Introduction: Rational Choice Social Research

RAFAEL WITTEK, TOM A. B. SNIJDERS, AND VICTOR NEE

During the past two decades or so, rational choice theory has significantly advanced in refining its theoretical core and its empirical applications, and has made a respectable contribution to a large variety of substantive research areas (Hechter and Kanazawa 1997; Hedström and Stern 2008; Kronenberg and Kalter 2012; Macy and Flache 1995; Voss and Abraham 2000). This volume presents an overview of some of the achievements of what we call rational choice *social research*—empirical investigations that were guided by rational choice reasoning.

In this introductory essay, we first sketch what could be described as the "Rational Choice Paradox"—that it is actually the strengths of the approach that have inhibited its further advancement. We then sketch some of the major criticisms against the approach, and then provide a very brief summary of the theoretical core of the rational choice approach. Next we outline the analytical structure and chapters of this Handbook. In the concluding section, we discuss some future perspectives for the approach, in particular its potential to develop into a full-fledged interlevel, interfield research program (Kuipers 2001).

The Rational Choice Paradox

Proponents of rational choice reasoning often argue that the rational choice approach, unlike any other paradigm in the social sciences, can be characterized by a well-developed, highly consistent, and widely shared set of formalized core assumptions (Coleman 1990). They praise its emphasis on parsimonious model building, conceptual rigor, and explicit attention to micro-macro problems for theory formation (Raub, Buskens, and Van Assen 2011)—qualities that, in the eyes of its proponents, warrant claims of a "privileged role" of rational choice modeling above other approaches attempting to explain social phenomena in terms of individual action (Goldthorpe 2007: 172; Abell 1992).

The rational choice approach indeed continues to attract use by increasing numbers of scholars. In more and more subfields of the social sciences, scholars realize the usefulness of the rational choice approach as a tool for theory-driven social research and interventions. It is not uncommon that empirical research,

from studies of residential segregation to warfare, draws on the rational choice approach as its implicit theory. Paradoxically enough, however, there are at least two reasons why the strengths of the RC approach (RCA) seem also to inhibit its further advancement.

First, with its traditional emphasis on theory building and formal modeling, the RC approach for a long time has been associated mainly with sophisticated but arcane and highly abstract modeling efforts. As a result, one of the major criticisms against RCA has been that rational choice scholars would excel in formal modeling but fail to provide empirical evidence to support their models. Therefore, the RC approach would neither have produced or be backed by relevant empirical insights, nor would it be useful in guiding empirical social research in the first place. While RC research indeed had a strong theoretical focus in the past, this statement is certainly increasingly less true. In the last two decades, RC research has been translated into Mertonian middle-range theory oriented toward empirical social research, often with impressive results.

Second, the RC approach meanwhile is probably the only paradigm that has been applied to almost all subdisciplines and subfields of the social and behavioral sciences, ranging from the modeling of markets to the study of immigration, assimilation, ethnic enterprise, race relations, trust, networks, institutions, religious behavior, emotions, terrorism, and a huge variety of other phenomena. In this sense, Goldthorpe's call that rational choice theory would benefit from "concentrating more on the application of RAT to specific explanatory tasks, rather than on theory development for its own sake" (Goldthorpe 2007: 134) was certainly heeded. Often the use of RC models has triggered fierce but fruitful controversies in these substantive and specialized fields of application. Through these discussions with subfield-specific audiences, rational choice researchers not only advanced our substantive knowledge on specific social phenomena but also significantly enhanced and refined the RC approach itself. Nevertheless, the insights generated within the subdisciplines only rarely diffused across subfield-specific boundaries. The result is that RC research, though being one of the few paradigms with a coherent set of formalized and widely shared core assumptions, remains fragmented, with RC scholars as well as their critics in one field often remaining unaware of the empirical and theoretical progress achieved in other subfields. Consequently, both RC scholars and their critics miss important refinements and corrections of the approach as they have taken place in the past two decades.

In sum, though the past two decades have seen major theoretical and empirical advancements guided by rational choice reasoning in a large variety of subfields, most of these advancements are still fragmented. Combined with the ongoing criticism against the approach as such, this fragmentation prohibits a more objective assessment of its merits and limitations.

Criticism of Rational Choice Theory

There is probably no aspect of rational choice theory that has not been criticized: its model of human nature, its reductionism, its inability to deal with culture and identity, its neglect of social embeddedness. Most of these issues have been discussed in Green and Shapiro's (1994) book *Pathologies of Rational Choice*

Theory and the subsequent debate. One of their major complaints was that rational choice theory has not produced novel, empirically sustainable findings: "[S]uccessful empirical applications of rational choice models have been few and far between. . . . Part of the difficulty stems from the sheer paucity of empirical applications" (ix–x). What is more, if empirical research was inspired by rational choice theory, it is "marred by methodological defects."

When discussing criticism against rational choice reasoning, it is important to distinguish between criticism based on misconceptions and criticism directed toward real problems (Goldthorpe 2007). Much criticism indeed rests on often serious misconceptions. This holds for the assumptions that rational choice theory equals neoclassical economics, that the approach would be normative in nature, that rational choice approaches would acknowledge only instrumental rationality (ibid.: ch. 8), or that formalism would be an essential requirement of the approach (Cox 1999). The majority of these misconceptions could be invalidated in the debate following Green's and Shapiro's publication (Friedman 1996). Also the claim that the set of empirical tests of nonobvious rational choice hypotheses is almost empty—what most would consider the least controversial criticism—did not withstand closer scrutiny even at the time of Green's and Shapiro's publication (for a demonstration of this point for the political sciences, see Cox 1999). This Handbook collects additional evidence proving this point. Nevertheless, no one would deny that rational choice theory, like any other theoretical framework, has some real unresolved problems to address. Most of them are related to the highly stylized assumptions of neoclassical economics, in particular the assumption of atomized interaction between rational and selfish actors with full information, taking place in perfect markets. Rational choice scholars always acknowledged that deviations from this ideal typical construct of rationality were possible. Four different strategies to deal with such deviations can be discerned. They differ with regard to how they treat individual level deviations from rationality and its aggregate effects.

COGNITIVE ANOMALIES

The first solution, and the one usually invoked by proponents of neoclassical strong rationality assumptions, consists in classifying these deviations as "cognitive anomalies" at the level of individual actors. Such anomalies would be idiosyncratic and randomly distributed in the population, which is why they would not substantively affect the aggregated outcomes predicted by rational choice models. Adherents of this position therefore consider the neoclassical set of rationality assumptions as a valid foundation for model building, and see no need to increase cognitive complexity. Its fiercest proponents, such as Gary Becker, consider principles of strong rationality as applicable for decision-making in general, independent of the context in which it takes places. This position has become known as economics imperialism (Fine and Milonakis 2008): humans are general-purpose problem solvers acting according to rationality criteria, be it in choosing a mating partner or in buying a car.

STRONG VS. WEAK RATIONALITY

The second group of scholars suggested distinguishing between "strong" and "weak" rationality assumptions ("hyperrationality" vs. "bounded rationality").

Strong rationality would assume, for example, perfect information of all actors, unlimited cognitive capacity to deal with information, and maximization as the decision-making criterion. Bounded rationality assumes unequal access to information, selective attention, and satisficing. Proponents of strong rationality acknowledge that the assumptions are abstractions that need not match with real-life individual decision-making processes, but emphasize that these assumptions nevertheless result in good models of aggregate outcomes (Coleman 1990; see also Buskens's and Raub's contribution to this volume). Bounded rationality proponents doubt this and urge scholars to make more realistic assumptions about human nature. They argue that individual deviations from strong rationality are not idiosyncratic but systematic. As a result, models that do not take such systematic deviations into account will also produce wrong aggregate level predictions. The bounded rationality approach refines the full rationality perspective by delineating a specific set of cognitive limitations. This does not mean that its proponents aim "at the construction of models of choice that are incompatible with rationality" (Rubinstein 1998: 25).

MARKET VS. NONMARKET CONTEXTS

The third group of scholars suggested that strong rationality assumptions would hold only in specific, usually market-related decision situations, whereas nonrational motives would dominate in noneconomic settings, such as transactions in families or within close-knit communities. This would justify the division of labor between economics studying markets and economic behavior and exchange, and the other social sciences studying social behavior. Here, increasing the "cognitive complexity" of the actor model would be considered an adequate strategy only if the phenomenon to be explained would be outside of the market or economic sphere. This approach acknowledges that there might be systematic individual-level deviations from strong rationality in specific noneconomic domains. Consequently, rational choice theory is not applicable to model behavior in these settings, since it would also lead to wrong aggregate-level predictions, but it definitely is adequate to model behavior in other settings.

SOCIAL RATIONALITY

Finally, the fourth group of scholars opts for expanding assumptions about rationality. This builds on mounting evidence collected during the past two decades by cognitive neurosciences, behavioral economics, evolutionary psychology, and related fields. Rather than treating deviations from a strong rationality model as idiosyncratic cognitive anomalies of individuals, as applicable to only specific societal domains, or as simply limited by cognitive capacities, they should be conceived as systematic reflections and hence predictable characteristics of human nature (Ariely 2008; Thaler and Sunstein 2008; Camerer, Loewenstein, and Rabin 2004; see also Lindenberg's contribution to this volume). This requires a refinement of microfoundations. At many points in this Handbook, two such strategies of refining the microfoundations are applied: the systematic incorporation of assumptions about human goals and preferences on the one hand, and about identities and beliefs on the other. The common denominator of these strategies consists in refining the cognitive,

motivational, and even neurophysiological ingredients of individual decision-making processes. By elaborating on the cognitive foundations of human decision-making (that is, rendering assumptions about the intrapersonal antecedents of behavior more complex), research following this strategy arrives at surprising hypotheses and insights, which sometimes are at odds with the predictions of the standard model, and sometimes can be incorporated into it. Extensions of the actor model of economics—for example, through "fast and frugal" heuristics, the incorporation of loss aversion and reciprocity effects, or the assumption that actors derive utility from punishment (Fehr and Gächter 2000)—were successfully applied to explain cooperative vs. selfish behavior, such as the decision to free-ride or to allocate sanctions for noncooperation. Crucial antecedents dealt with in this context are nonpecuniary incentives, reciprocity, and social incentives (for example, altruistic punishment) in general.

In sum, the past decades have witnessed many attempts to refine, specify, or relax these assumptions. The next section provides a brief structured overview of these attempts.

Core Assumptions of Rational Choice Theory

Following Goldthorpe (2007), we define the rational choice approach broadly as a family of theories explaining social phenomena as outcomes of individual action that can—in some way—be construed as rational. Simon refers to substantive rationality as behavior that "is appropriate to the achievement of given goals within the limits imposed by given conditions and constraints." In this perspective, irrational behavior is an outcome of impulsive responses without adequate intervention of thought (Rubinstein 1998: 21; but see Lindenberg in this Handbook for a different approach).

As in most other theory traditions, there are many variations in how rational choice theories are constructed. Rational choice scholars differ, often considerably so, with regard to the type of assumptions they make, their behavioral "microfoundations." Yet they also share a common core. Though explicating the behavioral microfoundations underlying a proposed explanation is crucial for any theoretical endeavor, social scientists more often than not leave many of these assumptions implicit, and rational choice scholars are no exception. For mainstream economists, this is usually believed to be not too problematic, given a widely shared consensus on the assumptions of the canonical model to which the majority of economists adhere. In these cases, tacit assumptions can often be easily reconstructed by referring to textbook knowledge. Lacking explications of assumptions is problematic in those branches of the social sciences without a consensus about the theoretical core, and sociology is certainly one of them. Misconceptions are often the consequence, with resulting debates not addressing real problems (Goldthorpe 2000: ch. 8) and creating wrong divides between theoretical approaches. The importance of explicating the microfoundations underlying an explanation has been repeatedly demonstrated, and becomes most visible in those situations in which the same explanatory variable is hypothesized to have opposite effects on an outcome, depending on the type of microfoundation that is taken as

TABLE 0.1

Varieties of Rational Choice Microfoundations

Assumption	Thin or strong rationality			Thick or weak rationality
Rationality	Full rationality	Bounded rationality	Procedural rationality	Social rationality
Preferences:				
Selfishness	Opportunism	Egoism	Linked-utility	Solidarity
Preferences:				
Materialism	Tangible resources	Intangible resources	Physical well-being	Social well-being
Individualism	Natural	Social	Institutional	Structural

a starting point (Torsvik 2000). Take the example of explaining variations in employee commitment or performance as a consequence of the amount of pay. If the microfoundation assumes that individuals care only about the amount of their own salary, the resulting prediction is that pay raises should have a positive effect on individual performance, independently of the pay raises received by other employees in the firm. If the assumption is that individuals care about relative status, a pay raise may actually have detrimental effects on performance if it compares unfavorably with what one's colleagues earn (Frank). In the case of this second microfoundation, the assumption of "atomistic" actors underlying the first hypothesis is relaxed by assuming that individuals know what their colleagues earn (a condition that is not necessary in the first model), that they make social comparisons, and that they are driven by social motives (that is, to increase their relative status). Note that the latter is still compatible with the selfishness assumption of the standard model, since individuals are assumed to maximize not only material gain but also relative status. This thought experiment can even be extended further. Assume that individuals again care about what others earn, but that "caring" means that they are guided mainly by fairness considerations, rather than by the drive to increase their own status. In that case, the positive effect of a pay raise on individual performance would be predicted only if either the pay raise is perceived to be legitimate, or if other employees in comparable positions also receive a pay raise. In this model, one element in the microfoundation deviates from the canonical rational choice model: it drops the assumption of selfish preferences.

As the contributions to this Handbook amply illustrate, many contemporary rational choice models relax some of the assumptions of the canonical model while retaining others. In what follows, we sketch three dimensions on which rational choice scholars usually differ, and along which rational choice theories can be characterized (see also Goldthorpe 2007). We refer to these domains as rationality, preference, and individualism assumptions (see Table 0.1).

RATIONALITY

Rationality assumptions span the range from full (or hyper-) rationality, bounded rationality, procedural rationality to social or ecological rationality. In models of *full rationality*, the assumption is that individuals are fully informed about all their decision alternatives, the probabilities of their outcomes, and

their consequences. Individual decision-makers do not face any cognitive limitations or biases in perceiving or processing this information. Alternatives are evaluated against each other according to cost-benefit criteria, and actors choose the alternative with the highest (subjective) expected utility. Where outcomes depend on the decisions of other actors, full rationality is assumed to be strategic (rather than parametric) rationality, and modeled with game theoretical tools.

Models of *bounded rationality* (Simon 1957; Rubinstein 1998) make two key assumptions in which they deviate from full rationality models. First, decision-makers are usually not fully informed about all available options: their perception of information is biased through selective attention (framing processes). Second, humans have limited cognitive capacities for processing the information that is available to them: rather than maximizing, boundedly rational actors satisfice—that is, once they detect a course of action that in their eyes is good enough to reach a goal, they won't go on searching for a better one, even if they know that a better solution would be available.

Models of *procedural rationality* share the assumption that many individual decisions and much behavior are guided by past experiences leading to imitation and "automatic" responses, rather than by conscious and deliberate evaluation of future costs and benefits. Such learning models consider trial and error mechanisms as crucial strategies, in particular under conditions of (radical) uncertainty where individuals do not know all possible outcomes (Knight 1921). Hedström (1998) refers to this strategy as "rational imitation."

Finally, Lindenberg's *social rationality* and Todd's and Gigerenzer's *ecological rationality* approach suggest that rationality should be treated as an explanandum rather than an explanans. Building on insights from social and cognitive psychology and the evolutionary and neurocognitive sciences, which document the modularity of the brain, social rationality models try to specify under which conditions gain-maximization and other rationality traits contained in full or bounded rationality approaches will guide human decision-making, and under which conditions other processes such as learning or automatic responses will guide behavior (Lindenberg 2001; Todd and Gigerenzer 2007). The social rationality model goes furthest in relaxing the traditional rational choice core. It suggests that gain seeking is only one of three overarching goal frames, in between hedonic and normative frames. A key argument is that not gain seeking but hedonic goals—directed toward the immediate realization of pleasure, not necessarily of material gain—are the "natural default condition" (see Lindenberg's chapter in this Handbook).

PREFERENCES

The second dimension on which rational choice models differ is *preference assumptions*. In the canonical, neoclassical rational choice model, preferences are assumed to be exogenously given and stable, and individuals are selfish egoists striving toward the maximization of material gain. Rational choice models can be distinguished based on the degree to which they relax these two preference assumptions. We refer to them as the selfishness and the materialism assumptions.

Selfishness

With regard to *selfishness assumptions*, the following four positions can be discerned. First, on one extreme of the continuum, Williamson urged sharpening the selfishness assumption by incorporating *opportunism* (that is, self-seeking with guile) as an extreme form of egoism (Williamson 1975). Opportunism implies that exchange partners may deliberately break rules and cheat in order to increase their own benefits at the expense of the other party (see Foss's and Klein's chapter in this Handbook for a discussion of the implications of opportunism).

Second, the opportunism assumption differs from a pure *egoism* assumption, in which contracting parties are assumed to respect the rules of the game. For example, complete contracting theories assume that rational and forward-looking actors design and enforce these rules in such a way that they align the selfish interests between the exchange parties so that it does not pay to cheat (Milgrom and Roberts 1992).

Third, some rational choice models explicitly incorporate the assumption that it might be in the best interest of an individual to take the well-being of other actors into account—that is, to link his or her utility to the utility of exchange partners. Approaches building on such *linked utility* assumptions argue that individuals might hold moral or partially altruistic preferences. This assumption does not require relaxing other rationality assumptions. In fact, selfishness is not a necessary component of rational choice models at all (see Gächter in this Handbook).

Finally, at the other end of the selfish preference continuum, some rational choice scholars invoke goal-framing theories to argue that (social) preferences dominant in a given situation need to be endogenized. This approach suggests that under specific circumstances, humans may act in a strong solidarity frame in which no tangible direct personal benefit results from their actions. In other situations, weak solidarity (for example, in the form of direct reciprocity) may govern the behavior of individuals. For example, in many economic transactions the salient individual gain frame is tempered by fairness considerations, resulting in the more powerful exchange partner not squeezing the maximum possible out of the other party. We refer to these assumptions as *solidarity* assumptions (see Lindenberg in this Handbook).

Materialism

Although there is nothing inherent in rational choice theory that makes the assumption of material gain a necessary one, many rational choice models seem at least to build implicitly on the assumption that what drives human decision-making is the maximization of tangible, material resources. We refer to this as the *tangible resources assumption*. Such tangible resources are usually assumed to be money or other goods that may be accumulated.

Somewhat less restrictive, but still in the same spirit is the *intangible resources assumption:* some resources are not tangible but can still constitute very valuable intangible assets, such as intellectual capital or capabilities and competencies (see, for example, Daum 2003).

Social rationality approaches (Lindenberg 2001) have further relaxed the assumption that resources—be they tangible or intangible—are the major

objective individuals strive to maximize. They argue that humans put great value on their physical and social well-being, often at the expense of material gain. The *physical well-being assumption* proposes that individuals will seek stimulation and comfort, whereas the *social well-being assumption* states that individuals may also strive for the maximization of different types of *social goals* such as social approval, status and prestige, or affection. In this perspective, tangible and intangible resources are seen as instrumental lower-level means of production ("instrumental goals") that individuals use to produce the higher-level goal of well-being.

INDIVIDUALISM

Although rational choice scholars might differ in the type of microfoundation they use, what unites them all is the conviction that societal phenomena at the meso or macro level can be explained in a satisfactory way only by descending to the level of the individual and specifying the microlevel mechanisms—assumptions about individual decision-makers and the decision rules they use to make their choices—that generate the macrolevel outcome. This analytical strategy is referred to as individualism (for a discussion of the ambiguities of this term and varieties of individualism, see Hodgson 2007). For most social researchers in the rational choice tradition, the theoretical primacy—the phenomena that have to be explained—is situated on the meso or macro level, whereas the analytical primacy—the social mechanisms leading to behavior of individual actors—has to be connected to the micro level of individual choices (Raub, Buskens, and Van Assen 2011; Hedström and Bearman 2009).

While some form of individualism underlies all rational choice approaches, individualism assumptions come in many varieties, and different labels have been coined to characterize these variations—such as methodological, institutional, holistic, or structural individualism. Drawing on his extensive analysis of methodological individualism, Udehn (2001: 354) considers the following approach as the core of explanatory methodological individualism: "Social phenomena must be explained in terms of individuals, their physical and psychic states, actions, interactions, social situation, and physical environment." As in the case of rationality assumptions, strong and weak versions of methodological individualism can be distinguished (Udehn 2001). They differ to the degree that macro- or mesolevel conditions (such as institutions or social structures) are incorporated as part of the explanans. Strong versions require that exogenous variables and conditions (that is, the explananda) must refer *only* to individuals, but *not* to social institutions. In weak versions of methodological individualism, this rule is replaced by the requirement that social phenomena are allowed to enter the antecedents. Rational choice models subscribing to the latter view require specifying three steps in their social mechanism explanations: a macro-micro step or "situational mechanism," a micro-micro step or "action generating mechanism," and a micro-macro step or "transformation mechanism" (Hedström and Swedberg 1998). This analytical strategy is of course not restricted to rational choice theory (see, for example, Gross 2009), though rational choice scholars probably had a strong impact on the refinement of social mechanism approaches.

The type of rationality and preference assumptions characterize the degree

to which the canonical model's assumptions about cognitive abilities are relaxed—that is, they introduce different degrees of cognitive complexity in the microfoundation of a rational choice explanation. Varieties of individualism reflect the degree to which the canonical model's idea of isolated, "atomized" actors is relaxed—that is to say, they add structural complexity (Lindenberg 1992) in the form of different types of social embeddedness.

Again, the assumption space can be described as a continuum, ranging from strong to weak forms of individualism (Udehn 2001: ch. 12). At one end reigns the atomism assumption of neoclassical economics and theories of general equilibrium, which model exchanges as atomized interactions on perfect markets. The most prominent assumption of this *natural methodological individualism* is that all parties have equal access to information, and that patterns of (social) relationships are not relevant as opportunities or constraints for economic behavior. All information is contained in the prices for the exchanged goods. This approach has been called "natural" individualism, "since nothing socio-cultural enters the explanans, or exogenous variables, of its explanations" (ibid.: 347).

This unrealistic assumption has frequently been challenged, and many efforts have been made to develop a more realistic set of assumptions that can be incorporated into rational choice models. Udehn (2001) suggests that "Austrian" or *social methodological individualism* based on the work of Menger, Weber, von Mises, Hayek, and Schumpeter, though still representing a strong version of individualism, departs from the atomistic model in that it emphasizes the importance of subjective meaning that individuals attach to their actions. In this version, society is seen as an intersubjective reality, and humans are considered as social and cultural beings. Representatives of this approach acknowledge that social institutions, which they situate in the minds of individuals, may influence individual preferences and actions: "[S]ocial institutions are the subjective meaning individuals attach to social actions or social things like money" (ibid.: 125).

A third and weak version of methodological individualism has been labeled *institutional individualism*. It is considered the dominant version in new institutional economics and political sciences. Here, institutions are conceptualized as objective phenomena and accepted as exogenous variables, though there are also many attempts within this tradition to endogenize institutions. More specifically, institutional embeddedness refers to rules affecting opportunities, constraints, incentives, and information of actors and their exchange partners. Institutions can have a formal or an informal basis; they can contain ambiguities, may not be known by all actors, and may or may not be enforced.

Fourth, sociologists Coleman, Lindenberg, Raub, and Wippler have elaborated what now is known as *structural individualism*, the version most frequently applied by sociologists (for an early statement, see, for example, Wippler and Lindenberg 1987). Udehn (2001) considers it as the weakest form of methodological individualism because it leaves room for a broad set of societal-level conditions to influence individual-level choice and behavior. Social structural and institutional embeddedness enters this model in several ways.

First, social structure—in the sense of positions in a system of relations—is assumed to influence individual preferences and beliefs. Scholars following this strategy incorporate fine-grained information on social-structural network characteristics of individual actors or their settings, and introduce learning (that is, differential access to information) and control effects (differential exposure to monitoring and sanctioning capacities) into their models. Structural embeddedness comes in two varieties (see Buskens and Raub in this Handbook): in dyadic and network forms. Dyadic embeddedness assumptions state that past, ongoing, or expected future interactions with specific other exchange parties will affect decisions, behavior, and exchanges. The focus is on the dyad—for example, the two parties in a contract governing a supplier relationship. The "tie" can take many forms, ranging from the completion of a business transaction in the past, to a friendship and family bond. Depending on the preference assumptions invoked (see above), the effects of dyadic embeddedness can be limited to, for example, information benefits ("learning") and control (sanctioning opportunities), or can affect an individual's inclination toward prosocial behavior as in linked utility or social rationality approaches. Ties to third parties do not affect these interactions. Network embeddedness assumptions further increase structural complexity by considering the potential influence of third parties on exchanges between two actors, because one or both of them are tied to the third party. Again, the nature of the "ties" as well as the mechanism can vary, depending on the rationality assumptions used. For example, third parties can act as intermediaries or guarantors where a potential trustor is uncertain about the trustworthiness of a trustee. Similarly, network closure may enhance sanctioning opportunities and therefore facilitate collective action.

The second way to conceptualize structural individualism is in terms of social roles influencing preferences and actions. For example, individuals occupying a managerial position in a firm are supposed to maximize profits for their employer. Finally, structural individualism also acknowledges the potential impact of culture on individual preferences and beliefs.

The Handbook of Rational Choice Social Research

The focus of this Handbook is on Rational Choice *Social Research*, with the link between theory and empirical research being of central concern. This emphasis has a number of implications for the structure and content of the Volume. In this section, we first outline the rationale and overall structure of the Handbook. We then briefly sketch the content of each chapter.

PURPOSE OF THE HANDBOOK

This Handbook attempts to provide a state-of-the-art overview of current social research guided by rational choice reasoning. The contributions structure their problem area, assess what kind of empirical regularities have been confirmed, critically discuss the scope and explanatory power of rational choice explanations of these phenomena, and sketch fruitful areas for future research in their domain. In order to achieve this aim, the chapters were written with the following guidelines in the background. First, each chapter addresses both

theoretical and empirical issues. Put differently, we did not include chapters with a purely theoretical character (for example, discussions and comparisons of theoretical debates or refinements), or chapters with a purely empirical focus (such as literature reviews or summaries of findings). Each chapter provides a sound reflection and discussion of the major theoretical and empirical achievements in a subfield. It structures this subfield, thereby providing an analytical frame of reference that allows identifying underlying overarching themes in existing research. At the same time, each chapter functions as an organizing device and point of departure for promising new research efforts by going into depth with regard to the respective rational choice models relevant for the problem under investigation. Chapters carefully reconstruct the major assumptions, causal mechanisms, and theoretical propositions of the models, point out eventual problems and discuss possible solutions. The purpose of this reconstruction is to reach a maximum of transparency, thereby enabling future researchers to apply, refine, and test the models. Hence we have opted for an intensive rather than an extensive setup of each chapter. The result is an in-depth treatment of the rational choice models related to a substantive problem, rather than a general overview of and comparison with alternative theories dealing with a specific problem.

Second, the Handbook covers a broad range of topics in which the rational choice approach has proven to be a powerful tool of analysis. This implies that the primary intended audiences of each chapter are scholars dealing with a well-established and recognizable *substantive problem*. Such substantive core problems will be identified by the kind of phenomena to be explained. We opted for such a problem-based approach (for example, "explaining terrorism," "explaining war") rather than a discipline-based approach ("political sociology"), not only because specific problems are usually studied by various disciplines but also because one of the strengths of the rational choice approach is to provide a unifying analytical framework into which insights from different fields and disciplines can be integrated.

Third, the purpose of the Handbook is to provide insights into concrete societal processes and issues, and to provide templates that stimulate future research. The chapters therefore emphasize what can be learned from earlier research, and what constitutes cutting-edge theoretical and methodological tools to advance research into societal developments. That is, the theory part of the chapters is analytical in nature, rather than historical (in the sense of reconstructing or summing up intellectual history of theories).

In sum, each chapter has a theoretical core in which elements of rational choice reasoning are discussed, and a substantive domain of application, reviewing studies in which the resulting hypotheses were empirically put to a test.

STRUCTURE OF THE HANDBOOK

The Handbook is divided into five parts. The four chapters of Part I ("Rationality and Decision-making") address the microfoundations of rational choice theory. They present different versions and extended discussions of rationality assumptions, and also offer an analysis of how structural embeddedness affects cooperation among rational egoists. The main "outcome domain" addressed here is individual decision-making.

Part II ("Networks and Inequality") provides examples for rational choice models adding structural complexity to their toolkit. The chapters share a focus on inequality as an antecedent and outcome of social processes. The main purpose of the three chapters is to explain how differences in exchange structures affect variations in power or access to valued resources.

The remaining three parts focus on the role of institutional contexts governing behavior in communities, markets, organizations, and states. Individual behavior and choice differ significantly depending on the type of social context in which they take place. Rational choice scholars equate each context with a distinct form of governance—that is, a specific set of institutional rules and definitions of the situation regulating the exchanges between actors. An often-invoked distinction contrasts "spontaneous" and "constructed" social orders, considering primordial social orders such as groups and communities and markets as representing the former category, and states as well as formal organizations as representatives of the latter. While conceptually useful, this distinction also bears some risk of oversimplification: neither do markets as such emerge spontaneously, nor can states or organizations be adequately understood by looking only at their formal blueprint. Markets are designed and regulated, they are subject to institutional change, and can fail. The governance of organizations has to take into consideration that contracts tend to be incomplete. States emerge as a result of complex power struggles between and among internal and external parties.

In market exchanges, gain seeking and competition are considered to be legitimate motives for exchange partners, whereas exchanges in constructed social orders are characterized by principles of authority ranking and hierarchical control. The concept of community represents the idea of primordial social orders in which the guiding principles of exchanges are social norms of communal sharing and equality. Rational choice scholars explicitly recognize that each of these types of governance can fail and that the different forms can interfere with or substitute for each other. For example, organizational governance may fail because principles of primordial social orders like friendship ties prevail or dominate the exchanges inside the organization. Likewise, where market failures occur because of externalities, organizational hierarchies or social control based on informal social relations can contribute to the solution of the resulting social dilemmas. Given their crucial role as constraints on behavior and choice, explaining the emergence, change, and eventual failure or success of each form of governance becomes an important task in itself. As a consequence, rational choice scholars have recognized the necessity of endogenizing the different forms of governance, resulting in numerous models explaining, for example, the emergence of norms or hierarchies in market settings.

The three remaining sections in the Handbook are designed to account for these complications. Parts III and IV focus on the two extremes on the continuum between spontaneous and constructed social orders, addressing, respectively, communities and cohesion, and states and conflicts. Part V focuses on markets and organizations.

In what follows, we will provide a structured overview of the content of each part and chapter. Drawing on the four core assumptions as they were

discussed in Part III, we will assess which type and combination of assumptions characterizes rational choice research in each of the fields.

RATIONALITY AND DECISION-MAKING

The four contributions in this part focus on the microfoundation of rational choice theory, and investigate recent advances of rational choice social research on cooperation, individual and collective decision-making, and well-being.

Simon Gächter's chapter ("Rationality, Social Preferences, and Strategic Decision-making from a Behavioral Economics Perspective") starts with a concise introduction to the hard core of rational choice theory, the "canonical rational choice model." It portrays strong rationality assumptions and how they can be fruitfully used for modeling purposes despite their unrealistic empirical content. In a second step, the chapter discusses the implications of relaxing one of rational choice theory's key assumptions: the selfishness assumption. Gächter argues that rational choice theory does not require assuming self-regarding preferences, and points toward the low prediction accuracy of rational choice models based on this assumption. Using different types of social dilemma situations—including Trust, Dictator, Ultimatum, and Public Goods Games—the chapter then provides a systematic overview of the role of social preferences in game theoretical models of prosocial behavior. Most of these models have been tested in laboratory settings. The findings consistently show outcomes that would be considered at odds with selfishness assumptions in the canonical rational choice model, as in the case of altruistic punishment.

Vincent Buskens's and Werner Raub's chapter, "Rational Choice Research on Social Dilemmas: Embeddedness Effects on Trust," takes a different approach than Gächter's chapter. Building on the Trust Game as their focus of analysis, the authors investigate the conditions under which selfish actors are inclined to trust others, and when this trust is likely to be abused or honored. Buskens and Raub explicitly stick to full rationality assumptions: actors in their model are assumed to be fully informed and selfish gain maximizers. Working in the tradition of structural individualism, Buskens and Raub add complexity by replacing the assumption of atomized interactions on perfect markets by assumptions specifying different types of dyadic and structural embeddedness. Embeddedness implies that actors had, have, or expect to have interactions with other actors. The chapter analyzes how embeddedness affects trust through two mechanisms—control (that is, sanctioning possibilities for trustor) and learning (availability of information about trustee). They then use game theoretical modeling to derive hypotheses about how control and learning affect trust behavior under different embeddedness conditions. Based on a systematic review of empirical findings from experimental research and survey studies—most of which related to the acquisition of tangible resources—they find strong evidence for learning effects on both the dyad and the network level. Findings for control effects were less clear-cut; in particular, research on network control produced ambiguous results.

Siegwart Lindenberg's chapter ("Social Rationality, Self-Regulation, and Well-Being") pleads for a redefinition of the rationality concept in terms of self-regulation. Pointing toward many recent insights gathered among others within behavioral economics or evolutionary psychology, the chapter starts by

outlining the key components of such a "social rationality" framework and its inter-relationship with self-regulation. He argues that the human brain developed as a social brain to handle three types of self-regulatory behavior. Need-related, goal-related, and self-related self-regulation are necessary to deal with complex interdependencies related to reproduction and living in groups. While sticking to the microeconomic assumption of the importance of relative prices, the social rationality framework goes beyond microeconomics by incorporating goal framing. Three master goal frames are distinguished: hedonic, gain, and normative. It is assumed that these frames are selectively—and sometimes automatically—activated. The chapter outlines the mechanism leading to the activation of goal frames, the inter-relationships between them, and their subsequent influence on (prosocial) behavior. Another key component added to the microeconomic model are variations in self-regulation ability and the idea that individuals strive for tangible resources only to the degree that they are instrumental for the realization of the higher-order goals of physical and social well-being. The chapter illustrates the implications of these assumptions with findings from recent research on prosocial behavior and sanctioning.

The chapter on "Modeling Collective Decision-making" by Stokman, Van der Knoop, and Van Oosten provides a detailed reconstruction of the theoretical assumptions underlying cooperative and noncooperative bargaining models of collective decision-making, and sketches the operational steps for empirical tests of an integrated model. According to this framework, relatively accurate predictions of the outcomes of collective decision-making processes can be made based on a limited amount of information: the relevant issues, stakeholders, their policy position, their power to affect collective outcomes, and their interest in each of the issues. The chapter then describes three different bargaining processes through which collective decisions are usually reached: persuasion, logrolling, and enforcement. The model specifies under which institutional and structural conditions each of these processes is likely to be dominant. Examples from decision-making in the European Union and in firms are used to illustrate the different aspects of the model. Though building on a game theoretical and exchange theoretical framework in its core, the proposed model makes a strong point for adding cognitive and structural complexity to this core, thereby replacing the full rationality and atomism assumptions of natural individualism by a structural individualist approach based on social rationality. For example, persuasion strategies are strongly tied to framing processes and trust; differences in policy positions between stakeholders can be due to conflicting cognitive maps, and the power position of a stakeholder is likely to affect the weight other stakeholders assign to his or her opinion.

The four papers vary in the degree of realism in rationality assumptions. Gächter uses a full rationality model, sticks to the atomism assumption of natural individualism, assumes tangible resources as the major goal of individuals, but relaxes the selfishness postulate in favor of linked-utility assumptions: individuals show inequality aversion and have a tendency to reciprocate. Buskens and Raub stick to the full rationality and selfishness (egoism) assumption but relax the atomistic natural individualism assumption by explicitly incorporating dyadic and network embeddedness. They implicitly assume that actors strive mainly for tangible resources. Lindenberg relaxes both

the full rationality and the selfishness assumptions. His goal-framing model assumes social rationality, which systematically incorporates different types of goal frames into the theoretical core of the approach. This allows endogenizing (selfish or prosocial) preferences. This approach emphasizes physical and social well-being as higher-level goals, and considers tangible or intangible resources as lower-level instrumental goals or endowments that can be used to realize higher-level goals. Lindenberg's social rationality approach does not provide a fine-grained elaboration of embeddedness assumptions, though social relations and institutions are acknowledged as key context conditions influencing goal frames and the relative prices of achieving different types of goals. Both Buskens and Raub as well as Lindenberg represent structural individualism.

With the incorporation of structural and institutional embeddedness as well as cognitive processes, the structural individualist model of collective decision-making of Stokman et al. provides an example for a thick version of rationality. With regard to rationality assumptions, Stokman et al. incorporate elements of Lindenberg's social rationality framework when building on the distinction between ultimate and instrumental goals. The model also endogenizes preference assumptions, suggesting that under conditions of joint production, cognitive interdependence will increase the likelihood for trust and persuasion. The model is not restricted to (in)tangible resources as goals, thereby relaxing the materialism assumption. Furthermore, though it does not elaborate on fine-grained variations in network embeddedness, it explicitly provides a framework for considering opportunity structures allowing for logrolling. Finally, models of collective decision-making always incorporate the institutional context, since each context has different decision-making rules under which decisions have to be taken.

NETWORKS AND INEQUALITY

In many settings, be they markets or social groups, some actors usually have a more advantageous position in the network of (social or economic) exchanges than others. For example, they have friends in high places, or can act as a broker between otherwise unconnected players, which allows them to control the resource flow between other actors. Such advantageous positions in exchange structures allow them to make better deals than their partners, making them materially better off in the long run. The chapters in Part II ("Networks and Inequality") deal with the inter-relationship between individual positions in exchange structures, and the differential payoffs this generates. The focus is on structural opportunities and constraints as they result from social network embeddedness.

Karen Cook's and Coye Cheshire's chapter ("Social Exchange, Power, and Inequality in Networks") explicates the assumptions behind different theories of social exchange, in particular power-dependence and network-exchange approaches. Their contribution reflects the structuralist perspective according to which differences in power or inequalities in resource distribution derive from an actor's structural position. Based on a long tradition of experimental empirical studies, this research line elaborated fine-grained distinctions between different types of exchange structures and their consequences in terms of resource distributions. Exchange structures are taken as exogenously given, and

rationality assumptions in the baseline models are straightforward: individuals are motivated by gain maximization or loss avoidance, and payoffs are subject to diminishing marginal utility. There is also no further differentiation in the type of resources: all experiments are tied to some material payoff for the subjects. The chapter also discusses the implications that different exchange structures have for cohesion and solidarity: both decrease to the degree that power is unequally distributed. The authors conclude that structuralism comes to its limits in explaining these findings, and suggest that future research might benefit from incorporating group identity and emotional reactions into their models.

Henk Flap's and Beate Völker's chapter ("Social Capital") introduces the social capital research program. Research in this tradition differs from exchange theory in several respects. First, it considers different types of material and immaterial resources and their inter-relationships. Issues related to the conceptualization and measurement of social capital occupy a central place in this research line. Social capital research has a strong record in empirical field research, and the chapter reviews findings related to many different types of outcomes related to inequality, ranging from occupational career to social support. Second, it also addresses the question of the creation of social relations through investment in others. The rational choice core of this program is the social resources hypothesis and the investment hypothesis: people with more social capital are better able to realize their objectives, and people will invest in others if this promises some return. Actor assumptions are again straightforward: (dis)investment in social capital depends on the expected future rewards of the tie, available alternatives, and earlier investments in the tie. With regard to context conditions, research in this program tends to focus on key characteristics of personal networks, in particular the size or density of ego-networks. Unlike power-dependence or network-exchange theory, social capital research is more sensitive to the question of why structural explanations meet so many exceptions. Pointing toward the strong influences of spatial and institutional contexts, it suggests that "pure" structural effects are likely to be the exception.

Of the three chapters on social networks, Tom Snijders's chapter on "Network Dynamics" addresses the widest range of assumptions on rationality and structural constraints. Statistical models endogenizing social network structures can be considered as one of the major advancements in social network research of the past two decades. The chapter discusses agent-based simulations, game-theoretical approaches, and stochastic actor-oriented models, all of which allow the simultaneous incorporation of change in actor characteristics and social networks. These models are very flexible with regard to the actor assumptions and structural forms that can be investigated. For example, structural positions that would be considered advantageous from a power-dependence perspective—such as being the only person linking two tightly knit cliques—can yield disutility based on the psychological mechanisms involved, and vice versa. The utility functions can be flexibly determined by the researcher, allowing to systematically test competing mechanisms. The chapter also reviews the recent and growing body of research on network formation games, where properties of whole networks—such as transitivity or center-periphery structures—are the outcome variable.