0.0133 (0.0703)	0.0865 (0.0668)	0.0788 (0.0658)	-0.1731*** (0.0655)	-0.0500 (0.0758)	0.0248 (0.0684)
N	1914	1917	1917	1917	1914	1914

Note: Standard errors in parentheses.

Situations: 1 = not having a valid (train) ticket; 2 = breaking a coffee mug; 3 = taking a bundle of printing paper; 4 = driving too fast on a highway; 5 = accepting a bribe; 6 = reporting a lower income to the tax authorities.

* = {0.05 ≤ p < 0.10}.

** = {0.01 ≤ p < 0.05}.

*** = {p < 0.01}.

Table 7
Random effects ordered probit.

Variable	Situation					
	1	2	3	4	5	6
<i>(a) Respondent characteristics</i>						
Female	−0.1775 (0.1105)	−0.4754*** (0.1142)	−0.3359*** (0.1135)	−1.4000*** (0.1350)	−1.2307*** (0.1142)	−0.9644*** (0.1259)
Age	−0.0087*** (0.0032)	−0.0082** (0.0039)	−0.0430*** (0.0036)	−0.0509*** (0.0042)	−0.0416*** (0.0034)	−0.0237*** (0.0037)
Hh_lincome	−0.0067 (0.0378)	−0.0476 (0.0477)	−0.0272 (0.0298)	−0.1745*** (0.0364)	−0.0924*** (0.0340)	−0.1762*** (0.0269)
Crime_rate	0.0880** (0.0446)	0.2405*** (0.0432)	0.1691*** (0.0642)	0.3897*** (0.0570)	0.2232*** (0.0450)	0.3639*** (0.0487)
Edu_secon1	−0.1647 (0.3054)	−0.8979*** (0.2229)	−0.1432 (0.2766)	−0.0977 (0.2764)	−0.6907*** (0.1839)	−0.2853 (0.2572)
Edu_secon2	0.0167 (0.3286)	−0.4125* (0.2436)	−0.3468 (0.3007)	0.4387 (0.2875)	−1.3166*** (0.2252)	−0.3959 (0.2761)
Edu_vocat1	−0.1069 (0.3065)	−0.8834*** (0.2167)	−0.0484 (0.3069)	0.2829 (0.2517)	−1.3366*** (0.1862)	−0.8246*** (0.2629)
Edu_vocat2	−0.2527 (0.3208)	−0.8612*** (0.2196)	−0.4725* (0.2762)	−0.6029** (0.2403)	−2.2939*** (0.2173)	−1.3780*** (0.2868)
Edu_univer	0.3684 (0.3327)	−1.4330*** (0.2530)	−0.2069 (0.2965)	−0.1554 (0.2738)	−2.6853*** (0.2152)	−1.9023*** (0.2703)
Urban_high	−0.1307 (0.1227)	0.0079 (0.1219)	0.1733 (0.1274)	−1.8075*** (0.1769)	−0.0109 (0.1156)	−0.8207*** (0.1429)
Urban_middle	0.2656* (0.1424)	−0.0118 (0.1356)	0.0984 (0.2282)	−1.1946*** (0.1780)	0.0501 (0.1604)	0.1816 (0.1557)
<i>(b) Vignette characteristics</i>						
Vign_wage	−0.3496*** (0.0594)	−0.5564*** (0.0637)	−0.3154*** (0.0632)	−0.2604*** (0.0700)	−0.3403*** (0.0798)	−0.3813*** (0.0688)
Vign_female	0.0014 (0.0499)	−0.0937* (0.0527)	0.0095 (0.0520)	0.1205** (0.0590)	−0.0878 (0.0610)	−0.1146** (0.0568)
Vign_43y	0.0683 (0.0594)	0.1153* (0.0631)	0.0875 (0.0625)	0.1039 (0.0717)	−0.0330 (0.0759)	0.0030 (0.0733)
Vign_55y	0.0937 (0.0599)	0.1683*** (0.0625)	0.0584 (0.0622)	0.0176 (0.0761)	−0.0189 (0.0743)	0.0246 (0.0699)
Vign_freq	−1.2838*** (0.0531)		−0.4162*** (0.0518)	−0.5922*** (0.0624)	−0.3840*** (0.0616)	−0.2644*** (0.0570)
Vign_catch	−0.0390 (0.0484)		−0.1340*** (0.0508)			−0.2631*** (0.0556)
Vign_distance	−0.0719 (0.0482)					
Vign_boss			−0.5716*** (0.0519)		−0.3429*** (0.0608)	
Vign_entrepr				0.0138 (0.0622)		
Vign_wage_us	−0.0941 (0.0684)	−0.0117 (0.0726)	−0.1123 (0.0730)	−0.1171 (0.0879)	−0.1473* (0.0873)	−0.1626** (0.0787)
Vign_wage_hi	−0.0520 (0.0685)	−0.1416* (0.0728)	−0.0974 (0.0730)	−0.0830 (0.0878)	0.0658 (0.0885)	−0.1025 (0.0798)
N	3816	3812	3810	3810	3810	3810
ρ	0.8382	0.8813	0.8564	0.9258	0.9166	0.9176

Note: Standard errors in parentheses.

Situations: 1 = not having a valid (train) ticket; 2 = breaking a coffee mug; 3 = taking a bundle of printing paper; 4 = driving too fast on a highway; 5 = accepting a bribe; 6 = reporting a lower income to the tax authorities.

* = {0.05 ≤ p < 0.10}.

** = {0.01 ≤ p < 0.05}.

*** = {p < 0.01}.

2002), since public consensus is required to develop a generally supported seriousness scale of criminal activities. Differences between groups were studied by Rosenmerkel (2001), who also looks at a larger set of respondent characteristics, including detailed indexes of socio-economic status. We interpret our results as follows.

4.1.1. Gender

Women consider the offenses less justifiable than men, especially regarding driving too fast on a highway. According to the short questions as well as the vignette questions, women perceive all six small crimes as more serious than men with the same characteristics (that is, the same age, education, household income, urbanization rate, and provincial crime rate). This is in line with the results reported by Herzog and Oreg (2008), O'Connell and Whelan (1996), and Rossi et al. (1985), and may be due to the

Table 8

Random effects ordered probit: extended specification.

Variable	Situation					
	1	2	3	4	5	6
Occup_pension	0.0522 (0.1641)	0.0410 (0.1724)	0.1931 (0.1947)	0.0990 (0.1654)	0.4226** (0.1989)	−0.2838 (0.1791)
Occup_indep	0.7616*** (0.2042)	0.8261 (0.5943)	0.7554*** (0.2578)	1.2896*** (0.2014)	1.6483*** (0.2008)	0.9740*** (0.2355)
Occup_nowork	−0.2611** (0.1328)	−0.0872 (0.1608)	0.0908 (0.1726)	−0.6818*** (0.1613)	0.1566 (0.1731)	0.6460*** (0.1610)
Position_head					0.0537 (0.2110)	0.1817 (0.1937)
Partner					0.3436 (0.2175)	0.8216*** (0.2191)
Party_christ						−0.4256*** (0.1283)
Party_other						0.4221*** (0.1288)
N	3816	3812	3810	3810	3810	3806
ρ	0.8406	0.8825	0.8559	0.9319	0.9139	0.9214

Note: Standard errors in parentheses. The extended specifications include the same respondent and vignette characteristics as in Tables 7 and 8.

Situations: 1 = not having a valid (train) ticket; 2 = breaking a coffee mug; 3 = taking a bundle of printing paper; 4 = driving too fast on a highway; 5 = accepting a bribe; 6 = reporting a lower income to the tax authorities.

** = {0.01 ≤ p < 0.05}.

*** = {p < 0.01}.

fact that women are more vulnerable and have a stronger fear of being victimized (Warr, 1984). On the other hand, Kwan et al. (2002) find a gender effect only for crimes that disproportionately affect women, and Isenring (2008) finds no gender effect on the perceived seriousness of white-collar crimes. Kwan et al. (2002) find that bribery (similar to our situation 5) is rated as more serious by men than by women. Orviska and Hudson (2002) find that women are more likely to approve tax evasion (specifically, value-added tax), which is in contrast to our result for situation 6 (reporting a lower income to the tax authorities). The large differences in magnitude across offenses in Table 7, much larger than in Table 6, suggest a violation of relative consensus. For example, speeding on the highway will be higher in the seriousness ranking for women than for men.

4.1.2. Age

The signs and significance levels for the short and vignette questions largely correspond; older respondents always give significantly more severe ratings in all situations. For tax evasion, the negative age effect is significant and larger in magnitude than for some of the other small crimes in the vignette questions, while it was insignificant in the short questions. The negative age effects are in line with Orviska and Hudson (2002) and O'Connell and Whelan (1996); older people may have stricter social norms than younger people, perhaps due to different behaviors of their peer group (Traxler, 2010).

4.1.3. Income

In the short questions, we find no significant income effects. But in the vignette questions, household income has a negative and significant effect in three of the six situations: respondents with a higher household income perceive driving too fast, accepting a bribe, and tax evasion as more serious than low-income respondents. This is in contrast to the findings of Rossi et al. (1985), who report that higher income is associated with more tolerance towards white-collar crimes. On the other hand, Rosenmerkel (2001) found no income effect on white-collar crime, and reports that respondents with higher income considered violent crimes as less serious than lower income respondents. Again, the most likely reason for the income effect seems differences in social norms, probably in relation to differences in peer groups.

4.1.4. Education

In the vignette questions, educational dummies are jointly significant in five of the six situations. More education leads to harsher evaluations. These effects are quite different from those in the short questions, where no clear pattern can be found, although educational dummies are jointly significant in four out of six cases. The strongest effect is found for tax evasion, particularly according to the vignette questions: higher-educated respondents rate tax evasion as much more severe than the lower educated. This is in line with Orviska and Hudson (2002), who also find that a higher education level increases disapproval of tax evasion. This suggests that the social norm to disapprove tax evasion is stronger for the higher educated. Our results for the short questions are closer to Rossi et al. (1985), who also find an inconsistent pattern of the effect of education on the perception of different types of crime. That a higher education would lead to less harsh judgments is found by Rossi et al. (1974), Isenring (2008), Payne et al. (2004), O'Connell and Whelan (1996), and, for white-collar crime, Schragger and Short (1980). We find this only for the short question on situation 4 (driving too fast).

4.1.5. Crime rate

Respondents in provinces with higher crime rates judge less harshly than respondents in provinces with lower crime rates. The effect is significant in all six situations for the vignette regressions, but only in one situation for the short questions. The size of the effect varies. According to the vignette questions, the effect is highest for driving too fast and for tax evasion, and lowest for using public transport without a valid ticket. The significant effect of the crime rate may seem surprising. Respondents who live in areas with a higher crime rate are expected to be more familiar with serious crime, and this may, indirectly, also affect their social norm concerning small crime. On the other hand, the provincial crime rate might also proxy other differences in social norms across provinces, particularly between the more densely populated North-West of the country (where the crime rate is higher) and the rest of the country.

4.1.6. Urbanization

Living in an urbanized area may have an effect on the perception of crime through social norms. Moreover, crime rates are higher in large cities than in smaller towns or rural areas (Glaser and Sacerdote, 1999). Since we include the crime rate by province but not by municipality (since we do not have the data on the latter), this implies that the degree of urbanization can be seen as a proxy for within-province variation in the exposure to crime. It is also important that people in cities tend to be more tolerant than people in the country, not only on crime but also on many other issues. Offenses 4 and 6 (speeding and tax evasion, which are among the more serious of the small crimes considered), are considered less serious by respondents living in a (highly) urbanized area, both in the short and in the vignette questions. This is in line with Rose and Prell (1955) who discuss the effect of urbanization on 'punitiveness' and find that respondents who do not live in an urban area think that punishments should be harsher than respondents in urban areas. Stylianou (2003) also cites several studies that find an effect of the degree of urbanization on other social norms, such as abortion. On the other hand, no significant effects (at the 5% level) are found for the other vignettes and in the short question on traveling without a ticket, we even find an unexpected effect in the opposite direction. Apparently, if social norms concerning small crime vary with degree of urbanization, this does not apply to all small crimes in the same way.

We also considered extensions of the baseline model for the vignette evaluation with more respondent characteristics (respondent's occupation, position within a household, and preference for a Christian political party). The latter two were only included for the offenses where they played a significant role. Adding these additional characteristics leaves the effects of the respondent and vignette characteristics in the baseline model virtually unchanged, and we therefore only present and discuss the effects of the additional respondent characteristics in the extended model (Table 8).

4.1.7. Occupational status

Self-employed respondents are significantly less harsh on five types of small crime than employees, while pensioners are less harsh in only one situation. The latter result is not in line with Herzog and Oreg (2008) who find that part-time employees consider crimes relatively less justifiable than full-timers. Wärneryd and Walerud (1982) find no effect of self-employment or occupation on the attitude towards tax evasion.

4.1.8. Political party

The final additional variable is affiliation with a Christian political party. The literature is ambiguous on this issue. Herzog and Oreg (2008) found that individuals who lead a conservative life also have more conservative views towards crime. Similarly, Payne et al. (2004) reported that conservativeness is positively related to the tendency to punish harder. On the other hand, Isenring (2008) did not find a significant effect of political preferences on crime seriousness ratings. We find no significant effect either, with one exception: respondents who feel attached to a Christian party rate tax fraud as a more serious offense than other respondents.

4.2. Vignette characteristics

In 1996 the Catholic Dutch Bishop Tiny Muskens declared that the poor have a right to steal bread when they are hungry and see no other way to survive. This statement caused some turmoil, especially in the bakery industry, but was also applauded, and some years later Bishop Muskens was appointed Honorary Citizen of Breda. We find that the most salient effect of the vignette characteristics is the effect of the vignette person's earnings level (*vign_wage*). For all situations, respondents consider the offense less justifiable if the person who commits it earns more. The explanation is probably that the respondents feel that people with higher income can better afford to be honest. The coefficients for this variable are of approximately the same size, except for situation 2 (breaking a coffee mug in a shop), for which the effect is by far the largest, and situation 4 (speeding) for which the effect is lowest.

In addition to the absolute earnings level, each vignette situation also provides information on how earnings compare to those of others with a similar job. This information depends on the earnings level: if the earnings level is high, then the vignette states either 'this income is usual for this type of work' or 'this income is high for this type of work' (*vign_wage_hi* = 1). If absolute earnings are low, the vignette states either 'this income is low for this type of work' or 'this income is usual for this type of work' (*vign_wage_us* = 1). A negative sign on both *vign_wage_us* and *vign_wage_hi* implies that respondents are harsher if earnings of the offender are relatively high, given the type of work. It seems that relative income matters more if the offender's absolute

income is low than if it is high: the coefficient of *vign_wage_us* is significant in two situations; that of *vign_wage_hi* in only one situation. These effects are much smaller than those of absolute earnings. Perhaps surprisingly, the relative wage level plays no significant role for the only work-related situation (taking a bundle of printing paper home).

As expected, if a vignette person has committed the same crime before (*vign_freq* = 1), it is considered less justifiable than if the crime is committed for the first time. The effect is significant in all five situations where this information is provided. This finding that people are generally harsher if the offense is repeated corresponds to the results of Herzog and Oreg (2008) and Rossi et al. (1985).

Important is also the probability that the offender gets caught. A larger probability to get caught (*vign_catch* = 1) leads to a harsher judgment, and the effect is significant in two out of three cases. An explanation could be that a small probability to get caught (for example in evading taxes) suggests that the offense is taken less seriously by society, so that the respondent interprets it as a proxy for the social norm. According to the theory of expressive law, the expression of social values is an important, perhaps the most important, function of the courts (Cooter, 1998). See also Kube and Traxler (2011) who focus on the interaction of formal (legal) and informal (social) enforcement of compliance with the law.

The behavior of the offender's superior also matters. The superior sets an example to the employees and influences the norms within the organization. If the superior behaves correctly (e.g. does not take printing paper home for private use), then the respondents think it is less justifiable for the employees to behave incorrectly and consider the offense significantly more severe. This type of behavior is referred to as 'parallel deviance', where unethical behavior on the part of a superior sends a message to an employee that deviant behavior is legitimate or even the standard within an organization (Jones and Kavanagh, 1996; Greenberg and Scott, 1996). Jones and Kavanagh (1996) find that unethical behavior of the superior significantly raises intentions to behave unethically in one of their two experiments.

The effects of other vignette characteristics are specific to the situation. Older offenders are judged significantly less harshly than others when breaking a coffee mug in a shop and not reporting it (situation 2). Differences between ratings of small crimes committed by male and female offenders are insignificant in four situations, and marginally significant with opposite signs in the other two situations. These results are not in line with those of Rossi et al. (1985) who find, in the case of property crimes, that older offenders are judged more severely than young offenders, and females are judged more mildly than males.

5. Concluding remarks

There are many studies on the perception of crime. The studies typically consider serious crimes such as murder and armed robbery and sometimes also white-collar crimes. The literature on the perceived justifiability of small crime or incorrect behavior is, however, small. This paper tries to fill this gap. An analysis of the perception of small crime at the individual level is of interest because it tells us something about the social norms held by different socio-economic groups in society, and social norms play a crucial role in many recent models of economic and social behavior.

In this paper we have tried to disentangle the factors that drive perceptions of small crime using data on respondent, offender, and offense characteristics. One of the strengths of the paper is the quality and quantity of the data. We had access to an excellent panel, representative for a broad population and with a high response rate, and we were able to ask almost 2000 respondents many questions on incorrect behavior of which some activities are forbidden by law while other activities are not forbidden but can be perceived as morally wrong.

A methodological novelty of our approach is that we use vignette questions to incorporate characteristics of the offender and the context in which the offense is committed. Our results comparing vignettes and short questions (Tables 6 and 7) confirm that respondents evaluate a given (small) crime differently if they know more about the offender and the circumstances. From a methodological point of view, this means that the analysis through vignettes is useful, even if we are only interested in how the social norms vary across socio-economic groups.

We find interesting effects of the context variables, showing that social norms concerning crime not only depend on the crime itself but also on the context in which it is committed. The respondents judge a small crime committed by an underprivileged person less harshly than the same offense committed by a wealthy person. Not everyone would agree with Bishop Muskens that a poor man is allowed to steal bread, but income does play a role in people's judgment. This is true even for non-financial crimes such as speeding; see Table 7, situation 4. If this is indeed the public's sentiment, then one may wonder why punishments are not income-dependent. It is not unusual to make company fines dependent on the revenue earned in a certain period, for example when breaking competition laws. Income-dependent fines for individuals are not common in The Netherlands, although they do exist in some other European countries, such as Germany and Switzerland. This study does not discuss the implications for deterrence. For example, if lower sanctions were applied to less well-off individuals, this would send a signal to other similarly placed individuals thinking about the offense. Our findings do not necessarily allow conclusions about law enforcement, despite the fact that some results (for example about repeat offenders) can be related to the law.

No doubt, one can learn much from the experiences in other countries. The current study considers only The Netherlands. Evans and Scott (1984) compared perception in two different cultures: United States and Kuwait. While violent, property, and white-collar offenses were perceived similarly, moral offenses (selling illegal drugs, prostitution, having an illegal abortion, committing perjury) were perceived very differently. A new international study involving more countries would be of great interest.

Various other extensions could also be of interest. It is likely that past victims of a (small) crime judge more harshly than subjects who have never been a victim; see the discussion on the effect of victimization on a subject's judgment in Pease (1988).

Hence, including a measure of victimization may provide additional insight. In addition, a multivariate approach would identify factors driving a respondent's judgment in general, hence not only in a specific situation. Finally, it would be interesting to compare the survey answers with actual behavior, for example in experiments. The fact that, for example, older people perceive small crimes as more serious than younger people, might reflect differences in interpreting the answering scales – older people might more easily call something 'severe' instead of really having a different attitude. This is an issue that has not been addressed in the survey literature on crime perception, but is prominent in subjective evaluations of aspects of well-being such as health or political efficacy (see, for example, King et al., 2004).

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Appendix A. Vignette questions

In the vignette part of the questionnaire we consider six offenses. For each offense we study two variants. Hence we ask twelve vignette questions. (In fact, we ask fourteen questions, but two of these are not analyzed in this paper.) In all cases we randomize over men and women (and adjust the name accordingly), and over age (27, 43, or 55 years old). In the first variant, income is either low or usual (randomized) for the type of work that the vignette person does. In the second variant, income is set higher and is either usual or high (randomized) for the type of work. This is the only difference between the two variants. At the end of each question we ask whether the vignette person's behavior is absolutely not justifiable (1),..., always justifiable (10) on a scale from 1 to 10. Below we give one example for each of the six offenses, each time for the first variant (low income). Randomizations other than those mentioned above are italicized and explained.

A1. Not having a valid (train) ticket

Jack is 27 years old and earns €2500 per month before tax, a low wage for the type of work he does. Each day he takes the train to work, a trip of about 5 min. Today he is in a hurry since he does not want to arrive late at work. He jumps on the train without a valid ticket. It has *not* happened before that he knowingly did not have a valid ticket. The probability that someone will check the tickets on this route is *very small*. [There are three additional randomizations: travel time is either 5 or 20 min; it has not happened before or it has happened often; and probability of detection is very small or 50%.]

A2. Breaking a coffee mug and not reporting it

Anne is 27 years old and earns €1335 per month before tax, a low wage for the type of work she does. While shopping in a department store, she accidentally drops a coffee mug, priced at €4. Anne puts the broken mug back and leaves the store without informing the owner about the accident. [No additional randomizations.]

A3. Taking a bundle of printing paper

John is 27 years old and works at an office. He earns €1335 per month before tax, a low wage for the type of work he does. *John has noticed that his boss occasionally takes printing paper home for private use*. John takes a bundle of printing paper home for private use. *This is the first time that he does this*. The probability that someone will notice it is *very small*. [Three additional randomizations: 'John has noticed that his boss occasionally takes printing paper home for private use' or 'John's boss is a principled man and never takes things home from work for private use'; this is the first time or John does it often; and probability of detection is very small or 50%.]

A4. Driving too fast on a highway

Sandra is 27 years old and earns a living by delivering packages *in her own car*. She earns €1750 per month before tax, a low wage for the type of work she does. On her way to a client she drives 170 km/h on a highway where the maximum speed limit is 120 km/h. It has *not happened before* that Sandra drove so fast on a highway. [Two additional randomizations: Sandra either has her own car or she works for a big courier company; and it has not happened before or it often happened before.]

A5. Accepting a bribe

Patrick is 27 years old and works as a civil servant in a municipal department responsible for building permits. He earns €2000 per month before tax, a low wage for the type of work he does. Patrick's boss is *known to occasionally accept gifts from building firms*. Patrick accepts a gift from someone applying for a building permit, in exchange for speeding up the procedure. This is the *first time*

that Patrick does this. [Two additional randomizations: Patrick's boss is either known to occasionally accept gifts from building firms or he is a principled man and does not accept gifts; and this is the first time or Patrick often accepts gifts.]

A6. Reporting a lower income to the tax authorities

Linda is 27 years old and works freelance. She earns €2500 per month before tax, a low wage for the type of work she does. To the tax authorities she reports €2000 per month. This is the *first time* that Linda does this. The probability that the tax authorities check Linda's tax return is *very small*. [Two additional randomizations: This is the first time or Linda has been doing this for several years; and probability of detection is very small or 50%.]

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