

Investigating the action-generating mechanisms of rule-breaking

**Overcoming methodological challenges in empirical tests of
Situational Action Theory and the Code of the Street**

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**Investigating the action-generating mechanisms of rule-breaking:
Overcoming methodological challenges in empirical tests
of Situational Action Theory and the Code of the Street**

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Chapter 1

Introduction

1.1 Background and aim of the dissertation

Rule-breaking is an actor's reaction to the behavioural setting to which they are exposed (see Cohen, 1955; Sutherland, 1947) and is a behaviour that breaches a moral rule that might be stated in law. Understanding this interplay between a person and their behavioural setting is significant for developing crime prevention measures and understanding crime as a social phenomenon. Rule-breaking can be explained by action theories that emphasise the weighing of the costs and benefits of alternative actions (see, e.g., Becker, 1968; Loughran et al., 2016), the importance of emotions (see, e.g., Barnum and Solomon, 2019; van Gelder and De Vries, 2013) or morality (see, e.g., Wikström 2006, 2010; Kroneberg, Heinitz and Mehlkop 2010) or the role of culture (see, e.g., Anderson 1999; Simons and Burt 2011; Simons et al. 2014).

Although there are important differences between them, these approaches all explain rule-breaking via an action-generating mechanism that explains the interplay between actors' criminal propensity¹ and behavioural settings' criminogeneity and addresses what would have happened if a person's criminal propensity and a setting's criminogeneity had been different. For example, would a person with low criminal propensity have broken (more) rules if the levels of criminogeneity were higher? Or would a person with high criminal propensity have broken no (or fewer) rules if the levels of criminogeneity were lower?

This kind of question presupposes that essential contrasts – such as actors with low criminal propensity being exposed to high and low levels of criminogeneity – are observable. How the match between actors and behavioural settings comes about is addressed by the selection mechanism that explains why people come to be exposed to various settings. Studies on selection indicate that there are correlations between people's criminal propensity and the levels of criminogeneity they are exposed to (Wikström et al., 2010; Wikström and Treiber, 2016). Thus, the informative value of studies that use observational data to investigate the action-generating mechanism is called into question as these investigations omit important counterfactuals (for the potential outcome model, see Holland, 1986; Morgan and Winship, 2007; Rubin, 1974).

Most observational data does not include information about the circumstances under which rule-breaking emerged. Without this critical information linking criminogenic exposure, the actor and rule-breaking, researchers can only assume the conditions under which a crime occurred. Thus, they cannot rigorously test for the effect of criminogenic exposure and thus also cannot control for selection.

¹Here, 'criminal propensity' indicates the probability of a person becoming deviant because of his or her characteristics. I use the term as a placeholder for the different attributes of the various approaches. It is to be distinguished from the term 'crime propensity' used by Situational Action Theory which is introduced later in this document.

My dissertation addresses this challenge and aims to provide a more rigorous and informative test of action-theoretical predictions by controlling for selection. In what follows, I compare actors who are exposed to the same setting, rather than actors across different types of behavioural settings. I use schools as a strategic research site and investigate violent interpersonal relationships between students in the same school grade (Chapters 2 and 3), as well as students' cheating behaviour (Chapter 4). The school setting, in combination with fixed-effects estimators, is particularly well suited to the action-theoretical research agenda. Fixed-effects estimators either compare students in the same school with each other, or students with themselves in the same setting at different points in time. Thus, the selection of students to different exposures is controlled.

Moreover, this research strategy also controls for unobserved heterogeneity between kinds of exposure, as well as the spatio-linkage between the behavioural setting and the behavioural outcome. Unobserved heterogeneity challenges causal inference as associations between observables and unobservables may be expected in observational data. While schools are more homogeneous than other settings in which criminogenic exposure may be studied (such as piano lessons or spare time spent at a skate park), and thus vary less in dimensions such as deterrence or time spent unsupervised, unobservable differences between schools remain. The fixed-effect estimators control for these differences between schools.

This first chapter introduces the action-generating mechanism and how investigating this mechanism is challenged by selection. Moreover, it gives an overview of my research strategy and the three studies presented in the subsequent chapters, which apply the research strategy described. Chapters 2, 3 and 4 present independent empirical studies, and Chapter 5 draws the overall conclusion of this dissertation.

1.2 Laying the groundwork

This chapter uses the sociological model of explanation and its micro-foundations to state the significance of the action-generating mechanism (1.2.1). I then provide an overview of current theoretical approaches to explaining action, beginning with rational choice theories, moving on to theories that emphasise emotions and theories that emphasise morality, and ending with cultural approaches to explaining action (1.2.2). This overview illustrates that the action-theoretical approaches explain rule-breaking in terms of the interplay between a person and their behavioural settings. This interplay is often called the 'action-generating mechanism'. However, the various action-theoretical approaches differ beyond the categories I have assigned to them. Therefore, I go on to outline other similarities and differences of these approaches, challenges in their investigations and, finally, point out their common

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core (1.2.3). I, then, address the selection mechanism, which theoretically precedes the action-generating mechanism but challenges its investigation (1.2.4).

1.2.1 The need for an action-theoretical explanation in sociology and in criminology

As a starting point, I will locate the action theories, or rather the action-generating mechanism, in the sociological model of explanation (a.). This model describes social phenomena as macro-level states and presupposes that the transition between these states is explained via the micro-level where the action-generating mechanism is located. I then discuss opening up the black box of rule-breaking via the action-generating mechanism (b.). This discussion aims to identify the causal factors of rule-breaking and distinguish them from merely associated factors and the causes of the ‘causes of effects’.

(a.) Thinking through the Coleman Boat

Within sociology, action-theoretical approaches are located in the micro-level of the macro-micro-macro model most famously associated with James S. Coleman (1986, 2000). His schematic representation is often referred to as the Coleman Boat, a tool for presenting and explicating sociological explanations that serve as a scheme for explaining macro-level regularities via the micro-level.

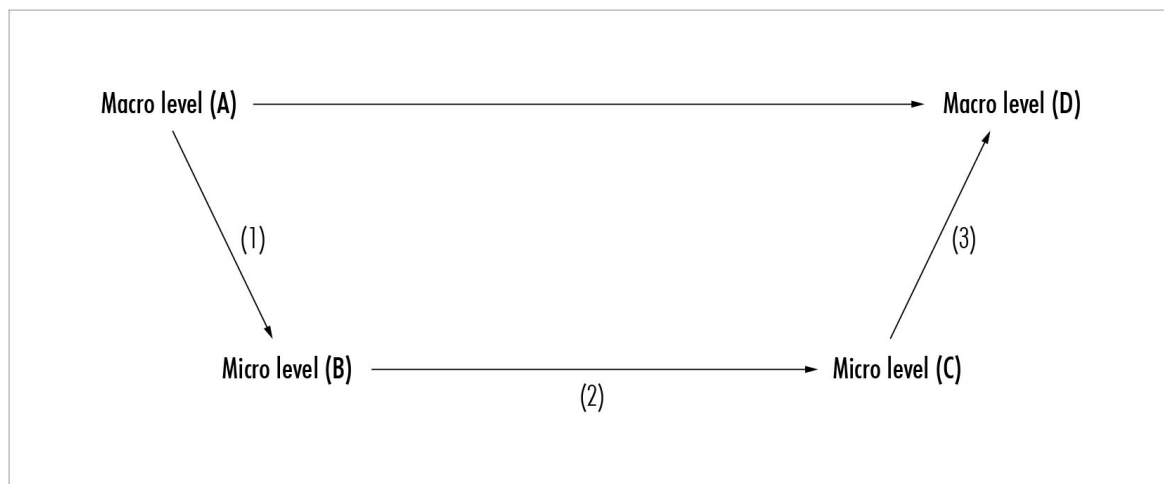


Fig. 1.1 The Coleman Boat

The building map of the Coleman Boat is represented in figure 1.1. In describing the tool, I will follow the terminology of Esser (1999, 2000). Nodes(A) and (D) represent propositions about macro-conditions and macro-level outcomes. Nodes (B) and (C) are located on the

micro-level and represent the actors and their behaviour, respectively. The initial macro-level conditions (A) are extra-individual social factors that are cited as causes of social phenomena that influence individuals on the micro-level (B). The initial macro-phenomena (A) can vary in scale and be characteristics of actors' social environments, ranging from their family to their friends and immediate situation to the broader social contexts in which they act (Coleman, 2000; Esser, 2000). Micro-level (B) may include opportunities, beliefs, preferences, motives, cognitive scripts, perceptions and habits (Coleman 2000; Esser 2000).

(A) and (B)'s relation – arrow (1) – represents' assumptions about how social conditions affect the actor. (A) structures social behaviour and gives the logic of the situation. Arrow (2), connecting the actor and the behaviour (C), refers to the action-generating mechanism. Arrow (3) refers to the logic of aggregation, which explains how behaviour leads to the resulting macro-phenomena (D). The explanation of macro-phenomena via this ideal description of the Coleman Boat explains how changes on the macro-level alter actors' situations, actors' responses to those changes and how those behaviours lead to a new macro-level state.

(b.) Opening the black box of rule-breaking

So far, I have described the action-generating mechanism as a part of the sociological model of explanation. I will now note its virtues for explaining rule-breaking. Various definitions of 'mechanism' exist, all of which aim for clarity and explicitness in explaining. Following Hedström and Ylikoski (2010: 50–51), a mechanism is characterised, first, by the kind of effect or phenomena it produces. Second, 'mechanism' refers to the entities in a causal process that produce the effects. And third, a description of a mechanism specifies how the entities and their properties produce the effect of interest. Thus, a mechanism allows researchers at least to look inside, if not open, the black box of rule-breaking (Boudon, 1998; Hedström, 2005; Proctor and Niemeyer, 2019). Here, action-generating mechanisms answer the question of why rules are broken by appealing to the interplay between persons' criminal propensity and the settings' criminogeneity. They distinguish – in the sense of mechanistic explanation – crucial elements in the explanation of rule-breaking from irrelevant details. Entities' properties and changes that do not make any difference in producing the effect (rule-breaking) can be ignored (see also Ylikoski 2007; Ylikoski and Kuorikoski 2010).

Two distinctions are commonly made in the process of locating the action-generating mechanism's core. First, 'causes of the causes' are distinguished from 'causes of effects' (Holland 1986; see also 'causes of the causes' and 'causes of crime' in Wikström 2006, as well as 'historical causes' and 'situational causes' in Sutherland 1947). While the causes of the causes explain, for example, the emergence of interindividual differences, the causes of effects explain why rules are broken and, thus, constitute the action-generating mechanism.

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Second, in the criminological literature, ‘causes-of-effects’ are distinguished from risk and protective factors. This distinction highlights the difference between predicting rule-breaking and explaining rule-breaking (Hardie, 2017; Wikström and Treiber, 2017). Risk and protective factor approaches show (statistical) associations of factors with rule-breaking, but they do not identify the actual causes of rule-breaking (see Farrington 2000; Wikström 2014; Wikström and Treiber 2017). These approaches focus primarily on determining the likelihood of later offending (Kazdin et al., 1997) and are less concerned with explaining why rules are broken. Thus, the distinction between causally determining factors in rule-breaking and mere risk factors – which may be correlated with the causal factors or associated with the outcome – is crucial (see Wikström et al. 2012). It helps to distinguish spurious correlation from actual causal relations (Hedström and Ylikoski, 2010). Risk-factors (such as truancy) and socio-demographics (such as gender and social disadvantage) do not give a satisfying explanation for rule-breaking (on truancy, see Gerth 2020; on gender differences, Ivert et al. 2018; Hirtenlehner and Treiber 2017; on social-disadvantage, Sampson 2000; Wikström and Treiber 2016).

1.2.2 Action-theoretical approaches to explaining rule-breaking

Having presented the need for an action-theoretical foundation, I will now give a short overview of current action-theoretical approaches and sort action theories into four categories according to their line of argumentation: rational choice approaches, emotional approaches, moral approaches and cultural approaches. These categories are not mutually exclusive as some action theories refer to multiple approaches.

First, I will present recent applications of the rational choice approach to crime (a.). According to rational choice theory, an actor chooses the action alternative from which they expect the most utility after weighing the anticipated benefits against the anticipated costs. Thus, actors will choose a criminal action alternative if they expect rule-breaking to provide more utility than rule-following. Second, in contrast to the rational choice perspective, research on emotions states that psychological aspects that are not necessarily consciously accessible to actors nevertheless guide their decisions (b.). Third, moral approaches suggest that theoretical considerations related to morality also play a role in determining individuals’ actions (c.). These approaches argue that people who evaluate a specific behaviour as morally wrong are less likely to consider doing it and may even categorically exclude the behaviour from their range of action alternatives. Only persons who do not categorically oppose a behaviour are able to deliberate about that action alternative. Finally, cultural approaches focus on the interpretation of situations (d.). These approaches are based on the assumption that internalised cultural representations guide individuals’ responses to situational cues.

(a.) The cost-benefit calculus

The general idea that choosing between action alternatives is guided by the actor's desire to avoid pain and seek pleasure has long been considered in discussions of criminal behaviour (Beccaria, 1988). It is now most often discussed in Becker's (1968) formalisation of rational choice theory. Although versions of rational choice theory differ in their details, they all share three core assumptions (Kroneberg and Kalter 2012; see also Opp 1999; 2020). First, they assume that behaviour should be explained as resulting from a choice among a set of action alternatives. Second, they assume that an actor's preferences, beliefs and constraints are significant determinants of their behaviour. Third, they assume that given certain constraints, actors choose the optimal alternative given their preferences and beliefs. Thus, rational choice theory states that a person will commit a crime if they believe that choosing a criminal action alternative will provide more utility than not choosing the criminal action alternative. For the purposes of this theory, choice implies that actors can choose at least between performing or not performing an action.

When deliberating about action alternatives, people evaluate the costs and benefits of these alternatives and weigh them against each other. The supposed benefits of an action-alternative are characterised by the expected value of the action's intended outcome and the likelihood of success in achieving that outcome. The value of the benefits of a crime may include material elements (Loughran et al., 2013; McCarthy and Hagan, 2001), positive anticipated emotions (Nagin and Paternoster, 1993) and social benefits such as gaining status in a peer group (Faris and Felmlee, 2011; Laninga-Wijnen et al., 2019) or an orientation to the fortune of others (Paternoster et al., 2017). The probability of detection and the severity of punishment one faces if apprehended are among the primary costs of an action alternative. Costs can include formal costs through legal sanctions but also feelings of guilt and shame (Bachman et al., 1992; Grasmick and Bursik, 1990), as well as social costs such as embarrassment or disapproval from family and friends (Grasmick and Bursik, 1990; Paternoster et al., 2017). Differences in the evaluation of costs and benefits are subjective. They can vary between persons, depend on the behavioural setting, and they can change over the life course due to changes in a person's perception of the risks, costs, and rewards associated with rule-breaking (Thomas and Vogel, 2019).

Interpersonal differences related to rational choice considerations concern the preference for short-term gratification over long-term goals (Gottfredson and Hirschi, 1990) and are described by the personality traits such as Thoughtfully Reflected Decision Making (TRDM; Paternoster and Pogarsky 2009; Paternoster, Pogarsky, and Zimmerman 2010). TRDM is defined as the 'tendency of persons to collect information relevant to a problem or decision they must make, to think deliberately, carefully, and thoughtfully about possible solutions to

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the problem, apply reason to the examination of alternative solutions, and reflect back upon both the process and the outcome of the choice in order to assess what went right and what went wrong' (Paternoster and Pogarsky, 2009: 104). From these differences, researchers have concluded that people higher in TRDM are more likely to consider possible alternatives to goal attainment, weigh the benefits and costs of those alternatives, and evaluate decisions they have already made, which all-in-all tends to result in better outcomes, such as college graduation, better physical health, and less involvement in crime and heavy drinking.

At present, the rational choice perspective is discussed under the perspective of decision theory, which describes behaviour as the outcome of a person's evaluation of costs and benefits. Thus, I now turn to game theory and dual-process theories of cognition. Game theory is a formalisation of decision-making that recognises three aspects. First, actors are interdependent in their decisions. Second, actors know about their interdependency. And third, actors take into consideration their interdependency when making decisions. More specifically, game theory assumes that actors recognise that the realisation of their preferences depends on the decisions of all the other actors involved. This so-called game can vary by the number of players, each of whom has one or more moves in the game (Breen, 2011). Furthermore, it is assumed that people act strategically in their interactions and, thus, consider the preferences, resources, choice alternatives and beliefs of the other actors relevant to their decision-making (Rauhut, 2018). This allows for strategic interaction between all players.

The above formulations of rational choice theory and game theory are most often understood as forms of 'as-if theory', which focuses on the simplicity of explanations. According to the most extreme understanding of as-if theories, evaluating a model depends only on the correctness of its predictions, while the validity of its assumptions is irrelevant (Friedman, 1953). Following this understanding, the rational choice theory is a satisfactory model as long as it predicts behaviour correctly, even if its core assumptions are wrong. Another understanding of as-if theories presupposes that the assumptions must be valid, even if they are rather simple than detailed (Opp, 1999).

Contrary to rational choice theory (understood as as-if theory) is the incorporation of deliberation in dual-process models of cognition, which assume two kinds of cognition – only one of which presupposes that actors actually deliberate. While versions of dual-process theories differ (cf. Evans, 2003, 2008; Kahneman, 2012; van Gelder and De Vries, 2012, 2013), all of these theories recognise two distinct types of information processing and propose the same defining features for each type (Evans and Stanovich, 2013). According to Evans and Stanovich (2013), type 1 processing makes minimal demands on working memory and does not require controlled attention. It is rapid, does not burden central processing capacity and is associative. On the other hand, type 2 processing relies heavily on the working memory

and thus is slow, sequential and allows for hypothetical thinking, mental simulation. The extent to which people engage in type 1 or type 2 processing is explained by interpersonal differences, such as personality traits and mental states, or the behavioural setting to which an actor is exposed. In the next two sections, I will present action-theoretical approaches that consider the role of emotions and morality. Some incorporate the dual-process framework of cognition and argue that deliberation is conditional on a person's emotional responses or moral beliefs.

(b.) Emotion-based theories of action

The influence of emotions on action is often discussed in the context of specific emotions, such as anger and fear. For anger, it is argued that (for example) provocations evoke anger and motivate actors to respond aggressively (Capowich et al., 2001; Carmichael and Piquero, 2004). On the other hand, fear is associated with the risks and the costs of victimisation (Pickett et al., 2018; Warr and Stafford, 1983). It evokes a sense of uncertainty and lack of control and often results in flight instead of fight behaviour (Barnum and Solomon, 2019).

Emotions are thought to influence the choice of a behaviour either as anticipated or immediate emotions (Loewenstein and Lerner, 2003). Actors can anticipate emotions and take them into account when choosing an action alternative. Anticipated emotions are expectations about the emotions that an actor will experience in the future. For example, the threat of shame and embarrassment can be modelled as a cost that actors consider in their utility calculations (Grasmick et al., 1993). In this understanding, shame is not experienced as a feeling but as a prediction of a future state that could be incorporated into the rational choice framework (van Gelder, 2017). Anticipated emotions are to be distinguished from immediate emotions, which may be unnoticed by the actor and influence behaviour by influencing the actor's subjective appraisal in the very moment of committing a crime (Bouffard, 2015; van Gelder, 2017). Immediate emotions are direct emotional reactions to a prospect (van Gelder and De Vries, 2013) that influence the choice process. For example, when in the grip of an intense emotional state, an actor may focus their attention on the present instead of the future, and in such situations, actors tend to be focussed inwards rather than on the concerns of others (Bouffard, 2015).

These considerations have been incorporated into the dual-process framework of cognition. Barnum and Solomon (2019) explain how immediate emotions can influence behavioural intentions, either directly or as moderating influences on the information utilised in the deliberation process. They claim that emotional states influence the choice process in the very moment of crime occurrence and distinguish between integral emotions, which are directly linked to a target object in a particular situation, and incidental emotions, which are

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unrelated to the situation. When in a positive emotional state, an actor tends to perceive risks as lower. Similarly, when under the influence of incidental emotions that are unrelated to the situation, such as excitement about a work promotion, people are more likely to react aggressively to a provocation because they devalue the risk associated with their response. Integral emotions, on the other hand, are directly linked to the situation and tend to lead to stronger behavioural responses. Integral emotions are directed at a provocateur and ‘influence behavior indirectly by leading individuals to overvalue, undervalue, and even ignore potential risks, costs, and benefits associated with specific behaviors’ (Barnum and Solomon, 2019: 663).

Another approach integrates interindividual differences (as well as emotions) in the dual-process framework of cognition. In this vein of research, type 2 processing is labelled as ‘cold state’, and cognition and deliberation and analytical considerations are emphasised. Type 1 processing is labelled as ‘hot mode’ and characterised by intuitive, automatic and affect-based processing (van Gelder and De Vries, 2013). According to this approach, actors’ personality traits and mental states explain in which cognitive mode they process. van Gelder and DeVries (2013) highlight the traits of self-control and honesty-humility, whereas Timmer, Antonaccio and French (2020) explain differences in processing in the hot and cold states in terms of straining experience, depressive symptoms, sleep problems and TRDM ability.

van Gelder and DeVries (2012, 2013) refer to two different traits – self-control and honesty-humility. Honesty-humility is related to morality. People high in honesty-humility typically follow rules. They perceive rule-breaking as wrong and will experience negative emotions associated with various kinds of criminal activities, which makes them less likely to break rules. More relevant to the difference between hot and cold processing is the integration of Gottfredson and Hirschi’s concept of self-control into the dual-process framework. According to Gottfredson and Hirschi (1990), people with low self-control tend to pursue short-term gratification without considering the long-term consequences of their acts. This goes along with a tendency to be impulsive, risk-taking, self-centred and unconcerned about future punishment. Building on this, van Gelder and DeVries make the connection to hot and cold processing, arguing that people with low self-control due to their preference for risk-taking experience less fear than people with high self-control, and pronounced impulsivity, by definition, makes people act rashly.

Similarly, Timmer, Antonaccio and French (2020) combine the dual-process perspective with the TRDM approach of Paternoster and Pogarsky (Paternoster et al., 2010; 2009) and take into account the role of straining experience, depressive symptoms, and sleep problems in triggering hot mode processing. With an increase in the ability to make thoughtful, reflective decisions, people are more likely to process in the cold state. By contrast, the

hot mode is triggered by ‘straining experiences as an example of adverse external stimuli, depressive symptoms as an example of negative affective states, and sleep problems as an example of physical drive states, focusing on their enduring interactional effects with the cool mode of processing and consequences of their interrelationships for adolescent crime’ (Timmer et al., 2020: 6).

(c.) Moral value-based theories of action

The conditionality of whether actors act habitually or deliberate about criminal action alternatives, such as in type 2 cognitive processing, is also related to morality. Prominently, Etzioni (1988) argues that people will not consider certain types of action alternatives because they judge them to be morally wrong and thus categorically exclude these alternatives without weighing their costs against their benefits. Hence, only actors who do not condemn certain behaviours will deliberate about them. Morality thus ‘serves as the first line of defense by effectively restricting the range of situations to which the decision-making processes (...) will be applied’ (Messner, 2012: 9).

Wikström builds his Situational Action Theory (SAT; Wikström 2006; 2014; Wikström et al. 2012) around morality and explicitly states under which configurations of actors’ crime propensity and behavioural settings’ criminogeneity actors will deliberate about rule-breaking. SAT states that rule-breaking is the outcome of the interaction between a person’s crime propensity and a setting’s criminogeneity. Here, crime propensity is understood as a person’s moral evaluation of behaviour (their ‘morality’) and their ability to apply their morality to constrain their actions (their ‘self-control’). A setting’s criminogeneity is described in terms of the moral norms of the setting and a setting’s ability to enforce these rules – so-called deterrence. As persons are exposed to a setting, the cognitive perception-choice process determines whether they perceive rule-breaking as an action alternative and, then, whether they choose the criminal action alternative.

Like the dual-process framework, SAT assumes two modes of cognitive processing – habit and deliberation. First and foremost, the configuration of a person’s morality and the moral norms of the setting determines whether the actor will perceive rule-breaking as an action alternative in response to a given motivation, such as temptation or provocation, and whether the person acts habitually or deliberates about the choice of action alternatives. If an actor’s personal morality is in line with the moral norms of the setting, the person will act habitually without the influence of self-control and deterrence. People with a law-abiding morality who are exposed to settings containing moral norms that support law abidance will habitually not break rules. By contrast, people with a law-breaking morality exposed to settings containing deviant moral norms will habitually break rules. In both scenarios,

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self-control and deterrence do not influence the choice of criminal action alternatives. These factors matter only if a person's morality conflicts with the moral norms of the setting. If a person with a law-abiding morality is exposed to settings containing deviant moral norms, their level of self-control will determine whether they break the rules (Wikström et al. 2012). High self-control will allow them to adhere to their morality and follow the rules. On the other hand, if they have low self-control, they will choose the criminal action alternative because they are unable to follow their morality. On the other hand, if a person with a rule-breaking morality is exposed to settings containing moral norms that discourage rule-breaking, then self-control and the setting's ability to deter will influence whether a person will break rules.

Related to the conditionality of deliberation on morality, applications of the Model of Frame Selection (MFS; Kroneberg 2010, 2014) make similar predictions as SAT. The MFS is an integrated theory of action that is not restricted to rule-breaking and can also explain other kinds of action. Contrary to SAT, the MFS proposes a three-step cognitive process. In the first step (the frame selection), the actor selects a frame that is a mental model of the situation in which they are acting. Second, given this frame, the actor selects a script that represents a particular program of action. Third, given the frame and script that have been activated, the actor selects an action alternative. Each of the three steps in this process can be automatic-spontaneous (comparable to type 1 processing) or operate in the reflecting-calculating mode (comparable to type 2 processing). With these three filtering processes, actors evaluate a situation, consider the appropriate way of acting in that specific situation and choose an action alternative. The cognitive mode a person acts in a situation depends on the familiarity with the situation. The activation of cognitive frames, scripts and actions depends on their accessibility. Application of the MFS in combination with morality yields conclusions that strongly resemble the predictions of SAT: People with a law-abiding morality are less likely to perceive, and thus deliberate about, delinquent action alternatives, but those with a criminal morality are more likely to perceive criminal action alternatives and deliberate about them (see Kroneberg, Heintze, and Mehlkop 2010; Beier 2018).

(d.) Subcultural theories of action

The following approaches address the action-generating mechanism by relating cognition to criminological (sub)cultural theories (Beier, 2016; Berg et al., 2012; Guetzkow and Ben-Zvi, 2017; Kirk and Papachristos, 2011). These approaches describe a 'culture of deviance' that is rooted in a need to distinguish oneself from the middle class (Cohen, 1955) or is seen as an alternative way to attain status and respect (Anderson, 1999) or as values that legitimise the use of violence to defend one's honour (Cohen and Nisbett, 1994; Nisbett and Cohen, 1996).

Nisbett and Cohen (1994, 1996) describe regional differences between ‘northerners’ and ‘southerners’ in the United States regarding the use of violence and attribute these differences to the prevalence of the so-called culture of honour. This culture of honour can be traced back to the historic and economic situation of herding cultures in the southern region. In the South, people had to be willing to protect themselves and their property by force as the enforcement of the law was inadequate. Thus, southerners had to establish a reputation as tough characters to demonstrate their ability to deter theft. Although the need to defend one’s property no longer exists, Nisbett and Cohen argue that values emphasising the importance of honour are still present, and hypersensitivity to affronts still leads to the use of violence.

When Anderson (1999) conducted his ethnographic study on the subculture of violence on Germantown Avenue in Philadelphia (a neighbourhood in the United States characterised by poverty), he discovered a strong motive to demonstrate toughness to avoid victimisation and gain respect. While the upper and middle class achieve status through means such as good jobs, money, property and education, social and economic restrictions hinder disadvantaged people from achieving respect by these means. Some of these disadvantaged people turn to alternative behaviours to gain respect, such as the exhibition of jewellery and promiscuity, but especially violence. Cohen (1955) takes a slightly different approach and argues that disadvantaged people purposefully turn against mainstream values and form a subculture with attitudes and norms that may contradict the moral concepts of the larger society.

These three approaches describe social conditions that lead to an oppositional culture, which in turn leads to rule-breaking. As this dissertation concerns the explanation of rule-breaking and not the explanation of the roots of culture or their internalisation, I focus on how culture translates into action. Thus, I describe the interpretation of culture as a toolkit that has recently been applied to deviant behaviour (for an overview of interpretations of culture, see Small, Harding, and Lamont 2010). I will introduce the culture as a toolkit approach by distinguishing it from the cultural value perspective.

Two prominent explanations of how culture becomes relevant to action are Weber’s *Wertrationalität* and Parson’s voluntarist theory of action (see Joas 1992; Campbell 2006). They propose that culture translates into values that direct human action to ‘some ends rather than others’ (Swidler 1986, 274; see also Joas 1992; Campbell 2006). Thus, culture shapes what people want, and their wants shape their action. According to Weber (2009), *wertrationales* action is characterised by consciously desired ends that provide the motivation for individual behaviour regardless of the foreseeable consequences.

Contrary to this notion that culture shapes human action by defining values, culture can be understood as a toolkit (Swidler, 1986, 2003) or repertoire (Hannerz, 1969) that provides strategies for actions. Swidler (1986, 2003) argues that culture is a set of skills rather than a

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collection of values that cause behaviour. Culture orients behaviour by providing the tools from which people may select to construct a 'strategy of action' (Swidler, 1986: 273, 277) rather than the end of the action itself. Similarly, Hannerz (1969) describes culture as a repertoire of tools that ultimately serves as a guide for action, but he places more emphasis on the choice of strategies one may use. The difference between understanding culture either as a set of values or as a toolkit is essential. Understanding culture as a value implies deviant behaviour as a goal. In contrast, the culture as toolkit approach understands culture as a strategy of action to a situation, an action that might be illegal. An aspect also found in the work of Anderson and benamed as 'code switching'.

The toolkit approach was further related to violent norms (Berg et al., 2012; Guetzkow and Ben-Zvi, 2017) and legal cynicism (Kirk and Papachristos, 2011). Similar considerations about circumstances specific reactions are possible using the Model of Frame Selection. Understanding circumstances, framing and selecting scripts can be understood as choosing from a repertoire of action alternatives that an actor has previously learned. An application can be found by Beier (2016), who has combined the MFS with Anderson's Code of the Street.

While these approaches have incorporated insights from ethnographic studies into current understandings of how culture works, as well as into the general framework of behaviour, Simons and Burt (2014, 2011) describe another approach with their Social Schematic Theory (SST). The SST explains how actors interpret situations and, possibly, legitimise criminal behaviour. Simons and Burt assume that future action is based on experiences that are stored in so-called social schemes, which are internalised, abstract representations that people use to interpret situations. Based on previous criminological work, Simons and Burt derive three social schemes that influence each other in the interpretation of a situation: a hostile view of people and relationships, a preference for immediate rewards, and a cynical view of conventional norms. Together, these three attitudes make up the criminogenic knowledge structure, which results in situational interpretations that legitimise criminal behaviour. Thus, actors who have a pronounced criminogenic knowledge structure are more likely to interpret situations in favour of rule-breaking given a provocation or opportunity.

1.2.3 Investigating the action-theoretical core

Up to this point, I have presented action-theoretical approaches that share an explanation of rule-breaking as a result of the interplay between criminal propensity and criminogenic exposure. However, there are differences among these approaches that are not captured by the categories I have heuristically assigned them to. Accordingly, I will first briefly reflect on some differences regarding the analytical power and empirical accuracy of these approaches

(a.) and then reflect on their testing (b.). Following this, I will assume that these approaches seek to explain the interplay between persons' criminal propensity and behavioural settings' criminogeneity and aim to address the interplay while testing for it. Hereto, I will distinguish the action-generating mechanism from other explanations and derive the theoretically and empirically targeted estimator (c.).

(a.) Empirical accuracy and analytical power

The above descriptions of the action-theoretical approaches show that, despite their differences, these approaches all explain rule-breaking as a result of the interplay between person and behavioural setting. The rational choice approach allows recognition of the immediate features of behavioural settings in the weighing of action alternatives, and game theory even focuses on the strategic interaction of players. Approaches that rely on emotions explain, for example, violence as a person's emotional reaction to a provocation in the very moment of occurrence. The morality focused approaches explain the conditionality of cognition and choice on moral evaluations, and cultural approaches explain rule-breaking as the result of the interpretation of situational cues.

While all these approaches include an action-generating mechanism, they differ in more than just the differing emphasis given to incentives, emotions, morality and interpretations. Differences in empirical accuracy and analytical power also arise from their differing explanatory goals. Analytical power is the diversity of phenomena to which a theory can be applied (Lindenberg, 1992). Simplified assumptions and high analytical power typically come at the cost of realism, whereas when theories are more complex and realistic, it is often challenging to generalise their implications (Raub et al., 2011).

All explanations of social phenomena within rational choice theory are developed (albeit not always explicitly) based on a few axiomatic assumptions (see section 2.2.a). This recourse to a few assumptions makes the underlying core of rational choice theory a parsimonious explanation with high analytical power. Thus, rational choice theory is characterised as a general theory that can explain all kinds of human behaviour (Becker 1976; Esser 1999: 404). However, rational choice theory's high analytical power goes hand in hand with less empirical accuracy, for example, in the description of cognitive processes. This also leads to the description of rational choice theory as an as-if theory.

Alongside the rational choice theory, some of the other action-theoretical approaches understand deliberation as conditional on a person's morality or emotions or even, as in the case of the dual-process framework, state that deliberation is not hypothetical but an actual cognitive process. The introduction of further assumptions inevitably leads to less parsimony and possibly less analytical power. Nevertheless, with a weaker claim to generalisability than

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rational choice theory, SAT can still be a general theory of crime and explain all forms of rule-breaking (Wikström, 2006), and SST can still explain all aggressive and opportunistic actions, some of which can be criminal (Simons and Burt, 2011). These theories can thus retain high analytical power even though their scope is limited to rule-breaking or kinds of criminal behaviour. All approaches that explain rule-breaking as a result of a complex interplay between actors and behavioural settings but incorporate the dual-process framework are less parsimonious than rational choice theory. However, these approaches increase their empirical accuracy and describe the process and the circumstances more directly and in more detail (see, e.g., the explanation of sleep deprivation via cognition on rule-breaking in section 1.2.2).

Ethnographic studies are substantially different in their research approach from the approaches described above. Explanations using rational choice theory follow a strict deductive approach. Social phenomena are modelled based on the axiomatic core and with the assistance of further assumptions that describe the social phenomena under investigation. From SAT and the SST, testable hypotheses can be directly derived. However, ethnographic approaches, by their very nature, follow inductive reasoning and thus rely on very detailed empirical source material. Even if conclusions are abstracted from interviews and observations within ethnographic studies, they are usually less abstract than other approaches. The generalisations drawn in ethnographic studies are closely tied to specific situations and contexts, so it is questionable whether they are applicable outside the observed context (Small et al., 2018). Because of their specific references to specific cases, these theories often have low analytical power but high empirical accuracy.

(b.) Bridge assumptions and actual testing

Having outlined the theoretical considerations regarding the analytical power and empirical accuracy of various approaches to explaining rule-breaking, I will now briefly reflect on how the possibility of testing the action-generating mechanism is addressed in the literature.

While the theoretically guided modelling of reality is the first abstraction of social phenomena, testing builds the second abstraction. Differences in the methods of testing theoretical considerations become apparent in discussions about direct and indirect test strategies. These perspectives differ in the extent to which assumptions substitute for actual testing. The indirect strategy relies more strongly on bridge assumptions, whereas the direct measurement strategy aims for a definitive test. In the macro-micro-macro model of sociological explanation, bridge assumptions connect the macro-level of social structures with the micro-level of the subjective views. Bridge assumptions 'are descriptive statements about the relations between certain values of structural variables in the objective situation

and certain values of variables in the premises of the action theory employed' (Esser, 1998: 96). Thus, their task is to provide empirical context. In the case of rational choice theory, bridge assumptions connect the actor's intention and the constraints the actor is facing in a more or less concrete situation (Maurer, 2017: 65–66).

Relying on bridge assumptions presupposes that sufficient knowledge about the actor and the situation can be derived, for example from the social structure in which the actor is situated and that this knowledge can be generalised across groups and situations. However, bridge assumptions that connect the macro- and micro-levels can dilute a precise and dissecting explanation. More or wider-ranging assumptions come with two risks. First, such assumptions may be based on vague or even false findings and, thus, lead to a misleading explanation of the relation between the macro- and micro-levels. Second, numerous or broad assumptions may obscure the described mechanism. The latter occurs as the distance between the proxies that shall present the relevant causal factors and actual mechanism to be tested, or rather the actual causal factors, increases. Arguably, the action-generating mechanism that explains rule-breaking in terms of the interplay between an actor and their behavioural setting, which often relies on cognitive processes, is just the sort of mechanism that runs this risk. A detailed explanation of this interplay becomes blurry if, for example, behaviour is inferred from measured interindividual differences. Here, actual testing is substituted for assumptions about the systematic selection of actors in behavioural settings, differences among behavioural settings, actors' interindividual differences and their reactions to behavioural settings.

The explicit and precise explanation of the action-generating mechanism must be reflected in actual tests because, otherwise, conclusions are misleading. In line with this argument, Wikström and Treiber (2016) show that the frequently claimed connection between social disadvantage and crime is misleading. While persistent offenders frequently come from disadvantaged backgrounds, most people from disadvantaged backgrounds do not become persistent offenders. This shows that explanation and testing based on far-reaching assumptions may risk wrongfully inferring from aggregated data to the individual level (see Robinson 1950).

Although I have only sketched the indirect test strategy, its differences from the direct test strategy are apparent. The direct test strategy aims to empirically account for assumptions during testing and thus relies less heavily on generalised descriptions. An example of a direct test strategy is the methodological development for testing SAT, which places the interplay between persons' crime propensity and settings' criminogeneity more comprehensively in the centre of explanations of rule-breaking. To investigate SAT's proposed interplay between these factors, the space-time budget methodology was introduced. Space-time budgets are

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a method for capturing real-life data in which participants answer retrospective questions about their activities during each hour of a period of their daily lives. These questions ask about where they were geographically located, who they were with, what they were doing and whether they committed any criminal acts (Hardie 2020; Wikström et al. 2012).

While testing SAT using the space-time budget methodology comes closer to identifying the interplay by recognising the temporal dimension of a person's exposure to a behavioural setting, even this methodology falls short of capturing all relevant cognitive processes in the very moment of committing a crime. Wikström and his working group give further suggestions for testing SAT. In addition to introducing space-time budgets, they have collected data within the Peterborough Adolescent and Young Adult Developmental Study (PADS+) to explicitly test SAT. The measurement instruments used in PADS+ are now the standard for testing SAT. Thus, compared to other approaches, SAT and PADS+ present a strong linkage between theoretical considerations and testing given by its principal adherents.

(c.) What are action-generating mechanisms looking for?

The direct test strategy allows for more rigorous testing and serves the mechanistic explanation's aims of explicitness, clarity and precision. By contrast, the indirect test strategy risks blurring the aims of the mechanistic approach when testing the action-generating mechanism. A rigorous test strategy that accounts for the relationship between the actor and the behavioural setting allows distinguishing multiple mechanisms and allows for further understanding and testing of the separate processes (see Hedström and Ylikoski 2010; Proctor and Niemeyer 2019). According to Wikström et al. (2012), the social emergence (*how contexts become different in features relevant to their criminogeneity*), the person emergence (*how people acquire different criminal propensities*), the selection mechanism (*how actors and behavioural settings match*) and, finally, the action-generating mechanism (*which explains the immediate interplay between actors' criminal propensity and their behavioural setting*) can be distinguished theoretically but also methodologically. However, these nuances can be lost with wide-reaching bridge assumptions or undetailed explanations.

In order to characterise the action-generating mechanism's aim with the greatest possible precision, I will explicitly state the theoretical estimator that an analysis of the action-generating mechanism should reflect (see Lundberg, Johnson, and Stewart 2021). From the perspective of contrastive-counterfactual explanation (see Ylikoski 2007; Ylikoski and Kuorikoski 2010), using the action-generating mechanism allows asking whether an actor would have broken rules if the criminal propensity and the behavioural setting's criminogeneity had been different. The answer must address, first, only significant and theoretically causal factors (in this case, an actor's criminal propensity and the behavioural setting's

criminogeneity) and second, how a change in these factors brings about a change in the effect (in this case, rule-breaking). If there is no change in the effects when the (proposed) causal factors change, then the causal factors are not genuinely explanatory because there is no appropriate relation of dependency (Yilkoski, 2007).

The rule-breaking of an actor i should change, Δ_i , as their criminal propensity (cp_i) and/or the behavioural setting's criminogeneity (bsc_i) changes. Thus, two perspectives may be distinguished: first, a given level of (an actor's) criminal propensity may be exposed to various levels of a setting's criminogeneity and, second, various levels of (actors') criminal propensity may be exposed to a given level of a setting's criminogeneity.

(1.) Given the level of criminal propensity, changes in the behavioural setting's criminogeneity explain changes in rule-breaking:

$$\Delta y_i = cp_i * \Delta bsc_i$$

(2.) Given the level of a behavioural setting's criminogeneity, changes in the criminal propensity explain changes in rule-breaking:

$$\Delta y_i = \Delta cp_i * bsc_i$$

1.2.4 The selection of kinds-of-person into kinds-of-settings

Having discussed the significant differences between action-theoretical approaches, I will next point to the seldomly considered selection mechanism. While the action-generating mechanism presupposes that the actor is exposed to the behavioural setting, the selection mechanism explains how the actor and the behavioural setting match. The selection mechanism represents a substantial explanation in its own right. However, it can bias tests of the action-generating mechanism if it is not controlled for.

In this section, I introduce the selection mechanism (a.), show that differences in exposure to behavioural settings, or rather contexts, vary systematically across individuals (b.) and, finally, discuss the relation between the selection mechanism and the action-generating mechanism (c.).

(a.) Introducing the selection mechanism

The action-generating mechanism describes rule-breaking as the immediate outcome of the interplay between a person's criminal propensity and their exposure to a behavioural setting.

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However, in recent approaches, how the match between a person and a behavioural setting comes about is – most of the time – neither theorised (besides SAT, see Wikström et al., 2012, Wikström and Treiber, 2016; SST, see Simons et al., 2014; Sampson, 2012), nor addressed in tests.

The selection mechanism precedes the action-generating mechanism. It explains how actors either choose a kind of exposure – ‘self-selection’ – or become confronted with kinds of exposures by social forces that enable or restrict people from taking part in particular kinds of exposures – ‘social-selection’ (see also Wikström, 2019; Wikström et al., 2012). The significance of the selection mechanism for testing the action-generating mechanism is best illustrated within the potential outcome framework. Considering the targeted estimator (see section 1.2.3), a variety of combinations of actors’ criminal propensity and behavioural settings’ criminogeneity must be observed to test the action-generating mechanism. Selection will bias testing of the action-generating mechanism if, first, kinds of exposure vary in their criminogeneity; second, interindividual differences systematically lead to differences in exposure; and, third, interindividual differences that lead to differences in exposure are related to criminal propensity. In short, selection will bias testing if, because of their criminal propensity, people are exposed to different levels of criminogeneity.

(b.) Empirical findings on selection and exposure

Although studies that directly address the selection mechanism are rare, multiple findings indicate that certain people are systematically exposed to certain behavioural settings or contexts. I will present findings from space-time budgets, as well as findings from studies on residential and school segregation, parents’ direct influence on exposure and peer selection.

Findings from analysis of space-time budget data yield the most detailed description of how people spend their time. They include information about the place and time a crime was committed. Analyses on space-time budgets indicate that kinds of persons vary in their criminogenic exposure (Wikström et al., 2010; Wikström and Treiber, 2016). People with a low crime propensity are unlikely to be exposed to high criminogenic contexts, and people with a high crime propensity are those most likely to be exposed to highly criminogenic contexts.

Residential segregation by ethnicity is found in Germany (Benassi et al., 2020). Some of this segregation can be explained by the lower socioeconomic status of migrants (Teltemann et al., 2015) and by Turkish households’ lesser ability to improve their neighbourhood quality by moving into new homes (Lersch, 2013). Furthermore, there are preferences for the ethnic mixing of residential areas (Klinger, 2021). School segregation in Germany results from factors such as parents’ risk aversion (Wölfel and Heineck, 2012), parents’ subjective

beliefs about their children's ability to complete the school degree and parents' evaluations of status attainment (Stocké, 2007), migration background (Dollmann, 2017) and children's socioeconomic background (Falk et al., 2020) that lead into different school track choices. While parental decisions affect the structural differences in children's exposure to different behavioural settings, such as neighbourhoods and schools, their decisions even more directly affect children's exposure. For example, parental monitoring, parental limit-setting and the child-parent relationship are directly related to the amount of time children spend in criminogenic settings (Janssen et al., 2014). Even the parents of children's friends influence rule-breaking. If a child's friends' parents know about the friend's activities, adolescents are less likely to drink alcohol (Ragan et al., 2014).

Peers are of particular concern in explaining rule-breaking as their influence on rule-breaking is well documented (Gallupe and Bouchard, 2013; Hirtenlehner et al., 2015; Hoeben and Thomas, 2019), and at the same time, peers systematically select others to befriend. People tend to befriend others who are similar to themselves (Brechtwald and Prinstein, 2011; McPherson et al., 2001). In Germany, findings show that adolescents tend to befriend others who share characteristics such as their ethnicity (Leszczensky, 2015; Smith et al., 2014), sex and religion (Leszczensky and Pink, 2017).

However, friendship selection is a conditional choice insofar as one can only choose as friends others who are present in one's context. Thus, the meeting context pre-selects friendship choices as it determines who a person can befriend. Possibilities to meet new people vary by spatial context and segregation, as was shown for the school and neighbourhood contexts (see also Small and Adler 2019). In Germany, meeting opportunities that influence friendship choices vary by neighbourhood, socioeconomic status and migration status (Kruse, 2017).

(c.) The relation between the selection mechanism and the action-generating mechanism

As shown above, people differ in their exposure to settings, but it remains to ask how the selection mechanism and the action-generating mechanism relate to each other. Both mechanisms are substantial explanations that could be related to one another in different ways. I will differentiate three relations — first, criminal propensity equates to the selection factors. Second, I will assume that criminal propensity and selection factors are independent of each other. And third, I will assume that criminal propensity and selection factors are correlated.

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Criminal propensity = selection factors

In the first case, I assume that selection factors and criminal propensity are the same. Criminal propensity thus works within the action-generating mechanism and in the selection mechanism (see figure 1.2). If all persons sort themselves into levels of criminogenic exposure based on their level of criminal propensity, an increase in criminal propensity leads to an increase in criminogenic exposure. It, therefore, becomes impossible to differentiate the selection mechanism from the action-generating mechanism with tests on observational data. Counterfactuals – such as people who are low in criminal propensity being exposed to highly criminogenic settings – would remain hypothetical and could not be observed. A forced and randomised assignment to different levels of exposure would allow testing the action-generating mechanism while at the same time controlling for selection and thus investigating whether exposure has an effect on crime causation. If the selection factors equal criminal propensity, then the action-generating mechanism could analytically not be distinguished from selection.

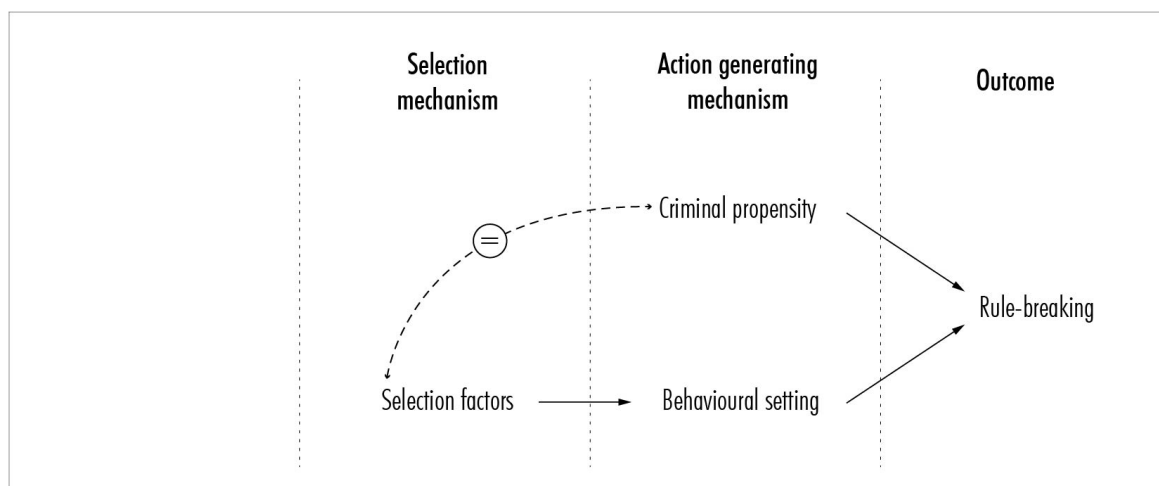


Fig. 1.2 Criminal propensity = selection factors

Criminal propensity \perp selection factors

For the second case, I assume that selection factors are unrelated to criminal propensity and provide an independent explanation for the match between a person and a behavioural setting, while criminal propensity explains actors' reaction to the exposed behavioural setting through the action-generating mechanism (see figure 1.3). This would allow for an analysis of the action-generating mechanism given that all combinations of criminal propensity and criminogenic exposure are observed. However, the complete independence of selection factors and criminal propensity seems unrealistic as both may share common causes-of-the-causes.

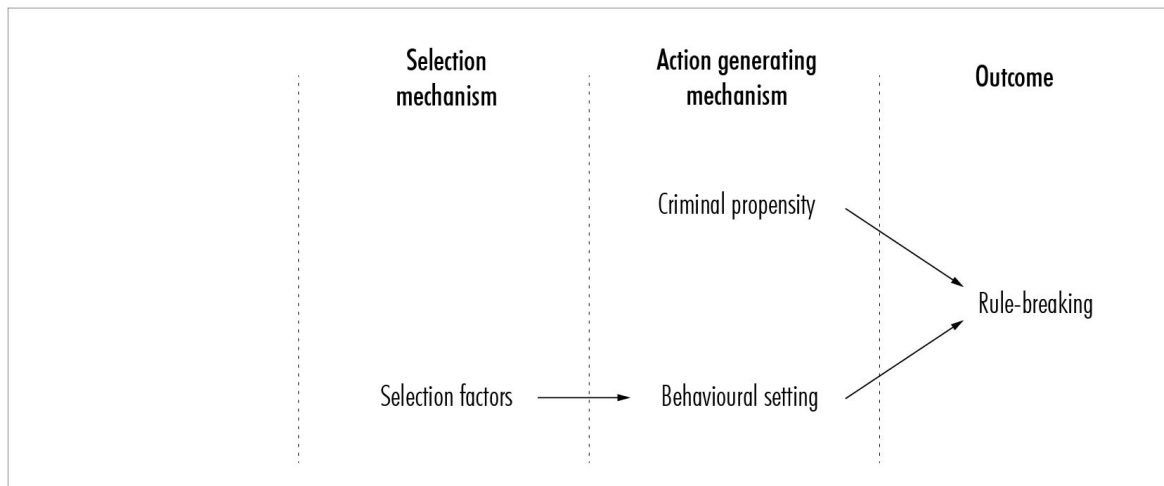


Fig. 1.3 Criminal propensity \perp selection factors

Criminal propensity \sim selection factors

In the third case, criminal propensity and selection factors are imperfectly associated (see figure 1.4) such that neither factor causes the other, and both mechanisms remain partially independent causes of rule-breaking. Their relation could be due to common causes (see also section 1.2.1). On the one hand, causes-of-the-causes could influence the emergence of both a person's criminal propensity and the selection factors (see also Wikström, 2006: 62). The association between criminal propensity and selection factors could result in a common confounding bias, which could be addressed by controlling for the causes-of-the-causes (Elwert, 2013: 250). However, drawing a comprehensive picture of the causes-of-the-causes that explain the emergence of criminal propensity and selection factors seems challenging, even if the solution – controlling for them – appears rather simple. To control for the causes-of-the-causes, factors such as sex, migration status or socioeconomic status are often introduced into the analysis, and it is argued that they are proxies for typical differences in people's experiences. However, these control variables do not explain differences in the development of criminal propensity or selection factors by themselves. They are, at best, imperfect markers for the 'true' processes that result in these interindividual differences (such as a person's socialisation, learning or experiences). Moreover, introducing these proxies into the analysis may result in unwanted statistical associations between these factors that could bias the estimation process (see Pearl and Mackenzie 2018).

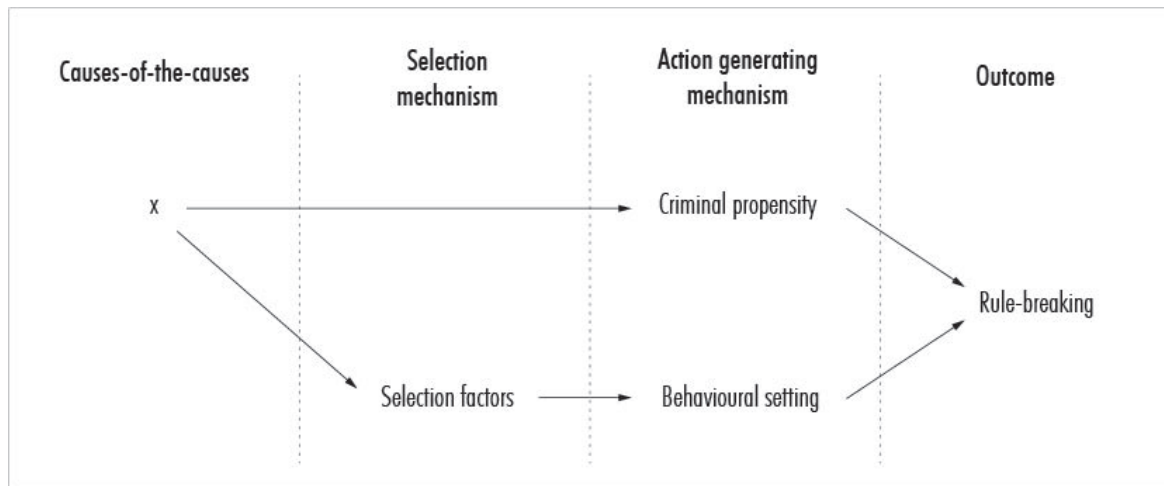


Fig. 1.4 Criminal propensity \sim selection factors

1.3 Approach

As discussed above, kinds of people differ in their exposure to different settings, and this complicates testing the action-generating mechanism, especially as the relation between criminal propensity and the selection factors is unknown. Thus, a comprehensive test of the action-generating mechanism must control for selection. To this end, this dissertation introduces and applies a new test strategy to investigate the action-generating mechanism that controls selection. This chapter presents the primary rationale of my research approach, introduces schools as a strategic research site and explains how they, in combination with within-estimators, provide an opportunity to test the action-generating mechanism by controlling for selection (1.3.1). Then I introduce the Friendship and Violence in Adolescence data set (1.3.2) and briefly reflect on crime among adolescents (1.3.3). Finally, this chapter gives an overview of my empirical studies and summarises these papers' publication status (1.4).

1.3.1 Research strategy

To address the selection of kinds of people into kinds of settings, two research strategies are possible: either controlling for all selection factors or conditioning on the behavioural setting. As controlling for the selection factors seems rather challenging, I will discuss conditioning on the behavioural setting as an alternative strategy that is already used in educational research (Ammermueller and Pischke, 2009; Legewie and DiPrete, 2012). When I investigate rule-breaking within the school setting, I condition on schools, so-called school fixed-effect estimation. Conditioning on schools controls for all its ancestors (see Pearl and Mackenzie, 2018: 234), here the selection factors and all causes that cause the selection

factors. This means that conditioning on schools controls all selection factors that lead to systematic selection into schools and their causes-of-the-causes. School fixed-effects estimators achieve this by comparing students of the same school with each other. To my knowledge, school fixed-effect estimators have not been applied to investigate action theories. Chapter 4 uses person fixed-effect estimators that compare students over time and applies them to student cheating. The analysed students do not change schools over time, and, thus, selection is controlled for. A more technical introduction is given in each of the empirical chapters (Chapters 2–4).

Schools have further advantages as strategic research sites. For example, to use the school fixed-effect estimation strategy, a significant number of observations must be accessible for surveying within the setting. Interviewing students at schools provides this advantage, as does the data set I used, which will be described in further detail in the next section.

1.3.2 Data description

The data of the project ‘Friendship and Violence in Adolescence’ (FVA) – funded by the German Research Foundation² – is particularly well suited for the research aim of this dissertation. The FVA project was created explicitly to investigate the action-generating mechanism that explains deviant behaviour in general and violence in particular (Kroneberg et al., 2016). Data were collected in Gelsenkirchen and the nearby cities of Gladbeck, Herten, Marl and Recklinghausen, which are all part of the Ruhr area, an agglomeration of cities in western Germany. Today, the area is greatly affected by downturns in the coal and steel industries.

The data were collected during two funding periods. During the first funding period, data for waves 1 and 2 were collected in all schools except special needs schools and schools of the highest track (gymnasiums). As funding increased during the second funding period (data-collection waves 3 and 4), gymnasiums were also surveyed in the cities with the highest participation rate – Gelsenkirchen, Herten and Marl. Data were first gathered in 2013 when students were in grade 7. These students were then interviewed annually until 2016, when they were in grade 10.

A unique feature of this study is its mode of data collection, which, among other things, recognises the sensitivity of reporting about rule-breaking. The study used an audio-enhanced computer-assisted self-interview (Audio-CASI). Participants answered the questionnaire on netbooks provided by the research team. All questions were presented both in text and audibly via headphones to increase confidentiality and improve the participants’ comprehension of

²German Research Foundation (DFG), Grant KR 4040/1 and KR 4040/2, awarded to Prof. Dr. Clemens Kroneberg.

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the survey questions (Beier and Schulz, 2015). By using headphones, participants were less distracted by ambient noise, and it was harder for them to talk to each other during the interview. Hearing the survey question read out loud assisted participants with reading difficulties or a lack of concentration. Moreover, the use of netbooks increased confidentiality during the interview as the screens were covered by privacy filters that made it difficult for others to look at the answers on a student's screen. Another advantage of the use of netbooks is that transmission errors that would occur with paper-pencil surveys are prevented.

Table 1.1 The participation rate of the FVA data

	wave 1 (2013)	wave 2 (2014)	wave 3 (2015)	wave 4 (2016)
Participating schools				
Hauptschulen	15 of 15	13 of 15	13 of 15	11 of 13
Realschulen	14 of 18	15 of 18	14 of 18	14 of 17
Gesamtschulen	10 of 12	10 of 12	10 of 12	10 of 12
Gymnasien	-	-	9 of 10	10 of 10
Total	39 of 45 87%	38 of 44 86%	46 of 54 85%	46 of 52 89%
Participating students				
	2,635 of 3,334 79%	2,817 of 3,473 81%	3,793 of 4,400 86%	3,809 of 4,320 88%

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Testing the numerous implications of the action-generating mechanism in the empirical studies places a high demand on the data, which are met by the FVA data (see table 1.1). A high number of observations is needed to attain sufficient statistical power for investigating the implied interaction effects by the interplay between a person's criminal propensity and criminogenic exposure, and a high participation rate is also needed. Beyond its usual indication of the data quality, the participation rate reflects the measurement quality of the behavioural setting. The criminogenic setting is operationalised in the empirical studies as the status classmates ascribe to violent offenders (Chapter 2) and the behaviour of the classmates present in the same behavioural setting (Chapters 3 and 4). Thus, with an increase in the participation rate, the validity of the measurement of the behavioural setting increases.

1.3.3 Youth crime

In addition to the strategic interest in juvenile delinquency to investigate the action-generating mechanism, understanding juvenile delinquency is of great importance for society as a whole. Relative to their population share, young people commit a disproportionate number of all registered delinquent acts. Based on the Police Crime Statistics (Polizeiliche Kriminalstatistik) – a compilation of all criminal facts that have come to the police's attention – most suspected offenders (Tatverdächtige) are juveniles. Of all 2.3 million suspected offenders in Germany in 2016, 9 per cent were adolescents between 14 and 17 years old (Bundeskriminalamt (BKA), 2017), while this age group represents only 3 per cent of the general German population (see figure 1.5).

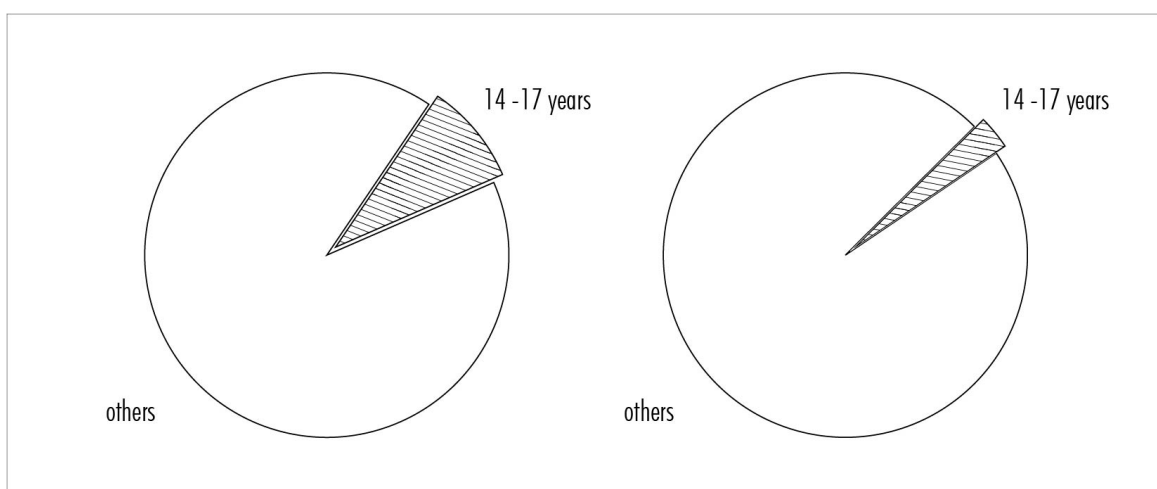


Fig. 1.5 The proportion of all suspected offenders (left diagram) and the overall population that are adolescents (right diagram)

1.4 Short outline of the empirical chapters

The prevalence of crime among juveniles leads to the characterisation of juvenile crime as ubiquitous, episodic, and consisting primarily of minor offences with a low threat of penalty, which are criminally relevant (Neubacher, 2020). Episodic draws attention to the fact that criminal activity during adolescence is most often limited to a short period and does not represent the beginning of a criminal career (for Germany, see Boers et al., 2014). Furthermore, most juvenile offenders stop committing further offences even without formal sanctioning.

1.4 Short outline of the empirical chapters

As outlined in the introduction, this dissertation aims to provide a rigorous test of the action-generating mechanism. To this end, I apply the sketched analytical approach to three empirical studies. Each of the next three chapters contains an independent study. In the remainder of this first chapter, I will provide an overview of these studies (a.) and then report their publication status (b.).

(a.) Overview of the empirical studies

Chapter 2 is the paper ‘Violence, Street Code Internalisation and the Moderating Effect of the Status-Violence Norm in German Schools’. In his ethnography *The Code of the Street*, Elijah Anderson describes the interplay between the internalisation of street code – a set of informal rules that govern public interactions – and behavioural settings (specifically, status ascription) in the emergence of violence. In short, adolescents who have internalised the street code use violence to gain status if the behavioural setting rewards violent behaviour via status ascription.

While this direct relation between norm internalisation and status ascription has been found and replicated primarily in ethnographic studies and qualitative interviews, I test this relationship in a more controlled research context and thus provide more rigorous support for attributing the proposed action-generating mechanism to the causal factors. I use information about violent relationships and the status-violence norm, which I gathered through the sociometric module of the FVA data. Here, participants reported their social relations with students of the same grade. For my investigation, the FVA’s questions about violent relations between students (e.g., ‘*which classmates do you sometimes hit or kick?*’) and status ascription (e.g., ‘*who are the most popular students in your grade?*’) are of particular interest. By capturing violence and the status-violence link in the same context, this study is able to place rule-breaking in direct relation to the criminogenic attributes of the setting.

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The results show the expected relation. Students who have internalised the street code have more violent relationships in general and thus appear more frequently as violent perpetrators than students who have less strongly internalised the street code. However, more importantly, the results speak in favour of the assumed interplay between the street code and the prevalence of status ascription. Students who have internalised the street code are particularly violent when the context rewards violence with status. Among students who oppose the street code, variations in the status-violence norm do not affect their violent behaviour.

In Chapter 3, ‘Does Criminogenic Exposure Really Matter? A More Rigorous Test of Situational Action Theory Based on a School Fixed-Effects Analysis of School Violence’, I apply Wikström’s Situational Action Theory (SAT) in schools. SAT explains rule-breaking as the outcome of the interplay between a person’s crime propensity and their exposure to criminogenic behavioural settings (see also section 1.2.2). A person’s crime propensity is given by their morality and their self-control (a person’s ability to apply their morality). Settings, on the other hand, are described by their moral norms – the rules that prohibit or promote specific actions – and their enforcement (deterrence).

The cognitive perception-choice process connects a person’s crime propensity and the setting. The perception of action alternatives occurs through the moral filter, which is constituted by a person’s morality and the moral rules that apply to the setting the person is acting in. From this process, interpersonal differences in rule-breaking are derived in line with people’s crime propensity. It is argued that people with low crime propensity are less likely to perceive criminal action alternatives because of their high morality, and if confronted with rule-breaking action alternatives, they are likely to follow their morality because of their high self-control. By contrast, people with a high crime propensity are more likely to perceive criminal action alternatives because of their low morality, and they are less likely to exercise self-control.

While SAT is a particularly comprehensive and detailed approach, a setting’s criminogeneity is often measured indirectly and approximated by criminogenic exposure (e.g., to delinquent peers). This measurement strategy comes with the previously discussed challenges of spatio-linkage and selection. To meet these challenges, I introduce the descriptive norm – that is, the behaviour of others in the same behavioural setting – as an operationalisation of the moral norms of the setting. Violent behaviour is, as in Chapter 2, captured by violent relationships. The descriptive norm is operationalised as the share of violent offenders in each class. Following SAT, it is expected that students with a high crime propensity will adapt their violent behaviour to the descriptive norm of the setting.

1.4 Short outline of the empirical chapters

My results align with previous findings (for an overview, see Pauwels, Svensson and Hirtenlehner, 2018) on the core implications of SAT: An increase in crime propensity increases the likelihood of violent offending, as does an increase in criminogenic exposure. Students with the lowest crime propensity are unaffected by changes in criminogenic exposure and are unlikely to offend. As crime propensity increases, students become more likely to offend by following the descriptive norm.

In Chapter 4, ‘Explaining Cheating in Schools with Situational Action Theory: Within-estimations on a German School Panel’, I change the subject and this time apply SAT to student cheating, as Wikström claims that SAT can be applied to all forms of rule-breaking, not just law-breaking. Cheating in school is particularly useful for testing action theories like SAT because, by definition, cheating can be assigned to the place where it was committed – the school.

Whereas in Chapter 3, I focused on the interindividual differences in SAT’s formulation of crime propensity, I turn this time to a more nuanced test of SAT’s cognitive perception-choice process. From this process, two principles are derived. First, the principle of moral correspondence states that if personal morality and the moral norms of the setting are in accordance, then self-control and deterrence do not matter. If persons with a rule-abiding morality are exposed to settings that discourage rule-breaking, they will not break the rules. On the other hand, if persons with a rule-breaking morality are exposed to settings that encourage rule-breaking, rule-breaking is likely. Second, the principle of the conditional relevance of controls states that actors will deliberate prior to acting if their morality deviates from the moral norms of the setting and only then do deterrence and self-control matter. Specifically, the principle of the conditional relevance of controls predicts that when people with a rule-abiding morality are exposed to a setting that encourages rule-breaking, whether they engage in rule-breaking depends on their ability to apply their morality – and thus depends on their self-control. In this case, with a decrease in self-control, rule-breaking becomes more likely.

These principles have seldom been tested with respect to the moral norms of the setting. As in Chapter 3, I operationalise these moral norms as the descriptive norm – here, the share of other students who cheat in the same class. In line with SAT’s comprehensive predictions and thus the principle of moral correspondence, I find that students with a rule-abiding morality are unlikely to cheat if exposed to cheating-discouraging settings. By contrast, students with a deviant morality are most likely to cheat if they are exposed to a setting containing cheating-encouraging moral norms. Regarding the conditional relevance of controls, I find that if students with a rule-abiding morality are exposed to settings containing

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cheating-encouraging moral norms, whether they cheat depends on their self-control. In this case, with a decrease in self-control, cheating becomes more likely.

Table 1.2 Overview of the studies included in this dissertation

	Study 1 (Chapter 2)	Study 2 (Chapter 3)	Study 3 (Chapter 4)
Title	Violence, Street Code Internalisation and the Moderating Effect of the Status-Violence Norm in German Schools	Does Criminogenic Exposure Really Matter? A More Rigorous Test of Situational Action Theory Based on a School Fixed-Effects Analysis of School Violence	Explaining Cheating in Schools with Situational Action Theory: Within-estimations on a German School Panel
Author(s)	André Ernst and Sven Lenkewitz	André Ernst	André Ernst and Maria Gerth
Research Question(s)	Is violence the result of the interplay between students' street code internalisation and the behavioural setting's status ascription to violent offenders?	Is violence the result of the interplay between students' crime propensity and the descriptive violence norms of their classmates?	RQ1: Does students' cheating depend on their morality and the descriptive cheating norm of their classmates? RQ2: Do students with high morality exposed to a cheating-encouraging descriptive norm cheat according to their ability to exercise self-control?
Dependent Variable	Violence (Violent relationships)	Violence (Violent relationships)	Cheating
Core independent variables	Street code internalisation; the status-violence norm	Crime propensity (that is, morality and self-control); the descriptive norm on violence	Morality; self-control; the descriptive norm on students' cheating behaviour
Data	FVA wave 1 (2013)	FVA wave 3 (2015)	FVA waves 3 and 4 (2015, 2016)
Statistical method	School fixed-effect estimation	School fixed-effect estimation	School fixed-effect estimation; person fixed-effect estimation

(d.) Status of the studies and contributions of co-authors

Chapter 2.: ‘Violence, Street Code Internalisation and the Moderating Effect of the Status-Violence Norm in German Schools’ is published in *Criminology - The Online Journal*: 2020, 2 (1). <https://doi.org/10.18716/ojs/krimoj/2020.1.4>. As the lead author, I developed the research question and theoretical framework, prepared the data for analysis, conducted the analyses and prepared the manuscript. My co-author – Sven Lenkewitz (University of Cologne) – wrote parts of the discussion, commented on the manuscript and helped with the processing of the manuscript. He also assisted in developing the data analytical approach.

Chapter 3.: ‘Does Criminogenic Exposure Really Matter? A More Rigorous Test of Situational Action Theory Based on a School Fixed-Effects Analysis of School Violence’ is in preparation for resubmission. I am the sole author of this paper.

Chapter 4.: ‘Explaining Cheating in Schools with Situational Action Theory: Within-estimations on a German School Panel’ has been resubmitted to the *European Journal of Criminology* after minor revisions. As the lead author, I developed the research question, prepared the data for analysis and conducted the analyses. I developed the theoretical framework and prepared the manuscript together with my co-author, Maria Gerth. My focus was on identifying the challenges faced by previous work, whereas she focused on reviewing the literature on cheating.

Chapter 2

Violence, Street Code Internalisation and the Moderating Effect of the Status-Violence Norm in German Schools*

*A different version of this chapter, co-authored by Sven Lenkewitz, was published in *Kriminologie - Das Online-Journal | Criminology - The Online Journal* (Ernst and Lenkewitz, 2020).

Abstract

This study examines Elijah Anderson's (1999) proposition that violence is more likely in contexts that reward violence with status. However, people react differently to this so-called status-violence norm depending on their code internalisation. We address this interplay between code internalisation and the status-violence norm by analysing violence in 39 German schools, with 2,635 students. We make use of network data on status and violence reports in the large school dataset 'Friendship and Violence in Adolescence'. Our school fixed-effect models account for previous shortcomings, namely heterogeneity between contexts and the selection of people into contexts, as they only compare students of the same school with each other. We find that students who have strongly internalised the code are more prone to violence than students who have not internalised this code. More importantly, our results show that students with a strong code are especially violent when the context rewards violence with status. Students who have not internalised this code are not affected by context variations.

2.1 Introduction

Elijah Anderson (1999) describes, in his ethnographic study *Code of the Street*, the social organization of public life in Germantown Avenue, Philadelphia. In this neighborhood characterized by poverty and violence, respect can be attained through exhibiting jewelry, promiscuity, and violence. Evidence that status can be gained by acting violently is also found in recent studies using a social network analytical approach (e.g. Kreager, 2007). These studies' relational perspective focuses on connections and interdependencies between actors. Hereby they acknowledge the relational nature of violence, which is a relation between an offender and a victim, as well as status, which is ascribed to one actor by another.

Besides recognizing this relational nature of violence and status, we follow Beier (2016) and add to the Code of the Street literature a more detailed micro-foundation by using the Model of Frame Selection. Anderson describes the Code of the Street as a set of informal rules that govern public interactions, especially violence. Following his descriptions, we assume that violence will increase with the internalisation of the code² as well as the spread of street culture. In our study, we focus on one particular aspect of street culture, namely the extent to which one can gain status by engaging in violent behavior, the so-called status-violence norm. Code internalisation and the status-violence norm are interrelated; individuals with high code internalisation will increase their violent behavior as status can be gained through it. On the contrary, individuals with low code internalisation will not offend violently in low status-violence conditions but are violent where status can be gained through it. The action-theoretical foundation of the Model of Frame Selections allows a clarification of the conditions under which the interaction between code internalisation and the status-violence norm leads to violence.

To correspond as closely as possible to the theoretical explanations, we address the often overlooked challenges of capturing street culture by the aggregation to the superordinate level, heterogeneity between settings, and selection into settings. The literature on the Code of the Street usually aggregates participants' responses to questions regarding code internalisation to the superordinate level, such as neighborhoods. Here it becomes possible that the units of analysis are too large for an approximation of the behavior setting that an actor can capture cognitively. Heterogeneity describes that settings like neighborhoods, which in previous studies were most often used as aggregation units for street culture, vary on multiple dimensions and are hardly comparable. Statistically, each unconsidered dimension introduces bias and makes it challenging to attribute a difference in violent behavior to a particular cause. Selection describes that actors and settings do not come about by chance,

²Throughout the study, we use the term 'code internalization' to refer to the individual internalization of the 'Code of the Street' and the term 'street culture' to refer to 'The Code of the Street' on a contextual level.

but by processes of self-selection and social selection. Neglecting these challenges makes it impossible to investigate whether the proposed interplay between code internalisation and street culture, or other aspects, like the selection of people into different settings or (un)observed heterogeneity, lead to the observed outcome, here violence.

To address the interplay between code internalisation and the status-violence norm, we investigate school violence and use data from the German school study ‘Friendship and Violence in Adolescents’ (Kroneberg et al., 2016). This data includes most secondary schools³ of the sampling area. By using the study’s network data, which are reports about the relationships with other students of the same grade, we analyze violent relationships as well as status ascriptions between students. These provide a rich account on the interplay between violence and status, and acknowledge their interpersonal nature.

To address the abovementioned issues of selection of people into contexts and (un)observed heterogeneity between contexts, we apply school fixed-effects regressions, which are within-school estimators that only compare students of the same school with each other.

In line with our expectations, we find that higher code internalisation increases violent offending. Moreover, we find that the code internalisation interacts with the prevalence of street culture. Students with a strong code internalisation are more violent in classes with a prevalent street culture than in contexts that do not reward violence with status. In contrast to our expectations, the level of violence of adolescents who have not internalized the code is context insensitive. These students are not violent regardless of the context.

2.2 Theory and literature

2.2.1 Code of the Street

Based on his ethnographic work in Philadelphia’s inner city, Anderson identifies a code of informal rules that guides interpersonal and public behavior, especially violence (Anderson, 1999: 33). At the center of this Code of the Street stands the assumption that everybody strives for respect. While individuals from the middle and upper class achieve these goals through mainstream means such as good jobs, money, property, and education, social and economic restrictions hinder disadvantaged people from achieving respect by the same means.

Disadvantaged individuals (in disadvantaged neighborhoods) resort to other means, such as dealing drugs, promiscuity (for males), or violence to gain respect, and internalize the code which legitimizes those behaviors. However, Anderson emphasizes that not all disadvantaged

³Besides special needs schools and Gymnasiums.

individuals adopt these values, and differentiates between ‘decent’ and ‘street’ orientation (Anderson, 1999: 35). Herein, Anderson breaks with the assumption that disadvantage unconditionally leads to the adoption of violent norms or violence per se. While decent families share ‘mainstream’ values, take responsibility, value hard work and self-reliance, and are willing to sacrifice for their children, ‘street’ families tend to be more disorganized and negligent. These children are learning by example the values of toughness and self-absorption (Anderson, 1999: 47).

Of particular interest to this study is Anderson’s description of violent behavior. Not only does he find that individuals who have internalized street values tend to be more violent, but also that street culture influences people’s behavior independent of their code internalisation. Due to this, decent actors mimic the violent behavior of street people to avoid future victimization. Herein, Anderson shows that people will become violent even if they have not internalized the code themselves.

Following Anderson’s ethnographic study, quantitative studies were able to corroborate his findings. Violence is more likely for those actors who have internalized the code. The internalisation also mediates the relationship between socio-demographics and violence, thus providing a better explanation of why certain individuals are violent (Brezina et al., 2004; Markowitz and Felson, 1998; Stewart et al., 2002).

Even more interestingly, the findings support that street culture operates on a contextual level, independent of a person’s code internalisation. Stewart and Simons (2010) find, based on data from an African-American youth sample, that with an increase in neighborhood street culture as well as an increase in a person’s code internalisation, violence becomes more likely. Importantly, these factors do not only operate independently but interact with each other. The effect of code internalisation is more intense in neighborhoods where street culture is more pronounced.

Berg and colleagues (2012) speak to these findings and show that in neighborhoods in which street culture is more prevalent, individuals react more violently, independent of their norm internalisation. As code internalisation interacts with the prevalence of street values on the neighborhood level, people with strong code internalisation react more strongly to the neighborhood prevalence than people with low internalisation and are the most likely to become violent offenders.

However, since the US context of previous studies differs with regards to ethnic composition, ethnic segregation, and economic inequality from the German context, we additionally review key findings from Germany.

2.2.2 The Code in Germany

First of all, we present qualitative studies with explicit reference to Anderson's work, but then also discuss quantitative findings. Kurtenbach and Rauf (2019) conclude from their qualitative work that the street code can, by and large, be transferred to the German context. They find that the perception of the neighborhood, the meaning of violence, ideas of masculinity, and the role of respect comply with Anderson's findings. In a similar vein, German results of a cross-national comparison show that participants are willing to engage in violence to gain respect (Heitmeyer et al., 2019). Participants in Germany refer to violence as a sort of cultural capital in which a violent reputation is instrumental in gaining respect (Howell et al., 2019: 138).

While these qualitative findings trace Anderson's status motive for violence, quantitative research also found that violent norm internalisation is associated with violence. Enzmann, Brettfeld, and Wetzels (2003)⁴ show, based on German school data, that violent norm internalisation is related to violent offending and property offenses even after controlling for socio-economic disadvantage and ethnicity. Whereas this work focuses on interpersonal differences in the form of code internalisation, Beier (2016) investigates the interrelation of intentions for violent behavior in reaction to provocation as a result of code internalisation and the level of violence norms in schools. He uses vignettes and finds that a higher internalisation of the violence norm leads to stronger intentions for violent behavior — but, the norm prevalence and level of provocation nuance the violent intentions. The intention to react violently is, for people with the strongest norm internalisation, independent of the norm prevalence in the condition with explicit provocation, whereas the intentions depend on the norm prevalence for low provocation. On the contrary, people with the lowest norm internalisation report negligible violent intentions in the low and medium provocation condition independent of the norm prevalence. However, their intentions increase in the high provocation condition as the norm prevalence is widespread. In sum, Beier, following Anderson, finds that people intend to behave violently in relation to their norm internalisation, but also as a response to the context, here the level of provocation and norm prevalence.

By now, we have reviewed findings on Anderson's understanding of the Code of the Street. These studies focus on the prevalence of the code by aggregating respondents' answers to the superordinate level, such as neighborhoods (Berg et al., 2012; Simons and Stewart, 2010) or school level (Beier, 2016). However, this procedure neglects the nature of violence and

⁴They use 'Violence legitimizing masculinity norms' ('Gewalt-legitimierende Männlichkeitsnormen'), a concept close to Anderson's understanding. These violence norms form in response to marginalization experience, especially (socio-economic) disadvantage. At their center is the "defense of honor".

status, which are, by definition, interpersonal concepts. In the next section, we, therefore, turn to the literature on social networks.

2.2.3 Status attainment through violence

Social network analysis focuses on the relational dimension and addresses the connection between status and violence more directly. Status is a social dimension between actors, as one person ascribes it to another (Cohen, 1955: 65), and so is violence, as it is an act between victim and offender. In this strand of research, participants are supposed to nominate those peers whom they perceive as popular; and relating to violence, victims nominate students from their grade by whom they have been attacked, and offenders nominate students from their grade whom they have attacked. This nomination procedure does not intend to measure violent incidents but identifies violent relationships between actors. In many studies in this field, these relationships are counted: for example, the number of offender relationships a student has in a class, or how many status nominations a student receives. This identifies violent offenders or students with high status.

Studies using the outlined approach investigate, for example, whether violence is associated with popularity (Garandean et al., 2011; Kreager, 2007). These studies find that violent behavior enhances status for specific groups of students and can depend on the context. The ascription of status to violent offenders differs for gender, academic performance, and depends on the overall level of violence (Kreager, 2007). While boys and low-achieving students gain status from violent behavior independent of the level of school violence, the association for girls and for high-achieving students depends on the level of school violence (Kreager, 2007). The more pronounced violence is on the school level, the more status nominations violent girls receive.

In addition to that, Garandean, Ahn and Rodkin (2011) find that violent behavior is only rewarded by status in classes with a steep status hierarchy. That is, where a few adolescents occupy positions of high status as opposed to an equal distribution of status across students. Moreover, they find that in classrooms with a high academic level, aggressive students are more disliked. These studies highlight that the social reaction to violent behavior differs across contexts and for different students. However, these studies do not explicitly aim to explain violent behavior, but whether violence is rewarded by status. More recent studies focus on this relation and investigate the other side of the coin, namely which students engage in violent behavior and whether it can be used as a means for status attainment (Faris and Felmlee, 2011; Laninga-Wijnen et al., 2019; Sentse et al., 2015). For the US, Faris and Felmlee (2011) find that higher levels of status lead to violent behavior, except for those at the very top and the very bottom of the hierarchy. Moreover, they find context effects concerning

cross-gender friendships and gender segregation. In gender-segregated schools, students who have more cross-gender friendships tend to be more aggressive. These cross-gender friendships serve as status markers, and students who hold these positions are particularly aggressive towards classmates.

In a similar vein, research on bullying finds that the relationship between popularity and bullying behavior depends on the overall extent of bullying in a class. In classrooms where bullying behavior is more common, popularity increases bullying behavior. In classes where bullying is uncommon, popularity does not increase bullying (Sentse et al., 2015).

Closest to our study, Laninga-Wijnen and colleagues (2019) investigate the status-violence norm. The status-violence norm is an expression of how many status nominations violent offenders receive. Laninga-Wijnen et al. (2019) obtained the association between violence and status in each school class and divided the analyzed classes into three groups: weak, medium, and strong associations between status and violence. Their longitudinal network models find that the violence-status norm is not only related to aggressive behavior but also to students' friendships. Only in classes in which aggressive behavior was strongly associated with popularity, students with similar levels of aggression befriended each other. Additionally, in classes of the medium or high category, aggressive friends influence each other in their violent behavior. After reviewing key findings of several literature streams, we propose our study in the next section. We review key shortcomings and describe how we contribute to filling these gaps.

2.3 The present study

As shown, not only research following Anderson's Code of the Street, but also research taking a social network perspective, finds that violence can — under certain conditions — be used to obtain status. In the present study, we combine these two research strands to advance the literature in several ways.

First of all, to provide a substantiated explanation of violence, we take an action-theoretical perspective. Secondly, by treating status and violence as interpersonal concepts, we provide a rich contextual measure instead of relying on aggregating individual responses to the superordinate level. Lastly, and most importantly, we provide a rigorous test of Anderson's framework by addressing heterogeneity between, and the selection into, contexts. The next section explains these aspects more thoroughly and concludes with our research hypotheses.

Explaining Criminal Behavior

In the Code of the Street, Anderson describes two processes: on the one hand, how people internalize the code, and on the other, how the code translates into action. This analytical distinction speaks to a recent reminder about the appropriateness of explanations. Hedström and Bearmann (2009) highlight that relating social facts to other social facts does not provide an explanation, and Farrington (2000) points to the problematic distinction between risk-factors⁵ as markers and as causes. Thus, social facts, like neighborhood disadvantage, or risk-factors, like lack of parental supervision, cannot explain violent behavior per se, but they explain differences in code internalisation, and code internalisation in turn, explains different reactions to situations. The argument becomes even more pronounced when considering the micro-foundations of criminal behavior. Beier (2016) takes an action-theoretical perspective and embeds the Code of the Street into the Model of Frame Selection, an integrative theory of action. The Model of Frame Selection (see Kroneberg, 2014) explains how actors define a situation and act accordingly, and follows the ideas of psychological dual-process theories, which distinguish between two modes of cognition: an automatic-spontaneous mode, which is fast, based on heuristics and follows internalized action scripts, and a reflecting-calculating mode, which is slow, as information is processed, and different options are weighed against one another before an actor decides to act.

In a situation, actors have to interpret the social world around them and therefore activate, apply, and construct ‘interpretations of their (social) world based on significant symbols’ (Kroneberg, 2014: 99). Following this interpretation⁶, they choose the appropriate way of acting for a specific situation. If an actor has an unambiguous interpretation of the immediate social world surrounding him, and thus the situation, he will react in the automatic-spontaneous mode. If an actor has an ambiguous interpretation of the immediate social world surrounding him, and thus the situation, she will react in the reflecting-calculating mode and process several alternatives by taking gains and costs into account.

Transferring this model to the Code of the Street, violent reactions depend on the interpretation of an actor, which is created by the immediate social world surrounding her and her code internalisation. The degree of code internalisation reflects the availability of the interpretation and translates to whether violence is seen as a viable means in a specific situation (Beier, 2016: 464; Kroneberg, 2014: 101). Anderson describes that street kids and decent kids differ in their code internalisation. Related to the Model of Frame Selection, street kids are more prone to violence as they have internalized the code more strongly

⁵Following Kazdin et al. (1997), a risk factor predicts an increased probability of later offending.

⁶For the sake of the argument, we ignore the distinction in the Model of Frame Selection between frames, which answer ‘What kind of situation is this?’, scripts ‘Which way of acting is appropriate’ and action ‘What am I going to do?’.

Street Code Internalisation and the Status-Violence Norm

and are, therefore, more likely to interpret certain situations unambiguously and in favor of a violent outcome. In contrast, decent kids have internalized the code less, and thus need clearer symbols to interpret situations in favor of violence, and then will decide in the reflecting-calculating mode which action to choose. This also follows Beier's (2016) findings that intentions for violent behavior depend on code internalisation, the spread of street culture as well as the degree of provocation.

This theoretical embedding shows the value of the explanatory distinction between the cause of code internalisation, like disadvantaged neighborhoods and poor parenting, and on the other hand, causes of violence, here differences in code internalisation. An explanation of criminal behavior that neglects this micro-foundation would not give this level of detail and would not do justice to Anderson's statements. He describes that decent kids are less likely to, but still can, react violently, and street kids are more likely to become violent, while both live in a disadvantaged neighborhood.

Conceptualization of Code of the Street on the contextual level

Anderson describes violent behavior as the result of the interaction between person and context in the very moment of occurrence (see, e.g., Anderson, 1999: 80–87). The importance of the situational explanation becomes even more significant from the action-theoretical perspective (see above; and further Kroneberg, 2014; and Beier, 2016). However, most observational data cannot reflect this degree of detail, as they cannot observe the immediate situation, and, thus, must rely on approximations. For this purpose, studies have aggregated participants' answers about their code internalisation to superordinate levels, such as neighborhoods (Stewart and Simons, 2010; Berg et al., 2012) or schools (Beier, 2016). The rationale behind this is that, with an increased spread of street culture, the activation of street interpretations becomes more likely.

While Anderson refers to situations, the abovementioned operationalization refers to spatial units, and in this respect, it must be acknowledged that 'small is always better' (Oberwittler and Wikström, 2009). The smaller the unit, the better it reflects the behavior setting, which is the environment that persons perceive at a particular moment in time (Oberwittler and Wikström, 2009: 36). The approximation via larger units, like neighborhoods, is especially challenging as, with an increase in size, they become more heterogeneous, and thus the likelihood decreases that people who have internalized the code strongly are influenced by street culture, and thus interpretations related to the code are activated (for a similar point, see Berg et al., 2012).

To overcome this problem, we use smaller entities that can be experienced by all people acting in them. For this purpose, we choose school classes. In German secondary schools, students of the same grade are divided into classes and are mostly taught within these classes.

Through this structure, students of the same class spend almost entire school days together and, thus, classes provide the most important source of social influence (Smith et al., 2016).

Furthermore, we do not aggregate participants' answers on their code internalisation to the superordinate level but use network information on violence and status. We compare classes within schools in regard to their status ascription to violent offenders. These network measures still do not report the very moment of crime occurrence. However, they reflect the social world by taking into account the relational nature of violence and status ascription, and their dependence on each other.

Heterogeneity and selection

As Anderson describes Germantown Avenue as a poor African-American neighborhood, he provides features that distinguish it from other neighborhoods. These unique features challenge quantitative research endeavors that seek empirical generalizability across different contexts, such as neighborhoods or schools. While we do not want to evaluate ethnographic against quantitative research, we still point to the resulting challenges of heterogeneity and selection. For quantitative research, it is essential to know whether the observed characteristics of Germantown Avenue are specific to the neighborhood or if they can be transferred to others (for this point see also Small et al., 2018: 566).

Additional to the aspect of generalizability, but in the same vein, is the fundamental challenge of heterogeneity, which in general addresses differences between units like neighborhoods or actors. If unobserved heterogeneity between these units is associated with variables of interest, the statistical findings may be confounded and, therefore, incorrect.

A related issue is the selection of 'kinds of people' into 'kinds of contexts'. People either select themselves into different contexts or are subjected to social selection. People select themselves into different neighborhoods according to their preferences and income (van Ham et al., 2018), and they select themselves by their levels of crime propensity into different levels of criminogenic exposures (Wikström et al., 2010; Wikström and Treiber, 2016). Due to selection, it is difficult to disentangle whether people are violent due to selection into a particular situation, or whether they are violent due to the proposed interplay; here, their code internalisation and street culture.

To minimize heterogeneity between behavioral settings and to address selection, we use schools as a strategic research site and only compare students of the same school with each other. Schools are more similar to each other than neighborhoods in, for example, their deterrence abilities. Nevertheless, it is well documented that schools differ in their extent of violent behavior net of student's characteristics (for Germany, see Bergmann et al., 2017; Groß et al., 2018). Therefore, we apply school fixed-effect regressions. This estimation strategy only compares students of the same school with each other and, thus, controls for

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selection into different schools, as the school choice is already realized, and controls for heterogeneity between schools as school characteristics have the same effect on all students.

Our approach

Regarding our research hypotheses, we follow the literature on the Code of the Street and translate it into our research strategy, which only compares students of the same school with each other. With an increase in code internalisation, violence becomes more likely. Due to our within-school research design, the hypothesis regarding interpersonal differences reads as follows:

Hypothesis 1:

When students have internalized the code more strongly than other students in their school, they have more violent relationships than their peers.

Secondly, the Code of the Street also prevails on a contextual level, street culture, and is associated with individual violent behavior regardless of individuals' internalisation of the code. As status is ascribed to violent offenders, the status-violence norm is stronger, and violence becomes more likely. As we focus on within-school variation of the status-violence norm, we compare classes of the same school with each other in regard to their status-violence norm.

Hypothesis 2:

In classes in which status and violence are more strongly associated, students have more violent relationships than in classes with a weak status-violence norm.

Lastly, Anderson explicitly states the interaction between code internalisation and situations. Depending on their code internalisation, students react differently to the street culture, here the status-violence norm.

Hypothesis 3:

Students who have internalized the code more than their peers, have more violent relationships if they are in a class with a strong as opposed to weak status-violence norm.

2.4 Data, method, operationalisation

2.4.1 Sample

We use data from the German large-scale school panel study ‘Friendship and Violence in Adolescents’ (Kroneberg et al., 2016), which was conducted in five cities of the metropolitan Ruhr area. Data was collected between September and December 2013. Besides schools for special needs and the highest German school track, Gymnasium, all schools from the five cities were asked to participate with their entire seventh grade. In total, 39 of the 45 contacted schools, and 2,635 of 3,334 students, participated in the survey, which yields a student participation rate of 79%.

Students are 12.1 years old on average ($SD=.71$); 48% are girls, and 51% have a so-called migration background⁷. The study used an audio-enhanced computer-assisted self-interview, so-called Audio-CASI; all questions were presented in text and audibly via headphones to increase confidence and improve comprehension of survey questions (Beier and Schulz, 2015). Participants answered the questionnaire on netbooks provided by the research team.

2.4.2 Measures

Sociometric Information

Information about violent relationships and status ascription was gathered through the sociometric module of the study. Participants were given a roster containing all students of the same grade sorted by class and, in-class, sorted by alphabetic order. On the roster, each student was assigned a unique number which was used to answer questions on different social relationships to other students.

Violent relationships

Participants were asked to nominate up to five pupils from their grade whom they have offended (‘Which classmates do you sometimes hit or kick?’) and five pupils from their grade by whom they are offended (‘Which classmates sometimes hit or kick you?’) (for similar approaches, see Sentse et al., 2015). Outgoing and ingoing nominations were summed for each participant to create a measure of violent relationships. Bi-directional nominations between offender and victim count only once. For the analysis, the dependent variable is the sum of outgoing victim nominations and ingoing offender nominations.

⁷The participant or at least one parent was not born in Germany.

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Status-violence norm

For the relation between status and violence, we calculate the so-called status-violence norm for each class. For this purpose, we correlate the violent relationships with status nominations (for a similar approach see Dijkstra and Gest, 2015; Laninga-Wijnen et al., 2019). For the latter, participants were asked to nominate up to 10 students from their grade whom they thought were most popular (*'Who are the most popular students in your grade?'*). Ingoing nominations were summed for each participant. Even though nominations for the entire grade were possible, we counted only nominations between students of the same class to allow for between class comparison.

With increasing values of the correlation, the relation between violence and status ascription becomes stronger, meaning higher values of the correlation indicate that violent offenders receive more status nominations from their classmates.

Code of the Street

A seven-item self-report scale measured code internalisation. The items are a German translation of the Stewart and Simons (2010) scale to measure whether participants agree on the use of violence (1 = *'strongly disagree'* to 5 = *'strongly agree'*). For each participant, the mean across all seven items was calculated. The alpha coefficient was .84. High values correspond to strong norm internalisation.

1. *When someone disrespects you, it is important that you use physical force or aggression to teach him or her not to disrespect you.*
(Wenn man respektlos behandelt wird, muss man mit Gewalt dafür sorgen, dass man respektiert wird.)
2. *If someone uses violence against you, it is important that you use violence against him or her to get even.*
(Wenn jemand gegen dich Gewalt anwendet, ist es wichtig, ihm oder ihr das auch mit Gewalt heimzuzahlen und das nicht auf sich sitzen zu lassen.)
3. *People tend to respect a person who is tough and aggressive.*
(Wer hart und aggressiv ist, wird von anderen respektiert.)
4. *People will take advantage of you if you don't let them know how tough you are.*
(Man muss den Leuten zeigen, wie stark man ist, sonst wird man von ihnen ausgenutzt.)
5. *Sometimes you need to threaten people in order to get them to treat you fairly.*
(Manchmal muss man andere Leute bedrohen, damit sie einen vernünftig behandeln.)

6. *It is important to show others that you cannot be intimidated.*

(Es ist wichtig, anderen zu zeigen, dass man sich nicht einschüchtern lässt.)

7. *People do not respect a person who is afraid to fight physically for his/her rights.*

(Die Leute haben Respekt vor jemandem, der sich traut, mit Gewalt für die eigenen Rechte zu kämpfen.)

Controls

Further, we control for self-control⁸, gender and migration background.

2.4.3 Analytical strategy

As we have identified (unobserved) heterogeneity and selection as major threats to our inference process, we rely on school fixed-effects models that only compare students of the same school with each other (for school fixed-effect estimation, see Legewie and DiPrete, 2012; for the use of fixed-effect estimation in general, see Allison, 2009; Andreß et al., 2013).

$$y_{i,c,s} = \beta_1 code_i + \beta_2 svn_c + S_s + \varepsilon_{i,s} \quad (2.1)$$

Equation (2.1) shows the linear regression for school violence, $y_{i,c,s}$ for student i in class c of school s , which is explained by person i 's code internalisation, $code_i$, and the status-violence norm, svn_c , of class c . The error term consists of school differences, S_s , and the person-specific error term $\varepsilon_{i,c,s}$.

$$\bar{y}_s = \beta_1 \overline{code}_s + \beta_2 \overline{svn}_s + S_s + \bar{\varepsilon}_s \quad (2.2)$$

Equation (2.2) presents the school-specific mean. By subtracting equation (2.2) from (2.1) the fixed effects, within-school estimator, in equation (2.3) follows, which is net of school heterogeneity S_s . For the sake of clarity, we have dispensed with the controls.

$$(y_{i,c,s} - \bar{y}_s) = \beta_1 (code_i - \overline{code}_s) + \beta_2 (svn_c - \overline{svn}_s) + (\varepsilon_{i,s} - \bar{\varepsilon}_s) \quad (2.3)$$

This estimation strategy comes with less efficient estimates, as the standard errors are relatively large (Allison, 2009: 17).

⁸Items are displayed in Appendix A; Cronbach's Alpha=.72; high values represent low levels of self-control.

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To ease the interpretation of the interaction term, we standardize the independent variables on the interval [0,1] (see Braumoeller, 2004), and present two sets of estimates. The first set is standardized over the entire sample, the second set is standardized within each school (see Mummolo and Peterson, 2018). The within-school standardization allows for changes in the independent variable that could plausibly occur and thus provides a more substantive interpretation of the results compared to standardization over the entire sample.

For the estimation of the interaction effect, we include the constitutive terms alongside the interaction and interpret the coefficients of the constitutive terms as conditional effects (as advised by Brambor et al., 2006). In addition, we recognize a recent suggestion by Hainmueller, Mummolo and Xu (2019) concerning the linearity assumption, as well as areas of common support, and use their STATA ado Interflex (Xu et al., 2017) which allows for a graphical representation of the interaction. The linearity assumption states that the moderator changes at a constant rate with the predictor; that means, i. e., that the effect of the norm internalisation on violence increases at the same rate as the status-violence norm⁹.

Another point addressed by Hainmueller, Mummolo and Xu (2019) is the area of common support. For a substantive interpretation of the marginal effects, a sufficient number of observations of the moderator, and variation in the treatment must be given. For our purpose, this means, for example, that we must observe different levels of code internalisation at the same level of the status-violence norm. If we only observed people with a strong norm internalisation, and nobody with a low code internalisation exposed to the maximum of the status-violence norm, conclusions about the effect of norm internalisation under the maximum status-violence norm would be insubstantial.

2.5 Results

In table 2.1, we report the descriptive results. Of the 2,412 participants in our analytical sample, 1,342 (55.64%) have no violent relationship, 21% have 1, 10% have 2, 5% have 3. On average, students have .95 violent relationships (SD=1.44). The code internalisation is on average .37 (SD=.23) and thus participants on average show little agreement with statements regarding the code. The status-violence norm was calculated for each class separately as the status- and violence scores were unstandardized. The correlation ranges from -.64 to +.85. Across all classes, the correlation is on average .21 (SD= .27; median: .20).

⁹But actually, with Anderson, we would assume that stronger norm internalization leads to a clearer interpretation of the situation, and thus stronger norm internalization needs less indication of the status-violence norms; compared to low norm internalization which needs clearer signs for 'violent' situations.

Table 2.1 Summary Statistics (N= 2,412)

Variable	Mean	Standard Deviation	Minimum	Maximum
Dependent Variable				
Incidence	.95	1.44	0	10
Standardized entire sample				
Code	.37	.23	0	1
Status-violence norm	.60	.18	0	1
Standardized within school				
Code	.39	.24	0	1
Status-violence norm	.47	.41	0	1

Results Standardized Over the Entire Sample

Table 2.2 presents the findings on the school fixed-effects estimator for the standardized independent variables over the entire sample. Model 1 speaks to hypotheses one and two. It shows that students with the highest code internalisation have on average 1.56 ($p < .001$) violent relationships more than the students with the lowest code internalisation. This finding is in line with hypothesis one. In classes with the strongest status-violence norm, that is the correlation between status and violence, students have on average .58 ($p < .001$) violent relationships more than students in classes with the lowest status-violence norm. This finding supports our second hypothesis.

Model 2 considers the interaction of code internalisation with the status-violence norm, hypothesis three. The significant product term indicates that the association between the code internalisation and violent relationships depends on the level of the status-violence norm. The interaction between code internalisation and status-violence norm provides the conditional effects, and thus reports the change of one variable for different levels of the other.

The coefficient of code internalisation gives its conditional effect on the number of violent relationships as the status-violence norm is zero. This means that having the maximum rather than the minimum of code internalisation is associated with .33 more violent relationships, as students are exposed to the lowest level of the status-violence norm. Looking at the interaction term, we see that when students are exposed to the maximum of the status-violence norm, the association of code internalisation is stronger. Under the latter condition, students with the maximum code internalisation have $(.33 + 2.05 = 2.38)$ 2.4 violent relationships more than students with the minimum code internalisation.

Supplementing the coefficient for the status-violence norm gives its conditional effect for participants with the lowest code internalisation. When comparing students with the

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lowest code internalisation in the different status-violence norm conditions, we see that these students have -.18 violent relationships less as they are exposed the maximum rather than the minimum status-violence norm. Whereas students with the maximum code internalisation react quite strongly to changes in the status-violence norm. If these students are exposed to the maximum correlation between status and violence, rather than the minimum, they have on average about 2 violent relationships more ($-.18+2.05=1.87$).

This interaction is visualized in figures 2.1 and 2.2. The figures show the conditional marginal effects of the moderator on the dependent variable, see y-axis, for different levels of the independent variable, given on the x-axis. The grey area shows the confidence intervals; if they include 0 on the y-axis, then the effect is not significant. The histogram on the lower part of the diagram reflects areas of common support.

Figure 2.1 shows the marginal effects of the status-violence norm for different levels of code internalisation. Students with low code internalisation, below a level of .29, do not react to different levels of status-violence norm with a change in their violent relationships. However, with an increase in code internalisation, students are more violent as they are exposed to higher levels of status-violence norm.

Figure 2.2 shows the complementary relationship of the marginal effects of code internalisation for different levels of the status-violence norm. Only, as the status-violence norm is below .05, students differ not significantly by their level of code internalisation in their violent behavior. These results are robust, even if we control for self-control, gender, and migration background, models 3 and 4.

Results standardized within each school

In table 2.3, we now turn to the set of estimates in which the independent variables are standardized within each school. The results point in the same direction as the previously discussed findings when we standardized across the entire sample.

Model 5 also speaks in favor of hypotheses one and two. Students who have internalized the code more strongly have more violent relationships than students with weaker code internalisation (1.49; $p<.001$), and in classes in which status and violent behavior are more strongly correlated, students have more violent relationships (.25; $p<.001$).

The significant product term of model 2 indicates that the level of the status-violence norm moderates the association between code internalisation and violent incidents. We start discussing the interaction, again, by asking whether students with the minimum rather than the maximum of code internalisation have a different amount of violent relationships as they are exposed to different levels of the status-violence norm. As students are exposed to the minimum of the status-violence norm, students with the maximum, compared to the minimum code internalisation, have 1.19 violent relationships more. If students are exposed

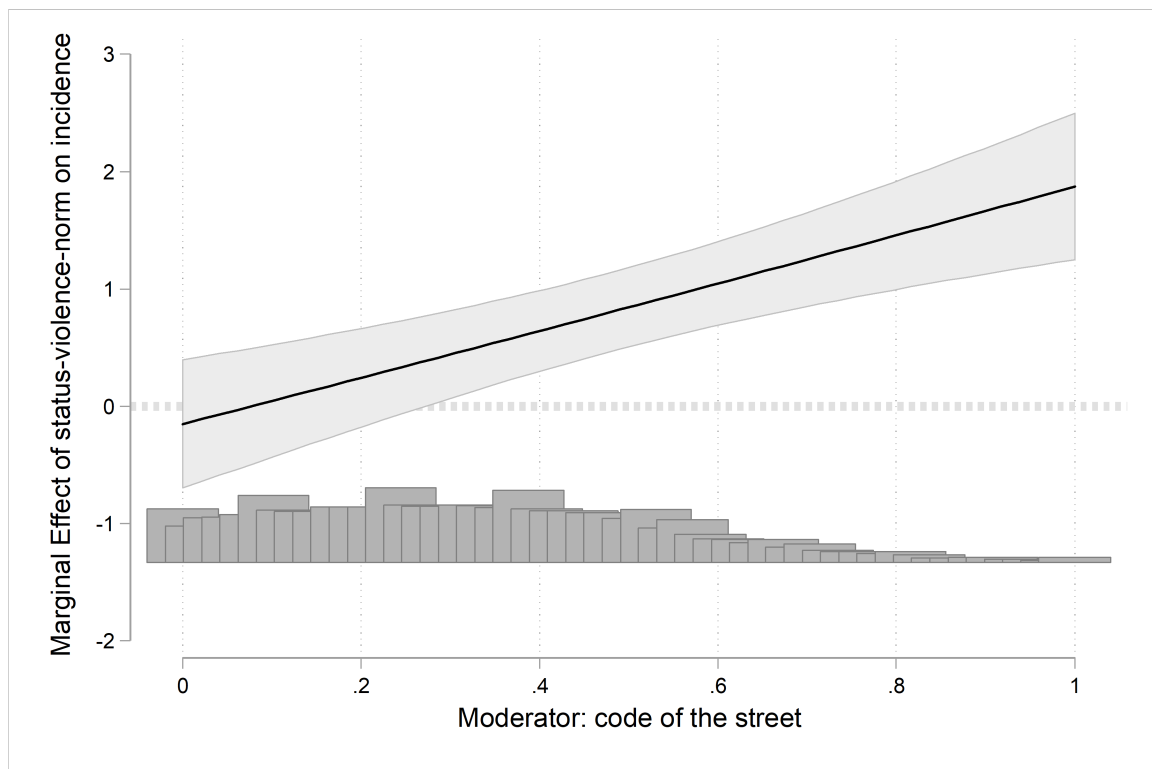


Fig. 2.1 Marginal Effect of the status-violence norm on incidence for different levels of code internalization (standardized on the entire sample)

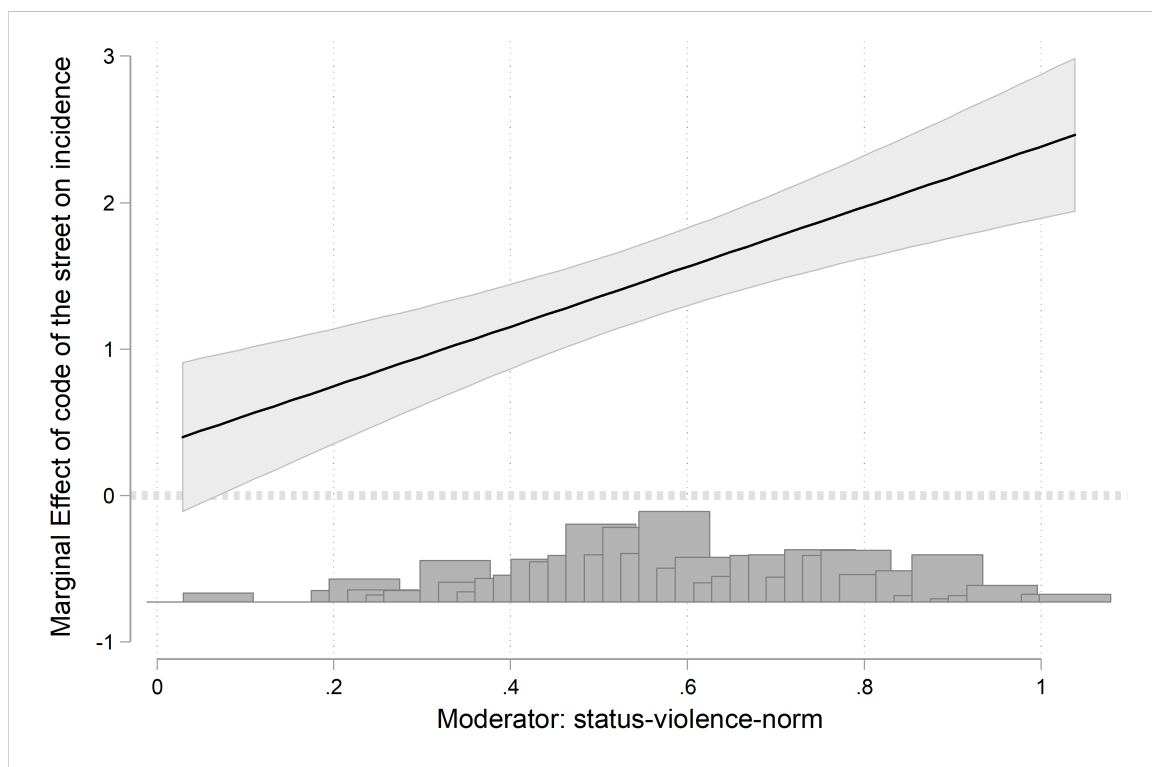


Fig. 2.2 Marginal effect of code internalization on incidence for different levels of the status-violence norm (standardized on the entire sample)

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Table 2.2 School fixed-effects; standardized over entire sample (DV: violent relationships)

	Model 1	Model 2	Model 3	Model 4
Status-violence norm (svn)	0.58*** (0.17)	-0.18 (0.28)	0.56*** (0.17)	-0.25 (0.27)
Code of the street (code)	1.56*** (0.13)	0.33 (0.44)	1.09*** (0.15)	-0.22 (0.44)
code*svn		2.05** (0.73)		2.18** (0.72)
Girl			-0.41*** (0.06)	-0.41*** (0.06)
Self-control			0.75*** (0.18)	0.76*** (0.18)
Mig. background			0.16** (0.06)	0.16** (0.06)
Constant	0.02 (0.11)	0.47** (0.16)	0.03 (0.13)	0.51** (0.17)
Observations	2,412	2,412	2,412	2,412

Notes: reghdfe, vce(cluster); Standard errors in parentheses;

All variables are standardized on the unit interval [0,1] over the entire sample;

+ p < 0.1, * p < 0.05, ** p < 0.01, *** p < 0.001

to the maximum status-violence norm, the difference increases: in this condition, students with the maximum rather than the minimum code internalisation have about $(1.19 + .67 = 1.86)$ 2 violent relationships more.

Changing the perspective, we now ask if exposure to the minimum rather than the maximum status-violence norm has different consequences for students according to their code internalisation. Students with the minimum of code internalisation have -.01 fewer violent relationships when they are exposed to the maximum rather than the minimum of the status-violence norm. Students with the maximum code internalisation react more strongly to a change in the status-violence norm. Exposed to the maximum status-violence norm, rather than the minimum, these students have $(-.01 + .67 = .66)$ about .7 violent relationships more. Model 5 is represented in figures 2.3 and 2.4. As before, these findings hold as we include controls (see models 7 and 8).

Compared to the first set of estimates, which are standardized over the entire sample, the results of the second, standardized within each school, are smaller, but still substantial and more realistic, as they only consider change within schools that could be realized observed values.

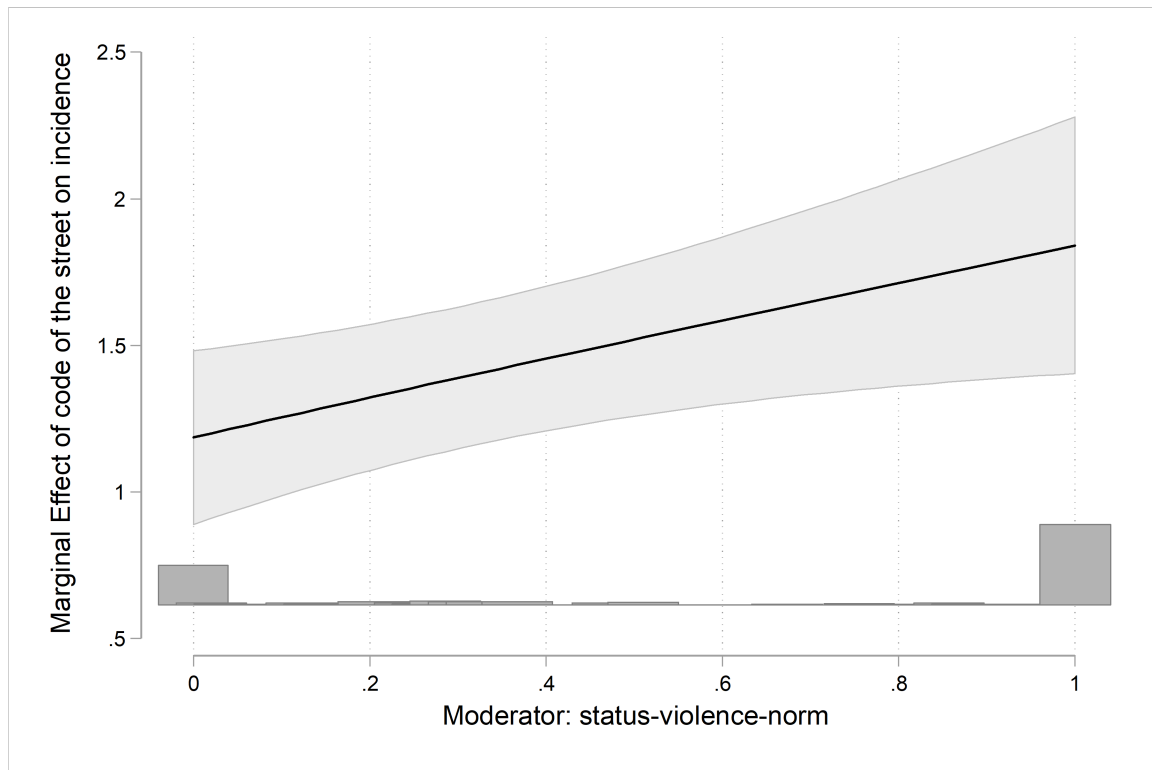


Fig. 2.3 Marginal effect of code internalization on incidence for different levels of the status-violence norm (standardized within each school)

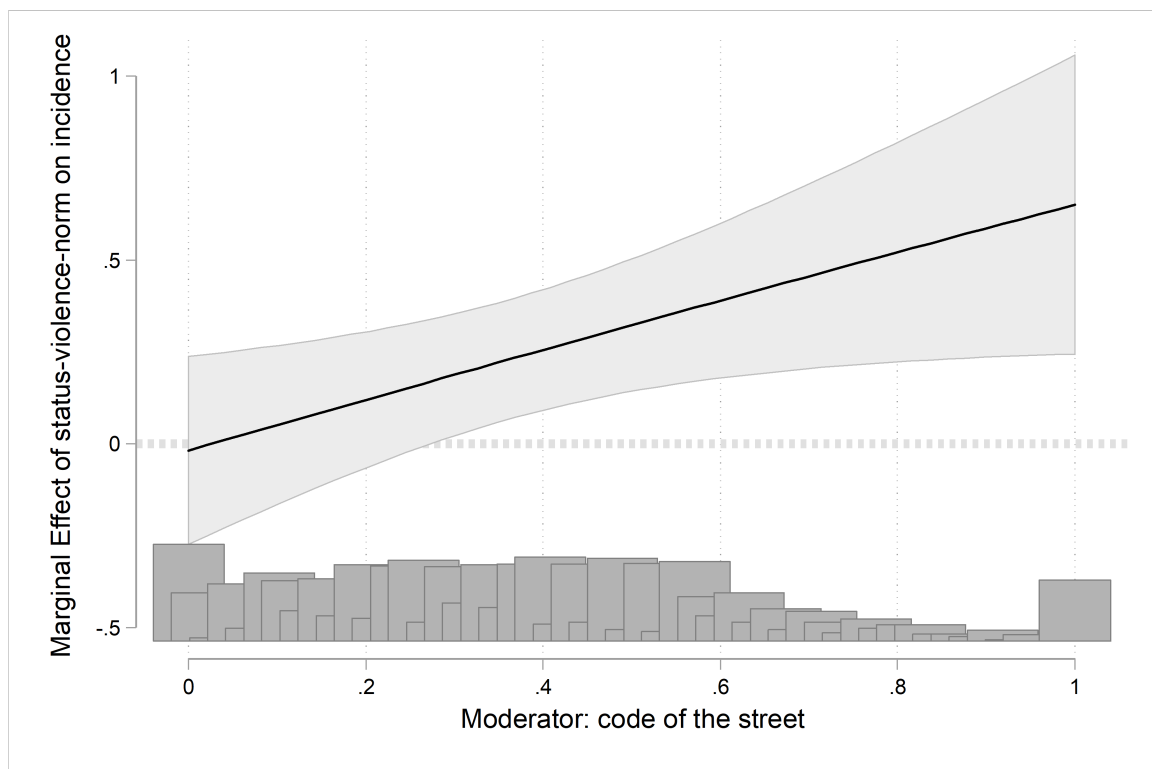


Fig. 2.4 Marginal effect of the status-violence norm on incidence for different level of code internalization (standardized within each school)

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Table 2.3 School fixed-effects; standardized within each school (DV: violent relationships)

	Model 5	Model 6	Model 7	Model 8
Status-violence norm (svn)	0.25*** (0.07)	-0.01 (0.12)	0.24*** (0.07)	-0.01 (0.12)
Code of the street (code)	1.49*** (0.13)	1.19*** (0.18)	1.02*** (0.15)	0.74*** (0.19)
code*svn		0.67* (0.31)		0.63* (0.31)
Girl			-0.41*** (0.06)	-0.41*** (0.06)
Self-control			0.67*** (0.15)	0.66*** (0.15)
Mig. background			0.16** (0.06)	0.16** (0.06)
Constant	0.25*** (0.06)	0.37*** (0.07)	0.24** (0.09)	0.35*** (0.09)
Observations	2,412	2,412	2,412	2,412

Notes: reghdfe, vce(cluster); Standard errors in parentheses;

All variables are standardized on the unit interval [0,1] within each school;

+ p <0.1, * p <0.05, ** p <0.01, *** p <0.001

2.6 Discussion and Conclusion

The foregoing analysis confirmed a number of core implications of Anderson's ethnography *Code of the Street* (1999). In line with previous studies, we find that, with an increased code internalisation, violence becomes more likely. Moreover, we show that the stronger the street culture, in form of the status-violence norm, the more likely violence becomes. Interestingly, only actors with a strong code internalisation are affected by the status-violence norm. They are more violent when violence is rewarded with status.

In contrast to earlier studies (Berg et al., 2012; Stewart and Simons, 2010), we find that students with a weak internalisation of the code do not react to status-violence norm variations and are, in general, less likely to offend violently. This may be explained by our explicit focus on the relation between status and violence, which is, compared to other aspects of the Code of the Street, like provocation (see Beier, 2016), a rather weak indicator for street culture. Anderson describes that decent kids, who have internalized the code less, also choose violence as a reaction in certain situations, because they, for example, fear future victimization. The use of violence to gain status may simply not be a sufficient reason to act violently for the kids in the investigated setting. With the Model of Frame Selection, one may argue that decent kids either do not perceive the status-violence norm as an indicator for

street culture, or deliberately decide against the use of violence, given that they perceive the violent option.

Our study advances the literature in several ways. As we rely on network information on violence and status, we speak more directly to the interpersonal dimension than has previously been seen in the literature on the Code of the Street. While we cannot observe the very moment of crime occurrence, we can still bring together violence between two actors and their social world, in the form of the status-violence norm, and our approach, thus, addresses the interaction between actor and behavioral setting more directly.

Additionally, to make behavioral settings more comparable, we use schools as a strategic research site as they are more homogenous than other settings, such as neighborhoods. Schools provide clear boundaries that allow identifying and realistically surveying all individuals that belong to that context. But most importantly, we account for variations between contexts as well as selection effects by employing school fixed-effect regressions. This approach eliminates potentially confounding effects and, thus, allows a stronger inference about the interplay between code internalisation and the status-violence norm.

Finally, a number of potential limitations need to be considered, which serve as a basis for future research. The first is related to our measurement strategy. Following Anderson's descriptions, we wanted to observe the conditions under which code internalisation interacts with street culture in the very moment of crime occurrence. But our measures of violence, as well as status ascription between students of the same grade, only capture their violent relationships, and violence between students could have also occurred outside the school context. Thus, they were not subjected to the immediate influence of the status-violence norm. However, a significant share of overall violent incidents between students is committed within schools (Wikström et al., 2012: 276), and thus, we assume that at least a share of the violence captured by our measurement is committed within the schools. Moreover, the status-violence norm is indicative of a general norm students experience. Hence, their violent relationships, even if they occur outside the school context, should be affected by this norm.

Second, while our measure of violence is relational and not a behavioral measure, we do not know into what intensity of violent behavior violent relationships translate.

Third, our study is a cross-sectional study, and thus we cannot identify a causal relationship. However, by creating a quasi-experimental setting, our fixed-effects approach comes closer to the real association than usual correlational approaches, at least as we can control for alternative explanations, like selection.

Lastly, to identify the interplay between the status-violence norm and code internalisation, we constructed a contextual measure of street culture, by correlating violence and status relationships within classrooms. This within-classroom correlation is the most frequently

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used approach (Dijkstra and Gest, 2015; Laninga-Wijnen et al., 2019). However, we do not know how it translates into experienceable symbols of the social world. Compared to previous studies on the Code of the Street, we use smaller spatial units, classes, in which participants interact directly with each other and share mutual experiences. We argue that our peer reports are closer to the social reality of the participants, thus to the shared understanding of street culture, than the aggregations of participants' responses to code internalisation. Nevertheless, future research addressing this issue, especially qualitative or mixed-method approaches, may give further insights.

As we have addressed the action-theoretical implications of Anderson's Code of the Street and the status-violence norm, future research could relate to their emergence, which also allows a better understanding of context differences. To put this more directly: why do classes in the same grade in the same school differ in the extent to which they assign status to violent offenders? Are there specific classroom compositions for which we have not accounted that lead to the emergence of these contexts? Do single individuals drive the context in this direction? And who are the individuals that assign status to violent offenders?

A deeper understanding could provide schools with information on how to assign students to classes or on which students would need to be monitored more carefully in order to prevent the emergence of a context that awards violence with status. Taken together, this study has gone some way towards enhancing our understanding of the interplay between code internalisation and street culture by providing a more rigorous empirical test.

Chapter 3

Does criminogenic exposure really matter? A More Rigorous Test of Situational Action Theory Based on a School Fixed-Effects Analysis of School Violence

Abstract

The present study tests the core claim of Wikström's Situational Action Theory (SAT), that crime is the result of the interaction between a person's crime propensity and her exposure to criminogenic features. It devises a new test strategy that resolves a fundamental problem of previous studies: the fact that they have been largely inconclusive about the role of settings, due to heterogeneity between settings and the selection of people into kinds of exposures.

We use schools as a strategic research site as they are comparable contexts that adolescents have to attend and to which they are assigned based on mostly observable characteristics. Based on data from the German school panel study 'Friendship and Violence in Adolescents', we test SAT's hypotheses in regard to school violence using a within-estimation technique. We apply school fixed-effects that only compare students at the same school with each other. This estimation strategy considerably reduces the problems of selection and heterogeneity that have confounded the estimates of previous studies.

Students become more violent as their crime propensity or criminogenic exposure increases. Both aspects interact with each other. The effect of criminogenic exposure is amplified for students with high crime propensity. Students with low crime propensity are unaffected by levels of criminogenic exposure and do not engage in school violence.

Key hypotheses of SAT are supported even under stricter testing conditions. School violence is best explained by the interplay of crime propensity and criminogenic exposure. Exposure effects are not merely spurious correlations that are indicative of self-selection into settings.

3.1 Introduction

Recent years have seen renewed interest in the interplay between people and settings in the explanation of criminal behavior (Birkbeck and LaFree, 1993; Sutherland, 1947). Offending is explained by a person's impulsivity and a neighborhood's collective efficacy (Zimmerman, 2010), or by school disadvantage (Eklund and Fritzell, 2014); a person's delinquent conduct frames and neighborhood- (Berg et al., 2012) as well as school street culture (Beier, 2016; Ernst and Lenkewitz, 2020), unstructured and unsupervised time, together with self-control (Hay and Forrest, 2008) or a person's cost-benefit calculus (Clarke and Felson, 2017). The common denominator of these diverse approaches is that offending is understood neither solely by reference to interpersonal differences, nor solely by reference to contextual influences, but rather by reference to people acting in response to particular contextual cues (see also DiMaggio, 1997: 268). In line with scholars who emphasize the need for micro-foundations in criminology (Matsueda, 2017; Messner, 2012), these approaches answer the fundamental question of why people act differently across settings, as well as why a particular setting causes different reactions across people.

A particular comprehensive and detailed approach is Wikström's Situational Action Theory of Crime Causation (SAT; Wikström, 2006, 2010; Wikström et al., 2012), which aims to integrate person and environmental approaches, and which makes the interaction between a person's crime propensity and a setting's criminogeneity the centerpiece in the explanation of crime. It articulates an action-generating mechanism that underlies rule-breaking and specifies the situational conditions in which a person commits crime in the very moment of that crime's occurrence. SAT states that, given a motivation, like temptation or provocation, a twofold process first determines whether a person perceives crime as an action alternative, and then determines if and how a person will react to the perceived alternatives. People's crime propensity is characterized by their moral evaluation of actions (personal morality) and their ability to apply their morality (self-control), whereas a setting's criminogeneity is characterized by the rules that prohibit or promote certain actions (the moral norms of the setting), and their enforcement (deterrence).

Evidence has accumulated around SAT's key predictions (for an overview, see Pauwels et al., 2018): people with low crime propensity are less likely to offend even in highly criminogenic settings, whereas people with high crime propensity are likely to offend in low criminogenic settings, but even more in high criminogenic settings. Since a setting's criminogeneity is difficult to grasp, it is often measured indirectly and approximated by criminogenic exposure, like the number of delinquent peers (Hirtenlehner et al., 2015; Schepers and Reinecke, 2018); unstructured socializing and the influence of delinquent peers (Beier, 2018; Bruinsma et al., 2015; Gerstner and Oberwittler, 2018); lifestyle risk (Svensson

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and Pauwels, 2010; Wikström and Svensson, 2008), a combined measure of peer delinquency, unstructured socializing and time spent in the city center; the combination of space-time budgets and collective efficacy (Wikström et al., 2010, 2018); or information about peers' general tendency to consume alcohol (Beier, 2018). Others have used scenario techniques that focus on the intention to commit crime (Pauwels, 2018; Sattler et al., 2018; Wikström et al., 2012).

Although the results of these studies lend overall credibility to SAT's assumptions, we argue that previous observational studies fall short of providing a stringent test of the interplay between person and environment. Most importantly, they cannot identify the impact of criminogenic exposure on crime due to heterogeneity between the kind of exposure an individual is acting in, and the selection of individuals into a particular setting. First, analyses tend to compare settings that differ along many dimensions: for example, having delinquent peers or not, or spending spare time in the city center vs. engaging in piano lessons. This multidimensionality makes it very difficult to attribute a difference in behavior to a particular cause. Second, the assignment of persons to settings does not come about by chance but by processes of self-selection and social-selection. Selection may often explain a great deal of why particular people are exposed to certain settings (e.g., spend time in the city center with delinquent peers). Hence, it is difficult to conclude whether – and, if so, how – criminogenic exposure matters above and beyond individual characteristics. Observed acts of crime might be mainly driven by, for example, people's preferences for different friends and activities, rather than being the result of the hypothesized interplay between person and exposure.

The current study aims at a more stringent test of the action-generating interplay between crime propensity and criminogenic exposure, as hypothesized by SAT. For this purpose, we investigate school violence with data from the German school sample 'Friendship and Violence in Adolescents'. School hours take a significant share of students' awake time, and school violence accounts for a significant share of adolescents' criminal behavior (Wikström et al., 2012: 276; Wikström and Butterworth, 2013). Besides its relevance, the school context is a strategic research site due to the fact that education is compulsory and there are relatively few differences between schools in Germany, and thus the school setting allows for better comparability of criminogenic exposure. Using school fixed-effect estimators, our analysis goes a long way to control for remaining differences. This within-estimators compare students at the same school with each other, and thus eliminate aspects of the selection into schools and all heterogeneity between schools, such as neighborhood influences and school culture, as well as school-specific deterrence abilities.

Additionally, we test whether students are selected into different levels of criminogenic exposure in their school. A setting's criminogeneity, or rather the moral norm of the setting,

is measured by the violent behavior of classmates in the school. This so-called descriptive norm corresponds to SAT's understanding of the moral norms of the setting as the degree to which a moral rule is shared by those taking part in the setting (Wikström, 2010), and can be characterized as perceivable behavior, which informs an individual about the appropriateness of using violence.

Our findings support the core hypotheses of SAT. With an increase in crime propensity, people are more likely to offend. In particular, students with high crime propensity adjust their behavior in response to the descriptive norm. In settings where the descriptive norm indicates more violence, students with high crime propensity are more likely to offend. People with low crime propensity do not significantly adjust their behavior in response to variations of the violent norm and are – in general – less likely to offend.

3.2 Situational Action Theory

Situational Action Theory (Wikström, 2006, 2010; Wikström et al., 2012) explains crime as the immediate outcome of the interplay between a person's crime propensity and a setting's criminogeneity. It thus makes people the source of their actions as people perceive, choose and execute their actions, but it claims that causes of action are situational. People are characterized by their crime propensity – that is, their moral evaluation of action (personal morality) and their ability to apply their morality (self-control). Settings are described by their criminogeneity – that is, the motivation to offend, rules that promote or prohibit specific actions (moral rules), and different levels of law enforcement (deterrence).

The interplay between a person's crime propensity and a setting's criminogeneity is specified by the action-generating, cognitive perception–choice process. This twofold process explains, first, how people perceive different action alternatives in reaction to a motivation like provocation or temptation, and then, if and how people choose between them. In line with psychological dual-process theories, people are assumed to either deliberate about choosing an alternative or to act habitually. The perception of action alternatives occurs through the moral filter, which is constituted by a person's morality and the moral rules that apply to the setting the person is acting in. If the moral rules are in accordance with a person's morality, they will – in the second step – habitually follow their personal morality. Thus, they act unaffected by self-control and a setting's deterrence. If the moral rules contradict their personal morality, which leads to a conflict in the moral filter, people will deliberately choose an action alternative. In this process, their choice of criminal action alternatives depends on their ability to exercise self-control, and on the setting's ability to deter them. As

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a result, self-control and deterrence influence a person's decision making only under certain conditions – namely, as they deliberate.

3.2.1 Crime propensity

By elaborating how the perception–choice process unfolds for different levels of crime propensity, SAT explains interindividual differences in the occurrence of criminal behavior. People with high crime propensity (i.e., low morality and low self-control) are more likely to perceive criminal action alternatives due to their low morality, and if the moral filter is conflicted, they are more likely to follow the criminal action alternative, due to their low ability to exercise self-control. By contrast, people with low crime propensity (i.e., high morality and high self-control) are less likely to perceive criminal action alternatives, due to their law-abiding morality. If the moral filter is conflicted, they are less likely to choose the criminal action alternative due to their high ability to exercise self-control.

There are many studies that support SAT's arguments on interindividual differences in the explanation of criminal behavior, using samples from different countries, covering different age groups, and employing different methodologies (full support: Bruinsma et al., 2015; Hirtenlehner and Kunz, 2016; Ivert et al., 2018; Kroneberg and Schulz, 2018; Pauwels, 2012; Pauwels and Svensson, 2017; Svensson et al., 2010; Wikström and Svensson, 2010; partial support: Antonaccio and Tittle, 2008; no support: Gallupe and Baron, 2014). However, most of these studies disregard the moral norms of the setting and therefore cannot account for the interplay between crime propensity and a setting's criminogeneity. Instead, the perception of action alternatives is reduced to a persons' morality, assuming that people with a law-abiding morality are less likely to perceive criminal action alternatives (and vice versa).

Reducing the moral filter to a person's morality while disregarding the moral norms of the setting involves a strong assumption about a person's morality and the moral norms as the moral filter sets the course as regards whether or not a person will act habitually or be deliberative, and thus whether they will be subject to the influence of their own self-control and to a setting's deterrence. Moreover, the moral filter leads the perception of action alternatives and 'sets the boundaries for the choice process' (Wikström et al., 2012: 17). Although these studies have improved our understanding of crime propensity (see also the discussion about self-control in SAT: Hirtenlehner and Kunz, 2016; Kroneberg and Schulz, 2018), they do not examine the centerpiece of SAT: the interplay between a person's crime propensity and their criminogenic exposure.

3.2.2 Crime propensity and criminogenic exposure

Research into the interplay between a person's crime propensity and their criminogenic exposure has been conducted using different methodologies: survey studies, space-time budgets and vignette studies. Most studies use observational data and translate a setting's criminogeneity into exposure – that is, time spent in conditions that make criminal behavior more likely. Exposure has been approximated by time spent in inner-city centers at night (Svensson and Pauwels, 2010; Wikström and Svensson, 2008), by unstructured socializing with friends (Gerstner and Oberwittler, 2015, 2018; Schepers and Reinecke, 2018), and by peer delinquency (Hirtenlehner et al., 2015). Capturing the interaction between crime propensity and criminogeneity is especially troublesome for these studies as they cannot be sure that the crime is being committed at the very moment at which the actor is exposed to the proposed criminogenic influence: the so-called problem of spatio-temporal linkage (Bernasco et al., 2013: 897; Pauwels, 2018: 134; Wikström et al., 2010: 897).

Other studies define a setting's criminogeneity by reference to study participants' assessments of friends' and families' moral evaluations (Brauer and Tittle, 2016), or by reference to an aggregate of the study participants' moral evaluations and the perceived sanctioning risk at the neighborhood level (Antonaccio et al., 2017). In such studies, a person's judgment about the moral evaluation of others is extrapolated to all situations and settings, yielding a very partial account of the interplay between people and exposure (at best).

In comparison to these methodologies, space-time budgets take on a unique role as they provide more detailed information about where, when and with whom individuals spend time, and if they have offended. Some studies using space-time budgets have also provided information about a setting's or a situation's conditions. Thus, reports about peers' alcohol consumption have been added to space-time budget information about the presence of peers at the moment alcohol is consumed (Beier, 2018). Other studies have added information from community surveys about a setting's collective efficacy, which refers to residents' willingness to intervene and prevent disorder, which should indicate the level of enforcement of the relevant moral rules (Wikström et al., 2010, 2018). However, although the use of space-time budgets provides detailed information about the circumstances of offending, they share two far-reaching problems of survey data: settings – or, rather, exposure – vary beyond the measured constructs, and thus introduce unobserved, as well as observed, heterogeneity; and they are also confronted with the problem of selection. We discuss these critical challenges more extensively below.

In this regard, vignette studies offer the most controllable approach as participants are randomly assigned to hypothetical scenarios, and only the variables of interest are manipulated, whereas everything else is held constant. Tests of SAT have varied the level of

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provocation and monitoring (Pauwels, 2018; Wikström et al., 2012), as well as deterrence to, and the benefits of, criminal action alternatives (Sattler et al., 2018). While vignette studies bypass the selection problem, and thus provide high internal validity, they do so at the cost of covering only behavioral intentions and of being of limited external validity.

Whereas all of these studies speak in favor of SAT's predictions on the interplay of crime propensity and exposure to criminogenic settings, each methodology comes with its specific drawbacks, especially heterogeneity between exposure and selection in the case of observational studies, and the restriction to focus on intended behavior and external validity in the case of vignette studies. Focusing on actual behavior, the current study attempts to resolve the problems of heterogeneity between, and selection of individuals into, criminogenic exposure.

3.3 Focusing on criminogenic exposure

Before elaborating on the challenges of heterogeneity and selection in testing the person–environment interaction, we discuss criminogenic exposure as understood by SAT, and its implications for causal inference. In SAT, criminogenic exposure refers to time spent in settings with criminogenic features. A setting is defined as the environment an actor perceives at a particular moment in time (Oberwittler and Wikström, 2009: 36), and is characterized by motivation(s) to offend, the moral rules that indicate the (in-) appropriateness of specific actions in response to a particular motivation, and a setting's (in-) ability to enforce norms.

From an analytical point of view, we aim to identify the difference between the observed- and potential outcome (Holland, 1986; Morgan and Winship, 2007; Rubin, 1974), which describes what would have happened if a person's crime propensity and a setting's criminogenicity had been different. Would a person with low crime propensity have committed (more) crime if levels of criminogenicity were higher? Would a person with high crime propensity have committed no (less) crime if levels of criminogenicity were lower?

These questions presuppose that for each observed outcome, a potential outcome can be determined. Following the ideal of causal inference, only a clearly defined treatment status varies between the observed and potential outcomes, whereas everything else is constant. Thus, the treatment status can be held responsible for the observed differences, as the treatment is applied at random. Randomization ensures that neither personal preferences nor social influences guide the match between person and treatment, and thus confound the effect of the treatment status on the outcome. These idealizations serve us as a heuristic

to put recent findings on the interplay between crime propensity and criminogeneity into perspective and to reveal drawbacks concerning heterogeneity and selection.

3.3.1 Comparability of criminogenic exposure, and (unobserved) heterogeneity

Following the ideal of causal inference, the dimension(s) in which a setting's criminogeneity varies has to be explicitly identified. However, it is challenging to measure criminogeneity, and thus to measure exposure to it. People spend their time differently. The range of possibilities may start with structured activities like sports and music lessons, and may end with unstructured socializing with friends in inner-city centers. The variations and multidimensionality of these settings are theorized and operationalized: for example, by reference to time spent under supervision, to delinquent peers, to situational motivations to offend, to collective efficacy, and to the specification of output areas. However, some of these dimensions are interwoven and moderate each other. The relationship between peers and delinquency, for example, is dependent on the output area and the level of supervision (Weerman et al., 2015); the link between peers and unstructured social activities depends on a peer's deviant and pro-social behavior (Bernburg and Thorlindsson, 2001); different types of offending are associated with differences in output areas (Miller, 2013).

The multidimensionality and the mutual moderation of dimensions complicate the process of inference. Inference to, like, the presence of peers as the only source of deviant behavior becomes flawed. The problem becomes even more severe if we recognize that every dimension that is not reconsidered in the analysis introduces unobserved heterogeneity into the analysis. While this risk is frequently addressed in the investigation of personal interventions by within-estimators, like fixed-effects, and has been highlighted by a recent simulation study (Vaisey and Miles, 2017), it has mostly gone unnoticed in the investigation of action theories.

3.3.2 Selection

Differences in criminogenic exposure, or between settings and their specific level of criminogeneity, would not be as troubling if all combinations of crime propensity and criminogenic exposure could be observed. However, the match between people and settings is guided by selection and not by random assignment of people to different levels of criminogenic exposure or settings. In SAT, selection is explicitly theorized as the process which brings a person and a setting together, and is categorized as either self-selection or social-selection (Wikström et al., 2012). Self-selection refers to the preference-based choice of a particular

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setting; social-selection refers to forces that encourage or discourage particular kinds of people from entering particular environments.

It has been shown that more parental monitoring, more parental limit-setting and a better relationship between adolescents and their parents are associated with less time being spent in criminogenic settings (Janssen et al., 2014). People with low crime propensity spend more time at home or at school compared to those with high crime propensity (Wikström et al., 2010: 75), and people with low crime propensity are never exposed to high levels of criminogeneity, whereas people with high crime propensity are never exposed to low levels of criminogeneity (Wikström and Treiber, 2016).

Selection is most notably addressed by the literature on friendships. People befriend others who are similar to themselves (Gallupe et al., 2019; McPherson et al., 2001): for example, adolescents befriend one another as they drink alcohol (Osgood et al., 2013). Additionally, the possibility of befriending others who are (dis-)similar to oneself is conditional on the opportunity for social contact (for an overview, see Small and Adler, 2019). If, for example, schools or neighborhoods are homogenous, they do not provide contact with others who differ, and thus people who differ cannot meet and befriend each other. Thus, the translations of criminogeneity into peer relations becomes flawed by friendship selection and contact opportunities.

As a result, selection complicates the investigation of the action-generating mechanism. Due to selection, the identification of potential counterfactuals becomes challenging, as not all combinations of crime propensity and different sorts of conceptualizations of criminogenic exposure can be observed, resulting in a missing data problem. Thus it remains doubtful whether the observed behavior is the result of selection or the proposed interplay between person and environment.

3.4 The present study

We seek to apply a stricter test of the action-generating mechanism as predicted by SAT, and therefore we investigate school violence. With our analysis strategy we only compare students at the same school with each other, in school fixed-effects models, and thus we control for far-reaching aspects of heterogeneity between settings as well as selection.

3.4.1 Schools as a strategic research site

We use schools as a strategic research site as schools are more homogenous, and thus vary on fewer dimensions, than other comparisons, like sport and music lessons versus

time spent in inner-city centers. Previous studies, which compare all kinds of exposure at once, like different leisure-time activities, neighborhoods and peer groups, show that some combinations of crime propensity and criminogenic exposure are hardly ever observed (Wikström et al., 2010), or are never observed (Wikström and Treiber, 2016). As these kinds of exposure are different from each other in many regards, it comes as no surprise that combinations of criminogenic exposure and crime propensity are hardly ever observed, or are never observed. To overcome these comparability – or rather heterogeneity – and selection issues, we limited ourselves to explaining school violence. With the focus on students within schools, we reduce heterogeneity between exposures by comparing different students at the same school (school fixed-effects).

Nevertheless, it also well-known that school characteristics vary between schools, and that they influence a pupil's delinquency independent of the pupil's characteristics (Eklund and Fritzell, 2014; Pauwels, 2011; Wittek et al., 2020). For example, school collective efficacy influences a student's likelihood of being suspended (Kirk, 2009), and school climates that are characterized by competitiveness and egoism influence delinquent attitudes and delinquent behavior (Groß et al., 2018).

These differences and further heterogeneity are controlled for by our within-estimation strategy. These estimators control for the selection of people into different exposures – here schools. Additionally, we control for the remaining selection of students into different levels of the descriptive norm.

3.4.2 Descriptive norms as a setting's criminogeneity

To address variations in criminogenic exposure we use descriptive norms at the class level, which refers to the violent behavior of other classmates. This conceptualization corresponds to SAT's understanding of the moral norms of a setting as referring to the degree to which a moral rule is shared by those who are part of the setting (Wikström et al., 2010: 222). Since violent incidents can be observed and communicated, they provide information about the behavior of significant others, and thus about the (in-) appropriateness of violent reactions.

For our research endeavor, the school class represents a suitable setting as students influence each other. In German secondary schools, students of the same grade are divided into classes and taught, in most of the courses, within these classes until at least the 9th grade. Through this structure, students in the same class spend almost all of their school days together, and thus provide the most important source of exchange (Kruse and Kroneberg, 2019; Smith et al., 2016).

Moreover, class membership provides the linkage between actor and criminogenic exposure. Even if other students are not present during violent confrontations between students

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in the same class, it is reasonable to assume that the descriptive classroom norm influences them. Anyhow, the descriptive norm has been proven to be influential on behavior in quasi-experimental studies (Cialdini et al., 1990), experiments (Mercer et al., 2017; Paternoster et al., 2013), and survey studies (Müller et al., 2017; Sentse et al., 2015).

3.4.3 Hypotheses

In line with other tests of SAT's proposition regarding the interplay between crime propensity and criminogenic exposure, we investigate the following hypotheses:

Hypothesis 1 ('main' - effect):

With increasing crime propensity, students are more likely to attack students in their grade.

Hypothesis 2 ('main' - effect):

With an increasing descriptive norm to behave violently, students are more likely to attack students in their grade.

Hypothesis 3 (two-way interaction):

Crime propensity and descriptive norms interact with each other such that descriptive norms particularly increase violent offending among students with high crime propensity.

3.4.4 Data

This study is based on data from the German large-scale school panel study 'Friendship and Violence in Adolescents' (Kroneberg et al., 2016), which was conducted in five cities in the metropolitan Ruhr area. Data was collected between September and December of each year, and was first gathered in 2013 (wave 1; 7th grade) and was last collected in 2016 (wave 4; 10th grade). Other than special needs schools and upper-level schools (gymnasiums) all schools in the five cities, with their entire grade, were asked to participate in waves 1 and 2. As funding increased in wave 3, gymnasiums in three cities were also included in the sample.

The crime propensity scale consists of the sub-aspects of morality and self-control. Data on the latter was collected only in waves 1 and 3. The school fixed-effects analysis is performed on data from wave 3, which provides the crime propensity measures and is the largest sample as students of the gymnasiums are included.

In wave 3, a total of 46 of all 55 requested schools, and a total of 3,793 of all 4,400 students participated, which yields a student participation rate of 86%. The study used an audio-computer-assisted self-interview (audio-CASI); all questions were presented in text and were audible via headphones, to increase participants' confidence and to improve

comprehension of the survey questions (Beier and Schulz, 2015). Participants completed the survey using laptops provided by the research team.

3.4.5 Measures

Violent Behavior

Information about violent behavior was gathered through the study's sociometric module. Participants had a roster containing all grade students sorted by class, and in class by alphabetic order. On the roster, each student was assigned a unique number, which was used to answer the question on the relationship to other students.

Participants were asked to nominate up to five students from their grade who they had offended ('*Which classmates do you sometimes hit or kick?*') and five students from their grade who had offended them ('*Which classmates sometimes hit or kick you?*') (for a similar approach, see Sentse et al., 2015). Outgoing and ingoing nominations were summed for each participant. Bi-directional nominations between offender and victim were counted only once. For the analysis, the dependent variable is the incidence of violent relationships. In this case, incidence summarizes the number of outgoing victim nominations and ingoing offender nominations.

Descriptive Norm

The descriptive norm reports the number of violent relationships within each class, divided by the number of participants (for a similar procedure, see Dijkstra and Gest, 2015).

Crime Propensity

For the sake of comparability with previous studies on SAT, we follow their approach of measuring crime propensity as an additive index of self-control and personal morality (all items are listed in Appendix A). The self-control scale follows the PADS+ adaption of the Grasmick et al. scale (see Wikström et al., 2012). Response options range from 1 '*strongly disagree*' to 5 '*agree strongly*'. For the investigation of a person's morality, we use 18 items concerning violence, such as '*hit a classmate so that he or she bleeds*', but also other moral evaluations, such as '*smash a street light for fun*'. Participants were asked how bad they thought these acts were. Response options ranged from 1 '*not bad at all*' to 4 '*very bad*'. In the following, low values represent low crime propensity and high values represent high crime propensity.

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Table 3.1 Analysis sample descriptive statistics

Variable	Standardized on entire sample	Standardized within-school
A. Incidence		
min/max	0/12	0/12
mean	.37	.37
sd	.92	.92
B. Crime propensity		
min/max	0/1	0/1
mean	.49	.43
sd	.11	.20
Cronbach's alpha	.88	.88
C. Descriptive norm		
min/max	0/1	0/1
mean	.21	.47
sd	.16	.41
D. Observations		
schools	44	44
classes	161	161
participants	3,566	3,566

3.4.6 Analytical strategy

Our analysis comprises three steps. We start by examining selection into different levels of criminogenic exposure. We then investigate the interaction between crime propensity and the descriptive norm. For this purpose, we estimate school fixed-effects (for the use of fixed-effects in general, see Allison, 2009; Andreß et al., 2013); for school fixed-effects, see Ammermueller and Pischke, 2009; Legewie and DiPrete, 2012).

Formally, we start with the following model for the school fixed-effects:

$$y_{i,s} = \beta_1 x_{i,s} + \beta_2 N_{c,s} + S_s + \varepsilon_{i,s} \quad (3.1)$$

, where $y_{i,s}$ denotes violent behavior for student i in school s ; $x_{i,s}$ is the crime propensity, of student i in school s , and $N_{c,s}$ is the descriptive norm of class c in school s . The error term consists of school-level characteristics S_s and the individual specific error $\varepsilon_{i,s}$.

Equation (3.1) represents the standard linear regression approach, where estimates could still be biased due to unobserved heterogeneity between schools, S_s . The school-specific mean is:

$$\bar{y}_s = \beta_1 \bar{x}_s + \beta_2 \bar{N}_s + S_s + \bar{\epsilon}_s \quad (3.2)$$

Subtracting (3.2) from (3.1) yields the school fixed-effects estimator:

$$(y_{i,s} - \bar{y}_s) = \beta_1 (x_{i,s} - \bar{x}_s) + \beta_2 (N_{c,s} - \bar{N}_{c,s}) + (\epsilon_{i,s} - \bar{\epsilon}_s) \quad (3.3)$$

Here, only within-school variance is used to estimate violent behavior. All possible heterogeneity between schools, represented by S_s , are differenced out.

The estimation strategy controls for the selection into schools, and thus also for school tracks. However, this advantage comes with less efficient estimates as the standard errors of within-estimates are relatively large as all betweenness variation is canceled out (Allison, 2009: 17).

To ease the interpretation of the interaction effect, we standardize the independent variables to the interval between 0 and 1 (Braumoeller, 2004). To provide realistic counterfactuals when discussing the substantive impact of the effects, we provide two sets of school fixed-effect estimates. The first set is standardized on the entire sample so that 0 equals the overall observed minimum, and 1, accordingly, the overall observed empirical maximum. The second set is standardized within each school so that 0 equals the empirical minimum in each school, and, accordingly, 1 the maximum in each school. The latter coding avoids unrealistic predictions and allows for more plausible counterfactuals (Mummolo and Peterson, 2018). As predictions from standardization over the entire sample reflect changes in the independent variable that are rarely or never observed, the standardization within each school relies only on changes that occur. This allows for more substantial interpretations according to the counterfactual logic, answering what could have happened if students with a certain level of crime propensity had been exposed to another level of the descriptive norm (in their school).

For the estimation of the interaction effects in the school fixed-effects, we include all constitutive terms alongside the interaction and interpret the coefficients of the constitutive terms as conditional effects (as advised by Brambor et al., 2006). Additionally, we follow recent suggestions regarding the estimation of interaction effects proposed by Hainmueller, Mummolo and Xu (2019). The authors point to the linearity assumption and concerns regarding the area of common support. From the linearity assumption it follows that linear

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models report a constant relation between moderator and predictor. However, as the actual functional form is unknown, a semi-parametric estimation is better suited as it makes it possible to approximate the true form. Hereto, conditional marginal effects are estimated on the full range of the moderator. Estimates in the form of simple slopes are provided for each combination of the predictor and moderator. This allows for the identification of linear as well as non-linear functions.

The second issue concerns areas of common support between the moderator and predictor. For substantial interpretations, each level of the moderator must be covered by levels of the predictor. In the absence of areas of common support, a realistic counterfactual could be missing, and the effect extrapolated to combinations of the moderator and predictor that do not exist.

Following Hainmueller and colleagues, we use their STATA Ado Interflex (Xu et al., 2017), which is a graphical representation of the interaction between moderator and predictor, or rather the respective marginal effects. Areas of common support are shown in a histogram. Basic descriptive statistics of the analysis samples are given in table 3.1.

3.5 Results

Before testing our three hypotheses, we examine the selection of students into different levels of exposure – namely, school classes of varying descriptive norms, at wave 3.

3.5.1 Selection into different levels of the descriptive norm

Table 3.2 shows results for the selection analysis. The table presents whether students are selected systematically into different levels of criminogenic exposure – here levels of the violent descriptive norm. Model 1 shows the results of linear regression analysis, Model 2 controls additionally for school type, and Model 3 includes school fixed-effects. Model 1 shows that girls are less exposed to highly violent descriptive norms, whereas older students, students with a migration background and welfare recipients are more strongly exposed to violent descriptive norms. All effects are rather small.

Whereas Model 1 does not control for school tracks, this aspect is considered in Model 2. Compared to the comprehensive school track (reference category: comprehensive school/ Gesamtschule), students within the highest school track (Gymnasium) and the middle school track (Realschule) are less exposed to high levels of the descriptive norm. On the other hand, students within the lowest track (Hauptschule) have the highest risk of being exposed to violent descriptive norms. These results speak to systematic variation between school tracks.

Like Model 1, Model 2 allows for differences between individual school choices; therefore, Model 3 contains school fixed-effects and only compares if students of the same school are influenced by systematic selection into school classes with different levels of the descriptive norm. As we control for school choices the statistical model becomes insignificant ($F_{5,3382} = .31$; $p = .909$). Most importantly, this analysis shows systematic and pronounced differences between different school tracks (Model 2), which motivates our subsequent modeling strategy to remove variation between schools by introducing school fixed-effects.

Table 3.2 Selection into levels of the descriptive norm

	Linear regression		School fixed-effects
	Model 1	Model 2	Model 3
Girl	-0.01*	-0.00	-0.00
	(0.01)	(0.01)	(0.00)
Age	0.02***	0.01+	0.00
	(0.00)	(0.00)	(0.00)
Single parent	-0.01	-0.01+	-0.00
	(0.01)	(0.01)	(0.01)
Migrant	0.03***	0.02***	-0.00
	(0.01)	(0.01)	(0.00)
Social welfare	0.04***	0.03***	0.00
	(0.01)	(0.01)	(0.01)
Gymnasium		-0.02*	
		(0.01)	
Hauptschule		0.11***	
		(0.01)	
Realschule		-0.05***	
		(0.01)	
Constant	-0.07	0.12*	0.21***
	(0.06)	(0.06)	(0.04)
Observations	3,566	3,566	3,566

Notes: `reghdfe`, `vce(cluster)`; Standard Errors in parentheses;
 + $p < 0.1$, * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

3.5.2 Within-school estimation (school fixed-effect estimation)

Results standardized over the entire sample

Table 3.3 shows the results of the school fixed-effect models that compare students at the same school with each other at wave 3. Models 4 and 5 give estimates standardized on the entire sample; Models 6 and 7 give estimates standardized within each school.

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Model 4 includes the effects of crime propensity and the descriptive norm. Students with higher crime propensity are more likely to offend violently (1.75; $p < .001$). The same holds for classes with a more nuanced descriptive norm. As the descriptive norm increases, violent offending becomes more likely (1.61; $p < .001$). These findings are in line with Hypotheses 1 and 2. Model 5 investigates the action-theoretical core of SAT, Hypothesis 3: the interplay between crime propensity and criminogenic exposure (here the descriptive norm). The highly significant interaction term indicates that the association between crime propensity and violent offending depends on the level of exposure to the descriptive norm. The coefficients following the interaction between crime propensity and the descriptive norm give the conditional effects, and thus report the change in one variable as a result of different levels of the other variable.

The coefficient of crime propensity gives the conditional effect of crime propensity on the number of violent relationships as the descriptive norm is zero. This means that having the maximum rather than the minimum crime propensity is associated with .39 more violent relationships, as students are exposed to the lowest level of the descriptive norm. Looking at the interaction term, we see that when students are exposed to the maximum of the descriptive norm, the association of crime propensity is stronger. Under this condition, students with the maximum crime propensity have $(0.39 + 5.96)$ six more violent relationships than students with the minimum crime propensity.

Furthermore, the coefficient of the descriptive norm gives the conditional effect of the descriptive norm for students with the lowest level of crime propensity. As these students are exposed to the maximum rather than the minimum level of the descriptive norm, they have 1.38 fewer violent relationships, whereas students with the maximum level of crime propensity react more strongly to changes in exposure. If these students are exposed to the maximum rather than the minimum level of the descriptive norm, they have on average about $(-1.38 + 5.96)$ 4.5 more violent relationships.

These findings are in line with SAT's predictions and support Hypothesis 3: an increase in crime propensity, as well as an increase in the descriptive norm, leads to an increase in violent offending. Moreover, these differences are amplified by the interaction of both factors, as students with high crime propensity in particular become more violent if they are exposed to high levels of the descriptive norm. Nevertheless, we are surprised by the reduction in violent offending for students with low crime propensity as they are exposed to higher levels of the descriptive norm, rather than to lower levels. Therefore, we turn to the visual inspection of the interaction in figure 3.1.

In figure 3.1, panel A shows the marginal effect of crime propensity on violence for different levels of the descriptive norm. The histogram shows that the effect is quasi-linear

Table 3.3 Fixed-effects regression on violent relationships

	Standardized on entire sample		Standardized within-school	
	Model 4	Model 5	Model 6	Model 7
Crime propensity (cp)	1.75*** (0.22)	0.39* (0.19)	0.99*** (0.13)	0.52*** (0.12)
Descriptive norm (dN)	1.61*** (0.04)	-1.38** (0.49)	0.38*** (0.04)	-0.02 (0.09)
cp*dN		5.96*** (1.02)		0.94*** (0.23)
Constant	-0.85*** (0.11)	-0.17+ (0.09)	-0.24*** (0.06)	-0.04 (0.05)
Observations	3,566	3,566	3,566	3,566

Notes: reghdfe, vce(cluster); Standard Errors in parentheses;
 All variables are standardized on the unit interval [0,1].
 + p < 0.1, * p < 0.05, ** p < 0.01, *** p < 0.001

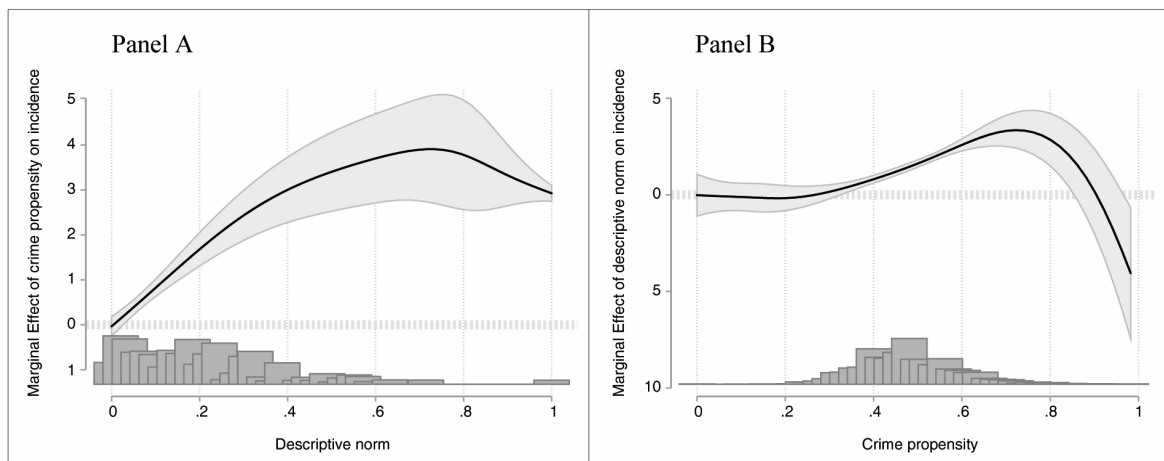


Fig. 3.1 The dark line and gray 95% confidence interval band depicts the conditional marginal effects of the school fixed-effect estimation, standardized over the entire sample. Panel A reports the marginal effects of crime propensity on the incidence of violent relationships for different levels of the descriptive norm. Panel (B) reports the marginal effects of the descriptive norm on the incidence of violent relationships for different levels of crime propensity.

for ranges of common support. Only if the descriptive norm is below .04, which corresponds to about 12% of the sample, is the marginal effect of crime propensity insignificant. If the descriptive norm exceeds .73, which corresponds to less than 1% of the sample, the marginal effect first stagnates and then gets smaller.

Does criminogenic exposure really matter?

Panel B (figure 3.1), shows the marginal effect of the descriptive norm on violence for different levels of crime propensity. The marginal effect of the descriptive norm is insignificant up to a crime propensity level of .34 (7.8%). The effect of being at the maximum level of the descriptive norm rather than at the minimum level is significant. The marginal effect of the descriptive norm increases until the crime propensity level of .72, then it subsequently decreases and becomes insignificant at .86 (0.5%). From the histogram at the lower end we see that, as the effect decreases, it is not supported by a change in crime propensity.

Results standardized within each school

So far, our results refer to standardization on the entire range of the sample. The next set of estimates in Models 6 and 7 are standardized on each school and allow for a more substantial interpretation as regards the counterfactual understanding. Herein, coefficients refer to the change from the minimum to the maximum level of crime propensity, respectively, the change from the minimum to the maximum level of descriptive norm within each school. Model 6 shows that students with the maximum crime propensity have one more violent relationship than students with the minimum crime propensity (.99; $p < .001$), and that exposure to the maximum rather than the minimum descriptive norm increases violent offending (.38; $p < .001$).

Like Model 5, Model 7 includes the interaction between crime propensity and the descriptive norm. The effects are in line with the theoretical expectations. Given the minimum descriptive norm, students with high crime propensity are more likely to offend than students with low crime propensity (.52), the difference between students with high and low crime propensity consists also in the condition under the maximum descriptive norm (.52+.94). For students with the minimum level of crime propensity there is no substantial difference between exposure to the maximum rather than the minimum descriptive norm (-.02). Students with high crime propensity react more strongly to changes in the descriptive norm, and have on average (-.02+0.94) one violent relationship more if they are exposed to the maximum rather the minimum descriptive norm. The marginal effects of Model 7 are shown in figure 3.2.

Panel A of figure 3.2 shows the marginal effect of the descriptive norm for various levels of crime propensity. Due to the standardization within schools, less variation appears in the area between 0 (each school's minimum) and 1 (each school's maximum). Nevertheless, the functional form follows an s-shape and is well supported at the minimum and the maximum of the descriptive norm.

Panel B of figure 3.2 shows the marginal effect of crime propensity for different levels of the descriptive norm. The marginal effects are insignificant until a crime propensity level of

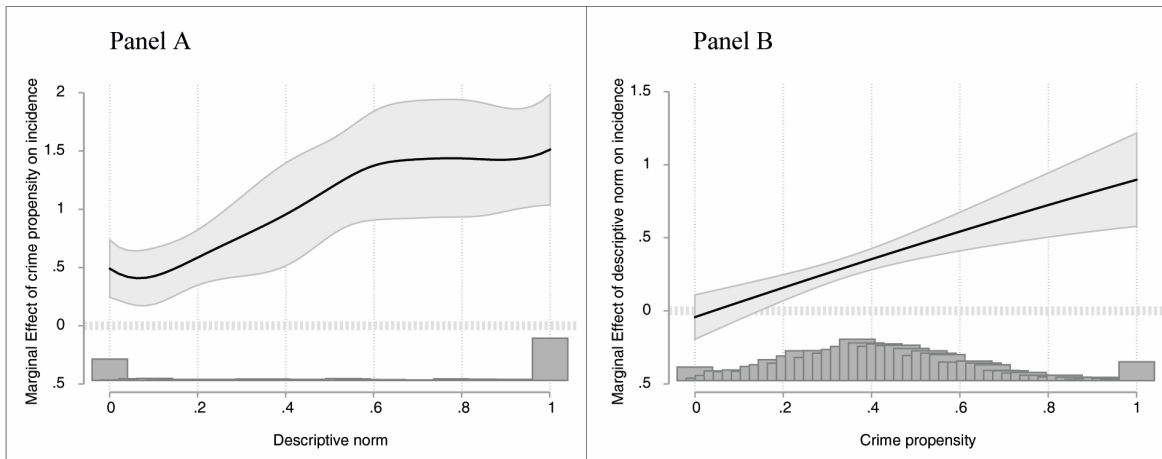


Fig. 3.2 The dark line and gray 95% confidence interval band depicts the conditional marginal effects of the school fixed-effect estimation; standardized within each school. Panel A reports the marginal effects of crime propensity on the incidence of violent relationships for different levels of the descriptive norm. Panel B reports the marginal effects of the descriptive norm on the incidence of violent relationships for different levels of crime propensity.

.16, which corresponds to 8.4% of the sample. Then the marginal effects are substantial and significant.

Our findings of the stricter test condition in Models 6 and 7 are in line with the findings of Models 4 and 5. Compared to the set of estimates that are standardized over the entire sample, the estimates of the within-school standardization are smaller, but still substantial.

3.6 Discussion and conclusions

The present study aims to provide a stricter test of the major claim of Wikström’s SAT: that crime is the result of the interplay between a person’s crime propensity and their criminogenic exposure. For several reasons, previous studies have been unable to provide strong evidence in support of the hypothesized role of the moral rules of the setting. In most studies it has remained unclear whether crime occurred due to the selection of actors into variations of exposure (rather than due to action-generating mechanisms); whether lifestyle risks, collective efficacy, and other variables really operate as criminogenic exposure (or capture unobserved heterogeneity); and whether actors are indeed exposed to the proposed criminogenic attributes in the relevant settings.

We have been able to test the action-generating mechanism more stringently by controlling for far-reaching aspects of selection into kinds of exposures and heterogeneity between exposures. We did this by applying within-estimators to explain violent offending within

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schools. The school fixed-effect estimators compare students at the same school with each other.

Our results are in line with previous findings (Pauwels et al., 2018) on the core implications of SAT: an increase in crime propensity increases the likelihood of violent offending, and so does the increase in criminogenic exposure. Students with the lowest crime propensity are unaffected by changes in criminogenic exposure and are unlikely to offend. As crime propensity increases, students become more likely to offend. These results apply to all our estimation strategies, fixed-effects, standardized on the entire sample, as well as within-school.

Contributing to research on school violence, our study indicates that within-school variation explains different behavioral outcomes in Germany. Our results show that a change in exposure to the moral norms of the setting – in this study the descriptive norm – will influence violent behavior, except for students with the lowest crime propensity, who are not going to offend at all. A practical implication of this is that moving students with high crime propensity into a class with a low descriptive norm will reduce their violent behavior.

The most important limitation of our study is that we still could not observe the very moment at which crime occurs. Students can still select themselves into different (micro) settings in the schoolyard, and violent incidents between students can also occur outside the school setting, and thus can be influenced by other aspects of exposure.

Nevertheless, we argue that our dependent variable – violent relationships between students at the same school – overcomes some of these doubts as violence between students will be, at least, influenced by the class norm—even if violence between students occurs outside the school. Even if we cannot actually observe violent incidents between students, we are quite optimistic that, at least, some violent incidents occur as students are in the school. Studies using space-time budgets show that a significant proportion of violent incidents involving adolescents happen in the school setting (Wikström et al., 2012: 276).

Notwithstanding this, it should be noted that we have not addressed the emergence of the violent classroom norm from the beginning. Classes were composed in grade 5, and we analyzed data from grade 9, and thus our results can only be considered from the action-theoretical point of view.

As a result, we have to put our objections regarding heterogeneity, or rather multidimensionality, and selection into perspective. We have framed heterogeneity between, and selection into, kinds of exposures as objections that challenge a rigorous test of the action-generating mechanism. Nevertheless, selection and heterogeneity themselves are essential aspects of the explanation of crime. Selection is already recognized in SAT, and heterogeneity

– the fact that settings differ from one another – is essential for differences between settings and their level of criminogeneity.

Future studies may further investigate both aspects. Do selection and the action-generating mechanism complement each other? Are there other situations, apart from the school setting, that involve compulsory participation, or situations that are attended by a variety of people that differ in their levels of crime propensity, and thus where the action-generating process can operate independently of selection? Regarding heterogeneity, we would like to see studies addressing motivation and deterrence as further aspects of criminogenic exposure, besides the moral norms of the setting. Regarding our analysis, both aspects can be understood, as invariant school attributes, and thus, are controlled by our estimation strategy.

Our study could provide a blueprint for testing action theories. Future studies can apply our research strategy to space-time budget data. With this kind of data, one can transfer the fixed-effects logic to other kinds of exposures and settings, like time spent in inner-cities on Friday nights. The space-time budget would ensure the link between exposure and observed behavior, while, at the same time, the selection into kinds of exposure would be controlled, and (at least) some differences between kinds of exposures would be held constant, whereas others could be varied.

In conclusion, our findings suggest that the action-theoretical research provides valuable insights into the explanation of criminal behavior independent of doubts concerning heterogeneity between exposures and the selection mechanism.

Chapter 4

Explaining cheating in schools with Situational Action Theory: Within-estimations using a German school panel*

*A different version of this chapter, co-authored by Maria Gerth, was published in *European Journal of Criminology* (Ernst and Gerth, 2021).

Abstract

Wikström's Situational Action Theory (SAT) explains rule-breaking by reference to the cognitive perception-choice process, which indicates how a person's propensity to break rules interacts with the setting's criminogeneity. SAT's situational model claims that the interaction between personal morality and the moral norms of the setting, the so-called moral filter, is critical in the explanation of rule-breaking, and that the influence of self-control is subordinate to this process. Self-control becomes relevant when individuals whose personal morality discourages rule-breaking are exposed to settings in which the moral norms encourage rule-breaking, that is, if the moral filter is conflicted. Whereas most previous studies have equated the moral filter with personal morality, we consider the moral norms of the setting as well. This allows for a more rigorous test of the moral filter, and thus the conditionality of self-control. Here, we investigate student cheating, using data from two waves of a large-scale German school panel study, and we conceptualise the setting's moral norms by reference to the descriptive norm: other students' cheating behaviour. This ensures the spatio-linkage between the setting's criminogeneity and rule-breaking, which is necessary for investigating SAT. Additionally, our estimation strategy – person and school fixed-effects – controls for alternative explanations by the selection of people into settings with different levels of criminogeneity. Moreover, it controls for heterogeneity across persons and schools. The findings are in line with SAT's predictions. In cases of a correspondence between personal morality and the moral norms of a setting, students with rule-abiding morality are least likely to cheat, whereas students with a rule-breaking morality are the most likely to cheat. Also, in line with SAT, self-control only matters for students with rule-abiding morality when they are exposed to moral norms that encourage rule-breaking.

4.1 Introduction

Crime is increasingly explained by reference to the interplay between person and environment (Barnum and Solomon, 2019; Beier, 2016; Berg et al., 2012; Ernst and Lenkewitz, 2020; Simons et al., 2014; Zimmerman, 2010). In this vein of research, Situational Action Theory (SAT; Wikström, 2006, 2014; Wikström et al., 2012) provides a particularly comprehensive and detailed framework that explicitly integrates person and environmental approaches, and puts their interplay at the centre of the explanation of crime.

SAT states that people, first, have to perceive rule-breaking as an action alternative, and then either act habitually or choose deliberately between action alternatives. The perception of rule-breaking action alternatives is constituted by a person's morality and the moral norms of the setting, the so-called moral filter, which 'sets the boundaries for the choice process' (Wikström et al., 2012: 17). If personal morality and the moral norms are in accordance, people follow their morality unconditionally (*principle of moral correspondence*). This is independent of their internal controls (self-control) and the external controls (deterrence). But if personal morality and the moral norms of the setting conflict, people deliberate. Only in this condition does self-control (as an internal control) and deterrence (as an external control) matter (*principle of the conditional relevance of controls*).

It follows that for an appropriate investigation of the principle of the conditional relevance of controls, it is necessary to address the configuration of the moral filter. However, quite surprisingly, research on the principle of moral correspondence is rare, and only a few studies have considered the interplay of personal morality and the moral norms of the setting when studying the principle of conditional relevance of controls (for exceptions, see Brauer and Tittle, 2017; Pauwels, 2018; Schepers and Reinecke, 2018). We add to this research on the principle of moral correspondence and the conditional relevance of self-control by explaining student cheating using data from a large-scale panel study in five German cities ('Friendship and Violence in Adolescence'). We focus on self-control because it matters whenever people deliberate about rule breaking; this is when their own morality and the moral norms conflict. First, self-control matters when persons with rule-abiding morality are exposed to the moral norms of a setting that encourage rule breaking. In this case, their ability to exercise self-control determines whether they will stick to their own morality (Wikström et al., 2012: 26). Second, when people with rule-breaking morality are in settings that discourage cheating, SAT proposes that deterrence (as an external control) becomes relevant. Nonetheless, also in this condition self-controls matters by conditioning the effect of deterrence (Hirtenlehner and Meško, 2019).

Our aim is to provide a methodologically more rigorous test by using schools as a strategic research site. Contrary to most of the existing SAT tests, we do not have to rely

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on measures of the moral norms of the setting that are not linked to the setting in which rules are broken, such as participants' self-reports about friends' deviant behaviour. Instead, we use the cheating of classmates to explain cheating in school. This brings us closer to a situational convergence, which is crucial in SAT (see Hardie, 2020). As cheating – by definition takes – place within the school setting, we can ensure that the observed behaviour is taking place at the moment that students are exposed to the influence of the moral norms of the setting. Additionally, by employing person as well as school fixed-effects models, we can control for selection into settings with different levels of criminogeneity, as well as unobserved heterogeneity across adolescents and schools. This allows us to attribute with greater certainty our findings to the proposed action-generating mechanism.

4.2 Situational Action Theory

SAT explains the breaking of moral rules as the outcome of a situational person– environment interaction (Wikström et al., 2012: 11–12). Situational causes lie in the interplay between persons' propensity for rule-breaking and the criminogeneity of the setting in which they take part. A person's propensity for rule-breaking (P) is determined by their morality (i.e. their personal moral rules and their moral emotions, guilt and shame) as well as by their ability to stick to those moral rules when externally pressured to break them (i.e. their ability to exercise self-control). A setting is defined as the environment (E) an actor perceives at a particular moment in time (Oberwittler and Wikström, 2009: 36), and is characterised by its criminogeneity. The setting's criminogeneity depends on the moral context, i.e. the moral norms it conveys, and the ability to enforce these norms in a specific situation, deterrence. The strength of a moral norm that applies to a setting 'is the degree to which it is shared by those taking part in the setting' (Wikström, 2010: 222). This criminogenic interaction (P x E) initiates a cognitive perception-choice process (Wikström et al., 2012: 17–22), which is depicted in figure 4.1.

The starting point of this perception-choice process is the presence of a motivation, such as temptation or provocation (otherwise path a). First and foremost, the perception is guided by the so-called moral filter, which is constituted by personal morality and the moral norms of the setting. The moral filter determines whether a person perceives rule-breaking as an action alternative in response to a motivation.

According to the *principle of moral correspondence*, under conditions of correspondence between personal morality and the moral norms of the setting, people are most likely to perceive only those action alternatives that are in line with their morality. If people perceive only this one action alternative, they will habitually follow their morality without active

consideration (Wikström et al., 2012: 19). If people with rule-abiding morality are exposed to moral norms of a setting that discourage rule-breaking, it is unlikely that they will perceive rule-breaking as a viable action alternative and, thus, it is unlikely that rules will be broken (path b). Therefore, we hypothesise that *when students with a rule-abiding morality are in classrooms with moral norms that discourage cheating, they will be unlikely to cheat (Hypothesis 1.1)*.

In cases in which people's morality and the moral norms of the setting encourage rule-breaking, people will habitually break the rules when a motivation to do so is present (path c). It follows that *when students with a rule-breaking morality are in classrooms with moral norms that encourage cheating, they will be likely to cheat (Hypothesis 1.2)*.

Only if people's own morality conflicts with the moral norms of the setting does a deliberative choice process determine whether people will break a rule² (Wikström et al., 2012: 26). According to the *principle of conditional relevance of controls*, it is only in situations where persons with rule-abiding morality are exposed to moral norms that encourage rule-breaking that self-control matters independently of setting's deterrence (Wikström et al., 2012: 26). People with high self-control will be able to withstand the external pressure and not break the rules (path d), while people with low self-control, who cannot withstand the external pressure, will break the rules (path e). Hence, *when students with a rule-abiding morality are in classrooms with moral norms that encourage cheating, their likelihood of cheating depends on their ability to exercise self-control (Hypothesis 2)*

4.3 Literature review

Empirical evidence relating to our hypotheses is limited. While a wide range of factors has been identified as being associated with student cheating, such as attitudes and beliefs regarding cheating (e.g. Eisenberg, 2004; Teixeira and Rocha, 2008), self-control (e.g. Cochran et al., 1998; Muraven et al., 2006; Williams and Williams, 2012), moral norms (e.g. Eisenberg, 2004; Teixeira and Rocha, 2008) and peer influence (e.g. McCabe, 1992; McCabe and Trevino, 1997), only a few studies speak to SAT's principle of moral correspondence and the conditional relevance of self-control.

We review the limited empirical evidence on cheating in the next section. Given the small amount of research on cheating relating to our research interest, we also review the SAT

²This is also the case when individuals are in unfamiliar circumstances (Wikström et al., 2012: 22). Assuming that adolescents will usually be in situations with high familiarity when they are in school, we do not discuss this any further.

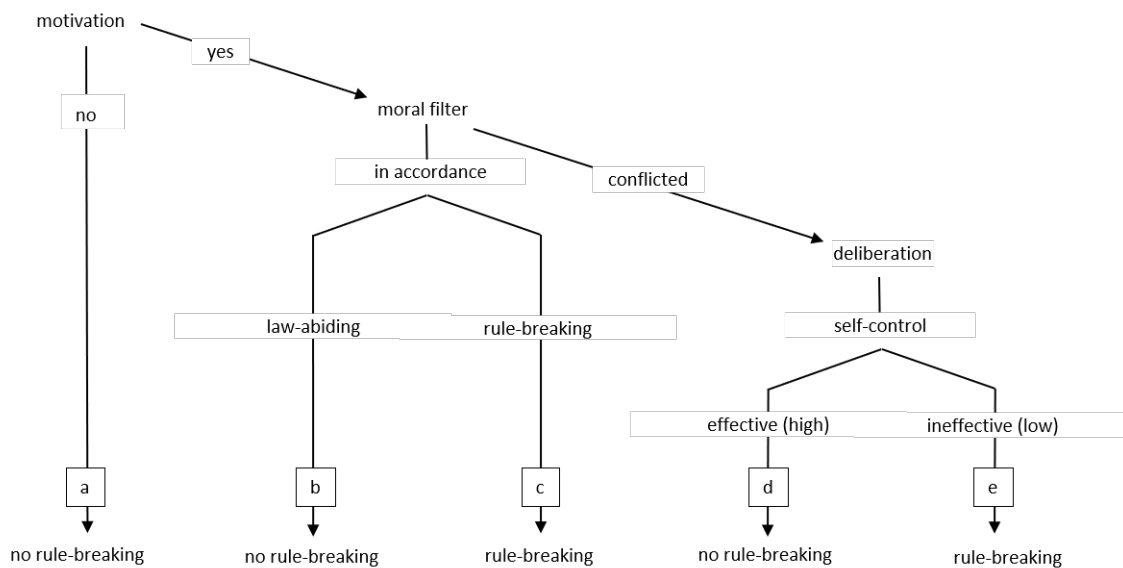


Fig. 4.1 Perception-choice process (following Wikström, 2017)

literature that addresses the principle of moral correspondence and the conditional relevance of self-control on rule-breaking acts other than cheating.

4.3.1 Studies on cheating

Studies that take both morality and moral norms into consideration usually assume independent effects of both (e.g. Eisenberg, 2004; Jordan, 2001; Salter et al., 2001; Schuhmann et al., 2013; Teixeira and Rocha, 2008). The few studies that test an interactive influence of morality and the norms of the setting, which speaks to the *principle of moral correspondence*, find mixed results. Studying the influence of students' morality on their cheating, Malinowski and Smith (1985) found that students with a rule-breaking morality cheated more. At the same time, they found that those with a rule-abiding morality cheated when they felt more tempted to cheat. By contrast, when studying the interplay of morality and moral norms among college students O'Rourke et al. (2010) found that those who considered cheating unacceptable (i.e. those with a rule-abiding morality) were little affected by direct knowledge about someone else's cheating. For those with a rule-breaking morality who considered cheating more acceptable, knowing that someone else cheated increased their likelihood of cheating.

Regarding the *conditional relevance of self-control*, we did not find a single study testing SAT's proposed three-way interaction between morality, moral norms, and self-control in relation to cheating. Even studies taking into consideration the influence of all three factors independently are rare, and only provide mixed results. For example, Bolin (2004) found no

direct relationship either of the moral norms of the setting or of self-control with cheating in a sample of university students in the US. However, he found that both moral norms and self-control had an indirect effect on cheating via morality. On the other hand, Tibbetts and Myers (1999) found that friends' cheating, and morality, each influenced the cheating intention of university students independently, but that the strong association of self-control with cheating propensity was accounted for by the effects of other variables, most notably shame (which taps into the morality conceptualisation of SAT). Freiburger et al. (2017) found that self-control and cheating morality had a direct effect on cheating in a sample of US university students, but the influence of friends' cheating was entirely mediated by the perceived likelihood of getting caught.

4.3.2 SAT tests on other outcomes than cheating

Turning to studies testing SAT's principle of moral correspondence and the conditional relevance of self-control for outcomes other than cheating, the evidence is also scarce and inconclusive.

Regarding the *principle of moral correspondence*, a vignette study with Bangladeshi adults found independent effects of rule-abiding morality and exposure to the moral norms of the setting on the intention to engage in violent offending (Brauer and Tittle, 2017). However, there was no evidence for the interaction between personal morality and the moral norms as predicted by SAT's moral filter. In this study, the moral norms of the setting were captured by participants' perceptions of friends' and families' moral assessment of the use of violence, as well as participants' perceived use of violence in their neighbourhood. By contrast, a vignette study among Belgian secondary education and university students found support for the principle of moral correspondence (Pauwels, 2018). In line with SAT's predictions, the most substantial share of the respondents contemplated violence in the condition of moral correspondence when both their personal morality and the moral norms of the setting encouraged rule-breaking; the smallest share to do so was found when personal morality and the moral norms of the setting discouraged rule-breaking.

Both studies tested the *conditional relevance of self-control* as well. Again, evidence on this is inconclusive³. Pauwels (2018) finds that self-control influences the reporting of the use of violence irrespective of the configuration of the moral filter. Thus, contrary to

³Indirect support for the conditional relevance of self-control comes from studies testing the interaction between morality and self-control (e.g. Kroneberg and Schulz, 2018; Pauwels, 2012; Pauwels and Svensson, 2017; Svensson et al., 2010; Wikström and Svensson, 2010; Gallupe and Baron, 2014), as well as those testing the conditionality of controls on the moral norms of the setting (e.g. Hirtenlehner and Hardie, 2016). Because those studies do not address the principle of moral correspondence, we do not include them in our literature review.

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SAT's predictions, self-control influences the contemplation of violence not only in the condition of conflict between personal morality and the moral norms but also in the scenario of moral correspondence. Whereas SAT predicts that only people with a rule-abiding morality who are exposed to rule-breaking moral norms of the setting should be influenced by self-control. Brauer and Tittle (2017) find that self-control (operationalised as impulsivity) only increases the likelihood of perceiving and contemplating violence as a realistic possibility for participants with a rule-breaking morality.

Schepers and Reinecke (2018) compare the influence of self-control (operationalised as risk-seeking) across subgroups based on the level of morality and the level of the moral norms of the setting (operationalised as participants' reports about their friends' delinquent behaviour) in two cohorts of German middle school students. While they find that the effect of self-control is conditional on the specific combination of personal morality and the setting's moral norms, they also find that self-control has an influence in subgroups of moral correspondence.

4.3.3 Limitations of existing studies

The fact that these studies provide mixed evidence about the principle of moral correspondence and the conditional relevance of self-control could be due to methodological shortcomings that result in two challenges.

The first challenge is the mismatch between the theoretical presupposed convergence and the actual measurement of actors exposure to a behavioural setting and rule-breaking. For testing SAT's situational model, it is crucial that we spatially link the exposure to the observed act of rule-breaking (Wikström et al., 2012; for a detailed discussion Hardie, 2020). Studies using observational data often rely on indirect measures of criminogenic exposure and could only assume that an actor is exposed to a behavioural setting in the moment of crime occurrence (besides studies using space-time budget data, see Gerth, 2020; Wikström et al., 2018). These indirect measures of exposure, such as the rule-breaking of friends (Freiburger et al., 2017; Schepers and Reinecke, 2018; Tibbetts and Myers, 1999), do not provide information about whether a specific act of rule-breaking happened when those friends were present.

Additionally, the selection mechanism challenges the investigation of the action-generating mechanism (on this point, see also Ernst and Lenkewitz, 2020). Explaining and testing the action-generating mechanism presupposes the convergence between actors and their exposure to behavioural settings. The selection mechanism precedes SAT's situational model by explaining how the convergence comes about. Although SAT recognises both mechanisms theoretically, studies on observational data, that do not inform about the circumstances under

which rule-breaking emerged, cannot disentangle whether the observed outcome is due to selecting different kinds of people into different kinds of places or SAT's situational model. This aspect is significant as people systematically select themselves, and are selected into, settings with different levels of criminogeneity (Wikström et al., 2010; Wikström and Treiber, 2016).

4.4 Present study

We aim to provide a stricter test of the principle of moral correspondence and the conditional relevance of self-control than previous studies have done by focussing on the initial condition of the perception-choice process, the interplay between personal morality and the moral norms of the setting, and by addressing the outlined methodological challenges. Hereto, we investigate school cheating and make strategic use of the school setting.

Addressing the challenge of spatio-linkage, we make use of the fact that school cheating is committed within the school, and we operationalise the moral norms of the setting by a measure capturing the cheating of the other students in the class (the descriptive norm). Thus, the link between the moral norms of the setting and rule-breaking is ensured. Moreover, the descriptive norm corresponds to SAT's twofold argument about the moral norms of the setting, which addresses the definition of the moral norms and their perception. On the one hand, the perception links an actor to the behavioural setting (Wikström, 2006). Thus, it is not an objective rule that guides the actor, but rather their subjective perception of that rule at that moment. Even though cheating, by its very nature, is committed secretly, and may not be seen, we assume that students of the same class will discuss it, and, thus, it becomes perceivable for the actor. On the other hand, moral norms are an attribute of the behavioural setting actors are exposed to (Oberwittler and Wikström, 2009; Wikström, 2006). The descriptive norm corresponds to SAT's consideration that the strength of the moral rule reflects 'the degree to which it is shared by those taking part in the setting' (Wikström, 2010: 222). Evidence shows that people act by reference to the behaviour of others in the behavioural setting they are exposed to, and thus are oriented towards the descriptive norm (Cialdini et al., 1991; Paternoster et al., 2013).

Additionally, we aim to ensure that our analytical strategy addresses the proposed action-generating mechanism and thus control the selection mechanism. In combination with within-estimators, the school setting is particularly suitable for testing action-theories, such as SAT, as schooling is compulsory and exposure to the school setting varies on fewer dimensions than other comparisons of exposure. As the within-estimators only compare students with themselves, by using person fixed-effect estimators, and students of the same

school with each other, by using school fixed-effects estimators, far-reaching aspects of the selection mechanism, namely the school track choice and school choice, are controlled for (for the use of fixed-effects estimation, see Allison, 2009; Andreß et al., 2013). Additionally, the use of person fixed-effects eliminates time-invariant person characteristics, and the use of school fixed-effects eliminates constant school attributes.

4.5 Data and measures

This study is based on data from the German large-scale school panel study ‘Friendship and Violence in Adolescents’ (Kroneberg et al., 2016), conducted in five cities in the metropolitan Ruhr area. Because data on cheating were collected only in wave 3 and wave 4, we limit our analysis to these waves. Data collection took place between September and December of 2015 (wave 3; 9th grade) and 2016 (wave 4; 10th grade). Apart from special needs schools, all schools with the respective grades were asked to participate with their entire grades⁴. In wave 3, a total of 46 of 55 of all requested schools (wave 4: 45 of 52), and 3,793 of 4,400 (wave 4: 3,809 of 4,320) students participated, which yields a student participation rate of 86% (wave 4: 88%). Most participants attend a comprehensive school (34%) or an intermediate secondary school (32%; upper secondary school: 22%; lower secondary school: 12%). Our analysis sample comprises of 3,038 observations (52% boys; median age in wave 3: 15 years).

The study used an Audio-Computer Assisted Self-Interview (Audio-CASI); all questions were presented in text and audible via headphones, to increase confidence and improve comprehension of survey questions (Beier and Schulz, 2015). Participants used netbooks provided by the research team.

Cheating

The dependent variable cheating captures students’ cheating incidence in the last 12 months. ‘*How often have you cheated in the last 12 months (i.e. since October 2015)? If you don’t know exactly, then please guess as best you can.*’. (For a descriptive overview of all measures, see table 4.1)

Moral norms of the setting

We use the same question for creating a measure reflecting the moral norms of the setting, i.e. the descriptive norm. For each participant, we estimate the share of their classmates

⁴Upper secondary schools (Gymnasien) were included in only three of the five cities. While Gymnasien could not be considered in waves 1 and 2 due to budgetary restrictions, increased funding allowed them to be included in the cities with the highest participation rate.

Table 4.1 Descriptive statistics

Variable	Observations	Mean	Std. Dev.	Min	Max
Cheating (DV)	3,038	1.7	2.86	0	30
Descriptive Norm	3,038	.53	.17	.07	.95
Morality	3,038	.31	.16	0	1
Self-control	3,038	.39	.17	0	1

who reported at least one cheating incident in the 12 months preceding data collection. We estimate scores for each participant individually and exclude participants' own cheating score, in order to create a context measure that is not confounded with participants' own cheating. As we argued above, our operationalization rests on the assumption that students perceive their classmates' cheating.

Morality

For the sake of comparability with previous SAT tests, we use measures comparable to the personal morality scale used in PADS+ (Wikström et al., 2012: 132). For 18 different acts of rule-breaking – such as *'hitting a classmate so that he or she bleeds'*, or *'smashing a streetlight for fun'* – participants were asked how bad they think these acts are. Response options ranged from 1 *'not bad at all'* to 4 *'very bad'* (see Appendix A for a list of all items). We averaged the answers to all 18 items to build our measure of personal morality. The scale was transformed so that low values represent a rule-abiding morality and high values a rule-breaking morality. Although these measures do not refer to specific situations, we follow the interpretation that these generalised measures are related to adolescents' personal morality in specific situations (Wikström et al., 2012: 132).

Self-control

Self-control was only measured in wave 3. In line with previous studies on SAT, we use an adaptation of PADS+ measure of self-control (Wikström et al., 2012: 136) which is based on the Grasmick scale (Grasmick et al., 1993), with items such as *'I lose my temper pretty easily'* and *'I sometimes find it exciting to do things that may be dangerous'* (see Appendix A for a list of all items). Response options ranged from 1 *'strongly agree'* to 5 *'strongly disagree'*. Responses were averaged. High values represent low self-control.

4.6 Analytical strategy

To test our hypotheses derived from SAT's principal of moral correspondence and conditional relevance of controls, we employ within-estimators in the form of person and school fixed-effects.

$$(y_{i,s,t} - \bar{y}_{i,s}) = \beta_1(m_{i,s,t} - \bar{m}_{i,s}) + \beta_2(dN_{i,s,t} - \bar{d}n_{i,s,t}) + (\alpha_i - \alpha_i) + (\lambda_s - \lambda_s) + (\epsilon_{i,s,t} - \bar{\epsilon}_{i,s,t}) \quad (4.1)$$

As can be seen from equation (4.1), differences in cheating behaviour, $y_{i,s,t}$, for student i in school s at time t are regressed on differences from the specific means in the independent variables, student i 's morality at time t , $m_{i,s,t}$, and the descriptive norm student i is exposed to at time t , $dN_{i,t}$.

The effects of person time-invariant heterogeneity, α_i , and heterogeneity between schools, λ_s , are cancelled out. However, this advantage comes with less efficient estimates as the standard errors of within-estimates are relatively large as all betweenness variation is cancelled out (Allison, 2009: 17).

To test our hypotheses, we specify interaction effects. For the principle of moral correspondence (hypotheses 1.1 and 1.2), we test the interaction effect of personal morality and the moral norms of the setting. For the test of the conditional relevance of self-control (hypothesis 2), we divide the sample into three different groups based on their morality. For each group, we estimate the interaction of self-control with the moral norms of the setting separately. As morality is highly skewed (Kroneberg and Schulz, 2018), with only a few participants judging the various rule-breaking acts as '*not bad at all*' or '*not bad*', we classify students who have an average of .5 on the morality scale as having a rule-breaking morality. Students with an average between .2 and .5 are classified as having a medium morality, and students with an average below .2 are classified as having a rule-abiding morality.

In our models, we include all constitutive terms alongside the interaction and, therefore, we interpret the coefficients of the constitutive terms as conditional effects (as advised by Brambor et al., 2006). To ease the interpretation of the interaction effects, we standardise both independent variables to the interval between 0 and 1 (Braumoeller, 2004).

The interaction effects are also presented in marginal effect plots, alongside histograms (see Hainmueller et al., 2019; Xu et al., 2017). The histogram shows areas of common support between the moderator and predictor and allows us to see whether the prediction of the marginal effects is covered by the data. If the data would not support the prediction, the effect would be extrapolated to combinations of the moderator and predictor that do not exist.

Table 4.2 Principle of moral correspondence (on cheating incidence)

	Model 1	Model 2	Model 3	Model 4
Morality (M)	3.15*** (0.68)	-0.57 (1.39)	3.13*** (0.69)	-0.45 (1.36)
Descriptive norm (dN)	2.22*** (0.34)	-0.09 (0.66)	2.22*** (0.34)	0.02 (0.71)
M*dN		6.85** (2.19)		6.40** (2.23)
Constant	-0.33 (0.27)	0.92* (0.41)	-0.32 (0.27)	0.90* (0.43)
Person fixed-effects	x	x	x	x
School fixed-effects	-	-	x	x
Observations	3,038	3,038	3,038	3,038

Notes: reghdfe, vce(cluster); Standard errors in parentheses;

All variables are standardized on the unit interval [0,1] ;

+ p <0.1, * p <0.05, ** p <0.01, *** p <0.001

4.7 Results

We now present our results, starting with our findings on the principle of moral correspondence (hypotheses 1.1 and 1.2) and then turning to the conditional relevance of self-control (hypothesis 2).

Principle of moral correspondence

Table 4.2 shows the results for our investigation of the principle of moral correspondence. Models 1 and 2 give the person fixed-effect estimators. Models 3 and 4 also control – in addition to the time-constant person heterogeneity – for school heterogeneity in the form of school fixed-effect estimators. Models 1 and 3 show the independent effects of morality and the descriptive norm on cheating. In general, a rule-breaking morality increases on average students' cheating (Model 1: 3.15; Model 3: 3.13), as does an increase in the rule-breaking descriptive norms (Model 1: 2.22; Model 3: 2.22). As we turn to models 2 and 4, which include the interaction effects, the significant interaction terms M*dN indicate that the association between personal morality and cheating depends on the moral norm of the setting. To test hypotheses 1.1 and 1.2, we compare a given level of personal morality under changes in the descriptive norm, and then we compare a given level of the descriptive norm under changes in personal morality, for each hypothesis.

From hypothesis 1.1, it follows that students with a rule-abiding morality cheat less when they are exposed to moral norms that discourage cheating than when they are exposed

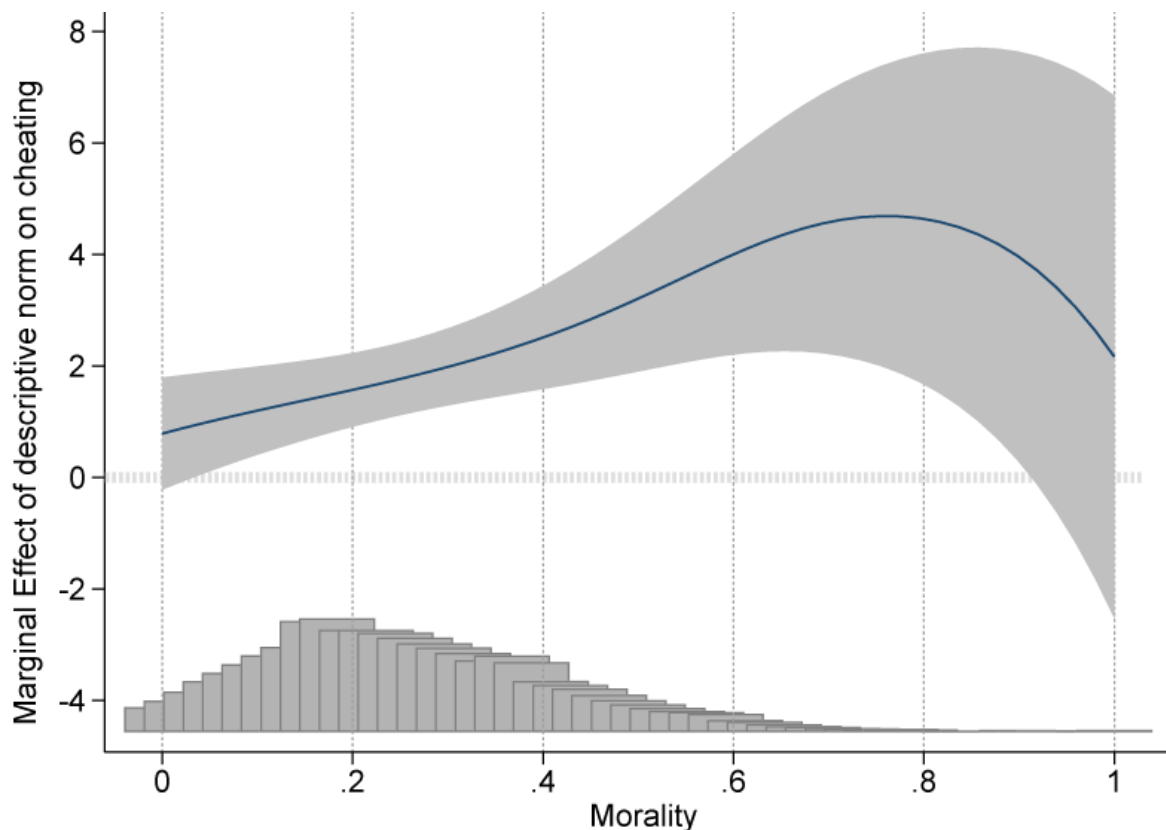


Fig. 4.2 The dark line and grey 95% confidence interval band depicts the conditional marginal effects of the school fixed-effect estimation, model 2. The graph reports the marginal effects of the descriptive norm on the incidence of cheating for different levels of personal morality.

to moral norms that encourage cheating. However, the results show that students with a rule-abiding morality on average do not change their cheating behaviour following the descriptive norm (Model 2: $-.09$; Model 4: $.02$) but have a low likelihood of cheating in general. Moreover, it follows from hypothesis 1.1 that students with a rule-abiding morality cheat less than students with a rule-breaking morality if both are exposed to moral norms that discourage cheating. Our results show that, on average, personal morality makes no substantial difference in cheating if students are exposed to moral norms of the setting which discourage cheating (Model 2: $-.57$; Model 4: $-.45$). Thus, our results on hypothesis 1.1 are inconclusive. On the one hand, the comparison between different levels of morality being exposed to moral norms that discourage cheating, and the comparison of students with a law-abiding morality being exposed to different levels of the descriptive norm, do not show significant differences. On the other hand, students with a rule-abiding morality that are exposed to moral norms that discourage cheating are unlikely to cheat, as predicted by SAT.

Analogous implications result from hypothesis 1.2. In line with our expectations, we find that students with a rule-breaking morality cheat, on average, more if they are exposed to moral norms that encourage cheating than if they are exposed to moral norms that discourage cheating (Model 2: $-.09+6.85$; Model 4: $.02+6.40$). Moreover, we find that, as we would expect from hypothesis 1.2, students with a rule-breaking morality cheat, on average, more than students with a rule-abiding morality when they are exposed to moral norms that encourage cheating (Model 2: $-.57+6.85$; Model 4: $-.45+6.40$).

Figure 4.2 illustrates the findings of Model 2. The figure shows the marginal effects of the descriptive norm on cheating behaviour, on the y-axis, given different levels of personal morality, x-axis. The grey area represents confidence intervals. We see that students with the very highest level of rule-abiding morality are not influenced in their cheating by exposure to different levels of the descriptive norm. For this group, the confidence interval includes zero. As consent to rule-breaking morality increases, exposure to different levels of the descriptive norms affects cheating substantially.

Principle of conditional relevance of controls

Now we turn to the results on the principle of the conditional relevance of self-control, and thus our sub-group analysis. Models 5 to 10 in table 4.3 give school fixed-effect estimators on data of wave 3. We find that in all morality subgroups, with a decrease in self-control, cheating becomes more likely (Model 5: 1.94; Model 7: 2.82; Model 9: 3.06). Likewise, all groups are affected by an increase in the descriptive norm. As the share of classmates who cheat increases, students are more likely to cheat themselves (Model 5: 1.09; Model 7: 1.86; Model 9: 2.28).

The findings on the interaction between self-control and the descriptive norm supports SAT's principle of the conditional relevance of self-control. Following this principle, we hypothesised that self-control only influences the choice process when students with a rule-abiding morality are exposed to moral norms of the setting that encourage cheating. In line with that hypothesis, we find that neither in the medium-morality group (see Model 8: *n.s.*), nor in the rule-breaking morality group (see Model 10: *n.s.*), does the association of self-control with cheating depend on levels of the descriptive norm. On the contrary, and following our expectations, we see that the association between self-control and cheating depends on the level of the descriptive norm in the rule-abiding morality group (see Model 6: 9.75).

Table 4.3 Conditional relevance of self-control (on cheating behaviour)

	Rule-abiding morality		Medium morality		Rule-breaking morality	
	Model 5	Model 6	Model 7	Model 8	Model 9	Model 10
Descriptive norm (dN)	1.09* (0.48)	-1.79** (0.64)	1.89*** (0.44)	1.30 (1.27)	2.28 (1.63)	6.61 (4.38)
Self-control (Sc)	1.94*** (0.45)	-3.00* (1.29)	2.82*** (0.46)	2.05 (1.48)	3.06* (1.29)	7.68 (5.22)
dN*Sc		9.75*** (2.57)		1.44 (2.78)		-8.69 (9.06)
Constant	-0.32 (0.32)	1.12** (0.35)	-0.29 (0.23)	0.00 (0.65)	0.23 (0.81)	-2.06 (2.42)
Observations	693	693	1,997	1,997	383	383

Notes: reghdfe, vce(cluster); Standard errors in parentheses;
 All variables are standardized on the unit interval [0,1] ;
 + p <0.1, * p <0.05, ** p <0.01, *** p <0.001

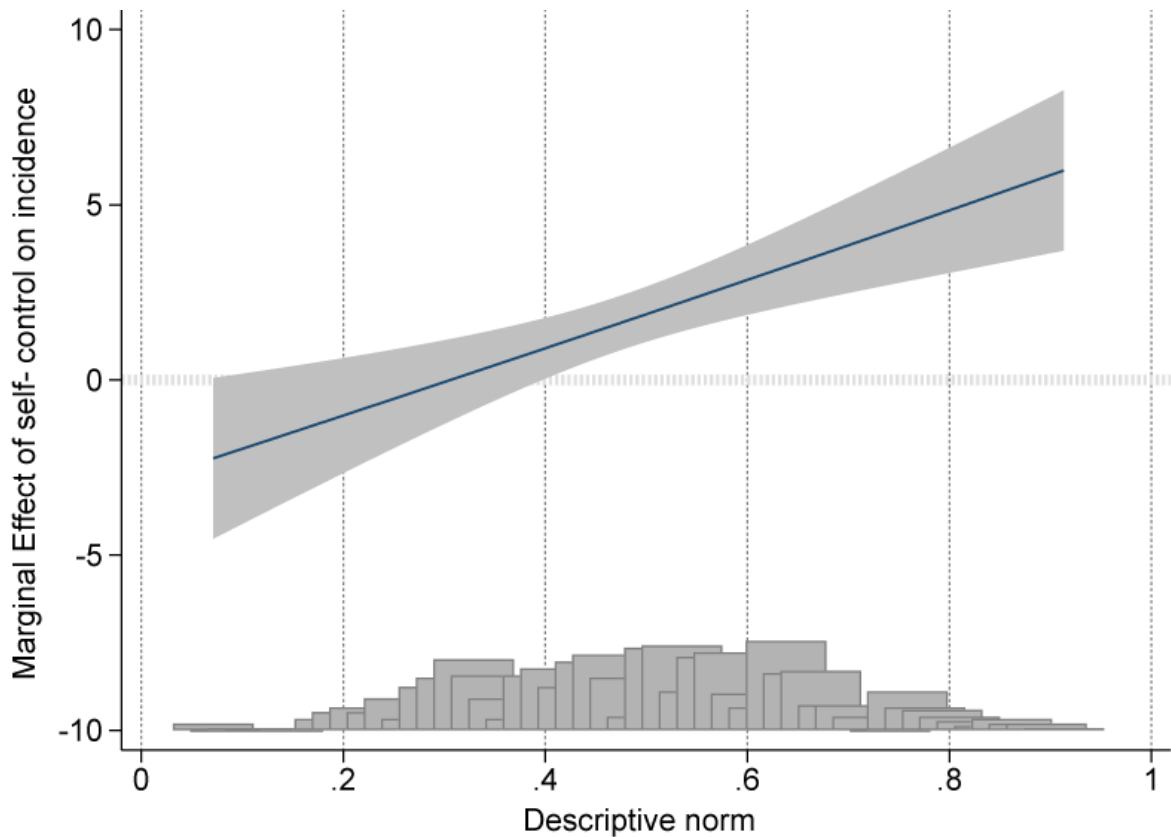


Fig. 4.3 The dark line and grey 95% confidence interval band depicts the conditional marginal effects of the school fixed-effect estimation, model 6. The graph reports the marginal effects of self-control on the incidence of cheating for different levels of the descriptive norm for the group of students with a rule-abiding morality.

Figure 4.3 illustrates this relation and shows the marginal effects of self-control for different levels of the descriptive norm for students with a rule-abiding morality. In line with our expectations, self-control only has a significant effect on cheating when the number of students who cheat is high, and thus the moral norms of the setting encourage cheating. In this case, a decrease in self-control increases cheating.

4.8 Discussion

This study provides a rigorous test of SAT's principles of moral correspondence and the conditional relevance of self-control. By combining within-estimators with data from the German school study 'Friendship and Violence in Adolescence', we study student cheating in the setting of its occurrence – the classroom – bringing us closer to the spatio-linkage that is crucial in testing SAT (Hardie, 2020). This comes with the advantage of a stricter

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control for selection into settings with a certain level of criminogeneity and the accompanying unobserved heterogeneity. Moreover, we explicitly address the interplay between personal morality and the moral norms of the setting when testing the conditional relevance of self-control. By investigating cheating, this study also joins the growing body of literature (Beier, 2018; Cochran, 2015; Gerth, 2020) that applies SAT in the context of rule-breaking, which is not restricted to types of behaviour covered by laws.

In line with SAT's principle of moral correspondence, we find that in classes where students' morality is in correspondence with the class moral norms, they are likely to follow their own morality. Students with a rule-abiding morality in classes where cheating is uncommon do not cheat often. On the other hand, students with a rule-breaking morality in classes with a high share of cheating classmates cheat more often than when they are in classrooms that discourage cheating.

In line with the principle of the conditional relevance of self-control, the ability to exercise self-control has an impact on cheating only when students' morality and the moral norms are in conflict. When exposed to norms that encourage cheating, students with a rule-abiding morality and high self-control can stick to their morality and cheat less, whereas students with a rule-abiding morality and low self-control cheat more often.

However, we also find that under moral norms that discourage cheating, personal morality does not influence cheating. Following SAT, this may imply a lack of motivation to cheat, so that the perception-choice process is not stimulated, or that students perceive an extreme level of deterrence, so that even students that might be likely to cheat distance themselves from cheating as an action alternative. Therefore, we cannot ignore the possibility that the descriptive norm reflects, in addition to the moral norms of the setting, a setting's deterrence ability.

Our work has some limitations. Data restrictions force us to rely on a very general measurement of morality that does not include cheating-specific morality. Therefore, we can only assume that the general level of morality corresponds to the specific cheating morality. Given that research explicitly addressing this issue in the context of SAT is rare, this would be an interesting area for future investigation. Moreover, in a close reading of SAT, personal morality is not only comprised of a person's law-relevant moral rules but also of their moral emotions, guilt and shame (Wikström et al., 2012). This issue did not receive much attention in SAT tests in general (for an exception, see e.g. Trivedi-Bateman, 2019) and should be examined in the future. Another issue that needs further investigation is the empirical existence of the habitual pathway which is usually only assumed (for an exception see Beier, 2016).

Even if we could approach the spatio-linkage between exposure and rule-breaking behaviour, we still could not address the temporal dimension (for this point, see Hardie, 2020). Although students are familiar with the behaviour of their classmates, cheating might result from a motivation to cheat in a specific subject or even a specific exam. Additionally, cheating may vary by students' perceptions of the deterrence abilities of teachers, or moral norms might differ when students are taught in different classes for different subjects. While our study shares this limitation with all studies that use regular observational data, we would encourage research looking more closely at the situational level, such as vignette studies or space-time budgets.

Comparing students within different classes in the same school allows to draw a very practical conclusion from our findings. Students with rule-breaking morality may cheat when exposed to many others who cheat, but not when exposed to fewer others who cheat. This suggests that moving students with rule-breaking morality into classes with cheating discouraging moral norms would be an effective way of reducing individual cheating behaviour. Moreover, this supports the creation of moral norms in schools in which deviance is deemed unacceptable.

Chapter 5

Conclusion

Conclusion

Explaining human behaviour is of significant concern for sociology as well as criminology. For sociology, behaviour is located at the lowest level of the model of sociological explanation and thus is the fundamentals with which macro-phenomena are explained. In criminology – with its interest in a special kind of behaviour, namely rule-breaking or even crime – understanding these behaviours is necessary for developing prevention measures (Cao, 2020; König, 1968). According to action-theoretical approaches, in both disciplines, behaviour is seen as the result of the interplay between a person and the behavioural setting they are exposed to. While theorising about this action-generating mechanism has increased in complexity to recognise dual-process theories of cognition and framing, investigating the action-theoretical mechanism still relies heavily on assumptions on the micro-level. However, improved data and estimation processes allow researchers to actually test the action-generating mechanism with increasing rigour.

In this pursuit for advanced testing of the action-generating mechanism, I have identified the selection mechanism as a main challenge. While the action-generating mechanism takes the match between a person and a behavioural setting as given, the selection mechanism explains this match, and findings on selection show that certain types of people are systematically exposed to certain types of behavioural settings. This raises questions about the relation between the action-generating mechanism and the selection mechanism. From a merely theoretical point of view, the selection mechanism is the predecessor of the interplay between person and behavioural setting, as people must enter a behavioural setting before they may be influenced by it. The systematic selection of people into kinds of exposure, perhaps influenced by their criminal propensity, raises challenges for investigating the action-generating mechanism in the absence of appropriate comparisons and counterfactuals.

To control for selection when analysing the action-generating mechanism, I used fixed-effects estimators in combination with the school setting and applied this research strategy to three empirical studies. Thus, I was able to investigate whether exposure to a behavioural setting has an independent effect on rule-breaking.

5.1 Towards a first answer – Related to the used theories

Before reviewing the research question in light of the overall value of explaining rule-breaking via the action-generating mechanism, I will begin by noting the theoretical contribution of each study. Following Anderson's ethnography *The Code of the Street*, Chapter 2 examined violent offending for the sake of status gains. This use of violence depends on code internalisation – that is, a set of informal rules that guide interpersonal and public behaviour, especially violence – and whether the behavioural setting rewards violent offending with

5.1 Towards a first answer – Related to the used theories

high status ascription. Like Anderson, I found that people become more violent with an increase in code internalisation and that the use of violence is conditional on the behavioural setting's ascribing high status to violent offenders. Students with strong code internalisation react to behavioural settings and become violent if others in the setting reward violence with status ascription. On the other hand, students with low code internalisation are less likely to offend violently, even if they are exposed to settings that reward violence with status gains.

While Anderson's initial finding originated from an ethnographic study in a disadvantaged American neighbourhood, I found that the violence-underlying relation between code internalisation and status ascription also occurs in German schools. This is noteworthy as the two contexts seem remarkably different from each other. However, the within-school variability in code internalisation and status ascription to violent offenders allowed me to replicate Anderson's findings.

In Chapters 3 and 4, I subjected Wikstöm's Situational Action Theory to a more rigorous test than it has previously endured. SAT is characterised by explicit statements of the action-generating mechanism and the configuration of the interplay between a person's crime propensity and the behavioural setting people are exposed to under which rule-breaking emerges. Chapter 3 addressed the interindividual differences derived from SAT and applied them to investigating school violence. In line with the theoretical expectations, I found that students low in crime propensity are unlikely to offend violently, even as they are exposed to violence-encouraging descriptive norms. On the other hand, students with high crime propensity adapt their violent behaviour to the descriptive norm in their setting. When exposed to violence-encouraging descriptive norm, crime-prone students (i.e., students with a high crime propensity) are more violent than when they are exposed to a violence-discouraging descriptive norm.

Chapter 4 drew from SAT's cognitive perception-choice process and the derived principle of moral correspondence, as well as the conditional relevance of controls, and applied them to students' cheating behaviour. In line with SAT's principle of moral correspondence, I found that students with a law-abiding morality who are exposed to cheating-discouraging moral norms are unlikely to cheat. By contrast, students with a deviant morality who are exposed to moral norms that encourage cheating are likely to cheat. According to the principle of moral correspondence, self-control matters for students with a law-abiding morality only if they are exposed to cheating-encouraging moral norms. For these students with a decrease in self-control, cheating becomes more likely.

Chapters 3 and 4 are two of the few studies that take into account the moral norms of the behavioural setting that actors are exposed to and include them in tests on actual behaviour rather than hypothetical scenarios. Taking exposure to the moral norms into

Conclusion

account is significant for comprehensive tests of the cognitive perception-choice process and the principle of moral correspondence and the conditional relevance of controls. My findings indicated that the detailed description of the cognitive process is not an end in itself but adds empirical value to the explanation of rule-breaking.

Next, I will reflect on my research strategy. I introduced a new measurement strategy to investigate the action-generating mechanism and better connect an actor's exposure to a behavioural setting and their reaction to the behavioural setting. To do this, I used participants' answers to the sociometric module of the FVA project. In Chapter 2, the status-violence norm, in Chapter 3, the descriptive norm on violence, and in both chapters, violent relationship as the dependent variable, were used as proxies for violent behaviour. Chapter 4 used the well-known measurement of other people's behaviour as an operationalisation of the descriptive norm. These measurements reduce the assumptions about the coincidence of behaviour and the influence of exposure and test the relation between behaviour and exposure more directly. (The limitations of this approach are discussed in the next section.)

Using fixed-effects estimators in the school setting has another significant advantage over research that compares exposure to other behavioural settings. In schools, potential changes in exposure are not merely hypothetical scenarios as they can plausibly occur (on the importance of comparisons, see Mummolo and Peterson, 2018). Students can be assigned to different classes and thus be exposed to different levels of the descriptive norm or status-violence norm. Approaches that cannot specify the geographical location and circumstances under which rules are broken cannot state whether a potential change of exposure to behavioural settings with different levels of criminogeneity is likely to occur. A significant change, such as the neighbourhood or adolescents' leisure activities, remains rather hypothetical.

Nevertheless, I cannot exclude the possibility that other properties related to the observed contexts are responsible for, at least parts of, the findings. Here, especially behavioural settings with only minor violence and minor cheating, in which even crime prone actors rarely break rules, are puzzling. The low number of cases of rule-breaking can be explained in these settings through particularly pronounced deterrence through which even crime prone actors are deterred.

5.2 Challenges for my approach

The action-generating mechanism explains rule-breaking as a result of the interplay between a person's criminal propensity and their exposure to behavioural settings in the very moment of a crime's occurrence. While some approaches, such as versions of rational choice theory,

assume ‘as if’ people deliberate, other approaches assume actual deliberation – or even more far-reaching cognitive processes in the case of the dual-process framework of cognition. This level of detail is not reflected in most studies, and it is also missing from mine. Therefore, I will discuss some limitations of my measures regarding the temporal (a.) and spatial dimensions (b.). Then, I will discuss the discrepancy between the theoretical proposed mechanism and the performance of actual tests (c.) and reflect on testing the action-generating mechanism with the FVA data (d.).

(a.) Spatio-temporal linkage

The action-mechanism derived from Anderson’s Code of the Street, and, even more explicitly, Wikström’s Situational Action Theory explain rule-breaking on a very situational level. Their theoretical aim to address the geographical and at the same time the temporal dimensions is reflected in neither my remarks nor my analysis. By using schools as a research site, I was able to address the spatial linkage between behavioural outcomes and exposure to behavioural settings more closely than previous studies on observational data, but I could still not address the temporal dimension.

However, this limitation is very common in the research on rule-breaking. The very moment of crime occurrence is challenging to grasp. Only a few research designs, such as factorial designs, experimental data and space-time budget data, come closer to capturing this dimension, but they do so at the cost of external validity or imperfect measures of the behavioural setting’s criminogeneity.

(b.) Connecting exposure to the behavioural outcome

After discussing limitations on the temporal dimension of spatio-temporal linkage, I must clarify the spatial dimension of the spatio-temporal linkage in my operationalisation. While the sociometric measurements I used to connect the relational dimension between victim and offender, and status sender and receiver, they do not refer to the geographical location – for example, the offender may have attacked the victim outside the schoolyard. Thus, on the one hand, attributes of other behavioural settings might have influenced the action-generating mechanism. On the other hand, violent behaviour is recognised in the operationalisation of the descriptive norm even if the incidence did not appear in the physical school setting and thus is not accessible to other students and will not influence the other students in the direct sense of the action-generating mechanism.

However, a significant share of overall violent incidents between students are committed within schools (Wikström et al., 2012: 276). Accordingly, it can be assumed that at least a

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share of the violence captured by the sociometric measurement was committed in the school setting and thus reflects the influence of the school as a behaviour setting and, at the same time, contributes to the behavioural setting because violent relationships are reflected in both the dependent and independent variables. Another limitation of my research is the selection of settings within the schoolyard. While the school setting provides a better opportunity to compare kinds of exposures, and controls for selection into school tracks and schools, students may still select themselves into different situations within the school, which I could not control for.

(c.) A hunt for the (theoretical) snapshot

A more general problem with my approach is directly linked to the action-generating mechanism's explanation of rule-breaking in the very moment of crime occurrence. The action-generating mechanism aims to provide a snapshot that captures all causal factors at the very moment at which a person commits a crime. Unfortunately, recent tests – including mine – cannot meet this requirement, which translates into a direct measurement strategy that measures a person's criminal propensity and the behavioural setting's criminogenic features at the moment of cognitive decision-making. I can only use generalised measurements of interindividual differences and settings' attributes, which I must assume to capture the causal factors' tendencies. Whether these generalised measures are sufficiently accurate remains an open empirical question.

In addition to the aforementioned challenge to the spatio-temporal linkage, a further problem arises because my observations depend on each other. Each classmate's behaviour is reflected in the descriptive norm and the status-violence norm. From a causal inference perspective, the observations should be independent. Following the stable unit treatment value assumption (SUTVA; Rubin, 1986), potential outcomes of actors must be unaffected by potential changes in the treatment exposures of other actors (Morgan and Winship, 2007). My measurements violate SUTVA because the hypothetical transfer of a student from another class would change the attributes of the behavioural setting in the origin class and in the new class. While this problem always arises for clustered data and analysis that rely on other participants' self-reports as indicators of the behavioural setting, it is less significant in, for example, a random national sample and gains importance as cluster size decreases. The problem is particularly pronounced if the immediate environment to which actors are exposed is surveyed.

The required independence of observations challenges the action-theoretical mechanism and my research strategy in an additional way. The action-theoretical approaches I have investigated do not describe personal interactions between actors present in the behavioural

setting, in addition to being related to a provocation or reflecting a setting's descriptive norm. However, my approach builds on the interrelation between the students, as students' behaviour is the reference point for the other students' reactions. Thus, while theoretically the action-generating mechanism neglects the social emergence of a setting's criminogeneity, my approach cannot reflect whether student A's behaviour will immediately affect student B's behaviour and thus call the temporal ordering into question. In order to establish the temporal sequence and to be able to carry out a more definitive causal test, reference is often made to lagging the independent variable to the subsequent measurement of the dependent variable. However, these temporal lags must match the timing between the setting's influence and the behavioural outcome (on this point, see also Vaisey and Miles 2017; and also Leszczensky and Wolbring 2019). The one-year intervals between the survey waves of the FVA data appear too large to capture the immediate influence of exposure to criminogenic influences on rule-breaking.

(d.) Sample

Another crucial limitation of my dissertation is that it relies on one data set for all analysis. While the FVA data set was developed to investigate action-generating mechanisms and is thus uniquely suited to address these questions with direct measures of the street code, SAT's morality scale and adaptation of self-control, I will discuss the data specifics that are relevant to the research aim. In general, there is no question that my results must be proven through replication. However, the more interesting question concerns the relation between the action-generating mechanism and scope conditions. Scope conditions are universal statements about the circumstances under which a theory is applicable (Harris, 1997). The sample FVA data are data on adolescents in the Gelsenkirchen area, and thus reflect the characteristics of the survey area, such as an above-average share of people with a migration background and the socioeconomic consequences of downturns in the coal and steel industries. This description results in obvious differences concerning other regions' ethnic and socioeconomic composition.

However, neither result from the action-generating mechanism nor do I define scope conditions regarding the FVA data. The FVA sample's characteristics should not directly influence the examined action-generating mechanism as they are causes-of-the causes and not causes of effects. Social disadvantage, for example, has no direct influence on the action-generating processes. However, it could influence the assessment of moral values and, thus, only mediated by moral values, influence rule-breaking.

5.3 Towards a second answer – Related to the action-generating mechanism

Regarding the overall goal of this dissertation, the three empirical studies have shown that rule-breaking depends on an actor's criminal propensity and the level of criminogeneity in the behavioural setting the actor is exposed to. Thus, my investigation was able to open the lid of the black box of rule-breaking a little further, to look inside more deeply. However, how detailed the black box's interior has to be described for best representing the action-generating mechanism remains an open question (on abstraction, see Lindenberg, 1992). Which causal factors best describe the action-generating mechanism can only be clarified if there is agreement on which criteria constitute the best explanation (see Ylikoski and Kuorikoski 2010). Further possibilities of theory integration (Liska, Krohn, and Messner 1989; Thornberry 1989; for a critical perspective, see Hirschi 1979), theory comparison or reduction to basic axioms (Opp, 2020) can be further addressed as my findings show -at least to a certain degree- that exposure really matters. Related to this, it may be questioned to what extent more or less detailed information about exposure, cognition, situational circumstances, interpersonal differences and selection is needed to describe and investigate the action-generating mechanism.

Additionally and more pressing in the context of this work is the question of how the action-generating mechanism and the selection mechanism are related? How independent are both mechanisms, or how strongly does their emergence depend on the same causes-of-the-causes?

However, exposure matters, even if selection is controlled for. And narrowing down the explanation of rule-breaking to interindividual differences misses a critical factor. Even if interindividual differences tend to indicate rule-breaking, they are only a minor part of a complex explanation that must recognise the behavioural setting's level of criminogeneity. Although people with a higher criminal propensity are more likely to break rules, they do so only when exposed to specific conditions and even specific personal characteristics, such as high moral values, do not immunise a person against rule-breaking. While all three studies have shown that crime-prone actors react to settings' criminogeneity, Chapter 4 revealed that even people with high moral values would break rules under certain conditions. Simplified assumptions and tests that place persons in specific contexts in relation to interindividual differences and, from there, derive behavioural patterns overlook this complex relationship. Thus, exposure matters in the explanation of rule-breaking. Therefore, it should be accounted for in future investigations as accounting for exposure contributes to the fundamental explanation of rule-breaking provided by the action-generating mechanism.

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Appendix A

Chapter 2: Street Code Internalisation and the Status-Violence Norm

Self-control items:

1. *I never think about what will happen to me in the future.*
(Ich denke nie darüber nach, was in Zukunft mit mir passieren wird)
2. *I don't devote much thought and effort to preparing for the future.*
(Ich mache mir normalerweise wenig Gedanken und Mühe, mich auf meine Zukunft vorzubereiten)
3. *I often act on the spur of the moment without stopping to think.*
(Ich handle of spontan, ohne lange nachzudenken)
4. *I easily get bored with things.*
(Mir wird schnell langweilig)
5. *When I am really angry, other people better stay away from me.*
(Wenn ich wirklich wütend bin, sollten andere mich lieber in Ruhe lassen)
6. *I lose my temper pretty easily.*
(Ich verliere ziemlich schnell die Beherrschung)
7. *Sometimes I will take a risk just for the fun of it.*
(Manchmal gehe ich nur zum Spaß ein Risiko ein)
8. *I sometimes find it exciting to do things for which I might get into trouble.*
(Manchmal finde ich es aufregend, Dinge zu tun, die gefährlich sein könnten)

Response range (1= *strongly disagree* / stimme überhaupt nicht zu; 5= *strongly agree* / Stimme voll und ganz zu)

Chapter 3: Does Criminogenic Exposure Really Matter?¹

Self-control items:

1. *I never think about what will happen to me in the future.*
2. *I don't devote much thought and effort to preparing for the future.*
3. *I often act on the spur of the moment without stopping to think.*
4. *I easily get bored with things.*
5. *When I am really angry, other people better stay away from me.*
6. *I lose my temper pretty easily.*
7. *Sometimes I will take a risk just for the fun of it.*
8. *I sometimes find it exciting to do things for which I might get into trouble.*

Morality scale:

1. *Ride a bike through a red light.*
2. *Skip doing homework (for school).*
3. *Skip school without an excuse.*
4. *Lie, disobey or talk back to teachers.*
5. *Go skateboarding in a place where skateboarding is not allowed.*
6. *Smoke cigarette.*
7. *Tease a classmate because of the way he or she dresses.*
8. *Get drunk with friends on a Friday night.*
9. *Hit another child who makes a rude comment.*
10. *Steal a pencil from a classmate.*
11. *Paint graffiti on a house wall.*

¹The items are the same as in Chapter 4: Explaining cheating in schools with Situational Action Theory

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12. *Smash a street light for fun.*
 13. *Smoke cannabis.*
 14. *Steal a CD from a shop.*
 15. *Break into or try to break into a building to steal something.*
 16. *Annoy another teenager so much that he or she starts crying.*
 17. *Hit a classmate so that he or she bleeds.*
 18. *Pushing a young person so that he or she falls down.*