

CentER



Discussion Paper

No. 2011-068

PEER REPORTING AND THE PERCEPTION OF FAIRNESS

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June 9, 2011

ISSN 0924-7815

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*The authors are grateful to Alexander Danzer, Joachim Winter, and participants of the Empirical Economics Workshop at Ludwig-Maximilians-Universität München for constructive comments. Douhou acknowledges financial support from the Dutch Organization for Scientific Research (NWO) through the Mosaic program. E-mail addresses: s.douhou@uvt.nl (Douhou), magnus@uvt.nl (Magnus), avas@uvt.nl (van Soest).

Proposed running head: Peer reporting

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Abstract: Economic motives are not the only reasons for committing a (small) crime. People consider social norms and perceptions of fairness before judging a situation and acting upon it. If someone takes a bundle of printing paper from the office for private use at home, then a colleague who sees this can either report it or not: peer reporting. We investigate how fairness perception influences peer reporting in this situation of incorrect behavior.

JEL Classification: C35, C36, D63, K42.

Keywords: Peer reporting; Perception; Social norms; Fairness; Employee theft; Victimization.

1 Introduction

A young boy goes to supermarket and sees an expensive pen which he likes a lot. He puts the pen in his pocket and walks out of the shop, but the shop assistant has seen him, grabs him, and hands him over to the police. At the police station, the boy's father is called and appears.

Father: Son, why did you do this?

Boy: I liked the pen so much!

Father: But you know you should not steal.

Boy: I liked the pen so much!

Father: Why did you not tell me? I could have brought one for you from the office.

It is the father, rather than the son, who is of interest in this story. Apparently he finds taking a pen from the shop bad, but taking the same pen from his work not. Why not?

Becker (1968) would explain this by saying that the expected monetary loss caused by being caught is smaller than the gain obtained by having the pen. This can be viewed as the traditional economic approach. But there are many additional or alternative views. Maybe the father's office lacks normative pressure (social norms). Normative pressure triggers guilt and shame, and this may prevent criminal activities (Weibull and Villa, 2005). A recent field study which relies on the morality of its customers is the honor-based flower picking business in the Black Forest in Germany (Schlüter and Vollan, 2011). Classical economic theory would predict that this market would break down, but it does not, even though serious money is involved. So, here is a preference for honesty in a situation where it is difficult or impossible to detect cheating. This is closely related to 'conditional cooperation': people are more likely to comply when a larger population fraction adheres to the norm (Weibull and Villa, 2005; Traxler, 2010).

Maybe the father feels it is fair to take a pen from the office. Greenberg (1990) and Houser, Vetter, and Winter (2011) showed that if a situation (like a pay-cut) is perceived as unfair, employees are more likely to cheat. Honesty is affected by perceptions of fairness. Or perhaps, the father works in a disorderly environment. This is the 'broken windows theory', which suggests that a disorderly environment triggers petty crime. An experiment by Keizer, Lindenberg, and Steg (2008) showed that this may indeed be the case. The father may well work in a large firm. Gneezy (2005) suggested that fraudulent behavior in a large organization is considered less severe than against individuals, even if the monetary damage is similar, because the consequences of the deception are valued differently.

Douhou, Magnus, and Van Soest (2011) looked at aspects of the offender, the context, and the person judging a petty crime, as possible factors influencing fairness perceptions, called ‘justifiability’. In the current paper we use the same data source as they used to investigate how the decision to take action (or not) against an offender is influenced by fairness perception and other factors, including indexes for trust and social norms. The offense we consider is to take a bundle of paper home from the office for private use. We use survey data from a household panel (CentERpanel) where about 2000 respondents were asked to judge the perceived fairness of this type of ‘small crime’ at work, and to state whether they would talk to the offender or report the offense to someone else in the same organization (a colleague or a superior) in this hypothetical situation. This is referred to as ‘peer reporting’ (Barnett, Bass, and Brown, 1996), which is related to but somewhat different than ‘(external) whistleblowing’, because it takes place inside rather than outside the organization (Sims and Keenan, 1998, p. 411).

Studies in the area of peer reporting and whistleblowing have investigated, *inter alia*, factors related to the individual, the situation, the organization, social context, justice evaluation, and ethical ideology and religion. Sims and Keenan (1998) analyzed a sample of 248 full-time employees enrolled in an undergraduate or graduate business program and found that external whistleblowing was significantly related to supervisor support, informal policies, gender, and ideal values. Victor, Trevino, and Shapiro (1993) used a field survey in a fast food restaurant to test the influences of social context (role responsibility and interests of group members) and justice evaluations on the respondent’s inclination to report theft and the actual theft-reporting behavior. Trevino and Victor (1992) found support for a positive relation between the extent to which the offender damages the interest of group members and the inclination to peer report. King and Hermodson (2000) analyzed actual peer reporting of unethical behavior by colleagues in a sample of 197 registered nurses and found that the observer’s individual characteristics, situational factors such as severity of the wrongdoing, as well as organizational issues like compliance or non-compliance with policy and procedures played a significant role. Barnett, Bass, and Brown (1996) analyzed peer reporting of academic cheating, focusing on the role of religion and ethical ideology, and found a positive association between peer reporting and religiosity among 267 American business students.

Our study differs from the existing literature since we combine characteristics of the reporter, the offender, and the ‘small crime’, with justice evaluation and information on a respondent’s past victimization. Furthermore, unlike most other studies, our data set consists of a large representative sample of the Dutch population and is not limited to students or employees

of a specific organization.

The structure of the remainder of this paper is as follows. In Section 2 we briefly describe the survey design and the elements of the survey relevant for the current paper. Some descriptive statistics are provided and discussed in Section 3. The econometric method is explained in Section 4. Our main equation is an equation for peer reporting, in which justifiability of the committed offense is one of the explanatory variables. To allow for confounding unobserved factors correlated with justifiability as well as peer reporting, we treat justifiability as endogenous and estimate an equation for justifiability jointly with the equation for peer reporting. Estimation results are discussed in Section 5. Section 6 concludes. An appendix gives details on the definitions of respondent and vignette variables used in the analysis.

2 Survey design

The CentERdata research institute at Tilburg University manages a panel of over two thousand ‘respondents’ (the CentERpanel), who participate in an online websurvey on a weekly basis, each week on a different topic. Respondents are randomly selected from a population register. If they do not have a computer with Internet access, they are provided with the necessary equipment. Detailed background information on the respondents is available from prior surveys and the response rate is generally high. Our ‘small crime’ survey was conducted in the Summer of 2008. A total of 1932 panel members completed the survey, amounting to a response rate of about 83%. The respondents form a representative sample of the Dutch population, aged 16 years and older.

We briefly describe the structure of the survey; a more detailed description can be found in Douhou, Magnus, and Van Soest (2011) who used the same data source as we do. The complete questionnaire (in Dutch) is available upon request from the authors. Our survey was divided into three blocks of questions. The first block consisted of a set of 24 small offenses, ranging from taking a ballpoint from the office for private use to accepting a bribe. The respondents were asked to rate the severity of 18 offenses and the justifiability of six other offenses.

In the second block we concentrated on six offenses: (i) not having a valid (train) ticket, (ii) breaking a coffee mug and not reporting it, (iii) taking a bundle of printing paper, (iv) driving too fast on a highway, (v) accepting a bribe, and (vi) reporting a lower income than the actual income to the tax authorities. This time the offenses were described in short stories (‘vignettes’) concerning hypothetical persons in a hypothetical setting. 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 (iii)) is:

Anne is 27 years old and works at an office. She earns €1335 per month before tax, a low wage for the type of work she does. Anne has noticed that her boss occasionally takes printing paper home for private use. Anne takes a bundle of printing paper home for private use. This is the first time that she does this. The probability that someone will notice it is very small. Do you think Anne’s behavior is never justifiable (1), . . . , always justifiable (10)?

In the first variant of this vignette question the vignette person (Anne) earns €1335; in the second variant €2500. Both variants were put to the respondents in the survey. Other items were randomized. In this case, the following six aspects of the vignettes were randomized:

- *Gender*: Anne or John;
- *Age*: 27, 43, or 55 years old;
- *Boss*: occasionally takes printing paper home for private use, or is a principled man and never takes things home from work for private use;
- *Frequency*: this is the first time or Anne does it often;
- *Catch*: probability of detection is very small or 50%;
- *Wage*: low or average if wage is €1335; average or high if wage is €2500.

The associated randomized binary vignette variables are presented in more detail in the Appendix, Table A.1.

In this paper we concentrate on the above vignette question on taking a bundle of printing paper from the office, because it was the only one that was followed by a question on reporting behavior, phrased as follows:

Suppose Anne/John is your colleague, would you report this behavior?

The respondents could then choose from the following options:

- Yes,

- I would talk with Anne/John about it (1)
- I would talk with my colleagues, but not with my boss (2)
- I would immediately report this behavior to my boss (3)
- I would report this to someone else (4);
- No,
 - because I am worried about the reaction of my colleagues (5)
 - because I am worried about my position within the company (6)
 - because I don't know to whom to report this behavior (7)
 - because this is too futile to worry about (8)
 - for some other reason (9).

The third block was designed to provide more detailed background information of the respondents. The following two questions about past victimization are particularly relevant:

- Have you been a victim of a serious crime in the past five years (i.e., burglary, holdup, violence, or something similar)?
- Have you been a victim of 'incorrect' behavior in the past five years?

If either question is answered 'yes', then a follow-up question asks to rate the severity of the most serious crime on a scale from 1 (very severe) to 10 (not severe). We used this information to construct an index of self-reported severity of past victimization. The reason that we only ask about the past five years is to avoid a bias towards older respondents that have a higher probability of being victimized. Since 'incorrect' behavior ranges from stealing a pen to smoking in a public place, it is highly unlikely that a respondent has never been a victim of this type of behavior. Still, only about one quarter of the respondents reported being a victim of incorrect behavior, suggesting that the answer reflects the respondent's attitude or sensitivity towards social norm violations.

Since peer reporting may be associated with trust in other people (Trevino and Victor, 1992), we used a trust index as one of our explanatory variables. Questions on trust were not included in our survey, but they were asked to the same panel of respondents in another CentERpanel survey, conducted around the same time, entitled 'Victims of (attempt to) fraud' (Oudejans and Vis, 2008). This survey was merged with our own data to obtain an index for trust. Three questions were used to construct `trust_index`:

- Do you think that, in general, most people can be trusted or that you cannot be careful enough when dealing with people? Please answer on a scale from 1 (you have to be careful) to 11 (most people can be trusted);
- Do you think that most people would try to take advantage of you if they would have the chance, or would they try to be honest? Please answer on a scale from 1 (most people would try to make advantage of me) to 11 (most people would try to be honest); and
- Do you think that people try to be helpful most of the time or do they think mostly of themselves only? Please answer on a scale from 1 (people think mostly of themselves) to 11 (people try to be helpful).

3 Descriptive statistics

Descriptive statistics of the respondent variables used in our analysis are presented in Table 1. Peer reporting and justifiability are the main variables

Table 1: Descriptive statistics — respondent characteristics

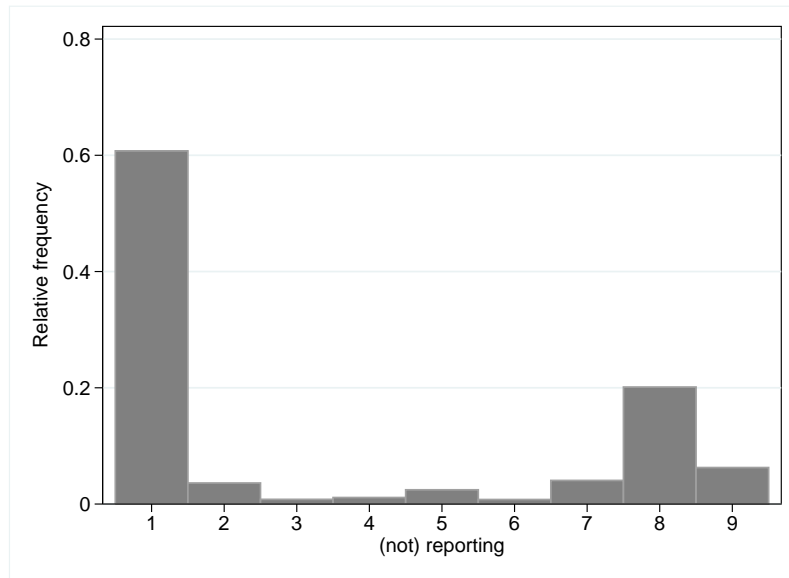
<i>Binary</i>			<i>Non-binary</i>		
	Mean	<i>N</i>		Mean	<i>N</i>
female	0.47	1931	age	50.68	1931
edu_middle	0.39	1924	hh_lincome	7.93	1931
edu_high	0.55	1924	vict_index	1.87	1919
urban_high	0.41	1924	trust_index	21.69	1635
urban_middle	0.20	1924	social_norm	3.99	1929
religion	0.58	1932	justifiability*	3.19	3840
victim_small	0.25	1919			
victim_serious	0.12	1919			
takematerial	0.33	1919			
peer_report*	0.66	3840			

* = dependent variable.

of interest (and the dependent variables in our econometric model); the other variables are used as explanatory variables for peer reporting, justifiability, or both. The corresponding variable definitions are listed in the Appendix, Table A.2.

Our principal dependent variable is `peer_report`. About 66% of the respondents would report a colleague if this colleague would take a bundle of

Figure 1: Peer reporting

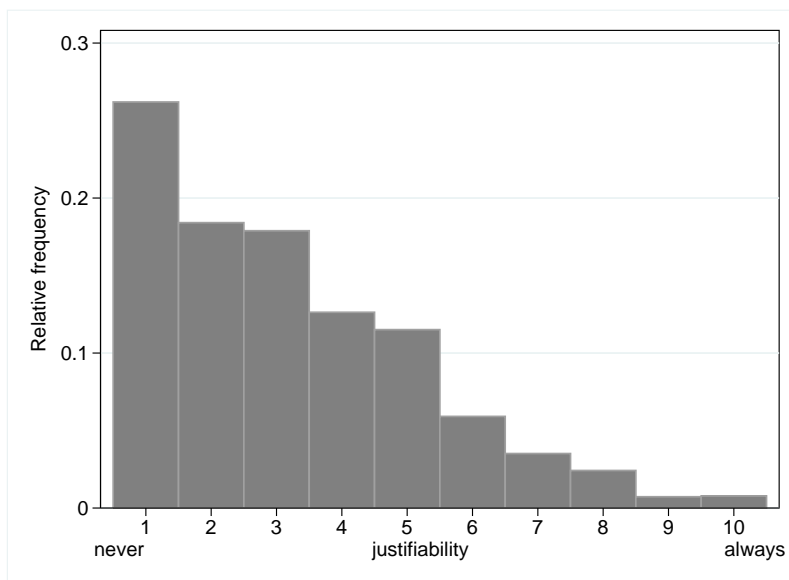


printing paper from the office for private use. As explained in Section 2, labels 1–4 in Figure 1 refer to the situation where the respondent decides to report, while labels 5–9 refer to the situation where the respondent does not report. Most respondents, if they report, choose to talk to the offender (label 1). If respondents choose not to report the offense, it is usually because they find the offense too futile to worry about it (label 8).

Our second variable of main interest (used both as a dependent variable and as an explanatory variable for peer reporting) is justifiability, and Figure 2 presents its empirical distribution. The mean and median are around 3. Since a low value of justifiability means that the respondent does not find the action justifiable, the figure shows that most respondents disapprove of taking a bundle of printing paper home. Some authors claim that it is the perceived severity of a small crime rather than its justifiability which should play a role in the analysis (King and Hermodson, 2000; King, 1997). The relationship between justice evaluations and the severity of a small crime was discussed by de Graaf (2010) based on interviews performed with employees of public organizations. He shows that the two concepts are closely related.

The explanatory variables include a set of basic socio-economic and demographic characteristics. The age of the respondents ranges from 15 to 93 with a mean of 51 (Table 1). Median household income before tax was about €2780 per month. A slight majority of the respondents is male and has at least a degree from an intermediate vocational school (`edu_high=1`). About

Figure 2: Justifiability



41% live in more urbanized areas (cities, urban_high=1).

The other explanatory variables are specific to the current analysis. There are three variables relating to victimization. In our sample of 1932 respondents, 488 (25%) reported that they had been victim to a ‘small’ crime (victim_small) in the past five years, and 226 (12%) that they had been victim to a ‘serious’ crime (victim_serious) during the same period. The range of ‘incorrect’ actions is wide, and this makes it unlikely that someone has never been a ‘victim’ of incorrect behavior. The fact that only one quarter of the respondents reported being a victim of incorrect behavior therefore suggests that the answer may not only reflect victimization, but also the respondent’s susceptibility to harm or injustice.

In Figure 3 we consider only respondents that have been a victim at least once. The figure shows that people who have been a victim of a serious crime in the past five years typically experienced a serious crime only once, while the empirical distribution of the number of small crimes is more evenly spread. If a respondent reported having been victim of a crime (small or serious) in the past five years, then the perceived severity of this crime (or the worst of them, if they experienced more than one) was also asked (on a ten-point scale: 1 is very severe, 10 is not severe). Figure 4 shows that a few victims of a serious crime judge the crime to be very severe (1 or 2), while most respondents find the crime rather severe (mode is 3), and only a few do not find the crime severe at all. For small crimes the distribution

Figure 3: Degree of victimization

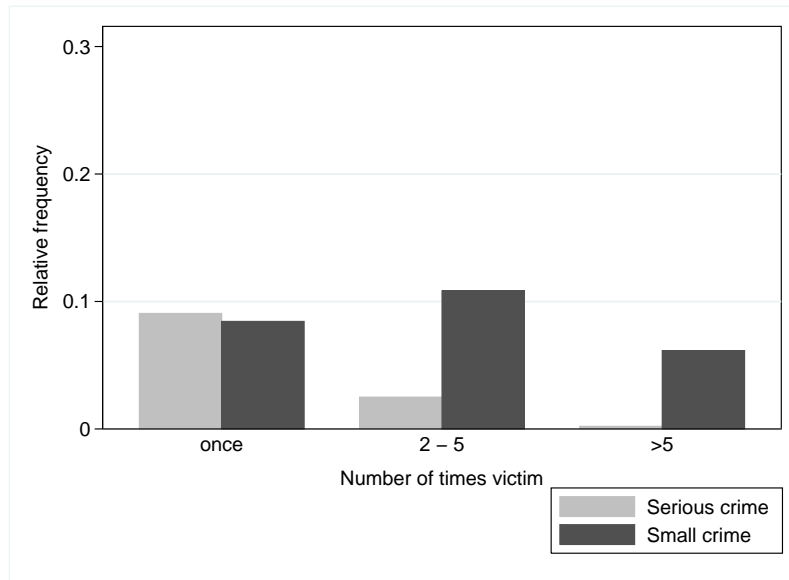
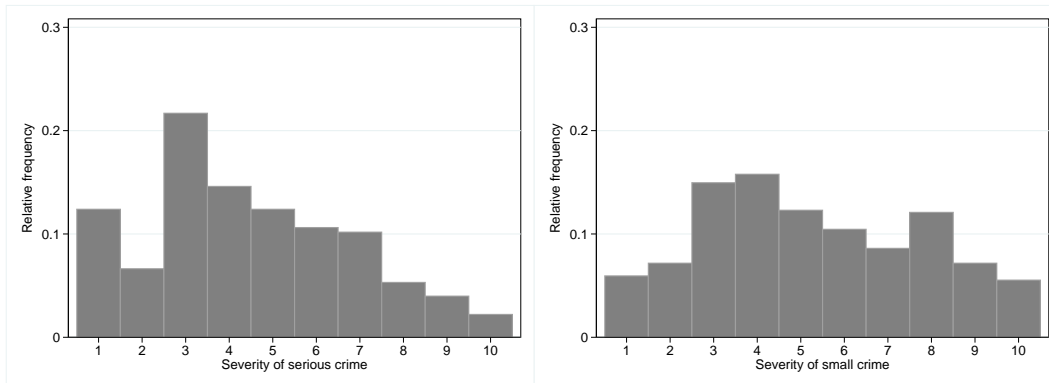


Figure 4: Severity of victimization

(a) Serious crime

(b) Small crime



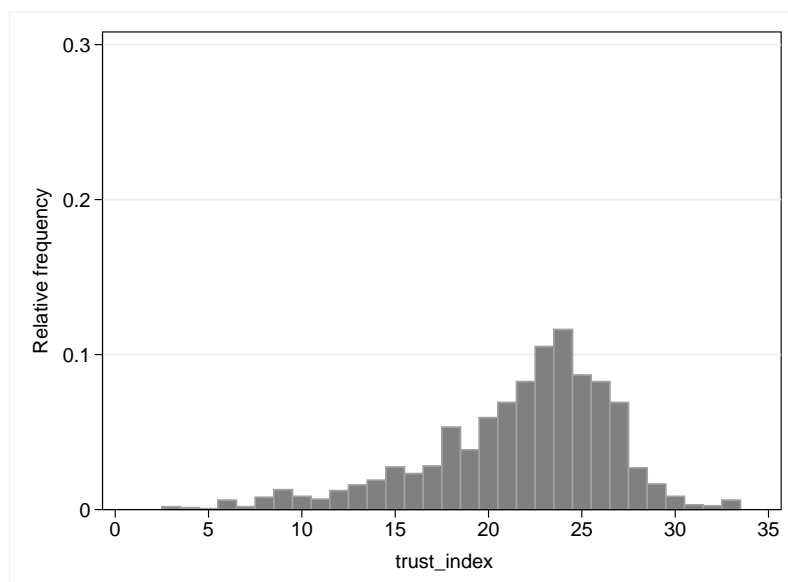
is more even, as one would expect. The average severity of a small crime is 5.3 (median is 5), and of a serious crime 4.5 (median 4). We constructed an index for the degree of severity of victimization from these two variables (vict_index) ranging from 0 (not a victim of any crime) to 20 (victim of both small and serious crime and both rated as very severe).

Respondents were also asked three questions relating to their own criminal behavior. In particular, they were asked about shoplifting, taking materials from work for private use, and claiming government benefits they were not

entitled to. Few respondents reported that they had committed these crimes (which may or may not be truthful), with the exception of taking work material home for private use (the variable `takematerial`). One third of the respondents admitted having done this at least once, and 26% at least twice. This variable is of interest because it relates closely to the vignette question used in our analysis, and it allows us to verify whether the respondents' own incorrect behavior in a similar situation is associated with their action in the hypothetical situation.

Ethical judgements of a situation and the reaction to it can also be influenced by religious views, social norms, and trust. The literature on moral attitudes suggests that religious people hold more traditional views on moral issues than non-religious people (Barnett, Bass, and Brown, 1996). There is reason to believe that people with a religion may respond differently to an unethical act (in this case: taking a bundle of printing paper from the office for private use). About 58% of our respondents reported being religious (interpreted in a broad sense). Regarding social norms, we constructed a `social_norm` index as the average of the responses on severity (on a scale from 1 (very severe) to 10 (not severe at all)) of a list of 18 offenses that differ in the level of damage caused; see Table 2 in Douhou, Magnus, and Van Soest (2011) for the 18 questions and the mean answer to each of them. The overall mean (and the mean of our index) is 3.99. A high value of the index means that the respondent considers small crimes as less severe, indicating a lower value placed on social norms.

Figure 5: Trust



Finally, a variable measuring how much trust the respondent has in other people can be important for one’s actions and beliefs in general (Deutsch, 1958), and for peer reporting in particular (Trevino and Victor, 1992). The variable `trust_index` is constructed as the sum of three variables, formulated at the end of Section 2, that measure several aspects of a person’s trust, each on a scale from 1 to 11 (a higher value means more trust), so that the trust index ranges from 3 (very low trust) to 33 (maximum trust level). Since these questions come from a different Centerpanel survey, they were asked in a different week, and therefore they were not answered by all respondents who answered our peer reporting and justifiability questions. This explains why for this variable we have fewer observations. (Respondents who answered the trust questions but did not participate in our crime perception and peer reporting survey are not included.) Figure 5 with a mode of 24 and a mean of 21.7 shows that respondents on the whole seem to have trust in others.

4 Models

Each respondent i answers questions on two vignettes describing taking home a bundle of printing paper from work for private purposes. In the first variant ($t = 1$) the offender’s income is €1335; in the second variant ($t = 2$) it is €2500. In addition, several other aspects of the vignettes differ in a randomized way, as described in Section 2. Our main dependent variable is peer reporting (peer_report, y_{it}), and this is a binary variable: respondents choose to report ($y_{it} = 1$) or not to report ($y_{it} = 0$) the offense committed. Observations on different respondents i are all assumed to be independent of each other, but it is very likely that there is a positive correlation between the two answers of the same respondent ($t = 1$ and $t = 2$), and we shall take this correlation explicitly into account.

For this purpose, we use the following bivariate probit model, which is similar to a panel data probit model with random individual effects:

$$\begin{aligned} y_{it}^* &= \beta_0 + x_{it}'\beta + \delta z_{it} + \epsilon_{it} & (i = 1, \dots, N; t = 1, 2); \\ y_{it} &= 1 \text{ if } y_{it}^* > 0, \quad y_{it} = 0 \text{ if } y_{it}^* \leq 0. \end{aligned} \tag{1}$$

In our specification there are 21 regressors in the model: the constant term, 19 regressors $\{x_{it}\}$ (vignette characteristics and respondent characteristics and attitudes), and the justifiability assessment z_{it} , which plays a special role (see below). Regarding the unobserved error terms ϵ_{it} we assume that

$$\epsilon_i = \begin{pmatrix} \epsilon_{i1} \\ \epsilon_{i2} \end{pmatrix} \sim_{iid} N_2(0, \Sigma), \quad \Sigma = \begin{pmatrix} 1 & \rho_1 \\ \rho_1 & 1 \end{pmatrix},$$

and also that ϵ_i is independent of x_{it} . The specification implies that $\text{var}(\epsilon_{i1}) = \text{var}(\epsilon_{i2})$; the fact that both are equal to one is a harmless normalization. The parameter ρ_1 is expected to be positive since ϵ_{i1} and ϵ_{i2} contain a common individual specific component (a random individual effect in panel data modeling terminology).

In model (1) we assume that justifiability z_{it} is exogenous. This exogeneity assumption is, however, rather doubtful. It seems more plausible that there are unobserved confounding factors — unobserved variables that have an influence on both justifiability and peer reporting. This leads to a correlation between z_{it} and ϵ_{it} , making justifiability potentially endogenous. In a linear model it would be natural to use an instrumental variables approach to deal with the endogeneity problem. Our approach is similar in terms of identifying assumptions, but we do not use instrumental variable estimation as such, due the nonlinear nature of the model. Instead, we add equations for assessed justifiability of the two vignette offenses and estimate these equations jointly with the equations for peer reporting (using maximum likelihood), allowing for correlations between the error terms of the peer reporting and the justifiability equations. To identify the model, we include three vignette variables (a vector w_{it} , our ‘instruments’) in the justifiability equation that are not included in Equation (1), namely relative wage (`vign_wage_low` and `vign_wage_high`) and the probability of getting caught (`vign_catch`). These instruments are correlated with justifiability (see Section 5) and they may affect peer reporting through justifiability, but they are assumed not to have an additional, direct, effect on peer reporting (keeping justifiability constant). The plausibility of this latter assumption makes them sensible instruments. The equation for justifiability is specified as follows:

$$\begin{aligned} z_{it}^* &= x_{it}'\alpha + w_{it}'\gamma + \zeta_{it} & (i = 1, \dots, N; \quad t = 1, 2), \\ z_{it} &= j \quad \text{if } \lambda_{j-1,t} < z_{it}^* \leq \lambda_{j,t} & (j = 1, \dots, 10; \quad t = 1, 2), \end{aligned} \quad (2)$$

where

$$\zeta_i = \begin{pmatrix} \zeta_{i1} \\ \zeta_{i2} \end{pmatrix} \sim_{iid} N_2(0, \Omega), \quad \Omega = \begin{pmatrix} 1 & \rho_2 \\ \rho_2 & 1 \end{pmatrix},$$

and ζ_i is assumed to be independent of (x_{it}, w_{it}) . Again, there is no loss of generality in normalizing the Ω matrix. Like ρ_1 , we expect ρ_2 to be positive, because of an individual-specific component in both justifiability assessments. We allow that ζ_i may be correlated with ϵ_i . More precisely, we assume that the vector $(\epsilon_{i1}, \epsilon_{i2}, \zeta_{i1}, \zeta_{i2})'$ is multivariate normal with variances normalized to one and with unrestricted correlation coefficients $\rho_{st} = \text{corr}(\epsilon_{is}, \zeta_{it})$. Since unobserved respondent characteristics that are associated with a stronger

tendency of peer reporting are likely to be also associated with harsher assessments of the vignette offenses, that is, to lower scores on the justifiability scale (which runs from never justifiable to always justifiable), we expect the four ρ_{st} correlations all to be negative.

The six correlations ρ_1 , ρ_2 , and ρ_{st} ($s, t = 1, 2$) are auxiliary model parameters to be estimated, as well as the thresholds $\lambda_{j,t}$ ($j = 1, \dots, 9; t = 1, 2$). We set $\lambda_{0,t} = -\infty$ and $\lambda_{10,t} = \infty$. By means of normalization, there is no constant term in (2). The four equations (1) and (2) ($t = 1, 2$) are estimated jointly by maximum likelihood using Roodman’s (2009) conditional mixed process (CMP) routine.

5 Results

We present the estimation results in Tables 2 (for the equation with justifiability as the dependent variable) and 3 (for the equation in which peer reporting is the dependent variable). In the second and third columns of Table 3, labeled ‘exogeneity’, we assume that justifiability is exogenous and explain peer reporting from the bivariate probit model (1) with exogenous z_{it} . In the fourth and fifth columns, labeled ‘second stage’, we allow justifiability to be endogenous and present the estimates of the peer reporting equation in the complete model given by (1) and (2). Table 2 reports the estimates of the justifiability equation in this complete model. Table 4 presents the estimated correlation structure of the error terms in the complete model.

The number of observations is always 1615, which is lower than the number of respondents to our survey because we included the variable (`trust_index`) based upon questions from another survey (see Sections 2 and 3), and not all respondents of our small crime survey participated in this other survey.

From the three tables, we can draw three broad conclusions. First, most of the exogenous variables have both a direct and an indirect (via justifiability) effect on peer reporting. Second, the correlations between the error terms of (1) and (2) in Table 4 are negative and significant, confirming our hypothesis that justifiability should be treated as an endogenous variable. Third, in spite of this finding, the differences between the estimates of the peer reporting equation allowing and not allowing for endogeneity of justifiability are generally rather small. We also note that ρ_1 and ρ_2 are close to one and that $\rho_{st} \approx -0.2$ in all four cases, irrespective of whether $s = t$ or not (Table 4). This suggests that the individual effects play a much larger role than the vignette-specific idiosyncratic error terms.

5.1 Justifiability

Although our main interest is in the peer reporting estimates (the second column in Table 3), let us briefly consider Table 2, which reports the estimates when justifiability is the dependent variable. The behavior of the

Table 2: Regression results — justifiability

vign_female	0.014	(0.024)
vign_43y	0.046	(0.029)
vign_55y	0.045	(0.029)
vign_boss	-0.253***	(0.024)
vign_freq	-0.188***	(0.024)
vign_catch	-0.064***	(0.024)
vign_wage_low	0.073**	(0.034)
vign_wage_high	-0.022	(0.034)
female	0.032	(0.052)
age	-0.001	(0.002)
hh_lincome	0.002	(0.019)
edu_middle	-0.036	(0.107)
edu_high	-0.116	(0.105)
urban_high	0.028	(0.057)
urban_middle	-0.040	(0.068)
religion	-0.001	(0.051)
vict_index	-0.007	(0.016)
trust_index	-0.015***	(0.005)
social_norm	0.487***	(0.022)
victim_small	-0.121	(0.101)
victim_serious	0.020	(0.101)
takematerial	0.280***	(0.058)

Dependent variable is justifiability;
standard errors in parentheses.

*** = $\{p < 0.01\}$; ** = $\{0.01 \leq p < 0.05\}$.

boss is important: if the offender’s boss behaves incorrectly according to the vignette, then the offense is considered more justified. First-time offenders are evaluated less harshly. When the probability of getting caught is higher, the incorrect behavior is considered less justified. If the offending employee in the vignette receives a relatively low wage for the work he or she does, the offense is considered more justifiable than if the employee receives a usual or high wage (keeping other variables constant, including the absolute wage level). Both of these variables (two of the three variables used as instruments

in the peer reporting equation, see Section 4) are significant and the three instruments are also jointly significant, confirming that our instruments have sufficient predictive power (conditional on the exogenous variables x_{it}) for the justifiability variable that is instrumented.

Neither having been a victim of a serious or a small crime, nor the victimization index are significant, so that victimization has no apparent influence on the justifiability assessments (keeping other variables constant). As expected, own involvement in employee theft (takematerial) is associated with judging the hypothetical offender more lightly. A higher score on the social norm index implies that a respondent considers small crimes as relatively less severe. Respondents with higher trust in others (a higher score on the variable trust_index) also tend to assess the offenses in the vignettes significantly less harshly.

5.2 Peer reporting

In discussing the estimates of the peer reporting equation in Table 3, we distinguish between three types of explanatory variables, following the analysis of Mesmer-Magnus and Viswesvaran (2005) in the context of whistleblowing: characteristics of the offense, context of the offense, and characteristics of the reporter.

Characteristics of the offense

There is only one variable in this group, namely justifiability. We know from Figure 2 that most respondents disapprove of taking a bundle of printing paper home. Justifiability has a significant negative effect on reporting: respondents who disapprove more are more likely to report (keeping other variables constant). This is not as trivial a result as it may appear, because it shows that the potential respondent's moral judgement is much involved in the decision on whether or not to report. In our case, most respondents find the 'crime' of taking a bundle of printing paper home too futile (see Section 3), and would therefore not report it. Including justice evaluation as a possible explanation for peer reporting was considered by Victor, Trevino, and Shapiro (1993), who distinguished between different forms of justice evaluations (distributive, procedural, and retributive justice) and concluded that justice evaluations matter for peer reporting. This is in line with our findings.

The magnitude of the estimated coefficient (-0.161) implies that, for a benchmark respondent with average peer reporting probability, an increase of 1 in the justifiability score leads to a reduction of 0.054 in the probability of peer reporting, keeping x_{it} constant. Since the sample standard deviation

Table 3: Regression results — peer reporting

	Exogeneity		Second stage	
vign_female	-0.008	(0.028)	-0.008	(0.029)
vign_43y	0.002	(0.033)	-0.002	(0.034)
vign_55y	0.027	(0.033)	0.024	(0.033)
vign_boss	0.010	(0.028)	0.029	(0.030)
vign_freq	0.098***	(0.027)	0.116***	(0.029)
female	-0.160***	(0.051)	-0.180***	(0.068)
age	0.003	(0.002)	0.003	(0.002)
hh_income	0.000	(0.021)	0.001	(0.024)
edu_middle	0.156	(0.100)	0.108	(0.138)
edu_high	0.229**	(0.098)	0.219	(0.136)
urban_high	0.008	(0.055)	0.025	(0.075)
urban_middle	-0.105	(0.066)	-0.118	(0.088)
religion	0.023	(0.051)	0.028	(0.067)
vict_index	-0.022	(0.016)	-0.031	(0.021)
trust_index	0.013**	(0.005)	0.015**	(0.007)
social_norm	-0.043*	(0.023)	-0.092**	(0.036)
victim_small	0.337***	(0.101)	0.403***	(0.138)
victim_serious	0.226**	(0.103)	0.283**	(0.137)
takematerial	-0.116*	(0.063)	-0.160**	(0.076)
justifiability	-0.207***	(0.014)	-0.161***	(0.032)
constant	0.721	(0.262)	0.686	(0.326)

Dependent variable is peer_report; standard errors in parentheses.

*** = $\{p < 0.01\}$; ** = $\{0.01 \leq p < 0.05\}$; * = $\{0.05 \leq p < 0.10\}$.

Table 4: Regression results — correlations

	ρ_1	ρ_2	ρ_{11}	ρ_{12}	ρ_{21}	ρ_{22}
Exogeneity	0.97					
Second stage	0.97	0.81	-0.15	-0.23	-0.16	-0.22

Dependent variable is peer_report.

of the justifiability scores is 2.05, a one standard deviation increase would lead to a fall in the probability of peer reporting of about 11 percentage points. The effect is therefore not only statistically but also economically significant. According to the estimates in the second column of Table 3, the effect of justifiability would be even larger if we assume peer reporting to be exogenous.

Context of the offense

The context is captured by five vignette characteristics, relating peer reporting to the hypothetical situation (for example, behavior of the boss) and to the hypothetical offender (for example, age and gender). Interestingly, we find no evidence that peer reporting is influenced by the age of the offender, nor by the fact whether the offender is a man or a woman. The behavior of the boss does not matter, *ceteris paribus*. The only thing which does matter is whether the offender has engaged in this type of incorrect behavior before or not (vign_freq).

Characteristics of the reporter

While we find no evidence that peer reporting is influenced by the age or gender of the offender, the gender of the potential reporter does matter: Men are significantly more likely to report than women (keeping other characteristics constant, including justifiability and personal traits like trust and social norms). This corresponds with other findings (Near and Miceli, 1985; Sims and Keenan, 1998), although the reason for the different reporting behavior of men and women is not clear. We find no significant effect for age. The literature is also ambiguous in this respect (Mesmer-Magnus and Viswesvaran, 2005; Sims and Keenan, 1998; Jones and Kavanagh, 1996). Neither do we find a significant effect of income. If we assume that justifiability is exogenous then we find that higher-educated respondents are more likely to report than respondents with less education (column 2 of Table 3), but if we assume endogeneity then this effect is no longer significant. The literature on the effect of education is mixed. Mesmer-Magnus and Viswesvaran (2005) cite studies that find an education effect, but Sims and Keenan (1998) find no significant effect. Whether the respondent lives in a city or in the country does not matter either. We find no evidence that religious people are more likely to report than non-religious people, possibly because religion has an indirect effect on reporting, through ethical ideology (Barnett, Bass, and Brown, 1996).

Trust (as measured by the trust_index) is significantly associated with peer reporting: More trust in others significantly increases the likelihood of peer reporting, probably because a violation of trust affects trusting people more than it affects suspicious people. Important is also the social_norm index, which measures the perceived severity of a wide range of situations of incorrect behavior. We find, as expected, that someone who judges incorrect behavior mildly (high value of social_norm) is significantly less likely to report such behavior, keeping justifiability and other variables constant.

The size of the parameter estimate implies, for example, that a one standard deviation increase in `social_norm` reduces the probability of peer reporting by about 6 percentage points for an average respondent. The effect of the social norm is much stronger in the model allowing for endogeneity than in the model assuming that justifiability is exogenous. While the existing literature emphasizes the importance of social context (Victor, Trevino, and Shapiro, 1993), we are not aware of other studies on peer reporting that incorporate social norms.

New in the literature on peer reporting is also to consider past victimization of the potential reporter. We include a victimization index (`vict_index`) that measures the perceived severity of the different types of crime a respondent has possibly been a victim of, and we also include the fact whether a respondent has been a victim of a small or a serious crime or not. We find that victims of serious crimes and victims of small crimes are more likely to report. Interestingly, the marginal effect of having been a victim of a small crime (an increase of about 13 percentage points in the probability of reporting, for the average respondent) seems to be larger than the effect of `victim_serious` (an increase of about 9 percentage points). Regarding the impact on one's behavior regarding a small crime, this implies that victimization of a small crime has a larger impact than victimization of a serious crime.

Finally, we included a variable 'takematerial' which measures whether the respondent him/herself has taken material from work for private use at home. This allows us to see whether a person's own past behavior in a similar situation is of influence on the reporting decision. Interestingly, `takematerial` is negative and significant, which means that respondents that have been in a similar situation as the offender in the vignette are less likely to report.

6 Concluding Remarks

In this paper we have considered one 'small crime', namely taking printing paper home from work for private use, and asked whether or not a colleague would report this crime. Peer reporting is viewed as a behavioral response to the perception of fairness (i.e. justifiability) regarding employee theft, because it may be considered an additional task for the employee to help the management or to do justice; see Victor, Trevino, and Shapiro (1993). We learn about the perception of fairness from the vignette question, where the CentERpanel respondents were asked to rate the justifiability on a 10-point scale. We find that situational characteristics, such as the behavior of

the offender's boss and the probability of getting caught, influence fairness perception. This perception is also influenced by characteristics of the respondent him/herself, such as the level of trust in others and whether or not the respondent committed employee theft him/herself. Fairness perception and peer reporting are not influenced by age, income or education, but they are influenced by gender: women are less likely to report than men.

The most important aspect triggering peer reporting is the internal attitude towards incorrect behavior. Other important aspects are fairness perception, trust in others, and the potential reporter's own behavior in a comparable situation of employee theft. New in the literature of peer reporting is that we look at the reporter's past victimization. We consider victimization of incorrect behavior in general, and also victimization of a serious crime. We find that the first type of victimization is mainly an attitude variable towards wrongdoings in daily life. The range of wrongdoings a person could possibly have been a victim of in the past five years is so wide that it would seem impossible to find a person that never encountered such a situation. However, only one quarter of the respondents reported being a victim of incorrect behavior, from which we conclude that this group contains people with a greater awareness or sensitivity to social norms. We also find evidence that serious crime victimization changes a person's willingness to report although this effect is smaller than the effect of small crime victimization.

We also looked at reasons for people not to report a wrongdoing. The most important reason for respondents not to report is that the wrongdoing is not important enough to worry about. The loss to a company as a result of stealing a bundle of printing paper is considered to be very small. This is a well-known result: in general, people consider theft from a victim with larger assets (in this case a company) easier to excuse (Greenberg and Scott, 1996).

We mention three possible extensions. Firstly, one could consider group dynamics such as group norms and role responsibility. Such aspects have been found to have an important impact on peer reporting (Victor, Trevino, and Shapiro, 1993), but they are difficult to implement in the context of vignette questions, because the description of the hypothetical situation would become too long and too complex. Second, one could look at more serious types of employee theft (in terms of monetary losses to the employer), and ask whether peer reporting happens more often in large than in small organizations or vice versa. Third, it may be the case that organizations with an established ethics program have lower employee theft than organizations without such a program (Greenberg, 2002). Possibly, an ethics program stimulates awareness to social norms in a company and creates a more open environment for allowing employees to report.

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Appendix: Respondent and vignette variables with explanation

Table A.1: Binary vignette variables with explanation

vign_female	1 if vignette person (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_boss	1 if the boss of the vp behaves correctly
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_wage	1 if vp has a high wage
vign_wage_low	1 if vp receives low wage for type of work, given vign_wage = 0
vign_wage_high	1 if vp receives high wage for type of work, given vign_wage = 1

Table A.2: Respondent variables with explanation

<i>Non-binary variables</i>	
age	age of respondent (in years)
hh_lincome	log of gross monthly household income
vict_index	severity of crime respondent has been victim of (0 if no victim)
trust_index	degree of trust in other people (0 if no trust)
social_norm	average of answers to short questions on severity of 18 small crimes on a scale from 1 (very severe) to 10 (not severe at all)
justifiability	1 = crime is never justifiable, 10 = — always justifiable
<i>Binary variables</i>	
female	1 if respondent is a woman
edu_middle	1 if respondent's highest education is secondary school
edu_high	1 if — at least vocational school
urban_high	1 if respondent lives in an urbanized area
urban_middle	1 if — in an area with intermediate urban character
religion	1 if respondent has a religion
victim_small	1 if respondent was victim of incorrect behavior
victim_serious	1 if — of a serious crime
takematerial	1 if respondent took material from the workplace
peer_report	1 if respondent would peer report