



SONDERFORSCHUNGSBEREICH 504

Rationalitätskonzepte,
Entscheidungsverhalten und
ökonomische Modellierung

No. 08-16

**On shoplifting and tax fraud: An action-theoretic
analysis of crime**

Clemens Kroneberg*
and Isolde Heintze**
and Guido Mehlkop***

November 2008

The authors would like to thank Rolf Becker, Stefanie Eifler, Hartmut Esser, and Per-Olof Wikström who provided helpful comments on earlier drafts of this article. Financial support from the Deutsche Forschungsgemeinschaft, SFB 504, at the University of Mannheim, is gratefully acknowledged. Moreover, the survey on which this research is based was financed by the Deutsche Forschungsgemeinschaft whose generous support is greatly appreciated.

*Sonderforschungsbereich 504, email: ckronebe@rumms.uni-mannheim.de

**Administrative District Spree-Neiße, Coordination of Social Planning, email:

***Institut für Soziologie, Lehrstuhl Makrosoziologie, Technische Universität Dresden, email:



Universität Mannheim
L 13,15
68131 Mannheim

On shoplifting and tax fraud: An action-theoretic analysis of crime*

Clemens Kroneberg

University of Mannheim

Isolde Heintze

Administrative District
Spree-Neiße,
Coordination of Social
Planning

Guido Mehlkop

Dresden University of
Technology

Abstract

The article evaluates different theories of action in the area of crime research. A *narrow* version of rational choice theory assumes actors to choose in an instrumental, outcome-oriented way. It hypothesises that individuals weight the costs and benefits of criminal acts with subjective probabilities. In contrast, a *wide* version of the theory allows individuals to derive utility directly from choosing certain actions. Previous studies either do not directly test these theories or yield inconsistent results. We show that a meaningful test of these rival rational choice explanations can only be conducted if a *broader* view is adopted that takes into account the interplay of moral norms and instrumental incentives. Such a view can be derived from the Model of Frame Selection (Kroneberg 2005) and the Situational Action Theory of Crime Causation (Wikström 2004). Based on these theories, we analyze the willingness to engage in shoplifting and tax fraud in a sample of 2,130 adults from Dresden, Germany. In line with our theoretical expectations, we find that only respondents who do not feel bound by moral norms consider instrumental incentives. Where norms have been strongly internalised and in the absence of neutralisation techniques which legitimise norm-breaking, instrumental incentives are irrelevant.

* The authors would like to thank Rolf Becker, Stefanie Eifler, Hartmut Esser, Franziska Kunz, and Per-Olof Wikström who provided helpful comments on earlier drafts of this article. The survey on which this research is based was financed by the German Science Foundation (DFG) whose generous support is greatly appreciated.

On shoplifting and tax fraud:

An action-theoretic analysis of crime

Introduction

The need to provide micro-foundations for sociological explanations is meanwhile widely acknowledged (Blossfeld and Prein 1998; Coleman 1990; Goldthorpe 1996; Lenski 1988). If we want to unravel the mechanisms that produce social phenomena, we first have to understand what moves individuals and how the social context affects their actions and interactions (Hedström 2005). However, it is still unclear *which theory of action* sociologists should use, and *how to proceed empirically* when testing the resulting explanations.

In this article, we confront these major questions theoretically as well as empirically, while focusing on the explanation of crime. Here, the call for using an explicit theory of action has been loudest, since “[t]o explain acts of crime we ultimately need to explain what *moves individuals* to break moral rules defined in law” (Wikström 2006: 69; see also Laub and Sampson 2003; Bottoms 2006).

Our starting points are rational choice theories of crime. These oppose the view that offenders are passive victims of social conditions (as in Merton 1968) or are mainly driven by psychological traits such as low self-control (as in Gottfredson and Hirschi 1990). Rather, actors are seen to commit crimes as an attempt to maximise physical well-being or social advantages (Becker 1968; Cornish and Clarke 1987). We discuss and derive hypotheses from two versions of rational choice theory (RCT): A *narrow* version, which assumes individuals to act in an instrumental, outcome-oriented way, and a *wide* version, which allows actors to derive (dis)utility directly from choosing a certain action (for a similar distinction, see Opp 1999).

We argue that a meaningful test of these rival rational choice explanations can only be conducted if a *broader* view is adopted that identifies the *subgroup* of actors who really engage in a cost-benefit calculus. Such a view can be derived from the Model of Frame Selection (Kroneberg 2005) and the Situational Action Theory of Crime Causation (Wikström 2004). According to these theories, actors who feel bound by moral norms against an offence do not perceive of it as an option. More specifically, the Model of Frame Selection hypothesises that actors unconditionally adhere to moral norms if these have been strongly internalised and if the situation cannot be framed in a way that legitimises norm-breaking. Only if these conditions do not hold, do actors deliberate over legal *and* illegal alternatives and consider their expected costs and benefits.

Using survey data from 2,130 citizens in Dresden, Germany, we test several hypotheses derived from these theories. We focus on the willingness to engage in shoplifting and tax fraud, since these two offences allow us to study more fully the interplay of instrumental incentives and moral norms. Our analyses reveal patterns of statistical interaction that confirm our theoretical expectations: Respondents with strongly internalised norms disregard instrumental incentives to shoplift. In the case of tax fraud, an additional requirement is that they not have developed neutralisation techniques which might legitimise norm-breaking. At the same time, we are able to show that some respondents do weight the benefits or costs of criminal acts with subjective probabilities that the corresponding outcomes will occur. However, this key hypothesis of the narrow version of RCT can only be supported by focusing on respondents who do *not* feel bound by strongly internalised norms. This carries the important methodological lesson that our evaluation of different rational choice explanations depends on taking a more general point of view that recognises the heterogeneity of social action.

Rational Choice Theories of Criminal Behaviour

The Classical Theory of Crime by Becker (1968) and Its Extension

Gary S. Becker considers criminal action to be mainly a problem of maximizing utility under the risk of conviction and punishment. He posits that a (sane) person will commit a crime if the expected utility exceeds the utility that could be realised through alternative (legal) activities (Becker 1968). More specifically, actors are assumed to consider the benefits (B) from the offence, the probability of being caught and arrested (p), as well as the costs (C) that go with the expected penalty. Hence, the expected utility (EU) of the offence S can be defined as follows (Becker 1968, footnote 17):

$$EU[S] = B - p \cdot C \quad (1)$$

Referring to this expression, a crime is more likely to be committed if the expected utility exceeds the costs expected to result from detection and penalisation: $B > p \cdot C$. Note that the costs associated with a penalty (C) are weighted with the subjectively expected probability of being convicted (p). The reason is that an *instrumentally* rational actor will be deterred from the severity of a penalty only to the extent that she expects this outcome to occur (Dahlbäck 2003: 39; Robinson and Rengert 2006: 23).

However, the same argument can be made for the potential benefits of an offence. These likewise are by no means certain and therefore have to be weighted by a corresponding probability. This is the subjective probability (q) of realising the potential benefits of the criminal act (Becker and Mehlkop 2006: 198-201; Niggli 1994: 88). Extending equation 1 accordingly and stressing that the variables entering an actor's decision calculus are *subjective* assessments, one arrives at the following subjectively expected utility (SEU) of the offence S:

$$SEU[S] = q \cdot B - p \cdot C. \quad (2)$$

Here, q denotes the expected probability of successfully carrying out the offence. The latter is more likely to be committed if $q \cdot B > p \cdot C$.

This RCT of crime describes criminal action as the result of an outcome-oriented decision-making process in which actors actively weigh costs and benefits. Accordingly, criminal actors differ from law-abiding ones in their evaluations of the same incentives (McCarthy 2002: 437; Mühlenfeld 1999: 48). These evaluations “are influenced by the characteristics of both offences and offenders” (Cornish and Clarke 1987: 935).

Thus, it becomes possible to link the variation in perceived incentives to factors which are of immediate sociological interest. For example, the knowledge and skills necessary to cheat on paying income taxes or to steal a car differs systematically between social groups. Such differences in (technical) abilities should also lead to different subjective probabilities of success (Sutherland and Cressey 1966). The perceived severity of penalties likewise can be assumed to vary by socio-economic status. For example, the opportunity costs of detainment are much higher for a person who would otherwise generate a high income in legal occupation than for an unemployed person. Finally, different social groups possess different knowledge of control authorities’ work and success, leading to different expectations to be caught and arrested. For example, in the case of tax fraud, members of lower social classes might overestimate the probability of being caught (Becker and Mehlkop 2006).

A Wide Rational Choice Theory of Crime that Allows for Norm Internalisation

A major shortcoming of the traditional economic approaches to the explanation of criminal behaviour (Becker 1968; McKenzie and Tullock 1984) is that they fail to consider moral norms and the internalisation thereof. Criminal action is by definition “*an act of breaking a moral rule defined in criminal law*” (Wikström 2006: 63). Therefore, any theory of criminal action has to address the dimension of morality, apart from the fact that any law-breaking behaviour entails formal sanctions: Norms can prevent criminal behaviour because they have become internalised (Tyler 1990, 1997; Wikström 2006: 102).

In a theory of subjectively expected utility, internalised norms can be incorporated if actors are allowed to derive consumption benefits *directly out of performing an action* (Yee 1997; Opp 1999). To put it simply, actors may prefer to act in accordance with their normative beliefs. If they do not, this will lead to a guilty conscience or cognitive dissonance (Festinger 1957); that is, norm violation involves some kind of psychological costs (N) (Danziger and Wheeler 1975: 117; Piliavin et al. 1986). The subjectively expected utility of carrying out an offence S can be extended accordingly:

$$SEU[S] = q \cdot B - p \cdot C - N. \quad (3)$$

This extension of the decision calculus marks the full transition to a so-called *wide* version of RCT that relaxes core assumptions of a more restrictive or *narrow* version of the theory (cf. Yee 1997; Opp 1999). Allowing for internalised norms as a soft incentive obviously breaks with the traditional assumption that actors hold preferences that refer only to tangible incentives. More than that, it also means abandoning the assumption of purely instrumental, or outcome-oriented, behaviour. It is the act itself, rather than its consequences, that leads to psychological costs (or benefits). Accordingly, the disutility of norm violation (N) is not weighted with a probability term that would refer to external consequences.

Wide versions of RCT can account for a much wider range of empirical relationships. A wide RCT of crime could be retained even if actors were found *not* to properly weight the benefits (B) and costs (C) of an offence with the corresponding probabilities of success (q) or of getting caught (p). Just as has been done in other fields, these variables can be reinterpreted as sources of *non-instrumental* utilities or costs (see already Grasmick and Bursik 1990; Katz 1988).

To begin with, the subjective probability of getting caught and the perceived severity of the penalty could (independently of each other) deter an actor from committing a crime, simply due to the fear that they evoke. Likewise, high expectations of success might increase an actor's sense of self-efficacy (Bandura 1997) and thereby push her to commit an offence, even

if it is hardly worth it. Finally, perceiving high benefits could motivate an actor to pursue an offence simply because it makes her feel excited about it (Matsueda et al. 2006: 102). If these interpretations were correct, the four variables would enter equation 3 not in the form of two products, but as four independent *additive* terms.

Of course, this greater flexibility in accounting for empirical relationships comes at a price. A wide RCT of criminal behaviour yields implications which are far *less specific* than those of the narrow version (Bohman 1992; Kelle and Lüdemann 1998). With regard to four main rational choice variables (i.e., leaving aside internalised norms), the wide version carries only the following general hypothesis:

Hypothesis 1 (RCT): *Criminal acts result from a cost-benefit calculus. Criminal behaviour is more likely, the greater the expectation of success and its utility, and the smaller the expectation to be caught and the perceived severity of the penalty.*

The narrow RCT of criminal behaviour goes beyond this, since it assumes that actors behave in an instrumental, outcome-oriented way. Utilities and costs are weighted with their probabilities of occurrence. They influence the decision *to the extent* that an actor regards them as likely (Dahlbäck 2003: 39). This implies rather specific hypotheses about patterns of statistical interaction:

Hypothesis 1a (Narrow RCT): *Within their cost-benefit calculus, actors weight the perceived benefits of engaging in a kind of criminal behaviour with the expectation of success (positive statistical interaction), and the perceived size of the penalty with the expectation to get caught (negative statistical interaction).*

The wide RCT subscribes only to Hypothesis 1 and therefore regards as *empirical* the question of whether incentives matter instrumentally, or as consumption benefits or costs. Furthermore, as has been discussed above, it also allows for internalised norms to influence criminal behaviour:

Hypothesis 2 (Wide RCT): *Internalised norms might exert a direct influence within the cost-benefit calculus. The more strongly an actor has internalised norms which proscribe certain criminal acts, the less likely she will be to engage in criminal behaviour.*

Faced with these different rational choice theories of crime, one could simply leave it to empirical analyses and testing to adjudicate between them. And indeed, the kind of preferences actors have is now widely regarded as an *empirical* issue (Kelle and Lüdemann 1998; Opp 1999).

Although strongly indicated by theoretical considerations (Nagel 1986), only few studies (Grasmick and Bryjak 1980; Grasmick and Green 1981; Paternoster and Iovanni 1986) test for the interaction effects hypothesised by *narrow* RCT (cf. Hypothesis 1a). While Grasmick and colleagues find significant and negative interactions between the certainty of punishment and the severity of the sanction, Paternoster and Iovanni (1986) do not. However, neither study includes the expected benefits from a crime. Becker and Mehlkop (2006), as well as Diekmann (1980: 108-109) and Paternoster and Simpson (1996), do not directly test for interaction effects, since their regression models include product terms ($p \cdot C$, as well as $q \cdot B$) but not the corresponding lower-order terms. The vast majority of empirical studies test only for independent additive effects. Most of them find that the severity of the penalty is either insignificant or much less important than the expectation to get caught and punished (Entorf and Spengler 2005: 331; Elffers et al. 2003: 426-429; Grasmick and Bursik 1990: 840; Nagin and Pogarsky 2001: 878; Niggli 1994: 92-93; Silberman 1976: 443; Spengler 2006: 55-61).

However, Klepper and Nagin (1989: 741), as well as Bodman and Maultby (1997), find that both the certainty *and* the severity of sanctions are deterrents, while in the study by Cummings et al. (2005) the significance of both variables depends on other control variables.

Thus, quantitative analyses so far fail to provide consistent support for the view that criminal behaviour is based on *instrumentally* rational decisions. To a significant extent, this might be due to a major methodological challenge that the strategy to empirically test different versions of RCT faces. As we will argue below, it is only a subgroup of actors that weighs the costs and benefits of illegal options. In order to conduct a meaningful test of rational choice explanations, one has to identify this subgroup theoretically and empirically. We do this based on a view that recognises actors' *variable* rationality and the significance of normative framing, and that thereby points to the limitations of even the wide version of RCT.

The Variable Rationality and Normative Framing of Criminal Behaviour

RCT focuses on how individuals choose among a set of alternatives by comparing their respective costs and benefits. In contrast, one can argue that most people simply do not perceive crime as an option. This shifts the focus to the question of why actors perceive certain alternatives of action, while ignoring others (Becker et al. 2007: 245; Wikström 2006: 81).

The theoretical basis of our argument is the Model of Frame Selection (Esser 2001; Kroneberg 2005, 2006), which is a formalised theory of action that seeks to integrate RCT with normativist-culturalist approaches. Our argument is also in line with Wikström's Situational Action Theory of Crime Causation (2004, 2006). Both theories assume that cost-benefit calculus is just one mechanism among others underlying individual behaviour. Often actors rather stick to a particular action alternative in an *automatic-spontaneous* mode of

decision-making, leaving aside other alternatives and incentives. In other words, actors are assumed to exhibit *variable* rationality depending on attributes of the individual and the situation.

The Model of Frame Selection specifies the conditions under which a reflecting-calculating mode prevails and those under which actors behave spontaneously (cf. Kroneberg 2005, 2006). Given our analytical interest and data restrictions, we concentrate on an actor's attitudes towards moral norms and the strength of their internalisation and activation. According to the Model of Frame Selection, internalised norms are not always open to trade-offs against the benefits of successfully breaking the law. Rather, illegal alternatives are excluded from consideration if norms have been strongly internalised and are activated through a normative framing of the situation. Actors then adhere to moral norms unconditionally. In contrast, actors who do not feel bound by moral norms do perceive crime as an option. It is only they who consider the respective expected costs and benefits of legal and illegal alternatives. This leads to the following hypothesis:

Hypothesis 3 (Model of Frame Selection): *Internalised norms can lead actors to disregard instrumental incentives to perform a criminal act. The more strongly such norms have been internalised, the smaller the effects of instrumental incentives will be. In case of very strong internalisation, actors will follow the norm spontaneously without considering instrumental incentives. In turn, only within the subgroup of actors with relatively weak internalisation, do criminal acts result from a cost-benefit calculus.*

Several studies have already relied on intuitions that are similar to this hypothesis. However, a first group of studies fails to provide a direct test, because they merely compare the explanatory power of incentives in sub-samples of respondents with high morality and low morality, respectively (Bachman et al. 1992: 363; Fetchenhauer 1998: 365-366;

Paternoster and Simpson 1996). Such sub-sample analyses cannot establish the presence of statistical interactions in the full sample.

A second group of studies does test for interaction effects but suffers from other shortcomings and produces mixed results. In support of Hypothesis 3, Burkett and Ward (1993) find negative interactions between moral beliefs and the certainty of punishment with regard to marijuana-use in a sample of high-school students. Besides the high selectivity of such a sample, their regressions fail to control for any other variables. Wenzel (2004) reports a negative interaction effect between internalised personal norms and deterrence for tax fraud. His results should be interpreted with caution because respondents' *current* perceptions of deterrence variables are used to explain self-reported *prior* tax fraud (Wenzel 2004: 564). In contrast to Hypothesis 3, Grasmick and Green (1981), as well as Green (1991), find statistical interactions between moral commitments and incentives to be insignificant. However, their analyses are likely to have insufficient test power due to the small number of observations (N = 390 and N = 234, respectively).

A major theoretical as well as empirical shortcoming of these studies is that they fail to consider an important aspect of moral commitment (with the exception of Paternoster and Simpson 1996: 577). According to the Model of Frame Selection, the power of moral norms to suppress incentives also depends on the framing of the situation: Actors can frame a situation in ways that make an illegal act look acceptable, or even legitimate (Sykes 1978: 308). Such a reframing can weaken the *activation* of a moral norm even if it has been strongly internalised.

In the literature on criminal behaviour, this is referred to as neutralisations. Actors who generally support a moral norm can use these techniques to justify their breaking of it (Cressey 1971: 93) and to disclaim moral responsibility (Sykes 1978: 307). Thus, the relationships described in Hypothesis 3 depend on a normative framing of the situation that

makes the actor feel obliged to follow the moral norm (Cressey 1971: 95; Sykes 1978: 310).

This yields a fourth hypothesis:

Hypothesis 4 (Model of Frame Selection): *In exerting their moderating effects, norms depend on the existence of a corresponding definition of the situation. If an actor has developed neutralisations for breaking a norm, she will not feel obliged to follow the norm, and instrumental incentives will regain importance.*

Acknowledging the relevance of neutralisations does not mean adopting the cynical view that actors can, at will, develop their own neutralisations, making them effectively free to choose whatever serves their interest (Coleman 1985: 210). Rather, actors who have strongly internalised moral norms are in need of good reasons before they will consider breaking them and perhaps even do so. Therefore, neutralisations can be expected to be effective to the extent that they refer to generally accepted principles and that they are embedded into a legitimising social discourse.

In our empirical analyses of shoplifting and tax fraud in Germany, we assume that neutralisations undermine the binding character of norms especially in the case of tax fraud, but generally much less so in the case of shoplifting. The reason being that shoplifting is rather uncommon among middle-class adults and is viewed by the general public as clearly illegitimate. In contrast, in present-day Germany minor forms of tax fraud, as well as insurance fraud, are widely regarded as a peccadillo and even referred to as “sport for the masses” (Fetchenhauer 1998: 17). A common argument used to legitimise tax fraud exemplifies a more general class of neutralisations: It is argued that the way in which a principally supported moral norm (here: to contribute one’s share to the public good) is put into law leads to a situation of injustice (Coleman 1985: 208). Thus, if an actor thinks that the current system of income redistribution through taxes leaves her with less than she feels she

actually deserves, breaking the law can be reframed as a legitimate compensation for work performed.

Data and Variables

The following analyses rely on survey data collected between November 2005 and January 2006 in Dresden, Germany. A total of 3,500 citizens (aged 18 years and older) were randomly chosen by the Bureau of Statistics of the city of Dresden and received the questionnaire. After one reminder, 2,130 questionnaires were returned, producing an adjusted response rate of 64% (for further details about the present study see Becker et al. 2007; Mehlkop and Becker 2007).

The questionnaire contained 74 questions concerning respondents' victimisation, as well as their own willingness to engage in particular offences. Since the study was explicitly designed to directly test rational choice theories of crime, most of the questions dealt with perceived incentives and expectations. The wordings and operationalisations of the relevant items, as well as descriptive statistics, are listed in Table 1.

Table 1: Variables, operationalisation and descriptive statistics

Variable	Question wording	Categories: Number; labels	Descriptive statistics
Shoplifting			
Dependent variable	“Would you take goods from a shop without paying for them?”	2; “yes” (1), “no” (0)	Yes: 55 (2.61%) Non-response: 80 (3.76%)
Perceived benefits (B)	”Please imagine you would have stolen clothes priced at 150 EUR from a shop. How valuable are these clothes to you?”	5; from “not valuable at all” (0) to “very valuable” (1)	Mean: .274, Sd: .341 Non-response: 113 (5.31%)
Expected probability of success (q)	”How likely would it be that you are able to remove the electronic anti-theft device from clothes?”	5; from “very unlikely, almost zero” (0) to “very likely” (1)	Mean: .245, Sd: .259 Non-response: 53 (2.49%)
Perceived severity of the penalty (C)	”Please imagine that somebody tries to steal clothes priced at 150 EUR from a shop. This person gets caught. What sanction has to be expected?”	5; “no real consequences” (0), “small monetary fine”, “high monetary fine”, “probation”, “not quite sure, but severe punishment” (1)	Mean: .274, Sd: .341 Non-response: 113 (5.31%)
Expected probability of detection (p)	“Now envisage that you would try to steal something from a shop. How likely would it be that you will get caught?”	5; from “very unlikely, almost zero” (0) to “very likely” (1)	Mean: .744, Sd: .234 Non-response: 53 (2.49%)
Normative attitudes (N)	“It is a bad thing to steal goods worth 5 EUR from a large department store” “It is a bad thing to steal goods worth 50 EUR from a small shop” ¹	5; from “I totally disagree” (0) to “I totally agree” (1)	Mean: .889, Sd: .248 Non-response: 46 (2.16%) Cronbach’s alpha ¹ : .8572
Tax fraud			
Dependent variable	“Please think about your tax return. Would you give false information on the tax form to reduce your tax burden?”	2; “yes” (1), “no” (0)	Yes: 269 (13.23%) Non-response: 97 (4.55%)
Perceived benefits (B)	The respondents were asked to estimate the amount of money that could be obtained by tax fraud	5; “never thought about it / nothing” (0), “almost nothing”, “one month’s income”, “2-4 months’ income”, “as much as my annual income” (1)	Mean: .157, Sd: .184 Non-response: 128 (6.01%)
Expected probability of success (q)	“Do you think that your false information on the tax form could pass a test by the tax authorities?”	5; from “very unlikely, almost zero” (0) to “very likely” (1)	Mean: .311, Sd: .267 Non-response: 111 (5.21%)
Perceived severity of the penalty (C)	“Somebody gives false information on a tax form and gets a refund of 25,000 EUR. She is detected. What sanction has to be expected?”	5; “just a pay-back, no other consequences” (0), “low monetary fine”, “high monetary fine”, “prison”, “not quite sure, but severe punishment” (1)	Mean: .622, Sd: .289 Non-response: 61 (2.86%)
Expected probability of detection (p)	“Do you think that the tax authorities discover false tax forms?”	5; from “very unlikely, almost zero” (0) to “very likely” (1)	Mean: .634, Sd: .246 Non-response: 101 (4.74%)
Normative attitudes (N)	“Anybody who does not pay his taxes correctly harms society.” “Everybody has to make a contribution to society.” ¹	5; from “I totally disagree” (0) to “I totally agree” (1)	Mean: .884, Sd: .165 Non-response: 87 (4.09%) Cronbach’s alpha ¹ : .6372
Neutralisation	“I got the feeling that I receive less than I actually deserve.”	5; from “I totally disagree” (0) to “I totally agree” (1)	Mean: .515, Sd: .331 Non-response: 27 (1.27%)

¹ The two indicators have been transformed into an index.

As dependent variables, we use self-reports on whether or not respondents would be willing to shoplift or commit tax fraud, respectively. Hence, we focus on the willingness (or propensity) to commit particular offences in the *future*. Where longitudinal data are not available, we deem this to be the overall best strategy to test different theories of action: These theories focus on the decision-making process *prior* to the choice of a criminal action. Focusing on present perceptions and the willingness to engage in prospective actions assures that the subjective determinants of this process are measured as validly as possible. If, instead, *past* offences of the respondents were analysed, it would become necessary to gather actors' perceptions of past situations retrospectively (i.e., estimated benefits, perceived severity of sanction, expectations, etc.). Given that these criminal actions were sometimes committed years ago, it is doubtful whether respondents would be able to accurately recall these subjective assessments.

Still, a disadvantage of our strategy is that respondents' reported willingness to commit an offence might not finally materialise. Whether or not it leads to corresponding offences depends, among other things, on individuals' differential exposure to environmental inducements (Wikström 2006). Notwithstanding this limitation, recent experiments by Pogarsky (2004) demonstrate that criminal intentions are indeed significantly correlated with subsequent criminal actions.

Another potential problem is that some respondents might refuse to answer questions about their willingness to commit offences, or else lie due to social desirability (Hindelang et al. 1979). We tried to minimise this problem by guaranteeing anonymity to the respondents. Specifically, we used neutral envelopes for sending back the questionnaire and asked no questions about personal characteristics other than standard demographic information. In general, the absence of interviewers in mail surveys leads to more honest answers, since there is less reason to provide socially desired answers (cf., e.g., Schnell et al. 2005).

Notwithstanding that, we also tried to empirically assess the extent of social desirability bias in our sample. This was done by looking at the effects of a scale constructed out of three items taken from the Marlowe-Crowne Index of Social Desirability (cf. Leite 2005). In our sample the connection between (high) social desirability and reporting the willingness to engage in an offence is rather small (Cramer's $V = -.102$ for shoplifting, and $-.118$ for tax fraud). We also found no relationship between this scale and the rate of non-response on these items, which is generally about 5 percent. This indicates that the social desirability bias is relatively small in our sample.

In order to test rational choice explanations of criminal behaviour, we use indicators based on items that directly asked for perceived benefits, costs, and subjective probabilities of success and of detection (cf. Table 1). This was done separately for shoplifting and tax fraud. With regard to each of these offences, we also measured respondents' normative attitudes using unweighted additive indices. We interpret these attitudes as the degree to which respondents have internalised norms proscribing these offences. Another item asked whether the respondent felt she received less than she actually deserved. As has been discussed in the theoretical section, we expect this feeling of deprivation to be associated with reframing tax fraud as a legitimate compensation for work performed.

All explanatory variables are metric in scale and have been standardised on a range from 0 to 1. We did so since we are theoretically interested in maximum average effects and since it also allows us to compare the relative size of effects.

Results

The Significance of Instrumental Incentives for Shoplifting and Tax Fraud

Table 2 presents the results for several rational choice models of shoplifting. The specification in Model 1a corresponds to a narrow RCT, which assumes that individuals consider instrumental incentives only. Accordingly, the model estimates interaction effects between the benefits and the probability of success and between the costs and the probability of detection, respectively (see Paternoster and Iovanni 1986). However, both product terms, $q \cdot B$ and $p \cdot C$, are clearly insignificant, and $p \cdot C$ even has an unexpected positive sign. Thus, when looking at the whole sample, we find no support for the view that individuals weight the benefits of a criminal act with their expectation of success or that they weight the costs of a penalty with their expectation to get caught (cf. Hypothesis 1a).

Model 2a excludes those product terms. The estimates show that shoplifting becomes more likely, the higher the expectation of success, the greater the perceived benefits, and the lower the expectation to get caught. This is in line with Hypothesis 1. The perceived severity of the penalty, however, has no effect on shoplifting. This no-result mirrors findings from other studies (cf. Becker and Mehlkop 2006 and the studies cited therein).

In Model 3a, we further relax the assumptions of the narrow version of RCT by introducing internalised norms as an additional independent variable. Its coefficient is statistically significant and indicates a strong influence, which clearly supports Hypothesis 2: The more actors believe that shoplifting is a bad thing, the less likely they are to be willing to commit this offence. Inclusion of this variable, however, does not substantially change the effects of the other rational choice variables.

Table 2: Determinants of shoplifting: Narrow and wide rational choice models
(Logit regressions of self-reported willingness to shoplift)

	Model 1a Narrow RCT	Model 2a Wide RCT	Model 3a Wide RCT including norms	Model 4a Narrow RCT on sub- sample ¹
Intercept	-3.307*** 0.000	-4.234*** 0.000	-2.339*** 0.001	-1.806 0.137
Probability of success (q)	1.706* 0.049	2.212*** 0.000	2.320*** 0.000	0.476 0.736
Benefits of offence (B)	1.256! 0.069	1.694*** 0.000	1.723*** 0.000	0.236 0.843
Probability of detection (p)	-2.566* 0.014	-1.388* 0.036	-1.330* 0.040	-2.158 0.180
Severity of penalty (C)	-2.163 0.276	0.346 0.628	0.209 0.765	-0.986 0.746
q·B	1.076 0.411			4.797! 0.075
p·C	3.833 0.153			1.976 0.645
Normative attitudes (N)			-2.480*** 0.000	
Pseudo R ²	0.1339	0.1282	0.1955	0.2375
Number of cases	1,912	1,912	1,912	226

¹ The sub-sample includes only respondents with weak normative attitudes.

First entry: logit-coefficient, second entry: p-value. !/**/*** p ≤ 0.1/0.05/0.01/0.001, two-tailed test

So far, our analyses would lead to the conclusion that the wide version of RCT is empirically more successful at explaining shoplifting than the narrow version, which assumes instrumental rationality only. More specifically, internalised norms seem to matter, and individuals seem *not* to weight costs and benefits with their corresponding expectations (as indicated by the absence of interaction effects). However, this result could also be misleading. Based on the Model of Frame Selection, one would predict that only a subgroup of actors considers the instrumental incentives with regard to shoplifting – namely those who do *not* feel bound by strongly internalised norms that proscribe this behaviour.

This possibility is addressed in Model 4a, which tests the same specification as Model 1, but only for the sub-sample of those respondents who either disagree that shoplifting is bad or are indifferent in this respect. As can be seen from Model 4a, among those respondents the predicted interaction effect between the subjective probability of success and the perceived

benefits of shoplifting is statistically significant at the 10 percent level. The positive effect of the perceived benefits of shoplifting is stronger, the greater the expectation of success (and vice versa). Also conforming to theoretical expectations, the conditional effects in Table 2 show that neither variable has any effect if the other one takes its minimal value of zero (cf. Dahlbäck 2003; Matsueda et al. 2006). However, we again do not find the expected interaction between costs and the expectation to get caught. This seems to result from the irrelevance of the perceived severity of the penalty already apparent in the earlier models and previous studies.

Although these results are in line with the explanation offered by the Model of Frame Selection, Model 4a does not provide a direct test of the hypothesised interaction effect between instrumental incentives and norm internalisation. Before we approach this task, we report results for tax fraud.

Table 3: Determinants of tax fraud: Narrow and wide rational choice models (Logit regressions of self-reported willingness to commit tax fraud)

	Model 1b Narrow RCT	Model 2b Wide RCT	Model 3b Wide RCT including norms	Model 4b Narrow RCT on sub-sample ¹
Intercept	-0.296 0.538	-0.335 0.289	1.615 0.001	0.373 0.799
Probability of success (q)	2.342*** 0.000	2.055*** 0.000	2.025*** 0.000	2.090 0.153
Benefits of offence (B)	3.592*** 0.000	3.107*** 0.000	3.072*** 0.000	1.637 0.488
Probability of detection (p)	-4.947*** 0.000	-4.656*** 0.000	-4.565*** 0.000	-3.889 0.144
Severity of penalty (C)	-1.156! 0.076	-0.904** 0.002	-0.910** 0.002	1.025 0.655
q·B	-1.163 0.434			1.404 0.770
p·C	0.553 0.663			-2.881 0.528
Normative attitudes (N)			-2.279*** 0.000	
Pseudo R ²	0.3075	0.3070	0.3238	0.3328
Number of cases	1,838	1,838	1,838	171

¹ The sub-sample includes only respondents with weak normative attitudes and who do not feel deprived. First entry: logit-coefficient, second entry: p-value. !/*/**/*** p ≤ 0.1/0.05/0.01/0.001, two-tailed test

The analyses of tax fraud proceed in the same way as the foregoing analyses of shoplifting. We therefore comment only briefly on the results (see Table 3). In Model 1b, we again do not find the interaction effects predicted by RCT. The respective product terms even show unexpected signs. Upon exclusion of the product terms $q \cdot B$ and $p \cdot C$, however, the effects of the incentive variables become statistically significant and strong (Model 2b). In contrast to shoplifting, we find a negative (albeit relatively small) effect of the perceived severity of the penalty.

Model 3b shows that tax fraud becomes less likely, the stronger a respondent's conviction that paying taxes is a moral obligation. So again, analyses of the whole sample seem to support a wide version of RCT that does not require individuals to behave in an instrumentally rational fashion (rejection of Hypothesis 1a) and allows for internalised norms (confirmation of Hypothesis 2).

As was done with regard to shoplifting, we now reproduce Model 1b for a sub-sample of respondents who are particularly likely to perform an instrumental cost-benefit calculus. As has been discussed above, the widely held permissive view on tax fraud in present-day Germany should make it easier to find neutralisations for this offence. Since norms should only be able to suppress the consideration of instrumental benefits in cases where no such neutralisations have been developed (cf. Hypothesis 4), we exclude respondents who feel they receive less than they deserve.

Hence, Model 4b includes only those respondents who feel less strongly obliged to pay taxes *and* who do *not* feel deprived.¹ In contrast to Model 1b, both interaction effects predicted by narrow RCT here show the expected sign. Moreover, at least the interaction between the perceived severity of the penalty and the expectation to get caught is also of substantial size. Notwithstanding that, Hypothesis 1a cannot be clearly supported, even in this sub-sample, since these effects are statistically not significant. However, the high uncertainty

in the estimates is likely to be due to the small number of cases ($N = 171$) on which it is based.

The Interaction between Instrumental Incentives and Normative Attitudes

The foregoing analyses provide evidence for the hypothesis of instrumental rationality only among respondents who do not feel bound by strongly internalised norms. Moreover, it was shown that in these sub-samples not all instrumental incentives are equally important in the explanation of shoplifting and tax fraud. With regard to *shoplifting*, an *instrumental* incentive effect could be identified only for perceived benefits and the subjective probability of success (q·B). The perceived severity of the penalty seems to be completely unimportant. In contrast, with regard to *tax fraud*, the only relevant instrumental incentive is the penalty weighted with the expectation to get caught. We deliver a possible explanation of this pattern in the concluding section. In the following tests of Hypotheses 3 and 4, we concentrate on those instrumental incentives that were found to be of explanatory power.

The Model of Frame Selection hypothesises that strong normative beliefs can lead actors to disregard instrumental incentives. Therefore, according to Hypothesis 3, the effects of the latter (q·B or p·C, respectively) should *diminish* with increasing internalisation of the norm. Statistically, a test of this hypothesis requires estimation of three-way interactions, since instrumental incentives already imply two-way interactions (q·B and p·C respectively).

For shoplifting, we test for a three-way interaction between the strength of the normative attitude proscribing this behaviour and its perceived benefits weighted by the corresponding expectation of success (N·q·B). For tax fraud, normative attitudes should interact with the perceived severity of the penalty weighted by the expectation to get caught (N·p·C). However, as demonstrated above, the significance of instrumental incentives for tax fraud is revealed only if we *simultaneously* take into account the role of neutralisations. In the following

analysis of tax fraud, we therefore again exclude respondents who are likely to have developed neutralisations that undermine the impact of their normative beliefs. According to Hypothesis 4, it is only in this subgroup of 699 respondents that we can expect to find the interaction between normative attitudes and instrumental incentives.

Table 4: Determinants of shoplifting and tax fraud: Interaction effects between normative attitudes and instrumental incentives (Logit regressions of self-reported willingness to commit the respective offence)

	Shoplifting	Tax fraud on sub-sample ¹
Intercept	-2.507 0.008	-8.751 0.067
Probability of success (q)	0.311 0.875	2.233*** 0.000
Benefits of offence (B)	-0.410 0.803	2.680*** 0.000
Probability of detection (p)	-1.310! 0.060	8.168 0.359
Severity of penalty (C)	0.398 0.581	20.367* 0.016
q·B	9.407* 0.021	
p·C		-27.657! 0.074
q·N	1.373 0.560	
B·N	1.737 0.374	
p·N		-14.305 0.158
C·N		-23.182* 0.015
Normative attitudes (N)	-1.875* 0.042	9.019! 0.093
Three-way interaction: q·B·N	-9.807* 0.040	
Three-way interaction: p·C·N		30.483! 0.080
Pseudo R ²	0.2183	0.3520
Number of cases	1,912	699

¹ The sub-sample includes only respondents who do not feel deprived.

First entry: logit-coefficient, second entry: p-value. !/*/**/*** p ≤ 0.1/0.05/0.01/0.001, two-tailed test

Table 4 presents the results. The three-way interaction (N·q·B) estimated in the regression of *shoplifting* clearly supports Hypothesis 3. The coefficients of the six lower-order terms (q·B, N·q, N·B, N, q, B) can be readily interpreted since each variable is coded from 0 to 1: They show the effects of the respective variable(s) for the scenario in which the other variable(s) take their empirical minimum (Braumoeller 2004).

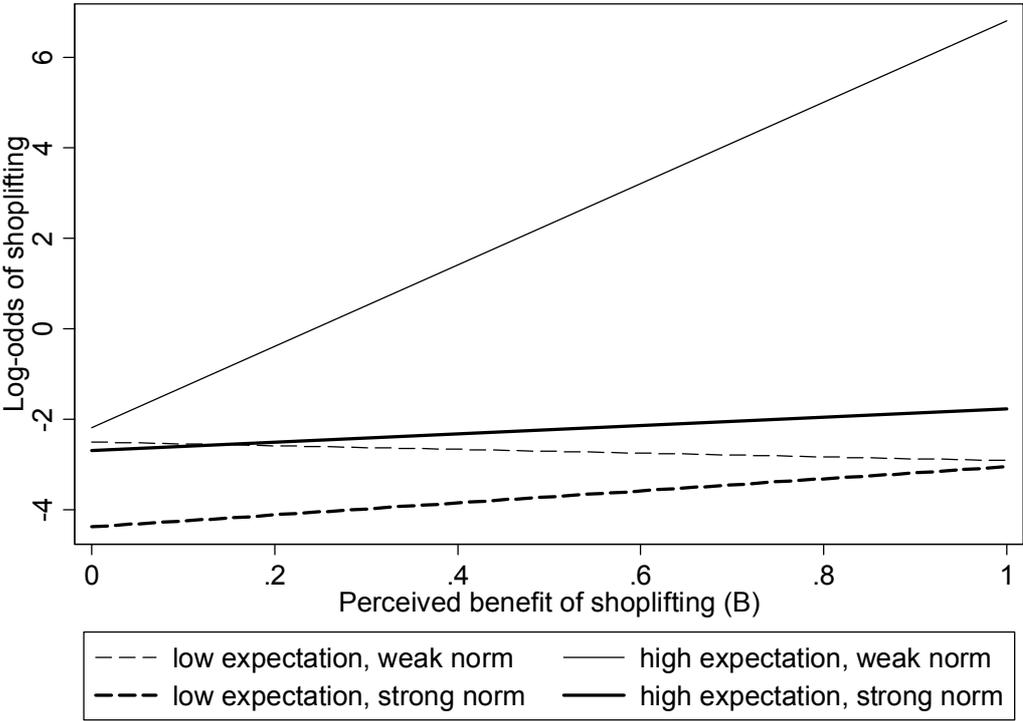
Hence, the coefficient of the product term q·B represents the conditional effect of this instrumental incentive if norm internalisation is weakest. From Table 4, we see that for this subgroup the model implies a strong positive interaction between the perceived benefits of shoplifting and the corresponding expectation of success. Thus, for respondents with minimum norm internalisation, the instrumental incentive is estimated to have a significant impact on shoplifting. In contrast, where normative attitudes are *strongest*, this instrumental incentive ceases to have any effect. This can be seen from the negative coefficient of the product term between all three variables, which is of such size that it equalises the positive effect of the interaction q·B.

The regression of *tax fraud* also confirms Hypothesis 3. Even though in this case the three-way interaction cannot be estimated with the same degree of certainty ($p < .10$), the sign and size of the coefficient clearly demonstrate its expected substantial importance.² Here, the three-way interaction is positive, since the internalised norms counteract the *negative* incentive (p·C) to commit tax fraud.

Note that the model for tax fraud is estimated on the sub-sample of respondents who do *not* feel they receive less than they deserve – thereby focusing on respondents who do not seem to possess neutralisations of tax fraud. Since the predicted three-way interaction can be found only in this sub-sample, Hypothesis 4 is also confirmed.

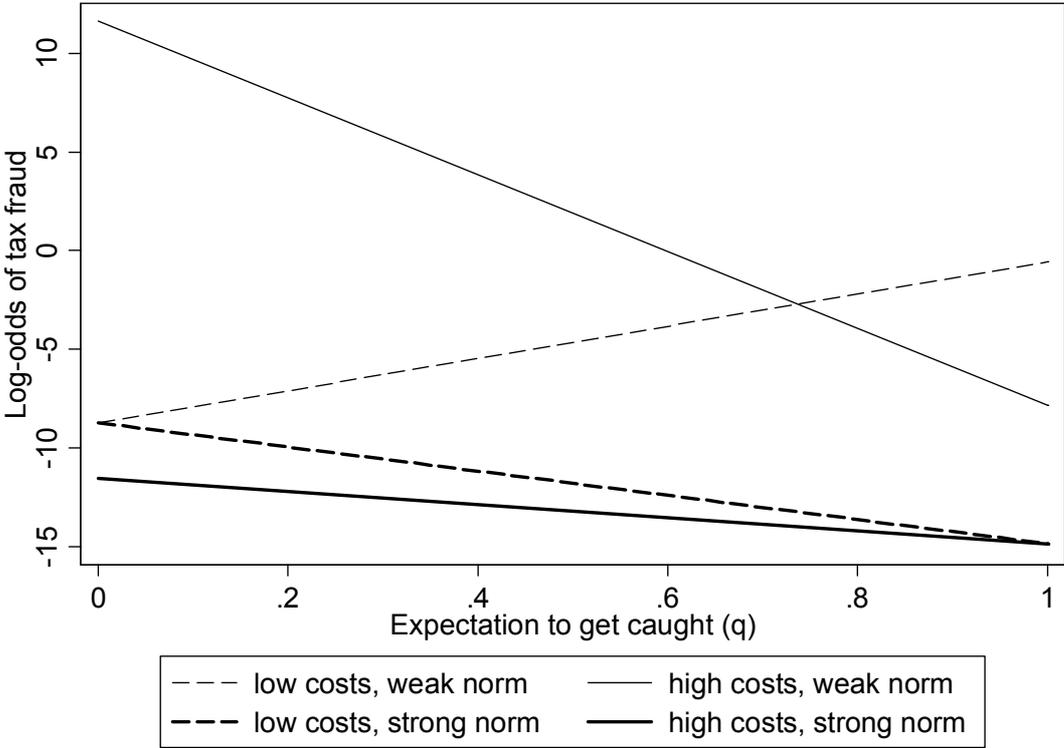
Figures 1 and 2 illustrate the three-way interactions graphically. In both figures, the effect of one incentive variable is depicted as estimated for respondents with empirically minimum and maximum strength of normative attitudes, and empirically minimum and maximum values of the other incentive variable. In this way, Figure 1 depicts how the effect of the perceived benefits of shoplifting depends on the expectation of success and the strength of normative attitudes. A strong positive effect occurs *only* if the expectation of success is high *and* normative attitudes proscribing shoplifting are weak (solid thin line). The three other lines correspond to insignificant associations that result either from strong normative attitudes (thick lines) or a low expectation of success (dashed thin line).

Figure 1: Effects of perceived benefits of shoplifting on the willingness to commit this offence conditional on the expectation of success and the strength of normative attitudes (based on estimates from Table 4)



In Figure 2, the thin lines depict the effects of the expectation to get caught on tax fraud for respondents with weak normative attitudes. For this subgroup, the interaction effect predicted by narrow RCT is clearly visible: A strong negative impact exists *only* if the perceived severity of the penalty is also high (solid thin line). When the latter is low (dashed thin line), the subjective probability of detection does not have a negative effect (there is only an insignificant positive association). In contrast, the thick lines indicate that for respondents with strong normative attitudes, the expectation to get caught does not affect shoplifting (the remaining small negative associations are statistically insignificant). Thus, these respondents do not seem to even consider the instrumental incentive to break their internalised norms.

Figure 2: Effects of the expectation to get caught on the willingness to commit tax fraud conditional on the perceived severity of the penalty and the strength of normative attitudes (based on estimates from Table 4)



Finally, in the case of tax fraud it should be noted that one effect does not confirm any theoretical expectations: The perceived severity of the penalty has a strong *positive* effect if

the corresponding expectation to get caught is small and norm internalisation is weak. This is indicated by the high value on the y-axis, from which the solid thin line slopes downward in Figure 2. It corresponds to the positive coefficient of C in the second model of Table 4. This result might be due to unobserved characteristics of respondents with weak norm internalisation and the belief that they won't get caught. In their case, perceiving high penalties in the (subjectively unlikely) case of a conviction might be associated with perceiving particularly 'high stakes', and therefore also high potential benefits of tax fraud. This could lead to the positive coefficient of C if our perceived benefits measure misses this aspect of their motivation.

Summary and Conclusions

This article provided an action-theoretic analysis of shoplifting and tax fraud. In a sample of 2,130 adults from Dresden, Germany, we tested several hypotheses derived from different theories of action. In the explanation of crime, several major components of theories of action are of particular causal significance. Depending on the particular offence under study, criminal actions can promise high benefits, but may also involve high risks. Moreover, since criminal action is "*an act of breaking a moral rule defined in criminal law*" (Wikström 2006: 63), the normative dimensions of action are especially visible in this context. Thus, despite our specific focus on crime, the main theoretical and methodological insights of our analysis may be transferred to other areas of sociological research. These insights concern the questions of which theory of action sociologists should use, and how to proceed empirically when testing the resulting explanations.

According to a *narrow* version of RCT, an offence is based on an instrumental cost-benefit calculus. We contrasted this approach with a *wide* RCT of crime that allows for norm

internalisation and abandons the assumption of purely outcome-oriented behaviour. Our empirical analyses corroborated the hypothesis that norm internalisation is strongly associated with the willingness to shoplift or commit tax fraud. However, a more complex pattern emerged with respect to the question of instrumental rationality.

Narrow rational choice theories carry the specific hypothesis that actors *weight* the benefits and costs of criminal acts with subjective probabilities that the corresponding outcomes will occur. The assumption that *all* respondents in our sample undertake such an instrumental cost-benefit calculus would have led us to reject this hypothesis: None of the corresponding four interaction effects (q·B and p·C, with respect to shoplifting and tax fraud) was statistically significant, and three of them even had unexpected signs.

However, further analyses revealed that this rejection would have been rash: We did find evidence for *instrumentally* rational considerations based on the assumption that *only* respondents who do *not* feel bound by strongly internalised norms consider instrumental incentives. With respect to shoplifting, respondents without strongly internalised norms weight the perceived benefits of the crime with the expectation to realise these benefits. In the case of tax fraud, respondents who do not feel bound by norms weight the perceived severity of sanctions with the expectation to get caught.

A main methodological message of our analyses is therefore that straight-forward applications of RCT can lead to erroneous conclusions. It was only by adopting a view that acknowledges the heterogeneity of social action that we avoided the wrong conclusion that instrumental cost-benefit calculus does not matter empirically. Ironically, therefore, we were able to retain one of the most bold and interesting hypotheses of RCT by transcending its usual arguments.

Theoretically, we went beyond a conventional rational choice approach by assuming that internalised norms are not just ‘soft’ incentives that are traded against instrumental, tangible incentives. Rather, normative attitudes can work as a moral filter, deleting normatively

proscribed actions from the set of alternatives under consideration. This view was derived from the Model of Frame Selection (Kroneberg 2005, 2006) and the Situational Action Theory of Crime Causation (Wikström 2004, 2006). Both theories argue that actors who feel bound by strongly internalised norms may not perceive crime as an option, and therefore may not deliberate on its costs and benefits. In contrast, actors who have not strongly internalised these norms choose among legal and illegal alternatives based on their expected costs and benefits.

We assessed these arguments empirically by testing for three-way interactions between normative attitudes and instrumental incentives (since the latter already imply two-way interactions). In our analyses of both shoplifting and tax fraud, we found a statistical interaction of expected strength and sign: Instrumental incentives were taken into account only if respondents did not feel bound by strongly internalised norms. The stronger these normative attitudes, the smaller were the effects of instrumental incentives on the willingness to commit a crime. In the regression of tax fraud this three-way interaction was only statistically significant on the 10 percent level. This higher uncertainty in the estimation is likely to originate in the smaller number of cases on which it is based.

Our analyses also revealed some remarkable differences regarding the determinants of shoplifting and tax fraud. First, instrumental incentives for shoplifting were irrelevant among respondents with strongly internalised moral norms. With respect to tax fraud, an additional requirement was that respondents did not feel they received less than they thought they deserved. As the Model of Frame Selection led us to expect, the deterrent power of moral norms against tax fraud was weakened when such neutralisations were available.

A second difference between shoplifting and tax fraud concerns the incentives that are taken into account in an instrumental cost-benefit calculus. For shoplifting, the relevant instrumental incentive is the perceived benefits weighted with the subjective probability of

success. For tax fraud, it is the perceived severity of the sanctions weighted with the expectation to get caught.

A possible explanation of this difference goes as follows: With regard to *shoplifting*, the perceived severity of the penalty was found to be completely unimportant. This may be so because the punishment is generally perceived to be rather mild and therefore negligible. Nevertheless, we observe only a very low willingness to shoplift. It therefore seems that, for most of our respondents, what can be gained through shoplifting is simply too small to be worth any risk. This, in turn, implies that perceiving high benefits and a high probability of success is particularly meaningful in *discriminating* the relatively small group of potential shoplifters from the rest.

The situation is different with respect to *tax fraud*. Here, the punishment is widely expected to be relatively harsh. Given the widely shared neutralisations of this offence and its rather high prevalence in Germany, the extent to which individuals are *not* deterred by possible sanctions becomes crucial. The most *differentiating* attributes with respect to tax fraud are therefore the perceived severity of penalties and the subjective probability to be caught. This could explain why, for this offence, we find an *instrumental* incentive effect only between these variables.

However, one has to keep in mind that our analyses focused on the *willingness* to engage in shoplifting and tax fraud. Future research should collect longitudinal data in order to focus on actual behaviour, while still measuring perceptions and attitudes antedating the offence. Besides this need of further testing, it is of the greatest sociological interest to use action-theoretic arguments as a basis for understanding the significance of *systemic* factors (Bunge 2006: 9-10). Knowledge of the causal interplay between the individual determinants of crime is crucial to “fully understand the important (but *indirect*) role of systemic factors (e.g., inequality, segregation, and social and moral norms) and their changes over time in crime causation.” (Wikström 2006: 62).

In this context, our theoretical perspective implies that systemic factors affect different individuals in different ways. Factors that merely shape the expected costs and benefits of certain crimes should affect only those individuals who really take into account instrumental incentives. Individuals with strong normative attitudes can be expected to be insensitive towards this opportunity structure, at least in the short term. However, we do not treat the members of the latter group as cultural dopes who passively follow rules. Rather, they engage in an active framing of the situation, which can lead them to call into question the legitimacy and applicability of norms. Thus, the social contexts and processes that shape normative attitudes and neutralisations are of great importance (Wikström 2006: 104) and should be a target of future research. In our view, such research should be based on an action-theoretic view that considers the normative framing of the situation and actors' *variable* rationality – since it is only for some actors that “opportunity makes the thief”.

Notes

¹ Additional analyses (not reported because of space limitations) show that instrumental incentives do *not* affect tax fraud in the way predicted by narrow RCT if we instead define this sub-sample solely by means of low norm internalisation.

² However, the very high coefficients in this final regression of tax fraud to some extent also reflect uncertainty in these particular estimates. As stated above, due to our coding, the presented coefficients refer to minimum-maximum comparisons which are of particular theoretical interest. However, observations with such extreme combinations easily become sparse, and the high estimates in this final model of tax fraud partly reflect this lack of data points. Specifically, there are few respondents who have only weak normative attitudes against tax fraud but do not feel deprived. We assured that the high estimates are not due to other statistical problems by re-estimating *both* models in Table 4 with *z-standardised* predictors. This resulted in coefficients of reasonable and very similar size across both models (e.g., a change in the three-way interaction p·C·N by one standard deviation is estimated to increase the odds for tax fraud by a factor of 1.43). Analyses are available from the authors upon request.

References

- Bachman, R., Paternoster, R. and Ward, S. (1992). The Rationality of Sexual Offending: Testing a Deterrence/Rational Choice Conception of Sexual Assault. *Law and Society Review*, **26**, 343-372.
- Bandura, A. (1997). *Self-efficacy. The Exercise of Control*. New York: Freeman.
- Becker, G.S. (1968). Crime and Punishment: An Economic Approach. *Journal of Political Economy*, **76**, 169-217.
- Becker, R. and Mehlkop, G. (2006). Social Class and Delinquency. *Rationality and Society*, **18**, 193-235.
- Becker, R., Imhof, R. and Mehlkop, G. (2007). Monetäre Anreize bei einer postalischen Befragung und Antworten auf Fragen zur Delinquenz. *Methoden Daten Analysen*, **1**, 131-160.
- Becker, R., Imhof, R. and Raimann, M. (2007). Kriminalität als rationale Wahlhandlung. Eine empirische Überprüfung eines erweiterten entscheidungs- und handlungstheoretischen Modells. *Swiss Journal of Sociology*, **33**, 237-260.
- Blossfeld, H.-P. and Prein, G. (Ed.). (1998). *Rational Choice Theory and Large-Scale Data Analysis*. Boulder, CO: Westview Press.
- Bodman, P.M. and Maultby, C. (1997). Crime, Punishment and Deterrence in Australia. *International Journal of Social Economics*, **24**, 884-901.
- Bohman, J. (1992). The Limits of Rational Choice Explanation. In: Coleman, J.S. and Fararo, T.J. (Ed.): *Rational Choice Theory: Advocacy and Critique*. Newbury Park, CA: Sage, pp. 207-228.
- Bottoms, A. (2006). Desistance, Social Bonds, and Human Agency: A Theoretical Exploration. In: Wikström, P.-O. and Sampson, R.J. (Ed.): *The Explanation of Crime. Context, Mechanisms and Development*. Cambridge: Cambridge University Press, pp. 243-290.
- Braumoeller, B.F. (2004). Hypothesis Testing and Multiplicative Interaction Terms. *International Organization*, **58**, 807-820.
- Bunge, M. (2006). A Systemic Perspective on Crime. In: Wikström, P.-O. and Sampson, R.J. (Ed.): *The Explanation of Crime. Context, Mechanisms and Development*. Cambridge: Cambridge University Press, pp. 8-30.
- Burkett, S.R. and Ward, D.A. (1993). A Note on Perceptual Deterrence, Religiously Based Moral Condemnation, and Social Control. *Criminology*, **31**, 119-134.
- Coleman, J.S. (1990). *Foundations of Social Theory*. Cambridge: Belknap.

- Coleman, J.W. (1985). *The Criminal Elite. The Sociology of White Collar Crime*. New York: St. Martin's Press.
- Cornish, D.B. and R.V. Clarke (1987). Understanding Crime Displacement: An Application of Rational Choice Theory. *Criminology*, **25**, 933-947.
- Cressey, D.R. (1971). *Other People's Money. A Study in the Social Psychology of Embezzlement*. Belmont: Wadsworth.
- Cummings, R.G., Martinez-Vazquez, J., McKee, M. and Torgler, B. (2005). Effects of Tax Morale on Tax Compliance: Experimental and Survey Evidence. *Center for Research in Economics, Management and the Arts*, Basel, Switzerland: Working Paper.
- Dahlbäck, O. (2003). *Analyzing Rational Crime – Models and Methods*. Dordrecht: Kluwer.
- Danziger, S. and Wheeler, D. (1975). The Economics of Crime: Punishment or Income Distribution. *Review of Social Economy*, **33**, 113-131.
- Diekmann, A. (1980). *Die Befolgung von Gesetzen. Empirische Untersuchungen zu einer rechtssoziologischen Theorie*. Berlin: Duncker und Humblodt.
- Elffers, H., P. van der Heijden and Hezemans, M. (2003). Explaining Regulatory Non-Compliance: A Survey Study of Rule Transgression for Two Dutch Instrumental Laws, Applying the Randomized Response Method. *Journal of Quantitative Criminology*, **19**, 409-439.
- Entorf, H. and Spengler, H. (2005). Die generalpräventive Wirkung erwarteter Strafe. Eine umfassende Auswertung kombinierter Kriminal- und Strafverfolgungsstatistiken im langfristigen Bundesländervergleich. *Monatsschrift für Kriminologie und Strafrechtsreform*, **88**, 313-338.
- Esser, H. (2001). *Soziologie. Spezielle Grundlagen, Band 6: Sinn und Kultur*. Frankfurt am Main: Campus.
- Festinger, L. (1957). *A Theory of Cognitive Dissonance*. Stanford: Stanford University Press.
- Fetchenhauer, D. (1998). *Versicherungsbetrug. Eine theoretische und empirische Analyse betrügerischen Verhaltens gegenüber einem anonymen Geschädigten*. Baden-Baden: Nomos.
- Goldthorpe, J.H. (1996). The Quantitative Analysis of Large-Scale Data-Sets and Rational Action Theory: For a Sociological Alliance. *European Sociological Review*, **12**, 109-26.
- Gottfredson, M.R. and Hirschi, T. (1990). *A General Theory of Crime*. Stanford: Stanford University Press.
- Grasmick, H.G. and Bursik, J. Jr. (1990). Conscience, Significant Others, and Rational Choice: Extending the Deterrence Model. *Law & Society Review*, **24**, 837-861.

- Grasmick, H.G. and Green, D.E. (1981). Deterrence and the Morally Committed. *The Sociological Quarterly*, **22**, 1-14.
- Green, D.E. (1991). Inhibition, Motivation, and Self-Reported Involvement in Drinking and Driving Behavior. *Criminal Justice Review*, **16**, 1-16.
- Hedström, P. (2005). *Dissecting the Social: On the Principles of Analytical Sociology*. Cambridge: Cambridge University Press.
- Hindelang, M.J., Hirschi, T. and Weis, J.G. (1979). Correlates of Delinquency: The Illustration of Discrepancy between Self-Report and Official Measures. *American Sociological Review*, **44**, 995-1014.
- Katz, J. (1988). *Seductions of Crime: Moral and Sensual Attractions in Doing Evil*. New York: Basic Books.
- Kelle, U. and Lüdemann, C. (1998): Bridge Assumptions in Rational Choice Theory: Methodological Problems and Possible Solutions. In: Blossfeld, H.-P. and Prein, G. (Ed.), *Rational Choice Theory and Large-Scale Data Analysis*. Boulder: Westview Press, pp. 112-125.
- Kroneberg, C. (2005). Die Definition der Situation und die variable Rationalität der Akteure. Ein allgemeines Modell des Handelns. *Zeitschrift für Soziologie*, **34**, 344-363.
- Kroneberg, C. (2006). The Definition of the Situation and Variable Rationality: The Model of Frame Selection as a General Theory of Action. *Working Paper 06/05. Sonderforschungsbereich 504*. Mannheim: University of Mannheim.
- Laub, J.H. and Sampson, R.J. (2003). *Shared Beginnings, Divergent Lives: Delinquent Boys to Age 70*. Cambridge: Harvard University Press.
- Leite, W.L. (2005). Validation of Scores on the Marlowe-Crowne Social Desirability Scale and the Balanced Inventory of Desirable Responding. *Educational and Psychological Measurement*, **65**, 140-154.
- Lenski, G. (1988). Rethinking Macrosociological Theory. *American Sociological Review*, **53**, 163-171.
- Matsueda, R.L., Kreager, D.A. and Huizinga, D. (2006). Deterring Delinquents: A Rational Choice Model of Theft and Violence. *American Sociological Review*, **71**, 95-122.
- McCarthy, B. (2002). New economics of sociological criminology. *Annual Review of Sociology*, **28**, 417-442.
- McKenzie, R.B. and G. Tullock (1994). *The New World of Economics*. New York: McGraw-Hill.

- Mehlkop, G. and R. Becker (2007). Zur Wirkung monetärer Anreize auf die Rücklaufquote in postalischen Befragungen. *Methoden Daten Analysen*, **1**, 5-24.
- Merton, R.K. (1968). Sozialstruktur und Anomie. In: Sack, F. (Ed.), *Kriminalsoziologie*. Frankfurt am Main: Akademische Verlagsgesellschaft.
- Mühlenfeld, H.-U. (1999). *Kriminalität als rationale Wahlhandlung. Eine empirische Überprüfung der Rational Choice-Theorie anhand des Schwarzfahrens*. Stuttgart: edition 451.
- Nagel, S.S. (1986). Punishment and Probability in Crime Reduction Research Needs for Policy Making. *Criminal Justice Policy Review*, **1**, 123-139.
- Nagin, D.S. and Pogarsky, G. (2001). Integrating Celerity, Impulsivity, and Extralegal Sanction Threats into a Model of General Deterrence: Theory and Evidence. *Criminology*, **39**, 865-891.
- Niggli, M.A. (1994). Rational Choice Theory and Crime Prevention. *Studies on Crime and Crime Prevention*, **3**, 83-103.
- Opp, K.-D. (1999). Contending conceptions of the theory of rational choice. *Journal of Theoretical Politics*, **11**, 171-202.
- Paternoster, R. and Iovanni, L. (1986). The Deterrent Effect of Perceived Severity: A Reexamination, *Social Forces*, **64**, 751-777.
- Paternoster, R. and Simpson, S. (1996). Sanction Threats and Appeals to Morality: Testing a Rational Choice Model of Corporate Crime, *Law and Society Review*, **30**, 549-583.
- Piliavin, I., Thornton, C. Gartner, R. and Matsueda, R.L. (1986). Crime, Deterrence, and Rational Choice, *American Sociological Review*, **51**, 101-119.
- Pogarsky, G. (2004). Projected Offending and Contemporaneous Rule-Violation: Implications for Heterotypic Continuity, *Criminology*, **42**, 111-135.
- Robinson, J.B. and Rengert, G.F. (2006). Illegal Drug Markets: The Geographic Perspective and Crime Propensity. *Western Criminology Review*, **7**, 20-23.
- Schnell, R., Hill, P. and Esser, E. (2005). *Methoden der empirischen Sozialforschung*, 7th Edition. München: Oldenbourg.
- Silberman, M. (1976). Toward A Theory Of Criminal Deterrence. *American Sociological Review*, **41**, 442-461.
- Spengler, H. (2006). Eine panelökonometrische Überprüfung der ökonomischen Theorie der Kriminalität mit deutschen Bundesländerdaten. *DIW Berlin, Discussion Papers 548*.
- Sutherland, E.H. and Cressey, D.R. (1966). *Principles of Criminology*. Philadelphia: Lippincott.

- Sykes, G.M. (1978). *Criminology*. New York: Harcourt Brace Jovanovich.
- Tyler, T.R. (1990). *Why People Obey The Law*. New Haven: Yale University Press.
- Tyler, T.R. (1997). Procedural Fairness and Compliance with the Law. *Swiss Journal of Economics and Statistics*, **133**, 219–240.
- Wenzel, M. (2004). The Social Side of Sanctions: Personal and Social Norms as Moderators of Deterrence. *Law and Human Behavior*, **28**, 547-567.
- Wikström, P.-O. (2004). Crime as Alternative: Towards a Cross-Level Situational Action Theory of Crime Causation. In: McCord, J. (Ed.): *Beyond Empiricism: Institutions and Intentions in the Study of Crime. Advances in Criminological Theory 13*. New Brunswick: Transaction.
- Wikström, P.-O. (2006). Individuals, Settings, and Acts of Crime: Situational Mechanisms and the Explanation of Crime. In: Wikström, P.-O. and Sampson, R.J. (Ed.): *The Explanation of Crime. Context, Mechanisms and Development*. Cambridge: Cambridge University Press, pp. 61-107.
- Yee, A.S. (1997). Thick Rationality and the Missing “Brute Fact”: The Limits of Rationalist Incorporations of Norms and Ideas. *The Journal of Politics*, **59**, 1001-1039.

Nr.	Author	Title
08-16	Clemens Kroneberg Isolde Heintze Guido Mehlkop	On shoplifting and tax fraud: An action-theoretic analysis of crime
08-15	Hermann Jahnke Dirk Simons	A rationale for the payback criterion – An application of almost stochastic dominance to capital budgeting
08-14	Peter Dürsch Jörg Oechssler Radovan Vadovic	Sick Pay Provision in Experimental Labor Markets
08-13	Carsten Schmidt Martin Strobel Henning Oskar Volkland	Accuracy, Certainty and Surprise - A Prediction Market on the Outcome of the 2002 FIFA World Cup
08-12	Mathias Sommer	Understanding the trends in income, consumption and wealth inequality and how important are life-cycle effects?
08-11	Hans Gersbach Hans Haller	Club Theory and Household Formation
08-10	Michael F. Meffert Thomas Gschwend	Strategic Voting in Multiparty Systems: A Group Experiment
08-09	Jens Wüstemann Jannis Bischof	Ausweis von Finanzinstrumenten in europäischen Bankbilanzen nach IFRS: Normative Erkenntnisse empirischer Befunde
08-08	Jürgen Eichberger David Kelsey	Are the Treasures of Game Theory Ambiguous?
08-07	Jürgen Eichberger Ani Guerdjikova	Multiple Priors as Similarity Weighted Frequencies
08-06	Jörg Oechssler Andreas Roider Patrick W. Schmitz	Cooling-Off in Negotiations - Does It Work?
08-05	Jörg Oechssler Andreas Roider Patrick W. Schmitz	Cognitive Abilities and Behavioral Biases

SONDERFORSCHUNGSBereich 504 WORKING PAPER SERIES

Nr.	Author	Title
08-04	Julian Rode	Truth and trust in communication - Experiments on the effect of a competitive context
08-03	Volker Stocké	Educational Decisions as Rational Choice? An Empirical Test of the Erikson-Jonsson Model for Explaining Educational Attainment
08-02	Siegfried K. Berninghaus Karl-Martin Ehrhart Marion Ott	Myopically Forward-Looking Agents in a Network Formation Game: Theory and Experimental Evidence
08-01	Sascha Huber Thomas Gschwend Michael F. Meffert Franz Urban Pappi	Erwartungsbildung über den Wahlausgang und ihr Einfluss auf die Wahlentscheidung
07-76	Michael Bremert Dennis Voeller Nicole Zein	Interdependencies between Elements of Governance and Auditing: Evidence from Germany
07-75	Jannis Bischof Jens Wüstemann	How Does Fair Value Measurement under IAS 39 Affect Disclosure Choices of European Banks?
07-74	Markus Glaser Philipp Schäfers Martin Weber	Managerial Optimism and Corporate Investment: Is the CEO Alone Responsible for the Relation?
07-73	Jannis Bischof Michael Ebert	IAS 39 and Biases in the Risk Perception of Financial Instruments
07-72	Susanne Abele Garold Stasser	Continuous and Step-level Pay-off Functions in Public Good Games: A Conceptual Analysis
07-71	Julian Rode Marc Le Menestrel	The role of power for distributive fairness
07-70	Markus Glaser Martin Weber	Why inexperienced investors do not learn: They do not know their past portfolio performance
07-69	Jose Apesteguia Steffen Huck Jörg Oechssler Simon Weidenholzer	Imitation and the Evolution of Walrasian Behavior: Theoretically Fragile but Behaviorally Robust