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Analytical Criminology.
Integrating Explanations of Crime and Deviant Behavior

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The manuscript will be published with Routledge in 2020
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This manuscript is mailed to scholars with the hope to get comments that could improve the manuscript.

I will carefully read the ms. again in **November** 2019 (and continue working on its improvement), take into account all the comments and then submit the manuscript.

Note on the manuscript:

This pdf file consists of the single chapters of the book. Each chapter includes references, tables and figures which makes reading easy.

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Preface

The goal of the present book is to improve our knowledge about the causes of crime. To reach this goal three ideas are pursued that distinguish this book from other books about crime and deviant behavior. One idea is the systematic application of a general behavioral theory. We chose a wide version of the theory of rational action. Before readers now shut the book they should look at what this theory is about. All the common objections against rational choice theory do not hold for the wide version. We ask readers to continue reading now, finish the preface, read the introduction and then consider whether the book is of interest.

The second idea is to examine the extent to which this general theory can correct theories of crime. The idea is thus not just to apply the theory to explain different kinds of crime. There is a large literature in which this is done. The book is about *comparing theories*, namely a general theory with specific theories of crime that are widely discussed in the literature. The basic argument for such a comparison is this: because the general theory is successful of providing valid explanations of a wide, heterogeneous range of phenomena, it should also be capable to show under which conditions the special theories of crime and deviant behavior are valid. It goes without saying that the outcome of these theoretical analyses must be tested empirically.

If this idea turns out to be viable the result of the theoretical analyses will be an *integration* of a large number of criminological theories. They become a theoretical unity with rational choice theory because rational choice theory specifies conditions for their validity.

The third idea is to apply basic results of the philosophy of science and of formal logic. This may sound terrifying to some readers. However, the results applied are explained so that they can easily be understood. It will be seen that these results are tremendously helpful to provide guidelines for finding clarifications and weaknesses of the theories to be analyzed. They are also useful for the analyses of the relationships between the theories (for details see chapter 2).

Comparing specific theories of crime and deviant behavior with a general behavioral theory and integrating them to a unified set of theories is a research program that we call *Analytical Criminology* (for details see chapter 8). Such a research program has not yet been pursued in the literature.

The idea of writing this book originated when I worked with Prof. *Lieven Pauwels* (Ghent University, Belgium) on an article (unfortunately published in German) on rational choice theory and crime (Opp and Pauwels 2018). All of a sudden we had written about 60 pages (the article was restricted to about 20 pages). The idea came up to write a book in English that should include and extend the 60 pages. We wrote a book proposal that was finally accepted by *Routledge*. Unfortunately, Lieven decided to withdraw as a co-author because of new liabilities at his university. I regret this decision very much. Nonetheless, he has helped me to shape the structure and contents of the book with many excellent suggestions. I am extremely grateful for his support.

It was also Lieven who brought me back to criminology. I wrote my diploma thesis (comparable to the MA thesis in the US) about crime (1963) and my dissertation (1967) as well. At that time, a radical version of the labeling approach (denying the reality of crime and claiming that crimes are constructed or defined by enforcement agencies) became widely accepted in Germany, and etiological research was frowned upon. Scholars who disagreed with this new mainstream, like me, were personally attacked. I left the field and chose illegal protest

(and later social movements and protest in general). But I always kept up with criminology and continued to publish in this field. Then, some years ago, Lieven wrote me an email asking for the copy of a paper of mine. A lively correspondence developed. Then came the offer of the leading German criminological journal, Journal of Criminology and Penal Reform (Monatsschrift für Kriminologie und Strafrechtsreform) to write a paper about crime and rational choice. I asked Lieven for being my co-author, and he agreed. The joint writing of the paper prompted me to delve again more deeply into criminology.

Publishing a book in English is very difficult for a German scholar. But for the present book finding a publisher was much more frustrating then for my book from 2009 on political protest and social movements (Opp 2009). In 2018, in contrast to 2009, basic rules of politeness were apparently gone. When a book proposal is offered to a publisher it is simply bad manners and offensive to an author to get no reaction at all. When we sent our book proposal to publishers such as *Oxford University Press, Cambridge University Press* and *Springer*, there was no reaction at all. Such a rude behavior is unacceptable. For my previous book on theories of protest (which was also published by *Routledge*) publishers who rejected the book wrote a polite letter justifying briefly why the book was not accepted. Routledge reacted differently: they reviewed the proposal. I am grateful to *Routledge* for the four detailed reviews of the book proposal that led to an extensive revision of the planned book and finally to its publication.

I had the extraordinary luck that I became a visiting professor (and then an affiliate professor) at the department of sociology of the *University of Washington* (Seattle) immediately after my retirement at the University of Leipzig (Germany) in 2002. There is mandatory retirement in Germany. However, I wanted to continue my work after retirement, and I also wanted to teach for some time during the year outside of Germany. I asked some colleagues whether they know of an opportunity to teach at an English or American university. *Michael Hechter* (with whom I have worked together – see Hechter et al. 1990; Hechter and Opp 2001) was at that time a professor at the University of Washington. He wrote me that there was an opportunity to come to Seattle. It turned out that I have taught there since 2003, each year for one quarter (almost always in the spring quarter). In 2019, I have been in Seattle for the 17th year. All these stays were extremely stimulating. I very much profited from the deviance seminar that was held for many years. There is a group of colleagues focusing on deviant behavior from whom I learned a lot. The colleague who is closest to my orientation is *Ross L. Matsueda*. His criminological work and discussions with him have influenced me very much. I also owe stimulating discussions on general topics with – in alphabetical order – *Daniel Chirot, Robert D. Crutchfield*, *Lowell Hargens, Jerald R. Herting, Charles Hirschman, Edgar Kiser, Steve Pfaff*, *Katherine Stovel* and *Stewart Tolnay.* The discussions with many excellent students in my classes were also invaluable.

I am particularly indebted to *Katherine Stovel*. She was chair of the sociology department in 2019. When I told her that I was writing this book she suggested to offer a seminar on this theme – I called it "Crime and Rationality" in the spring quarter. This was of invaluable help: preparing the seminar sessions and simultaneously writing the respective chapters were a strong incentive to sharpen my arguments and get new ideas.

A major goal of writing this book was to reach a *wide audience*. It is difficult to say who exactly will understand the book and who will be interested in its subject. I have invested much effort to use a simple and clear language and to formulate the arguments so that readers with

some minimal social science background can understand the book. This includes the general educated public and academics who are not criminologists.

Although the book looks at first sight like a specialized scientific criminological monograph, it is also a *treatise about the critique, comparison and integration of social science theories*. Crime is the special topic. Readers who are interested in this general topic may profit from reading the book or some of its chapters.

Is it meaningful to *read only single chapters*? I recommend to read the exposition of the wide version of RCT and of value expectancy theory in chapter 4 (sections 3, 4 and 6). These theories are applied repeatedly, especially in the discussion of the single criminological theories in chapter 7. Every other chapter can be read in isolation.

Can the book be used in *criminology classes*? If they only present existing criminological theories to students with some minimal ad hoc critique, the book is less relevant. But if a class aims at a rigorous critique and comparison of the major ideas of criminological theories, including general behavioral theories such as rational choice theory, the book is highly relevant. It is actually the only book on the market with this theme. The students will get acquainted with basic ideas of the selected criminological theories and with rational choice theory. But this is only the first step. Then students will learn to reconstruct theories (not only criminological theories) and compare them with rational choice theory (or with another general theory). This is certainly a challenge to students (and perhaps to faculty alike!) who have rarely been faced with systematic theory comparison. The book is thus appropriate for criminology classes in which the interest is in a rigorous comparative discussion and integration of special criminological and general behavioral theories.

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1 Introduction

The explanation of crime and deviant behavior has been an issue in the social sciences for almost 200 years – at least since the work of Cesare Lombroso (1835-1909) who is often called the "father of criminology." Wouldn't one assume that we have – after such a long time – a firm knowledge about the causes of crime? This is definitely not the case. As will be shown in chapter 3, there is a theory chaos in criminology: there are numerous explanations of crime, and each has its problems. Nobody knows what the best explanation is.

This situation is the motivation for the present book. We believe that our knowledge about the causes of crime can be improved by pursuing a research program that we call *Analytical Criminology* (for details see chapter 8). The term "*analytical*" means, in this context, dissecting concepts and propositions (i.e. analyzing their components) and provide a rigorous scrutiny of their meaning and acceptability . This program is based on three ideas.

The *first idea* is to apply a general behavioral theory to explore its capability to explain crime. We chose a wide version of rational choice theory (RCT). This theory has been successful in explaining numerous kinds of behavior, including voting, migration, divorce, and civil war. If this theory provides fruitful explanations of so many heterogeneous social phenomena, it is to be expected that a systematic exploration of the implications of this theory for the explanation of crime will yield new insights in why crime happens and why it does not happen.

The label "rational" in "rational" choice theory often elicits extremely negative emotions. The theory seems to be so plainly wrong that one wonders that there is anybody who takes it seriously. In particular, RCT assumes, it is believed, that humans are egoists and, thus, that altruism is denied as a possible motivation for behavior; that values and norms are irrelevant for explaining behavior; that only deliberate behavior (or "calculation") and not spontaneous behavior is considered. Other assumptions seem to be that people are fully (and correctly) informed and that there are no cognitive limitations. Humans have a memory like Albert Einstein and can "store as much memory as IBM's Big Blue" (Thaler and Sunstein 2009: 6). Perhaps the worst of all is the assumption that people act "rationally." All these assumptions are so weird that actually one cannot imagine that anyone defends them. Indeed, what has been described so far is a caricature of modern RCT: all these allegations are gross misunderstandings. None of these assumptions is made by the theory applied in this book.

This theory (for details see chapter 4) is a *wide version* of rational choice theory. It is meanwhile extensively applied in criminology (see our review in chapter 4), in behavioral economics (see, e.g. Thaler 2015), political science (Riker and Ordeshook 1973; Mueller 2003) and sociology (e.g. Coleman 1990). This theory is embedded in *methodological individualism* that allows to model micro-macro models (for details see chapter 6).

In contrast to the previous assumptions the wide version holds, for example, that all kinds of an actor's *goals* (i.e. preferences) are possible determinants of behavior. In contrast to a narrow RCT, there are no restrictions on the goals: they may be material or non-material, egoistic or altruistic, normative (i.e. the goal may be to follow accepted norms) and non-normative (e.g. to get a higher income). The second variable is *beliefs* about the behavioral opportunities or constraints. The focus on beliefs implies that people may make mistakes (they may, for example, misperceive the likelihood of punishment). The third ingredient of the model is *subjective utility maximization*: it is held that individuals do what they think is best for them in their situation.

This implies that, from the perspective of an observer, individuals could do better. Individuals are "boundedly rational": cognitive capabilities are limited.

For empirical scientists it goes without saying that the methods of empirical social research must be applied to measure the existing goals and beliefs. Nothing is assumed ad hoc, and no circularity is involved (such as "inferring" an altruistic motivation from observing a charity donation – the motivation must be determined empirically).

The reader might have noticed that the term *rational* has not be used. As will be shown in chapter 4, this term has numerous meanings and is absolutely superfluous. In the analyses in this book this term is never used – except when reference is made to "rational" choice theory.

The *second idea* is about the kind of application of RCT. Just exploring the capability of RCT to explain kinds of crime is interesting and has been done numerous times before. But this is not enough. It could be the case that the *existing theories of crime* actually include the causes of crime that are relevant according to RCT. The latter would thus be identical with all criminological theories, as Akers (2000: 24-27, see also 1990) asserts. It is, therefore, important to *compare RCT with criminological theories*. Only this provides the possibility to see whether the theories are different and, if so, in what respects.

But just stating differences between theories does not yet lead to theoretical progress. We want to know which theories are correct if there are inconsistencies. Assuming that RCT is in general a fruitful theory it seems plausible to assume that *RCT can show under which conditions criminological theories are correct*. It should thus be possible to derive the special theories of crime in their existing or in a modified form from RCT.

The result of such a detailed comparison is an *integration of theories*. If a theory of crime can be derived in its present or modified form from RCT, we actually have a unified theory. The criminological theory becomes a special version (a corollary) of the general theory.

It seems at first sight that this procedure assumes the validity of RCT. This is not correct. Applying RCT to correct criminological theories is only the first step of theory integration. Whether the corrections of criminological theories, implied by RCT, are valid needs to be tested empirically. It is possible that the implications of RCT are wrong. This would be a falsification of the theory. The theory comparison has thus no dogmatic element. The assumption that RCT can be used to derive improved theories of crime is thus a working proposition that can be falsified.

The book is thus *not* another application of RCT to explain specific kinds of crime. *The book is about theory comparison and theory integration.*

The suggested procedure is thus not to compare different criminological theories *with each other*. This has been done repeatedly, but, it seems, not with great success. The disadvantage is that comparison of numerous middle-range theories might only lead to partial small-scale integration, whereas comparison of those theories with *one* general theory leads to full-scale integration: the specific criminological theories are unified with one general theory.

Comparison and integration of RCT and criminological theories is a major component of our research program of *Analytical Criminology.* Details are described in chapter 8.

The *third idea* is to apply some basic results of the philosophy of science that are helpful to clarify and criticize criminological theories and explore their relationships with RCT. Our analyses in chapter 7 show that the criminological theories are unexpectedly ambiguous and don't meet rather obvious criteria for a good theory. For example, the informative content of

many theories is low if it is only explained when *some kind* of crime is brought about – be it pickpocketing or mass murder – and if it is, thus, left open which crime originates (see chapter 2). When defining concepts such as "inclinations" or "abilities" analyses of the logical structure of disposition concepts are missing (see chapter 7.6). We borrow ideas about concept and theory formation from classical authors such as – in alphabetical order – *Carl G. Hempel, Ernest Nagel* and *Karl R. Popper* (and in Germany *Hans Albert*). These ideas have been extremely helpful in analyzing and comparing the theories in the present book. Because these results are largely unknown to criminologists we describe them in detail and in a (hopefully) understandable way (see in particular chapter 2).

A problem of writing this book should be addressed in this introduction: it was *the selection of the criminological theories to be discussed*. In samples of members of the American Society of Criminology more than twenty criminological theories were identified (Cooper et al. 2010). We decided to discuss eight theories which seemed to be the most popular or interesting ones (for details see the introduction to chapter 7 and chapter 9). If a theory was selected another problem was which hypotheses "the" theory consists of. For example, for most of the selected theories there are several versions – sometimes written by the same major author or authors of the theory. We did not intend to write a long chapter to reconstruct, compare those versions with each other and then select one in order to compare it with RCT (or compare each reconstruction with RCT). Instead we selected a recent version, written by the major author and authors, or a classical statement of a theory (such as Merton's anomie theory). When a version of a theory was selected another decision had to be made. The respective version consisted of numerous hypotheses. We selected hypotheses that seemed most directly related to explaining crime. For example, we focused on the effects of self-control on crime and did not discuss hypotheses about the causes of self-control. Our selection procedure thus focuses on central theoretical ideas of criminological theories and provides an interesting test of the viability of RCT to modify them.

Let us briefly outline the *contents of the book*. *Chapter 2* is about some basic issues that are relevant for the entire book. We define crime as a violation of the criminal law and provide arguments why this is a useful definition in the present context. We further state what is understood by "theory" (it refers general conditional statements), and what the requirements of a "good" theory are (these are precision, validity and informative content). We briefly discuss the logic of application of theories to specific situations and the logic of mechanism explanations. Among other things, we argue that also for mechanism explanations lawful statements are necessary in order to avoid ad hoc explanations.

Chapter 3 describes the "theory chaos" in criminology which is the motivation for the present book. A major deficiency of criminological theories, which will become abundantly clear when the single theories are discussed in chapter 7, is that it is not even clear for most theories, what exactly their dependent, independent variables and the relationships between these variables are.

Chapter 4 presents and discusses in detail the wide version of RCT and compares it with the narrow version. We further discuss extensions of the wide RCT such as dual-process theories. The chapter is rather long because there are so many misunderstandings and untenable objections – only the most important ones are discussed – so that such an extensive analysis seems justified.

Chapter 5 is about theory integration – the major goal of the book. We describe how this term is defined, and we discuss different ideas about theory integration. We outline five steps of integrating RCT and criminological theories.

Chapter 6 takes up a major ingredient of our program of Analytical Criminology: integrating micro and macro propositions and RCT. Criminology consists of many macro propositions. One is that disorganization is associated with a high crime rate. How can such macro propositions be explained with RCT? We provide a detailed discussion of the procedure and problems of such micro-macro modeling.

Chapter 7 is, one might say, the first attempt to realize out program of Analytical Criminology: we analyze the relationships of several well known and intensely discussed criminological theories on the one hand and RCT on the other: Anomie theory, general strain theory, differential association theory, social structure social learning theory, self-control theory, propositions of the labeling approach, social disorganization and collective efficacy theory, and situational action theory.

Chapter 8 is a detailed description of our program of Analytical Criminology. It is based on the discussions of the previous chapters and formulates the program as four goals which should be pursued.

Chapter 9 draws the major conclusions from the previous chapters, discusses omissions and suggests ideas for further research.

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2 The concept of crime, the definition of "theory," and the characteristics of a good theory

Contents

Abstract. Crime is defined in this book as an action or inaction that violates the criminal law. The reason is its theoretical fruitfulness (which is discussed in the text). A "theory" is a set of general statements (not referring to certain times and places) about conditions that bring about some phenomenon. Because the analysis of theories is the major concern of this book we discuss what requirements a theory should fulfill: its concepts and structure (i.e. its dependent and independent variables and their relationships) should be precise; the theory should be valid and should have a high informative content. This means that it should explain a large number of specific phenomena and should have a wide range or application. It is criticized that much of the criminological literature consists of "orienting propositions" with a low informative content. For example, the hypotheses that an environmental input has an effect on perception does not tell which environmental input leads to which kinds of perception. This is an example for the "poverty of orienting hypotheses." Based on the logic of deductive-nomological explanation, we show that an acceptable mechanism explanation requires laws.

1. Introduction

In a book about crime and theories it is necessary to clarify how these concepts are defined. Both concepts are often used in an unclear way and in different meanings. Because existing theories are not only described but criticized, it is useful to clarify which criteria are used for assessing theories. We will then discuss various issues related to the application of theories.

2. The concept of crime

We adopt the definition advanced by most criminologists: *crimes* are defined as *actions or non-actions that violate the criminal law*. Examples are, theft, trafficking, murder and tax evasion. An example for non-action is not intervening if one could prevent a murder. There are many other definitions of crime. The question thus arises whether this is a "good" definition. Before this question is addressed we will provide a brief reminder of some basics of concept formation that do not seem to be common knowledge among many criminologists (and other social scientists as well).

Some basics of concept formation

In deciding which definition one chooses it is important to recognize that definitions are *conventions* about what the meaning of a term is. Pre-scientific meanings of a concept are irrelevant for the scientific usage of the term and are disregarded. Because definitions are conventions, they *cannot be true or false*. A convention can only be more or less *useful* (see Hempel 1952). Before discussing why our definition of crime is useful, we will look at some facts that are important for discussions about concepts and the crime concept in particular.

Distinguishing definitions and other statements. Although it seems obvious that definitions are conventions and not empirical propositions, it is often not clear whether authors introduce linguistic conventions or hypotheses. To illustrate, criminologists sometimes intend to analyze the *nature* of crime (this is the heading of chapter 2 in Gottfredson and Hirschi 1990) or ask *what crime* "*is*" (this is the subtitle of chapter 2 in Agnew 2011: 12-13). What is meant with the "nature" of crime? Is the purpose to find the everyday meaning of the concept? The "nature" of crime is thus what people mean with "crime." This requires a *meaning analysis* of a concept: one needs to ascertain empirically how a group of speakers actually uses a concept. Such studies are not mentioned by criminologists who discuss the "nature" of crime. The search for the "nature" of crime could further refer the search for empirical properties of or laws about crime that are regarded as important ("essential").[1] This would refer to an *empirical analysis*. Finally, finding the "nature" of crime might also mean that a *definition* of the concept is proposed.

Similarly, the word "is" has different meanings. A scholar who asks "what *is* crime?" might wish to find laws about crime, find the usage of the term in everyday life or wants to suggest a definition.

The criterion of theoretical importance. If the goal is to formulate theories, definitions should help to achieve this goal. That is to say, a definition is *useful* if it helps to realize this goal. Because the goal of this book is to contribute to the formulation of a valid theory of crime, the

[1] See the more detailed discussion of "essentialism" by Popper (1957) and of "real definitions" by Hempel (1952: 6-14).

definition of crime must "possess *theoretical* or, *systematic*, *import*;" i.e. it "must permit the establishment of explanatory and predictive principles in the form of general laws or theories" (Hempel 1952: 46, 39-50). Scholars who want to explain crime and suggest a definition of crime, should thus provide detailed arguments for the theoretical import of their definition. Couldn't another definition be perhaps theoretically more fruitful and, thus, lead to the formulation of a superior theory?

Precision of a concept as a necessary condition for its theoretical importance. A necessary condition for a theoretically useful concept is that its definition has a relatively high degree of *precision*. Assume "crime" is defined as "behavior that is against the nature of humans." When such a definition is part of a theory one does not know what the theory is about and whether it permits "the establishment of explanatory and predictive principles in the form of general laws or theories" (see the quotation in the previous paragraph). Precision is thus a minimal criterion for a theoretically fruitful definition.

Sometimes definitions consist of dichotomous variables that are originally quantitative. For example, in Agnew's definition an act is a crime if it is, among other things, "condemned" by the public (2011: 37). "Condemnation by the public" is a quantitative variable. If this is dichotomized the question arises what degree of condemnation is necessary for an act to be regarded as "condemned" by the public. The cutting point of the quantitative variable is not specified. A theory with such a dichotomous variable is thus difficult to test.

Concepts as components of a valid theory. A theoretically fruitful definition further means that the concept must be a component of a *valid* theory. Often a concept is to be defined, but the theory is not yet formulated or not tested. In this case, a preliminary working definition should be suggested. This is based on plausibility or previous research.

If a theory exists the theoretical fruitfulness of a concept could be examined by comparing whether alternative concepts might be more fruitful. For example, there are different scales that measure "self-control." One could test empirically which one provides a better explanation of different kinds of aggression (Jones 2017).

Concepts as components of a theory with high informative content: the problem of complex definitions. A theoretically fruitful definition must further be part of a theory that has a *high informative content*. As will be seen below (section 3), this means that the concept must allow the explanation of many specific phenomena. For example, a theory that explains embezzlement allows only the explanation of a relatively narrow range of phenomena.

One type of definitions that restricts the range of phenomena that can be explained are *complex definitions*. These are definitions that include several defining characteristics. Definitions that have relatively few defining characteristics are sometimes called *parsimonious* (Agnew 2011: 42).

Let us illustrate a complex definition with Agnew's (2011) "integrative" definition. He argues that the legal definition of crime (i.e. crime as the violation of the criminal law) fails "to identify the core characteristics of crime" (Agnew 2011: 16, 40). He comes up with three core characteristics: crimes are acts that are *blameworthy harms, condemned by the public* and

sanctioned by the state (37). But not each of the three characteristics must be given for a crime to exist, one is enough: "acts are crimes if they possess one or more of the several core characteristics" (30). He argues that the definition fulfills several criteria (40-43): it "provides a reasonable level of precision," it "captures key insights from different disciplines," it is "parsimonious" and suggests "new research questions for criminology." Agnew calls this an "integrated" definition.

Let us first assume that crime exists if *each* of the criteria is given. The definition is thus a *conjunction* of three properties:

> Crime *is defined* as an act that is blameworthy *and* condemned by the public *and* sanctioned by the state.

The "and" means that only behaviors are defined as crime if they possess *each* of these characteristics. Crime is thus, by definition, a relatively *narrow class of phenomena*: only behaviors that possess each of these characteristics are crimes. Alternatively, a definition that has only one characteristic can explain a much larger class of phenomena. In other words the *informative content* (for details see below) of such a theory would be higher if crime would consist of only one defining characteristic. This would be the case for the legal definition.

Now assume the legal definition is used. What happens with the other variables – blameworthy, condemned and sanctioned? The answer is: they can be used as *separate dependent or independent variables*. For example, it can now be tested to what extent these characteristics are lawfully related to acts that breach the criminal law.

This example illustrates that a "parsimonious" definition, i.e. a definition that consists of only one defining characteristic, is to be preferred to a more complex definition because it can be part of a theory that addresses a relatively large class of phenomena.

But, as said before, crime is, according to Agnew, given if an act has *at least* one of the characteristics:

> Crime *is defined* as an act that is blameworthy *or* condemned by the public *or* sanctioned by the state.

This logically a *disjunction*. The existence of one criterion suffices to denote an act as a crime. This would meet the criterion of defining a concept by only one characteristic. But – as in the conjunctive definition – all criteria are exempted from empirical research because they are part of the definition. Why not take only one criterion for the definition and use the other criteria as separate variables? This would yield a more informative theory.

Why a definition should not include lawful statements. What is meant with "core" characteristics of crime? It seems that Agnew formulates a lawful statement: *all crimes are harmful, condemned by the public and sanctioned by the state.* If "crimes" have these attributes, one assumes that one knows the meaning of crime because the empirical proposition is that "crimes" have the attributes of being harmful etc. Why should one define "crime" if it apparently has already a clear meaning?

But assume that one is not satisfied with the meaning of "crime." One might eliminate the previous meaning and introduce a new definition: "crimes" are *defined as* acts which are harmful etc. But why is a law transformed to a definition? A law should be tested and applied for explanations. For example, the law mentioned leads to the prediction that acts that are condemned by the public are also sanctioned by the state. Perhaps this is not correct – not every behavior that is negatively valued is sanctioned. Therefore, such laws should be tested and not become components of definitions. Laws can also be applied in explanations. For example, explaining sanctioning one factor is that the respective behavior is condemned by the public. But if the laws are part of a definition, i.e. of a linguistic convention, they are simply definitional characteristics and there is no need to test them. That is to say, in order to find whether an act is a crime one ascertains the three characteristics. If one is not given, the act is not a crime. It is thus irrelevant whether the three characteristics always correlate. A definition cannot be tested empirically. We thus conclude that *it is not meaningful to transform laws into linguistic conventions.*

Agnew argues that an integrated definition suggests "new research questions for criminology" (Agnew 2011: 42). How can a linguistic convention suggest new research questions? *Before* the core characteristics are included in the definition, the researcher might get ideas about new questions, such as finding conditions when, for example, an act is regarded as blameworthy. But if these hypotheses become parts of a definition, they are part of a linguistic convention and no longer empirical propositions.

Why the legal definition of crime is useful

Let us return to our decision to define crime as a violation of the criminal law. In regard to precision, the concept is clear enough so that it is possible to classify acts as being a crime or not a crime. It is further not a complex definition consisting of a conjunction of several properties.

Is this definition theoretically fruitful in the sense that it is part of a valid and informative theory? The general theory applied in the book is a wide version of rational choice theory (RCT). It will be presented and discussed in detail in chapter 4. This theory explains all kinds of behavior. The idea is, very briefly, that the kinds of incentives bring about the kinds of behavior. Crime as a violation of the criminal law and thus falls under this explanandum. The definition has therefore theoretical import.

But a wider definition of crime would also fall under the explananda of RCT and has therefore theoretical import as well. For example, *any norm violation* could be the dependent variable. If a group decides not to consume apples, a member that eats apples will thus be a norm violator. We restrict ourselves to crime because the theories we compare with RCT address crime as violations of the criminal law. If a theory to be compared with RCT addresses a wider range of behaviors, then the definition of the explanandum might be changed because RCT can be applied as well. Becker defines "deviant" behavior as behavior "labeled as deviant by some segment of a society" (Becker 1963: 14). Whatever the label is that is applied to a behavior: "labeling" is a kind of action and, thus, falls under the explananda of RCT.

Is a relatively wide definition really theoretically fruitful? It might be argued that *a theory that aims at explaining such as wide range of heterogeneous phenomena cannot be valid*. Agnew (2011: 16) notes that "criminologists lack a compelling answer to the question of why these behaviors are grouped together under the rubric of 'crime.'"

As will be shown in chapter 4 in more detail, the major idea of RCT is that the *kinds* of incentives (rewards and punishments) determine the *kinds* of behavior. Thus, for a behavior to be explained – whatever its kind – the kinds incentives for this behavior explain its performance. Thus, behaviors are grouped together in a concept such as crime because they can be explained by the respective theory. In other words, at least as far as RCT is concerned, there need not be any "homogeneous class" of behaviors (Cressey 1951).

3. The concept of theory and related concepts

The term "theory" (or "law" or "law-like statement", see Hanzel 1999) has many different meanings. In the present book *theory* is defined as any "statement of universal conditional form which is capable of being confirmed or disconfirmed by suitable empirical findings" (Hempel 1942: 35). There is thus no reference to certain times and places. RCT and learning theory are examples of a theory. To be sure, theories need not be valid or confirmed, as the previous quotation indicates, but in order to be called a "theory" they must be testable.

Theories may be *deterministic* or *probabilistic* (or, equivalently, statistical). A "deterministic" theory states that whenever certain conditions are given, then a certain event will always occur. If the event to be explained does not always occur when the conditions are given the theory is probabilistic (Hempel 1965: 376-377).

Often "theory" means some *loose collection of statements* that are treated as belonging somehow together. For example, symbolic interactionism or functionalism are sometimes called "theory." However, they are not theories in the strict sense, as defined before. We will return to these paradigms, frameworks or meta- theories, as they are also called, in chapter 5.

General conditional statements are often called *laws* (e.g. Nagel 1961: 47; Braithwaite 1953: 3), whereas "theory" is defined as a deductive system (Braithwaite 1953: 22), consisting of several axioms from which other hypotheses (theorems) are deduced. Since every axiom implies itself (e.g. from the sentence p follows the sentence p) a law can be defined as an elementary theory. Since in the social sciences and criminology there are few deductive systems, we will use "theory" and "law" interchangeably. Statements referring to certain times and places are called *singular statements*. "The crime rate increased in Chicago in 2012" is a singular statement.

4. Requirements for a "good" theory

There are numerous requirements that are regarded as important for a useful theory (e.g. Akers et al. 2016: chapter 1; Gibbs 1989; Tittle 2016). The following three criteria are in our opinion the most important ones. This section is based on ideas of critical rationalism, especially on the work of Karl R. Popper (e.g. 1959; for a short introductory discussion see Veronesi 2014).

A problem of these and other requirements is that they are not so precise that one can compare different theories and establish a general rank order. However, if a researcher bears in mind that theories should fulfill these requirements, he or she will have good guidelines for formulating new theories and find weaknesses of existing ones.

The precision of the concepts and of the structure of a theory

The first requirement is the *precision of a theory*. This refers, first of all, to its *concepts*. A concept such as "group" is precise if for every real phenomenon it can be decided unanimously, whether the respective phenomenon is denoted by the term or not. In regard to "group," people will probably disagree whether those present in the compartment of a train are a group. But everybody will agree that families are groups. If the concepts of a theory are not clear we do not know what the theory asserts.

But not only the concepts, but the *structure of a theory* must be clear as well. This means that it must be clear what the independent and dependent variables of a theory are and how they are related.

It is difficult or impossible to test theories that consist of vague concepts and have a vague theoretical structure. This means that the respective theories are not falsifiable.

As will be seen in our analyses of criminological theories in chapter 7, many theories must be reformulated in a more precise way before they can be discussed. That is to say, they must be reconstructed because the variables they consist of and their relationships are not clear. We use a procedure called "explication" (for details see chapter 5).

The truth of a theory

It seems rather obvious that theories must be true. The problem with this requirement is that we never know the truth of a theory. Theories are defined as general statements that refer to an infinite number of cases. It can never be ascertained whether a theory holds for an infinite number of cases. In other words, it is definitely *not possible to verify a theory* (i.e. prove a theory as true). What can be done and what scientists do is to test theories as severely as possible. This means that attempts are (and should be) made to *falsify* theories. As long as theories are relatively well corroborated (or, equivalently, confirmed), there is no reason to discard them. Even if theories are falsified, one will no longer apply them only if a superior theory is available. Thus, even if a theory is never falsified and always confirmed, we do not know whether it is true. Being convinced of the truth of a theory is a psychic feeling but not logically justified. Every theory may be falsified in the next test. Theories can only be empirically confirmed – for the time being.

Often the expression *empirical validity* is used. Akers et al. (2016: 5) define this expression as "the extent to which a theory can be verified or refuted with carefully gathered evidence" (Akers et al. 2016: 5). Assuming that "verified" means "confirmed" (ibid., p. 7) we can suppose

that “empirical validity” refers to a theory that is relatively well confirmed. It is this meaning that the term “validity” has in this book as well.

It is important to note that testing a theory does not involve *induction*. There is no logical inference from the data to the theory. A test is a deductive procedure: certain hypotheses are derived from a theory (and other assumptions) and tested. If the theory is confirmed, it is accepted for the time being. But it is not argued that the validity of the theory can be inferred from the data. Such a logical inference is invalid.

The informative content of a theory

The intuitive idea of a high “informative content” of a theory is that a theory tells us much about reality. This means that a theory is incompatible with many real events (Popper 1959: chapter VI). Assume that a theory claims that in all societies high taxes lead to high tax evasion. This hypothesis can be applied to all societies. If the theory holds that in all *industrial* societies high taxes lead to tax evasion its range of application is lower. It is not incompatible with anything in non-industrial societies. This example suggests that the informative content of a theory is high if it has a *wide range of application*.

The informative content of a theory is further high, if it can explain a *large class of relatively specific phenomena*. Assume a theory asserts: the higher the magnitude of strain, the more frequently crime occurs. The explanandum is a relatively large class of phenomena. But it is unspecific: the theory does not specify the kind of crime that occurs. It is left open whether a high magnitude of strain leads to violence, burglary, shoplifting, terrorist acts or fraud. The theory asserts that if there is a high magnitude of strain there will be crime of type 1 *or* of type 2 *or* of type 3 etc. (Note that “or” is meant in the inclusive sense.) In contrast, assume a theory claims that the kind of crime is committed for which actors perceive relatively high benefits. This theory explains specific kinds of crime and has thus a higher informative content. Thus, the more and the more specific the phenomena are explained, the higher is the explanatory content of a theory.

Tautologies have no informative content at all. They are statements the truth of which can be ascertained by analyzing the meaning of their terms. For example, the statement “academics have studied at a university” is true because, by definition, an academic is a person who studied at a university. The sentence thus reads “persons who studied at a university studied at a university” which is certainly true (for details see any textbook of formal logic such as Suppes 1957).

Contradictions are not informative either. If a theory implies that “crime and no crime is to be expected,” then, according to formal logic, every sentence can be derived. Contractions thus do not inform about what exactly happens.

It is rare that in the criminological literature the informative content of theories is discussed. Very often the explanandum is simply crime or deviant behavior, but it is rarely discussed to what extent a theory can explain very specific kinds of crime or deviant behavior.

The poverty of orienting hypotheses

Merton (1957: 87-89) distinguishes full-fledged theories from orienting statements. The latter are "broad postulates which indicate *types* of variables which are somehow to be taken into account rather than specifying determinate relationships between particular variables" (88, see also Homans 1967: 14-18). Many of such orienting statements in the social science literature sound important and evident, but on closer inspection have a rather low informative content.

An example for a set of extremely uninformative hypotheses can be found in writings of situational action theory (SAT) by Wikström and collaborators (see Opp and Pauwels 2018, see also section 7.9 in the present book). Their work consists of numerous diagrams in which it is hypothesized, for example, that an "environmental input" has an effect on "perception" which "creates motivations and defines action alternatives" (Wikström 2006: 85). The "perception" has then a causal effect on "choice" that leads to "action (inaction)." The question is not answered which *kind* of "environmental input" has an impact on which *kind* of "perception," which *kinds* of "motivations" originate and which *kind* of "perception" generates which *kind* of "choice." Then Wikström writes that "choice" leads to "action (inaction)." This is equivalent to: "If choice, then action or inaction." This is clearly a tautological or analytically true statement (if p, the q or non-q) that is always true and has, thus, no informative content at all.

The question is why authors provide such uninformative hypotheses instead of specifying in detail which kinds of factors exactly lead to which specific effects. One cannot help to conjecture that authors are not aware of the low informative content of their theoretical production.

Because orienting statements are so frequent in the literature we will provide another illustration that makes the poverty of orienting statement still clearer. If sociologists and criminologists read the following statement they might spontaneously agree:

Theory: Anomie is an important factor for criminal behavior.

Let us look at the following possible implications this "theory" and ask which information this sentence provides.

Implication 1: Anomie has a positive effect on crime.
Implication 2: Anomie has a negative effect on crime.
Implication 3: Anomie has a positive effect on crime, but not always; other factors may lead to crime as well if anomie is not present (thus, if there is anomie, there is crime; but if there is no anomie, there might be crime as well).
Implication 4: Anomie has a positive effect on crime; if there is anomie, there is crime; if there is crime, there is anomie.

The reader may add more implications. For example, one could add implications for different meanings of anomie.

One of the problems of the above statement is the expression "is an important factor for." Similar expressions are "has an impact on" or "influences" (in the sense that factor x has a causal impact on factor y). These expressions signify some causal effect, but they leave it open what exactly the effects of which variable on which other variable are.

A repository of orienting statements are the so-called paradigms, theoretical frameworks or meta-theories such as Marxism, functionalism or symbolic interactionism. We will analyze these "theories" in more detail in chapter 5.

Are such orienting statements really so useless? To be sure, they rule out some classes of conditions. They may thus provide some guidelines for theory construction. But it is nevertheless not clear why authors do not immediately provide more informative propositions.

Conditions that "may" lead to crime: tautologies or orienting propositions?

We very often find hypotheses claiming that some factors "may" or "could" cause crime, or that "it is possible" that a factor leads to crime. For example, Agnew (2001: 324) mentions a hypothesis that the "failure to achieve economic goals ... *may* be related to delinquency" (italics added).

If it is claimed that a factor F "may" have some effect on crime (C), this implies that there are situations in which the F has no effect on crime. In other words, F may or may not lead to crime. In formal logic, this sentence can be formalized as: *if p, then q or not-q*. This is a tautology.

Perhaps authors only want to point out, that a factor will not per se lead to crime, but only under certain conditions: C *"may"* lead to crime could mean *C leads to crime under certain conditions.* Another interpretation is that authors want to say: *there is a probability of greater than 0 that F leads to crime.*

It seems plausible to demand that authors clarify what expressions such as "may" or "can" mean. If those expressions are not clarified it seems plausible to assume that authors simply mean that the relevant factor sometimes have a causal effect.

Conflicting goals

So far it was assumed that the requirements – precision, validity, informative content – can be realized simultaneously. However, a scholar might have formulated an informative theory that is falsified. He or she formulates a modification of the theory that is confirmed, but this modification has a lower informative content. For example, a hypothesis turns out to hold only for industrial countries. Should the wrong informative hypotheses be accepted or the correct uninformative one? We would suggest that the major goal is to have a valid theory, even if its informative content can be improved.

5. How to apply theories: the Hempel-Oppenheim scheme

How can a theory be applied to explain specific phenomena such as the crime drop in the US between 1990 and 2010 (Blumstein and Wallman 2000)? The Hempel-Oppenheim scheme (HO scheme) of explanation (Hempel and Oppenheim 1948; Hempel 1965; Little 1991; Parri 2014) describes a useful procedure. The important characteristic of the HO scheme is that it includes a theory that *in general* points to conditions that explain a phenomenon. In applying the theory to a certain situation the theory suggests which conditions are relevant in this situation. To illustrate, assume a theory reads:

> *Theory*: If opportunities for committing crimes decrease, the crime rate will decrease.

This theory asserts that in *general* opportunities reduce crime. In order to explain a specific phenomenon such as the decline of the crime rate in a certain period in a country, the theory suggests to look at the *specific* opportunities in this situation. Note that the conditions are specifications of the if-clause of the theory, i.e. specific opportunities. They are called *initial conditions*. It is of extreme importance that they must be ascertained empirically. There is no way to "infer" them from the existence of the behavior.

To discover what the specific opportunities are that might have changed the researcher first needs to formulate hypotheses about the initial conditions which are then tested. These hypotheses might be taken from everyday understanding of the situation, from qualitative pretests, from expert interviews or from previous research (in regard to RCT see chapter 4, section 4.0). Whatever this "context of discovery" of the initial conditions is, they are only causes (according to the theory), if they actually exist. Thus, they need to be measured because "opportunities" might point to different kinds of initial conditions.

Assume that there have been technological developments such as surveillance cameras or safety precautions in private homes that considerably lower the opportunities (i.e. increase the costs) of various crimes. These initial conditions are again singular statements:

> *Initial conditions:* Technological developments occurred between 1990 and 2010 in the US that lowered the opportunities for committing crimes.

These conditions describe the causes of the phenomenon to be explained. This is called the *explanandum*. It is a singular statement as well. In the present example let the explanandum be:

> *Explanandum*: Crime dropped in the US between 1990 and 2010.

The theory and the initial conditions *logically imply* the explanandum. This can be written in the following way:

> Law
> Initial conditions
> Explanandum

The horizontal line symbolizes the logical relationship between the statements over and below the line.

This argument might intuitively be formulated as follows: Why did the crime rate drop in the US between 1990 and 2010? (This is the explanandum.) Because the opportunities for crime decreased (this are the initial conditions) *and* because, in general, decreasing opportunities lower the crime rate (this is the theory) The and-clause in the previous argument is of utmost importance. Without this clause, i.e. without the law, we would have just an ad-hoc claim that certain singular phenomena had an impact on some other singular phenomenon. The law provides the information about which phenomena are the causes of the phenomenon to be explained. This indicates the importance of applying laws in explanations.

The example assumes that the law is *deterministic*. A probabilistic version would read: If opportunities for committing crime decrease, then the crime rate will decrease most of the time (or in a certain number of cases or with a certain probability). In this case, the explanandum is only confirmed (for details see Hempel 1965: 381-425; 1966: chapter 4).

When theories are *empirically tested* the HO scheme is applied as well. Assume we find that there is a decrease of opportunities but no change of the crime rate. This would be a falsification of the theory. As in the HO scheme, it is examined to what extent the explanandum that follows from the explanans (the law and the initial conditions) is empirically confirmed.

Although the HO scheme seems plausible, it is controversial (see, e.g., Woodward 2003: 152-186). The major argument for the fruitfulness of the HO scheme in the present context is the following. We focus on social science *theories*. These theories are applied to explain specific phenomena, namely crime. To dispense with theories leaves us with arbitrary ad hoc explanations. Evidence is then only based on intuition or beliefs. Although our theories are not perfect they are much better than relying on intuition. The theories lead us to search for certain conditions in a specific situation that are, according to the theory, relevant for the explanandum. This is exactly the application of the HO scheme.

A theory cannot only explain but also *predict* singular phenomena. This is possible if there is a time lag between the initial conditions and the explanandum. This would imply that in case of the existence of the initial conditions it is to be expected that after a certain time, specified in the theory, the explanandum will occur.

Theories can also be applied to find *effective interventions* as in *crime prevention*. If an administration wants to implement a program for crime prevention, theories suggest the conditions that must be changed. For example, the opportunity proposition suggests that in order to reduce crime the opportunities must be changed.

6. Mechanism explanations

The HO scheme is rejected in Analytical Sociology: mechanism explanations are regarded as an alternative to HO explanations. There are three types of explanations, Hedström claims (2005: 13–14): covering-law (i.e. HO) explanations, statistical explanations and mechanism explanations. A mechanism-based explanation is not “wedded to the idea that an explanation is a

deductive argument" (Hedström and Ylikoski, 2010: 55).[2] One justification for this claim is that mechanisms refer to processes that explain the origin of the explanandum. The HO-scheme, it is asserted, cannot be applied in this case (see also Hedström and Swedberg, 1998: 7–8; Hedström and Ylikoski, 2010: 50).

This argument is clearly not tenable (for details see Opp 2013 and the controversy in the journal Social Science Information, volume 52, issue 3). We show in chapter 4 of this book how RCT can be applied to explain social processes. We describe a process (i.e. a mechanism) that begins with a tax increase, leads to an increase of tax evasion; then the media report about this, which raises tax evasion again (see Figure 4.1). It goes without saying that in each step a theory, in this case RCT, can be applied. For example, the tax increase imposed by the government is a kind of costs of paying taxes for the citizens. This is an initial condition. According to the theory, this leads to more tax evasion on the side of the citizens. This is the explanandum. The increase of tax evasion is interesting news for media (i.e. an incentive for publishing the news, i.e. an initial condition) which leads to publishing the news (the explanandum). There is no need to go into further details. It is clear that in process (or mechanism) explanations theories can *and must* be applied to avoid ad hoc explanations. Mechanism explanations are thus not only completely compatible with HO explanation, one might go one step further: *only mechanism explanations that apply the HO schema are good explanations*.

7. Summary and conclusions

In this book "crime" is defined as any action or non-action that violates the criminal law. In order to justify this choice it is discussed what a useful definition is. "Useful" implies that definitions cannot be true or false, but serve certain purposes. In this context, a "useful" definition is a definition that is *theoretically important*. The necessary condition for such a definition is a high degree of *precision*. Only if it is clear what crime means a theory can be applied to explain specific phenomena. Theoretical importance of a concept further means that it is an element of a *valid* theory and of a theory with high *informative content*. We further discuss some issues of definitions. In regard to the legal definition of crime, it is argued that RCT implies to explain any kind of behavior and, thus, violations of the criminal law as well. Another argument for the usefulness of the legal definition is that it is employed by most of the theories that are discussed.

The term *theory* is defined as any "statement of universal conditional form which is capable of being confirmed or disconfirmed by suitable empirical findings" (Hempel 1942: 35). Theories are *deterministic*, if the explanandum occurs always when the conditions exist. Otherwise theories are *probabilistic* (or statistical). *Singular statements* refer to certain times and places.

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[2] A contradiction to this statement can be found in Hedström's book (2005: 30): "a mechanism-based explanation ... can be characterized as a theoretical deductive argument." For a more detailed discussion of mechanism explanations see Opp 2005, 2007. For a discussion in criminology see Bruinsma and Pauwels 2017 (whose skepticism in regard to Hempel-Oppenheim explanations we do not share).

We discuss several requirements for a "good" theory. A necessary condition is the *precision* of the concepts as well as of the structure of the theory (i.e. what the independent and dependent variables are and how they are related). Another requirement is that a theory must be severely tested and be confirmed, i.e. it must be *valid*. This does not mean that the theory is "true", but that it is reasonable to accept it for the time being. The final requirement is the *informative content*: a theory must have a relatively wide range of application and should explain a large class of relatively specific phenomena.

We further discuss the "poverty" of orienting statements which only point to types of factors that seem somehow relevant for explaining a class of phenomena. Such orienting statements can be frequently found in the literature. They have a relatively low informative content. This also holds for statements about *factors that "can" lead to something*. This implies that they also may *not* lead to something. These are, thus, tautologies. But perhaps authors mean that sometimes the factors are causes for some phenomenon. Sometimes there may be *goal conflicts* between the requirements for a good theory: an informative theory might be falsified, and the corrected theory might have a lower informative content than the incorrect theory. We would suggest that validity has priority.

In the final part the *Hempel-Oppenheim explanatory scheme* is discussed. It is shown how it can be applied to *explain* specific singular phenomena, how it can be applied to *test* theories, how *predictions* can be made and how it can be applied for *interventions*. It is further shown that it is completely compatible with mechanism explanations: mechanism explanations without applying theories are ad hoc.

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3 The Theory Chaos in Criminology

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Abstract. This chapter discusses major weaknesses of criminological theories. In particular, it is often not clear what the variables and their relationships are the theories consist of. For given theories, it is not clear what the relationships between the statements of the theory are. Are they all logically independent? There are further different versions of a theory – there is thus not only one clear theory of self-control. The logical relationships between the theories is not clear. Finally, many concepts are ambiguous. There is further a lack of informative content (theories often explain only whether some crime is to be expected and not which kind of crime is predicted). We do not know how valid theories are because there are few comparative theory tests. We call this situation a "theory chaos." We insinuate what could be done (details are discussed in chapter 5): compare criminological theories with a general behavioral theory which, it is argued, leads to a modification and integration of the criminological theories.

1. Introduction

Why is a research program useful that tries to improve the state of criminological theories? In this chapter it is shown that the existing theories in criminology suffer from serious shortcomings. These weaknesses are the motivation of the research program that we suggest and that is described in detail in chapter 5.

Criminology is one of the social sciences in which numerous *special theories* exist that explain crime or some form crime (or deviant behavior). Examples are anomie theory, general strain theory, the theory of differential association, social structure social learning theory, self-control theory, propositions from the labeling approach, social disorganization and collective efficacy theory, and situational action theory. These are the theories that are discussed in detail in chapter 7. A much longer list could be compiled if one looks at criminological textbooks such as Akers et al. (2016) or Lilly et al. (2015) and at handbooks or encyclopedias such as Bruinsma and Weisburd (2014).

In addition, criminologists explain crime by applying *general behavioral theories*. If a theory explains under which conditions *any* specific kind of behavior is performed, it is also possible to explain crime because this is a specific form of behavior. Examples of those general theories are rational choice theory and social learning theory.

There are further frameworks or approaches such as marxist theory or symbolic interactionism that are applied to explain crime. We will comment on these approaches below.

However, many criminologists consider the state of criminological theories unsatisfactory. A diagnosis from 1989 is still valid today: "The study of deviance and crime has traditionally been characterized by a multitude of seemingly unrelated and competitive theories" (Liska et al. 1989: 1). These authors further describe the field as "fragmented," "in disarray" and "chaotic." Criminology is a "divided discipline" (Agnew 2011: 1-9). Agnew (2005: 17) describes the feeling of students after attending a criminology course: they "feel overwhelmed and confused. They often examine 10 or more different theories or explanations of crime." The reason is that there is a large number of different theories that aim at explaining crime, but it is not clear which theory is superior (see, e.g., Elliott et al. 1979; Thornberry 1987). Let us look at the problems of existing criminological theories in detail.

2. The lack of clarity of the structure and concepts of theories

Bruinsma (2016) in particular describes the state of contemporary criminology in detail. One problem is the lack of clarity of many existing theories. For Gibbs (1987: 834) the "conventional discursive mode" is a major impediment of scientific progress. "That mode makes the logical structure of theories obscure and precludes defensible tests" (see also Gibbs 1985). That is to say, the *structure of theories* is not clear in the sense it is not known what exactly the dependent and independent variables are and how they are related. This lack of clarity of the structure of major theories of crime was a major problem of comparing criminological theories with rational choice theory in chapter 7. The first step was usually a clarification of a theory before it could be compared with rational choice theory.

It is further nor clear *what the general propositions of a theory are*. A theory consists of general conditional statements (see chapter 2). Rational choice theory consists of three general propositions (see chapter 4); Homans's learning theory has five propositions and the rationality proposition (Homans 1974: 15-50); Sutherland's differential association theory consists of nine assumptions (1947: 5-9); Merton formulates at least a "central hypothesis" (see chapter 7.2) which is a general conditional statement. There are many other hypotheses. One is that crime is higher in the lower classes. Is this a general proposition of the theory or just an implication of other general propositions? If the *general* assumption is that a disjunction of goals and legitimate means brings about deviance, the class proposition could be a *corollary* that holds under certain conditions. These consist of the empirical assumption that in the lower classes the disjunction of goals and legitimate means is high. But this is not a law but a singular statement. The class proposition would thus not be an ingredient of the theory. Similar problems exist for other theories, as our analysis in chapter 7 testify. Thus, *intra-theoretical relationships* (relationships between the hypotheses of a theory) are not clear.

Each theory consists of *different versions*, sometimes the major author has published different articles that propose different variants of the theories without identifying the differences. Our discussion of self-control theory illustrates this situation (chapter 7.6). The question thus is: what is "the" theory of self-control?

Let us illustrate this with our reconstruction of Agnew's General Strain Theory (chapter 7.3). There is an entire book (Agnew 2007), and there are numerous articles in which the theory is described. What are the propositions "the" general strain theory consist of? If we only select the article from 2001 (Agnew 2001) we find dozens of propositions. We want to analyze the theory, i.e. the general propositions. So the question is which of the numerous hypotheses are the general basic propositions of a theory. We rarely find analyses about the logical relationships between the hypotheses of a theory.

There is further a *lack of clarity of the concepts* of criminological theories. An example is self-control (see chapter 7.6 in this book). Gottfredson (2017: 3) defines it as "the ability to forego immediate or near-term pleasures," and it is held that low self-control leads to crime. How can the "ability" be defined independently of crime? If the ability is "derived" from crime (Hirschi and Gottfredson 2008: 217) the explanation is circular (see Akers 1991).

3. The lack of clear inter-theory relationships

Assume we have identified the major propositions the theories consist of. For example, there is one version of self-control theory, of social structure social learning theory etc. It is not known what the inter-theory relationships, i.e. the *relationships between different theories* are. Do the theories contradict each other? Or are they supplementary? To illustrate, Bruinsma (2016: 663) summarizes some basic propositions of major theories of crime. Two of them read:

TA: Criminal behavior is the result of a lack of internal or external control.
TB: Criminal behavior is the result of learning processes.

These hypotheses can be understood in two ways. One is that there are crimes for which TA holds, and there are crimes for which TB holds. In other words, if there lack of internal control, there is crime, but if there are learning processes there may be crime as well. Each of the conditions leads to crime. There is thus no contradiction.

However, the two theories can be understood in a different way. Proponents of TA could claim: TA is true, but TB is false; proponents of TB could claim: TA is false, but TB is true. Thus, the exclusive effect of one of the conditions is postulated. In this reconstruction, the theories contradict each other. It is often not clear which theories contradict each other and which theories are supplementary. For example, does rational choice theory contradict social learning theory and self-control theory? It is sometimes claimed that a rational choice approach is "incompatible" with or in "sharp contrast to the most commonly researched theories" such as low self-control or labeling (McCarthy 2002: 423). However, this is just an allegation and need to be shown in detail. It rarely happens that criminologists analyze the logical relationships between theories in a rigorous way.

4. Deficiencies in the informative content of criminological theories

A criterion for the quality of a theory is its *informative content* (see chapter 2). Many theories of crime do not fulfill this criterion. For example, if the dependent variable is the performance of some criminal act, it is not explained what kind of act is to be expected. It is weird that the informative content of a theory is rarely (if ever) discussed. There are hardly discussion whether a theory just explains crime or also specific kinds of crime. The latter should be analyzed in detail.

5. The problems of finding the validity of theories

A major criterion for judging a theory is its validity (chapter 2). As was insinuated at the beginning, we do not know *which of the existing theories is superior*. For example, does self-control theory provides a more valid explanation of crime than social learning theory? The answer is not known. One could object that there is a vast number of empirical studies that test the theories. For example, advocates of self-control theory and social learning theory praise the number of studies that confirm their theories (see sections 7.6 and 7.7). We know from the philosophy of science (e.g. Lakatos 1970) that a confirmation of a *single* theory does not say anything about its validity. A theory may be well confirmed, but if it is compared with another theory the variables of the other theory may explain the effects of the former theory.

An illustration is a comparative test of self-control theory and variables of rational choice theory (Tibbetts and Myers 1999). When the effect of low self-control on crime was tested, it had a clear statistically significant effect. But if the rational choice variables are included in the multi-variate analysis, the effect of low self-control disappears (see section section 7.6). This shows that an *isolated test of a theory is not sufficient to test its validity*.

A problem of theory tests in criminology is that "only in very rare cases are two or more theories tested simultaneously" (Bruinsma 2016: 664). There is thus a *lack of comparative theory testing*. This is a reason that we don't know which theory is superior.

A consequence of this lack of comparative theory testing is that in criminology *most theories never die*. To be sure, they are discussed and also modified, but basically they still exist. Examples are anomie and differential association theory. One might regard the longevity of theories as an indicator that there is no clearly best theory in sight.

6. Why theoretical frameworks are a poor theoretical foundation for criminological theories

The social sciences further consist of *theoretical approaches*, also called theoretical *paradigms* or *frameworks*. Examples are Marxism, critical theory (the Frankfurt school) or symbolic interactionism. Some theories are related to these approaches. For example, the labeling approach (see chapter 7.7) is related to symbolic interactionism, conflict theory in criminology

to Marxism. These approaches are not succinct theories with relatively clear dependent and independent variables, but rather consist of numerous quite heterogeneous assumptions. Marxism, for example, provides descriptions of the class structure of contemporary societies; it further includes normative statements demanding replacement of a capitalist society and general propositions.

We will return to the relevance of these paradigms in chapter 5. The conclusion there is that they are hardly useful for improving the state of criminological theories. Although these paradigms resemble very general theories, their propositions are too uninformative to serve as a theoretical axiomatic system from which specific criminological theory can be derived. This is their major weakness.

7. What could be done? Theory competition and theory integration

Isn't the abundance of criminological theory rather a blessing than a curse? There are many different and creative ideas that could be a great opportunity to gain valid knowledge about the causes of crime. This is correct, but only if we organize a *systematic theory competition*. This means that theories should be empirically compared. Only this enables us to find out what the best theories are.

There are several possibilities for such a theory comparison. These will be discussed in detail in chapter 5. The suggestion will be not to compare criminological theories with each other but with general behavioral theories. Our choice is a wide version of rational choice theory that explains all kinds of behavior. The major argument for this kind of comparison is that this theory has been relatively fruitful for explaining quite diverse kinds of behavior so that there is a chance to find the conditions under which crime occurs *and* under what conditions the theories explaining crime are valid. The specific criminological theories thus become integrated as special corollaries of rational choice theory. This is a short summery of a major part of our program of Analytical Criminology. Details are described in chapter 5 and 8.

8. Summary and conclusions

Existing criminological theories have the following flaws. (1) Their structure is ambiguous, i.e. it is not clear what the variables are they consist of and how they are related. (2) Given theories consist of numerous statements. Relationships between these statements are not clear: which ones are logically independent and which ones can be derived from others? (3) Logical relationships between the theories are not clear. (4) There are different versions of a given theory such as self-control theory. (5) Criminological theories are ambiguous in regard to the meaning of their concepts. (6) The informative content of the theories is in general low – often crime in general and not specific kinds of crime are explained. (7) The validity of a theory can best be found if it is compared with other theories. Comparative theory tests are rare in criminology. (8) Theoretical frameworks such as Marxism or symbolic interactionism are not helpful in

explaining crime because they do not consist of clear general theoretical axioms that could be used to derive criminological theories.

There is thus theoretical pluralism in criminology, but the coexistence of numerous theoretical ideas (that are burdened with problems) does not lead to theoretical progress. This is only possible if a program of theory competition and integration is developed. Chapter 5 describes in detail that a comparison of rational choice theory and specific criminological theories could improve the situation in criminology.

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4 The explanation of individual behavior in the social context: the wide version of rational choice theory as the theoretical foundation of Analytical Criminology

Contents

Abstract. The first part of this chapter is a detailed exposition of rational choice theory. We discuss the different versions and argue for a wide version that includes all kinds of motivations and beliefs, and subjective utility maximization (people do what they think is best in their situation). We discuss important implications (such as the possibilities to model interdependence), extensions (such as including emotions), applications in criminology and the most important objections against the theory. For example, it is shown that the theory is neither tautological nor circular, that there is no convincing alternative to utility maximization (such as reason-based action), and that allowing all kinds of incentives does not make the theory ad hoc or untestable because a basic requirement is that the incentives must be measured with the methods of empirical research. The conclusion is that the theory is a fruitful foundation for providing micro-macro explanations (chapter 6) and analyzing in detail the selected criminological theories (chapter 7).

1. Introduction

A key component of the research program of Analytical Criminology suggested in this book is the application of a wide version of rational choice theory (RCT). This theory is applied to examine the extent to which criminological theories can be derived in their original or modified form. In the present chapter this theory is expounded and discussed in detail. This is useful already at this point because assessing the arguments in favor of and against applying this theory presupposes that the theory is known.

The basic ideas of the theory were already formulated in the eighteenth century. The founders were Cesare Beccaria in his essay "On Crimes and Punishment" from 1764, and Jeremy Bentham in his book "An Introduction to the Principles of Morals and Legislation" from 1789. Since that time there is a burgeoning literature in which the theory has been modified, applied to various explanatory questions in different social science disciplines and tested empirically. At present there are different version of the theory. In this book we will apply a wide version of the theory which will be presented and discussed in the present chapter.

This wide version of RCT is used by an increasing number of scholars. In *economics,* Herbert Simon‹s idea of "satisficing" (i.e. finding satisfactory and not necessarily optimal solutions from the viewpoint of an observer, see Simon 1997: 92-132) is increasingly replacing objective utility maximization and is part of the wide RCT. Other economists explore, for instance, effects of "soft" incentives such as identity (Akerlof and Cranton 2010) or intrinsic and extrinsic motivation (Frey 1997). *Game theorists* address fairness norms in explaining behavior in ultimatum games (Henrich et al. 2004) – norms are not a component of the narrow neo-classical homo oeconomicus. *Behavioral economics* (e.g. Thaler 2015) and the findings of D. Kahneman and A. Tversky are consistent with a wide RCT too. In *social psychology* a recent book on explaining cooperation applies a wide RCT (Tyler 2013). The wide version in *criminology* is discussed below. Many – perhaps most – rational choice theorists in *sociology* use the wide version as well (often without being aware of it).

Many authors do not *explicitly* refer to the wide version (such as Tyler 2013), but actually a wide range of costs and benefits are the major explanatory variables, and implicitly subjective

(and not objective) utility maximization is assumed. This holds, for example, for Hedström, a major proponent of Analytical Sociology (see the discussion of DBO theory below). Nonetheless, these and other authors have different views in regard various issues connected with RCT. In other words, RCT is not a single theory but a ***family of theories***.

2. Behavior as the explanandum of the theory

All versions of RCT explain behaviors. These are of two kinds, which Max Weber (1962) called ***external*** and ***internal action*** ("äußerliches oder innerliches Tun"). The former refers to observable behavior such as a criminal action. RCT is mostly applied to explain this kind of action. "Internal" action refers to thinking, deliberation, observing or paying attention to something. The theory does not explain ***innate movements*** such as the knee reflex.

As will be seen below, there are often only two behavioral alternatives: doing or not doing something. This means non-action (or, as Max Weber put it, "Unterlassen"). It may be explained, for example, why a person does not go to the polls.

3. The three key propositions of rational choice theory

RCT comes in different versions. In an exposition or in a discussion of RCT it is of utmost importance to specify which version is addressed. The reason is that different versions make different assumptions and have different strengths and weaknesses. It often happens that a strawman, i.e. a GMORC version of RCT (The Ghost Model of Rational Choice – this expression was suggested to me by Lieven Pauwels) is attacked, i.e. a weak and outmoded version of RCT, and this is then executed.

In this chapter RCT is regarded as an ***empirical theory***: it aims at explaining real phenomena and is thus falsifiable. This implies that the dependent and independent variables are defined and measured independently. That is to say, RCT is ***not*** based on an assumption of ***revealed preferences*** that "infer" preferences from behavior (see, e.g., Binmore 2009: 20). Such a theory is of no use to explain any real phenomenon. RCT is further ***not a normative theory*** that tells how one should behave.

Although there are different versions of RCT, there are three propositions that every version shares. One might call these propositions the ***key propositions*** of RCT.[1] The first proposition is:

> ***Preference proposition (P):*** Preferences (or, equivalently, goals or motives) determine behavior.

[1] There is a vast literature in which RCT is described and discussed. There are textbooks in economics, game theory and public choice theory. The economic model of man, the homo oeconomicus, is another expression for RCT. I would recommend as introductions Kirchgässner 2008; Sandler 2001. This chapter is based on Opp 1999, 2019b. In the article from 1999 the different versions and arguments for a wide version are discussed in great detail.

Human behavior is thus goal-directed. Existing goals determine the choice of a behavior that is regarded as relevant for realizing goals. Activities are thus *instrumental* for realizing goals.

Not only goals determine behavior. RCT assumes that the possibilities or constraints are conditions for a behavior:

> *Constraints proposition (C):* Events that impede or promote the achievement of goals determine the respective behavior.

RCT is thus not a purely psychological theory that exclusively relies psychic attributes of individual actors. RCT is not a theory either that only focuses on environmental factors. Both factors are taken into account. For example, a prison sentence is an event that prevents the realization of many goals. It is thus a *constraint* for many goals. An increase in income is behavioral *opportunity* that makes the realization of many goals possible. Constraints that are part of our *biological endowment* are the inborn part of our intelligence or physical abilities. To simplify language, we will henceforth only speak of *constraints*.

Preferences and constraints have a *multiplicative effect*: the effects of goals depend on the magnitude of the respective constraints and vice versa. For example, if a person wants a higher income, but there is no opportunity to get more money by drug dealing, the respective behavior will not be chosen. Here is the third proposition:

> *Utility maximization proposition (U):* People choose the behavior that is best for them (i.e. which provides the highest satisfaction).

If we did not add U, it would not be possible to explain why a certain behavior and no other behavior is chosen. P and C only imply that goals and constraints are *relevant* for performing a behavior. U states *which behavior* is performed. There are always at least two behaviors: performing and not performing a behavior.

It is strange that U is the most controversial proposition of RCT. This is astonishing because it increases the informative content of RCT. Perhaps U is so controversial because critics have a narrow version (see below) in mind implying that individuals objectively maximize the utility. In addition, "utility" is associated with material benefit. As will be seen, a wide version assumes subjective utility and any kind of benefit that may govern behavior.

When applying RCT the terms *costs and benefits* are often used, sometimes in different meanings (see for a discussion Buchanan 1969). In the following these terms are defined as the constraints and behavioral opportunities. Thus, "costs" of a behavior are high if there are high constraints (such as a high likelihood of severe punishment). Costs and benefits are also called *incentives*.

Note that RCT is a theory in the strict sense: it is *general* (not restricted to certain times and places) and it is *conditional*: it specifies conditions for an explanandum. Note further that it consists of three propositions. These are the axioms of the theoretical system.

It is further important *both* factors – preferences and constraints – must thus be taken into account when behavior is explained. It is thus not in line with the theory when economists often neglect preferences and focus on changes of constraints when they explain a behavior. Whether

preferences are involved must be determined empirically. For example, the trend to smaller cars may be explained by changes in energy prices. But perhaps changing preferences for a clean environment or norms to protect the environment may be involved as well. Whether this is correct must be determined empirically.

RCT implies that crime as well as non-criminal behavior can be explained by the same theory. This is the position of most criminologists. Often crime is not the only option in a given situation. RCT implies that the costs and benefits of all available options matter for the decision to commit a crime.

4. Specifying the incentives: the narrow and the wide version of rational choice theory

We distinguish a narrow and a wide version of RCT. Intuitively, "narrow" means that there are many specific assumptions, that are dropped in a "wide" version. The narrow version is a 2 of the wide version. It is held that the wide version is superior to a narrow version. Table 4.1 summarizes the most important differences between a narrow and wide version of RCT.

Table 4.1: Assumptions of a narrow and wide version of rational choice theory

Assumptions	Assumptions of the *narrow* version	Assumptions of the *wide* version
(1) Kinds of behavioral alternatives	Actor chooses from *objectively given* alternatives.	Actor chooses from *perceived* behavioral alternatives.
(2) Kinds of preferences	Only *egoistic* preferences are admitted.	*All kinds of preferences* are variables of the wide version.
(3) Kinds of constraints	*Objectively* given constraints explain behavior.	*Perceived* constraints (beliefs) explain behavior.
(4) Validity of beliefs	Beliefs are a *correct* representation of reality.	Beliefs may be *biased*.
(5) Storage and information processing	There is *no limitation* of storing and processing information.	Human capacity of storing and processing information is *limited.*
(6) Kind of utility maximization	There is *objective* utility maximization.	There is *subjective utility maximization.*

(1) Utility maximization implies that often several behavioral alternatives are taken into account. A narrow version assumes that the behavioral alternatives an actor chooses from is the actually existing choice set, from the perspective of an informed observer. A wide version assumes that an actor chooses from the *perceived* options.

(2) In the narrow version, as it is used in neo-classical economics, *egoistic* or, equivalently, selfish motives are assumed. This is sometimes called the assumption of *self-interest*. This means

that people are only interested in their own welfare. A wide version does not make this restrictive assumption: ***any kind of goal*** or preference is admitted. People may have ***altruistic goals*** (also called ***social preferences*** – the goal to increase the well-being of others) or they may ***want to conform to a norm*** (such as not to steal). All these goals may influence human behavior. Which goals actually influence behavior must be measured empirically.

Admitting a great variety of goals also implies that ***goals need not be stable*** (they may vary over time) and ***goals may differ across actors***. There need not be homogeneity of the goals in any sense. The same holds for beliefs.

The admission of a wide array of goals implies that also a wide array of constraints are to be considered. For example, if people like social approval then the social approval a person experiences is a constraint.

It is of extreme importance that the ***initial conditions are not laws***. RCT thus does not assume that individuals are always egoistic (or, as it is sometimes formulated, self-interested). What the specific motivation in a situation is has to be empirically determined.

(3) Not ***objective constraints*** (e.g. the objective probability of being punished) but ***perceived constraints*** (e.g. the perceived probability of being punished) are variables of RCT. It is a common place by now that people act according to what they believe to be the consequences of there behavior.

(4) It is often assumed that reality is correctly represented in the individual‹s cognitive system. The wide version assumes that ***beliefs may be biased***. For example, the perceived probability of being punished for committing a crime may be grossly misperceived.

(5) In neo-classical economics and game theory, the homo oeconomicus who represents the narrow version of RCT "can think like Albert Einstein" and can "store as much memory as IBM's Big Blue" (Thaler and Sunstein 2009: 6). This assumption is not shared by the wide version. People perceive reality selectively and can only ***store*** a limited extent of information. There are also ***limits of information processing***.

(6) It is often assumed that an actor objectively maximizes utility: the actor‹s behavior leads to the best outcome, judged from an omniscient observer. This assumption of a narrow version is not accepted in the wide version. It assumes ***subjective utility maximization***: the actor does what from his or her perspective is best. To illustrate, in committing a crime the individual may misjudge the outcomes, and after having committed the crime is aware that this was a "bad" decision. Objective and subjective utility maximization may thus greatly differ.

The concept of utility maximization does not mean that only "utility" in a material sense is referred to. "Utility" means everything that an individual values positively or negatively. "Maximization" means that the actor chooses the action he or she thinks is best, This implies that the result of an action may not be satisfactory, but the best that can be achieved.

It is important to note that the narrow and wide version are not contradictory. On the contrary, ***the narrow version is a special case of the wide version***. The wide version only claims that the assumptions of the narrow version are not always met. For example, an actor may be in a situation in which there are only few objectively given opportunities (for example no possibility to escape from a prison) that are also perceived. There may be situations such as market transactions in which only egoistic preferences determine behavior. But in general, other motivations or goals need to be taken into account.

When we look at the literature of neo-classical economics or game theory there are many other restrictive assumptions. In game theory axioms for utility are formulated (e.g. Luce and Raiffa 1957: 23-31). For example, preferences must be transitive (if an object a is preferred to b and if b is preferred to c, then a is preferred to c). Such axioms are often not fulfilled. In most empirical research and theoretical analyses with RCT those axioms are not addressed.

The assumptions in column 2 and 3 may be combined. For example, scholars might assume egoistic preferences, but that beliefs are biased. There may thus be ***mixed versions*** of a wide and narrow version of RCT.

5. Supplementary assumptions: inventories of initial conditions and empirical generalizations

RCT assumes that only costs and benefits are explanatory factors and not age or gender. The specific incentives are the initial conditions. Chapter 2 provides a detailed description of the application of RCT.

Because the initial conditions are not part of any theory, the researcher must formulate hypotheses about what the initial conditions might be and then test these hypotheses. Researchers can build on previous research results about incentives. Empirical research has shown that in particular ***internalized norms***, ***expected (formal or informal) negative and positive sanctions*** and the ***goal to acquire material benefits*** (such as a higher income) are determinants of behavior. These are singular statements, but they are ***often or sometimes*** causes of behavior. People often commit crimes in order to improve their material well-being. In other words, those hypotheses about relevant incentives in a situation, i.e. initial conditions, are ***empirical regularities.*** This means that they do not always hold (and are thus no laws), but are sometimes causes of crime.

An example for such an empirical regularity is the idea of a ***critical mass*** (see Oliver and Marwell 2002; Centola 2018). If a certain number of individuals perform a certain behavior, others often follow suit. RCT suggests that imitation occurs if the imitated behavior relatively rewarding. But this is not always the case. For example, if it became known due to media reports that an unexpected high number of educators in Germany sexually abused children, the effect was not an increased number of sexual harassments of children. On the contrary, the reports about the suffering of the victims led to more attention of parents in regard to the behavior of the educators. This increased surveillance probably had the effect that the respective behavior decreased. RCT suggests the conditions under which behavior spreads.

Such empirical regularities can be used as ***heuristic devices*** to find the initial conditions. Assume, for example, tax evasion is to be explained. Robbins and Kiser (2018) undertake this task. To find the relevant incentives they proceed from the previous literature from which they take suggestions of possible incentives. The authors argue, that in a standard economic model material gains are important, but that normative factors might be relevant as well. They find support for the economic model. This does not falsify the wide version because the narrow version is only a special case of the wide version. Even if variables of a narrow version fare better, it is known which incentives do not matter.

It is important to distinguish these different types of propositions: theoretical propositions (see the three key propositions) and supplementary propositions about initial conditions. They may be empirical regularities but not laws.

There are not only empirical regularities about the distribution of incentives. Incentives may also correlate with many other variables. For example, there might be correlations of incentives with age and gender. High age and being female seem to be associated with few incentives for crime. The different crime rates of such *correlates of crime* can thus be explained with RCT.

6. Value expectancy theory as a variant of the wide version of rational choice theory

Proponents of RCT often apply a theory that specifies the assumptions of the wide version of RCT in a more detailed way. This is value expectancy theory (VET), also called expectancy value theory or SEU theory ("SEU" for "subjective expected utility").[2] In explaining a behavior VET assumes that the behavior performed is among the *perceived behavioral alternatives*. For each behavioral alternative the *perceived behavioral consequences,* their *subjective probability* and their *utility* (i.e. the extent to which they are wanted) are determinants of the behavior.

To illustrate, assume an individual considers two behavioral alternatives: to search for a better paid position or take an offer of some friends to commit regularly burglaries. Let there be the following behavioral consequences (or "outcomes" (O)): (1) getting a certain additional income; (2) violating of an internalized norm not to act illegally; (3) receiving positive reactions of best friends. For each alternative, the utilities (U) and the subjective probabilities must be determined empirically.

Note that the *instrumentality* of the behavior for the incentives is assumed. For a behavior to be performed those consequences matter that can be realized through the respective behavior. For each consequence j, the p and U affect the behavior *multiplicatively*. This means that the effects of p depend on the value of U and vice versa: if a person wants an additional income but thinks that this will not be achieved with a burglary, the product of p C U is zero, so that this consequence has no effect on the behavior.

The *overall* subjective expected utility (SEU) of a behavioral alternative a is *defined* as the sum of the products of the U's and p's of each behavioral consequence:

$$SEU(a_i) = \sum_{j=1}^{N} p_{ij}U(O_j)$$

Note that p_{ij} refers to a given behavioral alternative i and a behavioral consequence j (there may be N behavioral consequences), the U are the same for every behavioral consequence.

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[2] See Feather 1982, 1990; Fishbein and Ajzen 2010, 96-128; for the history of SEU theory see Stigler 1950a, 1950b. For criminology see Becker and Mehlkop 2006; Eifler and Leitgöb 2017; Mehlkop and Graeff 2010. It is important that VET is a social psychological version and differs from the narrow EU version in economics. See, for criminology, Lattimore and Witte 1986.

The previous equation ***defines*** the SEU of a behavior. SEU ***theory*** claims that a behavior a_i is performed if its SEU is higher than the SEU of any other perceived behavior a_k – the arrow symbolizes an if-then relationship:

$$[SEU(a_i) > SEU(a_k)] \rightarrow a_i$$

If two behaviors have the same SEU no behavior is performed. In this case it is plausible that another alternative is perceived, namely to look for information about other behavioral consequences or about probabilities or for other behavioral alternatives.

In game theory it is distinguished between certainty, uncertainty and risk of behavioral outcomes. ***Certainty*** means a probability of 0 or 1, ***risk*** refers to any probability between 0 and 1, and ***uncertainty*** means that no probability can be assigned. That is to say, people act "under ignorance" (for a discussion see Hogarth and Kunreuther 1995). An example is an individual who is ignorant about being caught after committing a burglary. It seems plausible that "uncertainty" means, from the perspective of the actor, a subjective probability of .5. Assume a person does not know whether he or she will be arrested. In terms of VET, the burglar would probably assess the chances of getting caught as .5.

VET includes the major variables of the three key propositions: utilities are the preferences, and the beliefs refer to the subjective probabilities. Subjective utility maximization is the assumption, that the action with the highest SEU will be chosen.

VET can be ***falsified***. This will be the case if the action which has the highest SEU is not chosen. The p‹s and U‹s can be measured, and multivariate analyses can show whether the predictions of the model are correct. In consumer theory (see any economics textbook such Salvatore 2003: 57-86) the highest possible indifference curve is preferred that can be realized with the given constraints. One can measure the satisfaction with goods and the perceived constraints.

All the assumptions of the wide versions are components of VET. For example, beliefs may be wrong, and all kinds of preferences can be included. For example, "altruistic preferences" may be modeled as behavioral consequences for the well-being of others with a certain utility and subjective probability.

In explaining real phenomena applying VET is recommendable because it forces the researcher to think in more detail about possible behavioral alternatives and behavioral consequences for each option, and about subjective probabilities and utilities.

7. Some implications of the wide version of rational choice theory

The implications discussed in this section are selected because critics of RCT often deny these implications and, thus, raise untenable objections against RCT.

Behavior can be deliberate or spontaneous*: *there is no "rational calculation"

A typical misunderstanding of RCT is that it admits only deliberate behavior. There is thus "rational calculation" (Akers et al. 2016: chapter 2). Already Gary Becker (1976: 7, see also Homans 1974: 48-49) emphasizes that RCT only claims that incentives drive action. It is explicitly stated that behavior may be deliberate or spontaneous ("automatic").

"Deliberation" is a behavior and can therefore be explained by RCT. Spontaneous behaviors refer to habits or routines (for reviews of theory and research see Betsch et al. 2002). Often individuals explicitly decide not to think further about a behavior but just to perform it as long a the situation does not change. Such a decision is a cost-saving device that saves a lot of time and is thus compatible with RCT. Spontaneous behavior is also to be expected if a person has internalized a very strong norm against performing a behavior. The person will not calculate because it is clear anyway how to behave (see Opp 2017).

How to model the effects of interdependence: some basics of game theory

It is a frequent misunderstanding that RCT addresses only behavior of isolated individuals. To be sure, RCT is a theory about individual actors, and the variables are preferences and beliefs. However, beliefs or constraints may typically be the behavior of other actors in a social situation. Such interactions are modeled in game theory by applying RCT, with a wide range of possible "payoffs" (see below), as they are taken into account in the wide version of RCT.

There is a vast literature on game theory, and it is not possible to go into the details. For accessible introductions see Easley and Kleinberg 2010: 155-208; for the application to crime see the review in McCarthy 2002; Rauhut 2017. The application of game theory to crime will be illustrated with an example. Assume, you – the reader – has found on Ebay a watch that you want to buy and the seller agrees to send it to you by mail. You both agree to pay and deliver simultaneously. Assume that there are no sanctions and no norms involved. How do the buyer and seller behave?

Table 4.2: Choices in an exchange situation

Behavioral alternatives of *buyer*	Behavioral alternatives of *seller*	
	Deliver (cooperation)	Do not deliver (defection)
Pay (cooperation)	3, 3	1, 4
Do not pay (defection)	4, 1	2, 2

Table 4.2 shows in the first column the behavioral alternatives of the buyer and in the second and third column the behavioral alternatives of the seller. In game theory, the actors are called "players." You – the buyer – might pay or not pay, and the seller might deliver or not deliver the watch. The cells show the "payoffs" for this situation. These are the total net-benefits of

performing a behavior (i.e. overall benefits minus costs), given the behavior of the other player. The first entry in each cell is the payoff of the buyer, the second the payoff of the seller.

Let each player now consider what is best form him – let both be males. The buyer (first column) first assumes that the seller delivers. In this case it is best for the buyer not to pay because this yields a payoff of 4, in contrast to a lower payoff of 3 if the buyer pays. In the former case, the buyer will get the watch and can keep the money. Next the buyer assumes that the seller does not deliver. The buyer would be stupid to pay: he will get a payoff of 1, whereas his payoff is 2 if he does not pay. The payoffs "2,2" are the outcome or equilibrium: no player has an incentive to choose another behavioral alternative.

The outcome of the game is defined as the behavior that both players will perform: the buyer will not pay and the seller will not deliver. Both get a payoff of 2. This distribution of payoffs in the four cells is the famous ***prisoner's dilemma***. The actors are in a "dilemma" because both would be better off if the buyer pays and the seller delivers (upper left cell). In general, the behavioral alternatives are called "cooperation" (which is the better alternative) and "defection " (which makes actors worse off). The game shows that the behavior of each actor depends on the behavior of the other actor.

Could one imagine that actors actually cooperate in such a situation? There could be ***other incentives*** such as internalized norms not break promises – a factor from a wide RCT. If both actors have internalized such a norm of cooperation the payoffs for paying and delivering would be higher than 3 (assume the payoff for both is 6): paying and delivering yield a good conscience. The costs of defecting (a bad conscience) increase and, thus the payoffs 4 would become much lower. The reader might ponder whether other incentives could be effective such as social rewards or punishments from friends who learn from the defection of a buyer and what the outcome of the game is. If the order of the payoffs change (highest payoff lower left cell, next highest upper left cell, then next highest payoff lower right and lowest payoff upper right cell) the game is no longer a prisoner's dilemma.

In the example it is assumed that the game (i.e. the exchange) is played only once, it is a ***one-shot game***. But assume the game is repeated, each is interested in future exchanges. Assume again that the seller delivers and the buyer defects. This yields a gain of 1 (4 instead of 3) to the buyer. But the next time the buyer wants to buy some good from the seller the seller will not deliver any more. Both will then get a payoff of 2. Thus, the buyer wins a payoff of 1 only once, and then loses 1 over a long period. Both players will thus be better off if they cooperate. This shows that in repeated (or iterated) games long-term cooperation is possible without any norms or state, just based on the interests of the players. This has especially been shown by Axelrod (1984).

In real life there are institutional provisions that thwart defection. An example is the evaluation system of Ebay or similar platforms (Diekmann et al. 2014). The exchange partners evaluate the behavior of each other. Those evaluations are visible. If a person is interested in future exchanges and defects this is a cost and reduces the possibility of future exchanges. The payoff for defection would thus become much lower (see Table 4.2). The interest and expectation of future cooperation is thus an important cause for present cooperation.

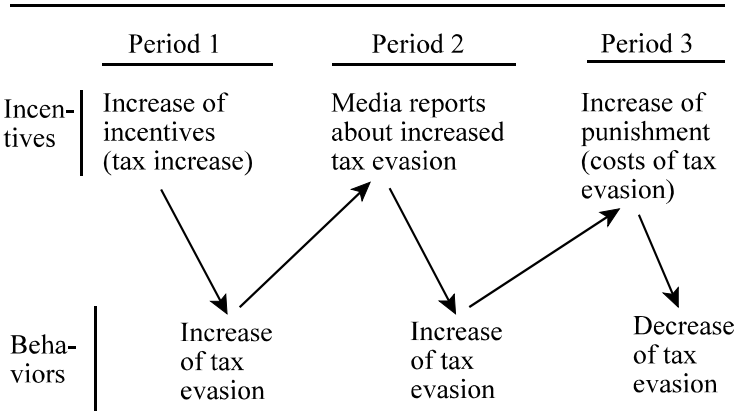
This example shows how interactions can be modeled with game theory. This theory explicitly models interdependence, i.e. the payoffs of one player depend on the behavior of the

other player. It is further important in the present context that any payoffs can be included in the games. This is compatible with a wide version of RCT.

The explanation of social processes with rational choice theory

Social processes can not only be explained by applying game theory. We illustrate the procedure of explaining social processes with RCT with an example which is summarized in Figure 4.1.

Figure 4.1: How to explain social processes with rational choice theory



Assume the government of a state increases taxes. Paying one's taxes becomes more costly. RCT would predict that tax evasion increases. Then some media discover (due to representative surveys) the high amount of tax evasion and report it. Those deviants are a critical mass for many other taxpayers: the former suggest to many of those who paid their taxes that evading taxes is generally accepted and that punishment is unlikely. This is for many a reward to evade paying taxes and, thus, the respective behavior increases. This increased tax evasion is noted by tax authorities who increase punishment. These increased costs again reduce tax evasion.

This example shows that a given behavior of some agent (e.g. a government) makes a decision that changes the incentives for another group. This group changes the behavior which provides again incentives for another group and so on. This is a multi-actor model that explains a sequential chain of decisions each of which changes the incentive structure of other actors and, thus, their behavior.

Another process that is a major research area of criminology is the development of crime in the life course (e.g. McGee and Parrington 2016; Sampson and Laub 2005). For example, crime might increase up to a certain age an then decreases. Existing theories of crime can be applied to explain the onset, stability and desistance of crime. The procedure is to investigate how the individual incentives change over time and to what extent these are influenced by macro changes.

Script analysis is a description of sequences of individual criminal actions which are called scripts (see Cornish 1994; Cornish and Clarke, 2002, 2017: 36-37; Leclerc 2014). A hypothetical example is a description of the process of committing street crime (Leclerc 2014: 223). The first

script scene is “preparation”; the related “script action” is “get a weapon, select co-offenders.” Another step in the sequence is the scene “post-condition” and the script action “threaten the victim to not report victimization.” Each of these steps can be a separate explanandum of a rational choice explanation. The exploration of such sequences is a valuable set of empirical generalizations or “heuristic devices.” They are not laws because given sequences will probably not hold for every criminal. For example, it will certainly not always happen that the victim is threatened. Sequences are thus empirical regularities.

One might go beyond describing sequences and add explanations. For example, new people might move into a neighborhood and new situational cues lead to the activation of new components of a sequence. Another possibility is that at a certain point in a sequence unanticipated events occur (such as new security devices might have been installed). Scripts may thus change (e.g. Leclerc 2014).

We conclude that RCT can explain social processes by being applied successively in a given situation and can thus explain social processes or, as it is sometimes called, ***social mechanisms***. These are the subject of sociology for a long time, and they are addressed in Modern Political Economy (e.g. Mueller 2003).

Rational choice and deterrence theory

It seems that deterrence theory is often regarded as a part or implication of RCT (e.g. Paternoster 2009: 236). In order to explore the relationships between the two theories the first question is what the propositions of deterrence theory are. According to Akers (1990: 654), deterrence theory claims that “the rational calculus of the pain of formal punishment offsets the motivation for the crime (presumed to be constant across offenders but not across offenses), thereby deterring criminal activity.” If this is the theory, it clearly differs from the implications of a wide version of RCT. Whether legal punishment affects crime depends on many conditions. For example, beliefs and not the objective probability of actual formal punishment are relevant. Furthermore, many other factors must be considered (see, e.g., Paternoster 2009). For example, if expected rewards for crime decrease, crime will occur less frequently, without any change of (actual or expected) punishment. How deterrence can be modeled by applying RCT can well be illustrated with the explanation of theft and violence by Matsueda et al. (2006). Their model includes, besides punishment, many other incentives. This idea is also adopted in more recent studies on deterrence (see, e.g., Grigoryeva and Matsueda 2014; Loughran et al. 2016; Matsueda 2013).

The conclusion is that the differential impact of punishment on crime (i.e. the deterrent effect of punishment) can be explained by RCT. Whether punishment deters crime depends on many conditions that can be modeled with a wide version of RCT.

8. Extending rational choice theory

A frequent criticism of RCT is that its independent variables are not explained. The question is: where do the preferences and beliefs come from? First of all, every theory assumes some

independent variables as given. Accordingly, every theory could be criticized for not explaining its independent variables. The demand always to explain the independent variables of a theory leads to an *infinite regress*: explaining independent variables of T1 with a theory T2 leads to the demand to explain the independent variables of T2 with T3; if this is done the claim is to explain the independent variables of T3 with a theory T4 etc. Such a claim is thus not meaningful. Second, failing to explain the independent variables does not invalidate the theory at all. Even if preferences and beliefs are not explained, these variables may nevertheless influence behavior.

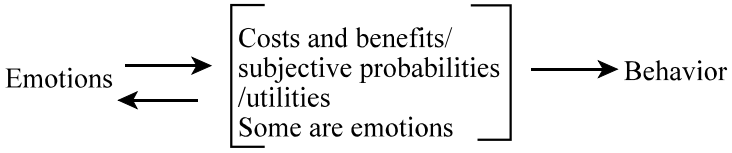
Nonetheless, the question of how preferences and beliefs can be explained is an interesting question and is also addressed by rational choice criminologists. There are other possibilities to extend RCT. Some of them will be discussed in this section.

Emotions in rational choice theory

A frequent criticism of RCT is that it does not deal with emotions, also called "feelings." "In rational choice and deterrence models, feelings are seen as unrelated to the decision-making process" (van Gelder 2013: 747).[3] One problem of analyzing the role of emotions in RCT is that there are numerous definitions of this term (Scherer 2005). We will not discuss these definitions. Instead, we analyze psychic states that are called "emotions." These are "anger, fear, jealousy, sexual excitation" (Wortley 2014: 244), "shame" (van Gelder 2017a: 467; for empirical research addressing the effects of shame see Tibbetts 1997b) and "norms, guilt, conscience, pity" (Elffers 2017: 52).

Although the term "emotions" is not a concept of RCT, the theory might nonetheless address the phenomena this term refers to. Figure 4.2 summarizes the following argument. First of all, *emotions may influence behavioral costs and benefits*. For example, emotional arousal may lead to riskier behavior: burglars who are direly in need of money may underestimate the probability of being caught. Affective states may impact collection and processing of information and, thus influence beliefs (Kamerdze et al. 2014). Hunger (another emotion) leads to a stronger preference for food (Loewenstein 2000: 426).

Figure 4.2: Emotions as Variables of Rational Choice Theory



Second, *emotions are kinds of costs and benefits*, i.e. preferences or beliefs, and, thus, variables of RCT. As was seen before, norms are kinds of preferences. Feeling guilt or shame or having a good conscience are costs or benefits for performing certain behaviors that break or

[3] For discussions of emotions in RCT see in particular Loewenstein 2000; Loewenstein and Lerner 2003; Elster 2007: 214-231. For the role of emotions in criminal decision making see in particular Elffers 2017; van Gelder 2017a; van Gelder et al. 2014a.

heed norms. “Sexual desire” – an emotion – is a preference. To pity somebody – an emotion – means that a certain situation is costly.

In terms of value expectancy theory, emotions may thus be among the ***anticipated*** (i.e. expected) behavioral consequences (Loewenstein and Learner 2003, see also Elffers and van Gelder 2017: 128). For example, one might expect more or less pleasure (excitement) when committing a crime.

There are further ***emotions during behavioral sequences*** that originate “at the time of decision and can arise from contemplating decision consequences, such as feelings of fear and dread when visualizing potential negative outcomes” (van Gelder 2017b: 172). It is argued that these emotions cannot be incorporated into RCT (see also Elffers and van Gelder 2017: 128). The following example suggests that this argument is not acceptable. Assume a person has begun to perform a (criminal) act such as a burglary and has not yet completed it. Let the person have unpacked the tools and destroyed the lock to enter the house. At that time assume the person all of a sudden feels fear or shame. This happens during a behavioral sequence before the final act. It is compatible with VET that new behavioral consequences can be perceived for single actions during a behavioral sequence. Such perceptions may influence the next action in the sequence.

A third possibility is that ***costs and benefits engender emotions***. For example, a belief that a forgone criminal opportunity for making a lot of money will engender anger (a kind of emotion). In terms of value expectancy theory, a falsification of expected probability may lead to anger; an underestimation of a subjective probability for a positive utility leads to excitement or joy.

Our discussion thus implies that “rational choice theory of criminal decision making has and should have a clear place for emotions as part of the decision-making process” (Elffers 2017: 52). Emotions are thus causes or effects of rational choice variables, or they are identical with costs and benefits. Figure 4.2 summarizes the previous argument.

Dual-process theories

In this section we will first give a rough outline of some hypotheses of dual-process theories (DPTs). We will then discuss how they can be and have been applied to crime.

Some basic hypotheses of dual-process theories. As was seen before, RCT assumes that behavior may be either deliberate or spontaneous (also called automatic). An example for ***deliberate*** behavior is buying a car: people compare the attributes of several types of cars, weigh the perceived advantages and disadvantages and make a choice. Deliberate processing “is characterized by considerable cognitive work. It involves the scrutiny of available information and an analysis of positive and negative features, of costs and benefits” (Fazio 1990: 89-90). ***Spontaneous*** behaviors “are unconscious, rapid, automatic” (Evans 2008: 256). The typing of a letter often occurs without searching for the letters. There are also ***mixed processes***. For example, the “blind” typing may be interrupted by searching a special character. The explanation of these

processes is a major theme of DPTs.[4]

As was said before, deliberation involves more "effort" than spontaneous behavior. Deliberating is thus more costly than spontaneous action. DPTs assume that actors do not want to invest more effort than necessary (Kahneman 2011: 31). In terms of RCT, "effort" to deliberate is a decision cost. Furthermore, a "'law of least effort' applies to cognitive as well a physical exertion. The law asserts that if there are several ways of achieving the same goal, people will eventually gravitate to the least demanding course of action" (ibid.: 35). This assumption is in line with RCT: it implies that *the choice of spontaneous or deliberate behavior is based on subjective utility maximization*.

The determinants of deliberate and spontaneous behavior are formulated in more detail in the MODE model by Fazio and collaborators (for summaries see Fazio and Towles-Schwen 1999; Fazio and Olson 2014). MODE means "***m***otivation and ***o***pportunity act as ***de***terminants" of spontaneous versus deliberate behavior. This label refers to the two major factors in the theory: motivation and opportunity.

Motivation means the importance of a decision for the actor or the "fear of invalidity" of a decision (Kruglansky and Freund 1983: 450). If a person wants to buy a house, the "fear of invalidity" or the costs of a judgmental error of a quick decision will be high. Buying a yoghurt does not have such serious negative consequences, so that individuals will engage in an "effortless luxury" (Fazio 1990: 92) of spontaneous behavior.

Deliberation will only occur if there exists an *opportunity*, i.e. "time and resources to deliberate" (Fazio and Towles-Schwen 1999: 100). Components of opportunities are the cognitive capacity to deliberate and time pressure (i.e. taking time for a decision is relatively costly). An example is a surgeon who needs to make a quick decision if there is some problem during a surgery.

If motivation and opportunity are low the MODE model predicts spontaneous action. In such situations an environmental cue will activate pre-existing, accessible attitudes and other cognitive elements such as goals or beliefs. If goals are relatively intense they have "chronic accessibility" (Fazio 1986: 213).

This is only a very short outline of some of the propositions of DPTs. But it is sufficient to judge how these theories are related to RCT, as will be discussed below.

Applying dual-process theories to explain crime. The previous propositions can easily be applied to explain crime. Situational stimuli may activate preferences or beliefs that lead to spontaneous criminal behavior, if the motivation and opportunities are perceived as low. In other situations a person will deliberate if the "fear of invalidity" of committing a crime is high and if the resources to deliberate are available.

DPTs and their relevance are also discussed in criminology. Examples are Wortley (2014), van Gelder (2013, 2017b), and Pogarsky et al. (2018). Other work focuses on formulating specific hypotheses about crime by applying DPTs. Examples are Eifler (2009) who analyzes

[4] For a good summary and review of DPTs see Gawronski and Creighton (2013) and Kahneman (2011: 19–108; 2003). See also Chaiken and Trope (1999), and the successor volume, Sherman et al. (2014). In this chapter we will focus on the MODE model (see below).

criminal opportunities by applying the model of frame selection (see the next paragraph); Paternoster et al. (2011) hypothesize that "thoughtfully reflective" decision making leads to considering more behavioral consequences (although the authors do not explicitly refer to DPTs); Thomas and McGloin (2013) focus on impulsivity and peer influence.

Another dual-process theory is the model of frame selection (e.g. Esser 2001; Kroneberg 2014). Kroneberg et al. (2010) apply this model to the explanation of crime. It is similar to the MODE model, but it is problematic in several important respects (for a detailed critique see Opp 2017; Opp 2019c; Opp 2019d). We will therefore not discuss it further.

The compatibility of dual-process theories and rational choice theory. There is no doubt that deliberate behavior can be explained by RCT. "Motivation" in the sense of "fear of invalidity" refers to the costs of a behavior, "opportunities" are the constraints. At first sight it seems that spontaneous behavior has nothing to do with costs and benefits and utility maximization. The following example illustrates that this is incorrect. Assume an individual perceives an object that is not supervised and immediately steals it. The MODE model assumes that the Motivation and Opportunities are low in those cases. This is a rational choice explanation.

That the spontaneous act of stealing is really based on costs and benefits becomes clear if we explain how the spontaneous behavior comes about. The individual has in the past probably first calculated whether he or she should steal or not and decided to steal. This behavior was deliberate and, thus, can be explained by RCT. Assume stealing had a relatively high SEU. The person will expect this to happen in other situations as well. If such situations occur the individual will no longer perform a costly calculation but act spontaneously. The incentives for stealing that occurred in the past are clearly relevant for the behavior in the present. In other words, spontaneous behavior is based on costs, benefits, and utility maximization (Opp and Pauwels 2018; Opp 2017).

This position that DPTs are consistent with RCT is supported in the criminological literature. Wortley (2014: 248) argues that there seems to be a "general consensus" that "automatic processes do not necessarily preclude the production of (boundedly) rational outcomes." He then emphasizes (referring to Kahneman 2003) that the outcomes are often different. For example, a person who plans a burglary may discover more important possible behavioral consequences than someone who spontaneously burgles. But this is compatible with RCT: individuals may differ in regard to the beliefs and preferences.

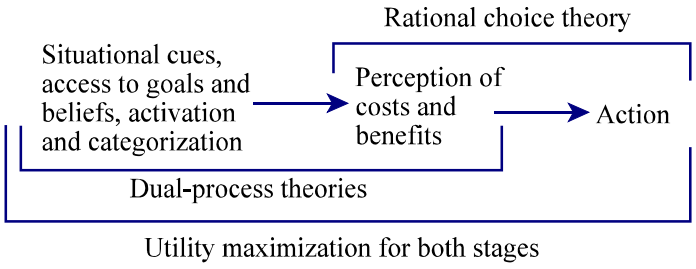
However, it is also argued that RCT is inconsistent with DPTs (e.g. Kroneberg et al. 2010; van Gelder 2013, 2017b). A problem with this position is that a narrow version of RCT is addressed. It is held, for example, that RCT assumes only deliberate behavior: a "calculating offender" is assumed by rational choice-based accounts (van Gelder 2013: 747). Furthermore, it is held that "feelings are seen as unrelated to the decision-making process" (van Gelder 2013: 747). As was shown before, emotions or "feelings" can be handled with RCT. Van Gelder (2013: 747) implicitly confirms our previous argument when he argues that feelings may have the effect that criminals may be unconcerned about risk. Thus, certain kinds of feelings affect beliefs (i.e. variables of RCT).

Kroneberg et al. (2010: 265) argue that a cost-benefit calculus does not apply if crime is performed spontaneously (see also Kroneberg 2014: 102-103). No evidence for this claim is provided, whereas there is ample evidence for the existence of utility maximization, even if

behavior is automatic (for a review see Opp 2019a; see also Opp 2017 and for a more detailed critique Opp and Pauwels 2018). Another problem is that no clear alternative to utility maximization is provided.

Conclusion. The previous discussion of DPTs and RCT indicates that DPTs do not contradict RCT, they are compatible with RCT and extend it. Figure 4.3 shows the relationships of the two theories. For example, the MODE explains when beliefs or preferences – variables of RCT – are activated. Pre-existing beliefs or attitudes determine perception. This is shown in the left part of the model in Figure 4.4. These activated costs and benefits then influence action (see the right part of the figure).

Figure 4.3: The relationship between dual-process theories and rational choice theory



Based on Opp and Pauwels 2018: 229.

Another important consequence of applying DPTs is that *reality is brought in*. The incentives of RCT are perceived costs and benefits. DPTs address how reality activates these incentives.

Other complementary theories

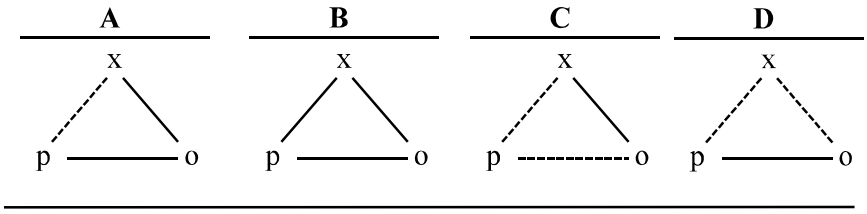
It has been suggested that the "anchoring" of RCT in social psychology should be strengthened (e.g. Clarke 2014b: 32). This anchoring could consist in applying social psychological theories to explain independent variables of RCT. The question is which of the large number of social psychological theories (see textbooks in social psychology such as Hewstone et al. 2008) are most relevant. We will focus on dissonance and balance theory and then briefly discuss Bayesian learning.

Dissonance and balance theory. Two theories that are relatively similar and explain not only action but other phenomena as well are the *theory of cognitive dissonance* (Festinger 1957; Cooper 2012) and *balance theory* (Heider 1958; Opp 2009: 275-304; van de Rijt 2011). The basic idea of both theories is that certain configurations of cognitive elements engender psychic tension (i.e. dissonance or imbalance). In terms of RCT, this is a costly situation. Individuals then

try to eliminate these tensions and reach the preferable state of consonance or balance. This means that they try to maximize their subjective utility.

We will illustrate with a simple example the relevance of balance and dissonance theory for explaining phenomena related to crime. Let there be a person p and another person o. Assume that p likes o and has learned that o sometimes breaks the law by driving too fast or borrows money without paying it back etc. Let "x" refer to these deviant actions of o. Assume further that p does not like what o does. This situation is depicted in Figure 4.4, panel A. The solid lines symbolize that p likes o and that p perceives that o commits crimes x; the dotted line symbolizes that p dislikes x. How would p feel in this situation? Assume you have a friend o (relationship po) who engages in a behavior x (relationship ox) that you don‹t like (relationship px). This situation causes psychic tension or, in terms of balance theory, imbalance. Two positive lines and one negative line define imbalance. This is a costly situation because it is unpleasant for p.

Figure 4.4: An example for the application of balance theory to criminal behavior



p = person; o = an other person (or a group); x = crimes.
Solid line = perception, liking; dotted line = disliking.

What could p do in order to reach balance? First, p could change his valuation of x, i.e. change the negative px to a positive px. For example, p might find justifications for doing x. The deviance of o may be considered "harmless," compared with "real" crimes and, finally, many people engage in x, so that it cannot be so wrong. The px line thus becomes positive – see panel B. According to the theory, three positive lines mean balance which is a beneficial situation.

There is another option (panel C). Person p may break up the relationship with o: he does not want friends who engage in criminal activities. This is a balanced situation as well. There is still another possibility: p could try to convince o to stop his criminal activities. If p is successful, the xo line becomes negative and the graph is balanced (see panel D).

When will which option be chosen? One condition is the intensity of the three relationships: the more intense a relationship, the more costly is its change. If there is a very close friendship between p and o, p will be reluctant to terminate the relationship and prefer to change his evaluation of o‹s activities (panel B). But if p‹s aversion to o‹s crime is strong and if po weak, p will break up with o. It is also possible that the situation in panel A will not change. This will be the case if all possibilities of a change are worse than staying in the given situation.

Now assume that o is a ***group*** of friends. The po relationship could mean membership of p in this friendship group o. Relationship po might also mean ***identification*** with the members of the group. The x may refer to criminal activities the members of the group engage in. Let us look at some implications of the graphs for this situation. One implication is that ***social bonds*** (i.e. po relationships) are criminogenic under certain conditions. One is that they are intense. This will

have the effect that p acquires or preserves a positive attitude toward crime and breaks the law (panel B). A very strong internalized norm against committing crime (strong negative px line) and a weak bond (po line) will very likely lead to C.[5]

Our simple example suggests that a more detailed application of balance theory in criminology seems fruitful. Even in the simple pox system the effects of social networks and internalized norms can be modeled.

Balance and dissonance theories are "extensions" of a wide version of RCT in the sense that the theories specify new kinds of costs which refer to configurations of cognitions. The theories further explain phenomena such as beliefs, goals or attitudes. All this is consistent with a wide RCT.

Bayesian learning. The basic ideas are as follows. Individuals have prior beliefs; then new evidence originates and, based on this new data, individuals update their prior beliefs; this leads to new posterior beliefs (see in general Breen 1999; for a critical analysis Albert 2003; for criminology see Kreager and Matsueda 2014; Matsueda et al. 2006). It has been noted that the process of updating requires high cognitive abilities of actors to process information (e.g. Kreager and Matsueda 2014) which very few actors possess. Nonetheless, the basic idea that beliefs (such as perceived risk of arrest) are influenced by related data (such as prior number of arrests – Matsueda et al. 2006, see also Anwar and Loughran 2011; van Veen and Sattler 2018; Wilson et al. 2017) has been confirmed.

The relevance of prior beliefs and new data on belief changes can also be modeled with balance and dissonance theory. A prior belief in the previous example (Figure 4.4) could be the belief that o engages in crime (a positive ox line). New data could indicate that o has been punished and is likely to refrain from crime in the future. The line ox would then become negative. The question is whether balance and dissonance theory do not imply more detailed propositions which perhaps contradict Bayesian Learning.

Other theories. There are numerous other theories from the social sciences that could extend RCT. An example are hypotheses about *personality characteristics* as determinants of the incentives (Brandstätter and Opp 2014; for crime and personality characteristics see Clark 2009). Theories about the *emergence of social norms* as a special kind of incentives for crime (see Hechter and Opp 2001; Rottschaefer 1998) could be of interest to criminologists. Research on *biological determinants of crime* (e.g. Barnes et al. 2016.

9. DBO theory, learning theory and theoretical "frameworks" as alternatives to rational choice theory

Proponents of Analytical Sociology reject RCT and suggest as an alternative DBO theory (Hedström 2005: 38-66). It is claimed that desires (D), beliefs (B) and behavioral opportunities

[5] The chapter on balance theory in Opp 2009: 275-303 deals with protest, but the propositions about the effects of bonds and identification with others can be applied in the present context.

(O) determine behavior. All kinds of desires and beliefs are admitted, and beliefs may be wrong. An analysis of the differences between the wide version of RCT and DBO theory clearly shows that the variables of DBO theory are identical with the variables of a wide RCT, only the terms are different (for details see Opp 2013: 341-344). Desires are another term for preferences, beliefs refer to the same phenomena as beliefs in RCT, and behavioral opportunities are part of the beliefs about available behavioral options in RCT.

There is only one difference between DBO and RCT: the decision algorithm of DBO theory is not subjective utility maximization. Instead it is reason-based behavior. As will be shown below, this is so vague (see the literature cited in the previous paragraph, see further Opp 2014) that actually a decision mechanism is missing. The theory thus lacks a clear hypothesis about how people choose between behaviors. This means that the theory has no informative content (Diekmann 2010). For example, if there is an option to commit a crime or act lawful the theory does not provide any information about what the actor chooses.

Because the decision algorithm is unclear ***DBO theory is a deficient version of RCT***, it is definitely not a superior theory. The implication then is that the critique of RCT by proponents of Analytical Sociology also holds for DBO theory.

Learning theories are general explanations of behavior as well. They come, as RCT, in different versions, ranging from purely behavioristic (e.g. Skinner 1953) to cognitive learning theories (see, e.g. Bandura 1986~~, 1999~~). The latter includes the basic propositions of the wide version of RCT: preferences and beliefs (about expected rewards) as well as (implicitly) subjective utility maximization are addressed. However, the theory includes many additional propositions that could be added to the wide version of RCT.[6] This task cannot be undertaken here and must be left for further research. We will get back to learning theory in chapter 7 when we discuss Ronald Akers's social structure social learning theory (chapter 7.5).

Another general theory is ***the theory of planned behavior*** (Fishbein and Ajzen 2010). It explains behavior and is well confirmed. Furthermore, it is similar to a wide version of RCT (Opp 2018a).

There are various versions of VET. One is ***expected utility theory (EU theory)*** that is based on the work of von Neumann and Morgenstern (1944). VET drops the restrictive assumptions of this model. ***Prospect theory***[7] is regarded as a superior alternative to EU theory. But its compatibility with VET is not discussed (but see Opp 2019b). Even a superficial comparison of prospect theory and VET shows that at least some of its assumptions can be included in VET. For

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[6] Bandura's (1997: 450-451, 484) critique of RCT addresses a narrow version when he writes that people "thoroughly explore a wide range of possible options" and "calculate their advantages and disadvantages" (450). In his discussion of VET (125-127) he criticizes a narrow version by suggesting assumptions of a wide VET: people "optimize" (and do not "maximize") and "often have incomplete or erroneous information" (125). These discussions suggest that Bandura's ideas are not incompatible with a wide version of RCT.

[7] Kahneman and Tversky 1979. For a short summary see Kahneman 2011: 278-288. For reviews and discussions see, for example, Barberis 2013; Thomas and Loughran 2014 (who also discuss application of prospect theory in criminology).

example, because the perceived utilities are relevant and must be measured, they may be, but need not be, perceived gains and losses (the variables in prospect theory). It is also compatible with VET that losses are regarded as more costly than gains. Non-linear utility functions may also be included in VET. For example, hyperbolic time discounting (Loughran et al. 2012) is compatible with a wide version of RCT. Furthermore, probabilities are perceived as well, so that small probabilities might be overestimated. There are problems with applying prospect theory to real life situations (Barberis 2013). Due to these arguments it does not seem useful to replace VET with prospect theory. Further analyses of the compatibility of VET and prospect theory are necessary. One result could be that the assumptions of prospect theory do not always hold so that they can be included as empirical regularities in VET.

10. Rational choice theory in contemporary criminology

There is a vast literature that applies RCT to explain crime, although it still seems to be a minority position (Matsueda 2013: 284). In this section we ask to what extent the literature applies the wide version of RCT. If not, the question is wether there are convincing arguments against a wide version. When answering these questions we will first analyze the two pioneering contributions to RCT in contemporary criminology by G. Becker on the one hand and D. B. Cornish and R.V. Clarke on the other. We will then look at other work.

The pioneering contributions

Gary Becker‹s contribution (Becker 1968) is a typical economic article: it used formalization and was concerned with finding "optimal" solutions. This refers to the amount of enforcement that leads to the lowest possible crime rate (169). In this situation the highest possible benefits (reduction of crime) could be reached with the lowest possible costs (enforcement).

Although Becker writes that he provides a normative analysis (170), he actually addresses an empirical question: "The method used formulates a measure of the social loss from offenses and finds those expenditures of resources and punishments that minimize this loss." This is clearly an empirical problem. Whether such an optimum – again: an empirical situation – ***should*** be realized is a normative question, but ***finding*** the optimum is an empirical issue. One could argue, for example, that certain kinds of enforcement (such as the death penalty) should not be implemented even if they reduce crime to a considerable extent. There are thus two questions: the empirical question of finding a certain optimum and the normative question of whether such an optimum should be realized.

In order to find the optimal enforcement of crime, Becker also addresses the conditions for committing crimes. He applies expected utility (EU) theory. It assumes "that a person commits an offense if the expected utility to him exceeds the utility he could get by using his time and other resources at other activities" (176). This is equivalent with VET, as described before. The formulation "expected" utility seems to refer to ***subjectively*** expected utility. This is suggested when he mentions "monetary" as well as "psychic" income referring to a wide variety of incentives. The theory also seems to refer to beliefs and not to objectively given phenomena. This

becomes clear when Becker writes that his theory does not "assume perfect knowledge, lightening-fast calculation, or any of the other caricatures of economic theory" (176). It thus seems that Becker‹s theoretical account is compatible with a wide version of RCT. This is compatible with McCarthy‹s description of Becker‹s theory (McCarthy 2002: 422-423).

There is one assumption in an article by Stigler and Becker (1977) "De gustibus non est disputandum" that is not compatible with a wide RCT: "tastes neither change capriciously nor differ importantly between people" (1977: 76). In contrast, the wide RCT assumes that preferences may change and that it must be determined empirically to what extent they influence behavior. This assumption is not mentioned in Becker‹s article from 1968.

In a side attack Becker claims that EU theory does not "require ad hoc concepts of differential association, anomie, and the like" (176). The detailed relationships between these theories and EU theory is not spelled out.

Almost 20 years after Becker‹s contribution the major contribution to the development of the rational choice approach in criminology is the work of Ronald V. Clarke and Derek B. Cornish, in particular the book "The Reasoning Criminal" (Cornish and Clarke 1986a, see also Clarke and Cornish 1985). Leclerc and Wortley (2014) trace the history and the impact of "The Reasoning Criminal."

It seems that Cornish and Clarke also advocate a wide version of RCT. For example, in their 1985 contribution they claim that "people do not always make the most 'rational' decisions" in the sense that they "may pay undue attention to less important information" and "employ shortcuts in the processing of information" (160). This means that decisions may not be objectively maximizing but "make sense to the offender and represent his best efforts at optimizing outcomes" (153). Their reference to H. Simon‹s "bounded rationality‹" (161) further suggests that subjective utility maximization is assumed and that beliefs are a component of the model. The authors also seem to assume that decisions may be conscious or unconscious (e.g. 161) which is also compatible with the wide version of RCT.

But one statement seems to include a hypothesis from a narrow version when the authors write "that offenders seek to benefit themselves by their criminal behavior" (Cornish and Clarke 1986c: 1). Does this mean that only egoistic preferences are admitted or that actors try to get the highest satisfaction (i.e. maximize their subjective utility)?

In more recent work (Cornish and Clarke 2008) it is assumed, for example, that RCT "takes the view that crimes are purposive and deliberate acts" (2008: 25; also Cornish and Clarke 2017: 32). However, in his new introduction to "The Reasoning Criminal" Clarke (2014a: X) argues that some crimes "are not the product of rational calculation." In another article (Clarke 2014b: 26) the "influence of emotional states and the effects of alcohol or drugs" are mentioned. Spontaneous action is thus admitted. Thus, Clarke and Cornish "have it both ways" (Wortley 2014: 248).

Wikström and Treiber (2016) describe other assumptions in the work of Cornish and Clarke that do not seem to be consistent with a wide RCT. However, when Clarke (2014a: X) endorses the assumptions of "bounded rationality," this is clearly in line with the wide version. That this version is actually used is also suggested by Leclerc and Wortley (2014) when they review "The Reasoning Criminal Twenty-Five Years On." We thus assume that in general Cornish and Clarke‹s version of RCT is the wide version.

It is striking that the concept of rationality is permanently used by Cornish and Clarke, most of the time without specifying its meaning, and sometimes with different meanings. To illustrate, in Cornish and Clarke‹s article from 2008 the authors equate "irrational‹" with "thuggish" (25). In the same article, "rational" is also used in the sense of subjective utility maximization (25). In the new introduction to "The Reasoning Criminal" Clarke (2014a) "rationality" means "calculating" (see the previous quotation from Clarke 2014a: X). We will discuss the rationality concept below (see the section "The assumption of rationality"). This unclear and conflicting use of "rational" is typical for many writings in criminology (see below).

It is striking that none of the pioneers specifies exactly the assumptions of their version of RCT. Our previous argument is thus a reconstruction of the authors‹s discussions of RCT. This holds for the work described in the next section as well.

Varieties of rational choice theory in contemporary criminology

There is meanwhile a vast literature that applies RCT to explain criminal behavior. The question we address in this section is to what extent criminology after Becker, Clarke and Cornish uses a wide version of RCT. If not, we will try to find out what the arguments for a narrow version are.

In his summary of RCT, McCarthy (2002) lists nine assumptions that "are central to most economic models of crime" (418). They are only in part components of the wide RCT. For example, restrictive assumptions on preferences (completeness, transitivity, stability) are made. Furthermore, "satisfaction is not observable" (419), whereas in a wide RCT it is assumed that satisfaction (or utility) can be measured (by applying the methods of social research). It is noted that there is no homogeneity among theorists in regard to the kinds of assumptions. For example, there are economists who assume that only the actors‹ "own economic interests" are relevant, whereas other economists include "a richer set of interests" (421). In general, McCarthy‹s description of RCT in economics is rather similar to a narrow version. It is not discussed why these assumptions are necessary.

In applying RCT to explain crime McCarthy distinguishes a "conventional" and a "broader rational choice approach" (423). The author mentions behavioral economics which comes very close to a wide RCT. When empirical studies related to RCT are reviewed the entire variety of incentives and disincentives of crime are addressed. It thus seems that in empirical research on crime a wide version of RCT is actually used. In his conclusion (436-438) a wide version is suggested. The question that is not addressed is what the arguments for a neoclassical ***theory*** of RCT are, if in ***empirical research*** a wide version is applied.

Collins and Loughran (2017: 12) describe in their review a narrow version (without mentioning this term) and then argue: "when heterogeneity and influence of values, beliefs, preferences, situations, and the like are considered, rational choice becomes a much richer, more complex process than a crude cost–benefit calculus." This clearly suggests the fruitfulness of a wide version of RCT.

This is also the conclusion of Ekblom‹s overview of evolutionary approaches to rational choice theory (Ekblom 2017: 27). The author refers to "bounded rationality" and holds that "from an evolutionary perspective neither boundedness of rationality nor heuristics are shortcomings from some absolute standard of perfect rationality." Brezina‹s review (Brezina 2002) of the

“Rationality of Criminal and Delinquent Behavior” finds clear evidence for the fruitfulness of a wide version of RCT.

In McCarthy and Chaudhary‹s review of RCT (2014) it is not clear what exactly their version of RCT is. RCT holds, the authors write, that people act according to their preferences. In terms of VET, this refers to the utilities. Are subjective probability neglected? The reference to Mehlkop and Graeff (2010) suggests that they use a wide version of RCT. This is also plausible when it is assumed that people have subjective expectations (which, apparently, can be wrong). VET assumes further subjective utility maximization. It seems that this is regarded as inconsistent with RCT. The authors argue that deviations from “rationality” are given when people have limited skills or act on the basis of emotions. Is this inconsistent with a wide RCT? Nonetheless, the authors address a wide variety of (material as well as non-material) costs and benefits. In their discussion of the critique of RCT they advocate “combining conventional RCA [rational choice approach] with a theory of errors” (4314). The authors thus suggest a wide version of RCT.

Pogarsky et al (2018) review the contributions of behavioral economics to explaining crime. Among other things, dual-process theories and heuristics and biases are described in detail which depart from “narrow” economics and are in line with the wide version of RCT. Grigoryeva and Matsueda (2014) clearly favor a wide version of RCT in their review. Tibbetts (2014) notes in his review the “expansion of the rational choice perspective” (2567) which seems to be considered fruitful.

Paternoster‹s review of RCT (2009) is clearly in line with a wide RCT. Especially his detailed examples that illustrate choices of crime and non-criminal behavior are instructive for the wide variety of incentives that impact crimes. Examples are prestige and status, that some activity is “honest work” (such as taxi driving) and leads to meeting interesting people (238). It is claimed that people are not assumed to be “perfectly rational.” This seems to imply that spontaneous action is admitted or that there may be errors.

In other work authors discuss various restrictions of a narrow economic model and then argue that these restriction are not in line with how people make decisions in reality. Such arguments actually endorse a wide RCT. Examples are articles by Elffers (2017) and van Gelder et al. (2014b). The latter distinguishes an “economic” RCT which refers to the narrow version and the “reasoned choice perspective” referring to the Cornish and Clarke version of RCT and, thus, to the wide version. Jaynes and Loughran (2019) explicitly relax assumptions, often made in a narrow version, about self-interest (i.e. egoism) and homogeneity of preferences and empirically compare offenders and non-offenders. Similarly, Paternoster et al. (2017) test the impact of other-regarding preferences (i.e. social or altruistic preferences) on crime.

There are numerous empirical applications of RCT which explain specific kinds of crime. A detailed theoretical account of VET and a test is provided by Mehlkop and Graeff (2010). The research by Becker and Mehlkop (2006) is of particular importance. It is one of the few studies that test empirically whether a wide or narrow version can provide better explanations of crime. The finding is that the wide version is superior. This research is also important for demonstrating that RCT can explain empirical regularities referring to the correlates (such as age and gender) of crime. The authors show that variations of crime *across social classes* can be explained with rational choice variables. Other empirical tests of a wide version of RCT are provided by Graeff

et al. 2014 about students‹ decisions to bribe staff and by Sattler et al. (2013) about decisions to plagiarize.

Beauregard (2017) describes in detail the decision processes of sex offenders. In this research the fruitfulness of a wide RCT becomes abundantly clear: subjects act more or less deliberately, and numerous subtle incentives are at work. Loughran et al. (2016) test whether RCT can be applied to adolescents from lower socioeconomic families who commit various kinds of crime. The authors complain the "too narrow understanding" of RCT by critics. Fagan and Piquero (2007) distinguish internalization of legal rules and "rational choice factors" (with instrumental payoffs). They come up with an "integration" of both models. Actually, their integrated model is a wide RCT. This holds for the hypotheses by Tibbetts (1997a, 1999) explaining cheating of students as well. The volume edited by Piquero and Tibbetts (2002) presents numerous empirical studies that include the wide variety of the incentives relevant for offending. Pickett (2018) explores the effects of cognitive heuristics on offender decision making. All these studies find that criminal or deviant behavior is a response to a large variety of costs and benefits. This clearly speaks in favor of the fruitfulness of a wide version of RCT.

Conclusion

The previous discussion indicates that a vast majority of criminologists who apply RCT endorse a wide version. Nonetheless, sometimes assumptions of a narrow version creep in such as the assumption that RCT assumes deliberate behavior. We did not find any argument for preferring a narrow version of RCT.

The previous discussion was to a large extent "interpretative": criminologists who apply RCT do not make clear what version they prefer. Our three key propositions with the specification of the kind of incentives are never formulated explicitly. It is further never spelled out which assumptions are lawful propositions, which ones are only initial conditions or empirical regularities. We must therefore reconstruct the specific arguments to discover the version of RCT which is advocated.

11. The Critique of Rational Choice Theory

There is a vast literature about the strengths and weaknesses of rational choice theory. Discussing all objections would require (at least) another book. In this section only those objections are addressed that seem most important. We will discuss further critique in chapter 7.9 when situational action theory will be analyzed.

Misunderstandings and misrepresentations: illustrations from criminology

A great deal of the critique of RCT does not distinguish between different versions of RCT. It is common that assumptions of a narrow version are atttacked, and critics are not aware that RCT is

a family of theories and not a single theory. We will illustrate such objections against RCT mainly some examples.

According to Hirschi (1986: 106) the rational choice model assumes that people "can see the future, and that they therefore act to maximize their wellbeing, ... that the legal power of the state was necessary to limit natural tendencies to use force and fraud in the pursuit of selfish interests ... that the fear of legal sanctions is the major deterrent of crime ... that people are free to choose ... that people consider first their own profit and pleasure." Due to this characterization it is no surprise that Hirschi regards RCT is not "testable, serious, reasonable .. it is an obviously false theory." Every assertion in this quotation is wrong, at least for a wide version: no adherent of RCT claims that people can see the future (they rather perceive behavioral consequences with a certain subjective probability), there is no objective maximization, there is no assumption of a natural tendency to use force or fraud, and there is no exclusion of altruistic or normative goals. Not only legal punishment, all kinds of incentives are relevant. It is ironic that later in this article Hirschi sketches basic assumptions of a wide RCT (1986: 111) when he writes: "Adequate theories ... must provide the motives or other causes of criminal behavior. They cannot assume that crime will occur in the absence of restraint." These are major hypotheses of a wide RCT.

Another illustration is the critique of RCT by Wikström and collaborators. Their main objections do not hold for a wide version (Opp and Pauwels 2018). It is argued, e.g., that RCT assumes "self-interest" (in the sense of only egoistic motives), neglects habitual action and suffers from a poor treatment of individual differences (Wikström and Treiber 2016: 416). All this is a complete misrepresentation of the wide RCT that most criminologists use (see section 10 of this chapter). We will only mention Wikström's absolutely unacceptable critique. We will return to it when we discuss Wikström's own theory (chapter 7.9).

A great number of devastating objections against RCT are included in the volume edited by Reynald and Leclerc (2018). Many objections are addressed in this chapter. In addition, most of the time a narrow version is attacked. None of the authors formulates RCT as a clear set of separate proposition like the ones at the beginning of this chapter. We thus never know to what extent the critique actually hits the wide version. We must leave it to the reader to judge the critique. Discussing them in detail would require another book (at least). We think that the most important objections against RCT are covered in this chapter.

The informative content of rational choice theory

As was seen in chapter 2, one requirements for as good theory is a high informative content. This requirement is clearly fulfilled for RCT. The theory can explain any specific behavior. The reason is that a behavior is likely to occur if the behavior-specific (instrumental) incentives are given. Thus, to explain theft (or a specific kind of theft) the preferences and beliefs are relevant, that the actor thinks can be realized with the respective behavior.

A high informative content is further given, as was seen before, if there is a wide range of application. This is certainly the case for RCT: it can be applied to all human beings in all kinds of situations.

This is disputed by some rational choice scholars who argue that RCT is an "approach," a "perspective" or "framework" and "is not intended as a theory but as an organizing framework –

a way of rearranging existing theory and data to throw new light on criminal behaviors" (Cornish and Clarke 1986b: VI; Cornish and Clarke 2017: 32; see also Elffers 2017). Our previous presentation of RCT – and of VET in particular – shows that RCT has clear independent and a dependent variables and can be applied to explain specific singular events (see chapter 2, section 4). Such specific predictions are not possible with an "approach."

The empirical evidence

The first two propositions – the preference and constraints proposition – are generally accepted. The first holds that human behavior is goal directed, the second that the (social or natural) environment has an impact on behavior. To be sure, the hypothesis of subjective utility maximization is controversial, but the existing evidence speaks in favor of the proposition (for details see Opp 2019a).

Critics of RCT often assert that the so-called anomalies (see Frey and Eichenberger 1989) and the "heuristics and biases"-research program (Tversky and Kahneman 1974, Keren and Teigen 2004) have falsified RCT. However, on closer inspection the assumptions criticized are those of a narrow version. Confirmation of assumptions that people often miscalculate and misperceive reality falsifies a narrow and not a wide version of RCT. The "sunk costs"-hypothesis claims that costs that have occurred in the past (and are thus "sunk") should not play a role in decisions that are made later. However, it happens that those costs are considered in decision. The wide version thus includes these costs as incentives – even if individuals "should" ignore them. The "anomalies" are thus falsifications of assumptions of a narrow version.

There is a vast number of studies that confirm a wide version directly. Examples are findings in the dictator and ultimatum game (see, e.g., Henrich et al. 2004) or in public goods games (e.g. Fehr and Gächter 2000). The importance of fairness norms is not in line with a narrow version. In regard to deterrence and rational choice, Matsueda (2013: 290) concludes in a review of the existing research that "empirical research on an individual model of rational choice, deterrence, and crime finds consistent support for the model."

But assume that the wide version is falsified. A falsification of a theory is never a reason to eliminate it from further application. If a theory provides numerous apparently correct (and interesting) explanations, one will give it up only if there is a clearly better theory. Proponents of RCT argue, and this author agrees, that there is no clearly superior theory.

If the theory is so widely confirmed, this clearly is inconsistent with the claim that it is not testable. The simplest way to test it is by comparative statics (Lichbach 2003: 33-41; Lovett 2006: 250): if some costs or benefits change, the model predicts a change of behavior. The model is falsified if that change cannot be observed. Of course, it must be taken care that other possibly influential costs and benefits are controlled.

Non-falsifiability is often claimed because there is a possibility to *immunize* the theory against falsification. RCT does not specify the kinds of incentives for a behavior. This is reasonable because incentives differ according to times and places. Now assume a hypothesis that a certain set of incentives causes a behavior is refuted. A possible argument could be: this is no falsification because the researcher had bad luck and measured the wrong incentives. This

argument is not tenable. According to the Hempel-Oppenheim schema (see chapter 2), the initial conditions are specified. If the expected explanandum does not occur the theory is falsified.

But it is possible that incentives have been overlooked. This has then to be tested in subsequent research. If new incentives are found that influence a behavior then actually there was no falsification. But claiming ad hoc that one has not found the "right" incentives is an immunization of the theory and, thus, not acceptable.

Explaining crime and criminality

As was seen before, RCT explains behavior. Crime is a kind of behavior and, thus, falls under the explananda of RCT. Hirschi (1986: 113-115) argues, that "criminality" cannot be explained by RCT: "control theory is a theory of criminality, and choice theory a theory of crime" (1986: 114). "Theories of criminality should tell us why some people are more prone than other people to commit crime. Theories of crime should tell us the conditions under which criminal propensities are likely or unlikely to lead to crime" (Gottfredson and Hirschi 1989: 58).

"Propensity" is a disposition concept (see the discussion in chapter 7.6) and stipulates that if certain conditions (the causes of crime) are given and crime exists, then a propensity to crime is given. Somebody is thus "prone" to commit crimes if the incentives for crime are high and stable over time. In this situation crime is committed repeatedly and, thus there is a propensity to commit crimes. The incentives are variables of RCT.

Reason-based action as an alleged alternative to utility maximization

If the proposition that people maximize their utility is rejected there are two options. One is to drop the postulate entirely. The second is to replace it by a superior alternative proposition.

The first option is not meaningful. As was argued above, that would lower its informative content considerably. But there seems to be an alternative that is discussed in the literature. Decisions are based on "good reasons." This is the position of Analytical Sociology (Hedström 2005: 61; Manzo 2014a). In the model of frame selection, spontaneous decisions are brought about by reasons as well (Kroneberg 2014). In his idea of "cognitive rationality" Boudon (e.g. 2003, for discussions and critique see di Nuoscio 2018; Opp 2014) assumes reason-based action as well.

Analytical Sociology seems particularly useful to analyze the tenability of reason-based action because this is an empirical-theoretical approach and one will expect that we find a particularly clear discussion of the assumption of reason-based action. Hedström (2005: 39) formulates the assumption in the following way:

> „Beliefs and desires … cause an action in the sense of providing reasons for the action … a particular combination of desires and beliefs constitutes a 'compelling reason' for performing an action."

Hedström refers to DBO theory but, as was argued before, beliefs and desires (or preferences) are exactly the variables of the wide RCT. However, instead of subjective utility maximization it is claimed that individuals act on good reasons. This is illustrated with an example: Mr. S brought an umbrella today because "(1) he believed that it would rain today, (2) he desired not to get wet, and (3) there was an umbrella for him to bring" (Hedström 2005: 39). With these factors "we have made the action 'intelligible' and thereby explained it."

It is not clear what it means that the action has been made "intelligible." The most plausible explication is that "intelligible" refers to the insight of the observer that bringing the umbrella was a good idea or, equivalently, was the best Mr. S. could do or was in his best interest. In other words, the observer speculates that the action was utility maximizing, from the perspective of Mr. S. The hypothesis of utility maximization can be formulated in different ways. Let us look at some examples:

(1) P refrains from committing a crime because ***all reasons*** he considered suggest this.
(2) P enrolls in class A and not in class B because the ***number of important reasons*** for A is larger then for B.
(3) The ***reason*** for asking you for advice is that I think you can give me the most appropriate answer about what I should do (or: what is best for me).

These statements explain why individuals have acted in a certain way, from their perspective. In each example, reference is made to behavioral consequences: "reasons" for remaining law-abiding refer to behavioral consequences of this behavior and the alternative to commit a crime. Enrolling in a class A has more positive consequences than enrolling in class B. Finally, "better advice" means that the actor received information about relatively positive consequences of a behavior. These consequences are valued: a "reason" that speaks in favor of a behavior is a positive consequence. In each example, the actor expresses the view that the reasons led him to the best decision, i.e. to maximizing his subjective utility.

The previous arguments are just examples. If Analytical Sociology is an empirical-theoretical discipline that is based on reason-based behavioral choices, one would expect that in substantive empirical work it is clarified and tested what reason-based behavior means. In an analysis of numerous contributions to two edited volumes on Analytical Sociology (Hedström and Bearman 2009; Manzo 2014b) no clear definition can be found. Actually, the strong suspicion is that the implicit assumption is subjective utility maximization.

The following example strongly endorses this suspicion. In an empirical study by Baldassarri (2013), a strong proponent of Analytical Sociology and a "reason-based" approach, one does not find a definition of what "reason-based" behavior means. In her summary, however, it becomes clear what she means: "... our argument is that by using different strategies of reasoning, voters … are able to make the complex task of evaluating political contests manageably simple, and so to reach a ***satisficing decision***" (210, italics added). This is exactly what subjective utility maximization means. The term "satisficing" is taken from Herbert Simon (1997, pp. 118-120). It means to look "for a course of action that is satisfactory or 'good enough'" (p. 119).

Another argument against viability of explanations by good reasons and not subjective utility maximization is that there is an abrupt change in Analytical Sociology from accepting a utility-maximizing rational choice approach to a reason-based approach, without providing any detailed

arguments. Hedström and Swedberg (1996: 127-128) wrote: "Rational choice theory provides an action theory that is useful in many branches of sociology and, perhaps even more importantly, rational choice theory represents a type of theorizing that deserves to be emulated more widely in sociology. This type of theorizing is analytical; it is founded upon the principle of methodological individualism; and it seeks to provide causal cum intentional explanations of observed phenomena." Could one imagine a more positive evaluation of RCT and methodological individualism?

But in *2014* this evaluation completely changed. Now rational choice explanations are "unacceptable, as they are built upon implausible psychological and sociological assumptions. Empirically false assumptions about human motivation, cognitive processes, access to information, or social relations cannot bear the explanatory burden in a mechanism-based explanation" (Hedström and Ylikoski 2014: 67). Could one imagine a more negative evaluation? As it often happens in the literature, this critique is based on a narrow version of RCT (Hedström and Ylikoski 2014: 58-59).

We conclude that "reason-based" action is definitely not a convincing alternative to utility maximization. It is not even clear what "reason-based" means. An analysis of the substantive work of proponents of the reason-based approach indicates that the actual decision mechanism that is applied is subjective utility maximization.

The assumption of "rationality": a plea for removing the concept of "rationality" from rational choice theory

The reader might have noted that the term "rational" has not been used so far and will not be used in future chapters either – except for referring to "rational" choice theory or to other authors‹ arguments. The reason is that this term is absolutely superfluous. At first sight this allegation might be strange. Doesn‹t a theory that includes "rational" in its name assume that people act rationally? If so, how can it be possible that the theory can be described without using the concept "rationality"?[8]

When one uses the term rationality, the first step ***must*** be to clarify what the meaning of the concept is. This term is often used in an ambiguous way and, if the term is clear, there are different meanings. Often "rational" is used without any hint at what is meant. For example, in a demonstration in Hamburg against racism on September 30, 2018, people carried a banner with the slogan "Here is rational resistance" (Hamburger Abendblatt, October 1, 2018, p. 9). We find such use of "rational" without any comments on its meaning also in the social science literature.

Often authors tell or at least insinuate what is meant by "rational." Let us look at some examples. Akers et al. (2016: 24) discuss deterrence and rational choice theory and describe the "expected utility principle" in RCT in the following way:

[8] For a much more detailed analysis see Opp 2018a). This article also discusses the criterion of the theoretical import of a definition. In what follows we apply some results from the logic of concept formation. See in particular Hempel 1952; Belnap 1993.

(1) A ***behavior*** is ***"rational"*** means that individuals maximize their utility, i.e. they maximize their profits or benefits and minimize the costs or losses.

A "rational" behavior thus refers to objective utility maximization.

Homans (1974: 43) proposes the "rationality proposition" which is identical with VET. He then mentions a second meaning (1974: 48) which one can often find in other work: "rationality" means "calculation." In other words:

(2) A behavior is ***rational*** means the behavior is chosen that has the highest SEU.

(3) A behavior is ***rational*** means that individuals calculate the advantages and disadvantages of a behavior.

Not only a ***behavior*** may be rational. This attribute may also be ascribed to ***preferences***. This occurs in game theory and in formalizations of a certain version of RCT (see, e.g., the "rationality axioms" in von Neumann and Morgenstern 1944):

(4) A ***preference ordering*** is ***rational*** means that individual preferences are connected and transitive.

"Connected" means that for each object x and y either x is preferred to y, or y is preferred to x, or there is indifference between these objects. "Transitive" means that if x is preferred to y and y to z, then x is preferred to z.

We could add many other definitions. A total of 16 definitions are listed in Opp 2018({Opp, 2018a). But even this list is by far not complete. The existence of so many definitions of rationality raises various questions.

So far it seems that previous four statements are definitions. That is to say, authors want to introduce a ***convention about how to use a term***. But the statements could have another meaning. Assume somebody tells another person: "student" means a person who takes classes in a university. This may be a ***description of how a word is used by a group of speakers***. Such a statement is an empirical proposition, based on a meaning analysis, that can be falsified (see chapter 2). When an author writes that a person "is" rational if she or he calculates then this may refer to the everyday meaning a group of speakers ascribes to the term. Such a meaning analysis is irrelevant for a theory. A theory needs a theoretically fruitful concept.

Let us assume that those who suggest statements (1) to (4) want to suggest a ***nominal definitions***. Here a term such as "rational" is used as a shorthand term for some sentence. In statement (3) the term "rational" is an abbreviation for the sentence "individuals calculate the advantages and disadvantages of a behavior."

If this is meant two implications are of utmost importance. (1) The defined term ("rational") has the same meaning as the definition (... individuals calculate ...). In other words, in a definition any pre-scientific meaning of the defined term is eliminated. (2) A nominal definition cannot be true or false. Such definitions are only conventions about the use of some terms.

Why is it useful to introduce nominal definitions? The reason is to save time and efforts: one does not need to write (or express) a long sentence, one uses only a word, and everybody knows

what is meant. But if the defining sentences are short (as the four statements above) one does not need a new word.

Due to these issues, the question arises whether it is not more useful to eliminate the term "rational" when discussing RCT. Look at the previous examples. Why need a person that maximizes utility be called "rational"? Why need connected and transitive preferences be called "rational"? Why need people who calculate be called "rational"? Our discussion of the 16 definitions (Opp 2018), including the use of the rationality concept by Herbert A. Simon, Jon Elster, Max Weber, and Raymond Boudon shows that it is easy to express their ideas without any use of the rationality concept. We further provide a detailed description of the prisoner‹s dilemma without using the rationality concept. In our previous exposition of RCT, the concept of rational has not been used.

In analyzing the work of these authors (and of many other authors) one striking fact is that *nobody gives any justification for using the rationality concept*. Why is a utility maximizing person called "rational"? Why is calculation called rational? The overall recommendation thus is:

Avoid the concept of rationality. If you use it, provide a clear definition and justify its use.

It is often asked: ***are*** individuals rational***?*** This is a meaningless question as long as it is not clarified what "rational" means. People who ask this question should get the following answer: tell me what you mean by "rational" and I tell you whether people are rational. In regard to our examples (1) and (4) the answers are: In regard to (1): people are not rational (they do not always maximize their objective utility). In regard to (2): people are rational (assuming that VET is correct). In regard to (3): people are not rational because they often behave spontaneously. In regard to (4): preference orderings are not rational because preferences are often not connected and transitive.

After this discussion the heated and sometimes emotional discussion of the rationality concept is difficult to understand. It is also striking that the empirical question of whether people are rational is often discussed without being aware of the ambiguity and the different meanings of the concept.

There is also an inflationary use of the ***rationality concept in criminology***. There is hardly any work on RCT in criminology that does not use the rationality concept. There is further hardly any work that clearly states what is meant by this term. It is never said either why the concept is used and why it cannot be avoided. One example is Walsh‹s discussion of "differing conceptions of rationality" (Walsh 1986: 40-42). "Rationality" refers, among other things, to "activities identified by their impersonal, methodical, efficient, and logical components" (40). Each of these concepts needs further clarification. Why is the concept not defined in a clear way, and why is it used? Incidentally, this article is from the pioneering book by Cornish and Clarke "The Reasoning Criminal" (1986a). It is striking that in the entire book the issue of providing a clear definition of "rationality" and the usefulness of the concept are not discussed.

A second example for the confusing use of "rational" is Wikström and Treiber‹s (2016) critique of RCT (421-427). They use "rational" numerous times, but fail to specify what they mean with this term.

The tautology and circularity objections

It is often asserted that RCT is tautological or circular. In formal logic, a ***tautology*** is a sentence the truth of which can be determined by analyzing the meanings of its terms.[9] For example, "all bachelors are unmarried" is true because of the meaning of its terms: a "bachelor" is, by definition," a person that is unmarried. This can be substituted for "bachelors" so that the sentence reads "a person who is unmarried is unmarried" – certainly a true statement.

It goes without saying that RCT is definitely not tautological. Its truth cannot be determined by analyzing the meaning of its terms. The independent variables (incentives) do not refer to the same phenomena as the dependent variable (behavior). Tautology charges are just allegations. Detailed arguments that support the tautology charge are never provided.

Critics who raise the tautology objection seem to mean ***circularity***. This is given if the existence of the dependent variable, the behavior, is seen as evidence for the existence of the incentives. The latter are thus "inferred" from the behavior. For example, assume somebody spends money for a charity organization, and it is claimed that this is due to his or her altruistic motivations. How do we know that the person was altruistic (and did not spend in order to impress his or her friends)? A theorist might answer: don't you see that the person spent money?

Obviously, such a procedure is against all rules of an empirical science. It is definitely unacceptable for a wide version of RCT. As was emphasized before already, hypotheses about incentives that generate behavior, have to be tested empirically, independently of the dependent variable. In the Hempel-Oppenheim scheme, mentioned before, the initial conditions must be determined empirically, independently of the explanandum. It is weird that only RCT is regarded as circular and not other theories. Anomie theory could be applied in a circular way as well: an embezzlement could be explained by the success goal. How do you know that this goal was conducive to the crime? Don't you see that the person committed an embezzlement? Surprisingly, the circularity charge is only raised against RCT. The reasons are unknown.

The theory allows an arbitrary selection of incentives that are supposed to explain behavior

There is one serious objection that, if it is true, would make RCT to an imprecise collection of ad hoc assumption. The argument is that ***any factor can be included in a rational choice explanation.*** Hedström and Ylikoski (2014: 6) argue: "Finding a rational choice model that fits a particular phenomenon becomes almost trivially easy as there are no real constraints on preferences and beliefs that can be attributed to the individuals in question." According to Kroneberg and Kalter (2012: 82), the wide version of RCT "is able to assimilate almost any psychological concept or theory and translate it into more or less 'soft' incentives or a more or less inaccurate belief." Kroneberg (2014: 111) adds that the wide version is "therefore of little explanatory power and heuristic value." It is striking that none of the authors provides a detailed argument that justifies their critique. The following analysis shows that this critique is plainly wrong.

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[9] For details see any text of formal logic such as Gregory 2017 or Suppes 1957.

We illustrate this with Hedström‹s example (2005: 99-100): Mr. S brought his umbrella to his office at a certain day. Does RCT imply that any goals can be selected to explain the behavior of S? Assume S has the goal of buying a new car; S believes that the FBI has organized the terrorist attack on the World Trade Center. Any version of RCT implies that an action is performed because it is subjectively, i.e. from the perspective of the actor, ***instrumental*** to reach specific goals, and those beliefs are relevant that are instrumental for the achievement of the actor‹s goals. It is clear that in the present example the umbrella was brought to the office in order to reach the goal not to get wet. The goal of buying a new car is irrelevant for bringing the umbrella. In other words, the latter action is not regarded as instrumental for the goal of buying a car. The actor‹s belief that an umbrella protects against rain is relevant, from his perspective, for the action and not his conspiracy theories.

It is thus definitely not arbitrary which goals and beliefs are to be selected to explain a behavior. RCT has clear rules specifying how action, preferences and beliefs are related. The actions are always relevant that are subjectively instrumental for goals and the relevant beliefs. These assumptions are usually not formulated explicitly because they are so obvious.

These hypotheses can be formulated in the following way: (1) The action is chosen that leads, in the perception of the actor, to the realization of the actor‹s ***goals***. (2) The action is chosen for which the actor ***believes*** that it realizes his or her goals most likely. One could summarize these assumptions: the perceived instrumentality of an action determines the goals and beliefs that are relevant.[10]

The wide version is identical with all criminological (and other) theories

Akers (2000: 24-27, see also 1990) convincingly criticizes a narrow version of RCT. In regard to the wide version, however, Akers objects "that the level of rationality it assumes is indistinguishable from that expected in other theories, and it incorporates explanatory variables from them. When the modifications reach this point, it is no longer appropriate to call the result rational choice theory" (27). Akers defines "rational" decisions as decisions "that are informed by the probable consequences of that action" (1990: 654). This definition apparently refers to value expectancy theory. Here the relevant independent variables are the likelihood and utility of behavioral consequences. This argument raises several questions.

(1) It is highly questionable that all criminological theories address the likelihood and utility of behavioral consequences. In macro theories, individual decisions are not mentioned at all or at best insinuated. In most criminological micro theories the behavioral consequences are not spelled out in detail. Akers‹s own social learning theory does not include probabilities, and "reinforcement" is not a variable in RCT. This will be shown in chapter 7 when we analyze examples of criminological theories. To illustrate, anomie theory and situational action theory do not address behavioral consequences.

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[10] All this has been discussed in detail in Opp 1999: 182-184. It is frustrating for an author that the same false argument is repeated again and again without taking notice of discussions in which these arguments are refuted.

(2) Criminologists assume that many theories compete with each other. At least some of them are contradictory (see, e.g. Akers's analysis in Akers 2000: chapter 11). The contradictory theories cannot be derived from the general theory.[11] This implies the wide RCT cannot be identical with all criminological theories.

According to formal logic, the then-clause (T_1 and $\neg T_1$) cannot be derived from the if-clause. It is thus not correct that all criminological theories theory can be derived from a general theory.

(3) It is correct that the wide RCT "incorporates explanatory variables" from other criminological theories. This will be shown in detail in chapter 7. But this does not imply that all these theories are identical. RCT and criminological theories clearly differ.

(4) Akers maintains that it is no longer "appropriate" to call the wide version "rational choice theory." One can only agree to this statement, as our discussion of the rationality concept indicates. But the label "rational" choice theory is generally known as a label to identify the theory, and it is difficult to change it.

The conservative bias, the neglect of the roots of crime and other objections

There are two other criticisms that seem important and will briefly be discussed (see also Cornish and Clarke 2008).

RCT contains a conservative ideology. It is assumed that RCT recommends repression to combat crime, and this is a conservative ideology. First of all, an empirical theory consists of statements about facts or relationships between facts and not of value judgments. It is simply a misunderstanding that an empirical theory such as RCT "recommends" something. RCT is – as every empirical theory – about facts and not about value judgments. If RCT would imply that punishment is the most effective means of combating crime this is not a value judgment, it is an empirical factual statement. It does not imply that one ***should*** apply punishment to reduce crime. One might, for example, abolish any punishment for moral reasons. Incidentally, RCT does not at all imply a "repressive model of crime" (Clarke 2014a: IX, XIII). Formal punishment is just one of many factors that influence crime. The charge that RCT contains a conservative ideology is thus simply a misunderstanding.

RCT ignores the root causes of crime. Among them are poverty, deprivation or breakdown of marriage, family and community. Incentives or costs and benefits of crime are, accordingly, not among the "root causes" of crime. It is not clear what the "root" causes of crime are. A cause may be a "root" cause of crime if it has a relatively strong effect on crime or if it has an immediate or "proximal" and not "distal" effect (Ekblom 1994: 195) on crime. Proponents of RCT would argue that poverty or broken homes may be at best "distal" causes in the sense that they are ***related*** to

[11] Let there be two contradictory criminological theories T_1 and $\neg T_1$ (non-T_1). and let T_G be a general theory such as RCT. The assumption that T_G logically implies the two contradictory theories may be written as: If T_G, then T_1 and $\neg T_1$. It can be shown (which is not done here) that the then-clause (T_1 and $\neg T_1$) cannot be derived from the if-clause, i.e. from the general theory.

incentives. The latter are the proximal causes. Poverty etc. may affect crime only indirectly via changing incentives or because they are related (not necessarily causally) to incentives.

Other objections. The critique of RCT addressed in this chapter is only a part of the objections raised against the theory. Just to give one example: Wortley and Tilley (2018: 15) criticize that the widening of the narrow version by taking into account "bounded rationality" adds "flexibility" to the model, but "reduces the explanatory power of the model." In what sense "explanatory power" is reduced is not defined in detail, and it would require a detailed analysis to explicate this critique. We believe that our detailed exposition and discussion of major objections is sufficient to justify assume that the theory is capable to provide a detailed critique of existing criminological theories.

12. Summary and conclusions

This chapter describes in detail the version of RCT which is used in this books, its applications, possible extensions and critique. We start with the three key propositions: (1) preferences (i.e. goals) and (2) perceived constraints (beliefs) are determinants of behavior. The wide version admits all kinds of preferences such as altruistic motives (caring for the well-being of others) or normative goals (having internalized norms). (3) The third key proposition states that people do what from their perspective seems best. This is subjective utility maximization. It is important that the preferences and beliefs must be measured, they are thus not assigned ad hoc. We describe in detail value expectancy theory that specifies in detail how subjective probabilities (beliefs) and utilities (goals) determine behavior. An important assumption of RCT is that deliberate as well as spontaneous behavior can be explained. Furthermore, RCT can be applied to model social processes and the effects of social interdependencies (we discuss briefly game theory).

We further address extensions: It is described how emotions can be integrated into RCT and that dual-process theories extend RCT. We further show that complementing theories such as dissonance and balance theory help to explain preferences and beliefs.

There are possible alternative general theories that could be applied. In the present book we choose RCT because this theory is widely used in the social sciences, particularly in criminology, and captures the major factors that explain behavior.

In a next section it is discussed to what extent a wide version of RCT is applied in contemporary criminology. Our analysis shows that most reviews and substantive explanatory work use a wide version, although this is never clearly stated.

The final part of the chapter is devoted to the critique of RCT. In particular, we argue that the empirical evidence clearly supports RCT, that „reason-based" action is not suitable to replace utility maximization, that the ambiguous term "rationality" is superfluous, and that RCT is by no means tautological or circular. It is further discussed whether RCT has a "conservative bias." Those who advocate this critique are reminded that RCT is an empirical theory that does not contain value judgment.

In general, the discussion indicates that RCT is a relatively well confirmed theory and has a high informative content: it can be applied to all individuals and can explain any specific kind of

behavior. It is therefore well suited to analyze possible problems of existing criminological theories.

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5 How criminological theories can and should be integrated. The program of comparative theory testing and theory integration

Contents

Abstract. "Theory integration" is defined as the formulation of a new theory, based on at least two other theories. The integration advocated in this book is to apply rational choice theory (RCT) in order to find the conditions for the validity of criminological theories (CTs). They become sub-theories of (or unified with) RCT. Because RCT is a well confirmed theory (see chapter 4) it is to be expected that RCT is capable to deduce CTs in their original or in a modified form. Whether the derived modifications are correct must be tested. RCT is thus not assumed as valid a priori. It is possible that tests falsify RCT. The integration is a top-down argument (RCT is used to correct CTs) and a bottom-up argument (the corrected CTs may be wrong so that RCT might be falsified). The structure of this argument is summarized in Figure 5.1. We further suggest five steps of integrating RCT and CTs. We argue that integrating criminological theories with each other and that the application of theoretical frameworks are not useful.

1. Introduction

There are many discussions of the possibilities and problems of integrating criminological theories (e.g. Bernard and Snipes 1996; Elliott 1985; Hirschi 1979; Messner et al. 1989; Farnworth 1989; Krohn and Ward 2016; Tibbetts 2014). There are also examples of integration

(see, e.g., Agnew 2011; Bernard and Snipes 1996: 310-321; Elliott et al. 1979; Akers et. al. 2016: chapter 15; Krohn and Ward 2016; Matsueda 2008; Piquero and Tibbetts 2002; Tibbetts 2014). Most of this work compares criminological theories (CTs) with each other.

There are only few comparisons of CTs and RCT (see below, section 4). But there is no systematic research program that compares and integrates the most important CTs and RCT. This is a major component of the program of an Analytical Criminology suggested in this book. This chapter provides a detailed discussion of the problems and the procedure of integrating CTs with each other and with RCT.

2. The meaning of "theory integration"

An *integration* of two (or more) theories which explain (at least in part) the same phenomena is defined here as *the formulation of a new theory that includes components of the theories that are compared*. To illustrate, let there be a three theories T_A, T_B and T_C with variables X, Y and Z. An arrow is a causal relationship:

T_A: X → Y
T_B: Z → Y
T_C: Z → X → Y.

T_C is thus the "integrated" theory. It modifies T_B by including the independent variable of T_A as an intervening variable between Z and Y. T_C modifies T_A by adding Z as an exogenous variable. All theories explain the same phenomena, namel Y. The new theory includes components of the old theories. There has thus been, according to our definition, an "integration" of the three theories.

Note that the definition of "integration" does not imply anything about the quality of the new theory. "Integration" thus does not mean that the new theory is superior to the old ones (Farnworth 1989: 95). Our definition is useful because it separates two steps that are involved in integrating theories: one is to create the new theory, the other is to examine its quality. In this second step the criteria outlined in chapter 2 should be applied.

"Integration" of CTs and RCT thus means that RCT and at least one CT are compared in a first step. It follows the modified CT. A detailed example is analyzed in the next section..

The definition of "theory integration" implies that there may be successful and unsuccessful integrations. That is to say, the new theory might be better or worse than any of the existing theories. In the previous example, the new theory T_C might be well confirmed. A test might show that T_B is wrong and was previously only confirmed because X was not measured so that a causal effect of Z on Y was found. Furthermore, T_C includes a new dependent (endogenous) variable, namely X. This might be an interesting new variable for the scientific community. But this may be wrong. The integration may thus have failed.

There are several other definitions of integration in the literature. Elliott (1985: 123) defines the *synthesis* of theories as "combining of elements of historically divergent theories into more inclusive and powerful theoretical models." In contrast to our definition, the quality of the

outcome of the synthesis (or, as we would say, integration) is a defining criterion. However, what "powerful" means is not clear. Thornberry (1989: 52) defines ***integration*** as a "combination" of "two or more sets of logically interrelated propositions into a larger set of interrelated propositions, in order to provide a more comprehensive explanation of a particular phenomenon." It is not clear what "logically interrelated" means. Should the statements of the theory be logically independent or is the theory an axiomatic system? In what sense is the larger set "interrelated"? And in what sense must the new theory be more "comprehensive"? Farnworth (1989: 93) suggests that in an "integration" of theories the new theory must be better than the old theories. None of these authors provides a detailed discussion about why this and no other definition of integration is provided. Our definition is the simplest one, and for the reasons suggested it seems useful.

3. Types of integration

Several kinds of integration are distinguished in the literature (e.g. Hirschi 1979; for a discussion see Bernard and Snipes 1996). One is ***conceptual integration***. This is given if the meaning of the concepts of different theories are compared (see, e.g., Akers 1989: 31; Akers et al. 2016: chapter 15) and if, based on the comparison, new concepts are suggested. Two questions arise. One is what the purpose of conceptual integration is. Why should several concepts be somehow unified? The second problem is how such a unification should be accomplished. What should the new concept looks like?

In this book ***theory*** integration and not comparison and integration of ***concepts*** is the central issue. For this purpose, a purely conceptual analysis of concepts is not meaningful: "propositions, not concepts, are the building blocks of theories" (Thornberry 1989: 53). However, an attempt to integrate theories always involves the analysis of the meaning of concepts. For example, in comparing a CT with RCT one always needs to analyze whether the independent variables of the CT refer to some cost and benefit. Conceptual analyses are thus part of theoretical integration.

The goal pursued is thus ***propositional integration***. One possibility is the integration of micro- and macro-propositions, i.e. ***cross-level integration***. This will be discussed in chapter 6 (including the individualistic research program). It will be shown how micro and macro propositions can be put together or "integrated" in a single micro-macro model. ***Vertical integration*** (or deductive integration) means integrating theories of different generality. This is the goal in this book: the general theory is RCT, the special theories are CTs.

The other possibility of propositional integration is ***horizontal integration***. This means that different criminological theories are to be combined with each other. There may be integration between micro theories or between macro theories. Such combinations or "integrated theories" may occur in different ways. One could create the new theory by taking variables from the existing theories and add causal effects between the variables. One could also select variables from existing theories, combine them in a new way and test the resulting model (see, e.g. De Buck and Pauwels 2018; Pauwels and Hardyns 2016). There are many attempts of horizontal integration in criminology (see the examples in Akers et. al. 2016: chapter 15). We will not discuss these attempts but only the problems of horizontal integration of CTs below.

Krohn and Ward (2016: 320) regard *cross-discipline integration* as "a most challenging form of integration." RCT is a theory that is applied in several social science disciplines so that our program of Analytical Criminology is a "cross-discipline integration."

4. Top-down and bottom-up integration: comparing rational choice theory and criminological theories

RCT can only be compared with a CT if the phenomena that can be explained by a CT fall under the explananda of RCT. As was shown in chapter 4, RCT can explain any kind of behavior. Therefore, whatever the definition of a "criminal" or "deviant" action is, RCT can be compared with a CT.

In this section we will discuss arguments for the application of RCT to integrate criminological theories. We will further show how integration should proceed.

Why rational choice theory should be applied to integrate criminological theories

Why should *general* behavioral theories be a basis for integrating criminological theories? The major argument is the following. General theories, in particular RCT (see the arguments in chapter 4), have been shown to be successful in explaining numerous kinds of phenomena. If they are so well confirmed one might expect that they are also capable of providing valid explanation of crime or deviant behavior.

If this is accepted RCT should also show whether criminological *theories* are correct. In other words, it is to be expected that *RCT states conditions for the validity of criminological theories*.

In general, it has been found that general theories often *correct specific theories*. The former show the conditions under which the specific theories are valid. For the natural sciences, Popper (1957, see also Hempel 1965: 343-347) has shown that a general theory (Newton‹s theory) has corrected two special theories (the Kepler‹s and Galileo‹s laws). This leads to a *deeper* explanation: it is shown *why* the more special theories hold.

The merits of applying general *behavioral* theories in sociology has been demonstrated by the work of George C. Homans, the pioneer of the individualistic research program in sociology (see Homans 1967, 1974, 1987, 1988). He compared learning theory and what he called the "rationality proposition" (1974) with numerous sociological propositions and suggested how to modify these propositions, based on the general theories he applied. Andrzej Malewski (1967, see also 1964 and 1965) also discussed in detail the fruitfulness of applying general behavioral theories (such as learning theory or dissonance theory) to correct specific theories of the middle range.

In a research project of the German National Science Foundation (DFG) several universities collaborated to explore "comparative theory testing." A comparison of a version of RCT and several special theories (such as status inconsistency theory) showed the fruitfulness of RCT and its capability to correct specific theories (Opp and Wippler 1990: 229-233).

More recently, a systematic comparison of RCT with theories of protest behavior and social movements indicates that RCT implies major weaknesses of these theories (Opp 2009). The analyses also showed that in the theories compared with RCT major variables from RCT were used, but it was not mentioned that RCT was the applied. An example from social movements research is an analysis of the civil rights movement that applies RCT and micro-macro modeling without ever mentioning this approach (Luders 2010).

In criminology there are also attempts to compare RCT with criminological theories. Opp (1989) compares RCT with Sutherland's principle of differential association and hypotheses of the labeling approach; Frey and Opp (1979) compare RCT and anomie theory; Tibbetts and Myers (1999) not only compare RCT with self-control theory, they provide data that show that RCT variables can explain the effects of self-control; Matsueda (2013) and Tibbetts (2014, see also Piquero and Tibbetts 2002) compare RCT with several other theories.

Most of the time the application of the general theories consists of explaining ***specific phenomena*** such as migration or voting. One could ask why it is not sufficient to apply RCT to explain various kinds of crime. So why invest time and other resources to compare CTs with RCT? One answer is that we want to know why certain conditions of CTs are or are not conducive to crime. For example, assume association with criminal friends – a variable of a CT – is found to correlate with crime. We would like to know why this is the case. This question can be answered by RCT.

It is rare that general theories are applied to find out under which conditions specific ***theories*** hold. A systematic research program that focuses on a systematic comparison of general theories and criminological theories and attempts to integrate them does not exist.

Another argument for implementing a research program that compares RCT and CTs is that this provides new tests of RCT and the CTs. If RCT indicates that CTs are corrected and if this is not confirmed, this is a falsification of RCT. But if RCT can be applied successfully to integrate criminological theories, this would be a new confirmation of RCT. Furthermore, this program provides new comparative tests of the selected CTs.

An argument against ***any*** integration of criminological theories, including RCT and CTs, is put forward by Hirschi (1979: 37): "A 'successful' integration would destroy the healthy competition among ideas that has made the field of delinquency one of the most interesting and exciting fields in sociology for some time." To be sure, theoretical pluralism – this seems to be meant by Hirschi – is to be welcomed. But this is not yet competition. Its goal is to find out what the weaknesses and strengths of the theories are. There can be no theoretical progress (a "healthy" competition) if everything is left as it is and if one simply enjoys the existence of numerous ideas without any attempt to find out which ideas are best.

There is further no need for integration if it is assumed that there is already a superior theory. This is asserted by Becker (1968): the economic approach can "dispense with special theories of anomie ..." (170) and "does not require ad hoc concepts of differential association, anomie, and the like" (176). In other words, RCT is the clearly superior theory. The problem with this assertion is that it is only an allegation and a detailed analysis that undergirds this claim is missing. One cannot exclude that "ad hoc concepts of differential association" falsify the "economic approach," i.e. RCT.

How rational choice theory corrects criminological theories

Let us look at an example. To simplify, assume RCT states that relatively high rewards (R) lead to crime (C), and if there is crime, there are always relatively high rewards. RCT is thus a biconditional statement (or, in terms of formal logic, an ***equivalence***, symbolized by ⟧). This can also be expressed as "if, and only if R, then C." Let there be a criminological theory CT that claims: if an individual has a relatively high number of criminal friends (F), the individual commits criminal acts (C). This is an ***implication*** (symbolized by ⇒). It is formulated as "if there is F, there is C." Such an implication is only wrong if there is F but not C. This implies that there may also be other factors that lead to crime. We thus assume that CTs do not claim that only their independent variables lead to crime. Thus, not only low self-control (see chapter 7.6), but also other factors may bring about crime. We assume that this is a realistic situation. However, the following argument holds as well, when CT is an equivalence. Let us state the two theories more formally:

RCT: R ⟧ C
CT: F ⇒ C.

How could RCT and CT be related? First of all, neither CT can be logically derived from RCT nor can RCT be logically derived from CT. Both theories are thus logically independent.[1] However, it could be argued from the perspective of RCT in the following way. Rewards are the major variable that brings about crime and not having criminal friends. ***Having criminal friends leads only to crime if having criminal friends is associated with rewards for crime***. This is an ***empirical assumption*** (EA). More formally ("∧" stands for "and"):

EA: R ∧ F

EA is a ***singular statement*** that may hold in a specific research setting. EA may also be an ***empirical generalization.*** It may hold in many, but not in all groups that rewards for crime and interaction with criminal friends are related. In the extreme case, EA might even be a ***law***.

There may further be ***analytical relationships*** between incentives and variables in criminological theories. Take ***criminal opportunities*** (such as the possibility to join a criminal network). In terms of value expectancy theory (see chapter 4) this may be a behavioral consequence of committing crime which has a positive utility and a high subjective probability. Thus, an analysis of the meaning of different variables may show that variables from RCT and CT do not have empirical relationships but ***have the same or a similar meaning***. The EA in the previous example would be an analytical relationship which could be symbolized as ***AR.*** If this is the case the criminological theory ***can be derived in its original form from RCT***. The independent

[1] This can be shown in the following way: Assume (R ⟧ C) would logically imply (F ⇒ C). Then the statement "(R ⟧ C) ⇒ (F ⇒ C)" could not be false. A truth table analysis easily shows that this implication can be false. This holds for the other implication as well: (F ⇒ C) ⇒ (R ⟧ C). There is thus no logical dependence between the statements.

variables would thus be incentives. A detailed ***meaning analysis*** must be carried out to explore whether ARs hold between concepts of RCT and CTs.

Let us state the previous argument in a more precise way as a small axiomatic system. The axioms are RCT and EA logically imply CT. This is conclusion 1. The two axioms further imply the ***corrected criminological theory***. Now the integrated CT assumes that C occurs only if F is associated with C, i.e. [(R 1 F) Y C]. The second conclusion is thus the modified criminological theory: it is the theory that has been corrected by applying RCT. The line symbolizes that the statements after the line (the theorems) can be logically derived from the statements before the line (the axioms).[2]

RCT: R] C
EA: R 1 F

CONCLUSION 1, which is ***CT***: F Y C
CONCLUSION 2, which is the ***corrected CT***: (R 1 F) Y C

Note that the CT becomes ***integrated*** in the sense that it must be modified if it is compared with RCT. The corrected CT is a corollary of RCT.

Empirical relationships between independent variables of RCT and CTs seem to exist for many variables of criminological theories. Take differential association, certain kinds of "social bonds," low self-control or the so-called correlates of crime (e.g. Miller 2009: Part II) – the weather, religion, education, gender, race and ethnicity, age. These variables are sometimes or often related to crime. They are empirical regularities.

This is a ***top-down argument***: the general theory is applied to examine the validity of lower-level theories (or, equivalently, theories of the middle range). The modified CT become a corollary of RCT. Our procedure thus can also be called a ***vertical integration*** or, equivalently, a ***deductive integration*** (Liska et al. 1989: 15) of a general and a specific theory.

It might be argued that the previous analysis is a purely logical exercise. How do we know whether having criminal friends is relevant for crime only if incentives are present? Couldn't this be plainly wrong? Couldn't an empirical study show that criminal friends suffice for crime, and that incentives are irrelevant? This is a ***bottom-up argument***: the implication from RCT may be wrong. Only F may matter. This would be a ***falsification of RCT***.

It can thus not be excluded a priori that criminological theories have the valid variables and that RCT is a complete failure. That is to say, whether a CT really holds under certain conditions must be tested empirically. Such comparative tests are especially important if, as McCarthy

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[2] The validity of the argument can easily be shown with truth tables. The axiomatic system can be formulated in the following way: [(R] C) 1 (R 1 F)] Y (F Y C). The arrow between the two statements (the axioms) and the conclusion 1 refers to a logical implication. It can be shown with the inference rules of the propositional calculus that this logical conclusion is true: the implication cannot be false (but only true) so that the inference is valid. Similarly, it can be shown that not only (F Y C), but (R 1 F Y C) can be derived as well. This is the modified CT. These arguments hold as well if the CT is an equivalence: (F] C) and [(R 1 F] C] can be derived from the two axioms.

(2002: 423) notes, RCT is in "sharp contrast" to CTs and "incompatible" with RCT. If this is correct one would like to know which theory is valid. This can only be decided by empirical research.

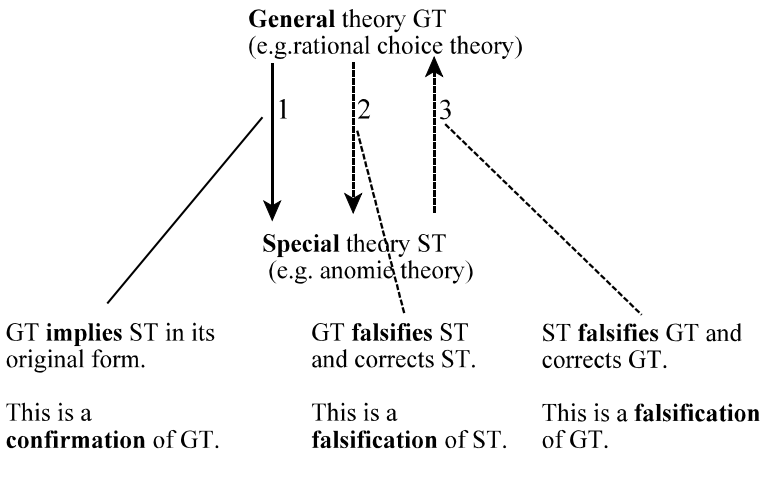
This indicates that the procedure of applying RCT to correct CTs is by no means a dogmatization of RCT. On the contrary, empirical tests might lead to a falsification of RCT. There is thus no immunization of RCT.

How can the argument that RCT corrects CTs be tested empirically? If RCT holds then CT should only be valid if having criminal friends is associated with incentives for crime. This can be tested with a ***multivariate statistical analysis***. Assume we have data with indicators for R, F and C. In a multivariate analysis we test three models: model 1 consists only of the reward variables; model 2 includes only the indicators for F; model 3 is composed of the F and R variables simultaneously. We would expect, that the coefficients of the RCT model 1 are strong and significant; this might hold for the F model as well. But in model 3 with the two types of variables included simultaneously we expect that the coefficients of the indicators for F become zero (or, due to typical measurement errors in a survey, strongly reduced, compared to model 2), whereas as the coefficients for the incentives remain largely stable. The effects of F are reduced due to the strong correlation of R and F. Tibbetts and Myers (1999 – see chapter 7.6) proceed in the same way to test self-control theory. The result is that the low self-control variable has no longer an effect on crime if the variables of RCT are included in the analysis.

RCT does not only correct CTs in regard to the kinds of factors that are conducive to crime. RCT also corrects the ***informative content*** of many CTs. They explain often only crime in general. It is left open which kind of crime is to be expected. As was seen in chapter 4, RCT can explain specific kinds of behavior.

The previous argument is summarized in Figure 5.1. We see that the general theory (RCT) may either logically imply existing special theories or corrects them – see arrows 1 and 2.These are the two top-down relationships. It is further taken into account that RCT can be falsified (arrow 3).

Figure 5.1: The relationships between general and special theories



Based on Opp and Pauwels 2018.

The diagram shows again the fruitfulness of the program of an Analytical Criminology, that is outlined in more detail in chapter 8. The process of *theory comparison is a two-way process*. It implies a critical examination of CTs, from the perspective of a general theory. The general theory profits from this procedure as well. Either it is confirmed which means that new positive evidence is provided. But there is also the possibility of falsification.

5. The five steps of integrating rational choice theory and criminological theories

Step 1: Selection of the criminological theory

There are numerous CTs that could be compared with RCT. Which CT should be selected? The rule should be: *take the best*. The aim is to formulate a true and informative theory of crime. The theory or theories that seem best suited to explain crime should be selected. This provides the opportunity for a severe test of the corrections suggested by RCT.

This rule is difficult to apply because it presupposes that the theories can be compared according to their quality and can be brought in a rank order. But this is hardly possible, as our discussion of the "theory chaos" in criminology indicates (chapter 3). We use as an indicator for the fruitfulness of a CT the extent to which it is discussed by the scientific community (see chapter 7). This is an imperfect criterion. There might be a new and unknown theory that is revolutionary but at present rejected by criminologists. We have not found such a theory. It seems justifiable to base our selections of criminological theories on their popularity in the scientific community (see for details the discussion in chapter 7).

Step 2: Clarification of the theories to be compared

A rigorous comparison of theories is only possible if their concepts and their structure are clear (for details see chapter 2). We saw in chapter 3 that the lack of clarity is a major problem of CTs. In particular, most of the theories do not have an axiomatic form, i.e. they do not consist of a clear set of propositions (axioms) which are logically independent of each other. RCT, as it has been exposed in chapter 4, is an example of a theory with a clear small set of general prepositions. Theories in criminology are usually presented in a "discursive mode," as Gibbs (1987: 834) correctly criticizes. An impediment for comparison is also the large number of papers or books a theory consist of. Unclear are often also the concepts of a theory. All this is discussed in detail in chapter 3 and need not repeated here. Our analyses in chapter 7 further show how difficult it is to formulate a precise version of a CT before it is compared with RCT.

How does one proceed when a theory or a concept is to be clarified? Carnap (1956: 7-13; see also Cordes and Siegwart 2019) suggested the method of *explication*. The goal is to replace a statement or concept with a more precise statement or concept. This new statement or concept should be theoretically fruitful in the sense that it is a component of a good theory. For example, an explication of the concept of "self-control" would replace this unclear concept with a more precise concept that results in a fruitful theory. "Fruitful" means a theory that is valid and informative (see chapter 2). An "explication" is different from an "interpretation." The aim of the

latter is to find out what an author could have meant (which is rarely known). “Explication” could also be called *reconstruction*: one reformulates an unclear concept or statement with the goal of improving a theory.

The problem is how to know in advance, before a theory is tested, which clarification is theoretically fruitful. It seems useful to choose the most plausible clarification. The explication is thus a preliminary working hypothesis or definition that has to be tested in future empirical research.

Step 3: Theoretical analysis

In this step the implications of RCT for the selected CT are formulated. Our example before illustrates the procedure: one should show, based on an axiomatic system, how the chosen CT is to be modified from the perspective or RCT. This is, as chapter 7 will show, the normal result of a theoretical analysis. A possibility is also that a CT is actually a version of RCT but formulated in a way that this is recognized only after a detail meaning analysis of the terms of the theory. The theoretical analysis should thus yield a clear statement of the theories that have been compared.

It is important that *entire criminological theories* are compared with RCT. However, often some variables of a CT are selected such as contacts with criminal friends. One could call this procedure *variable picking*. Pauwels et al. (2018) found in their review of tests of situational action theory that in numerous studies only some propositions of the theory were tested. Just picking some variables of a theory is not a severe test of the entire theory. Variable picking ignores possible interrelationships between the variables of a CT. A consequence of such interrelations may be that certain variables are no longer effective if their effects are simultaneously analyzed.

Step 4: Comparative theory test

Based on the results of the theoretical analyses a rigorous empirical test has to be provided. The best example we have found is the research by Tibbetts and Myers (1999). This is described in detail in section 7.6.

Step 5: Formulation of the integrated theory

The final step should be a clear formulation of the conclusions from the previous analyses and research. In what way is the CT corrected? How strong is the evidence?

6. Arguments against comparing criminological theories with each other and integrating them

Applying *theories of the middle range* (TMRs) that explain specific phenomena such as crime, migration, protest, voting, fertility or divorce are much more popular in the social sciences than applying general theories. The major advocate of this program was Robert K. Merton (1957: 3-16): "sociology will advance in the degree that its major concern is with developing theories of the middle range" (Merton 1957: 9, for a discussion see Opp 2013). It seems that the advocates of this program overlook what Merton adds: "both the general and the special theories are needed" (p. 9). A major reason why Merton emphasized the importance of TMRs could have been that at his time RCT was underdeveloped and a wide version was not explicitly advanced. The dominant economic model of man was a narrow version of RCT.

Are there not good reasons for focusing on TMRs and ignore general theories? In the present context, the question is why not engage in comparative theory testing and integration of *theories of crime?* This would be a research program of *horizontal integration* (in contrast to vertical integration, advanced in this book).

If criminological theories are to be integrated (without considering general theories) a major problem is *how* to integrate different criminological theories. The procedure is clear for integrating RCT and a CT, as was shown before, but not for horizontal integration (as was also indicated before).

One type of horizontal integration of criminological theories is simply to *combine the variables of the theories to be integrated in a new way*. An example is the complex causal model, consisting of variables of several theories by Elliott et al. (1979), Farrell (1989: 89). Thornberry (1987) as well as Wolfe and Shoemaker (1999: see Figure 1 on p. 124) combine variables of several theories as well. The example in the introduction to this chapter illustrates the procedure.

Such a procedure does not answer the question of why certain variables are selected and not others. There is no detailed application of an informative theory that can justify the integration. The combination is thus ad hoc, only based on plausibility considerations.

The model of Thornberry (1987: 871) illustrates the arbitrariness of such combinations. The model consists of five variables and with feedback effects between almost all variables. This makes the model untestable. Agnew (2005: 7-9) notes when discussing this model that despite its complexity it is still incomplete. Thus, one might add other plausible variables or relationships between the existing variables. It is not clear, which variables these could be and how they are to be combined.

However, we will not entirely discard horizontal theory testing of criminological theories which is favored by many criminologists (see, e.g., Bruinsma 2016: 669-671). In selecting criminological theories for comparison with RCT it was argued that the "best" CTs should be chosen. This is only possible if the theories are tested in comparison with other theories. For example, if a comparative test of differential association and control theory confirms the former theory (Matsueda 1982) this is an argument for selecting differential association theory. Therefore, it seems acceptable to favor comparative empirical tests of criminological theories as a first step for the comparison with RCT.

7. Why theoretical frameworks should be ignored

There are criminological theories which are in some unclear sense "based" upon theoretical *paradigms* or, equivalently, theoretical *frameworks* or *meta-theories*. For example, the labeling approach is regarded as being "based" on symbolic interactionism. Krohn and Ward (2016: 324-325) argue that such meta-theoretic assumptions of a theory must be discussed when theories are to be compared and integrated.

In order to evaluate this claim one needs to clarify what the logical structure of these meta-theoretic assumptions (MTAs) is. Are they general statements and, if so, what is their informative content? In particular, is it possible to *derive* in a rigorous way special theories or even general behavioral theories? To answer this question we analyze the following MTA taken from symbolic interactionism:

> *MTA* – from *symbolic interactionism:* (1) People‹s actions are determined by symbols and meanings. These are acquired in their interactions with others. (2) Deviant behavior is learned in interactions with others

Many other similar assumptions from other frameworks could be added. They all have one feature in common: they have a very low informative content. They are rather *orienting hypotheses* (see chapter 2). That is to say, they point to a *general class* of properties which are supposed to have *sometimes* a causal impact on *some* properties. The previous example does not specify which interactions lead to which symbols and meanings that individuals acquire. It is further left open which symbols and meanings lead to which action. The independent variable is interactions. They lead to the acquisition of symbols and meanings. We are not told which symbols and meanings generate which action. Furthermore, interactions – of what kind? – are supposed to lead to crime – of what kind? Do all interactions lead to crime?

The MTA is a law or a set of laws. But it cannot be applied for explanations. To show this assume some persons interact with each other (MTA-2). This could be the initial conditions in a Hempel-Oppenheim scheme (chapter 2). Can we derive that these persons will become criminal? This is definitely not possible. The reason is that MTA -2 does not imply that *every* interaction leads to crime. It states only:

> MTA-2 – clarification: *There are* interactions which lead to *some* crime.

This is a general existential statement. If *some* interactions lead to crime and individuals a and b interact, they may not be among those for whom the existential statement holds. We can thus conclude that such existential statements cannot be used as explanations of any specific kind of crime. Furthermore, it is not possible to derive any specific proposition.

A good illustration of the uselessness of theoretical frameworks is Wolfe and Shoemaker‹s (1999) application of "systems theory" to arrive at a theory of delinquency. This "framework" suggests: "To understand delinquency, we must study not only delinquents themselves but also their families, peers, schools, neighborhoods, communities, and cultures" (Wolfe and Shoemaker 1999: 122). What *exactly* the attributes of delinquents and of the social environment are that lead to crime is not specified. The procedure is then to select those specific variables ad hoc, based on

the criminological literature (see the summary in Figure 1, p. 124). Again, the authors‹ systems theory consists only of orienting statements.

Even if frameworks cannot be used to derive CTs they could be used as *heuristic guidelines* to get ideas for formulating good theories. It is not known, however, to what extent frameworks have so far been helpful to arrive at specific informative theories. It is hardly plausible that scholars who want to formulate a new informative theory first consult meta-theory.

Our methodological suggestion is to ignore theoretical frameworks. If one is looking for specific explanatory propositions one should consult the respective theories.

8. Summary and conclusions

Theory "integration" is defined as the formulation of a new theory, based on at least two theories, that includes components of the existing theories. There are different types of integration such as conceptual integration or horizontal integration (referring, e.g., only to criminological theories). The present chapter deals with the integration of rational choice theory (RCT) and criminological theories (CTs). The latter become modified by applying RCT and are, thus, integrated as sub-theories of RCT. The major justification of this procedure is that RCT is a relatively well confirmed theory (see chapter 4). It is thus to be expected that it can show under which conditions criminological theories are valid. The assumption of the capability of RCT to correct CTs is to be tested empirically. The results of such empirical tests could be a falsification of RCT. Figure 5.1 summarizes the suggested procedure.

We outline five steps of integrating RCT and CTs. (1) Selection of the CTs to be compared with RCT; (2) clarification of the CTs to be compared; (3) theoretical analysis (i.e. spelling out how RCT implies a correction of the CT); (4) whether the results of a theoretical analysis is correct needs to be tested in an empirical study; (5) one should clearly state the modified CT, i.e. the integrated theory. If RCT is falsified modifications should be suggested.

There are scholars who argue that integration in general is not meaningful. In particular, there is "healthy" competition that would be destroyed if there are attempts at integration. However, just leaving the existing theoretical pluralism as it is does not solve the "theory chaos" in criminology (see chapter 2). A major problem of horizontal integration (i.e. integrating only given CTs) is how to combine the variables of the existing theories.

Criminologists sometimes argue that "meta-theories" such as symbolic interactionism or Marxism should be used to evaluate or derive criminological theories. It is argued that those meta-theories are relatively uninformative orienting statements that can definitely not be used for the derivation of criminological theories. Those hypotheses might function as heuristic guidelines. However, it seems implausible that such general background ideas have really helped to arrive at specific informative theories. We recommend to consult existing informative theories if concrete explanatory problems are at issue and not theoretical "frameworks."

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6 Linking individual and society: structural individualism and micro-macro modeling

Contents

Abstract. The goal of structural individualism (SI) is to explain macro phenomena (such as revolutions) or macro relationships (such as: the higher inequality, the higher is the crime rate) by applying a micro theory such as rational choice theory. The macro and micro level are connected with bridge assumptions. For example, inequality (macro level) might lead to an attenuation of norms to abide by the law (micro level) which in turn leads to individual crime (micro level). This is aggregated to the crime rate (a high number of crime, related to the size of the population is aggregated to a high crime rate). The macro hypothesis is thus explained: inequality leads to crime *because* it weakens legal norms which, in turn bring about individual crime and, thus, a high crime rate. SI requires such a micro-macro-model. One reason is that it provides a deeper explanation (i.e. increases our knowledge about why a macro relationship holds). Another reason is that a micro-macro model specifies the conditions for the validity of the macro proposition. The chapter analyzes in detail the single components of the micro-macro model (the macro and micro proposition and the bridge assumptions). We further discuss agent-based modeling (computer simulations) that illustrates the possibility and fruitfulness of micro-macro modeling.

1. Introduction

In criminology and in all other social sciences we find two types of theories: there are theories about individual actors, and there are theories about collectivities (such as families, organizations

and societies). Put differently, there are micro and macro theories. Sometimes the macro level is broken down to several levels: there might be small groups (meso level) and societies (macro level). In order not to introduce superfluous complexity, we will only distinguish between a micro and a macro level.

Many social scientists are satisfied with this dichotomy. In sociology there is micro and macro sociology, in economics there is micro and a macro economics. These two types of theory thus coexist peacefully.

This seems to imply that possible relationships between these theories do not exist. However, even some superficial reflection shows that this is highly problematic. For example, the crime rate – a macro property – is obviously related to the crime of individual actors. When the crime rate is explained, this requires to explain individual crime because this is aggregated to the crime rate. Individual crime is a function of individual attributes (in a wide sense, including the individual's relationship to the environment). If macro properties explain the crime rate then these macro properties must be somehow related to these individual attributes. Otherwise it is difficult to see how macro properties may influence the crime rate (via individual crime). It is thus highly plausible that there must be some relationship between the macro and micro level.

If this is accepted the question is how exactly the macro and micro level are related. Answering this question is the goal of this chapter. We argue that both levels can be integrated into a single theoretical model, namely a micro-macro model.[1] The research program that focuses on such an integration is ***structural individualism*** (SI), also called methodological individualism or the structural-individualistic research program. Sometimes the expression ***rational choice approach*** is used because most of the time the micro theory is rational choice theory (RCT).[2] Note that the rational choice ***approach*** is a research program, whereas rational choice ***theory*** refers to single theoretical propositions.

In what follows we will first illustrate SI with an example. It will then be analyzed how both levels can be integrated and which possible problems exist.

2. An example

We start with the following macro proposition:

Macro proposition (MA): The higher the inequality of a society, the higher is the crime rate.

[1] We use the expression "micro-macro" model which seems to be more common than "macro-micro" model. Both expressions are used interchangeably.

[2] On micro-macro modeling and methodological individualism see the following English contributions: Buskens et al. 2012; Coleman 1990; Hedström 2005; Opp 2011, 2012; Raub and Voss 2017; Udéhn 2002 . For discussions see in partricular Coleman and Fararo 1992; Friedman 1995; Green and Shapiro 1994. For criminology see in particular Matsueda 2013, 2017.

Both variables – ”inequality” and “crime rate” – are properties of collectivities such as societies, cities, states or small groups. The smallest collectivity is a dyad. Statements about dyads – such as couples – are thus macro hypotheses. MA is simplified because not only inequality influences the crime rate. For example, other macro variables such as high unemploymen or poverty might influence the crime rate as well. In order to avoid unnecessary complications we will ignore such additional variables.

Even if MA is true many scholars are not satisfied with this proposition. One would like to know ***why*** inequality leads to a high crime rate. This does not mean that macro propositions are not of interest. A major goal of sociology and other social sciences is to discover and test macro propositions. Nonetheless, scientists who focus on the macro level often insinuate an interest in an explanation that refers to micro level processes.

How could MA be explained? A clue is that the crime rate is an aggregation of individual behavior: it is algebraically constructed by dividing the number of crimes of a collectivity by the size of the population (or some part of the population). In explaining the crime rate it thus seems plausible to explain first ***individual*** crime. Rational choice theory (RCT) suggests that individual incentives bring about crime. For the purpose of illustration, assume that people who are in need of some goods and have weak norms for law-abiding behavior are likely to commit crimes. Let this be the relevant incentives.

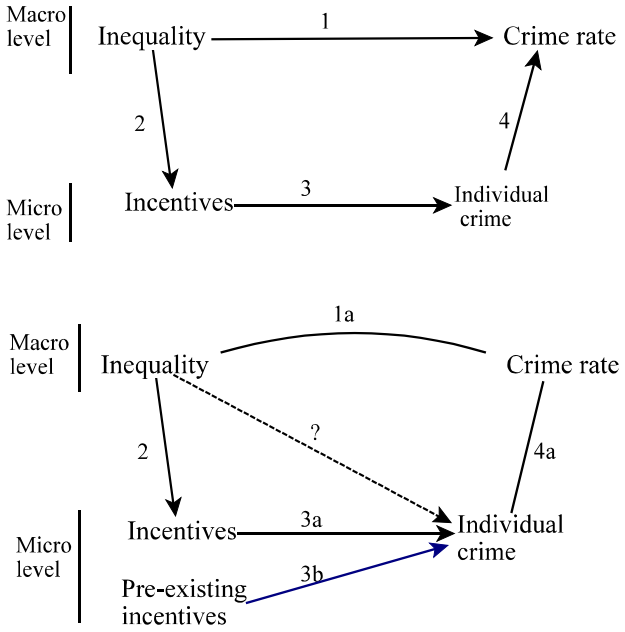
How could “inequality” be related to these incentives? Assume that inequality means an unequal distribution of resources (income and wealth). Let this distribution lead to individual dissatisfaction of those with few resources and to the acceptance of justifications for crime: people may think that the “rich” have not acquired their wealth in a legitimate way and it is justified to take some of it away. These are micro variables. There is thus a macro-to-micro relationship: inequality (the macro property) has two causal effects: one on individual discontent of those with relatively few resources; the other on acceptance of justifications of crime. These are incentives for crime which make individual crime more likely. This individual behavior is then aggregated to the crime rate (the macro variable).

These hypotheses are first depicted as a micro-macro model in the diagram of the upper panel of Figure 6.1. This diagram is equivalent to the so-called Coleman boat – see below. The figure shows the macro proposition (arrow 1), the micro proposition (arrow 3) and the links between the variables of the two levels (arrows 2 and 4). All relationships are supposed to causal, as in the Coleman boat.

This graph is problematic in several respects. The alternative diagram is depicted in the lower panel of Figure 6.1. Let us first turn to the macro relationship (1). Inequality is related to crime ***because*** inequality leads to incentives, which bring about individual crime; this aggregates to the crime rate. The macro relationship is thus ***explained***. It has therefore not a separate direct causal effect on the crime rate. The effect is only indirect – via the micro level. This is symbolized by the arc 1a. There is thus only a correlation on the macro level, not a causal effect.

The macro-to-micro relationship is indeed empirical (arrow 2 in the lower panel of the figure): inequality ***leads to*** discontent and justifications for crime.

Figure 6.1: The basic micro-macro model



Arrows: causal relationships; *line*: analytical relationship; *arc*: correlation.

The micro proposition is RCT. If a specific behavior is to be explained, the incentive that are relevant in this situation must be ascertained empirically. There is thus no ad hoc postulation of incentives.

There are two types of incentives for crime. One type is influenced by the macro variable (arrow 3a). In addition, there are other ***pre-existing incentives*** (arrow 3b). For example, the person might expect severe punishment with high likelihood. This is not influenced, we assume, through the macro variable. The distinction between these two types of incentives is not part of the Coleman boat. But the distinction is important because not all incentives, that are relevant for a behavior, need not be influenced by the macro variable.

The micro-to-macro relationship – line 4a – is not empirical, it is analytical (or logical): the crime rate is constructed by some algebraic operation with the number of individual crimes.

We call the two connecting assumptions – the macro-to-micro and the micro-to-macro assumption – ***bridge assumptions.*** The term suggests that they "bridge" the micro and macro level. The reader might for a moment ignore the dotted line, we will discuss it later.

The micro-macro model ***integrates*** the micro and macro level in the following sense (see chapter 5): the entire model is an improvement of the separate micro and macro propositions.

The reader finds a more complicated example for a micro-macro model in section 7.8: it is shown when social disorganization is associated with a high or low crime rate. Other criminological examples are described in Matsueda 2017.

3. Structural individualism and the collectivistic research program

The previous section describes an example. This example facilitates understanding of the following discussion of the SI and its alternative, the collectivistic (or holistic) research program.

An outline of structural individualism and some of its problems

The program of SI has two components. One is a *factual claim*: the assertion is that it is in general possible to explain single macro phenomena or relationships between macro phenomena by applying hypotheses about individual actors. This assumption can be refuted. There might be macro phenomena or hypotheses that can *not* be explained by micro propositions.

The second component is a *methodological rule*: it is claimed that macro propositions *should* be explained by applying micro propositions. This is not a moral postulate such as "you must not kill"; it is a technological statement in the sense: *if* scientific progress is the goal, *then* micro-macro explanations are an appropriate means. The major argument for the fruitfulness of this strategy is, as the previous example illustrates, that micro-macro explanations provide *deeper* explanations of social phenomena (Popper 1972). Popper illustrates the idea of the depth of an explanation with an example from the natural sciences: "Newton‹s theory unifies Galileo‹s and Kepler‹s. But far from being a mere conjunction of these theories ... *it corrects them while explaining them"* (1972: 202, italics in the original). Our example illustrates this: there is not just a conjunction of the macro and micro propositions. The bridge assumptions and the micro theory correct the macro proposition: they actually specify conditions for its validity. This will become still clearer below when micro-macro explanations are discussed in more detail. The analysis of disorganization theory in chapter 7.8 is another illustration.

There is another assumption of SI which could be called the *reconstruction thesis*. The claim is that concepts that denote collectives or their properties refer to individuals and their (absolute or relational) properties (Opp 2011). Often the macro concepts are so unclear that they must be reconstructed. Parsons's definition of "social system," mentioned before, illustrates this.

SI has a long history. It has been already applied by the Scottish moral philosophers of the 18th century, in particular by Adam Smith, David Hume and Adam Ferguson (see Schneider 1967 for a collection of basic readings, and Udéhn 2002 for a discussion of different versions of SI). To illustrate, in the work of Adam Smith it is shown how macro phenomena such as the changing demand and supply (which are macro properties) are brought about by the behavior of individual actors (including firms). One of the pioneers of SI in sociology, George C. Homans, formulated the basic idea of SI succinctly in his article "Social Behavior as Exchange" (1958: 606): hypotheses about groups (or collective phenomena) can be derived from hypotheses about individual behavior (and, one should add, bridge assumptions). This implies, as Coleman (1990: 2) puts it, to explain "the behavior of the system by recourse to the behavior of its parts," which refers to the behavior of individual actors.

Micro-macro explanations are increasingly regarded as a fruitful explanatory strategy. They are a certain type of *mechanism explanations*. A mechanism is often defined as a *social process* that shows how a relationship between variables comes about. Micro-macro explanations show a mechanism – via the behavior of individual actors – that generates a macro relationship. Finding such mechanisms has become a major goal of many social scientists. Recently, proponents of Analytical Sociology propagate this goal (see Hedström and Swedberg 1998).

SI is about *propositions*. It is not about ontology asking, for example, whether reality can be divided in different strata consisting of individuals and collectivities. These are metaphysical questions that are not discussed in this book. SI is about relationships between macro, micro, and bridge *statements*. It is irrelevant whether one claims that individuals and groups are "essentially" different phenomena. The question is whether macro propositions can be explained by the processes outlined before.

SI is sometimes criticized for advancing *reductionism*. The vast literature about reductionism (for an overview see Ney 2018) analyzes in detail relationships between theories in which (at least) one theory (the reduced theory) can be derived from another theory (the reducing theory). These intertheoretical relations are normally explored between theories of the natural sciences (see, e.g., Nagel 1961: 336-397). In this book, however, macro, micro and bridge assumptions need not be theories, as has been already illustrated with our example and as will be seen in more detail below and in chapter 7. It would be perhaps fruitful to apply results from the discussion about reductionism to the micro-macro problem, but for restrictions of space we must leave this for further research. We will focus instead on the specific relationships between RCT and criminological theories.

"Reductionism" is also discussed in sociology. Proponents of SI such as Homans are often regarded as proponents of reductionism. This term has become a swearword: "I call myself an ultimate psychological reductionist – horrible phrase – because I have faith that the propositions of small-group research – when we have them – will be found deducible from a general psychology of behavior – when we have it" (Homans 1988: 271). Note that in Homans‹s work "reduction" means "explanation," "psychology" refers to hypotheses which are proposed by psychologists and are about individuals. Examples are hypotheses from behavioral psychology and learning theory (Homans 1967: 39-40). "Sociology" stands for propositions about groups or collectivities that are usually formulated by sociologists.

SI is rarely explicitly and systematically employed in criminology. There are at least two exceptions. One is the work of Matsueda (2013, 2017). The other is the "Social Structure-Social Learning theory" by Ronald Akers (Akers 1998: 322-372) in which macro factors are related to the variables of the theory. A first extensive discussion of micro-macro modeling in criminology is a section on "cross-level integration" in Messner et al. 1989. But, compared with the detailed development of this kind of analysis in sociology, beginning with Coleman‹s work (1990), this discussion is, from the present perspective, not up to date. However, Hagan‹s micro-macro model in the volume, edited by Messner et al. 1989, can be seen as an anticipation of the Coleman model (Hagan 1989: 219).

The collectivistic research program and its small numbers problem

The alternative to SI is a ***holistic social science,*** also called structuralism or the collectivistic research program. Major classical advocates are Karl Marx, Émile Durkheim and Talcott Parsons. Two claims in particular are inconsistent with SI. One is that macro propositions are causal statements. This argument is discussed in the section "The macro proposition" below. The other claim is that micro-macro modeling is not (or often not) possible because there are ***emergent properties*** (for a detailed discussion see Sawyer 2005). Although "emergence" is a "slippery concept" (Sawyer 2001: 551) it is often regarded as given if there are properties of groups that have "no counterpart in a corresponding property of individuals" (Blau 1964: 3). "Division of labor" is such an emergent property because only groups have it.

No advocate of SI denies the existence of emergent properties in this sense. However, the existence of such properties does in no way preclude micro-macro modeling. Our example illustrates this: ***individuals*** have the property of being more or less criminal, but only ***collectivities*** have the property of a crime rate. The "emergent" property can easily be constructed by aggregating individual crimes. Furthermore, the crime rate can be explained by a micro-macro model, as the previous example indicates. This holds for other properties such as age too: the age of individuals can be aggregated to the age distribution or to average age. Such properties are ***absolute*** properties (Lazarsfeld and Menzel 1961: 431). Single individuals have a certain age etc.

There could be problems of micro-macro modeling for ***relational*** properties (Lazarsfeld and Menzel 1961: 431). "Liking" is such a relational property that holds for two individuals simultaneously. In formal logic, it would be symbolized as ***Lab*** meaning "person a likes person b." Could there be "emergent" properties for such relational properties? Take "interaction." A "social system" can be defined as a set of pairs of individuals who interact with each other (see, e.g., Parsons 1951: 3-23). "Cohesion" can be defined as liking relations between the individuals who form a group. Interaction and cohesion are thus "emergent" but can easily be constructed from individual (relational) properties.

Advocates of SI are well aware of these different kinds of properties, and there is no problem in dealing with them in micro-macro modeling (for details see already Lazarsfeld and Menzel 1961; Jasso 2010; Opp 2014; see also already Brodbeck 1958 for a detailed discussion of the relationship between individual and group properties).[3]

A major problem of a collectivistic approach is that there are ***no informative macro laws*** (for a detailed discussion see Opp 2017). This means that the selected independent macro variables must be selected ad hoc. If there are macro laws they would suggest the relevant factors in macro explanations.

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[3] Similar to the claim that SI has problems with emergent properties is the allegation that SI is to be refuted because ***the whole (the collectivity) is greater than the sum of its parts*** (the individuals). In other words, societies do not consist only of individuals. For a discussion of this extremely ambiguous statement see Nagel 1961: 380-397; this book also includes a clear discussion of emergence (366-380). The previous discussion clearly shows that there are complicated transitions between micro and macro level and not a simple summation as the previous slogan indicates.

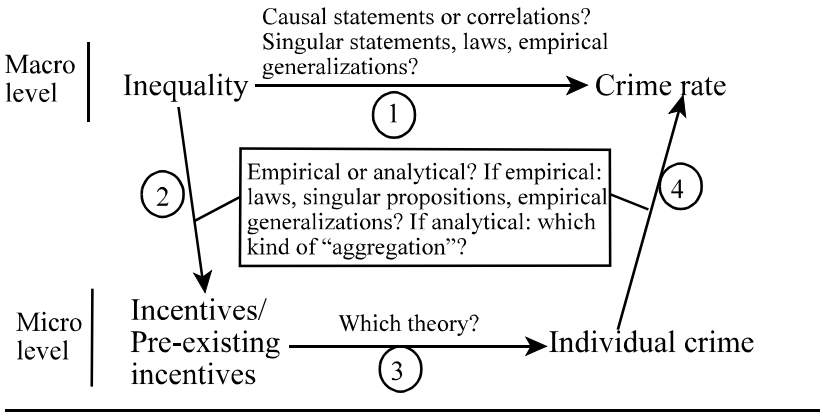
It is not possible to take up the voluminous discussion about SI. We have addressed major arguments that, in our opinion, speak in favor of SI. Instead of the usual discussions without reference to specific social science findings we prefer to let concrete theorizing and research speak for itself. Actually there is a vast literature that confirms the possibility and the fruitfulness of micro-macro modeling and of the individualistic research program. The analyses in chapter 7 are part of this literature.

An advocate of a macro social science might in principle accept SI, but nonetheless proceed with doing macro research. The argument could be that this is an important and interesting kind of inquiry, and the micro-macro part could be left to others. But this argument will not hold for a ***major problem of macro research.*** We call this the ***problem of small numbers***. Let us look at the following proposition: "The higher residential mobility in a collective, the higher is the crime rate" (see, e.g. the model in Sampson and Groves 1989: 783). In countries with high residential mobility there is only a tiny percentage of the population that commits crimes. The crime rate is under 1000 per 100,000 of the population. Every member of the population lives in areas with a certain residential mobility. Why does the overwhelming majority not commit any crime? In countries with the majority of Protestants the suicide rate is lower than in catholic countries. Again, only a tiny percentage of the population in these countries commits suicide. Why does the overwhelming majority not commit suicide? These examples illustrate the problem: every member of a large group is exposed to certain conditions, but only very few members perform certain behaviors or have certain properties. It may be that in Protestant countries a few more citizens commit suicide than in Catholic countries – perhaps the rate in the former is 25 vs. 21 per 100,000 in the latter. What explains why the others do not commit suicide? To answer this question one must go to the micro level.

4. Dissecting micro-macro explanations

For the application of SI and the construction of micro-macro explanations in criminology the *sociological* literature on SI seems most relevant. Here the common scheme that graphically represents micro-macro explanations is the Coleman boat (Coleman 1990: 1-23; for predecessors see Raub and Voss 2017). Although this scheme is associated with Coleman‹s work, it is actually first used by McClelland (1961: 47). There are other authors who proposed the scheme much earlier than Coleman; as Raub and Voss (2017) show. The Coleman boat is equivalent to the model in the upper panel of Figure 6.1. As we saw before and as we will further discuss in this section, assuming only causal relationships is not plausible. We will now analyze each of the components of micro-macro modeling more extensively (for more details see Opp 2011, 2014). Figure 6.2 is a summary of problems of the scheme, that will be discussed in this section. The numbering of the arrows corresponds to Figure 6.1.

Figure 6.2: Possible problems of a micro-macro explanation



Based on Opp 2011: 213.

The macro proposition

We started with the proposition that inequality "generates" a high crime rate (Figure 6.1). This was depicted as is a causal proposition which is consistent with the Coleman boat. Such a relationship is not plausible for the inequality proposition, as was argued before. There is instead only a correlation. In other words, the macro variable has no separate causal effect on the crime rate, it has only an ***indirect causal effect*** – via individual incentives and individual crime.

If the micro-macro model is not specified and only macro propositions are tested, it ***seems*** that there is a causal relationship. One will often find a significant coefficient that is interpreted as an indicator for a causal effect. But if the micro variables are included in the multivariate analysis, the coefficient for the relationship on the macro level should disappear.[4]

If macro relationships are not causal statements they cannot be ***causal laws*** (that hold at all times and places). For example, high inequality will not generate incentives for crime if there is a strong hierarchical order (such as a kingdom in which the emperor is regarded as a god) that is accepted by the population. In this case, inequality will be related to a ***low*** crime rate: there will be no dissatisfaction with inequality and, thus, no justification for crime. The example of the effects of disorganization in section 7.8 shows too that the macro relationship between disorganization and crime varies, depending on the incentives the macro variables are associated with. It seems thus very doubtful that macro relationships are causal laws (for a discussion see Opp 2012; Opp 2017). Causality runs via the micro level.

But macro propositions could be ***covariation laws***: the independent and dependent variables could covary, i.e. the relationships holds at all times and places, but there is no causality. The micro-macro model would imply that this is only possible if the bridge assumption are laws (or

[4] To test micro-macro models requires to apply the statistical method of multi-level analysis. The problem is to include micro as well as macro variables in the same multivariate analyses. For an analysis of this problem see Becker et al. 2018.

analytical relationships) and if the micro level hypothesis is a law. Assume that inequality leads *always*, at all times and places, to relatively strong positive incentives for crime. Assume further that there are no pre-existing incentives for crime. Let the micro proposition be a law as well. The individual crimes aggregates to the crime rate. This is an analytical micro-to-macro relationship. The implication of these assumptions is that there is always a positive correlation between inequality and the crime rate.

It is highly doubtful that those restrictive assumptions are ever fulfilled. But even if this is the case, the micro-macro model specifies the *conditions under which a macro proposition holds*.

Not every proponent of SI agrees that the macro proposition is a correlation. Matsueda (2017: 496) calls this a "reductionist position" (without specifying what this means). Matsueda instead takes an "agnostic view of this effect, treating its causal status as an empirical question" (2017: 496). It is conceivable, Matsueda argues, "that when controlling for the appropriate individual-level causal mechanism, there remains a residual effect of macro-predictor on macro-outcome" (496). This may be the case, if there are measurement errors or if there is a mis-specification of the incentive variables. But theoretically, our argument suggests, that a direct causal relationship on the macro level is theoretical not plausible.

Although the assumption is that on the macro level there are no direct but only indirect causal effects, it is sometimes held that this rules out *context effects* (this argument is mentioned in Matsueda 2017: 495). This is not correct: the context is very well included in SI in the form of independent macro variables, but the context affects individual action not directly but only via individual attributes, i.e. via the micro level.

The micro proposition

The question is which of the numerous existing propositions about individual behavior should be used as a *micro-foundation* of a micro-macro model. Adherents of SI most of the time apply RCT. However, SI is open for other micro theories. For example, in the Coleman boat (Coleman 1990: 8) the individual level proposition is that values lead to economic behavior. One could also use cognitive dissonance theory to explain collective beliefs or the Fishbein-Ajzen theory (Fishbein and Ajzen 2010) to explain attitudes. Nonetheless, our discussion in chapter 4 suggests that an application of a wide RCT as the law on the micro level is meaningful if action is to be explained.

The bridge assumptions

It is surprising that there is so far little systematic discussion about what kinds of statements bridge assumptions are and how they can be validated (if they are empirical). These issues are taken up in this section.

Macro-to-micro assumptions (relationship 2 in Figure 6.2). The inequality example suggests a *singular causal statement*: inequality has a causal effect on certain incentives in a certain setting. How can causality be established? One could apply laws in which the independent macro properties are initial conditions (see the logic of explanation discussed in chapter 2). If laws are not available one might use the techniques of empirical research and statistics (such as controlling other possible factors that might influence incentives) to ascertain a causal effect.

An example for an *analytical macro-to-micro relationship* is provided by Olson (1965): he defines individual efficacy as 1/group size. For example, in a neighborhood with 1000 residents individual efficacy would be 1/1000. In large groups individual efficacy is thus low (for a detailed discussion of Olson‹s assumptions see Opp 2009: 45-90).

There might be *lawful macro-to-micro relationships*. An example could be that in direct democracies citizens perceive a higher political influence than in representative democracies.

Macro-to-micro relationships may thus differ. The researcher has to determine which relationship holds for his or her research setting.

Micro-to-macro relationship (relationship 4 in Figure 6.2). In criminology the dependent macro variable is often the crime rate. This is an *analytical relationship* which is constructed by some algebraic operation. This is a rather simple aggregation. There are numerous other possibilities (Jasso 2010). The choice of the aggregation depends on the research setting.

There could also be *singular causal statement* (for a detailed discussion see Opp 2014). For example, assume savings of many individual actors increase (dependent micro variable). This may lead to more economic growth (dependent macro variable). This is a singular causal effect. This holds for Coleman‹s (1990) example as well: it is Max Weber‹s hypothesis that individual values of Calvinism have influenced the origin of capitalism (see further Matsueda 2017: 498-500). If there are causal micro-to-macro relationships, the same question arises as for causal macro-to-micro effects: how can causality be ascertained? The answer is the same as before.

There may also be analytical relationships between the *independent* micro and macro variables (relationship 2 of Figure 6.2). As will be seen in detail in chapter 7.2, a disjunction of culturally defined goals and means that violate institutionalized norms are related to a high crime rate. These macro factors are defined as goals and norms of individual actors. The macro variable is thus an aggregation of shared individual properties. For details the reader is referred to our discussion of anomie theory.

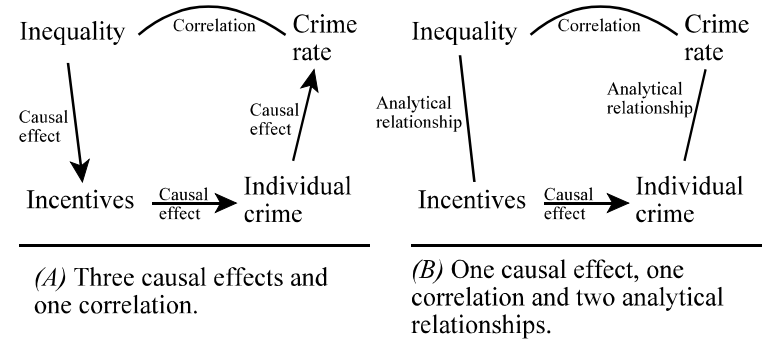
Let us return to the dotted arrow in Figure 6.1 (lower panel). This is sometimes proposed in discussions of micro-macro modeling in the literature (see, e.g. Meier 1989: 199). The hypothesis is that inequality influences individual crime directly and not via incentives. This is extremely implausible. The assumption is that a macro property influences individual behavior without any intervening individual properties. For example, assume in a survey “individual crime” is the dependent variable and the independent macro variable is the context variable “inequality” that ascribes to each respondent a value of an inequality index of his or her country. If we would expect an effect of the context variable that means that even those who do not perceive inequality are dissatisfied. Thus, macro factors always affect behavior via “the hearts and minds” of people. The dotted arrow has thus to be deleted.

Conclusion. We have seen that the bridge assumptions 2 and 4 (Figures 6.1 and 6.2) may analytical and empirical. If they are empirical, they may consist of causal statements. Most are singular statements and few are laws. In micro-macro modeling it is rarely discussed of what kind the bridge assumptions are and, if they are causal, how they are validated. Social scientists and rational choice theorists in particular should devote much more attention to these issues.

Varieties of micro-macro models

The previous discussion indicates that the model in Figure 6.2 (when we replace relationship 1 with a correlational relationship) is only one type of a micro-macro model: three of the four relationships are causal. This model is again shown in Figure 6.3, panel (A). Panel (B) shows a model with only one law which, we assume, is RCT.

Figure 6.3: Two extreme examples of micro-macro models



(A) Three causal effects and one correlation.

(B) One causal effect, one correlation and two analytical relationships.

There are other possible variants of micro-macro models (see the graphs in Opp 2011: 229). The reader might change analytical into empirical and empirical into analytical relationships. What the bridge assumptions are must theoretically been specified and empirically tested.

So far only the micro and macro level were distinguished. There may be *different macro levels*. For example, an increase of the federal budget for education (macro level 1) increases achievement scores for schools (macro level 2 or meso level). The latter could then reduce the crime rate in the schools. As described previously, to set up a micro-macro model each of these macro variables has to be connected with incentives variables on the micro level.

5. Some guidelines for formulating micro-macro models

There are two explanatory problems on the macro level: (1) explaining a macro *phenomenon* or (2) explaining a macro *relationship*. An example for the first question is why there has been a crime drop in the US over the past decade (see e.g. Blumstein and Wallman 2000). Such a question might also refer to several societies or to a change of a macro phenomenon over time. In answering such a question the macro-to-micro bridge assumption is missing.

Our example – the inequality proposition – is an example for the second question. Such relationships might hold for a single society over a certain time period, or perhaps be an empirical regularity that holds for several societies. In criminology, there are many macro relationship that researchers address. Some will be discussed in chapter 7. In what follows we make some suggestions about how to proceed when formulating micro-macro models for those two questions.

Explaining macro phenomena

Step 1: Provide a precise definition of what is to be explained. Many macro variables are far from clear. If, for example, social disorganization or collective efficacy are to be explained this is only meaningful if it is clear what these variables mean. Otherwise one does not know what one wants to explain. Although this sounds obvious, in practice we find many unclear macro variables.

Step 2: Provide data for the existence of the phenomena to be explained. This is a particularly difficult task for crime. As is well known, official data are rarely reliable. A lack of convincing evidence for an explanandum might lead to explaining something that does not exist!

Step 3 Specify the incentives of a micro model. If the crime drop in the US is to be explained one should first specify a micro model of crime that consists of the incentives for committing crime. If this model is set up, the next step is to specify which of these incentives has brought about the crime rate, and which is influenced by the macro variables. How strong are the effects of these variables on crime, and how strong are the effects of the pre-existing incentives? Chapter 7.8 illustrates this procedure.

Step 4: Specify the macro variables that influence the incentives. Remember that the theme in this section is to explain macro variables and not relationships between macro variables. Often researchers are not satisfied with specifying the individual incentives for a behavior. In explaining the crime drop in a society one might want to go one step further and ask: why did the incentives for crime change? An answer to this question is to specify macro factors that influence the incentives. For example, more policing over time might have increased the perceived probability of punishment; installment of more security devices in private households might have lowered the perceived likelihood of successful burglaries. Blumstein and Wallman (2000) mention various macro factors that could have influenced individual incentives. In chapter 4, section “The explanation of social processes with rational choice theory,” we mentioned the example of explaining the East German revolution in 1989 and 1990. Observers are not satisfied with specifying the changing incentives for the protests, but wish to know why the incentives changed. This means, that macro-to-micro relationships are to be specified. In other words, a full-fledged explanation of a macro phenomenon is one that includes macro-to-micro relationships.

Step 5: Analyze of what kind the bridge assumptions are. As our previous discussion indicates, this is an important task. At the latest, this is to be done in step 5, but perhaps already at the very beginning of formulating the micro-macro model.

Explaining macro relationships

The steps to explain macro *relationships* are largely the same as those in a satisfactory explanation of macro phenomena. The latter includes step 4 which is modeling macro-to-micro relationships. If this step is omitted, then this step has to be added in explanations of macro relationships.

The previous *step 1 – provision of a precise definition of the explanandum –* must be extended: the meaning of the dependent and independent macro variables must be clear, the relationship between the macro variables needs to be specified: is it linear or some other functional form? If the macro model consists of more than two variables, the structure of the model must be clear (see chapter 2).

If the major concern is the explanation of a macro phenomenon, step 4 could perhaps be an *explanation sketch*. The emphasis is on the micro and micro-to-macro relationship.

6. Agent-based modeling as an illustration of structural individualism

Agent-based modeling (ABM) is a perfect method to shed light on how SI works. ABM is a computer simulation that offers the possibility "of modeling individual heterogeneity, representing explicitly agents' decision rules, and situating agents in a geographical or another type of space" (Gilbert 2008: 1).[5] Thomas Schelling's segregation model is the classical example for an ABM (Schelling 1971, 1978). We will sketch this model and discuss its relevance for SI and criminology.

"Segregation" is a macro property. It refers to the distribution of individuals – henceforth "agents" – in space. The agents may be blacks and whites or criminals and non-criminals. The space may be a city. The explanatory problem is how these different groups split up in an area. In criminology the ecological distribution of crime is a classical theme. Segregation is a quantitative macro variable. Groups may thus scatter in different ways.

Segregation, i.e. the distribution of agents in a space, is an aggregation of individual properties: we may count the number of people in the districts and then form some measure such as a standard deviation for the different numbers in the districts.

The segregation is an outcome of individual decisions to live at certain places. It is therefore plausible to explain these decisions in order to explain segregation. RCT suggests that preferences and (perceived) constraints are relevant for such decisions (see chapter 4). A relevant preference may be to *live at a place with a certain number of particular people*. For example, members of a certain ethnicity might wish that most of the neighbors are from the same ethnicity. The constraint is the availability of places where one can move. If there are different options, agents will choose what they think is best for them.

In explaining segregation of a partricular collectivity one might start from the level of segregation at a certain time, ascertain the incentives and predict the change of segregation at a

[5] There is meanwhile a large literature about ABM. See, e.g., Epstein 2006; Epstein and Axtell 1996; Gilbert 2008; Helbing and Balietti 2012; Macy and Flache 2009.

later time. Schelling starts with a random distribution of agents in a space. This may be a chessboard with 64 squares. Each square could be occupied by at most one agent. If there are free squares agents may move.

In regard to the preferences, Schelling assumes that each agent has a preference for a certain number of similar neighbors. For example, a white agent might like to have at least 50% white adjacent neighbors. If an agent has fewer white neighbors, he or she is dissatisfied and moves to the nearest free space that has at least 50% white neighbors. The initial random distribution is thus changed step by step, if at least one individual is dissatisfied. For example, if there are 10 dissatisfied agents, each may find a place that satisfies him or her, and other neighbors do not become dissatisfied. This would be an equilibrium, i.e. a situation in which nobody has an interest to move. But if a move leads to the dissatisfaction of new neighbors, they will move and may again disturb the satisfaction of new neighbors etc. The question is what the outcome of such a process is. Schelling‹s simulations found that normally there is a clear stable segregation.

The reader might explore such processes himself or herself with different numbers of agents in a space and with different preferences ("% similar wanted") with the computer program *Netlogo* (Wilensky 1997, 1999) which is free and can be downloaded. There is already a program "segregation": start Netlogo, go to "Files," "Models Library," "Social Science," and "Segregation." You can then change the parameters. Malleson and Evans (2014) also describe the segregation model and show some Netlogo graphs.

ABM and the Schelling model are impressive and intuitively appealing illustrations of what has been said before about SI and micro-macro modeling. The dependent variable is an aggregation of individual behaviors which can be explained with RCT. Variation of the incentives can be programmed for different groups of agents. For example, in the extreme case, agents may not care about who lives next to them (high "tolerance"), others might want to have all neighbors of the same kind (low "tolerance"). Netlogo provides clear graphs that show the different emerging distributions in the segregation process.

The Schelling model makes simple assumptions which are the (scope) conditions under which a certain segregation process is to be expected. One assumption is the validity of RCT. That is to say, one might introduce other numerous kinds of incentives that influence migration. For example, one might specify costs of moving: the longer the distance of an acceptable place, the higher are the costs. People may thus only move a certain distance when they are dissatisfied.

One might also introduce macro events and macro-to-micro effects. For example, in Germany there was a large immigration wave of refugees in 2015, mainly from Syria. They were distributed to certain locations in Germany. Those residents who got new neighbors might no longer be satisfied (the "% similar wanted" is too low) and move.

It is important not to overestimate to merits of ABM. It is ***not a substitute for empirical tests***. It is most appropriate to explore ("simulate") the ***logical implications of a set of assumptions***. ABM is comparable to a ***thought experiment***. It reveals plausible but also implausible implications of a set of assumptions. This may lead to a modification of theoretical hypotheses. For example, the segregation in a certain city may be predicted by an ABM model. An empirical test is needed to test whether the predictions of the model are correct.

ABM has also been applied in criminology. For example, Birks et al. (2014, with further references) address "regularities of crime": patterns of offending or of victimization. Like segregation, crime (and victimization) may typically concentrate in certain areas. These might be

empirical regularities. The authors provide a perfect outline of the possible achievements of ABM for criminology and an illustration of the basics of SI:

> "One can think of these regularities [such as patterns of victimization – KDO] as the predictable, emergent, macro-level outcomes of mechanisms operating at the micro level – that is, the perception, cognition, and actions of all actors significant to the crime event. It is these micro-level actions, and their interactions, that generate societal level patterns of victimization, and through this lens that such crime regularities can be described as the output of a complex dynamical system" (Birks et al. 2014: 120).

This is actually a research program for applying ABM in the social sciences, based on SI. In the quotation it seems that the micro foundation is RCT, but the authors also use other criminological theories such as the routine activity approach (Birks et al. 2014: 123). Birks and Elffers (2014: 25-26) also mention different micro-foundations. ABM is open for the kind of micro theory that is applied. It would be interesting to explore the outcomes of different micro theories and test them empirically.

It is not possible and also not necessary to review ABM in criminology. We refer in particular to the work of Birks and co-authors (see in particular Birks 2017; Birks et al. 2012; Birks and Elffers 2014; see also Groff 2014). Another example for the use of simulations in criminology is the work of Brantingham et al. (2012). They constructed a "model of repeat offending based on a hypothetical street, home, and attractor node structure" (209) and compared it with actual data.

A simulation that is not directly addressing crime but might be interesting for criminologists refers to a situation in which all of a sudden it becomes known (for example by media reports) that the frequency of a certain behavior such as a crime is much higher than has been generally expected. Will this lead to a higher frequency of the behavior? This seems plausible if the behavior is, for example, a crime such as tax evasion. Is this also plausible for the sexual abuse of children by the clergy in 2009/2010 which was all of a sudden revealed? Mäs and Opp (2016) explore these questions with a computer simulation.

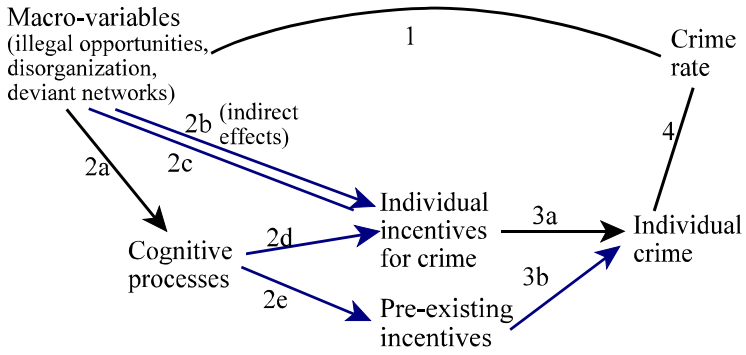
The vast amount of examples of ABM undergirds the merits of micro-macro modeling. It is aso useful for the further development of criminological theory by looking at implications of complex theoretical hypotheses.

7. Conclusion: the structural-cognitive model of crime as an integrating framework

The major concern of the book is the integration of RCT and criminological theories (chapter 5). Some of the theories such as anomie theory (see chapter 7.2) are macro theories. Other theories are micro theories such as self-control theory (chapter 7.6). A third group of theories explicitly takes the macro level into account such as social structure social learning theory (chapter 7.5). We have shown before how the macro variables could be connected with the incentives for a behavior

to be explained. In this section we will extend the previous analysis. We will call this model the *structural-cognitive model of crime*.[6] Figure 6.4 provides a summary of the model.

Figure 6.4: The structural-cognitive model of crime



We start with a macro relationship (arc 1) which is not a causal effect but a correlation. When we take dual-process hypotheses into account, the macro variables should first trigger cognitive processes which activate incentives such as norms or lead to misperception (arrow 2a). These processes lead to the activation of individual incentives (arrows 2d and 2e). They have a direct effect on the behavior to be explained (arrows 3a and 3b).

In many studies cognitive processes are skipped. The researcher addresses immediately the incentives (relations 2b and 2c). For example, the perceived punishment is measured and not the process that led to the perception. As has been seen before, there may be not only empirical macro-to-micro relationships (arrow 2b), but analytical ones as well (line 2c).

The individual crimes are then aggregated to the crime rate (line 4). This is an analytical relationship. If the dependent variable is not crime there may be empirical micro-to-macro relationships.

The structural-cognitive model is not a theory in the strict sense. It is actually a set of methodological rules about how to proceed in a full-fledged explanation of crime.

8. Summary and Conclusion

Theories in the social sciences are about individual actors and collectivities, i.e. about the micro and macro level. The present chapter discusses in detail how these different propositions can be integrated into a single theoretical model: a micro-macro model. We start with an example: High inequality leads to a high crime rate (macro proposition); incentives to crime lead to crime (micro proposition). There are two bridge assumptions: inequality leads to strong incentives to crime (a

[6] A similar model has been suggested for the explanation of protest and social movements: see Opp 2009: 327-350.

macro-to-micro proposition); individual crimes aggregate to the crime rate (micro-to-macro assumption). Figure 6.1 depicts this model.

The example demonstrates basic features and problems of micro-macro modeling that are discussed in the present chapter. The macro relationship is *explained*: it holds *if* inequality leads to incentives and *if* incentives affect individual crime and, thus, the crime rate. Micro-macro modeling thus *corrects* the macro proposition by specifying the conditions for its validity. A micro-macro model thus specifies a *mechanism* (i.e. a social process) that shows how a macro relationship is brought about. This is the major rationale for a micro-macro explanations and, thus, for the program of structural individualism: it leads to a deeper explanation of social phenomena.

We discuss the possible kinds of bridge assumptions. For example, to what extent are they analytical or empirical? In the latter case: are they singular statements or laws (Figure 6.2)? We further reject arguments against SI, asserted by advocates of a holistic social science. It is shown that SI is not "reductionist" in a problematic sense, and that emergent properties in no way invalidate SI.

After suggesting some recommendations about how to proceed in setting up micro-macro models we describe agent-based modeling as a recommendable method for exploring the dynamics of crime or related phenomena, and, in particular, to provide plausibility tests of theoretical propositions. Agent-based modeling further illustrates the fruitfulness of structural individualism. Finally, we suggest a structural-cognitive model that summarizes the procedure of micro-macro modeling.

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7 Integrating rational choice theory and criminological theories: Some examples

Contents

1. Introduction

This chapter provides a detailed analysis of the relationships between rational choice theory (RCT) on the one hand and some criminological theories (CTs) on the other. Because there is an abundance of CTs, the first issue is which theories should be selected. It was argued in chapter 5 that the selection rule should be "take the best." This means that those CTs should be selected that presumably pose the biggest problems for RCT. Their comparison with RCT thus provides a relatively severe test of RCT.

"Take the best" sounds easy, but the problem is, as we saw in chapter 2, that the present state of criminology does not provide evidence about which theory is really the best. Perhaps an indicator for a good theory is the assessment of the scientific community. We assume that theories that are intensely discussed are at least regarded as deserving discussion and, thus, have a relatively high quality – with some flaws, in the opinion of the discussants. Criminologists would not focus their attention on theories they regard as heavily flawed. We agree with Bruinsma (2016: 663) that there are "six dominating and leading groups of explanations of crime (the big six): anomie/strain theories, control theories, learning theories, labeling theories, rational choice theories and social disorganization theories." Because we apply rational choice theory to compare it with CTs, there remain thus five theories that could be selected. These "big five" are discussed in this chapter.

It could be argued that there might be theories which are not yet at the center of attention, but which are actually better than the other theories. Focusing on popular theories might therefore thwart scientific progress. However, this book is not the final word. If it turns out that there is such an undiscovered gem it can be analyzed in future research.

Perhaps there exists already such a jewel? To be sure, situational action theory (SAT) is not yet included in major books about CTs, but has attracted some attention. There is a special issue of the European Journal of Criminology (2018, vol. 15, issue 1) and of the German journal Monatsschrift für Kriminologie und Strafrechtsreform (2015, vol. 98, issue 1), and the major proponent of the theory, Per Olof Wikström, has written numerous expositions of his theory. It seemed therefore be worthwhile to provide a discussion of this theory (see section 7.8).

Bruinsma (2016) correctly states that the theories mentioned are actually "groups" of theories. For example, anomie theory is a "group" of theories because there are numerous contributions that discuss and extend anomie theory. The problem then is which of the numerous contribution to a theory should be selected. We decided to select always a most recent version of the theory, presented by the major author authors. For three theories we will discuss the classical contribution of the major author, namely for anomie theory (Merton 1968), for the theory of differential association (Sutherland 1947) and for hypotheses of the labeling approach (Becker 1963).

For some of the theories the major author or authors provide different versions of their theory over time that are in part contradictory (see, e.g., the chapter about self-control theory). We chose the most recent version assuming that this is, from the viewpoint of the author, the up-to-date version that takes into account the findings of existing research.

We further concentrate of hypotheses that directly explain crime. For example, self-control theory's major variable is low self-control that is supposed to have a direct positive effect on crime. The theory further traces the development of self-control over the life-course. These assumptions are not discussed. The major cause is limitations of space.

This procedure implies that the following chapters are not reviews of the respective theories. Such reviews are available in textbooks or summary articles. Reviews are based on numerous articles and always a reconstruction of the respective writer of the review. We prefer to analyze a specific authentic article of recent origin.

Our procedure of selecting the hypotheses to be compared with RCT might be criticized. The justification for the procedure is that it allows a first comparison of theoretical criminological ideas with RCT. Readers who are dissatisfied might extent our analyses by choosing other CTs for comparison with RCT.

Before the selected CTs are compared with RCT, they are first presented so that the reader knows what the hypotheses are that are compared with RCT. This exposition is not an easy task because none of the criminological theories is so clearly formulated that a rigorous comparison with RCT is possible. For example, the first theory we analyze is Merton‹s version of anomie theory. This is a long text of more than 60 pages (Merton 1957). It is hard work to extract the general theoretical propositions. Often they might be formulated in different ways. We use the procedure of ***explication*** (chapter 5, section 4). That is to say, we choose the clarification that seems the most plausible one.

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Chapter 7.2

2. Anomie theory

Contents

Abstract. This section analyzes Robert K. Merton's anomie theory. The "central hypothesis" is that a dissociation between goals held in a society and existing legitimate opportunities (i.e. avenues to reach the goals according to accepted regulatory norms) leads to deviant behavior. It is shown that Merton actually formulates a micro-macro model (see Figure 7.2.1) in which the social and cultural structures impact individual motivations for deviance.

From a rational choice perspective, there are two behavioral alternatives (deviance and conformity) and two behavioral consequences (getting monetary success and complying to norms). Certain combinations of utilities and subjective probabilities model the "dissociation" between goals and legitimate opportunities. We further explore the possibility to explain *kinds* of deviance and conformity. Applying RCT suggests that many other incentives are relevant for explaining deviance and conformity. An important consequence of RCT is that there might be crime if there is no dissociation of goals and legitimate opportunities (if legitimate ways to reach goals may not be considered). It is further explored which effects different "emphases" of goals and norms have on deviance.

Introduction

Anomie theory (AT), one of the classic theories in criminology, goes back to Émile Durkheim (1964: 366-367; 1951: 241-258). He defined "anomy" as a "state of deregulation" (1951: 253) or normlessness and argued that this state is related to suicide and crime. Robert K. Merton's modifications of the original theory are so profound that he actually formulated a new theory that employed some ideas of Durkheim. The following discussion is based on Merton‹s exposition of his theory in 1968 (chapter VI, 185-214). This is a slight modification of Merton‹s article from 1938 (Merton 1938). Page numbers in this section refer to Merton 1968.

Merton‹s theory is not a set of clear propositions. It is exposed in about 60 pages (together with the "Continuities in the theory of social structure and anomie" – 1968: 215-248). Which statements are "the" theory is not known. This lack of clarity has already been noted a long time ago (see early explications and discussions see Diekmann 1980: 70-109 – for a summary in

English see Raub and Voss 2017: 26-28; Diekmann and Opp 1979; Gibbs 1985: 42-46; Opp 1974: 123-155). An explication of AT which is provided in the first part of this section is thus necessary before a comparison with rational choice theory (RCT) is meaningful.[1]

There is a vast literature on Merton‹s theory (see, with further references, Marwah and Deflem 2006). The goal of this section is not a discussion or review of this literature. We will concentrate on the original contribution by Merton and compare it with RCT.

An explication of the theory

The central hypothesis. Merton first outlines the "framework" of his theory: the causes of deviance are "social and cultural sources" (186). AT is thus a macro theory. This is confirmed when Merton writes that his goal is to discover "how some social structures exert a definite pressure upon certain persons in the society to engage in nonconforming rather than conforming conduct" (185). The "conduct" is a dependent macro variable: Merton wants to explain "rates of deviant behavior and not its incidence" (186).

The previous quotations suggest a micro-macro model (Figure 7.2.1, panel A): Social structures etc. and rates of deviant behavior are macro variables. Merton assumes a causal effect of the cultural sources and social structure on the rates of deviant behavior. As was argued in chapter 6, a correlation is more plausible. The macro variables put "pressures" on certain individuals in the society (186). This can be explicated as a causal effect on individual motivations to engage in deviant behavior. This is a macro-to-micro hypothesis. The deviance of the individuals aggregates to the crime rate.

What exactly are the social and cultural sources that have an impact on which mode of deviant behavior? Merton assumes that there are two cultural sources. One refers to the ***culturally defined goals*** – henceforth called "cultural goals." This is the ***monetary success goal*** (such as having a high income) which is the dominant goal of the American society. The second cultural source is the ***regulatory norms***. These are institutionalized means prescribing how goals are to be achieved. The term "institutionalized" refers to the macro level, i.e. the norms prevalent in a society.

One attribute of goals and norms is particularly important: it is the ***emphasis*** societies place on goals and norms. In some societies there is little "concern" (187) on how goals are realized: everything is allowed. In other societies the emphasis laid on the rules is strong: here the "institutionally prescribed conduct becomes a matter of ritual" (188). Between these two polar types are societies which maintain a "rough balance" between emphasis on goals and "institutionalized practices" (188).

The third factor in Merton‹s theory refers to the social structure. It is the extent to which there are "socially structured avenues for realizing these aspirations" (188). These are, for

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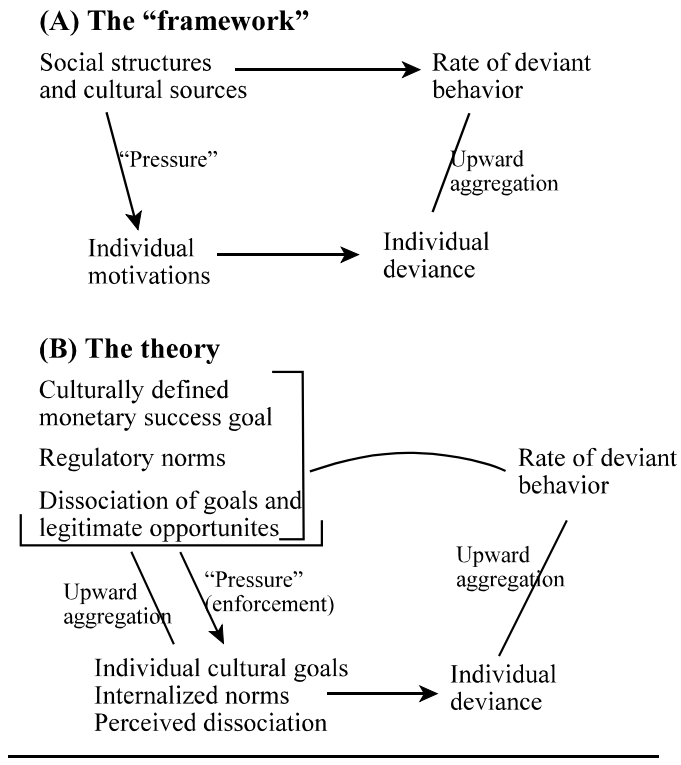
[1] This explication is based on Diekmann and Opp 1979, see also Diekmann 1980: 70-109. There are, however, some differences. This is not surprising: an unclear theory can be explicated in different ways. We will not compare the different explications. This might be done when empirical tests of the models are conducted.

example, occupational opportunities (199) such as open positions in firms. These would be ***legitimate opportunities*** to reach goals. "Legitimate" means opportunities that are consistent with the regulatory norms. People who live in certain areas of a city might also face illegitimate opportunities such as knowing how to deal with drugs.

Figure 7.2.1: An explication of Robert K. Merton's anomie theory



Arrows: causal effects; *lines*: analytical relationships; *arcs*: correlations.

Merton's theoretical idea is that deviant behavior is relatively likely if the "avenues" for reaching the goals according to the institutionalized norms (i.e. legitimate opportunities) are largely unavailable. This is Merton's "central hypothesis" which we will concentrate on:

> "Aberrant behavior may be regarded sociologically as a symptom of dissociation between culturally prescribed aspirations and socially structured avenues for realizing these aspirations" (188).

Analytical micro-to-macro relationships of the independent variables: goals, norms, and opportunities. Although the theory is a macro theory, Merton repeatedly addresses the micro level. He even defines the macro variables as aggregations of micro level variables. ***Cultural goals*** are goals that are "held out as legitimate objectives for all or for diversely located members of the society" (186). These are "purposes and interests" (186) of individuals. The relevant

variable for individual deviance and, thus, for the rate of deviant behavior, is thus the goals of *individual* actors.

However, the *culture* is typically not an individual property. To be sure, it is not a property of a *single* individual, but it is a property that the members of a group *share*: "cultural" are goals that a group of individuals accept as binding in the sense that they think the goals *should be pursued*. This means that the macro property "cultural goals" is an *aggregation* of individual goals of a certain kind.

Sociologists might be reluctant to accept this "individualistic" reconstruction of the "cultural" component. But, again, "culture" is not an "individualistic" but a *shared* feature of individuals. If this reconstruction is rejected the question is how "cultural goals" could be defined otherwise.

Similarly, *institutionalized norms* are norms held by a group of individuals: they are *aggregated* from shared norms. The *dissociation* of goals and opportunities refers to the individual level as well: it refers to individuals who have certain goals *and* perceive opportunities to realize their goals. The macro variable "dissociation" is thus an aggregation of individual actors with certain goals and perceived opportunities for realizing their goals.

Empirical macro-to-micro relationships. The "pressure" on individuals to engage in aberrant behavior are described in detail. They are empirical macro-to-micro hypotheses. One of them refers to there cultural "axioms" (193): (1) Everybody should strive for the same "lofty goals"; (2) failure is only a "way-station to ultimate success;" (3) "genuine failure consists only in the lessening or withdrawal of ambition." The "demands of culture" means that individuals of a society hold these claims and who expose other people to these claims permanently: "Americans are bombarded on every side by precepts which affirm the right or, often, the duty of retaining the goal" of success (191).

Why are these demands accepted? Merton insinuates the application of learning theory (193). Those who hold the axioms provide "secondary reinforcement" by providing positive and negative incentives that lead to the belief in these axioms.

Not only the culture, but also the social structure "operates to exert pressure upon individuals" (194). The "structure" consists in particular of the "avenues" for realizing the success goal. An assumption throughout Merton‹s chapter is that the structure is correctly perceived by individuals. Otherwise it cannot influence individuals‹ behavior.

The unbiased perception of structures is also assumed in an extension of Merton‹s theory by Cloward (1959; see also Cloward and Ohlin 1960). He suggested that the actual access to *legitimate* means is not sufficient for deviant behavior. The availability of *illegitimate* means is a prerequisite for deviance. The assumption is that there is correct perception.

The previous analyses show that Merton‹s theory is a macro theory, embedded in a micro-macro model, as panel (B) of Figure 7.2.1 shows. The macro variables – the independent variables and the dependent variable – are aggregations of variables on the micro level. These are the bottom-up analytical relationships. There are further top-down empirical relationships, i.e. macro-to-micro effects.

Is it really meaningful to first aggregate *analytically* the macro variables (culture and social structure) from the micro level and then hypothesize *empirical* effects of these macro variables

on the micro level? This sounds circular. However, it is not at all circular to formulate hypotheses about the influence of a certain number of individuals (the macro level) on other individuals (micro level). For example, the hypothesis "the larger the number of members of a group who reward conformity, the more likely other members engage in conforming behavior" is not circular at all.

Explaining empirical regularities: social class and crime. Merton discusses the relationship between crime and social class. He explicitly applies his theory to explain different crime rates in the different classes: the "disjunction" between high aspirations and the socially available conventional avenues "is more frequent in the lower strata than in the middle strata" (229). This is an explanation of an empirical regularity by applying the theory. A relationship of social class and crime is thus not part of AT and is not implied by the theory either. If such a relationship exists it can be explained with AT.

Social class is one of the *correlates of crime* (e.g. DeLisi and Vaughn 2016). Other correlates are, for example, age, gender, family status (single vs. married), race, poverty, place of living (e.g. in large or small cities). These are empirical regularities in the sense that they sometimes hold and sometimes not. For example, poverty is often not correlated with crime. The conditions under which these regularities hold, can in principle be explained by AT. Whether the theory can successful explain those regularities must be tested by empirical research.

Can there be crime if there is no dissociation of goals and means?

Is the dissociation hypothesis an implication or an equivalence (for these concepts see chapter 5)? Assume we find if there is no dissociation, there is nevertheless deviance. Crime can thus be caused not only by dissociation. If this is meant AT is an implication. But the texts on AT seem to suggest: if there is crime there is always a dissociation (and, if there is a dissociation there is always crime). This suggests that the theory is an equivalence. It is not known what the theory asserts.

A comparison of anomie theory with rational choice theory

Merton‹s central hypothesis as a simple rational choice model. Merton mentions variables of RCT, but does not apply RCT in a systematic way. In explaining rates of deviant behavior, Merton refers to *satisfactions* that "accrue to individuals conforming to both cultural constraints" (188). He further mentions *positive incentives* provided by occupying conventional positions in the society (188). "Satisfaction" and "incentives" are major variables of RCT.

This suggests that Merton‹s micro model is actually a simple rational choice model – "simple" in the sense that is includes only few costs and benefits. Merton specifies certain *preferences* (the cultural goals and acceptance of normative goals). Although he refers to cultural goals in general, he focuses on the American society and the goal of having monetary success. The institutional means or available avenues to reach these goals are *constraints* of the actors.

The individuals‹ ***behavioral alternatives*** are some kind of conforming or non-conforming conduct. If individuals follow conventional practices to achieve the goals, and if these do not yield the desired outcomes, individuals choose deviant behavior. The reason is that this provides a higher satisfaction, i.e. more benefits. If the goals can better be achieved by deviant conduct, the individual chooses this behavior. ***Dissociation*** between aspirations and existing legitimate means refers to, in terms of RCT, relatively strong ***constraints*** in reaching the goals by choosing legitimate means. It is implicitly assumed that the actual constraints are perceived, otherwise they cannot influence individual behavior. These arguments imply that individuals do what they think is best for them, i.e. they maximize their utility (from their perspective). AT is thus compatible with a ***general rational choice model*** (for details see Frey and Opp 1979).

Applying ***value expectancy theory*** (see chapter 4) shows the structure of the theory in greater detail. The behavioral alternatives are conformity and deviance. Each behavioral alternative has two behavioral consequences. One is the extent to which a behavior is conducive to the goals. The major goal is the success goal. The second consequence is the extent to which a behavior is related to internalized norms. Each of these consequences has some utility (getting some satisfaction). Individuals ascribe subjective probabilities to these consequences. The probabilities are the perceived ***constraints***. Merton‹s theory can thus be explicated as two behavioral equations:

(1) SEU(Conformity) = p_{cg} C U(Monetary success goal) + p_{cn} C U(Norm to conform)
(2) SEU(Deviance) = p_{dg} C U(Monetary success goal) + p_{dn} C U(Norm to conform)

p_{cg} = subjective probability to reach the success goals (subscript g) by means of conformity (subscript c)
U(Monetary success goal) = satisfaction (utility) by means of getting monetary success
p_{cn} = subjective probability to conform to the norm demanding law-abiding behavior (subscript n) by choosing conformity (subscript c)
U(Norms) = satisfaction (utility) due to law-abiding behavior
p_{dg} = subjective probability to reach the success goal (subscript g) if the individual chooses deviance (subscript d)
p_{dn} = subjective probability to conform to the legitimate norm (subscript n) if the individual chooses deviance (subscript d).

Assume the ***value ranges*** of the variables are as follows. Each probability may have values from 0 to 1, each utility may have negative and positive values (for consequences that are not wanted and for those that are wanted). The value 0 means indifference. We avoid fixed value ranges for utilities(such as -1 to +1) because respondents should have the possibility to assign any positive or negative values on utilities that could freely express their utilities. The ***dissociation*** between goals and "structured avenues for realizing" the goals refers to a relatively ***low p_{cg} and a relatively high p_{dg}***. In other words: the higher the likelihood of realizing the goals by choosing conformity (p_{cg}), and the lower the likelihood of achieving goals by deviance (p_{dg}), the higher is, by definition, the dissociation. As in Merton‹s theory, a high dissociation increases the SEU for deviance.

The micro variables can be analytically aggregated, as in Merton‹s theory. The macro-to-micro relationships are addressed later.

To conclude, Merton‹s central hypothesis can be reconstructed as a rational choice model that consists of two behavioral alternatives and two behavioral consequences with the respective utilities and subjective probabilities. Note that other behavioral consequences that could exist, but are ruled out. The same holds for other behavioral alternatives that could be perceived. These conditions are thus the scope conditions under which the theory holds true.

The kinds of behavior to be explained. Merton writes always about conforming and deviant behavior without specifying the ***kind*** of conformity or deviance that actors choose. For example, conformity could include joining the Salvation Army or borrowing money from a friend or from a bank. Deviance includes a multitude of behaviors as well. Merton‹s theoretical argument suggests that those actions are chosen that are, from the perspective of the actor, ***instrumental*** for achieving the goals. This is compatible with RCT (see chapter 4). For example, an individual with a strong success goal will more likely try to achieve it by applying for a new job than by asking the president of the US for help. This instrumentality is the p_{cg} in equation (1).

The same holds for deviance. To achieve the success goal a person might consider to join a criminal group or embezzle money in a firm. This is the p_{dg} in equation (2).

Our model thus explains the ***kind*** of behavior that is regarded as most suitable to achieve the actors‹ non-normative and normative goal. Deviance in general is to be expected if the goals and norms can be realized by any kind of deviant behavior. There are actually few goals that can be realized by any kind of deviance. The same holds for conforming behavior. To include the assumption of instrumentality explicitly in the two equations we might reformulate them in the following way – there is now a new subscript to the behavioral alternatives referring to he kind of behavior (type c and type d) that is most adequate from the perspective of the actor:

(1a) $SEU(Conformity_{type\ c}) = p_{cg} \cdot U(\text{Monetary success goal}) + p_{cn} \cdot U(\text{Norm to conform})$
(2a) $SEU(Deviance_{type\ d}) = p_{dg} \cdot U(\text{Monetary success goal}) + p_{dn} \cdot U(\text{Norm to conform})$

Merton does not explicitly address whether the kind of behavior can be explained with his theory. Implicitly, however, the assumption seems obvious that a dissociation of goals and conventional opportunities leads to a choice of the behavior that best realizes the actors' goals.

The empirical macro-to-micro relationships. As was said before, strong success goals and strong regulatory norms are macro properties. They are aggregated by summing the individual actors' ***acceptance*** of goals and norms. The theoretical hypothesis – in terms of RCT – could be that wide acceptance is an incentive for positive and negative ***sanctioning*** of those who accept goals and norms if others do not act according to the accepted goals and norms. However, other assumptions need to be added. It has been found that sanctioning of undesirable behavior is rare (see, e.g. Balafoutas and Nikiforakis 2012). A necessary condition for sanctioning is that there is interaction between those who would like to sanction and the deviants. But perhaps those who act according to the cultural goals and norms are from different strata and interactions are rare. This would perhaps mean that the original distribution of the cultural goals and norms remains

stable because there is no sanctioning. Unfortunately, a micro-macro model is only insinuated in Merton's work. Its further development must be left to further research.

Another assumption of Merton is that actually existing legitimate or illegitimate opportunities are correctly perceived, and that the existing opportunities influence the subjective probabilities to reach goals by legal means (p_{cg}) or illegal means (p_{dg}).

The assumption of the correct perception of the culture and social structure is an empirical generalization that does not always hold. Sometimes people overestimate or underestimate their opportunities (see, e.g. Agnew 2016). Social psychological theories (such as dissonance theory) might be applied to explain when macro structures are perceived correctly.

Exploring consequences of different "emphases" on goals and norms. Merton distinguishes different types of societies according to the extent to which goals and norms are "emphasized." One polar type is a society in which realization of the goals has priority, and heeding norms how to reach the goals is largely irrelevant. The other polar type consists of societies in which conforming to the accepted norms is emphasized, whereas achieving the goals is not considered important. In mixed societies the emphasis on goals and norms varies.

Our equations can be applied to derive hypotheses about the consequences of different values of the probabilities and utilities in the equations. These hypotheses are more specific than those from a purely verbal formulation, and there are counter-intuitive implications. The equations consist of four probabilities and two utilities. Exploring what happens if one or several of these parameters change is complicated. A computer simulation might be most useful to explore these consequences. We will only discuss one case.

Let there be a situation – period t_1 – in which there are ***strong norms*** for conformity with a utility of 1, and individuals are certain that conformity is in line with the norm (p=1), whereas deviance is not (p=0). Assume further that the legitimate and illegitimate opportunities are regarded as equal, i.e. $p_{cg} = p_{dg}$. Conformity has a higher SEU, due to the fact that conformity is in line with the norm (p=1) and deviance not (p=0). This is the situation in period t_1 which is depicted in the upper panel of Table 7.2.1.

Table 7.2.1: Effects of changing illegitimate opportunities

Time	Kind of behavior	p C U(Goal)	p C U(Norm)	SEU (sum of products)
t_1	Conformity	.3 C .5 = .15	1 C 1 = 1	1.15
	Deviance	.3 C .5 = .15	0 C 1 = 0	.15
t_2	Conformity	.3 C .5 = .15	1 C 1 = 1	1.15
	Deviance	**.8** C .5 = **.40**	0 C 1 = 0	**.40**
Conclusion: given a relatively strong emphasis on norms, a strong increase of illegitimate opportunities does not increase deviance.				

Then, in period t_2, the individual gets into contact with a criminal group and p_{dg} increases from .3 to .8. Thus, the ***dissociation*** of goals and legitimate means increases (Table 7.2.1, second panel). What will happen? At t_1 the SEU of conformity is clearly larger than for deviance (1.15 vs. .15). This is to be expected if there is a high "emphasis" on norms (relatively high value of 1) and a low emphasis on goals (medium value of .5). The strong increase of illegitimate opportunity from .3 to .8 increases the SEU for deviance from .15 to .40. But the SEU for conformity is still much larger and did not change (1.15). Thus, in a situation with high emphasis on norms even a very strong increase of illegitimate opportunities does not have an effect on conformity. Even if p_{dg} assumes the highest possible value of 1 and if p_{cd} further decreases, there will not be an increase of crime. There are thus ***thresholds*** for a switch from conformity to deviance.

We leave it to the reader to explore further implications about the consequences of different combinations of values. A conclusion from our simple "manual" simulation in Table 7.2.1 is that even a simple formalization of the model in the form of equations allows very differentiated derivations for various kinds of "emphases" of goals and norms. A computer simulation could further explore the consequences of different distributions of values.

Extending the model. Our model, in line with Merton's central hypothesis, is rather simple: it makes very restrictive assumptions. These are the ***scope conditions***, i.e. the conditions under which the model holds. The model can be extended along different lines. It has already been insinuated that in specific situations quite different behavioral alternatives are relevant if there is a strong dissociation. For example, in a poor country with a civil war crime is not a viable alternative because there is not much to steal. Jobs in the legitimate economy are not available. Many people in such countries such as Syria choose migration as a behavioral alternative. Joining terrorist groups is another behavioral alternative. The model might thus be extended by allowing ***other behavioral alternatives the actors consider***.

In his central hypothesis Merton speaks of cultural goals in general. In American society the major goal may be monetary success. Merton makes clear that social groups may have other goals. "For purposes of simplifying the problem, monetary success was taken as the major cultural goal, although there are, of course, alternative goals in the repository of common values" (211). This is completely compatible with our model. ***Many behavioral consequences, referring to goals, can be included***. What the relevant consequences are must be determined by empirical research. We will see in the coming chapters that other theories actually extend the behavioral consequences of the previous model.

Explaining empirical regularities with rational choice theory: the case of social class and crime. It was argued that Merton explains correlations of social class and crime with his theory. RCT can also be applied to explain such regularities. Such applications are also tests of RCT. If, for example, we find that crime is more frequent in the lower class of a society and we do not find different incentives that explain this relationship, RCT would be falsified. One of the few studies that empirically explores the relationships of social class, incentives and crime is the study by Becker and Mehlkop (2006). They provide empirical data which shows that crime and social class correlate because there are different costs and benefits for crime in these classes.

Can there be crime if there is no dissociation of goals and means? RCT would answer this question in the affirmative. People may grow up in a criminal subculture and learn a criminal way of life. There need not be any dissociation of success goals and legitimate means. The legitimate ways may not be considered. The behavioral alternatives are different criminal ways to reach goals.

This does not imply that goals are irrelevant. RCT claims that goals (or, equivalently, preferences) ***and*** constraints matter for a behavior. But RCT is open for the kinds of goals that are relevant for a behavior. There might thus not be the success goal but other goals that bring about crime.

Summary and conclusions

Anomie theory (AT) claims that ***cultural goals*** (in particular monetary success) and institutionalized ***regulatory norms*** which prescribe how to reach the goals (e.g. by working in a firm and not by dealing with drugs) are among the determinants of deviant behavior. In addition, the ***opportunities to reach the cultural goals*** are relevant. These may be the conventional or legitimate ways (such as working in the legal economy) and illegitimate ways (such as dealing with drugs). Merton‹s "central hypothesis" states that a ***dissociation*** between cultural goals and legitimate means to reach these goals generates a relatively high rate of deviance.

These macro variables are analytically aggregated from the micro level. "Cultural goals" consist of the shared goals of the individuals. The same holds for "regulatory norms" which are constructed from the shared norms of individual actors (see the upward aggregation in Figure 7.2.1, panel (B)).

AT also suggests empirical macro-to-micro assumptions. For example, those who subscribe to the cultural goal – i.e., who share the success goal – put pressure on others to follow suit (to pursue the success goal which might lead to a dissemination or stability of the goals (Figure 7.2.1, panel (B)).

This theory can be reformulated as a simple rational choice model. The success goal and internalized norms are preferences. The opportunities are, in terms of RCT, constraints. The behavioral alternatives assumed in the theory are some kind of conformity and deviance. The individual maximizes subjective utility by choosing illegitimate means if the conventional avenues are not available. We apply value expectancy theory to provide a more detailed model that includes the constraints as subjective probabilities and the goals as utilities of behavioral consequences.

Merton's assumption that those who share the success goal and cultural norms "bombard" others to adopt the goals and norms means that costs of not accepting the goals and norms increase (and benefit if accepting them increase). This is compatible with RCT. The other assumption is that actual structures (legitimate and illegitimate opportunities) are correctly perceived. This is an empirical generalization that is sometimes wrong. Social psychological theories should be applied to elaborate these assumptions.

We explore consequences of different values of goals, norms and opportunities, based on the equations of value expectancy theory. Our "simulation by hand" shows a case in which even a

strong increase of illegitimate opportunities does not increase crime if the legitimate norms are strong.

We further show how the model can be extended by adding other behavioral alternatives and behavioral consequences. It was argued that the dissociation variable is not exclusive in the sense that not only a dissociation of the success goal will lead to crime, but other goals and constraints might be conducive to crime as well (AT is thus not an equivalence in the sense of formal logic).

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Chapter 7.3

3. General strain theory

Contents

Abstract. The question general strain theory (GST) is concerned with is the extent to which strains, defined as blocked goals, generate crime. GST holds, among other things, that numerous kinds of strains have additive effects on crime; that strains lead to negative emotions, which make crime more likely; and that negative emotions reduce the availability of legitimate coping strategies.

It is shown that these hypotheses hold only under certain conditions from the perspective of RCT. "Strains" are, in terms of RCT, unrealized goals. RCT implies that strains only affect crime if this is instrumental for their reduction. Negative emotions (anger) are certain behavioral consequences. Their effects may be outweighed by other consequences, and legal action may reduce emotions with a higher likelihood than crime. In contrast to GST, *positive* emotions might lead to crime: A promotion leads to positive emotions that raise aspirations. If they can only be achieved by illegitimate means crime is brought about. From the perspective of RCT, GST thus has various weaknesses that are discussed in this section.

Introduction

A major variable of anomie theory is an unfulfilled success goal (see the previous section 7.2). This is related, as Merton writes, to "strain": "The social structure we have examined produces a *strain* toward anomie and deviant behavior" (1968: 211, italics added). There is a "strain of frustrated aspirations" (1968: 203). It seems that "strain" means discontent due to unrealized goals. Although Merton focuses on the success goal he mentions other goals. This suggests that the non-fulfillment of these other goals yields strain as well. The assumption that "strain" is a cause of crime is thus already a component of anomie theory.

This idea has been elaborated by Robert Agnew in his general strain theory (GST). As in all sections of this chapter, the first question is what exactly the propositions of GST are. To answer this question for GST is particularly difficult because, compared to Merton, there is an extensive literature on GST. We draw on Agnew's revision of a previous version of GST in 1985 and his "Reflection" on this revised version in 2012 (Agnew 1985, 2012). There are two other articles

from 1992 and 2001 (Agnew 1992, 2001), which seem of particular importance that which are considered in this section. We will further refer to a relatively new presentation of the theory in 2016 (Agnew 2016) and to Agnew's book (Agnew 2007).

An explication of the theory

The concept of strains. They are defined as "events or conditions that are disliked" (2016: 213). In social psychology, liking or disliking of an object is called an ***attitude*** in the sense of some "favorableness or unfavorableness to a psychological object" (Fishbein and Ajzen 2010: 76). One might, for example, have a more or less positive attitude toward a candidate in an election or toward paintings of Rembrandt. Research has shown that attitudes have only weak effects on behavior For example, what would be the behavioral effects of a positive attitude toward a political candidate or toward paintings of Rembrandt? If attitudes are a variable of GST the theory contradicts RCT which claims that not attitudes but goals or preferences are causes of behavior (see chapter 4).

Do strains really refer to attitudes? The examples for strains in writings of GST suggest that s***trains actually do not refer to attitudes but to blocked goals***, i.e. to goals that are not fulfilled (1985: 152). Examples are the loss of a romantic partner or the death of a friend (2001: 319). Inventories of strains are called "inventories of stressful life events" which do definitely not refer to attitudes (2001: 320). A "stressor" or "stressful life event" is more than only liking something.

Kinds of strains. GST provides a detailed discussion of numerous types of strains. For example, individuals may wish to realize goals immediately or at some time in the future (1985: 153). Three groups of strains are distinguished (2016: 213). Individuals may have unrealized "positively valued goals" such as a high income,. They may lose things they do not want to lose such as material possessions. Finally, they may be treated in a negative manner (e.g., they may be physically abused) and "try to avoid painful or aversive situations" (1985: 154). The major distinction is between "reward-seeking and punishment-escaping" goals (1985: 154). A further distinction is made between objective and subjective strains (2016: 213; see also 2001: 320-322). The former are events or conditions that are disliked by most members of a group, whereas the latter are disliked by the people who experience them.

The detailed specification of numerous categories of strain is regarded as "GST‹s greatest strength" (2001: 39). "Hundreds of types of strain fall under the major categories of strain listed by GST" (2001: 320). The author also mentions as the "biggest weakness" of GST that there is little guidance for researchers which strains are relevant in their research (2001: 320).

Indirect effects of strains on crime via emotions. A major hypothesis is that strains have a positive effect on negative emotions which directly affect crime (see hypothesis 1 below). That is to say, the stronger strains, the stronger are negative emotions such as anger and frustration; the stronger negative emotions, the more likely is crime. It is further stated that emotions lead to a "pressure for corrective action" that "***may***" include crime (1992: 49; 2012: 36). The expression "pressure for corrective action" might mean that an action is chosen that is, from the perspective

of the actor, the *best* action to reduce strain. In other words, if a strain can best be reduced by some kind of non-criminal or criminal action, the actor will choose non-criminal or criminal action.

This explication is confirmed when the author writes that individuals "may engage in income generating crime *to achieve their economic goals*, strike out at others to vent their frustration, and use illicit drugs to feel better" (2016: 209, italics added). This insinuates that crime is chosen *to* achieve certain goals, i.e. *to* reduce strain. Such goals may be to "vent frustration" or to "feel better." In other words, the *instrumentality* of a behavior (either deviant of conforming) for reducing strain is the major factor for the effect of a strain. An available *coping strategy* (a term used by Agnew – e.g. 1992: 61) is thus relevant for the effect of a strain – see hypothesis 2 below.

If our explication is correct strains have *interaction effects*: *the extent to which strains lead to crime depends on the available coping strategies* (see in particular 2001: 326). This explication is based on many insinuations in the texts. Most of the time, however, it seems that additive effects of strains are assumed. Especially in the long discussion about the different characteristics of strains that are assumed to be relevant for crime the instrumentality of crime for reducing strains is largely ignored.

This explication is compatible with Agnew‹s formulation of the "idea" strain theory is based upon. It is the "idea that delinquency results when individuals are unable to achieve their goals *through legitimate channels*. In such cases, individuals may turn to illegitimate channels of goal achievement or strike out at the source of their frustration in anger" (1985: 151). Note first that *goals* (and not attitudes) are addressed. Second, it is not only strains that matter but the extent to which individuals are "unable" to achieve goals through legitimate channels. This is the *coping proposition*. There are no simple additive effects of strains.

Kinds of coping strategies. Three types of coping strategies are distinguished. One is a *behavioral coping strategy* which "is intended to terminate, reduce, or escape from the strainful events and conditions" (2001: 326). This may, but need not be criminal behavior. This strategy seems to be identical with the legitimate and illegitimate opportunities discussed before.

There are further *cognitive coping strategies* which "attempt to redefine strainful events and conditions in ways that minimize their adversity" (2001: 326). For example, one might compare one‹s bad working conditions with those of others in developing countries and suggest to oneself, that one is relatively well off (the example is our own.)

Third, there may be *emotional coping strategies* "that are intended to alleviate the negative emotions that result from strain" (2001: 326). One may listen to music (which is conforming) or take drugs (which is deviant).

The coping strategies refer to the options to *reduce strain, not emotions*. Assume, for example, that a person perceives an easy chance to make money (to reduce the strain not to have the desired income) illegally. According to what has been said before the reduction of strain is relevant for the behavioral choice. One might assume that a reduction of strain simultaneously reduces negative emotions (such as anger about a low income). It is difficult to imagine that strain is reduced but that negative emotions remain. It is not clear what GST asserts.

Strains as causes for the choice of coping strategies. The hypothesis is not only that strains have an impact on crime *if* the coping strategies are best suited for committing a crime. It seems that strains have an *effect on the available coping strategies* as well. "It is argued here that some types of strain are more likely to result in crime than other types because they influence the ability to cope in a noncriminal versus criminal manner, the perceived costs of noncriminal versus criminal coping, and the disposition for noncriminal versus criminal coping" (2001: 326). Strains have thus also indirect effects on crime – via coping strategies. However, there are no clear hypotheses about which strains affect which coping strategies.

In another article Agnew (2012: 36) is more specific about the effects of strains and in particular of emotions. He states that anger "interferes with the use of certain legitimate coping strategies such as negotiation, reduces concern for the consequences of one‹s behavior" (2012: 36; see also 2016: 213). These are two hypotheses. (1) Anger lowers the perception of legitimate behavioral alternatives (coping strategies). (2) Anger reduces the perception of behavioral consequences. Because anger promotes crime it might be added that anger reduces the likelihood of the positive consequences for legitimate behavior. Note that these are hypotheses about the *indirect causal effects of emotions:* they influence crime via incentives (hypothesis 3 below).

Other characteristics of strains and crime. There are several characteristics of strains that are related to crime (2001: 326-347). For example, "strains are most likely to result in crime when they (1) are seen as unjust, (2) are seen as high in magnitude, (3) are associated with low social control, and (4) create some pressure or incentive to engage in criminal coping" (2001: 326). That is to say, strains per se are relevant and no longer existing coping strategies. Instead, those four characteristics "are derived primarily from the stress, justice, and emotions literatures" (2001: 326-327). They are not "derived" from the hypotheses about coping. It is unclear to what extent the literatures and hypotheses that explain the effects of these characteristics are part of GST. The author very often mentions variables from other theories.

Micro-macro modeling. GST is mainly a micro theory. There are only hints at macro-micro relationships. One is the relationships between objective and subjective strains: objective strains often become subjective strains (2001: 321-322). Such macro-to-micro relationships are not spelled out in detail, and a full-fledged micro-macro model is not the goal of GST. This could be a task of future research.

Other hypotheses. GST consists of numerous other propositions. Especially in the 2001 paper a vast number of hypotheses from other theories are mentioned to support some of Agnew‹s propositions. It is difficult to see how all these propositions are related to the coping proposition.

To illustrate, it is held that "strain is most likely to lead to crime when individuals lack the skills and resources to cope with their strain in a legitimate manner, are low in conventional social support, are low in social control, blame their strain on others, and are disposed to crime"(2001: 323). The first part of the hypothesis mentions again available coping strategies, in this case the individual‹s skills and resources; conventional social support could be support for legitimate behavior; but why should "low social control," "blame the strain on others" lead to crime?

After this text numerous other types of strains are mentioned such as illness or accidents among families or friends (2001:323). It is further noted that researchers combine different strains to a single scale. This is not meaningful, as Agnew correctly argues, because some strains have stronger effects than others. Apparently, strains have additive effects on crime. But there is still a "lack of explanation why some strains have a stronger effect than others" (2001: 326). Again, coping strategies are not mentioned.

What is "the" general strain theory?

If GST is compared with RCT (or with any other theory) the problem is what the propositions of the theory are. Are the classifications of characteristics of strains part of the theory? What about the propositions that are used to "derive" certain characteristics of strains (2001: 326-327)? How are all these hypotheses related? Are they logically independent or can some be deduced from others? For example, if coping strategies are part of the theory, one would assume that effects of single strains can be explained by existing coping strategies. Is there, as in Merton's anomie theory, a "central" hypothesis, or are there several "central" hypotheses?

In order to compare GST and RCT we focus on *strains*, *coping strategies*, and *emotions*. We select three hypotheses that connect these variables (the arrows symbolize causal relationships) and that have been described before:

Hypothesis 1: Strains and availability of legitimate coping strategies Y Low likelihood of crime.
Hypothesis 2: Strains Y Negative emotions Y High likelihood of crime.
Hypothesis 3: Negative emotions and/or strains Y Low availability of legitimate coping strategies.

We consider these to be the "central" hypotheses of GST. Due to he ambiguity of the theory readers may come up with other hypotheses. We will further discuss hypotheses that assume effects of special kinds of strains on crime.

We leave it open whether the hypotheses are *implications* or *equivalences.* Implications would exist if not only the causes mentioned in the propositions (variables before the arrows) are relevant, but other factors as well. For example, if there is crime: will there be always emotions or strains, or may other factors lead to crime?

A comparison of general strain theory with rational choice theory

The effects of kinds of "strains" on crime in rational choice theory. In addition to hypothesis (1) GST consists of hypotheses that which state additive effects of various kinds of strains. As was said before, we explicate "strains" as blocked goals (or, equivalently, unrealized preferences), of whatever kind. If strains are attitudes they are not relevant according to RCT. Strains as blocked goals or unrealized preferences are thus one of the variables of RCT. But RCT consists not of strains (or preferences) as additive variables, but of strains *and* (perceived) opportunities to reach

goals. If one wants to explore the role of strains for crime in RCT one needs to include the perceived constraints or the perceived subjective probabilities about how to reduce or avoid strains. In other words, ***a pure additive effect of strains is inconsistent with RCT***.

Because the effects of strains depend on constraints, it does not make sense, from a rational choice perspective, to compile a list of hundreds of strains without considering the constraints. For explanatory purposes both factors need to be taken into account. Accordingly, we don't find a comparable classification of hundreds of perceived preferences without discussing the existing constraints to realize them in RCT.

The extreme emphasis in GST on strains thus seems theoretically not meaningful. Research from the perspective of RCT should focus on which ***kind*** of deviance or conformity is regarded as instrumental for which ***kind*** strains. For example, a strain due to a divorce, that is mentioned as a kind of strain, will not lead to shoplifting or plagiarizing because these actions are normally not instrumental to solve any of the problems of a divorce.

So far "coping strategies" have not been addressed. We will apply value expectancy theory (VET) to show how strains and coping strategies can be integrated into RCT. It seems useful to take as the point of departure the two equations of VET that were used for the formalization of anomie theory in section 7.2. For ease of reference, we reproduce these equations:

(1a) $SEU(Conformity_{type\ c}) = p_{cg} \cdot U(\text{Monetary success goal}) + p_{cn} \cdot U(\text{Norm to conform})$
(2a) $SEU(Deviance_{type\ d}) = p_{dg} \cdot U(\text{Monetary success goal}) + p_{dn} \cdot U(\text{Norm to conform})$

As was said before, this model holds only if other goals do not exist. Such other goals are components of GST. One goal GST emphasizes is ***removing the blockage of positive goals.*** These could be getting monetary success or gaining status. Another goal is ***reducing the exposure to negative situations***, i.e. getting rid of negative stimuli such as physical abuse or other hassles (2001: 323). These goals are the two utilities in the equations (3a) and (3b).

(3a) $SEU(Conformity_c) = p_{cp} \cdot U(\text{Achieve blocked positive goals}) + p_{cn} \cdot U(\text{Avoid negative situations})$

(3b) $SEU(Deviance_d) = p_{dp} \cdot U(\text{Achieve blocked positive goals}) + p_{dn} \cdot U(\text{Avoid negative situations})$

For the sake of simplicity, we assume that the actor perceives two behavioral alternatives: one specific type of deviance d and a specific type of conformity c. The explanandum is thus some ***type*** of deviance or conformity (as the subscripts of the SEU-terms indicate).

These two equations are an extension of equations (1a) and (2a) above. Reaching the success goal and comply to norms can be subsumed under achieving positive goals. Each of the two behavioral consequences in (3a) and (3b) are entire sets of goals. They must be substituted by specific behavioral consequences that exist in specific situations and must be determined empirically.

Each utility is multiplied by a subjective probability. This means that the effects of the utilities depend on the subjective probabilities that the actor reaches the goal by means of the

deviant or conforming action of type c or d. For example, p_{cp} is the perceived likelihood that a blocked positive goal can be achieved by the conforming action c.

To what extent do these equations refer to ***coping strategies***? The latter are actions that lead to the realization of goals with a relatively high subjective probability. In equation (3a), for example, a legal action of type c would be a legal coping strategy to achieve blocked positive goals – if the subjective probabilities are relatively high. If p_{cp} is zero, conformity of type ***c*** would not be a coping strategy for achieving blocked positive goals. If p_{cp} has the highest possible value 1 then c would be a perfect coping strategy. Thus, (law-abiding or deviant) ***actions that are instrumental for reaching a goal with a high subjective probability are the behavioral coping strategies for the respective goal***. Coping strategies can thus be quantified: the higher the respective subjective probabilities are, the better (or the more efficient) is the coping strategy (i.e. the respective deviant or conforming action).

A hypothesis of GST is that the goal to avoid negative situations is a particularly strong motivator for crime. Is this consistent with the previous equations? Let p_{cp} (the subjective probability of reaching blocked positive goals) and p_{cn} (the subjective probability of avoiding negative situations) be very high, and let p_{dp} and p_{dn} be relatively low. This implies that conformity c has a much higher SEU than deviance d. It is thus not the case that the goal of avoiding negative situations has always a particularly strong effect on crime. In other words, in the situation described the suitable coping strategies to avoid negative situation is conformity (c) and not deviance (d).

The GST hypothesis that the goal of avoiding negative situations generates crime with a relatively high likelihood is thus ***inconsistent with RCT*** – unless there is a law that states: the expression "p_{dn} C U(Avoid negative situations)" has ***always*** relatively high values so that the SEU for crime is higher than the SEU for law-abiding behavior. The claim could thus be that ***certain strains are lawfully connected with certain coping strategies***. For example, there could be a law that the goal to avoid negative situations is lawfully associated with criminal coping strategies. There are no studies that confirm such laws. This suggests that it is highly questionable to claim that in general certain characteristics of strains have always certain effects on crime.

This holds for the hypothesis that a high ***magnitude*** of a strains leads to crime as well. Assume that U(Avoid negative situations) has a very high utility (i.e. a high magnitude). This would have only an effect on crime if p_{dn} is very high and if the other parameters are relatively low. But so far there is no evidence that confirms such a law.

GST assumes, as was mentioned before, that there are certain characteristics of types of strains that "most likely to lead to crime" (2001: 320). "Briefly, such strains (1) are seen as unjust, (2) are seen as high in magnitude, (3) are associated with low social control, and (4) create some pressure or incentive to engage in crime. Fourth, these characteristics are then used to predict the likelihood that several types of strain will result in crime." The authors provide detailed arguments that are intended to show why these strains are strongly related to crime. Numerous variables are mentioned. But a systematic analysis of their relationship to coping strategies is missing. As we argued before, such hypotheses are only correct if there are laws that posit relationships between strains and coping strategies. But such laws do not exist. It is thus not compatible with RCT that only attributes of strains bring about crime.

To summarize, the great number of hypotheses about the additive effects of strains in GST are inconsistent with RCT. If "coping strategies" are explicated from the perspective or RCT, then hypothesis 1 is compatiple with RCT.

Emotions as behavioral consequences of crime and conformity. GST hypothesizes that emotions, in particular anger and frustration, have a direct impact on crime (see hypothesis 2 before). We have discussed the role of emotions in RCT in detail in chapter 4. In this section we will analyze how anger could influence crime, from the perspective of RCT. To answer this question we start with an example. Assume a shop owner does not take back a damaged good from a customer and treats him very unfriendly. The customer is highly frustrated.

This situation can be modeled with VET in the following way. Let the e customer‹s *perceived behavioral alternatives* are to insult the owner or to back down (i.e. accept the shop owner‹s decision and leave the shop). Let there be two *behavioral consequences*: one is to get a refund, i.e., U(Refund), the other is getting rid of the anger, i.e., U(Reduction of frustration). The customer is sure that neither through the insult nor by backing down he or she will get a refund. Assume the reactions of the owner lead the customer to believe that the decision of the owner is final. The subjective probability of getting a refund is thus zero for both behavioral alternatives.

The second behavioral consequence refers to the emotions. "Reduction of anger" can be modeled as a behavioral consequence with a certain utility and subjective probability. Let "Reduction of frustration" have a high utility and is considered likely if the person insults the owner. The probability is zero if the customer backs down.

Insulting the owner may not be without a cost. Attacking others often elicits a counter reaction. The term "U(Counter reactions)" is negative. The customer assumes that there is a positive p if the owner is insulted.

The previous formalized by means of the following two equations. Note that, as before, the first subscript of the p‹s refers to the action, the second to the behavioral consequence. The products for which the probabilities are zero are printed in grey; they are thus irrelevant for the SEU of the actions:

(4a) SEU(Insult the owner) = p_{ir} C U (Refund) + p_{if} C U(Reduction of frustrations) +
+ p_{ic} C [-U(Counter reactions)]
(4b) SEU(Back down) = p_{br} C U(Refund) + p_{bc} C [-U(Counter reactions)] +
p_{bf} C U(Reduction of frustration) + p_{bi} C [-U(Increase frustration for backing down)]

An important implication of equations (4a) and (4b) is that *a high frustration* with the behavior of the shop owner (i.e. a high utility and probability of reducing the frustration) *need not lead to crime (insult).* In the present example, the customer might relieve his anger with an insult, but the counter reactions might be so frightening – the have a high U and p – that they outweigh the "gain" of feeling better. Furthermore, the frustration for backing down need not be high. *RCT thus implies that strong emotions need not lead to crime; they bring about crime only under certain conditions.* Equations (4a) and (4b) show this.

RCT is thus incompatible with GST's claims that strains affect behavior only via emotions (anger). Our model shows that anger is only one of several behavioral consequences. "Strains" in

the sense of (positive or blocked) goals and the subjective probabilities may have much stronger effects than anger – see equations (4a) and (4b). If we include still other incentives such as social rewards, emotions become even less important.

GST assumes, among other things, that strains have a causal effect on negative emotions (hypothesis 2). This hypothesis is not included in RCT. But this is not an important problem because we focus on the explanation of crime. Nonetheless, the effects of strains on emotions is an interesting question. If proponents of GST would develop a detailed theory about what strains bring about which emotions this would be a welcome complement of RCT.

When negative emotions do not bring about crime. So far we have discussed anger as a specific kind of an emotion. The concept of emotion is much broader. As was described in chapter 4, *emotions may also refer to utilities*. For example, a high utility means a high satisfaction (for example, due to getting a refund). This might be called a *positive emotion*. In contrast, a high disutility is a high dissatisfaction (for example, due to being sexually abused). This is a high *negative emotion*. Hypothesis 2 posits that strong negative emotions lead to crime.

The following case is not compatible with this hypothesis. Let a person get convicted for having caused a serious accident due to drunk driving in which a person has been killed. This leads to very bad conscience and strong feelings of shame and guilt. These feelings are certainly strong negative emotions. The person might further feel that a harsh sentence is just.

This case shows first that emotions did not lead to crime but *the commission of a crime led to strong negative emotions*. The accident caused by drunk driving is a crime.

The person suffers from the accident and will certainly be better of if the existing emotion is reduced. It is difficult to see how a crime might be a coping strategy of eliminating the emotion. The perpetrator might get psychiatric treatment of help the victim.

The *emotion might further strongly induce the person to avoid crime*. For example, if the person has consumed alcohol and is faced with the alternative to drive or not to drive, an expected accident might be a behvioral consequence with a strong negative utility so that the person referains from drunk driving.

The emotions in the example are related to breaking strongly internalized norms. Breaking such a norm will be a behavioral consequences with strong negative utility. It will rather lead to refrain from crime than to commit crime.

Indirect causal effects of emotions on the perception of behavioral alternatives and consequences. GST claims, as was described before, that there are not only *direct* effects of emotions on behavior, but also *indirect* causal effects: emotions change legal coping strategies (hypothesis 3). We would thus expect that negative emotions have effects on behavioral alternatives and consequences.

Such effects can be explained with dual-process theories (see chapter 4). If an actor is in a certain situation that triggers anger, as in the situation in our example, a *behavioral program* might be activated. For example, when the shop owner refuses a refund this might activate – without further deliberation – insulting behavior. The behavioral alternative to try negotiations might not be considered at all. The behavioral consequence of an expected counter reaction might not be taken into account (in contrast to our example) either. Let this be the activated

program. Thus, a negotiation and a counter reaction are not perceived. This example is in line with Agnew‹s proposition of indirect effects of emotions.

There may be other behavioral programs. People may have internalized very strong norms to choose conformity. They will then spontaneously choose this behavior although crime might be – from the perspective of an outside observer – much more beneficial for the actor. In the previous example, a person may not even think of insulting the owner but immediately accept the decision of the owner and leave the shop.

Such behavioral programs will be adopted slowly in the past. Backing down might never be successful so that this is extinguished as a behavioral alternative. Also negotiating might have been unsuccessful in the past, whereas insulting relieved the anger. This is then the behavioral program that is saved for this kind of situation and that will always be activated.

This analysis shows the *conditions* under which the assumed indirect effects of anger on reducing or generating deviant "coping strategies" exist. Anger does not always have these effects. People could have acquired a quite different pre-existing behavioral program. RCT is in principle compatible with the indirect effects proposition. However, it would not subscribe to this proposition as a law. The indirect effects assumed by GST might be an empirical generalizations that sometimes holds and sometimes does not hold.

Might positive emotions be relevant for crime? Assume a person has been promoted on the job, and this causes joy and happiness. These are *positive emotions*. Now assume that the achievement of the person's goals raises aspirations. These aspirations might be so lofty that they cannot be reached with conformity. Now there is as dissociation of goals and legitimate means (see Merton's central proposition, discussed in the previous section) which makes the choice of illegal behavior more likely.

There are many situations in which individuals have achieved their goals and "want more," i.e. their aspirations rise. Perhaps one might assume that individuals will usually not want more than they can achieve. But it is not implausible that often individuals overestimate what they can achieve and experience constraints reaching the goals legally.

The hypothesis thus is that under certain conditions *positive emotions generate negative emotions for which legal coping strategies are not available* – achieved goals lead to positive emotions; they lead to rising aspirations that cannot be achieved with legal coping strategies. This is one possible mechanism for goal achievement that generates "unrealistic" expectations.

What can we learn from general strain theory?

The comparison of GST and RCT showed that GST has various weaknesses. From a rational choice perspective, the question is which of the theoretical ideas and research results of GST could be fruitful, from the perspective of RCT. Although proponents of RCT would never produce lists of hundreds of strains, some of these strains might be used as possible initial conditions or empirical generalizations in applying RCT. For example, distinctions such as ability to realize positive goals and ability to avoid negative situations, together with the related constraints (subjective probabilities), might be used in explanations of crime. The idea that such

situations might influence perceived probabilities etc. is also worth being explored. Adding emotions (anger) as behavioral consequences and exploring their effects seems to be a fruitful idea for further research as well.

Summary and conclusions

GST (general strain theory) analyzes the direct and indirect effects of strains on criminal conduct. Strains are explicitly defined as negative attitudes in the sense of evaluations of objects. But the theoretical arguments indicate that strains refer to blocked goals. GST lists hundreds of kinds of strains that may be related to crime. Many hypotheses claim that certain characteristics of strains – such as a decision of important others that is regarded as unjust – have a relatively strong effect on crime. Strains thus have additive effects on crime.

Another proposition of GST is that strains generate crime if legitimate coping strategies are not available. It is further assumed that strains have indirect effects on crime: they first generate negative emotions (anger, frustration); these emotions then bring about crime. A final hypothesis to be discussed is that strong emotions (and strains as well) lead to the choice of illegal coping strategies.

When comparing hypotheses from GST with RCT we assume that "strains" are blocked goals. If they are defined as attitudes, RCT implies that they are irrelevant for crime because only preferences or goals matter. If this is assumed RCT implies that ***strains do not have additive effects on crime*** but are only relevant for crime if the constraints or opportunities for crime are relatively high. In terms of value expectancy theory (which is applied in this chapter) strains refer to the utilities of certain behavioral consequences (such as achieving a positive blocked goal or avoiding a negative situation). The subjective probability of reducing one of these strains with a certain type of (conforming or deviating) behavior ***and*** the magnitude of the utility are the relevant factors. (Legal or illegal) actions that are instrumental for reaching a goal with a high subjective probability are the behavioral coping strategies for the respective goal. If this explication is adopted, then hypothesis 1which assumes a multiplicative effect of strains and coping strategies is compatible with RCT. From the perspective of RCT, it does not make sense to list hundreds of strains without considering the existing constraints.

The second hypothesis claims that emotions have a direct effect on crime. Emotions can be reconstructed as certain kinds of behavioral consequences. For example, a criminal behavior may have the consequence to diminish anger. RCT suggests that emotions may also be reduced by conformity. Whether conformity or crime is chosen depends on which behavior is more instrumental (see equations 4a and 4b in the text).

It is argued that there are cases when negative emotions do not bring about crime. – such as having caused an accident as a drunk driver which causes strong feelings of shame and guilt. Here crime leads to an emotion, which rather has the effects that future crimes related to drunk driving will be abstained from.

Effects of emotions on perceived behavioral alternatives and behavioral consequences can be modeled with dual-process theories. RCT would suggest that certain behavioral programs that have been rewarded in the past will be stored in memory. They will be activated if the relevant

behavioral cues exist. These behavioral programs may omit behavioral consequences and include distorted beliefs. ain, the indirect effects proposition is in principle not incompatible with RCT, but needs fundamental modification.

It is suggested to look at potential crime-inducing effects of *positive* emotions. For example, strong satisfaction from achieving goals might increase aspirations that are then no longer attainable and lead to the choice of illegal behaviors.

The comparison of GST with RCT clearly shows that RCT implies that fundamental modifications of GST seem necessary. A major implication is that when explaining crime just invoking strain is not sufficient. RCT suggests much more complicated explanations.

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Chapter 7.4

4. Edwin H. Sutherland's differential association theory

Contents

Abstract. The theory suffers from serious weaknesses. One is that most hypotheses have a low informative content. For example, postulate 1 states that criminal behavior is learned. It is left open, how it is learned. There seem to be contradictions. It is claimed, e.g., that learning of crime includes techniques of committing crimes. But in the "principle of differential association" it is held that an excess of "definitions" favorable to the violation of the criminal code – techniques are not part of this hypothesis.

The comparison with rational choice theory focuses on the principle of differential association that an excess of positive "definitions" of crime generates criminal conduct. We assume that "definitions" refer to positive or negative evaluations of crime someone is exposed to. RCT implies that simply being faced with a "definition" is only relevant if it is associated with costs of benefits of crime. But this is to be expected only under certain conditions. If, for example, the source of the "definition" is a good friend, the person might expect to gain status if he or she commits crimes. Thus, "definitions" alone are irrelevant according to RCT.

Introduction

This is a short chapter. The reason is that the major ideas of the theory are included in other theories that are discussed later. We will only provide a brief description of the theory, summarize some of its main weaknesses, and then focus on the most informative hypothesis of Sutherland‹s theory, namely the principle of differential association. This will be compared with rational choice theory.

A short introduction to the theory

The first version of the theory was included in the first edition of Sutherland‹s textbook "Criminology" in 1924. The last modification was published in the fourth edition of his textbook (now called "Principles of Criminology") in 1947 (Sutherland 1947, see also Schuessler 1973). This version is normally referred to in the literature, and in this section too.

The theory played an important role in the development of criminology: it "marked a watershed in criminology" (Matsueda 1988: 277). It consisted, in contrast to most other criminological theories, of only a few (i.e. nine) theoretical propositions. In order know what the theory is about one does not need to scroll a thousand pages. The theory contains factors that are meanwhile components of many existing theories of crime. Examples are the relevance of available criminal techniques and of interactions with criminal peers.

The theory has serious deficiencies, as the extensive critique of the theory indicates (see in particular the review of Matsueda 1988; see also Bruinsma 1985, 1992; Opp 1974, 1989 {Opp, 1989 #564}). Perhaps the most serious flaw is that almost all of the nine propositions are ***not informative theoretical propositions*** that allow one to predict when particular kinds of crime or conforming behavior are brought about. The hypotheses are orienting statements. For example, hypothesis 1 states: "Criminal behavior is learned." It is thus not inherited. I is not specified under which conditions learning of which kind of criminal behavior takes place. The most informative proposition is the "principal of differential association" (hypothesis 6): "A person becomes delinquent because of an excess of definitions favorable to violation of law over definitions unfavorable to violation of law." One can thus predict whether in a group A crime is more frequent than in a group B: we need to measure the amount of "definitions" group A and B have encountered.

It further seems that some ***hypotheses are incorrect*** or their validity can be doubted. Hypothesis 1 states that crime is learned and not invented. As the numerous new kinds of fraud on the internet indicate, criminals are rather creative in inventing new crimes.

A third problem is that ***some of the concepts need clarification.*** This holds, for example, for the concept of criminal "definitions." Bruinsma (1992) notes the difficulties of measuring the concepts of the theory.

A fourth problem is that the ***relationships between hypotheses 1 to 9*** are not clear (see particularly the critique by Gibbs 1987: 834-837). Are they logically independent? Or perhaps can some hypotheses be derived from others? A third possibility is that there are contradictions between the propositions. For example, hypothesis 4 assumes that learning criminal behavior includes the "techniques of committing a crime." In the principle of differential associations it is only the excess of criminal and non-criminal "definitions" that lead to crime. Available techniques are not mentioned. There is, thus, an inconsistency between hypotheses 4 and 6.

Is the theory an ***implication***: if there is an excess of favorable definition, there is crime, but if there is no excess crime may originate as well, due to other factors. Or does the theory imply: if there is crime, than there is always an excess of positive definition – the theory is an ***equivalence*** (see chapter 5 for an explanation of "implication" and "equivalence"). An implication is more plausible. For example, crime may be invented without any "definitions."

The theory can and has been used in different ways. One is to select certain factors and test their impact on crime. For example, Paternoster et al. (2013) tested the causal impact of deviant peers on crime. Another possibility is to reformulate the entire theory. This is done by Defleur and Quinney (1966), Burgess and Akers (1966), Gibbs (1985: 37-41) and Opp 1974 (this reformulation and some modifications are tested by Bruinsma (1985, 1992)).

One might also get "inspired" by the theory and include some ideas in one's own theory. The theory is taken as a reservoir of ideas that can be used if one wants to suggest informative and precise hypotheses. This is done in Akers's social learning theory (see the next section).

The principle of differential association: a rational choice perspective

The most informative proposition of the theory is the principle of differential association. We select this hypothesis and compare it with RCT (for a more detailed analysis see Opp 1989{Opp, 1989 #564}: 408-411). For ease of reference we repeat the hypothesis:

> *Principle of differential association:* "A person becomes delinquent because of an excess of definitions favorable to violation of law over definitions unfavorable to violation of law" (hypothesis 6, taken from Sutherland 1973, this is the version from 1947).

To compare this proposition with RCT we first need to clarify what a favorable or unfavorable "definition" of the violation of the criminal law means. It seems that contacts with criminal "patterns" are referred to. A "definition" thus could mean that a person is ***faced with perceived positive or negative evaluations of criminal behavior***.[1] Assume a friend of a person P utters: "Humankind is so bad, why shouldn't one sometimes break the law?" P is thus exposed to a perceived positive evaluation of crimes. The source of such a perceived evaluation may be face-to-face interactions, but P may also read or listen to such evaluations. In a movie the hero might become rich by illegal actions without being punished. This would be a "definition" only if the person perceives that the movie transmits the message that crime is good if it is successful. The important ingredient of the "definition" is thus that P perceives that others evaluate crime positively or negatively. This explication seems theoretically plausible and it is not inconsistent with what Sutherland writes.

RCT implies that perceiving others evaluating crime positively or negatively only changes the likelihood of committing criminal acts if this perception influences the costs or benefits of crime. But this is hardly plausible. Assume, for example, a person P is faced with the direct blunt statement of somebody in the subway sitting next to him or her: "People who never commit a crime are simply stupid." This is a clear perceived positive evaluation of crime a person is exposed to. It is implausible that exposure to a positive evaluation of crime by an unknown person changes the costs or benefits of committing crime. But when is such a "definition" accepted?

Let us apply value expectancy theory (VET, see chapter 4) to show in more detail the possible effects "definitions" of crime. Assume there is some perceived positive evaluation of crime. This would only be relevant for committing crimes if it is a behavioral consequence that

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[1] The word "definition" usually means a convention about how certain terms are used. Sometimes "definition" – in the expression "definition of the situation" – means "categorization" of a situation.

has some positive utility and if getting this utility is higher if crime is committed and not if the person is obedient. The two equations are:

$SEU(crime_c) = p_c \text{ C } U(\text{Perceived positive evaluation of crime})$
$SEU(\text{law abiding behavior}_l) = p_l \text{ C } U(\text{Perceived positive evaluation of crime})$

Just being exposed to some positive evaluation of crime is not relevant for the subjective expected utility (SEU) of crime or obedience. First of all, the utility of this consequence is important. Second, the instrumentality of crime or law-abiding behavior for getting this reward is relevant. In other words, ***only if such "definitions" are associated with benefits for committing crimes and not for conforming behavior, the "definitions" contribute to criminal conduct.***

Assume the person who expresses a positive definition of crime is a reference person of P or a very good friend. P may assume that he or she will gain status if he or she commits a crime. The two equations might thus be:

$SEU(crime_c) = p_c \text{ C } U(\text{Perceived positive evaluation of crime } \textit{and committing crime increases status})$
$SEU(\text{law abiding behavior}_l) = p_l \text{ C } U(\text{Perceived positive evaluation of crime } \textit{and committing crime increases status})$

This implies that not only being exposed to "definitions" is relevant for committing crime, but whether P gains prestige or status for committing a crime. This means that p_c will be high and p_l low (the person gets the status with high likelihood p_c only if he or she commits a crime).

Being exposed to positive "definitions" could be associated with other incentives. Assume P believes that people only "define" crimes positively if they have committed these crimes themselves and have not been caught. Now let a friend O tell P that "it is stupid not to commit burglaries." P applies now his or her belief that people define crime only if they have committed it and have not been caught. This means that P's belief of being caught for burglary decreases. This increases the p for not being caught for burglary and thus increases the SEU for burglaries. But this is only one of many possible incentives. Again, the simple "definition" is not sufficient.

Being exposed to a friend's "positive definition" of crimes might further suggest that the friend is willing to commit some crimes and that he or she could join P. If P considers to commit crimes with his or her friend, then the "definition" creates a new behavioral alternative such as "crime with person O."

Assume P has a strong negative attitude toward crime and now learns that his or her friend O values crime positively. This would be a situation of cognitive dissonance or imbalance (see chapter 4). If the friendship between P and O is strong and if P's evaluation of crime not very negative, O's "definition" might change P's evaluation of crime. This then might lower the costs of committing crime. Again, not only the "definition" is relevant.

The conclusion is that positive or negative "definitions" of crime alone don‹t matter. They are relevant for crime only if other conditions are associated with the "definitions" that are related to incentives for crime or specific kinds of crime.

It could be argued that a large number of positive "definitions" of crime generates a ***positive attitude*** toward crime. Fishbein and Ajzen‹s (2010) theory suggests: if a attitude object (such as a criminal behavior) is associated with many positively valued attributes, then the entire object is valued positively. The theory assume that the attributes are positively valued. But if other people approve crime this does not mean that crime is associated with positively valued attributes. It is thus unlikely that an "excess" of positive "definitions" of crime brings about a positive attitude toward crime.

But even if a positive attitude originates due to a great number of positive "definitions" of crime a simple attitude is not sufficient for criminal ***behavior***.

The important conclusion is that simple "definitions" of crime of conformity are not conducive to crime. The previous arguments have suggested that "definitions" are associated with crime if they are linked to incentives for crime.

Summary and conclusions

Sutherland‹s theory of differential association has been important for the development of criminology, but its weaknesses are so strong, that a general comparison with RCT does not seem useful. One major weakness is that – with the exception of the principle of differential association – the hypotheses are only orienting statements (they have a low informative content); central concepts are not clear; some hypotheses seem incorrect, and the relationships between the nine propositions are not clear.

We compared the principle of differential association with RCT. The "principle" states that an excess of "definitions" favorable to the violation of law leads to crime. Persons are faced with a positive or negative "definition" of crime means that the persons perceives that some source evaluates crime more or less positively. It is shown that this hypothesis is not compatible with RCT. Simply being exposed to somebody‹s opinion about how good or bad crime is does not mean, that the costs or benefits of crime change. This happens only under certain conditions which are explored before. If, for example, another person O who utters a positive "definition" of crime is a friend of the person P ***and*** if this leads to the belief that P will gain status if he or she commits a crime, then the definition will be an incentive for crime. But this is only one of many possible incentives. The general conclusion is that an excess of positive "definitions" of crime a person is exposed to is not relevant for crime, according to RCT, as long as the "definitions" are not associated with costs and benefits of crime.

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Chapter 7.5

5. The social structure social learning theory by Ronald L. Akers

Contents

Abstract. Social learning theory (SLT) consists of four "core theoretical elements": differential association, definitions of crime or conformity, differential reinforcement and imitation. Each of these "elements" consists of several variables. Furthermore, the relationship of these "elements" with social structural variables is addressed.

SLT uses some hypothesis of learning theory. It is, therefore, first shown how reinforcement extends RCT: it is related to utilities and subjective probabilities (see Figure 7.5.2). Among the set of variables of the "hypothesis of differential association" RCT would only agree that criminal "role models" provide incentives for crime if matching the respective persons' behavior leads to expectations of rewards if crime is committed. But this is only one type of reward for criminal action. In regard to the definitions hypothesis attitudes and "orientations" are not relevant for crime according to RCT, only goals are effects. RCT further allows a detailed modeling of the influence of goals. In regard to imitations, work in RCT about the critical mass and the spread of behavior go beyond the work on imitation mentioned in SLT.

Although there are clear similarities between SLT and RCT, Akers is hostile toward RCT. It is referred to chapter 4 where it is shown that the critique largely attacks the narrow version and falsely argues that the wide version is identical with all criminological theory.

Introduction

Social learning theory (SLT) – and later "social structure social learning theory" – is one of the established theories in criminology. It has first been proposed in 1966 (Burgess and Akers 1966)

and has been modified and tested empirically since then. There is meanwhile a large literature in which the theory, its relation to other theories and empirical tests are described (see, e.g., Akers 1998, 2017; Akers and Jennings 2016; Akers et al. 2016). A special feature of the theory is that it explicitly uses hypotheses from a general behavioral theory, namely learning theory. The label "social learning theory" refers to "virtually any social behavioristic approach in social science" (Akers 2000: 71). In particular, the work of Bandura (e.g. 1977) and Rotter (1954) are mentioned. Whatever the relationship of Akers‹s theory and those theories is, there is no formal derivation of SLT from these theories. SLT is an integrated theory in the sense that it includes components of other criminological theories. This holds for hypotheses from Edwin H. Sutherland's differential association theory. But, again, there is no formal derivation.

Our procedure is as in the previous sections of chapter 7: we will first reconstruct the theory and then compare it with RCT. The problem of reconstructing the theory is that there are so many expositions and discussions of SLT that the question arises which statements should our analyses be based upon. It seems useful to use a recent version of the theory, namely Akers and Jennings (2016), because it based on the most recent research and the newest version of the theory.

An explication of the theory

Akers and Jennings (2016 – page numbers refer to this article) explain the probability of criminal or deviant conduct. The explanation consists of four "core theoretical elements" (232-234), which we call core factors: differential association, definitions of crime or conformity, differential reinforcement and imitation (232-234). Furthermore, the authors sketch a micro-macro model. This version of the theory is called "social structure social learning theory." Let us look at the theory in detail.

Differential association. Crime is likely if there is association of a person with others. Important is personal rather than symbolic association. Furthermore, crime is likely if these others commit crimes, espouse definitions favorable to crime and are criminal role models. Later in the text it is added that interactions with peers or groups the individual associates with are important if they "hold ***attitudes*** favorable toward violations of the law and evince procriminal or prodeviant attitudes and values" (232, italics added). In addition the "***amount of time spent***" in these interactions is important (232-233).

The text suggests that all these conditions have a multiplicative relationship. The "hypothesis of differential association" is thus a complex interaction term. This means that the effect of one factor on crime depends on the values of the other factors. For example, whether an interaction with others matters depends on the extent to which these others have committed crimes, provide positive definitions etc. The authors don‹t tell what exactly the kinds of effects on crime are. Simple multiplicative effects seem most plausible (C symbolizes a multiplicative effect):

> *Hypothesis of differential associations.* Crime of a person is likely if there is association with others C the others have committed criminal behavior C the others provide definitions

favorable to crime C and the others are criminal role models C the others have and evince attitudes favorable to crime C the person and others spent a high amount of time with each other.

Definitions of crime. This "definitions component" refers to the "attitudes, values and orientations" (233) of individuals toward crime. Note that our reconstruction of "definitions" in the previous section means that a person is exposed to positive or negative evaluations of crime or deviance. In Akers's theory "definitions" are evaluations of the potential criminal.

Crime is likely if it is defined as desirable or justified by the person whose crime is to be explained. "Desirable" means that crime fulfills needs. "Justified" refers to internalized norms that more or less forbid crime. The definitions may refer to specific crimes, but also to a wide range of crimes. The definitions may be positive or neutralizing. The latter means that a crime is justified so that it is not regarded as a crime. For example: "I am not stealing beer from the store; I work there and am underpaid; thus, I am just taking what is owed to me" (233). To summarize:

> *Definitions hypothesis:* If individuals hold positive attitudes, values and orientations toward crime, regard crime as justified and as fulfilling needs, crime is likely to occur.

Differential reinforcement hypothesis. Crime is to be expected if past rewards and the anticipation of future rewards are greater than anticipated punishment for crime (232 – this is a quotation from Akers 1998). Relevant is the "balance of perceived, experienced, or anticipated reward/s and punishment/s that may accompany or follow the performance of a particular behavior" (233). These are different hypotheses. In the quotation from Akers's book (232) past and anticipated (future) rewards and punishments are mentioned. Then "perceived, experienced, and anticipated rewards and punishments" are important. Thus, actual past rewards are not relevant, they must be experienced.

If a behavior is rewarded, a "value is attributed to a behavior," "and the more frequently the behavior is rewarded (rather than punished) the higher the value becomes for the behavior" (233). This implies that a behavior that is rewarded frequently will also be performed frequently. This hypothesis states the mechanism from rewards to behavior: rewards generate values for a behavior, which lead to the performance of the behavior. To summarize:

> *Differential reinforcement hypothesis:* (a) The higher perceived, experienced or anticipated rewards for crime, the lower perceived, experienced or anticipated punishment for crime, the higher is the likelihood of crime. (b) Rewards generate value of a behavior, which lead to behavior.

"Differential reinforcement," the authors write, includes the kinds of reinforcement known from learning theory.

Imitation. This final "element" of SLT refers to vicarious reinforcement in Bandura's (1977) social learning theory. If a person observes another actor who commits a crime that is rewarded,

it is likely that the crime is imitated. There are other factors which are, however, not specified in detail. We summarize the hypothesis in the following way:

> *Imitation hypothesis:* The more the criminal behavior of others is regarded as successful, the more likely crime will be performed.

Incorporating "social structure." The idea is to link "social learning" as a social psychological theory and social structural theories such as anomie and social disorganization (236-238). Social learning is the main process. Structural conditions affect social learning variables which "mediate" the effects of structural variables. Several structural dimensions are identified such as differential social organization, differential location in the social structure. At this developmental stage of the theories, these are theoretical ideas. They coincide with our research program of micro-macro modeling (chapter 6). In earlier work Akers (1998: 322-372) specifies a detailed micro-macro model in which structural factors are related to the independent variable of the social learning theory.

What is "the" social learning theory?

So far there are four separate sets of hypotheses. Each hypothesis consists of several independent variables, i.e. of a *set of variables*. What these variables exactly are, is not clear. Our summary hypotheses are explications. Other readers may come up with other explications.

It is not clear whether the theory an implication or an equivalence (see chapter 5 where these terms are explained in detail)? An implication means that the factors of SLT lead to crime, but that other factors may lead to crime as well. Assume it is found that low self-control leads to crime, but not the variables from SLT. If this is not regarded as a falsification then the theory is an implication (which is only false if variables from SLT exist but not crime). An equivalence is given if two conditions are fulfilled: if the SLT variables exist, there is crime; *and* if there is crime, the SLT variables are given. There might thus be two versions of SLT:

> *Implication:* If the core factors exist, then there is crime. There may also be other causes of crime.
> *Equivalence*: If the core factors exist, then there is crime; if there is crime, the core factors are always given.

It seems plausible that the theory is only an implication. This is insinuated when the authors report research in which "self-control and social learning emerged as significant predictors" of a deviant behavior. This is not regarded as a problem for SLT. This means that other factors are admitted as causes of crime. *The theory is thus an implication*. This is also in line with the statement that in comparative theory tests SLT is better confirmed than other theories (236). This implies that significant effects of other variables are not regarded as falsifying SLT.

If this is assumed there need to be another clarification. One possibility is that ***each of the four factors is sufficient to cause crime***. The theory could thus be formulated as ***disjunctive implication***. This means that the independent factors are part of a disjunction:

> If differential association ***or*** positive definitions ***or*** differential reinforcement ***or*** imitation exist, then there is crime.

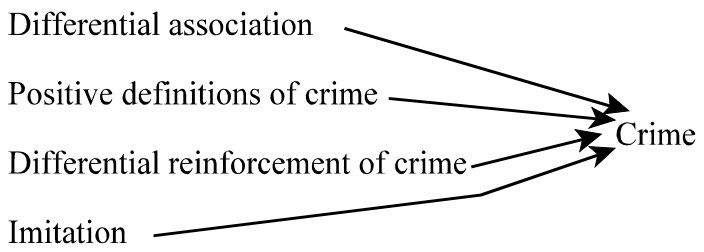
This means that the theory is confirmed if ***at least one*** of the four core factors has some effect on crime. If it turns out, for example, that only positive definitions matter, this is in line with the theory.

However, when empirical support of the theory is described it is regarded as a confirmation if ***each of the core factors*** has an effect, although to a different degree (e.g. 234). This suggests that the theory is not a disjunctive implication, it is a ***conjunctive implication*** which seems to be more in line with the text:

> If differential association ***and*** positive definitions ***and*** differential reinforcement ***and*** imitation, then there is crime.

This would be equivalent with an additive causal model, depicted as a diagram in Figure 7.5.1. The model would be confirmed if each effect is significant.

Figure 7.5.1: Social learning theory as a causal model



Each of the core factors consists of several variables. Does the theory assume that each of these factors must have a significant impact on the dependent variable? If not, how many variables in each of the core factors must have an impact on the dependent variable in order to confirm the impact of one of the core factors? This question is not answered.

Another major problem is that the ***relationships between the four propositions referring to the core factors*** are not clear. Take the first part (a) of the ***differential reinforcement hypothesis*** which claims that relatively high rewards for crime make crime likely. Isn‹t the ***imitation hypothesis*** a corollary of this proposition? The imitation hypothesis states that a particular kind of reward from observing the behavior of others is relevant for crime.

"Differential reinforcement" includes the kinds of reinforcement known from learning theory. Does this insinuate that we could apply learning theory – e.g. Bandura‹s theory, that is mentioned? What exactly is the relationship of SLT to learning theory? If Bandura‹s or Skinner‹s or any other version of learning theory is regarded as so fruitful, why is it not systematically applied? Why is it not sufficient? Why do we need SLT?

Conclusion

We are left again with the fact that "the" theory to be compared with RCT is far from clear. This is extremely astounding if it is claimed that SLT is confirmed by a "considerable amount of empirical testing in the literature" (234). Apparently, those who have tested SLT tested a certain version of it or selected some propositions for their research. A meta-analysis would be useful that tries to find out what exactly the hypotheses are that have been tested. Perhaps one could formulate a new precise SLT, based on the results of such a new meta-analysis.

Rational choice theory, reinforcement and operant conditioning

Social learning theory by Akers is somehow related to learning theory. It is held that "differential reinforcement" includes the kinds of reinforcement known from learning theory. These are positive, negative reinforcement and positive or negative punishment (233). It thus seems that Akers borrows some hypotheses from learning theory, but he does not systematically apply it. It is nonetheless of interest whether learning theory is compatible with RCT. This issue is first briefly discussed before we return to SLT.

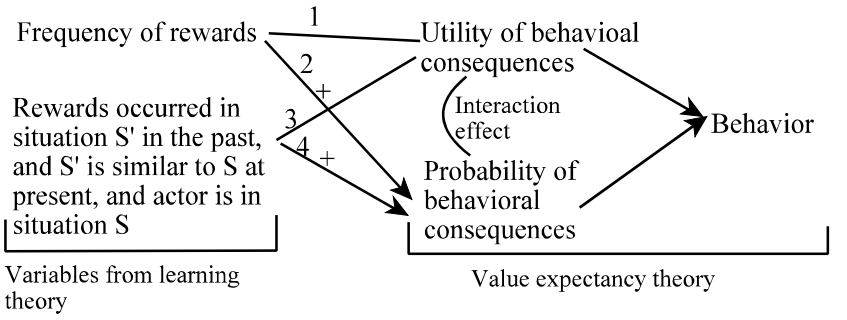
There are numerous learning theories (for overviews see Bower and Hilgard 1981; Schwartz and Reisberg 1991; for an overview of operant conditioning see Staddon and Cerutti 2003). We start with a simple operant conditioning experiment. Assume there is some organism such as a hungry pigeon. The pigeon presses a lever. Then a pellet of food is provided. The experimenter waits until the pigeon presses the lever again. The experimenter again presents food. If this pairing of food and pressing the lever happens several times, the organism will repeat the "rewarded" activities (as long as it is deprived of food). The food is a positive reinforcement. Learning theories also deal with punishments. These are aversive stimuli that are presented after some behavior. A removal of an aversive stimulus is rewarding (negative reinforcement). In all these cases external objects are presented to an organism or removed. The organism always is deprived such as being hungry.

Rewards usually take place in specific situations. For example, the reward might only be given if a red light is switched on. The red light is, in terms of learning theory, a discriminative stimulus. The behavior will then be emitted only if the red light is turned on.

How can it be explained that rewards and discriminative stimuli lead to a behavior? The behavioristic learning theory does not include perceptions or beliefs but only a state of deprivation. This is, in terms of RCT, a preference or a utility. This is similar to part (b) of the differential reinforcement hypothesis stating that rewards generate a value. RCT would suggest

that the stimuli presented meet certain goals of the organism. The rewards are thus identical with behavioral consequences with a certain utility (see line 1 in Figure 7.5.2).

Figure 7.5.2: Frequency of rewards, utilities and subjective probabilities of behavioral consequences



Why should an organism repeat a behavior if it is rewarded? This will be the case if a ***belief is generated*** that the rewards will be repeated with a certain positive probability (see line 2 in the figure). This becomes especially plausible if there is a discriminative stimulus: the organism will form the cognitive expectation (i.e. a subjective probability) that the reward will only be given if the light is red (see lines 3 and 4 in the figure).

This analysis indicates that the external stimuli of learning theory – positive and negative reinforcement, positive and negative punishment, schedules of reinforcement are, according to RCT and in particular according to value expectancy theory (VET – see chapter 4), relevant, if they meet goals of individuals. They are thus behavioral consequences with a certain utility. Furthermore, they generate cognitive expectations (i.e. subjective probabilities). There are thus empirical relationships between these rewards and probabilities (beliefs). Hypotheses from behavioral learning theory can thus be linked to subjective factors such as goals and subjective probabilities (see, e.g., Schwartz and Reisberg 1991: 31-33). It is important that the variables of learning theory influence the variables of RCT (including VET) which have direct causal effects on behavior. Figure 7.5.2 illustrates the theoretical structure of those two sets of hypotheses. There is thus no contradiction between RCT and behavioral learning theory.

The relationships between the external stimuli and the behavior – via motivational and cognitive processes – have been the central topic of cognitive learning theory, in particular in the work of Albert Bandura (e.g. 1971{Bandura, 1971, 1977). But cognitive learning theory is much older: Edward Tolman (1932, 1961) was the pioneer of this branch of learning theory.

The "hypothesis of differential associations" from a rational choice perspective

The first variables of this hypothesis have already been discussed in the previous section about Sutherland's theory: RCT implies that just interactions with others – whether they have committed a crime or provide positive or negative definitions of crime – is irrelevant. This holds also if others evince "attitudes favorable to crime" or if an actor spends time together with others who might be criminal. These are all variables in the "hypothesis of differential association." It

has been argued in the previous section that these factors are only relevant for committing crimes if they are associated with incentives to crime. Thus, for example, a person might spend time with people who have committed crimes, but is not "infected" at all. Only if during interactions with others incentives for crime are exchanged these interactions matter.

There is one exception: the "hypothesis of differential association" includes ***associations with criminal role models*** (or, equivalently, with reference persons). This means that it is rewarding for a person to match his or her behavior with others who are criminal. These rewards (i.e., the utility) may be due to expected status or prestige when a crime is committed. This situation can be modeled with VET in the following way:

$SEU(crime_c) = p \subset U(\text{Match others' criminal behavior})$

However, the reward for crime c from matching is only one of many other possible behavioral consequences of crime or conformity. Perhaps a person P might expect that the situation for him or her is different from that of others and may have largely negative consequence. Just rewards from matching criminal role models are not sufficient for committing crimes.

The "definitions hypothesis": are attitudes, desires and justifications variables of rational choice theory?

RCT implies that the "attitudes, values and orientations" toward crime do not have a direct impact on crime. The major variable of RCT is goals. They are mentioned in the definitions hypothesis as well: "desires" are goals. How are, according to SLT, attitudes, values, orientations related to goals? "Justifications" of crime suggest (weak) norms against crime. If a crime is committed a behavioral consequence may be "breaking a norm not to commit a crime c." Existing "justifications" for crime mean that the negative utility is small of breaking a norm not to commit a crime; the subjective probability that an action is a crime may be small as well. In other words, actors do not think they actually break a norm when they commit a crime c.

The factor "fulfilling needs" is related to preferences. But it is not specified, as in VET, which preferences (along with the respective subjective probabilities) bring about crime.

"Differential reinforcement" and rational choice

At first sight this hypothesis seems very similar to RCT. There are, however, differences. VET focuses on utilities and subjective probabilities of behavioral consequences. Whether "perceived" or "experienced" benefits for crime are relevant for further crime depends on the extent, to which an actor regards these benefits as cues for expected *future* benefits in case of crime commission. It could be the case, for example, that an experienced benefit of the past is regarded as an exception.

The same holds for punishment. According to VET, "punishment" refers to all perceived consequences of crime (or conformity) that have a negative utility, not only to punishment in the

usual sense. RCT thus yields much more detailed propositions than the "different reinforcement" hypothesis of SLT.

Imitation explained by rational choice theory

The spread of behavior is a burgeoning field in RCT (see chapter 4). Examples are models of a *critical mass* or models of how behavior spreads (see Oliver and Marwell 2002; Centola 2018). When a critical mass instigates others to follow suit this is actually imitation. A behavior that spreads is also behavior that is imitated. Thus, although in this work the term "imitation" is rarely used, actually imitation is explained. There is little work that explicitly addresses "rational" imitation – i.e. imitation from a rational choice perspective (for an exception see Hedström 1998).

The imitation hypothesis of SLT (see above) suggests that criminal behavior is imitated if it is regarded as relatively successful. In terms of RCT "successful" could mean that the behavioral alternative to imitate a criminal behavior has a higher overall utility than other behaviors. This is compatible with SLT.

However, applying RCT will yield much more detailed hypotheses about the conditions for imitation. The references before illustrate this. We will not discuss this literature further because the goal of this chapter is to compare SLT and RCT. In regard to imitation, the conclusion is that there is no incompatibility, but that RCT has the potential to develop hypotheses about imitation that go beyond SLT.

How rational choice theory is treated in social learning theory

It is surprising that one of the few authors in criminology who considers general behavioral learning theory is hostile toward RCT. The reason is probably that for Akers rational choice theory is equivalent to the narrow model. It is held, for example, that RCT assumes "rational calculation" (Akers et al. 2016: chapter 2). Akers convincingly criticizes the narrow version (Akers 2000: 24-27; 1990). But then he claims that the wide version is identical with all criminological theory (see the discussion in chapter 4). Our detailed description and discussion of the wide version in chapter 4 and the detailed discussion of Akers‹s social learning theory clearly suggest that there are differences between the wide version of RCT and SLT.

Summary and conclusions

Social learning theory (SLT) consists of the following hypotheses ("core theoretical elements") each of which consists of a group of factors: differential association (which extends Sutherland‹s hypothesis); definitions of crime from the perspective of a potential criminal (its needs and justifications); differential reinforcement (the balance of the rewards compared to the punishments of crime are important), and imitation (i.e. if observed crime is regarded as

successful it is likely that it is performed). It is further argued that some structural (i.e., macro) variables will influence social learning variables on the micro level.

Before the theory can be compared with rational choice theory (RCT) it needs to be clarified. It is not clear, for example, whether the theory claims that each core factor must have a causal relationship to crime or whether at least one factor is enough. It is further not clear whether it is assumed: other factors may lead to crime and not only the factors of the theory; or perhaps it is claimed: if there is crime, there is always at lest one of the factors of SLT. In other words, it is not clear whether the theory is an implication of equivalence. Furthermore, the relationships between the hypotheses are unclear. For example, isn‹t the imitation hypothesis derivable from the differential reinforcement proposition?

SLT applies learning theory. It is first shown that basic propositions of learning theory about positive and negative reinforcement and punishment can be reconciled with RCT. The stimuli are external factors that are or generate utilities or subjective probabilities of behavioral consequences. For example, a repeated positive reinforcement leads to an increase of a behavior if it generates an expectation that the behavior will be successful (generates a positive behavioral consequence) in the future.

We then compare the other hypotheses with RCT. The first three core factors are clearly incompatible with RCT. To illustrate, having a criminal role model is regarded as important. RCT suggests that this could mean that matching the behavior of those models is a rewarding behavioral consequence of crime. This would be an explication of the SLT hypothesis. RCT further suggests that other factors – formal or informal punishment etc. etc. – need to be taken into account.

In regard to the definitions hypothesis attitudes and “orientations” are not relevant for crime according to RCT, only goals are effects. RCT further allows a detailed modeling of the influence of goals. In regard to imitations work in RCT about the critical mass and the spread of behavior go beyond the work on imitation mentioned in SLT.

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Chapter 7.6

6. Self-control theory

Contents

Abstract. A low "ability to exercise self-control" means in particular that a person is acting on short-term easy benefits and ignores long-term negative consequences. The major hypothesis of self-control theory (SCT) is that low self-control leads to criminal conduct. However, it is also claimed that short-term benefits can be received with obedient behavior, and negative consequences can be avoided. In some contributions to the theory it is granted that situational conditions might prevent crime, even if there is low self-control. It is thus not clear what the theory asserts.

The comparison with rational choice theory (RCT) shows that the short-term benefits and long-term negative consequences are very specific kinds of incentives. SCT does not model the extent to which behavioral alternatives are – crime or conformity – are related to the short-term benefits and when it "pays" to ignore long-term negative consequences. Another deficiency of SCT is that, as research shows, important consequences of crime or obedient behavior are not systematically explored. Furthermore, there is comparative research of SCT and RCT that shows that the self-control variable becomes statistically insignificant in multivariate analyses if central rational choice variables are included (Tibbetts and Myers 1999).

Introduction

Self-control theory (SCT) has been first proposed by Michael Gottfredson and Travis Hirschi in their book "A General Theory of Crime" (1990). Since that time the theory has been intensely discussed, and there are numerous empirical studies which test the theory (or single hypotheses of the theory) and compare it with other criminological theories (Britt and Gottfredson 2003; Goode 2008). In general, it seems, that there is substantial empirical support for the theory (Gottfredson 2017: 2; 2018: 353-355; see also the meta-analyses by Pratt and Cullen 2000;

Vazsonyi et al. 2017). A relatively recent exposition of the theory is by Gottfredson (2017). This is the basis of our discussion in this chapter – page numbers in the text refer to this article.

Incidentally, very similar ideas as those proposed by Gottfredson and Hirschi in 1990 are already outlined in Lösel 1975 (for a short summary in English see Lösel 2017). This is an example that only publications in English are taken into account in the social sciences in general.

If one compares the article we focus on in this section (Gottfredson 1017) with other contributions by one of the major authors to the theory (e.g. with Gottfredson 2011, 2013, 2018) it turns out that there are different contradictory versions of the theory. But it is never clarified what version best fits existing research. The article we discuss is thus *one version of the theory*. We will sometimes mention other versions but will not engage in an interpretative effort of finding the "real" SCT. We assume that a recent article in the Oxford Research Encyclopedia of Criminology by on of the major authors is a version of the theory that is worth to discuss.

There are numerous expositions and discussions of the theory in the literature. We would recommend two relatively recent articles that are particularly original and informative: Burt 2015 and Milyavskaya et al. 2019. But the relationship of SCT and RCT is not addressed.

The intuitive theoretical idea of the theory is that people who are not able to restrain themselves (i.e. cannot control themselves) will more likely commit crimes than those with high self-control (SC). This ability to exercise SC is the central variable on which we will concentrate.

The logic of disposition concepts

A burglary can directly be observed. This does not hold for attributes such as "abilities," "inclinations," "propensities," "intelligence," "aggressiveness" or being "antisemitic," "honest" or "criminal." Such properties are also ascribed to communities which may have an "ability" to solve common problems (Sampson and Groves 1989: 777). The "ability" to exercise self-control is thus a disposition. How can the meaning of such concepts be specified in a rigorous way?

Let us take the example of aggressiveness. Assume a person P asserts that another person O is aggressive. Let O ask P: how do you know this? P's answer could be: I have observed you several times in situations in which you had trouble with others. Most of the time, I observed that you insulted them, yelled at them and abruptly ended the conversation. You very rarely discussed issues in a polite way. That is to say, I observed you in several situations S in which you had an argument with people, and I observed your reactions R. If you reacted in a certain way – insult people etc. – I call the behavior (and the person) "aggressive." Such a disposition can be described more precisely in the following way:[1]

(x) [Sx ϒ (Dx] Rx)]

[1] For details see the summary in Hempel 1952: 23-29. There are detailed and technical discussions in philosophy such as Fara 2018 and Malzkorn 2001. The conditional definition of a disposition concept, that the previous statement suggests and that is defended by Malzkorn (2000) fits the present example because it contains conditions (stimuli) and reactions R for ascribing self-control D.

> For all objects x (such as individuals) it holds: if an object x is in situation S (or encounters stimuli S), then the disposition D (i.e. the attribute D) is ascribed if, and only if the person shows the reaction R. "Y" symbolizes an "if ..., then" relationship between statements; "] " is a biconditional relationship of the kind "if, and only if ..., then."

In the aggressiveness example the S are certain behaviors of others and the R the reactions of a person to these behaviors. The S may also consist of questionnaire items; a summary of certain answers may yield the D such as an antisemitic attitude.

Note that the implication "Sx Y ..." implies that if Sx is false (e.g., if no test is administered) there is no R. D can thus not be ascribed. We thus do not know whether the x has the attribute D or not.

The ability of self-control as a disposition concept

We apply these ideas to clarify the meaning of SC, as defined by Gottfredson (2017: 3):

> "Self-control is defined as the ability to forego acts that provide immediate or near-term pleasures, but that also have negative consequences for the actor, and as the ability to act in favor of longer-term interests."

The definition actually refers to *high* SC. The situation S is that there are short term benefits and negative long-term consequences of a behavior B. If B is *not* performed – this is R in this situation, then there is high SC (i.e. D in the previous formula). B means that the actor does not fall prey to the immediate pleasures and long-term negative consequences. In other words:

> *High SC:* (Short-term pleasures and long-term negative consequences of behavior B) Y (HigSC] B is not performed]
> General disposition term: (x) [Sx Y (Dx] Rx)]

We assume that not reacting to long-term negative consequences implies "to act in favor of longer-term interests."

Low SC is "understood as an inclination to focus on the short-term rather than the long-term, on immediate gratification of needs, and on wants and desires (whatever they may be), and not on the longer-term negative consequences of behavior" (3). More formally:

> *Low SC:* (Short-term pleasures and long-term negative consequences of behavior B) Y (LowSC] B is performed]

SC is an *ability*. This means that *S must occur several times*. If one observes a person only once in situation S this does not suffice to ascribe high (or low) SC. One needs several instances of S. How many are necessary in order to ascribe low or high SC is not known.

It seems that for the existence of short- or long-term consequences the ***perception of the actor*** is relevant. If there exist such (short-term or long-term) consequences and the actor does not perceive them, they are not relevant for the behavior of the actor.[2]

Self-control and crime: an explication of the theory

The ***dependent variable,*** crime or delinquency, is defined as "behaviors that provide momentary or immediate satisfactions, but that have subsequent negative consequences" (4). It is argued that most violations of the law fall under this definition, but there are many legal behaviors that are "crimes" according the previous definition. Playing a (legal) game with a high stake (that yields high immediate satisfaction and has negative consequences) may be a "crime" according to this definition. The theoretical fruitfulness of this definition is not clear, and we will not discuss it either. We will assume that the violations of the criminal law that are encompassed by the theory are the subject of the theory.[3]

Although there are – besides SC – other causes of crime in SCT, the ability of self-control is the ***major independent variable***: "As a general cause, it should predict rate differences everywhere, for all crimes, delinquencies and related behaviors, for all times, among all groups and countries" (Gottfredson 2006: 83). This seems to mean that low SC will always have an effect on crime, regardless of which other variables are included in multivariate analyses.

Does low SC really always lead to crime? That is to say, is it true that if there is low self-control there is always crime? Gottfredson and Hirschi (1990: 89) write: "In our view, lack of self-control does not require crime and can be counteracted by situational conditions or other properties of the individual" (ibid.). Again: "People lacking self-control will also tend to pursue immediate pleasures that are ***not*** criminal. They will tend to smoke, drink, use drugs, gamble, have children out of wedlock, and engage in illicit sex"(ibid., 90). In other words: ***if there is low***

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[2] In Gottfredson and Hirschi 1990: 89-90 there is a long description of features of low and high SC. It seems that these are empirical attributes and that it is assumed that one knows what SC means. An explicit definition is found on p. 177. It slightly differs from the one we use. We will not go into an interpretative effort. The important similarity of the earlier work and the article from 2017 is that certain kinds of consequences, mainly short- and long-term consequences (or satisfactions) are included in the definition. In the comparison with RCT (see below) this alone is of importance.

[3] Incidentally, if crime is ***defined*** by short-term benefits and long-term negative consequences, one cannot assert at the same time that these benefits and consequences are among the ***causes*** of crime. This would be an analytically true statement, i.e. a tautology. We will not further go into this problem. The aim of the authors is a behavioral definition that is free of cultural elements (see in particular Gottfredson 2018). This can be achieved by separating the behavior from the behavioral norms. These factors can be modeled as independent variables. See our discussion of the labeling approach in chapter 7.7.

SC, there is crime or no crime. This is a clear tautology (the sentence is always true). If we take this statement seriously we could stop the discussion of SCT at this point.

However, perhaps the authors mean that low SC alone is not (or sometimes not) sufficient for crime. ***Other factors, besides self-control, may influence crime as well.*** In the quotation of the previous paragraph the authors write that crime "can be counteracted by situational conditions or other properties of the individuals." The authors also write: "Crimes require the interaction of an offender with people or their property" (p. 90). Non-criminal behavior requires interaction as well. What the authors seem to mean is that people being "gregarious or social" are "more likely to be involved in criminal acts." But this holds only if "other things being equal" (p. 90). What these "other things" are is not specified. Anyway, it is a misunderstanding, it is argued, that "self-control is the 'sole cause of crime' or that we argue that self-control 'completely explains all crime,' ideas clearly inconsistent with our presentation of the theory" (Gottfredson 2018: 349). In this article (Gottfredson 2018: 357-358) several causes – in addition to self-control – for crime are mentioned such as the existence of targets and opportunities. Here it seems that SCT is another version of RCT (see also Gottfredson 2011). But these references to RCT are not really applied to formulate the theoretical hypotheses of SCT: we do not find a modeling of which consequences are expected for which behavioral alternatives – see below.

But then it is claimed (Gottfredson and Hirschi 1990: 4): "everybody is capable of crime" (see also Gottfredson and Hirschi 2003). Is it, thus, only low self-control that matters? Yes, because "a key causal factor in delinquency and crime is a relative lack of focus on long-term costs associated with behaviors that provide immediate gains, sanctions provided by the juvenile justice and criminal justice system cannot be expected to impact much on the rates of crime and delinquency" (Gottfredson 2011: 94).

It is difficult to agree to this claim that low SC has such an exclusive strong effect. In regard to opportunities, for example, Simpson and Geis (2008: 50) correctly note: "For example, a sharecropping farmer in Alabama would have difficulty engaging in insider trading or in anti-trust violation." We may conclude that it makes sense to include opportunities in the theory (as some statements of Gottfredson also suggest). If this is accepted the question not answered is whether low SC and the other factors have an additive or multiplicative effect.

Another problem is what exactly the other factors – in addition to self-control – are that influence crime. When Gottfredson (2018) extensively deals with a wide RCT one might suppose that RCT can be applied to specify these factors. This is what will be done below. One might thus conclude that our subsequent analysis is nothing more than a more precise formulation of SCT. This theory thus becomes a rational choice model with specific assumptions about existing costs and benefits.

The exposition of SCT especially by Gottfredson is thus confusing. The general assumption in the literature is that low SC leads to crime and high SC to law-abiding behavior (see p. 89). This is what will be assumed in the remainder of this section. As will be seen, this is very problematic from the perspective of RCT. This would coincide with statements by Gottfredson that low SCT is not the only factor that leads to crime, and that low SCT often does not lead to crime.

The theory does not only address the explanation of crime but also ***explains how individuals acquire different degrees of SC.*** There are detailed hypotheses about which events in childhood

bring about more or less SC (for a discussion see Cullen et al. 2008). In general, these authors summarize the major hypothesis in the following way: "By exercising social control, parents create self-control in their children" (ibid.: 61). This then remains stable over the life course. This part of the theory is controversial and we do not discuss it further. We will concentrate on the effects of SC.

SC is a quantitative variable (4), but it is often dichotomized as "low" and "high" SC. Where exactly the cutting points for "low" and "high" SC are is not clear. Henceforth we assume that a meaningful cutting point is given. Perhaps one could re-formulate the theory: the higher the ability of self-control, the lower is the likelihood of crime.

It has been argued that the theory is *circular* (Akers 1991). Assume SC has been measured for a person P. Let the S in the previous formula consist of some measurements of short-term and long-term consequences. If in this situation shoplifting – the R – occurs frequently, then a low self control is ascribed. Why did the person commit shoplifting? Because he or she had low self-control. The measurement thus includes the behavior that is explained. This is an analytically true or tautological argument.[4]

This problem can be avoided in the following way. Assume an individual P‹s SC is measured in the way described. The hypothesis then could be that the individual will likely commit crime in *all* kinds of situations where easy benefits can be obtained and negative long-term consequences are ignored. In a similar way, Meehl (1950) reconstructed the law of effect in learning theory: whether an object (such as a piece of meat) is a reinforcer is measured by presenting it to an organism after the performance of some kind of activity. If the frequency of the activity increases the object is regarded as a reinforcer. The hypothesis is that the object is a reinforcer in all kinds of situations, i.e. the reinforcer is *trans-situational*.

Such a trans-situational hypothesis is also claimed for SC. It is hypothesized that SC is learned early in life. One could thus measure SC in the way described above in early childhood. If individuals have acquired a strong ability of SC in early life, crime is less likely in later life (e.g. Gottfredson 2017: 1). The assumption is that the extent of SC people have acquired is relatively stable. This is not a tautology. SC is measured at a certain period. It is then predicted that those with low SC will commit crime during the life-course.

It seems that the proponents of SCT think it is an *equivalence*: if there is SC, there is crime; but if there is crime there is always SC (see the quotation above from Gottfredson 2006: 83). It is more plausible that SCT is an *implication*: not only SC but other factors may generate crime (see chapter 5 for the meaning of "implication" and "equivalence").

Our conclusion is that SCT is an ambiguous and wrong theory. Nonetheless, we find many studies that indicate that the central variable – self-control – has some effects under unknown conditions on crime. What these conditions are, is not clear. We will analyze what the implications of RCT are in the remainder of this section.

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[4] The disposition sentence is: (x) [Sx Y (Dx] Rx)]; the explanatory statement is (Da Y Ra). This statement means that low SC of the person P leads to R (the crime). Since all partial sentences of the two statements are true, the latter sentence follows from disposition sentence.

Self-control and rational choice theory: *theoretical analysis*

Although SCT is by now an established theory, although there is an entire book that assesses the theory and compares it with other criminological theories (Goode 2008), and although there are meta-analysis (see before), there is so far no detailed comparative discussion of SCT and RCT. Exceptions are the two empirical studies mentioned below (Tibbetts and Myers 1999; Nagin and Paternoster 1993). Nagin and Pogarski (2001) explicate low SK as "impulsivity" which they equate with the timing (celerity) of a sanction. This did not have a significant effect on the measured crime. If this is considered a plausible explication of SCT then it is falsified. It is awkward that none of these studies is cited in the book by Goode (2008).

Modeling self-control with RCT. SCT assumes "that all people seek to pursue common motivations in accordance with their own view of self-interest and to maximize pleasure and avoid pain" (3). In another article Gottfredson (2018: 351) provides a more detailed description of the "reliance of control theory on the classical assumptions of choice and rationality." Here we find a clear outline of the wide version of RCT. Nagin and Paternoster (1993: 472) agree that there is no "fundamental incompatibility" between SCT and RCT. However, Tibbetts and Myers (1999) do not seem to share this view: they compare the effects of "rational choice variables" with the self-control variable. Apparently, SCT and RCT are assumed to be incompatible.

Whoever is right, SCT is far from being a rigorous application of RCT. What exactly the behavioral consequences, their utilities and subjective probabilities are, and how they differ for different behavioral alternatives (certain kinds of crime and of obedient behavior) is unclear and needs to be clarified.

The concept of SC includes two kinds of behavioral consequences: short-term easy benefits (consequences with a positive utility) and long-term negative consequences (with a negative utility). According to RCT, if ***short-term easy benefits*** are conducive to crime they should have a relatively high subjective probability if ***crime*** is committed and a low subjective probability if ***conformity*** is chosen. This is a major difference between RCT and SCT: RCT claims that short-term benefits and long-term negative consequences do not per se cause crime (or conformity). It depends on the perceived behavioral alternatives that are regarded as instrumental to reach these goals (positive or negative utilities).

If, as SCT assumes, criminals ignore ***long-term negative consequences***, their subjective probability for the behavioral alternative ***crime*** is relatively low. A further assumption is that those negative consequences deter individuals from committing crimes if they would be considered. They thus have a high negative utility.

We model these theoretical considerations with value expectancy theory (VET – see chapter 4). Let us first look at ***equation (1)*** below. The behavioral alternative is some kind of crime c. Probabilities p and utilities U with high values are printed in bold, those with low values in italics. The SEU for a particular crime c consists of the sum of the terms on the right-hand side of the equation. Crime will thus have a high SEU, if immediate easy short-term benefits are highly likely, if they have a high positive utility and if long-term negative consequences have a low subjective probability and a high negative utility. If they are, according to SCT ignored, their

value is zero (the respective expression is struck out). We could also assume that their probability is not zero but very low, so that they are largely irrelevant for the value of SEU(Crime$_c$).

(1) SEU(Crime$_c$) = $\mathbf{p_{ci}}$ C **U**(Immediate easy benefits of crime) + p_{cn} C ~~-**U**(Negative consequences of crime)~~
(2) SEU(No crime$_n$) = p_{ni} C **U**(Immediate easy benefits of crime) + p_{nn} C ~~-**U**(Negative consequences of crime)~~.
Bold p's and U's mean high values, *italics* low values (close to zero), p and -U struck out symbolize zero values.

SCT claims that the situation described in equation (1) leads to crime. This hypothesis *is incompatible with RCT*. The constellation of incentives of equation (1) will only lead to *crime, if the SEU for crime is higher than the SEU for conformity.* Again, RCT considers, in contrast to SCT, the behavioral alternatives that lead (in the perception of the actor) to those consequences. We thus need to formulate another equation (2). Crime will only be chosen if the SEU for any kind of non-criminal behavior n is lower than the SEU for crime. We have formulated equation (2) so that this condition is fulfilled: the person will get immediate easy benefits more likely when he or she commits a crime – the other consequences are irrelevant because they have the same product value for both SEU values.

The implicit assumption of SCT could be that the situation described in those two equations is an empirical regularity: it usually happens that only crime leads to the easy benefits. However, as the authors mention before, easy benefits could be received with a much higher subjective probability if conformity is chosen. "Excitement," "thrill" etc. could be easily received by choosing conformity (see the examples mentioned before). The equations might thus read:

(1a) SEU(Crime$_c$) = p_{ci} C **U**(Immediate easy benefits of crime)
(2a) SEU(No crime$_n$) = $\mathbf{p_{ni}}$ C **U**(Immediate easy benefits of crime)

Thus, simply *the fact that individuals get easy benefits through crime and ignore long-term negative consequences does not imply that crime is chosen.* RCT implies that the respective consequences for conforming behavior must be considered. The behavioral alternatives open to an actor to achieve his or her goals are neglected in SCT. This is an important modification of SCT, from the perspective of RCT.

However, it might happen that *individuals perceive crime as the only behavioral alternative.* They act then spontaneously in a situation. This might be called "impulsive" behavior. That is to say, as dual-process theories suggest, that there are situations in which certain environmental cues elicit a certain set of incentives and crime as a choice. The person thus does not deliberate.

The activation of such a behavioral program can be explained in the following way. It might have happened that at some time people explicitly chose crime over conformity because the SEU for crime was a little higher than for conformity. This behavior has than been chosen repeatedly in certain situations because it always yielded the expected rewards after the first repetition. Over time, then, only the incentives for crime (with crime as the behavioral alternative) are activated in certain situations, and conformity is not considered. The "easy benefits" are only associated with

crime. As was said before, in everyday language this behavior can be described as *impulsive*. But this description of the origin of spontaneous crime is only one mechanism (i.e. process) which can be described as trial-and-error learning. Another mechanism is imitation: one observes successful crime of another person and assumes that this will be successful if it is imitated. The crime is then chosen in a certain situation and repeated spontaneously until the situations changes. Again, this is a set of conditions which RCT implies and which cannot be found in Gottfredson and Hirschi's work.

Neglected costs and benefits in self-control theory. The authors assume that people act to pursue their goals and "maximize pleasure and avoid pain" (3). This suggests that adding other costs and benefits is compatible with SCT (see also Gottfredson 2018), but they are not systematically analyzed. RCT theory and research suggest that there might be many other costs and benefits of crime and conformity that should be incorporated in the equations above. Two studies that compare empirically SCT and RCT (Nagin and Paternoster 1993; Tibbetts and Myers 1999) measure some of those costs and benefits. ++

For example, there might be *long-term negative as well as positive consequences for conformity* (and not for crime). A person has peers with whom he or she enjoys easy immedate benefits through conformity, and the person might perceive positive long-term consequences of conformity for various activities such as participation in voluntary associations or getting to know people who are helpful for finding a better job . The following equation (2b) might expand equation (2):

(2b) SEU (No crime$_n$) = **p** ℂ **U**(Immediate easy benefits of *crime*) + **p** ℂ **U**(Immediate easy benefits of *conformity*) + **p** ℂ **U**(Positive consequences of *conformity*)

(We omit the subscripts for the sake of simplicity). Conformity might thus yield the same easy benefits as crime but, in addition, new easy benefits. There might be numerous other positive consequences of conformity such a good conscience or encouragement (social rewards) from important others. It is a serious shortcoming of SCT that a systematic and theoretically based discussion of other factors is missing. Let us repeat (for details see chapter 4) that these positive and negative consequences must be determined empirically. Existing research is a fruitful heuristic basis for finding such incentives.

We have described mechanisms that led to a restricted perception of behavioral alternatives. If *only crime* is perceived another effect could be a *misperception of incentives*. Spontaneous behaviors will occur in different situations in which incentives will differ. For example, the person performing a spontaneous pickpocket might not perceive that friends of the victim are present and apprehend him or her. It is unlikely that a deliberate behavior would have led to this biased perception. The person would have monitored the situation. Such hypotheses could be formulated by applying dual-process theories (such as the MODE model, see chapter 4). In this context it is important that this example again shows that hypotheses from dual-process theories supplement RCT and do not contradict it.

How stable is an acquired self-control? SCT claims that SC is learned in childhood and remains largely stable over the life course (6). Social psychologists have indeed found for specific cognitions such as political attitudes that they are relatively stable over the life course (see the impressionable-years proposition, Alwin and McCammon 2004). However, research on habits and the formation of routines (e.g. Betsch et al. 2002) suggests that behavior is not immune against new consequences. To illustrate, a person might first act and expect easy short-term consequences and ignore long-term negative consequences for some time; but then surveillance technology changes and the spontaneous shoplifting learned from past experiences is detected and various negative consequences ensue. Shoplifting will be given up. Habits (such as acting always on short-term easy benefits) remain stable until new costs and benefits emerge and new behaviors become more attractive. For example, the literature shows a simple example: "students who have been caught are expected to learn from such experiences and to report lower intentions of cheating" (Tibbetts and Myers 1999: 182). Due to such findings it does not seem meaningful to assume a principal long-term stability for incentives. It seems preferable the explore the conditions under which stability is to be expected.

When confirmed theories are wrong: an example for a comparative test of rational choice theory and self-control theory

The research that supports SCT seems to be overwhelming (e.g. Gottfredson 2017, 2018). It seems, thus, that a critique does not make any sense. However, Pratt and Cooper (2009) show that there are falsifications of SCT. Tibbetts and Myers (1999) who are critical of SCT find the empirical support of SCT "impressive" (p. 181), although they add that "many empirical findings do not fully confirm all of the theory's contentions" (p. 181, with further references). But let us assume the overwhelming number of tests of SCT confirms the theory.

RCT might nonetheless be superior. As we know from the philosophy of science, a test of a single theory may confirm the theory; but a comparison with another theory may show that the other theory is superior. This is exactly what Tibbets and Myers (1999) show for SCT and RCT: a comparison of RCT and SCT reveals that *relationships of self-control and crime are explained by rational choice variables.* Incidentally, this research is not mentioned in Gottfredson 2017 (the article this section is based upon) and not in Gottfredson 2006 and 2018 either.

Tibbetts and Myers explain student test cheating. SC is measured with the scale by Grasmick et al. (1993) which is frequently applied to measure SC. This scale does not ascertain the actual ability of self-control of the respondents, that the theory is about. The scale consists of numerous self-descriptions. For example, items respondents could more or less agree to are "I often act on the spur of the moment without stopping to think" or "If things I do upset people, it's their problem not mine." It is not clear how these items are related to SCT, and whether other measures are superior (for the problems of measuring SC see Piquero 2008). For a comparison with RCT a problem is that it is not clear which incentives exactly are measured and how the self-description are related to crime and conformity.

Tibbetts and Myers further measure several variables from a wide rational choice theory: anticipated shame, perceived pleasure of a behavior, morals, and perceived formal and informal

sanctions. Caught for cheating on previous exams is measured as well. Five control variables were included such as friends‹ cheating behavior and past test cheating. In the multivariate analyses (Table 3, p. 191) a model with low SC only had a clear significant effect on cheating (standardized Beta =.32): that is to say, if low SC is high, intent to cheat is strong. However, including consecutively one of the other factors reduced the effects of low SC considerably. If the variable shame is included with low SC (Table 3, equation 4, p. 191), ***low SC had no significant effect anymore,*** whereas shame had a Beta of -.518. This means that high shame brought about a low intention to cheat.

The most ***devastating finding for SCT*** is the multivariate analysis of the full model with all variables (low SC, the rational choice and the control variables): ***low SC had no longer any statistically significant effect*** (the t-value was .644 – see Table 3, p. 193). The R^2 of .56 is a very high value for surveys. There may be limitations of the study which the authors discuss. But such a clear falsification of SCT casts strong doubts on its validity.

Another comparative test of SCT and rational choice variables was provided by Nagin and Paternoster (1993). In contrast to the previous study, a lack of self-control kept significant effects when rational choice variables were included. Unfortunately, the authors do not show how the SC coefficients changed if rational choice variables are added. However, as is described in the text, low SC correlates with rational choice variables. For example: "Persons low in self-control perceive the rewards of crime as more valuable and the costs of crime as less aversive, are less likely to feel the 'pangs of conscience,' and are more likely to report that they would commit crimes than those with more self-control" (484). One can thus strongly suspect that at least part of the effects of low SC can be explained by rational choice variables.

We conclude that these findings cast strong doubt on the validity of SCT. The reported findings should be used as examples for comparative research that tests criminological theories and RCT.

General conclusion: What is missing in self-control and rational choice theory

From the perspective of RCT, SCT has several serious flaws. (1) One deficiency is that low or high SC for different ***kinds*** of deviance and conformity is not explored. Thus, the instrumentality of deviant or obedient behavior for short-term or long-term costs and benefits is ignored. (2) From the perspective of RCT, a detailed specification of incentives, besides SC, that are conducive to crime, is missing. Research shows that, besides low SC, other incentives are relevant. These have to be specified. (3) It seems that much behavior for which low SC is instrumental, is spontaneous. People act to get short-tem benefits without deliberating. What are the processes in which such modes of behavior come about? Recent work on dual-process theories (see chapter 4) could be applied. (4) Crimes without short-term benefits such as white collar crime are not addressed. They seem to be clear falsifications of SCT. But more research is needed to explore whether perhaps low SC has interaction effects with certain incentives. (5) In regard to the informative content of SCT, there is too little discussion of the ***kinds*** of crime or non-criminal behavior that is brought about be low SC. (6) It would be interesting to find out for different behavioral alternatives – deviant as well as conforming –, whether certain costs and

benefits such as quick pleasures are typically related to deviance. This would be an interesting empirical regularity that could explain effects of low SC on crime.

Summary and conclusions

The first problem of self-control theory (SCT) is the concept of "ability of self-control" (SC). "Ability" to perform some action (such as being a good goal keeper) is a disposition concept. Such concepts are measured by observing a behavior (keeping or not keeping goals) and ascribing the attribute (being a "good" goalkeeper) if certain kinds of actions are performed (keeping goals relatively often). Although "ability" of SC refers to actual behavior (to control oneself) this is not measured.

Low SC is instead defined as being concerned with easy short-term benefits and ignoring long-term negative consequences. The theory claims: low SC leads to crime. However, the authors recognize that the respective criminal acts can be counteracted by situational stimuli. What these are, is not specified. It is further granted that the easy benefits can be received by conformity as well, and that negative consequences can be avoided as well.

How is SCT related to RCT? The former mentions two kinds of behavioral consequences: short-term benefits and long-term negative consequences. Applying value expectancy theory (VET, see chapter 4) implies that the overall utility (SEU – subjective expected utility) for crime is high if short-term benefits have a high positive utility and a high subjective probability and if negative consequences have a probability of zero. This, then, makes crime highly likely. ***These propositions are incompatible with RCT.*** Only if the SEU for conformity is in general lower than the SEU for crime then crime will ensue. The major weakness of SCT is that the instrumentality of crime (and conformity) for getting short term benefits and ignoring negative consequences is not considered. Furthermore, other possible incentives are ignored. For example, conformity could have long-term positive consequences. A weakness of SCT thus is that a detailed specification of the relevant kinds of behavioral consequences, their utilities and subjective probabilities for crime and conformity is missing. Another problem of SCT is that we do not find hypotheses about the behavioral alternatives perceived by actors. If people place a high utility on short-term benefits, it is of utmost importance to ascertain what the perceived behavioral alternatives are which are instrumental for receiving those benefits. Finally, crimes such as white collar crime where short-term benefits and the neglect of long-term consequences are difficult to imagine, are not systematically addressed.

Gotttfredson (2017) emphasizes the overwhelming confirmation of SCT. The problem with this allegation that this can only be asserted if it is compared with variables of RCT. It is possible that the effects of low SC can be explained by rational choice variables. Exactly this shows research by Tibbets and Myers (1999). They compare the effects of low SC with several rational choice variables. In the multivariate model the effect of low SC even disappears.

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Chapter 7.7

7. Some propositions of the labeling approach

Contents

Abstract. The labeling approach (LA) focuses on the processes of becoming deviant, including law making and reactions to deviance (such as labeling people as outsiders). It is shown that exploring these processes does not in any way thwart traditional explanations of crime. They explain acts. Rules that are violated are taken as independent variables. This implies that such explanations do not assume that crime is a "quality of the act" (Becker 1963: 8). We reconstruct a sequential model of a criminal career (Figure 7.7.1) which sketches only an extreme case and omits important variables. As a contrasting case we describe large-scale coffee smuggling from Belgium to Germany after World War II that was against the law, in which a large part of the Germany population was involved and in which "positive labeling" occurred. We specify conditions when this happen. We finally apply the social psychological balance theory to formulate some hypotheses specifying when a "deviant identity" is accepted.

Introduction

The theoretical ideas of the labeling approach (LA) seemed to require profound changes in the traditional explanations of crime. It is thus a particular challenge to compare basic hypotheses of the LA with rational choice theory (RCT). This has rarely been done so far (see, e.g., Opp 1989).

The most influential author is Howard S. Becker (1963). He suggests to focus much more than before on societal reactions which label people as deviant, criminal etc. These reactions are, it is claimed, a major cause of criminal or deviant behavior. Although this idea has become popular in the sixties and seventies, it is much older (Tannenbaum 1938; Cooley 1926; Kitsuse 1962; Lemert 1951; Mead 1934). Meanwhile many hypotheses of the LA are refined and empirically tested (for reviews see Maddan and Marshall 2009; Triplett and Upton 2016). Nonetheless, there is wide agreement that traditional criminological work that looks for the conditions of crime is still meaningful.

The LA has one feature in common with the theories discussed before: there is no succinct axiomatic theory with a few clear propositions. The LA is instead a collection of numerous very heterogeneous hypotheses – sometimes ambiguous, sometimes not very

informative, and sometimes only valid for very special situations. Madden and Marshall (2009: 256) call it a "fragmented tapestry."

We do not intend reconstruct the "fragmented tapestry." Instead, we concentrate on some basic propositions that can be already found in Becker's classical book "Outsiders" (1963).

The process of becoming deviant and the new definition of "deviance"

Becker (1963 – page numbers in the text refer to this book) starts with the description of the processes of rule making, rule breaking and rule enforcement. A major hypothesis is that a behavior is not "inherently deviant" (3). It is rather "defined" or "labeled" as deviant. When a rule is enforced, "the person who is supposed to have broken it may be seen as a special kind of person, one who cannot be trusted to live by the rules agreed on by the group. He is regarded as an outsider" (1), i.e. as standing outside the group of "normal" group members (15). Individuals may be more or less outside the group (3). A person who causes an accident is less outside than a murderer (3).

The reactions toward an outsider may be that friends break up or reduce interactions or that the rule breaker does not find a job. Reactions differ for different rules such as breaking traffic rules or rape. Sometimes norm violation lead to positive reactions. This is illustrated by the example of the coffee smuggling below. Let us call the different reactions ***sanctions*** (which include positive or negative reactions).

The person who has been sanctioned will react in different ways. He or she may accept the sanctioning (and the rule as well) as just or may reject it. Other reactions may be seeking different friends – in the extreme case friends who have also been labeled – or moving to a different neighborhood.

The labeling process seems to be inconsistent with traditional criminology. All the theories discussed in this chapter 7 assume that factors in the personalities and life situations of individuals explain crime. This approach, Becker argues, ignores "the central fact about deviance" (8):

> "*social groups create deviance by making the rules whose infraction constitutes deviance*, and by applying those rules to particular people and labeling them as outsiders ... Deviance is ***not*** a quality of the act the person commits, but rather a consequence of the application by others of rules and sanctions to an 'offender.' The deviant is one to whom that label has successfully been applied; deviant behavior is behavior that people so label" (9, italics in the original).

This statement shows severe inaccuracies.[1] The first problem is the meaning of the term ***create***. Normally, this concept refers to a causal relationship as in the statement "person P creates a piece of art." In this sense, however, making rules does not ***create***, i.e., bring about deviance. The existence of rules does, obviously, not have the effect that people violate them. There may be rules that nobody takes notice of or rules that all people comply to. If "create" means "bring about" or "has a causal effect," then the groups "create" the rules but not the deviance. What could be meant with "create" is that, given a rule (that is made), non-

[1] It is therefore difficult to understand that it is sometimes considered the or a central statement of the LA.

compliance is, *by definition*, deviance. The unclear term "constitutes" suggests this explication.

The next part of the statement – beginning with "and by applying those rules" – seems to add other definitional criteria for "deviance": it is given if rules are applied and if people are labeled as outsiders. All this makes sense only if a definition of deviance is referred to:

> *Definition*: If social groups make rules ***and*** if the rules are applied to individuals, ***and*** if individuals to whom the rules are applied are labeled as outsiders, then those individuals and their actions are defined as ***deviant***.

The second part of the quotation (beginning with "From this point of view, deviance is not...") elaborates the logical consequences of the definition. Deviance is, by definition, given if three characteristics exist: a rule, the application of the rule, and labeling. This implies logically that deviance "is ***not*** a quality of the act the person commits, but rather a consequence of the application by others of rules and sanctions to an 'offender'" (see the quotation above). The definition implies that an act can be called "deviant" only if the three definitional criteria are given. This implies that an act changes the "quality" of being defined as deviant if, for example, the rules change or if they are no longer applied. Indeed, that "deviance is not a quality of the act a person commits" is a logical consequence of the definition.

Note that the ***actual violation of a rule*** is not part of the definition. A person may thus being a deviant without having violated a rule.

Becker thus proposes a new definition of deviance. The question he does not raise is why "deviance" is defined in this way. Isn't it sufficient when we know that there are rules, that they are applied, that people are labeled deviant and that this may have negative consequences for those labeled? Describing and explaining this process does definitely not require such a complicated definition. The definition has further all the disadvantages of a ***complex definition*** (see chapter 2, "Some basics of concept formation").

The alleged problems of explaining crime in traditional criminology

Why does the labeling process described before should cause problems for the traditional explanation of crime? The separation of act and rule is actually taken into account when crime (in the sense of rule violations) is explained. For example, assume we explain the decrease of burglaries in a community; let this be due to higher investments of the residents in security equipment; let this raise the costs for the criminals to break into houses; the consequence is a reduction of burglaries. This is a traditional explanation of crime. What is wrong with this explanation, from the perspective of the LA?

It explains, first of all, an ***action*** – breaking into houses and take possession of goods. When "burglaries" are explained, it is assumed that they break rules. These rules can be taken into account as a separate independent variable. For example, expected sanctioning or shame if violating a rule are typical independent variables in criminological research. These are consequences the rule violator might expect. These include expected negative or perhaps positive reactions from important others. In addition, the burglar's rule acceptance or rejection and his or her view about the sanctions would be measured as independent variables. Thus, traditional criminological research has acts as factors that are to be explained; existing rules

that forbid the actions and variables related to these rules such as negative formal sanctions and other reactions (such as stigmatization) are the independent variables. If rules change, the independent variables change.

These arguments do thus definitely not discredit the normal work of criminologists who explain rule violation. What one can learn from the labeling approach is to pay more attention than before to social reactions. They can be included as perceived consequences of behavior.

A sequential model of deviance

A major innovation of the labeling approach is the exploration of the process of becoming deviant. "The first step in most deviant careers is the commission of a non-conforming act" (25). Before the further career is explored Becker asks how one can account for the first step (25). It is not the motivation for crime that most people have. Everybody experiences some criminal "impulses" (26). Those who do not yield to those impulses have developed a relatively strong "commitment" (27). This means that individuals are strongly involved in conventional norms and institutions. The effect is that the normal person suppresses criminal impulses. However, there may be situations where a criminal act seems justified, from the perspective of the actor. The act is then performed, but this is rather an exception. However, there are cases in which a person "manages to avoid the impact of conventional commitments" (28). "In some cases a nonconforming act may appear necessary or expedient" (29). The question is how such deviance is sustained. Becker describes "one of the mechanisms": "deviant motives and interests" are learned in the "interaction with more experienced deviants" (30). This leads to new pleasurable experiences and new deviance.

All of a sudden Becker turns to a description of criminal careers: one of the "most crucial steps in the process of building a stable pattern of deviant behavior is likely to be the experience of being caught and publicly labeled as a deviant" (31). This generates further crime.

We reconstruct the causal process Becker describes in the following way – see Figure 7.7.1.[2] If those with a high commitment to conventional institutions encounter justifications of violence some norm violation is committed. This leads to interactions with experienced deviants. In this process pleasurable consequences of deviance occurs. This leads to more deviance. The "most crucial step" of being caught and publicly labeled becomes likely. The deviance is thus publicly known.

This step has important consequences "for one's future participation and self-image" (32). The person becomes a different person labeled as "nut, lunatic" etc. and treated accordingly (32). People believe, for example, that the offender will continue to commit crimes. The deviant is further "cut off ... from participation in more conventional groups" (34). The deviant "must of necessity develop illegitimate routines" (35). Becker illustrates this with the homosexual. He notes, however, that "obviously" being caught does not move "inevitably" into a criminal career (36). First-time offenders, for example, will often be "welcomed back into the conventional community" (37).

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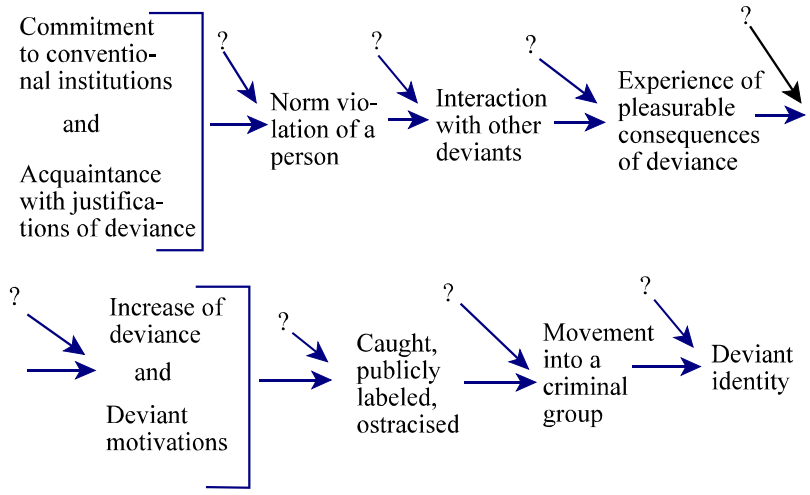
[2] Becker's model is not clear. There are thus several possibilities of reconstructing it. See, e.g., Paternoster and Iovanni 1989: 377.

Figure 7.7.1: Howard S. Becker's sequential model of a criminal career (Becker 1963)



Becker does not develop a detailed theoretical model that specifies under what condition being caught, labeled etc. lead or do not lead to further crime. But, one may assume, if the conditions for getting back to the conventional world are not given, the "final step in the career of a deviant is movement into an organized group" (37). Becker mentions that this "solidifies a deviant identity" (38).

The model in Figure 7.7.1 is problematic because most of the effects are caused by a single variable. The arrows with question marks symbolize that other conditions must be added to the model. It is further problematic that each variable has only an effect on the next variable in the causal chain. Becker's text suggests that this process is only an extreme example. Whether the next step at some point in the sequence occurs depends on additional conditions. What these conditions are is not specified in a general way but only illustrated with examples.

When "positive labeling" occurs: the example of coffee smuggling from Belgium to Germany after World War II

Becker's sequential model describes a process that will probably rarely be found in reality: it starts with a strong commitment to traditional norms and institutions; then, all of a sudden, some people break the law; the end is the adoption of a permanent criminal life style. Becker himself emphasizes that this happens only under certain conditions. But what these conditions exactly are is not specified. Becker uses as an illustration the effects of the labeling of homosexuals and of Marihuana users. On the other hand, he mentions cases where no labeling occurs or where labeling has occurred and people return into normal life.

If there are so many different processes it seems useful to model specific kinds of crimes or situations and look for the conditions under which a criminal career occurs or does not occur. One could, for example, formulate separate models for homosexuals and drug addicts, professional thieves etc. One could, for example, try to construct a sequential model, based on a qualitative long-term detailed biographical study such as Steffensmeier and Ulmer (2005).

Sam Goodman in the "Confessions of a Dying Thief" exemplifies hypotheses by Becker, but also shows that involvement in normal life is part of the "criminal career." This book could be used as a heuristic device to formulate a sequential model with the conditions for a "mixed" criminal and law-abiding life course.

An interesting contrasting case would be one in which there is large-scale norm violation of normal citizens and of organized groups, there is sanctioning and labeling, but none of the processes the LA focuses on occurs. There is such a case, namely the *coffee front*: large-scale smuggling of coffee by Germans from Belgium to Germany after World War II, especially from 1948 to 1953.[3] Such a case is instructive because it can be used to find conditions for the contrasting case in which law violations actually bring about a criminal career.

Let us describe this case in more detail. Germans regularly drink coffee and want to pay a low price. After WWII coffee was expensive in Germany because taxes were high. In the adjacent Belgium, a kilo coffee cost 8 Deutschmark and could be sold in Germany for 16 Deutschmark. But when bringing coffee from Belgium to Germany customs had to be paid. Not declaring coffee and being caught was punished. Smuggling was profitable: a smuggler could earn per week what a customs officer earned in a month. For Germans who lived close to the Belgian border smuggling was attractive. It was most common for those who lived close to the Belgian border. One of these villages was Mützenich. In 1952 a big lawsuit took place. The prosecution said that almost all young male adults in this village participated in the smuggling. But only 16 of the 1350 citizens were arrested and finally 53 persons charged (Trees 2002: 317, 327). Citizens and the organized groups developed ingenious tricks to avoid being caught. For example, they hid coffee at their body, in baby strollers, and smuggled when participating in Christian processions across the border because then they were not controlled. Organized groups hid coffee in hearses, in fuel tanks and tires. Professional smugglers used tanks that were stolen from the military). Information about these tricks used to dope the customs personnel was communicated.

Being caught and punished occurred only for a small percentage of those who smuggled for private purposes. For organized smuggling risk was higher. There were sometimes severe fights between criminal groups with tanks and customs personnel and people were killed. But on the whole, only a relatively small percentage of smugglers were caught.

In 1953 the German government lowered coffee taxes to a degree that it was no longer worth the effort to smuggle. Smuggling came almost to an end. But the law to declare coffee when crossing the border was still in effect. After the foundation of the EU in 1993, "smuggling" did no longer exist: borders between Germany and Belgium were open. One could bring tons of coffee to Germany without any interference by customs personnel.

The sequential model and coffee smuggling: a rational choice perspective

We formulate a sequential model for this case which we compare with Becker's model. We ask to what extent the conditions of the process outlined in Figure 7.7.1 were given and to what extent RCT could be applied to formulate a sequential model that is more specific than

[3] For more detailed information in English submit in Google: "mützenich coffee front world war two." One will find a document in English that describes the case. In German see the detailed account in Trees 2002.

the model discussed before. The aim is not to propose a full-fledged model but rather to show how RCT could be applied to formulate such models.

Explaining lawmaking and norm violation. Becker's account of the process of norm violation, labeling and its consequences begins with the creation of norms. Processes of lawmaking are extensively dealt with in public choice theory (e.g. Mueller 2003). Compared to this literature Becker's account about power and power differentials is not the state of the arts. There are much more specific models about lawmaking in the public choice literature. We will not go into this literature but focus on the more direct determinants of crime.

In regard to the principal problems of explaining crime with a traditional criminological perspective, the example of coffee smuggling illustrates that the problems of traditional criminology Becker outlines actually don't exist. First there are rules that are made by German (and Belgian) lawmakers such as tax laws and laws about tariffs. One could ask why these rules originated. We will not discuss this question here. Then there are behaviors: bringing coffee from Belgium to Germany. Furthermore, the rules by the German state require declaring the coffee. "Smuggling" means bringing coffee across the border without declaring it – given the rules mentioned before. The enforcement is an independent variable of explaining action. The labeling is another separate phenomenon, and the consequences of labeling as well. This will be shown below. All these factors can be included in an explanation of deviance without any principal problem. Let us now dissect the process described in Figure 7.7.1 for the coffee smuggling, from the perspective of RCT.

Research, based on RCT, has identified numerous kinds of costs and benefits that might be relevant for norm violation (e.g. Matsueda et al. 2006; Tibbetts and Meyers 1999). "Commitment to conventional institutions" might mean internalization of norms of obedient behavior, expected social rewards from important others, high expected costs of engaging in any illegal activity. Just an encounter with some justifications of deviance will, according to RCT, not suffice for norm violation.

To smuggle coffee yielded, first of all, a strong material utility: one could get coffee much cheaper than buying it in Germany. This is a clear positive incentive – if the smuggling was successful. But this was highly likely because the probability of getting caught was relatively low, and the punishment for a first detection was low as well. If one lived close to the Belgian border, smuggling did not require much time so that only few resources were needed.

The private smuggler did apparently not violate an internalized norm and does not have a bad conscience: people did not accept some moral imperative to pay coffee taxes or refrain from smuggling. The pastor of a small village – Schmidt – where almost everybody was involved in smuggling was asked whether he had ever med somebody who told him he or she had pangs of conscience because of smuggling. The pastor answered: "No, of course not. But if somebody had come and had told me this I had declared him crazy" (Trees 2002: 354, all translations from German into English by KDO).

Furthermore, bringing coffee home yielded strong social rewards: one has done a good deed for the family. Telling friends about successful smuggling yielded additional status. People were proud when they outwitted custom officers. There was thus no negative consequence of norm violation, let alone "labeling" and ostracism (see below).

Interactions with other deviants. In Becker's sequential model of norm violation leads to interaction with other deviants. From a rational choice perspective, this could happen if the norm violation led to incentives to meet with other deviants. But there are different kinds of

norm violations for which the incentives to meet other norm violators are different. It is unlikely, for example, that shoplifting and murder will lead to interaction with other deviants.

In regard to coffee smuggling, almost everyone was a deviant or knew one. Interaction might have increased because people exchanged their experiences with the customs personnel and to what extent their tricks to smuggle were successful. In Becker's model, the person who had previously contact with non-deviants came in contact with deviants after having committed the crime. This did not happen to coffee smugglers Smuggling was an accepted behavior of everyday life. Even organized smuggling did not lead to contacts with other "real" deviants. Only contacts with other smugglers might have increased.

Experience of pleasurable consequences. If crime is committed the subjective expected utility (SEU) is higher for crime than for conformity. RCT and value expectancy theory (VET, see chapter 4) thus imply that a successful crime (with a high SEU for crime) has in general relatively strong pleasurable consequences (i.e. a higher overall utility). This was certainly the case of the overwhelming majority of smugglers.

The increase of deviance and deviant motivations. Those pleasurable consequences, Becker's sequential model holds, lead to more deviance. If the private coffee smuggling was successful it might have increased to a certain point. Perhaps some private smugglers expected good returns by becoming professionals. But it is plausible that private households needed a certain amount of coffee to satisfy their needs. Perhaps one will bring coffee for neighbors and friends. However, there will most of the time be some threshold. At some point additional private smuggling will be too costly..

In the Becker model the pleasurable consequences lead to deviant motivations. It is not clear what this means. Perhaps Becker has a *generalization effect* in mind: once a norm is broken other norms of law-abiding behavior are attenuated; this increases deviance and further attenuates acceptance of norms to follow the law. In the present example the law violations were not really regarded as violations of accepted norms but largely considered justified. It is hardly plausible that a repeated behavior that actually is considered legitimate attenuates other norms to follow the law.

Being caught and publicly labeled. A hypothesis of the LA is that there is selective sanctioning: certain groups such as minorities are more likely to be sanctioned than others. Selective sanctioning can be explained from a rational choice perspective. The enforcers are actors who behave, as other actors, according to their preferences and beliefs. They might be motivated to detect as many smugglers as possible in order to be promoted. They may have certain beliefs about who commits certain crimes most likely. They may further find it rewarding to sanction certain kinds of people.

In the coffee smuggling example, the custom officers could concentrate on organized smuggling. Perhaps this led to a relatively high detection rate (which might have been conducive to promotion). The consequence could have been that private smuggling went largely unpunished. It is not known whether the customs officers controlled more frequently certain kinds of people. Maybe men were more frequently controlled that women or younger people more frequently that older people. But we can assume that priests are less likely controlled at the border than others. These are speculations. There are no data about selective sanctioning.

But wouldn't one assume that at least the prosecutors and judges in criminal trials strongly disapprove the smuggling and label the perpetrators? In the Mützenich trial one of the prosecutors said: "These defendants from Mützenich are not criminals" and the judge agreed: "Most of these young people are honest and decent men" (Trees 2002: 332). This was rather positive labeling. In the small village "Schmidt" it was rather an exception if someone did not smuggle. There was certainly no negative labeling. This seemed the more implausible because smugglers paid the reconstruction of the local church, with approval of the pastor (Trees 2002: 348-354).

Explaining stigmatization. The process of labeling includes ***sanctions*** in a wide sense. There is meanwhile a large literature about the conditions that lead to more or less sanctioning in the rational choice literature. We only mention the work on deterrence (e.g. Pratt et al. 2006) and on informal sanctioning (e.g. Keuschnigg and Wolbring 2015; Balafoutas and Nikiforakis 2012; in general see in particular the work of Heckathorn such as 1990. This work is highly significant for the labeling approach.)

Because sanctioning is a behavior RCT can be applied to explain it. Assume that a negative label (such as a prison sentence for drug dealing) has been assigned to a person L (the labeled person) by a court. Another person P who perceives this label has several options. One is to do nothing. P may further break up or reduce contacts with L, spread gossip about L. If P is an employer and L applies for a position P may reject the application.

These examples indicate that the kind of options very much depend on P's position and on L's relationship to P. For example, P might be the father of L; P might know L because he or she is in the same sports club. L might be a patient of P. L might be a student and P might be the supervisor of L's Masters thesis etc.

Furthermore, there may be numerous kinds of norm violations: tax evasion, customs offence (L might have not declared some antiquity to the customs), burglary, cheating at exams, plagiarism of a scientist etc.

The behavioral consequences of those different behavioral options differ greatly. The professor or teacher who reports cheating of a student during a written exam will perceive other behavioral consequences than a father who takes away his sons driver license because he has been arrested for drunk driving.

What could be the procedure to formulate informative propositions about the effects of certain assessments of on sanctions? The way out of these almost infinite number of situations is to choose a viable explanatory problem, formulate propositions about specific kinds of rule violations such as tax evasion or cheating during written exams. For a given rule violation the behavioral options and consequences are probable more similar so that specific models can be formulated.

One such case is our example of coffee smuggling. Assume it is known that somebody is a smuggler – he or she has thus the label "smuggler." How does another person P react? There were no negative reactions toward smugglers. To be sure, the label "smuggler" was assigned, people called themselves "smuggler." But in the specific situation this was a ***positive label***: a person who has successfully smuggled coffee without being caught gained status. Labeling has thus positive effects. If somebody is caught and this is known, this is not a considered a stigma. On the contrary, the person ***provokes pity***. He or she did a good thing, but had simply bad luck. Organized smugglers who were regularly successful and not caught were ***heros***. This suggests that rule violations have the effects, the LA concentrates on, only if the rules that are violated are strongly endorsed. The stronger these rules are internalized the more likely will be

the negative reactions toward the norm breaker. Other conditions are the relationship of L to P. The question is the extent to which reactions of P are costly to P.

The coffee smuggling is certainly not a single case. Similar cases are exceeding the speed limit or having made mistakes in tax declarations. These are not severe rule violations. Labeling will thus be largely absent. These are explanation sketches. Detailed models are needed for different kinds of law violations and reactions they provoke.

Movement into a criminal group. Being "caught and publicly labeled" will not necessarily lead to entering a criminal group. In the coffee smuggling example, everybody is member of a criminal group because almost everybody smuggled. In regard to the organized smuggler groups, would one expected that those who had smuggled privately try to join such groups? In the sequential model it is assumed that movement to criminal groups is likely because sanctioning and labeling led to a reduction of chances in the legitimate world. But this was not the case for those who had smuggled and have been caught.

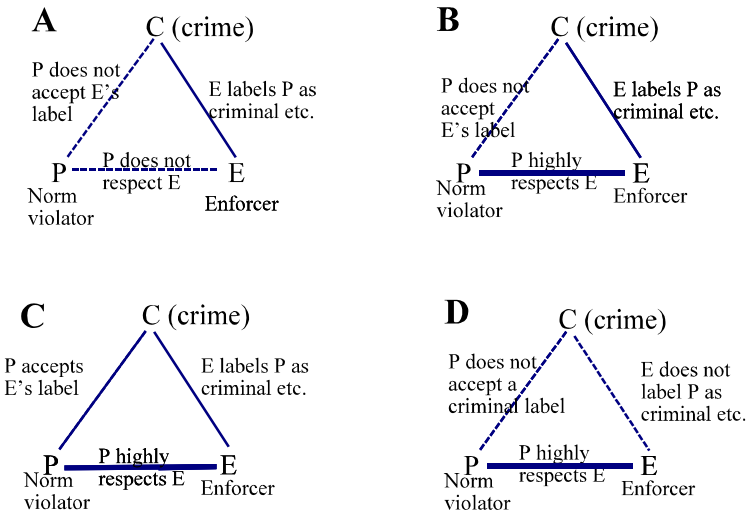
But even if a norm violator is cut off from legitimate opportunities a movement into a criminal group presupposes that such groups exist, that the criminal finds them and that the person is admitted. Even if a group would accept the criminal he or she would only enter if, in general, chances of a better life are expected: will the criminal find an equivalent for the lost job and for the lost friends? Only if this question is to be answered in the affirmative the step to a criminal career is taken. An explanation of becoming member of a deviant groups will specify the incentives of the deviant and those of the group to integrate the deviant.

Explaining cognitive changes through labeling: some implications from balance theory

The final step in the sequential model is *acquiring a deviant identity*. "Identity" is one of those ambiguous concepts that need clarification. It seems to mean in this context that the criminal accepts what those who label him think about him or her. In this section we apply the social psychological balance theory (see chapter 4) to explain in general cognitive changes of an offender.

Assume there is a person P who has violated a norm. There is further an enforcer E who labels P as "criminal," "outsider" etc. E may be a friend, a judge or a member of the police. This means that E utters linguistic expressions that characterize P with words that have negative connotations (such as "criminal," "nut," or "lunatic" – 30). This situation may be depicted as a pox system, as it is common in balance theory – see panel A in Figure 7.7.2. The assumption thus is that E labels P by ascribing feature C to P. This is symbolized as a positive line between E and C (a unit relation in terms of balance theory). P thus perceives that E ascribes label C. Will P accept the labels? Let us assume that P will have a very negative attitude toward E. P thinks E is corrupt or unjust. This is a negative line between P and E. If these two relationships exist the situation would be balanced if P does *not* accept E's labeling. This illustrates a general hypothesis: *norm violators will not accept labels by enforcers if the latter are not respected or if they are negatively evaluated*.

Figure 7.7.2: Conditions for adopting a label C (being a "criminal"), imposed by an enforcer E



Important for the acceptance of C through P is the relationship between P and E. Let us assume P and E are good friends or that E is a highly respected by P (this is symbolized with the thick line between P and E). This is panel B of the figure. Assume now that E labels P with C. Panel B is an unbalanced situation and, thus, costly to P. (One negative and two positive lines in such a system are unbalanced.) This is plausible: on the one hand, a respected person believes that C is criminal and will commit crimes in the future, but P does not believe this. Balance would be a preferred state. This can be achieved if P changes the negative line. P could believe E's labeling. This situation is represented in panel C. The general hypothesis reads: *strong positive relationships between a norm violator and an enforcer makes acceptance of labeling likely.*

Let us go back to panel B. Again, the strong positive bond to E is costly to change. What about changing line EC – see panel D? A could try to convince E that he or she actually did not commit a crime or that there were exceptional circumstances so that the aberrant behavior was excusable. If the line EC is not too strong P will be successful and the situation is again balanced.

So far we assumed in this section that the labeled person is rather passive in the sense that he does not react against the labeling. But this is a possible alternative of an offender that is certainly sometimes chosen.

So far we assumed a small interaction unit – P and E. However, information about P's norm violation or a law suit of P will spread. How does an employer know that the applicant P has committed some norm violation? Recent work on *network analysis* (Centola 2018; Small 2018) could help to formulate hypotheses about how information spreads.

The previous analysis is only a beginning for modeling the effects of labeling on changes of cognitive elements. The example should illustrate how detailed hypotheses can be formulated by applying the theories mentioned before.

Summary and conclusions

At the center of the labeling approach (LA) is the process of the making and application of rules and laws in particular. It seems that it provides a severe critique and alleged alternative to traditional criminology. This falsely assumes that deviance is a "quality of the act" (Becker 1963: 8). It is shown that this is wrong: explaining "crime" first explains the act – such as burglary or murder. Whether the act is illegal or violates informal rules can be modeled as independent variables. The dependent variable is a kind of ***behavior*** (breaking into a house, killing somebody). Existing rules, sanctioning of the rules, other social reactions are independent variables.

A special feature of the LA is its focus on criminal careers. We reconstruct a sequential model of a criminal career (Figure 7.7.1). A problem is that mostly one variable has a causal impact on one other variable. Furthermore, the model describes an extreme case: an initial deviance instigates a process that leads to a criminal life style. The conditions for such an extreme case are not specified. To get some ideas about what these conditions are we apply rational choice theory to analyze an opposite case in which ***deviance leads to "positive labeling***." After World War II coffee was expensive in Germany due to high taxes, whereas it was cheap in Belgium. But one had to pay customs by bringing coffee to Germany. The likelihood of being caught was low. This illegal behavior was widely approved in Germany and a large part of the population smuggled coffee from Belgium to Germany. We discuss in detail some of the conditions for the positive labeling. We further suggest hypotheses about when people acquire a deviant "identity" by applying the social psychological balance theory.

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Chapter 7.8

8. Social disorganization, collective efficacy and crime

Contents

Abstract. This section focuses on the version of social disorganization theory by Sampson and Groves (1989). It is assumed that low economic status, ethnic heterogeneity, residential mobility, family disruption and urbanization have indirect effects on crime, via three intervening variables: sparse local friendship networks, unsupervised teenage peer groups and low organizational participation. These latter variables have a direct effect on crime. The major assumption is that dense networks (that these three variables have in common) prevent crime because they are associated with a high capacity of control. Why does this lead to a low crime rate? We assume that – on the micro level – this capacity leads to perceived negative sanctions of unsupervised youths (the potential offenders). Negative sanctions are only one of the conditions for crime. Pre-existing incentives may reinforce or reduce the effects of negative sanctions. A major assumption of the authors seems to be that the members of a network are law-abiding citizens. But this need not be the case (as locations dominated by the Mafia illustrate). In such a case, the possibility of control will lead to more crime. The upshot of our analysis is that disorganization theory holds only if various assumptions on the micro-level, that are discussed in this section, are made. It is further shown that under certain conditions crime may increase disorganization. These analyses show the fruitfulness of a micro-macro analysis.

Introduction

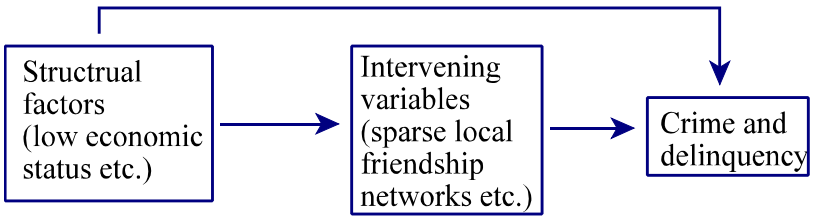
In this chapter we deal with a sociological macro theory of crime: social disorganization theory (SDT). It is one of the "most fundamental sociological approaches to the study of crime and delinquency" (Sampson and Groves 1989: 774). The basic work is the research by Shaw and McKay (1942, 1969). Their theory has been advanced and tested by Sampson and Groves

(1989).[1] The present chapter focuses on this work (page numbers in the text refer to this article). A new version of SDT is collective efficacy theory. This theory will be discussed as well.

Social disorganization theory

The authors built on a hypothesis from Shaw and McKay (Shaw et al. 1929) stating that "the structural factors – low economic status, ethnic heterogeneity, and residential mobility – led to the disruption of community social organization, which, in turn, accounted for variations in crime and delinquency" (774-775). The authors take these as the exogenous variables of their model and add two others: family disruption and urbanization. The authors criticize that so far intervening processes between these structural variables and crime have been neglected. It is argued that each of these structural variables has a positive effect on each of the following three intervening macro variables: *sparse local friendship networks*, *unsupervised teenage peer groups* and *low organizational participation*. These intervening variables are assumed to have direct effects on the crime rate. It is tested whether the exogenous structural variables have not only an indirect but also a direct effect on crime and delinquency. Figure 7.8.1 shows the structure of the model. The reflections why these hypotheses are plausible can be summarized in the following way.

Figure 7.8.1: The disorganization model of Sampson and Groves (1989)



The basic variable is *social disorganization* which refers to the "inability of a community structure to realize the common values of its residents and maintain effective social controls" (777). Community disorganization, the authors argue, "can be measured in terms of the prevalence and interdependence of social networks in a community – both informal (e.g., friendship ties) and formal (e.g., organizational participation) – and in the span of collective

[1] For a test of six social disorganization models see Bruinsma et al. 2013. For another detailed study see Pauwels et al. 2010. For reviews and discussions of the theory see Bellair 2017; Kubrin and Weitzer 2003; Kubrin and Wo 2016; Lanfear et al. 2020; Matsueda 2008: 106-113.

supervision that the community directs toward local problems" (777). The ties contribute to the "ability to solve common problems."[2]

The first intervening variable refers to the extent to which a community supervises and controls teenage peer groups because they commit the crimes. Gangs develop from "unsupervised spontaneous play groups." Cohesive communities are relatively well equipped to control teenage behaviors. Thus, ***sparse local friendship networks*** are supposed to have a positive effect on crime.

As a second dimension the authors mention is ***informal dense local friendship networks***. The capacity of mutual control is relatively high. Relatively dense networks will therefore provide a relatively strong "constraint" on deviant behavior.

The third dimension refers to the ***rate of local participation in formal and voluntary organizations*** (779). If this is high this means that community institutions are linked. This enables them to defend their local interests. This further strengthens "local social control functions regarding youth" (779).

The authors provide further theoretical arguments why the exogenous variables affect the three intervening variables. We will focus on the effects of the intervening variables. These seem the most important theoretical variables because they directly affect the crime rate.

In the previous sections of this chapter 7 we always asked whether the respective theory is an ***implication*** or an ***equivalence*** (see chapter 5 for an explanation). An implication would mean that not only disorganization but other macro factors exist if there is crime. There is thus crime without disorganization. Such an implication is certainly plausible. For example, white collar crime in firms is certainly not related to disorganization. The theory is thus not an equivalence which would claim that whenever there is crime there is disorganization.

Why macro sociology is not enough

The major goal of the paper by Sampson and Groves was to add intervening variables between some structural factors and the crime rate. The theory thus remains on the macro level. Nonetheless, adding intervening variables increases our theoretical knowledge and our intuitive understanding of the respective relationships between these structures and the crime rate. In other words, we learn ***why*** certain structural variables have an effect on the crime rate. Answering this why-question is sometimes described as increasing the ***depth*** of an explanation.

There is another possibility of adding intervening variables. This is to ***explore macro-to-micro relationship*** and, thus, formulate a micro-macro model. We have discussed the structural-individualistic research program in detail in chapter 6. We saw that in order to explain a macro relationship one should add the individual level. For example, an intervening macro variable between disorganization and the crime rate is low organizational participation. This has positive

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[2] Note that "ability" and "inability" are disposition terms. For details see the discussion in section 7.5. The authors do not address the problem of measuring such concepts but circumvent it by redefining "ability" as the "prevalence and interdependence of social networks in a community" (see the quotation above). These seem to be rather assumed effects of the ability.

effect on the crime rate. This is certainly an interesting information. But the question is not answered why does low participation leads to a high crime rate? Why will communities with a large number of unsupervised teenage peer groups will have a high rate of crime and delinquency? Why will those teenage groups not play basket ball or soccer? A possible answer would be to add another intervening macro variable. But a complete theoretical understanding would only be achieved, proponents of methodological individualism argue, if we know why *individual actors* commit more crime when there is low organizational participation in the community. The crime rate is an aggregation of *individual* crime. If one wants to explain individual crime one should look at the attributes of individuals that directly influence their crime.

A reconstruction of the implicit micro-macro model – from the perspective of rational choice theory

The dependent macro variable is the crime rate. This is an aggregation of individual crime. In explaining the crime rate it is therefore necessary or at least useful to explain individual crime. This means that the motivations (in a wide sense) of the individuals must be empirically ascertained. If macro factors are causes of crime they should be somehow related to these individual motivations. Therefore, a relationship between the macro factors such as dense networks and the crime rate comes about because the macro factors somehow influence individual motivations which, in turn, affect individual crimes. These then aggregate to the crime rate (a macro property). This concurs with Figure 6.1 in chapter 6: the macro factors lead to a change of individual motivations which influence individuals' behavior. This behavior then aggregates to a macro variable. The micro level thus consists of intervening variables between the independent and dependent macro variables.

Macro-to-micro effects of dense networks: increased negative sanctioning. What could be the micro factors that are affected by the macro factors? The focus of this book is on rational choice theory (RCT), so that we are interested in which variables of this theory could be influenced by the macro factors of SDT.

We will concentrate on the three intervening variables of Sampson and Groves's model: *sparse local friendship networks*, *unsupervised teenage peer groups and low organizational participation*. Actually, these are quantitative variables, as the authors themselves note. It is thus assumed: the higher the values of these variables are, the higher is crime in the communities.

The authors repeatedly state that these variables are associated with the *possibilities of supervision and the capacity of control.* If there is crime, it is plausible to assume that these possibilities will be used. Otherwise there could not be a negative effect of the macro variables on crime.

The situation that exists is that there are adult networks and youths. The latter commit the crimes. The other members of the network, it seems, are largely law-abiding.

If there are sparse social networks, fewer people can supervise or control others. The second dimension – unsupervised teenage peer groups – suggests explicitly that "unsupervised" youths are likely to commit crimes. If there is low organizational participation, the possibilities of

supervision are low as well. This concurs with the assumption that supervision is in general large in dense social networks. The hypothesis that dense networks make sanctioning easier is already discussed in detail by Coleman (1990: 242-299).

How exactly are dense networks related to the micro level? If the networks are dense, it is plausible that the *sanctioning capacities are perceived by the youths* (and other members): they will *expect strong informal negative sanctions* if they commit crimes. The expectation might also be that the police will be called if crimes are detected. This means that *formal sanctions* might have some likelihood as well.

Will those expected punishments suffice to deter community members – especially youths – from street robbery, assault and rape – the crimes measured in the study? Criminals try to hide these crimes, and they will commit them when other community members do not supervise them. It is not implausible that the *perceived likelihood of being detected* is not very high. The fact that there are a few others that have intense contacts with each other is perhaps not sufficient as a threat of being detected. But even if this is the case: will the informal enforcers – the community members – inform the police? The perpetrators are from the same network and it is likely that at least first-time offenders will not be reported to the police. The question thus is to what extent dense networks increase the perceived likelihood of being informally or formally punished.

But even if dense networks are related to a high probability of being discovered this will not necessarily have a deterrent effect. One condition for this is that *the expected punishments are costly* (i.e. have a high negative utility). The sanctions from members of the networks are informal sanctions which are probably relatively mild. Formal (official) sanctions are certainly perceived as more severe, but the question is to what extent they are expected. In other words, the potentially criminal "spontaneous play groups" (778) might not be much impressed by the control capacity of dense networks. To conclude, let as assume that dense networks increase expected negative sanctioning. The text does not suggest how high the likelihood and negative utility of the sanctions is. We thus assume that the macro-to-micro effect is that the likelihood of perceived negative sanctions increases.

Macro-to-micro effects of dense networks: the spread of information. Dense networks may have another effect related to crime: they *ease the spread of information* (see, e.g. Centola 2018). This information may be about legal opportunities such as available jobs.

Pre-existing incentives may thwart the effects of negative sanctions. Assume that the likelihood and costs of expected negative sanctions are high. This will not necessarily reduce crime. There might be other *pre-existing incentives that thwart the effects of sanctioning.* The youths that are to be controlled could have *goals that they cannot realize with the existing legal means* in the community. Burglary, theft and similar crimes might thus be seen as highly instrumental for realizing their material goals. These unrealized goals might be strong and the likelihood of realizing them with crime might be relatively high as well. The negative sanctions from the dense networks might not suffice to reduce crime.

Incentives such as *excitement* are relevant for crime as well (e.g. Matsueda et al. 2006). Perhaps there are not sufficient legal institutional settings for the youths to get excitement by

legal actions, but crime provides such opportunities. This would also stymie the effects of negative sanctions.

The youths might further *not have internalized norms* to follow the law. The youths will thus seize any opportunity to commit crime. This seems to be the implicit assumptions of the authors: if unsupervised groups are not controlled they immediately commit crimes.

Pre-existing incentives may strengthen the effects of negative sanctioning. Assume the youths *have strong internalized norms to follow the law*. In this case negative sanctions might be superfluous. The "unsupervised" youths will not commit crimes.

In learning theory it is hypothesized that the best way to avoid undesirable behavior is to *reward the desirable behavior*. It is apparently assumed that the dense networks do not act positively toward the youths such as giving advice for realizing goals with legal means, provide jobs or various leisure activities that are "exciting" for the youths.

When dense networks do not prevent but increase crime. The assumption of the authors is that dense networks reduce crime. There is evidence that "in some neighborhood contexts strong ties may actually impede efforts to establish social control" (Sampson 2006: 151). This seems highly plausible: why should the pure connectedness of people reduce crime? The implicit assumption seems to be that the individuals that make up the network have certain goals and norms. The assumption of the authors seems to be that the *members of the networks are law-abiding citizens* that desperately try to contain the deviant inclinations of the youths.

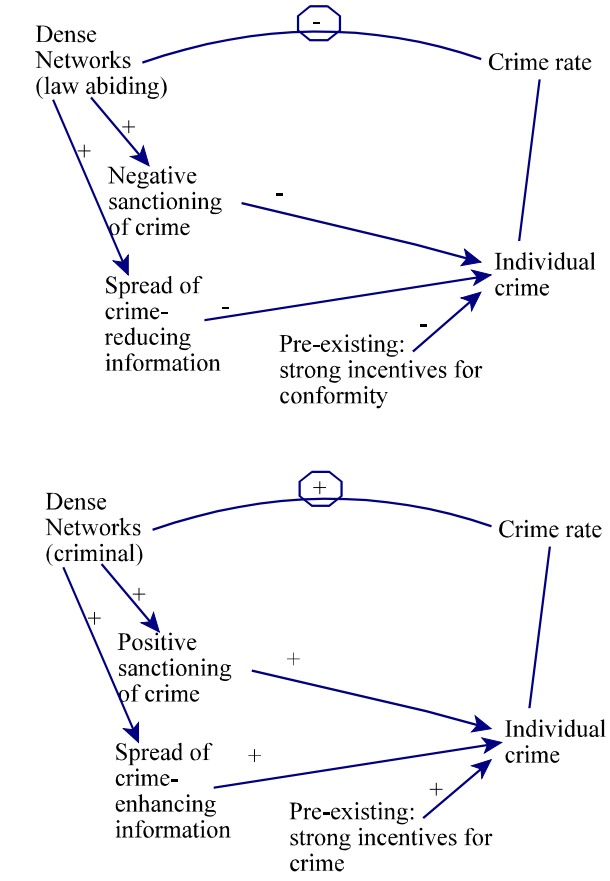
However, there are dense networks for which this assumption is definitely not fulfilled. The mere connection of people is not the only relevant factor that promotes a certain behavior. As Sampson puts it (2006: 151): "networks connect do-gooders just as they connect drug dealers." There are Mafia groups allover the world, there are criminal Arab clans in Berlin and other German cities, and there are criminal families that transmit crime to their offspring for generations (see, e.g. Butterfield 2018). In these situations *dense networks increase the likelihood of crime*.

It was said above that dense social networks spread information about legal opportunities. In criminal networks information about illegal opportunities will spread. The example of coffee smuggling from the previous chapter illustrates this: people have certainly talked about the various tricks to pretend not carrying coffee with them.

Conclusion: the differential effects of dense networks. We summarize the previous argument in Figure 7.8.2. The upper panel shows the first scenario in which dense networks indeed lower the crime rate. Note that this is a negative correlation, not an empirical causal effect. The major variable from the text is the negative sanctioning of crime that becomes more likely in dense networks. This is actually the perceived likelihood of sanctioning and the costs (i.e. negative utility) of the sanctions. We include here formal as well as informal sanctions. Another direct individual effect could be a high spread of information that reduces crime such as about jobs (legitimate opportunities). The pre-existing incentives are in particular the internalization of legal norms. They might have such a strong effect that sanctioning is not necessary to deter the youths

from crime. In this scenario it is assumed that the network is law-abiding. This is, it seems, also the assumption of the authors.

Figure 7.8.2: Different effects of dense networks on crime



In the second scenario – see the lower panel of the figure – the dense network has a positive correlation with crime. This time the dense network consists of individuals who favor law violation such as an extended Mafia family with social support in the community. There is positive sanctioning of crime, and information spreads about illegal opportunities. There may further be strong pre-existing incentives for crime. In particular, norms for legal behavior may be weak and justifications for crime may be strong.

The conclusion is that networks per se are not relevant for the origin of crime but incentives connected with network. In other words, not only the structure of the relationships between people matters for crime, but the people who are connected by the network.[3]

[3] The previous argument can also be modeled with value-expectancy theory (see chapter 4). The major behavioral consequence is the subjective probability and utility of (formal and informal) sanctioning. The other incentives – including pre-existing incentives – can be included as other behavioral consequences.

This section consisted largely of speculations because the macro-to-micro effects are not addressed by the authors.

A note on collective efficacy theory

It seems that SDT is outdated. Sampson mentions various weaknesses of the assumption that dense networks lead to crime (Sampson 2006: 151-152). One major weakness is, as was mentioned before, that networks do not always reduce crime. But the mechanisms on the individual level are not specified. Collective efficacy theory is supposed to remedy the problems of the network hypothesis. Unfortunately, there are different definitions of "collective efficacy."[4] We take a simple and relatively clear definition from Sampson et al. 1997: 918: Collective efficacy is "defined as *social cohesion among neighbors combined with their willingness to intervene on behalf of the common good*"(italics added). The authors measure their variables with a survey and then aggregate them for different communities. "Social cohesion" is measured with two items: "Respondents were asked how strongly they agreed (on a five-point scale) that 'people around here are willing to help their neighbors,' 'this is a close-knit neighborhood'" (920). This means that there is a high mutual sympathy between neighbors. This is apparently not related to network density. A network may be very sparse and nonetheless neighbors will be willing to help each other. The second component is "willingness to intervene on behalf of the common good."

Given these measurements we can again ask: why should we assume that high collective efficacy is related to a low crime rate? The answer is as in regard to our discussion of social disorganization: if collective efficacy leads to a low crime rate we would expect that high collective efficacy leads to strong negative incentives to crime. Is this plausible and, if so, what could those incentives be?

Members of a cohesive neighborhood will probably have common goals (including norms). But this does not yet mean that they will do anything to fight crime. If people are willing to help neighbors that could mean that they build a neighborhood watch that helps to prevent crime. But this presupposes that neighbors live close together. This would then raise the costs of burglaries. But perhaps the common values lead to joint control actions? This is exactly the assumption: "socially cohesive neighborhoods will prove the most fertile contexts for the realization of informal social control" (Sampson et al. 1997: 919). In regard to the kind of social control that exists in those neighborhoods the authors are now more specific: "Examples of informal social control include the monitoring of spontaneous play groups among children, a willingness to intervene to prevent acts such as truancy and street-corner 'hanging' by teenage peer groups, and the confrontation of persons who are exploiting or disturbing public space" (ibid., 918). Then our argument in the previous section about the effects of social control on the macro-level and individual incentives holds: in neighborhoods with high collective efficacy negative sanctioning will be high.

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[4] Sampson 2006: 152; Sampson 2012: 127; Sampson et al. 1997: 919; Sampson et al. 1999: 635.

However, the mere fact that a neighborhood is a cohesive group does not say anything about the kind of people who live in the neighborhood. These may be an organized criminal Mafia. The consequence would be that they would rather provide positive sanctioning if their offspring commits crime. It is thus not clear why a cohesive group should bring about incentives against crime.

This is perhaps likely if there is a strong ***willingness to intervene on behalf of the common good.*** "Willingness" means that there is an ***intention*** to act, but intentions do not always lead to actions. The attitude theory by Fishbein and Ajzen (2010) assumes that there is normally a close relationship between intentions and action. But this is not always true. This might especially be the case if the behavior is costly.

In regard to contributions to the public good the question is how the free rider problem is solved. The problem of contributions to public goods is, as is well known, that also those profit from the good, who do not themselves contribute. In the present case, those who do not act to provide the good will nevertheless enjoy its provision.

But assume that everybody contributes. What are these contributions? One possibility would be to exercise social control. That would lead to a certain extent of perceived sanctioning of law violators. But the contributions could be much more extensive: the members of the community could provide institutions that satisfy all the unfulfilled goals of youths: they offer jobs youths want to have, give everybody the income one wishes, and provide numerous legal possibilities for excitement. In this utopian case, a high collective efficacy would indeed generate the incentives that almost extinguish crime in the neighborhoods.

If the claim is that collective efficacy reduces crime, the authors probably make some of these assumptions about the effects on individual incentives for or against crime. Which assumptions these are is unknown.

One assumption certainly is that the neighborhoods are law-abiding. They want to bring about the order that normal neighborhoods in the US and elsewhere strive for. But this is again an assumption that is made.

We conclude that replacing "social disorganization" with "collective efficacy" again does not provide any progress in regard to formulating micro-macro models that specify the incentives that the new macro variable will bring about.

Does crime influence social disorganization?

So far macro hypotheses always had crime as a dependent variables. It is assumed that there is no reverse relationship. There are empirical studies, however, which test such feedback effects (see the review by Lanfear et al. 2020). Such an effect could be modeled by RCT. Assume that there is a community with dense networks. Now let the crime rate increase. This is possible because, as was argued before, pre-existing incentives might influence crime independently of the effects of the macro variable.

From a rational choice perspective, increasing crime in a community might influence behavioral consequences of individuals for various actions. For example, increasing crime might reduce interactions because of a fear of being a crime victim: people might visit each other less

frequently or reduce their visits of public places or shops where interactions take place. This means, that interactions become more costly due to a high crime rate. These individual behaviors aggregate to a measure of (low) network density.

Whether this process takes place depends on the frequency of crime and the kinds of crime committed in the neighborhood. For example, if there is a strong increase of violent street crime, contacts (such as visiting each other or meeting at public places) become more costly and will be reduced. But if shoplifting or fraud in door-to-door sales increase, this will not influence the density of networks.

These arguments indicate that applying RCT can specify the conditions under which crime reduces network density. Note that the previous argument is actually a micro-macro model. The independent macro variable is the crime rate. This has effects on individual incentives for reducing contacts which lead to fewer contacts. They aggregate to the macro variable "network density."

How kinds of crime can be explained

In the entire article the authors explain crime. This is also the explanandum the classical work the authors build upon. When they describe their measurement they write hat "total crime rates" are to be explained (785). The authors then construct several measures of crime, namely "the total victimization rate," "measures of mugging/street robbery and stranger violence (assault and rape)" (785). There is no theoretical discussion about the reasons for choosing these and no other kinds of crime.

One could perhaps add a macro proposition that specifies the *kind of crimes* that are to be expected. If the overall control is a relevant independent variable one could hypothesize that the kinds of efforts of the agencies that are in charge of controlling crime determines the kind of crime. For example, if resources are invested to prevent rape, then rape will be less frequent. However, this would explain only changes of certain crime rates.

Applying RCT the explanation could be more specific. Relevant would be what kind of incentives the networks provide and which kinds of preferences and beliefs exist in a community. For example, the norms may justify small thefts such as shoplifting but not more serious crimes. Rape and violence may be regarded as out of the question. That would lead to clear predictions of the kinds of crime that can be expected.

Is disorganization theory a set of laws?

Is disorganization "theory" a "theory" in the strict sense (see chapter 2)? This is a set of general assumption which state the conditions under which a phenomenon occurs. The conclusion of the authors sounds as if they propose such a theory: "... our empirical analysis established that communities characterized by sparse friendship networks, unsupervised teenage peer groups, and low organizational participation had disproportionately high rates of crime and delinquency" (799).

Embedding these macro propositions in a micro-macro model clearly shows that disorganization "theory" is rather a set of *empirical generalizations*. We have shown that the authors make numerous implicit assumptions. Only if they are realized their model holds true. For example, if the networks consists of criminals then dense friendship networks, supervised teenage peer groups and high organizational participation do not lead to low crime, as the authors maintain, but to high crime.

One can imagine numerous other micro-macro models with diverse macro-to-micro relationships. A given set of micro-macro relationships may be an empirical generalization: it may hold sometimes, but there will always be situations in which a given model will not hold. That is to say, it is difficult to believe that SDT is a law or set of lawful statements.

A plea for micro-macro modeling

This section undergirds the plea of chapter 6 not to stick with macro propositions but explain them. The explanation should not consist in adding intervening macro variables but moving to the micro level. SDT explains the crime rate. This macro variable is an aggregation of individual crime. Isn't it plausible to explain (aggregated) individual criminal behavior by other properties of the individuals who commit the crimes? In the present context, these individual attributes are the goals and beliefs of the actors. But this explanation alone is not satisfactory. The question that is left open is what the role of macro factors such as social disorganization and collective efficacy is. The answer is that the relevant individual attributes are in part influenced by these macro factors.

In the present context, these individual attributes are incentives. Those who do not like RCT might have applied another theory. But the procedure – micro-macro-modeling – would be the same: explaining macro relationship by recourse to certain properties of individuals.

This is not a critique of macro research in the sense that it should be abolished. The critique is only that this research does not go not far enough: it ignores the micro level. That is to say, it falls short of answering the question of why the macro variable is related to the crime rate. The adequate answer to this why-question is to show how individual action, embedded in social structures, has brought about crime. More technically, it has to be shown to what extent macro factors influence individual preferences and beliefs, and to what extent pre-existing incentives matter.

This procedure does not only deepen our understanding of a macro relationship by explaining it through motivations of individuals whose behavior is to be explained. Another reason for micro-macro relationships is that they show the conditions under which the macro proposition is valid.

Summary and conclusions

In the classic version of social disorganization theory (SDT) by Shaw and McKay (1942, 1969) it is hypothesized that low economic status, ethnic heterogeneity, and residential mobility lead to crime. Sampson and Groves (1989), whose version of SDT is analyzed in this section, add family

disruption and urbanization as further determinants of crime. The authors argue that these variables have only indirect effects on crime: they lead to the emergence of sparse local friendship networks, unsupervised teenage peer groups and low organizational participation. These latter variables have a direct effect on crime.

Why do these three variables bring about a high crime rate? Crime is a behavior of individual actors, and motivations (in a wide sense) of these actors lead to crime. If those macro variables influence crime, they should affect the motivation of individuals. The authors seem to assume this implicitly: dense networks allow to control the "unsupervised" youths who commit crimes. We suppose that the possibility for control is perceived by the youths as strong negative sanctions. It is not clear what the probability and the costs of these sanctions are, from the perspective of the potential offender.

Whether these negative sanctions reduce crime, depends on pre-existing incentives. For example, if the "unsupervised" youths have strong internalized norms, the sanctions are perhaps not necessary. The youths may have intense goals that they can only achieve with crime. This would reduce the effects of sanctioning. This shows that networks have different effects on crime, depending on their micro-level effects and on pre–existing incentives on the miro level.

A major assumption of the authors seems to be that the members of the networks are law-abiding citizens. There are Mafia communities and Arab clans in different cities of Germany that violate this assumptions. These groups will sanction crime positively, and there are probably strong pro-criminal sanctions and norms. In such settings dense networks increase crime. We further discuss the conditions under which crime may change network density.

This analysis shows that a micro-macro modeling procedure is important for specifying the conditions under which dense networks have which effects. The authors – and others, who wrote about SDC – do not specify those conditions. We briefly discuss collective efficacy theory and show that the problems are the same as with SDC.

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Chapter 7.9

9. Situational action theory

Abstract. This section deals with situational action theory (SAT), based on Wikström and Treiber (2016). We select three sets of central hypotheses: (1) three key propositions claiming, in particular, that there is a perception-choice process and that relevant aspects of the person and the environment lead to action. (2) The PEA hypothesis assumes that propensities (P) and exposure to relevant settings (E) lead to action. (3) SAT further proposes a sequential model addressing the process of how crime emerges.

There are three fundamental problems of SAT. There is no general action theory (that is regarded as important); there is no decision mechanism (utility maximization is rejected for spontaneous action); there is a strong normative bias claiming a "natural inclination to be rule-guided." We further reject the critique of RCT that is mainly based on a narrow version and ignores recent applications of the theory in criminology.

The comparison of the three sets of propositions with RCT shows that they are in part consistent – perceptions are also relevant according to RCT –, but RCT is much more specific. It explains, for example, which perceptions lead to which action. The other SAT propositions have serious weaknesses, from the perspective of RCT. The low informative content of the SAT is striking. Our conclusion is that SAT is not a "good-enough theory" for criminology (this expression was used for RCT).

Introduction

Situational action theory (SAT) was first formulated in the early 2000s (e.g. Wikström 2004). It is not as popular as the theories discussed before, but considered a promising theory, especially

by European criminologists. It thus seems worthwhile to discuss it. The major advocate of situational action theory is Per-Olaf H. Wikström. There are meanwhile numerous publications.[1] The contribution this section focuses on is Wikström and Treiber 2016 (page numbers in the text refer to this article). We select this publication not only because it is relatively recent and, thus probably contains the most recent version of SAT, but also because it includes a devastating critique of rational choice theory (RCT). In this section we will discuss the major problems of SAT, not only from the perspective of rational choice theory (RCT).

Situational action theory: basic propositions

There are three sets of propositions. The first set is labeled as "key mechanisms" (429); the second is the PEA hypothesis – a "core hypothesis of SAT's situational model" (430); the final set is a sequential model and captures "key elements and steps in the situational process of SAT" (432). We will focus on these propositions.

The four key propositions (428-429). They are, the authors argue, "about the sources of human action." They are quoted in detail below. In short, they describe the perception-choice process and that includes the relevant aspects of the person and the environment that lead to action.

The PEA hypothesis (430-431). This is the "core hypothesis" of the situational model. It consists of propositions 1 and 2 of the "four key propositions" referred to before (which will be described in detail below). The hypothesis is summarized as P x E 6 A. It means that "for any particular motivation ... , the resulting action (A) is an outcome of a perception-choice process (6) that results from the interaction (x) between relevant personal propensities (P) and exposure to relevant setting inducements (E)" (430). The authors add several definitions of the terms of the formula (Table 22.1) and formulate additional hypotheses. All this will be addressed below.

The sequential model of situational action theory (431-434). This is about the "process of crime causation and its key elements" (see the diagram in the rectangle of Figure 7.9.2 – we will return to the figure later). *Motivation* (goal-directed intention) initiates the process. "Motivation is the reason for action." It seems that all kinds of preferences are subsumed under this concept. The motivation determines the kinds of perceived *action alternatives*. These include criminal acts. As causes for this perception the authors mention personal morals and moral norms of the setting, along with the interaction of people. There is a *moral filter*: "the moral rule induced selective perception of action alternatives in relation to a particular motivation." Crime will only be committed if it is perceived as an action alternative.

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[1] See a special issue about SAT of the European Journal of Criminology (2018, vol. 15, issue 1) and of the Monatsschrift für Kriminologie und Strafrechtsreform (2015, vol. 98, issue 3) . For a review of research see Pauwels et al. 2018. For further references see Wikström and Treiber 2016: 428.

If crime is perceived as an action alternative people ***deliberate*** or act due to ***habit***. In the latter case, the hypothesis seems to be that behavior is activated in certain circumstances.

If there is "rational deliberation" there is "some assessment of the pros and cons of more than one potent alternative for action (which may include the choice to do nothing) and may also involve elements of problem solving." People further "apply ***free will*** when they deliberate because there is no predetermined alternative for action." The person aims "to select the best out of the action alternatives perceived." Note that this is the hypothesis of subjective utility maximization from RCT.

When people deliberate ***controls*** are important. They may be internal or external. "Internal" control is ***self-control*** (see below), deterrence means "the process by which the (perceived) enforcement of a setting's (perceived) moral norms (by creating concern or fear of consequences) succeeds in making a person adhere to the moral norms of the setting even though they conflict with his or her personal moral rules."

One would submit that the probability of committing crime is low if there are strong internal and external controls. However, the authors argue that the "extent to which people commit crime (or different types of crime) out of habit or after some deliberation is largely unknown."

Three fundamental problems of situational action theory

The lack of a general theory of action. An "adequate action theory" should be the foundation of a theory of crime (416; Wikström et al. 2012: 8; Wikström 2006: 69-71; Wikström 2017). Without such a theory the variables of SAT are ad hoc. A theory is needed that provides support for the validity of SAT's variables. This is an important demand we fully agree with. Wikström's favorite theory is "classical action theory" (Wikström 2017: 70–71). The theory is based on the work of philosophers such as Aristotle, Donald Davidson and John R. Searle.

Wikström's goal is "simply to bring out and examine some key themes I believe give important background to the discussion of advances in the Situational Action Theory" (Wikström 2006: 71). This is the "important background": "if an individual wishes (desires) to do something, and believes that he can do it, and he intends to do it, and if he acts upon his intention …, his desires and beliefs explain why he did it" (Wikström 2006: 71). These factors are components of many theories in the social sciences. They are very similar to RCT. However, RCT is much more specific, as we saw in chapter 4: it does not consist just of listing some kinds factors. Wikström's list of factors is not yet an informative and empirically testable theory of action. In particular, it is not specified which "desires," "beliefs" and "intentions" lead to which behavior.

The "classical" action theory is thus not an adequate foundation for SAT nor for any other criminological theory. If it were such a foundation we would expect that it is systematically applied in SAT. This, however, does not happen. For example, in the article this chapter focuses on, the theory is not even mentioned.

It is difficult to understand that the authors write a very harsh critique of RCT, but advocate hypotheses that have a strong similarity with RCT. Even the subjective utility maximization is assumed in cases of deliberation: the person aims "to select the best out of the action alternatives

perceived" (433). One must thus conclude, that, on the one hand, RCT is harshly criticized; on the other hand, as an alternative "theory" a deficient version of RCT is offered, but is not systematically applied to derive SAT.

How do people decide in SAT? The lack of a decision mechanism. Advocates of SAT have problems with the assumption of utility maximization in RCT. As was said before, subjective utility maximization is assumed only for deliberate action. "We submit that it is only when an individual deliberates over action alternatives that he/she makes a 'rational choice,' meaning he/she chooses what he/she considers the best action alternative amongst those he/she perceives" (Wikström and Treiber 2007: 246). The authors do not provide any evidence for this restricted application of utility maximization. There is, however, ample evidence that people maximize their utility in general, even if behavior is automatic (for a review see Opp 2020, see also Opp 2017 and for a more detailed critique Opp and Pauwels 2018). Furthermore, rule-guided behavior does "not accord with the optimization of self interested action outcomes through the maximization of personal gains and the minimization of personal costs, which is the hallmark of rational choice theory" (434).

However, it is obvious, at least for a wide version of RCT, that subjective utility includes the *entire* utility for a person, including "rule-guided" and spontaneous behavior. If a person violates a norm which causes a very bad conscience this is a "personal cost." If a behavior is mainly based on norms – such as the perceived duty of helping a person in need – then maximization consists of doing one's duty.

If SAT insists that rule-guided or spontaneous behavior has nothing to do with utility maximization, the question is: what is the alternative decision mechanism? The lack of such a mechanism is detrimental for the theory: it cannot explain which behavior is chosen. For example, assume a person has the goal of material gain and at the same time has internalized a norm to choose only legal action. If no decision mechanism such as utility maximization exists it cannot be explained which behavior is chosen.

The normative bias of SAT. The theory assumes that "all people share a natural inclination to be rule-guided and therefore to act in accordance with personal rules of conduct and the behavioral norms of the settings in which they take part" (434). People are thus "essentially rule-guided" (417). Such statements would not be accepted by an advocate of RCT. This theory would only hypothesize that adherence to rules is a *possible* motivation. It must be determined by empirical research to what extent this motivation is conducive to action or whether other motivations bring about a behavior. There are no claims about some natural endowment with certain motives.

SAT does not provide empirical evidence for a normative natural endowment. Even if we would subscribe to the thesis of a normative gene: it does not yet explain the multitude of specific existing norms. Can table manners or the rules of language be explained by a norm gene – assuming it exists? Why is it not sufficient to assume, as RCT does, that there are normative and non-normative goals that may govern behavior? Which is relevant must be determined empirically. It seems, thus, that assuming a law of inborn norms is superfluous.

Is rational choice theory not good enough for criminology? The critique from situational action theory

The authors provide a devastating critique of RCT. One major flaw of this critique is that the authors do not systematically distinguish between different versions of RCT. Their critique normally attacks "the" theory of rational action. A critique of RCT can only be taken seriously if a modern, wide version is addressed that is meanwhile applied in criminology and in other fields of the social sciences as in behavioral economics (see for details chapter 4).

Another flaw of the critique is that the authors' major target is Cornish and Clarke's work (1986). Our discussion in chapter 4 concludes that by and large Cornish and Clarke advocate a wide version of RCT. Even if the critique of Wikström and Treiber is correct, it is a mistake to assume that this version is shared by all advocates of RCT. For a competent critique of RCT in general it is absolutely necessary to look at the voluminous literature – not only in criminology (see, e.g. Matsueda 2013) – that expounds RCT and provides data to test it. As was shown in chapter 4, the overwhelming majority of contemporary criminologists use what we call a wide version of RCT. We discussed this work in detail chapter 4 (section 10). The authors should have looked, for example, at Becker and Mehlkop 2006; Loughran et al. 2016; Matsueda et al 2006; Mehlkop and Graeff 2010; Nagin and Paternoster 1993; Tibbetts and Myers 1999. We will nonetheless discuss some of the flawed arguments against "the" theory of rational action (for more details see Opp and Pauwels 2018).

Again: an outline of the basics of rational choice theory. A modern, wide version of RCT makes three assumption. Behavior is, first of all, explained by ***preferences*** (or goals). All kinds of preferences are possible explanatory variables: egoistic preferences (only one's own welfare is relevant) and altruistic preferences (others' welfare is of interest). People may also have the goal of following internalized norms. There are thus non-normative goals (sometimes called interests) and normative goals.

A second factor are perceived constrains, i.e. ***beliefs***. These are perceived external situations that are, from the perspective of the individual, relevant for goal attainment. Expected punishment or social rewards are examples. Internal constraints such as limitations or cognitive capabilities are relevant as well.

The third assumption is ***subjective utility maximization***. This means that the actor does what seems best, from his or her perspective, in the given situation..

Advocates of RCT insist that the preferences and beliefs must be ***measured*** when behavior is to be explained. There is thus no ad hoc assumption that some preferences or beliefs exist.

When one compares this short exposition of the wide version of RCT (for details see chapter 4) with the authors' critique of RCT, it becomes apparent that the critique is completely mistaken. We discuss briefly the most important objections.

RCT assumes only self-interested actors. A fundamental problem of RCT is "that the major force behind human action is self-interest" (424). "Self-interest" refers to egoism (Wikström et al. 2012: 21). As we saw before, this is plainly wrong. It is awkward that before this quotation the

authors write that a "rational choice framework does not require" self-interested motives (423). Indeed, this is correct.

RCT assumes that preferences are "broadly universal" (423). Again, this is incorrect. RCT only assumes that preferences determine behavior. What the preferences are needs to be measured empirically. Obviously, preferences may be different across individuals. There is no assumption about equal preferences nor about stable preferences over time.

RCT neglects "more automated, habitual action choice processes" (416) – there is "*at least some calculation*" (422). This is one of the typical misunderstandings. We provide an extensive discussion in chapter 4, section 7.

People "maximize personal advantage (particularly material gain)" (421). Again, this is wrong. As has been said before, the individuals do what they think is best, taking into account all kinds of preferences (including norms), given the constraints.

The "decision to act takes place before the person enters the setting in which the crime actually happens" (424). Referring to the previous short account of RCT: nothing in the theory requires such an empirically wrong assumption. Obviously, if a person comes into a situation and all of a sudden perceives that he or she can realize some goals by illegal means, the person will act.

RCT does not see rules of conduct as particularly relevant to the offending (425). Again, this is wrong. Applying RCT requires to ascertain the relevant incentives in the situation. There is no question that there may be situations in which norms are the dominant incentives.

RCT assumes "rational" decisions. The authors mention "rationality" numerous times. Most of the time it is not known what this unclear term means. Sometimes "rational" means to "decide upon a course of action which the actor feels is optimal given the circumstances and his or her preferences" (421, 433). "Rational" also means that "at least some calculation of expected cost and benefits" exists (423). The authors also refer to "rational calculation" (425, 428) – it remains open what non-rational calculation means. Criminal decision making is irrational if it is "non-deliberative" (426). In addition, rationality "requires the perception of more than one potent action alternative" (425). We further find the term "rational deliberation" (433) – what "irrational" deliberation means is unclear. The question remains open: in what sense does RCT assume "rationality"? This kind of critique is typical for a confusing use of the concept of rationality. This is discussed in detail in Chapter 4, section 11.

RCT is "almost impossible to falsify" (434). If the authors mean that it is impossible – what does "almost" impossible mean? – to falsify RCT, then this is clearly wrong for the wide version, as the numerous empirical studies that test hypotheses from RCT testify (see again chapter 4).

Conclusion. The critique of RCT by the authors is completely mistaken. This is particularly surprising because the "classical action theory" (Wikström 2017: 70–71) that is accepted is

actually an inferior version of the wide version of RCT. When a general theory is regarded as necessary: the question is not answered what this alternative theory of RCT is.

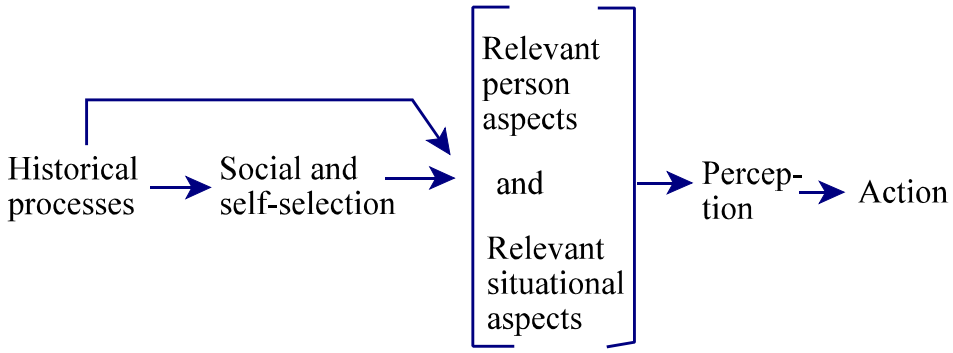
The four key propositions: incompatible with rational choice theory?

The authors formulate these propositions in the following way (428):

> "1. Action is ultimately an outcome of a perception-choice process. 2. This perception-choice process is initiated and guided by relevant aspects of the person-environment interaction. 3. Processes of social and self selection place kinds of people in kinds of settings (creating particular kinds of interactions). 4. What kinds of people and what kinds of environments are present (and to what extent) in a jurisdiction is the result of historical processes of personal and social emergence (setting the stage for the potential personal and environmental input into human interactions)."

Are these hypotheses compatible with RCT? Before we answer this questions it is useful to point to some serious weaknesses of these propositions. First of all, it is not clear what the term "ultimately" in the first proposition means. We will not explicate it, we only mention its ambiguity. Even without this term, proposition 1 is not clear. "Choice" apparently means "action" – this is suggested by the text (for example, when the authors write about "action choices" (429)). If choice is equivalent to action, then proposition 1 means: "*Action is an outcome of a perception-action process*." This is *analytically true*. A slight reformulation shows this: *if there is a perception-action process, then there is action*. A plausible reformulation of the hypothesis of the "perception-choice process" could be: *perception is a condition for action*. Figure 7.9.1 summarizes the hypothesis.

Figure 7.9.1: An explication of the four key propositions of situational action theory



The major problem of the four propositions is their *extremely low informative content*: they do not specify which conditions lead to which action or other phenomena. They are rather

orienting statements (see chapter 2). Let us briefly go through the propositions. Which perceptions (of what objects or situations) lead to which action (proposition 1). What are the "relevant" aspects of the person-environment interaction that the authors refer to, and which effects do they have (proposition 2)? What processes of social and self selection do lead to which placement of individuals (proposition 3). Which historical processes lead to the presence of which kinds of persons and environments (proposition 4)? Of course, everything is determined by historical processes. It is not clear why such extremely "empty" statements are needed.

We illustrate with Figure 7.9.1 that a wide version of RCT can provide much more specific explanations than SAT. For the explanation of "social and self-selection" Schelling's model of residential segregation (Schelling 1978) is an excellent example. The model shows how an initial random distribution of actors in space leads to specific types of segregation under certain conditions. A simulation with the computer program Netlogo demonstrates the possible processes. The theory applied is a simple rational choice model: people have preferences, the available space and other actors are the constraints. The work of Douglass North (e.g. 2005) further illustrates the explanation of historical processes with RCT.

Are these key propositions compatible with RCT? The wide version of RCT assumes indeed *perception*, and specifies what the *relevant* person and situational aspects are that explain specific kinds of action (see for details chapter 4 and see the outline of RCT before). RCT assumes that preferences ("relevant" aspects of persons) and perceived constraints, i.e. beliefs ("relevant" situational aspects) lead to actions that are instrumental for goal achievement. In terms of VET (value expectancy theory, see chapter 4 and some previous sections in which the theory is applied), these are the probabilities and utilities of behavioral consequences. Thus, not only perceptions matter.

SAT is regarded as a new theory that is superior to existing theories. However, when we look beyond the linguistic formulations at the substantive content of the hypotheses, they are known for a long time. They *seem* innovative because SAT formulates them in an uncommon language. For example, the perception-choice process is already emphasized by Sutherland (1973: 7) when he writes that "the immediate factors in criminal behavior lie in the person-situation complex." There will be probably no contemporary theory that is incompatible with the "four key propositions" of SAT.

The PEA proposition and rational choice theory

For ease of reference, we repeat the meaning of the *P x E 6 A* proposition: "for any particular motivation ... , the resulting action (A) is an outcome of a perception-choice process (6) that results from the interaction (x) between relevant personal propensities (P) and exposure to relevant setting inducements (E)" (430). The PEA proposition is the "core hypothesis" of propositions 1 and 2 of the four key propositions. It is not clear what the logical relationship between these two propositions and the PEA proposition is. It seems plausible that the PEA proposition is a modification or extension of the two propositions. If this is so it is not clear what those two core propositions are good for.

In the discussion of the PEA proposition two hypotheses are formulated, one about propensities, the other about settings:

> *Propensity proposition:* "The closer a person's personal morals are to the rules of conduct stated in law, the less prone he or she is to violate these rules.
> The stronger a person's ability to exercise self control, the less likely he or she is to be enticed to act contrary to his or her own personal morals" (431).[2]
>
> *Settings proposition:* "Settings are criminogenic to the extent that their (perceived) moral norms, and their level of enforcement encourage (or do not discourage) acts of crime" (431).

The authors add several definitions (430) which will not be discussed because we do not see their theoretical importance.[3] We believe that the meaning of the terms in the two propositions suffices for a discussion.

How is this theory related to RCT? *Some factors in the propositions clearly refer to costs and benefits; others, RCT would claim, are only relevant if they are costs and benefits*. To show this we will apply VET and write the equation for crime, based on the ideas of SAT – see below. The question is which behavioral consequences influence the value of the SEU (subjective expected utility) for a specific crime c (see the following equation 1).

According to the *propensity proposition* a consequence of committing crime c is the violation of an internalized norm against crime. Violation of this norm has a negative utility (-U). Depending on the strength of the norm, the utility could take different values. VET requires a subjective probability p for violating the norm if crime is committed. This p is very high if the person is sure that committing c is clearly against the norm. But believing in some techniques of neutralization p could be low – the person thinks that committing c is not "really" a norm violation. This the first expression in equation (1) before the plus sign.

(1) $SEU(Crime_c)$ = p C -U(Violation of internalized legal norms) + p C -U(Violating expectations of the setting) + p C -U(Enforcement of the setting) + *p C U(Material gaoms)* +
+ p C U(Excitement)
(2) $SEU(NoCrime_n)$ = ... (omitted in SAT)
Text in italics: not included in SAT

---

[2] *Propensity* is a disposition concept (see the discussion in 7.6), but apparently it is a shorthand term that includes all the factors that are not part of the setting. See the discussion in De Buck and Pauwels (2018). We discuss the factors listed in the "propensity" hypothesis and ignore the possible meanings of "propensity."

[3] For example, "person" is defined as a "body with a biological and psychological make up, experiences and agency (powers to make things happen intentionally)." Why is the everyday meaning of "person" not of sufficient clarity?

The second part of the propensity proposition addresses the effects of self-control. This is defined as people's "ability to withstand external pressure to act against their own personal morals" (431). If this ability is high, crime is low. We have criticized self-control theory, based on Gottfredson and Hirschi's work (1990), in detail in chapter 7.5 and have shown how this theory can be integrated – in modified form – into RCT. Wikström and Treiber (2007; see also Kroneberg and Schulz 2018) slightly redefined the self-control concept. The major components are external pressure and personal morals (see also 434). Both are included in equation (1) as "Violating expectations of the setting" (which has a negative utility) and "Violation of internalized legal norms." RCT implies that one acts according to one's own "personal morals" (i.e. internalized norms) if other incentives such as the costs to act against external pressure are relatively weak.[4] At this point the question arises already why this configuration of incentives is called "self-control."

The ***settings proposition*** addresses moral norms and enforcement. The moral norms are already included in equation (1) as "violation of internalized legal norms." The setting's moral expectations and enforcement are behavioral consequences as well. They are only relevant, according to RCT, if they have utilities and subjective probabilities. For example, violating the expectation of the setting may have a negative utility. Similarly, individuals may dislike the enforcement of the setting and might anticipate some likelihood of being caught (low p for "Enforcement ..."). These assumptions need not hold empirically. For example, people may not care about their setting (think of criminals in a law-abiding environment).

It is striking that ***material benefits of crime*** are not mentioned by the authors. A person will choose crime if this realizes unrealized goals such as getting status or material gain. The same holds for emotional behavioral consequences of crime such as ***excitement***. These factors are further included in equation (1).

Even if SAT is modified in this way, there is another serious flaw. VET assumes that the behavior with the highest overall benefits (i.e. with the highest SEU) is performed. This means that ***crime is only performed if its SEU is higher than the SEU for conformity***. Just a high or low SEU for crime does not say anything about the behavior that is performed. The value of $SEU(Crime_c)$ must thus be compared with the $SEU(NoCrime_n)$. This is insinuated with the incomplete equation (2). To illustrate, reading equation (1) may convey the impression that the SEU for crime is low so that conformity is chosen. However, all the negative utilities and probabilities may have very low values, whereas the utilities and probabilities for material gain and excitement may be very high. The SEU for conformity may be lower than for crime. This suggests that in order to explain crime it is not sufficient to look at the incentives for crime.

When we compare the PEA proposition of SAT with the SEU model (equations (1) and (2) before), SAT has serious weaknesses. (1) ***Subjective probabilities are not included in SAT.*** Is it really irrelevant whether a person expects enforcement of the setting with a high or low subjective probability? Many studies show the importance of subjective probabilities. It is a

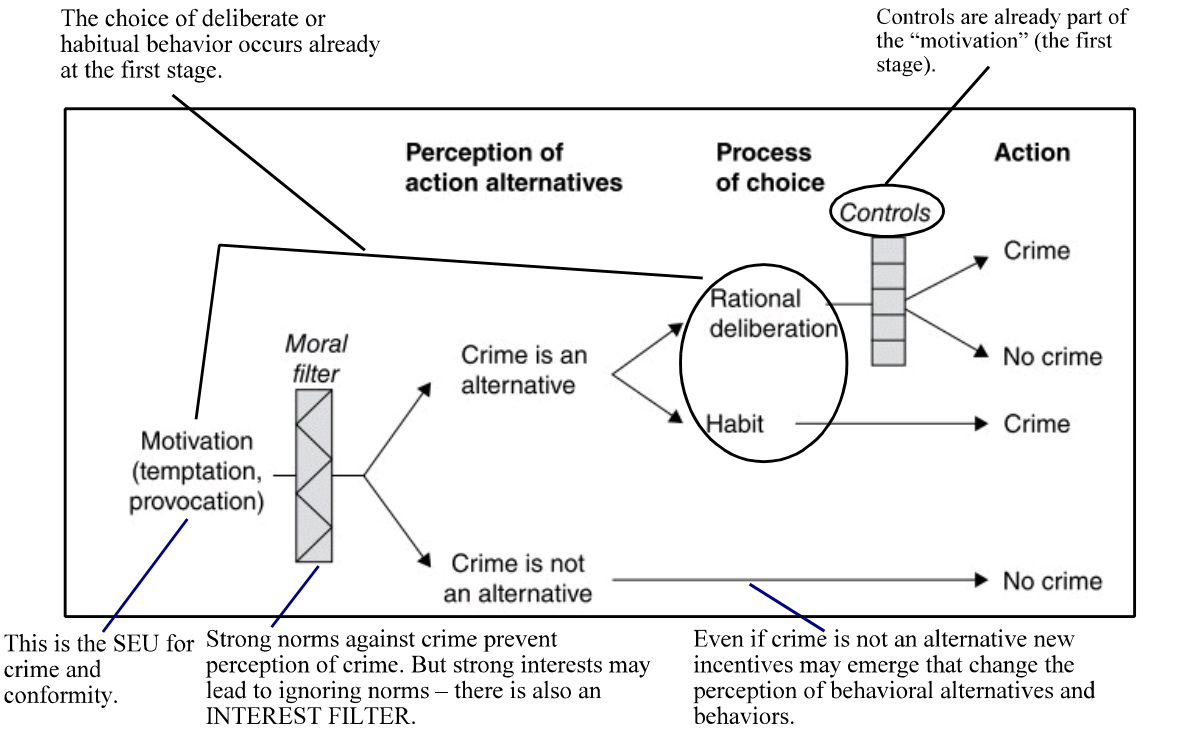
[4] The discussion of self-control in SAT by Wikström and Treiber (2007) and also by Kroneberg and Schulz (2018) is disappointing, from the perspective of the arguments in the previous section 7.6. For example, the problem of defining disposition concepts is not addressed.

serious flaw if a theory includes behavioral outcomes without addressing their subjective probabilities. (2*) Attributes of the settings need to be costs and benefits for the subjects*. For example, a criminal may not care about the reactions of his or her setting. (3) *SAT does not address multiplicative effects of utilities and probabilities* of behavioral consequences. This is obvious because subjective probabilities are not included in SAT. (4) *SAT does not include important behavioral consequences*, as shown before. The PEA proposition has thus serious weaknesses.

What is wrong with the sequential model of situational action theory? The perspective of rational choice theory

This model is the third component of SAT. It is not clear how this sequential model is related to the other two sets of propositions discussed before. Does the sequential model include those propositions or does it extend them? The authors do not answer these question.

Figure 7.9.2: The sequential model of situational action theory and its problems



The figure within the rectangle is from Wikström, Per-Olof H. 2012. "Does Everything Matter? Addressing the Problem of Causation and Explanation in the Study of Crime." Pp. 53-72 in *When Crime Appears: The Role of Emergence*, edited by Jean Marie McCloin, Christopher .J. Sullivan, and Kennedy. Leslie W. New York: Routledge. The figure is on p. 66. The additional notes are new.

In order to facilitate understanding of our comments we reproduce the figure that summarizes the sequential model, together with our critique, in Figure 7.9.2 (432 – see the diagram within the rectangle). The process starts with "***motivation***." It is defined as "goal-directed attention" (431). The text "temptation, provocation" in the figure suggests that all causes for a behavior are referred to. This is confirmed when the authors write: " Motivation is the reason for action; we act because we are tempted or provoked to do so" (432). "Reason" seems to refer to the actual causes of the actions. These are, RCT would suggest, the costs and benefits. When we are "tempted or provoked" we consider goals and constraints. However, personal morals and moral expectations of the setting are not included: "motivation" seems to refer to non-normative preferences and constraints – see the next paragraph.

SAT holds that crime can only occur if it is perceived as an action alternative. For the alternative to be perceived not only temptations and provocations for crime are relevant, but also personal morals and the moral expectation of the setting. Depending on the strength of those temptations/provocations and morals there is a ***moral filter***. This means: "the moral rule induced selective perception of action alternatives in relation to a particular motivation" (432). This seems to mean, that – given a motivation – a relatively strong moral rule leads to the perception of specific action alternatives. Note that the perception of crime or conformity occurs after the filter has been in effect (see the figure).

The problem with SAT is its normative bias. Not only morals may be strong, but the non-normative goals may be – compared to the morals – relatively strong as well. This may lead to ignoring norms. There may thus be an ***interest filter***. These filters can be modeled in a more precise way with RCT (for details see Opp 2017). We apply again VET and formulate two equations (see Figure 7.9.3).

Figure 7.8.3: Conditions for a moral and interest filter

$$\text{(A) } SEU(Crime_c) = \underbrace{p \bullet U(\text{Interests})}_{\text{Weak}} + \underbrace{p \bullet \mathbf{-U(\text{Violating Morals})}}_{\substack{\text{Strong} \\ \textbf{Moral filter}}}$$

$$\text{(B) } SEU(Crime_c) = \underbrace{\mathbf{p \bullet U(\text{Interests})}}_{\substack{\text{Strong} \\ \textbf{Interest filter}}} + \underbrace{p \bullet \text{-U(Violating Morals)}}_{\text{Weak}}$$

Equation A. Assume there are two alternatives: some kind of crime c and not committing a crime n. Each alternative has two kinds of consequences: non-normative goals (such as increasing one's income) and morals (moral norms of the person and of the setting to behave legally). For the alternative "crime" let the p and U of morals have very high values: violating legal norms has a high negative utility, and the actor is certain that committing a crime violates the norm. Let the interest (e.g. to increase one's income) be weak (i.e. has a low positive utility and probability). The strong norm thus leads to a low SEU for crime. We assume that the SEU for conformity is much higher than for crime. Here a strong internalization of the legal norm may

boost the SEU for conformity. This situation could be described as a a ***moral filter***: the interest is not considered at all. Note that, in contrast to SAT, the incentives for conformity are addressed.

Equation B: Assume a person thinks he or she may best realize the interests (the non-normative goals) with crime. The p and U for interests are thus very high. Assume violating legal norms is largely negligible for the person. The interests term in equation B thus boosts the SEU for crime. Assume further that the person assumes that he or she cannot realize the interests with legal behavior so that the SEU for conformity is low. The interests thus are strong that norms are not considered. In the example, crime will be chosen. In this situation there is an ***interest filter***. Norms are not considered in the decision.

To sum up, there may not be only moral, but interest filters as well. When norms or interests predominate can easily modeled with VET. Note that RCT always addresses crime and the alternative options explicitly

Let us proceed with the sequential model. If crime is chosen as a behavioral alternative, then, SAT assumes, the actor decides to deliberate or to act spontaneously (which, we assume, is identical with acting habitually). To illustrate, assume person P is in a shop and the owner leaves the shop for a short time so that P can walk away with a shirt without being detected. P considers whether he or she will do this or not. Crime and conformity are thus perceived as behavioral alternatives. RCT does not assume that crime is chosen if it is perceived as an alternative. It depends on the costs and benefits of the options.

But perhaps "Crime is an alternatives" (see the figure) means that crime is actually chosen. Then deliberation or habitual action occurs – see the two arrows after "Crime is an alternative." This is extremely implausible. Would P first decide to steal and then deliberate or act spontaneously? RCT, in contrast, implies that the situation in the shop when the owner leaves P either deliberates or acts spontaneously. P might always spontaneously chooses crime if enforcement is unlikely, as is immediately clear in the example. The other possibility is that noticing that the owner's absence leads to deliberation whether to choose criminal conduct. VET implies that ***deliberation or acting habitually happens already at the stage of "motivation."***

SAT assumes that ***controls*** are taken into account when actors deliberate. RCT is not compatible with this hypothesis. Controls are expected costs of a behavior and already taken into account before an action is performed. RCT implies that ***controls are considered already at the stage of the "motivation."*** The previous example illustrates this: when P is in the shop he or she will consider how likely enforcement is. This is a behavioral consequence and will be taken into account before an action is performed.

If ***"crime is not an alternative"*** (see the figure) the model assumes that no crime is committed. This might be the case only for a moment. However, an actor might have decided not to commit a crime and then be exposed to an excellent opportunity for a riskless crime with a high return. It is thus plausible that decisions not to commit crime can be revised very quickly.

The sequential model is thus highly problematic. The question is whether a general sequential model as a lawful statement is meaningful. Take the example in the shop: the decision to steal or not to steal is made within minutes or even seconds. The sequence is: enter the shop, perceive the situation, act. Our discussion of the sequential models of the labeling approach (see section 7.7) suggests that there are numerous kinds of processes that may lead to crime. Our

discussion of the sequential model of the labeling approach suggests that it is meaningful to formulate different models for different types of crimes.

Conclusion: situational action and rational choice theory

The previous analysis has shown that SAT is definitely not a better alternative to RCT. To use an expression of the authors: it is not "a good-enough theory" for criminology. Sometimes hypotheses of SAT come close to assumptions of RCT. In particular, internalized personal norms are incentives of a wide version of RCT. But most of the hypotheses of SAT are not compatible with RCT. The sequential model in particular seems heavily flawed.

Summary and conclusion

This section deals with a relatively new theory from the early 2000s, namely situational action theory (SAT). Our discussion is based on Wikström and Treiber 2016. We select three sets of propositions. The first set consists of four "key propositions" which describe the "sources of human action" and explore in particular the perception-choice process. The second PEA hypothesis – a "core hypothesis" – assumes that propensities (P) and exposure to relevant settings (E) lead to action (A). P and E have a multiplicative effect. The third set of propositions is the sequential model about the "process of crime causation and its key elements."

There are three fundamental problems of SAT. One is that a general action theory is regarded as important, but it is not systematically applied in the present paper and in other work either. Although subjective utility maximization is rejected for spontaneous behavior, an alternative decision mechanism is not proposed. Finally, there is a strong emphasis on norms – people are "essentially rule-guided" – with a neglect on non-normative goals.

The paper contains a long critique of rational choice theory (RCT) that is mainly based on Cornish and Clarke (1986). However, this is not "the" theory of rational action. The critique is further based on a narrow version and ignores recent applications of the theory in criminology.

The last part of this section provides a detailed critique of the three sets of propositions from the perspective of RCT. One problem is shared with all other theories discussed before: the central propositions had first to be clarified. Our discussion indicates that few propositions are consistent with RCT. For example, RCT also assumes a perception-choice process (action is determined, among other things, by perceptions), but RCT shows in detail which perceptions are relevant for which behavior. The same holds for the other propositions. The example illustrates that the informative content of many propositions of SAT is very low. Finally, the sequential model has serious weaknesses, that are discussed in detail.

In general, the hypotheses of SAT, discussed in this section, have numerous serious weaknesses. The low informative content of the major hypotheses is striking. Our conclusion is that SAT is not a "good-enough theory" for criminology (this expression was used by the authors for RCT).

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8 Analytical Criminology: core elements of a research program

Contents

Abstract. The previous chapters deal with the components of a research program that we call "Analytical Criminology." We reformulate the program as four goals. (1) The first step is the formulation of precise informative criminological theories (CTs). (2) These theories should then be compared with a wide version of rational choice theory (RCT). The argument is that the CTs will be corrected by applying RCT. This means that they become integrated as sub-theories of RCT. (3) The aim is to explain processes involving the causes and effects of crime and (4) applying a wide version of rational choice theory.

1. Introduction

Our program of an "Analytical Criminology" (AC)[1] has been described in great detail in the previous chapters. We discussed what is wrong with contemporary criminology (chapter 3), why a wide version of rational choice theory (RCT) could be a fruitful foundation for the further development of criminology (chapter 4), how exactly this theory could be compared with criminological theories which can be integrated – in their original or in a modified version – as specific corollaries of RCT (chapter 5), and how this theory can integrate micro and macro propositions (chapter 6). Then several specific criminological theories have been compared with RCT (chapter 7). This comparison showed that RCT implies numerous weaknesses and modifications of the criminological theories. These implications of RCT must be tested empirically. Such tests could not be provided in this book. These have to be left for future research.

This is, in a nutshell, our program of AC: a comparison of RCT and criminological theories by finding implications about necessary modifications of the criminological theories and their empirical tests. "Integration" results because the criminological theories become implications of RCT.

In this chapter we summarize the major components of the program. We formulate the program as four goals AC tries to achieve.

A research program needs a name that does not evoke misunderstandings (such as the label "rational" in "rational choice theory"). The term "*analytical*" means, in this context,

[1] This chapter is based on Opp and Pauwels 2018. See in particular pp. 236-244.

dissecting concepts and propositions (i.e. analyzing their components) and provide a rigorous scrutiny. The four goals to be described below involve such an "analytic" kind of analysis.

2. Goal 1: The formulation of precise and informative criminological theories

We have discussed the requirements for a good theory in chapter 2, and we have found that criminological theories fall short behind these criteria. This was the general diagnosis of the present state of criminology (chapter 3). Our detailed analyses of various criminological theories in chapter 7 showed striking inaccuracies of each theory discussed. Important concepts were ambiguous and it was not clear what the propositions are the theories consist of. A rigorous comparative discussion requires that the criminological theories compared need to be more precise than they are formulated in the literature. We had to explicate (i.e., reconstruct) the criminological theories (for this procedure see chapter 5) before we compared them with RCT.

A problem of comparing criminological theories with RCT was not only that the theories were not clear. Many theories have a low informative content. The explanandum is most of the time "crime" or "deviance." It is not spelled out and most of the time not even discussed whether the theory yields implications about explaining *kinds* of crime. Such a theory thus does not answer the question whether shoplifting or mass murder will occur if the conditions of the theory are fulfilled. It is astounding that criminologists apparently do not have problems with such theories.

Criminological hypotheses often lack informative content because they are only orienting statements and not of explanatory propositions that allow specific explanations. An example is the hypothesis that perceptions are relevant for criminal behavior (see chapter 7.8). This hypotheses does not inform about which perceptions lead to which behavior.

When we discuss criminological theories a comparison with RCT does not only require, as a first step, a clarification of the theories but also an examination of their informative content that is compared with RCT.

3. Goal 2: comparative theory testing and theory integration

So far we have not required that the theories must be empirically tested. This is a basic requirement of AC and rather obvious. Only theoretical analysis are not sufficient, they are only the first step of an AC. The next step is their empirical test.

But those tests must meet another requirement. As was shown earlier, a *comparative* test of theories is preferable to *isolated* theory testing. A particularly impressive example is the research that provides confirmation of self-control theory (see section 7.5). Applying RCT leads to the suspicion that relationships between low self-control and crime might be explained by variables of RCT. This means that low self-control is only related to crime because there are strong correlations of self-control and rational choice variables. This suspicion was a result of a theoretical analysis. An empirical study confirmed this assumption (Tibbetts and Myers 1999). It is thus possible that a theory is well confirmed, but that a comparison with other theories shows that the isolated test of a theory does not show that it is wrong. In other words: *a theory may be well confirmed empirically, but plainly wrong*.

The requirement of comparative theory testing is rarely met in criminology. A recent example is a special issue of the European Journal of Criminology (2018, vol. 15, issue 1). The issue is devoted to Situational Action Theory (see section 7.8). There is no empirical comparison with other theories. Our comparison with RCT indicates that this theory is highly problematic. Due to our critical analysis of the theory we would expect that RCT confirms the critique from the perspective of RCT.

We propose that the comparative theory testing should include the wide version of RCT. We thus do not think that just comparing criminological theories with each other is useful. This is a major claim of our AC: it is assumed that RCT is capable to correct the specific theories of criminal behavior. The procedure is best summarized in Figure 5.1 (chapter 5).

After the comparative theory testing the next step is theory integration. If the general theory is confirmed one should explicitly state what the conditions for the validity of the criminological theories are that are compared with RCT. They become a part of RCT. This means the criminological theories and RCT are integrated. If RCT is rejected then the question is which modification or alternative theory is useful. Perhaps there is another general theory that should replace RCT.

4. Goal 3: The explanation of social processes of the origins and effects of crime

What exactly should be explained? The goal should be to explain processes (i.e. mechanisms) that include crime. Although this goal is generally accepted in the social sciences, there are still few process explanations of crime . One could argue that every causal hypothesis is a process. For example, if there are contacts with criminal friends and if these contacts lead to crime, a process has taken place: there are events at time 1 and subsequent events at time 2. Such a process, referring to two points in time, could be called a “mini-process” or “mini explanation.”

One should not denounce such mini explanations. They are interesting at least as a starting point for formulating hypotheses about a more complicated process. For example, the finding that an increase in punishment did not reduce crime is of interest. This finding might lead to the formulation of new theories describing more extensive processes that involve (formal as well as informal) punishment and crime.

The demand to explain processes means to formulate and test hypotheses about longer processes than just about two points in time. A micro-macro explanation is such a longer process: a macro-event (such as an increasing the income tax) changes incentives for individuals (to save costs and fake tax declarations) and increases individual tax evasions. The individual tax evasions then aggregate to a rate of tax evasion.

Social processes could still be longer. Take the tax evasion example. Assume media have conducted a survey and found that tax evasion has considerably increased in the past few years. Tax authorities notice this and increase surveillance activities. The citizens note this and invest more time to evade punishment so that statistics about tax evasion did not change. In this example a macro event (a media report about a crime increase) triggers a whole chain of events, related to crime (see Figure 4.1 in chapter 4). Another example for process explanations is the sequential model of the labeling approach (see section 7.6).

The goal to explain social processes is also part of the program of Analytical Sociology (Hedström and Bearman 2009): the aim is called “mechanism”-explanations. This is a rather

unclear concept. We prefer to postulate the explanation of social processes. Situational action theory pursues similar ideas of providing process explanations (e.g. Wikström 2017).

There might also be processes on the macro level. An illustration is the model by Sampson and Groves (1989) that was discussed in section 7.7. The authors add an intervening variable between a bivariate hypothesis. To be sure, such hypotheses increase our theoretical knowledge. But a "deeper" explanation would require to address processes on the micro level (see the net goal 3).

Effects of crime are not addressed in this book.

We do not formulate criteria that eliminate certain kinds of process explanations. Thus, not only micro-macro models are welcome but process models at the micro level as well.

5. Goal 4: Explaining social processes by applying the wide version of rational choice theory and complementary theories

Goal 3 does not specify how social processes are to be explained. Goal 4 claims that general behavioral theories are to be applied, preferably the wide version of rational choice theory (RCT). This claim is supported by our analyses of the empirical support, the informative content of the theory and by its capability to explain micro-macro relationships. We have also seen that the critique that mechanism explanations do not need the Hempel-Oppenheim scheme (Hedström 2005: 13-14) is not tenable. Process explanations need, as any other explanation, theories. Due to the fruitfulness of RCT we propose that this is the theory that is to be applied.

It was mentioned that our program is inconsistent with basic ideas of Analytical Sociology and situational action theory. Both research programs are hostile to RCT. We have discussed various critiques of proponents of both theories and rejected them.

In Analytical Sociology the application of theories of the middle range is proposed. We have shown (Opp 2013) that these theories have often strong weaknesses and are therefore not appropriate to carry the explanatory burden of process explanations.

When RCT is to be applied in process explanations this implies that *micro-macro explanations* are required if the process hypotheses are macro propositions. Section 7.7 illustrates this for social disorganization and collective efficacy theory. Both are macro theories. They were explained by specifying the process that led to crime, and this process involved the micro level.

There are explanatory questions that can be addressed by theories that supplement RCT. This has been discussed in detail in chapter 4. For example, RCT assumes that beliefs about likely formal punishment are given. If the researcher wants to know how these beliefs are brought about, supplementary theories such as hypotheses about Bayesian learning can be applied.

6. Alternative programs of Analytical Criminology

Analytical Sociology is relevant for criminology because proponents of this school explain behavior which includes crime. As was said before, advocates of this program do not subscribe to the application of RCT, and they do not systematically pursue theory

comparison. Similarly, Situational Action Theory does not subscribe to RCT and does not include a systematic theory comparison and integration.

Matsueda (2017) also describes a research program of AC. He emphasizes micro-macro modeling. This is in line with our own program. But we require systematic theory comparison and integration as well.

Bruinsma (2016: 669-671) also asks what should be done to improve the present state of criminology that he describes in detail. It seems that he advances a program that rather compares criminological theories with each other than with general behavioral theories. But we fully agree with one requirement that we emphasized too: Bruinsma regards it as necessary "that we as a community take more seriously the basic methodological rules for scientific research" (670). Our entire book is an illustration for the neglect of these criteria.

The alternative programs of AC do thus not claim to apply a general theory and not to conduct comparative theory testing and integration. We have provided detailed arguments that undergird our own position.

7. Summary and conclusions

The previous chapters outline a research program that we call "Analytical Criminology" (AC). "Analytical" means, in this context, dissecting concepts and propositions (i.e. analyzing their components) and provide a rigorous scrutiny. This chapter summarizes what AC is about. We formulate AC as four goals.

(1) A comparison of criminological theories (ACs) and a wide version of rational choice theory (RCT) – a central aim of AC – presupposes that the ACs are clearly formulated so that one knows what to compare. One should further know what the theories can explain (i.e. what there informative content is). (2) These clarified CTs should then be compared with RCT. We argue that such a comparison will show that the CTs will normally be modified: RCT implies conditions for their validity. This means that the CTs will be integrated with RCT: they become corollaries of RCT.

(3) AC further suggests what is to be explained: we focus on social processes (i.e. mechanisms) that explain crime and the effects of crime. (4) Such process explanations should be accomplished by applying RCT. In particular, macro propositions should be transferred to micro-macro explanations.

Analytical Sociology and Situational Action Theory also propose an "Analytical Criminology," but they do not suggest neither applying RCT nor comparative theory testing. We provided arguments before (in particular in chapter 5 and 6) why our program is preferable.

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9 General conclusions, omissions and further research

Contents

Abstract. The previous chapters address the state of criminological theories (CTs) and how to improve it. The strategy is to apply a wide version of rational choice theory (RCT) and its supplementary theories (chapter 4) for an empirical comparison with the CTs. The major result of our detailed comparisons of selected CTs and RCT (chapter 7) is that the CTs can be derived in modified form from RCT. CTs thus become partial theories of RCT and are thus integrated into RCT. The book could not provide the required empirical tests which are left for future research.

The book could not pursue several issues, in particular crime prevention and the effects of crime. Several areas of further research are outlined. Above all it is important the provide empirical comparative tests of the theoretical analyses provided in the book.

1. The major conclusions

The book consists of two parts. The first part (chapters 2 to 6) discusses various problems related to the application of a wide version of RCT to derive the conditions for the validity of theories of crime. The second part includes the eight sections of Chapter 7: it provides a detailed comparison of selected criminological theories (CTs) with RCT.

The comparison of RCT and CTs yielded interesting and surprising results. It was shown that each of the CTs discussed is burdened with severe problems. These do not only concern the precision of their concepts and structure but also the factors that are regarded as bringing about crime. As a first step of the comparison with RCT it was always necessary to clarify what "the" theory is about. RCT suggests that additional factors, not mentioned in the theories, are relevant *and* that the factors the theories consist of are only conducive to crime under certain conditions. These conditions are implications of RCT. This means that an *integration* of the CTs and RCT is achieved: it is shown that the CTs become partial theories of RCT.

These theoretical analyses are the first step of the program of Analytical Criminology which is outlined in detail in chapter 8. Whether these theoretical derivations are valid must be tested empirically. We did not conduct empirical research to test our propositions. This has to be left to future research.

This research may, first of all, confirm our predictions from RCT. This means that the implications that modify existing CTs are correct. However, the research might also falsify our predictions. For example, it might be found that in general interactions with criminal networks lead to crime, regardless of whether in such networks crime is valued positively and rewarded.

The latter is a prediction of RCT. If an unconditional effect of involvement with criminal friends is found, RCT is falsified. Then the next step is to explore how RCT can be modified or replaced by another general theory.

It was puzzling at first sight that some of the CTs discussed in chapter 7 are well confirmed, but that RCT suggests that they are confirmed only because variables from RCT were not included in tests. Everybody knows this possibility from elementary multivariate statistics when spurious correlations are dealt with. For example, it is confirmed that the more often people visit a medical doctor, the more likely they die. We will find a statistically significant "effect" between these two variables. But the variable that influences death is the severity of illness. If we now run a regression analysis with frequency of visiting doctors and severity of illness the "effect" of frequency of visits becomes zero. The relationship between visits and death exists because illness leads to visits.

A similar situation exists for theories of crime and of RCT. For example, low self-control could resemble visiting doctors. Assume further that we find a clear relationship between low self-control and crime. This relationship might hold because low self-control is related to rational choice variables. For example, people with low self-control might feel little shame (an internal cost) if they commit crime, and this is the real causal variable. If self-control and shame are included in a multivariate regression analysis, the effect of self-control on crime might disappear. This is exactly the finding of the research by Tibbetts and Myers (1999 – see chapter 7.5 about self-control theory). They show that in the explanation of cheating the effects of self-control become insignificant in a multivariate analysis with rational choice variables.

This result shows that even ***well confirmed theories may be wrong***. This happens if single theories are tested without taking into account competing theories. This fact that is obvious for philosophers of science underlines the importance of comparative theory testing.

Assume similar results will be found for other CTs: variables of CTs "affect" crime because they are related to rational choice variables. This is actually an interesting information. This means that CTs are ***empirical generalizations***. They often hold because their variables are associated with costs and benefits. Besides low self-control contacts with criminal friends or being exposed to positive evaluations ("definitions") of crime might correlate with crime because (and if) they are associated with rational choice variables. This is an interesting empirical information: we know why certain factors "affect" crime.

The core of our program of Analytical Criminology (see chapter 8) is the application of RCT to examine the validity of CTs. This involves theoretical analyses and empirical research to examine the validity of the theoretical analyses. The present book could only provide the theoretical analyses. The empirical test of the results of our theoretical analyses is a task of future research (see below section 3).

2. Omissions

A book cannot address all questions that might be of interest. In this section we mention omissions that should be addressed in follow-up work.

We have selected *only a few of existing criminological theories* that seemed particularly interesting. Among the theories not analyzed are the routine activity approach, Hirschi's control theory, Marxist and feminist hypotheses and biological hypotheses. This does not mean that the omitted theories are not of interest. It only means that the projected length of the book set some limits. We chose the theories that we regarded as most interesting (this was an example of subjective utility maximization).

There is a vast literature about each of the theories selected. It was not intended to provide a detailed description of the development of those theories, nor of the different existing versions or of the numerous critical comments each of the theories has provoked. This would have required a separate book for *each* of the theories. Instead, we *have focused on a recent account of the theories by the major author or authors or on classical versions of the theories.* The latter are Merton's anomie theory (Merton 1968), Sutherland's differential association theory (Sutherland 1947) and hypotheses from the labeling approach, based on Becker's formulation (Becker 1963). This procedure guarantees that central and interesting theoretical ideas are addressed. Selecting these ideas is a good test for exploring the viability of RCT to correct existing criminological theories or to find that they are at least in part equivalent to RCT. Readers who are dissatisfied with this procedure might choose other propositions and compare them with RCT.

We further did not analyze more *philosophical or "foundational" assumptions* such as the existence of a free will, whether reality is deterministic, what the "nature of human nature" or the "nature of reality" is (Agnew 2011: 7). We focus on empirical theories that are (largely) testable. Whether the acceptance or non-acceptance of such "foundational" assumptions has any effects on the specific theories discussed in this book has to be left to further discussion. Our position is described in chapter 5, section 7. We argued that those "paradigms" or "frameworks" are too uninformative to generate specific criminological hypotheses. One should instead apply general behavioral theories to derive informative specific hypotheses about crime.

We did further not address debates about *causality*. One major assumption is that RCT and other general behavioral theories are causal theories. "Causal" means in this book, that there is, first of all, a time sequence: the independent variables occur before the dependent variable. There is, second, a constant conjunction between the variables, across time and places. "Constant" conjunction means that the covariation remains if the introduction of any control factor does not change the relationship. A singular event is a cause of another singular event means that this event is among the initial conditions of a law (see the Hempel-Oppenheim logic of explanation, chapter 2). This brief outline must suffice for the present purposes. A more detailed discussion that is at least very similar to our position is Matsueda's (2017) "potential outcomes framework."

It was originally planned to include a chapter on the implications of the wide version of RCT and its extensions (such as dual-process theories) for *crime prevention*. But this would have implied to review the numerous programs that are not based on RCT and compare them with RCT. This was planned originally, but then this seemed so extensive that it exceeded the scheduled length of the book. If this task of applying RCT systematically to crime prevention is undertaken, the book edited by Teasdale and Bradley (2017) could be the basis for analyzing the various prevention programs, based on CTs. This would be an ideal basis because RCT is not mentioned! It would be interesting to compare all the different programs discussed in this book with a wide version of RCT.

A component of our program of Analytical Sociology is the formulation and test of *process explanations*. Such models are largely missing because the theories we have discussed are not dynamic theories. If they had consisted of dynamic models they would have been discussed in this book. For the lack of dynamic models the state of criminological theory is thus to be blamed. These dynamic models should be micro-macro explanations. These should try to address macro propositions from critical criminology and explain them by specifying micro-macro processes.

We focused on theories from *mainstream criminology* and neglected critical criminology (for a short description of the differences see Agnew 2011). A challenging task would be to try to examine to what extent hypotheses based on Marxist thought can be explained by RCT.

The *effects of crime* were not discussed. For example, one could apply RCT and explore the effects of the rise and decline of crime rates on enforcement agencies and law-makers. This would require multi-actor models as they can be found in the public choice literature. One could further explore, by applying RCT, effects of crime on those who commit crime and on their environment. For example, how do the perpetrators' goals, beliefs, and further criminal action change? There is an extensive literature on these issue, but little by applying RCT.

A final omission is the detailed discussion of *empirical research and measurement issues*. Empirical results omitted because they are only relevant, if they provide comparative tests of CTs and RCT. The example of the research by Tibbetts and Myers (1999) discussed in section 7.5 shows that theories such as self-control theory might be well confirmed, but nevertheless wrong. The reason that they are not empirically compared with RCT. It does, therefore, not make sense to discuss in detail the empirical confirmation of the CTs discussed in this book.

3. Some suggestions for further research

A weakness of the present book is certainly that no own research could be presented. But we would like to close with a few comments on what research would be ideal to further develop our program of Analytical Criminology.

The most urgently data that is needed to realize our research program is to conduct *comparative tests of RCT and criminological theories*. The model research is the study by Tibbetts and Myers (1999). Let us repeat the procedure of such tests.

(1) One could first measure the variables of a criminological theory. In this case it was one variable: self-control. Other theories consist of more variables, as our analysis in chapter 7 indicates. In comparing CTs and RCT it is important that the entire set of variables of a criminological theory is tested. There should thus be no variable picking (chapter 3, section 7). The test of the complete criminological theory is important because its independent variables might be highly correlated and, thus, their influence might cancel each other.

(2) A second step is the measurement of the relevant incentive variables. In the present study these are, among others, anticipated shame (if a crime is committed) and morals (to what extent the respondents regard committing a crime as morally wrong). The latter two variables show strong correlations with low-self control: if there is low self-control, there is little anticipated shame and low morals (Tibbetts and Myers 1999).

It is important to invest a great effort to measure the full range of incentives that might be relevant in the research setting. Incomplete (or invalid) measurement could have the effect that the impact of criminological variables cannot be explained (although a full and valid measurement of rational choice variables would fully explain the effects of the criminological variables).

To measure rational choice variables one might resort to existing research (such as Matsueda et al. 2006, Tibbetts and Myers 1999) in which rational choice variables for certain kinds of crime are directly measured. But before new research is conducted intensive pre-tests are important to discover the relevant incentives in the specific research settings. These pretests might inquire whether the incentives of existing research still exist. To test this and try to find new incentives one should begin by eliciting informal narratives, i.e., asking perpetrators to tell the researcher why some crime has been committed. In the same way, one should ask people in a similar situation who have been law-abiding why they did ***not*** commit the respective crime. A next pretest might construct categories of incentives that are then presented to another sample of respondents. Such pretests should be the basis for formulating the questionnaire items for the final survey.

(3) The statistical analysis should explore in detail the extent to which criminological variables can be explained by rational choice variables. Again, the analysis of Tibbetts and Myers (1999) is a good example. The authors compute models in which self-control and one rational choice variable are included. One can see which rational choice variable can explain the effect of the criminological variable best. One should further explore first separate effects of the entire set of criminological, and second separate effects of the entire set of the rational choice variables. These are two separate statistical models. In the third full model all variables are to be included simultaneously. It can then be seen to what extent the effects of the criminological variables can be explained by the rational choice variables. There is also the possibility that the rational choice model will refuted. In principle, the effects of the criminological variables of the first model could remain constant, whereas the effects of the rational choice variable become close to zero.

Another suggestion for further research is the ***development of measurement instruments*** for the variables of the CTs and for RCT. These instruments should be closely related to the theoretical variables. The goal should be to develop standardized instruments that have been tested for their theoretical fruitfulness by comparing them with other instruments.

The results of the comparative tests should be summarized as an ***inventory table*** (see Table 9.1). In a first column the reference – i.e., the author or authors of the study – has or have to be shown. In the second column the criminological variables should be listed; the third column should contain the rational choice variables that were measured together with the criminological variables. (The order of these columns could, of course, be reversed).The fourth column should describe the results. This is a kind of meta-analysis that summarizes the state of the arts in relation to comparative theory testing of CTs and RCT.

Table 9.1: Part of a possible table for an inventory of comparing effects of rational choice and criminological variables

Reference	Criminological variables	Incentives for crime	Measurements	Findings
Tibbetts and Myers 1999	Low self-control	Morals Shame Expected pleasure etc.	Scale from Grasmick et al. 1993	Correlation of low self-control with crime was fully explained by the rational choice variables.
....	Number of criminal friends	Expected status Expected social rewards for crime	...	...

Over time there should be many comparative studies. It would then turn out what the ***empirical regularities*** are. For example, assume that contacts with criminal friends often correlate with crime, and that these correlations can be explained with rational choice variables These correlations are thus empirical regularities. Criminological variables correlate with crime in many situations, but not always. The reason of the correlations are their association with rational choice variables. If the regularities are strong – i.e. they are found in many situations – they are ***proxies for incentives***.

If our major presumption is correct that RCT can explain the correlations of criminological variables with crime one must conclude that criminological research is a huge waste of time and resources. Masses of data are collected that test CTs such as self-control theory, general strain theory or social learning theory, but the major explanatory variables are missing. But even if our presumption is incorrect: it is at least worth some research effort to test it.

4. Summary and conclusions

The book started with the "theory chaos" in criminology and the sociology of deviant behavior. This is characterized in particular by the ambiguity existing criminological theories (CTs) and our lack of knowledge about what the causes of crime are. To improve this situation it was suggested to pursue an empirical research program that compares CTs with a wide version of RCT. The idea is that RCT is well confirmed and should thus be capable to show under which conditions existing CTs are valid or whether they can be derived in their original form. The CTs thus become corollaries of RCT. This amounts to integration of CTs and RCT. Whether the theoretical implications hold true must be tested by empirical research. This empirical theory comparison of CTs and RCT is a major component of our program of Analytical Criminology which is described in detail in chapter 8.

Even if it turns out that variables of CTs are related to crime because that are associated with incentives these criminological variables could be used as proxies or empirical generalizations: it is important to know which factors are related to incentives.

The present book did not deal with issues that are of interest from a rational choice perspective. Only criminological theories were selected that seemed most promising. It would have been interesting to examine to what extent RCT has implications for existing measures of crime prevention. Another issue for future research is an exploration of the effects of crime. For example, which effects does a rise or decline of crime rates have for decisions of enforcement agencies or lawmakers?

A major suggestion for further research is to conduct comparative tests of CTs and RCT. The book consists of theoretical analysis. Whether the proposed modifications of CTs, based on RCT, are empirically correct needs to be tested.

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