3 Rational Choice Theory in Sociology: A Survey

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Rational Choice (RC) is a proliferating research program in the social sciences. It is the dominant theoretical perspective in economics and an influential approach in political theory. In sociology, there is an increasing number of people working in this tradition, in particular among American and European sociologists. This chapter attempts to give a survey of some more recent developments focusing primarily — but not exclusively — on contributions by sociologists. The origins, antecedents and historical evolution of RC will be described very briefly in Section A. The particular model of man proposed by RC is topic of Section B. Section C will describe RC explanations of social norms. The emergence of social norms is not only one of the fundamental topics of general sociology. It is also a topic closely related to one of the most central questions in social theory more generally, viz. the so-called Hobbesian problem of social order. Section D will contain an overview of applications of RC in diverse fields of sociology. It will be shown that RC has in fact contributed to an understanding of numerous topics and has been influential in empirical research.

A. Rational Choice Theory: Antecedents and Origins

RC theory is quite a recent development in sociology. There are, however, important antecedents in the writings of early social scientists such as David Hume, Adam Smith and others. It is characteristic of their idea of social science that they wanted to explain social phenomena by using theoretical principles about individual behavior. That is, the Scottish Moralists tacitly used the idea of a methodologically individualist social science. Furthermore, the Scots introduced a number of very important heuristic ideas that are characteristic of RC models of today. The very idea of methodological individualism is due to social scientists mainly working outside sociology, as the Austrian School of Economics. The Austrians Menger, Schumpeter, Hayek and others emphasized and further elaborated many classic ideas and explicitly introduced methodological individualism. Methodological
crucial in Friedrich A. Hayek’s approach to social theory and his individualistic conception of social evolution (e.g. Hayek, 1967; Vanberg, 1986; Kliemt, 1985). The same argument has been emphasized by Max Weber (1973) repeatedly in his methodological writings. Like the Austrians, Weber proposed an individualistic theoretical framework for sociology. Purposive rational action was a central building block of Weber’s theory (“Zweckrationalität”). The assumption of means-ends rationality should at least be treated as a starting point or ‘ideal type’ of sociological analysis, even in cases of action(s) and aggregate consequences that are apparently caused by other motivs (such as ‘value rationality’). Weber’s methodological individualism is reflected in two aspects. First, Weber (1973: 439) argues that collective terms, i.e. predicates denoting social collectives like ‘state’, ‘feudalism’ etc., are always reconstructable and should always be reconstructed or defined by expressions using individualistic predicates. Second, there are no law-like generalizations about collective phenomena and their interrelations (Weber 1973: 558). It should therefore not be required of sociology to discover universal laws about societal evolution or other collective phenomena. Notice that this does not imply that there are no law-like universal statements on the level of individual behavior or action. In fact, one could not realize one of the most important goals of social science, according to Weber, namely to explain causally individual actions and their social outcomes, if one would deny the existence of laws of individual behavior.

The Scottish Moralists have not always been regarded as direct ancestors of sociology. On the contrary, it is characteristic of the beginnings of the discipline, in particular within the French tradition of Durkheim, to sharply demarcate sociology from economics and utilitarian social philosophy. For a long time, there remained to be one consensus among sociologists: Utilitarian principles will never be sufficient to fully explain the emergence of social order. Durkheim (1893) argued, to most sociologists convincingly, that social order cannot be explained by recurring to self-interested rational individuals who are motivated to voluntarily exchange resources or services with each other and thereby generate a spontaneous (market) order, as had been emphasized by the Scots and by H. Spencer. Such a network of exchange relations and the respective bilateral contracts among self-interested actors would not be stable, if ‘society’ would not enforce those contracts. Contracts are enforced, according to Durkheim, basically by two mechanisms, the institution of contract law and internalized feelings of a moral obligation to deal fairly with one’s business partners. These two mechanisms seem to be inconsistent with the individualistic conception of order. The Durkheimian normative solution of social order has dominated sociology for a long time, at least during the long period of functionalist supremacy in American and international sociology. It was only in the late 1950s that George Homans tried to revitalize the individualist tradition.

Homans’ (1958) programmatic essay on social behavior as exchange argued that social interactions and small group processes can be explained by principles adopted from elementary microeconomic theory. Blau’s (1964) comprehensive volume on social exchange theory contains an RC analysis of consultations among colleagues within a bureaucracy (see also Oberschall, 1979). Other important early contributions toward an RC analysis of social and political phenomena are due to John C. Harasanyi (1961, 1966, 1969). In this work, Harasanyi uses game theoretical ideas to analyze social situations and social exchange systems in particular. Homans’ later work (cf. 1961, 1964, 1974) attempted to advance so-called behavioral sociology (Hamblin and Kunkel 1977; Burgess and Bushnell 1969). Similarly, Richard M. Emerson (1962, 1972, see also 1975) and others (Cook, 1987) tried to construct a theory of social exchange based on principles of operand psychology. That is, Homans and others for some time preferred the application of principles from behavioral learning theory to rational action theory. However, Homans’ (1967) methodological advocacy of an explanatory individualist sociology is logically independent of the acceptance of behavioral theoretical propositions.

Another branch of social exchange theory is represented by James S. Coleman (1964a, 1966a, b, c, 1972, 1973, 1990). Coleman explicitly modeled social behavior as rational action. Adopting standard microeconomic principles of a Walrasian equilibrium analysis, Coleman conceptualized systems of collective decisions as markets. Rational self-interested actors in those systems control resources or events (e.g. rights to cast a vote) and have possibly heterogeneous interests over those events. If there is a complementarity of interests and control, rational actors will want to exchange control of events that are less important in terms of their interests for control of events more important to them. Coleman’s model predicts the resulting equilibrium distribution of control that results from the exchanges in the system. Coleman’s exchange model is closely related to some more recent approaches in economics called Public Choice (cf. Mueller, 1989 for a survey; and Buchanan and Tullock, 1962 for a classic contribution). Public Choice is a subdiscipline of economics that focuses on political, bureaucratic and other social institutions and their interrelations with economic markets. Contrary to traditional economics, Public Choice assumes that the state and actors in the political arena act rationally and in self-interest. The state is under quite general conditions not maximizing social welfare but consists of agents who attempt to maximize their private welfare under the constraints of certain institutional rules.

In addition to Public Choice, there are some other major developments in economics and the social sciences that have proved very important to the advancement of RC in sociology. The New Political Economy (Arrow, 1963; Downs, 1957; Olson, 1965; see also Riker and Ordeshook, 1973 for more recent treatments Ordeshook, 1986, 1992) contributed to the explosion of RC scholarship that is typical for contemporary U.S. American political science. This body of work is also relevant to political sociology and to theoretical sociology more generally (see Lindenberg, 1985). The New Institutional Economics (for an informative and readable survey see Eggerasson, 1990) was particularly relevant to RC analyses of economic and other institutions. For example, work in economic history on the emergence and effects of property rights (North and Thomas, 1971; North, 1981, 1990) demonstrated the importance of social institutions and institutional change for macro societal change (modernization) and economic progress. Other work, following seminal contributions by Coase (1937), Simon (1982), Williamson (1975, 1985) and others brought the shape of work in organizational and economic sociology (see Milgrom and Roberts, 1992 for an original and comprehensive survey from the perspective of management science and business economics).
Rational Choice: The Model of Man

Rational action generally means choosing among alternative courses of action in accordance with certain rationality postulates. RC theory explains human behavior by using rationality postulates that depend on features of the situational context faced by the actors. In the following we will mention three classes of rationality postulates that refer to different kinds of contexts. The postulates are mutually consistent and form a unified and general theory of rational choice (cf. Harsanyi, 1977 for a fine explication of this theory).

B.1. The Basic Model: Restrictions and Preferences

The basic model of man RC uses is closely related to neoclassical economic theory. It is assumed — of course simplifying complexities of real social situations — that actors know for certain what the consequences of their actions will be. The general idea is that these actions are chosen which will have the best consequences in terms of the actor's own aims. A second idea that seems trivial at a first glance is that not all courses of action will be realizable. That is, there are always restrictions on the set of actions an actor may choose from.

Intuitively, one could characterize rational behavior by pointing out two kinds of filter processes on the level of the individual (cf. Elster, 1984: 112–115). First, the set of action alternatives is reduced to a smaller subset of actions that are possible in a particular situation. Given restrictions on actors' available resources such as time, income, budget, market prices of goods and so on, only particular combinations of actions will be objectively realizable. For example, in the system of consultations among colleagues (described by Blau 1964 and Homans 1958) in a bureaucracy, it is important to notice that individuals' time is finite. A working day has about 10 hours which have to be allocated on the different activities; i.e. consultations of colleagues and the performance of job tasks. Therefore employees who help their colleagues will have to bear opportunity costs since the quantity of time available for performing their own working tasks is reduced. The idea that time is one of the most important restrictions on individuals' choices is at the center of Gary S. Becker's (1976) economic approach to sociology and can be shown to have a lot of non-trivial empirical consequences. More generally, restrictions include social structural conditions and institutional arrangements. Secondly, the set of opportunities (available actions) is evaluated in the light of an actor's aims. That is, the actor forms preferences among alternatives. Rationality means that these preferences fulfill some consistency requirements (see Harsanyi, 1977: 27–31 or any modern textbook on microeconomics). If an actor's preferences satisfy these rationality assumptions, her choice behavior can be described as maximization of an (ordinal) utility function. The second filter, so to speak, is this principle of optimization.

Notice that this approach should not be interpreted as a psychological theory of cognition, motivation and action. It is certainly simple and almost certainly psychologically inadequate theory. The theory should be seen as an approach to generate qualitative hypotheses which are empirically testable. These hypotheses refer to differences in behavior in an aggregate of actors due to changes in incentives (preferences and restrictions). Though the basic behavioral principle is simple, there may be many novel and even counterintuitive predictions.

The core idea may be conveniently expressed as a generalized law of demand (cf. Frey, 1992): If the price of an activity relative to the price of another alternative increases, the amount of the activity that will be chosen decreases and vice versa. There are numerous examples for this principle that may be considered as one of the most powerful behavioral principles in the social sciences (cf. Lindenberg and Frey, 1993; McKenzie and Tullock, 1978; Frank, 1994).

Another point is worth noticing. Though the principle of action is primitive it is nevertheless more complex than means-ends rationality which consists in choosing among the means to realize a particular goal. This will not be fully rational behavior because rational actors will also choose among different ends. They will give up some ends in order to realize other ends. There will always be opportunity costs (meaning the utility from the next best alternative) a rational actor has to bear (cf. Harsanyi, 1976: 90–92).

Some further remarks concerning the interpretation of rationality are in order: First, rational choice does not necessarily mean conscious choice among alternatives. To reiterate, the theory does not represent psychological processes but only results of choice behavior. The rules of rational choice behavior may be technically quite complex. To say that actors choose in accordance with RC does not mean to assume that these rules are applied consciously. Analogously, grammatical rules of a natural language are quite complex. But this does not mean that actors will only be able to apply these rules if they do this consciously. If this were so, little children would not be able to learn a language.

Secondly, determinants of behavior are preferences and restrictions. Therefore changes in behavior are explained by changes in preferences or changes in restrictions or by changes in both. However, it seems quite difficult to test hypotheses about preferences or about their changes. There might be a risk to immunize proposed RC explanations if hypotheses about preferences could not be tested empirically and independently from hypotheses about the explanandum (i.e. observed behavior). Virtually any behavior could be explained by the assumption that the actor had a preference for that particular behavior (cf. e.g. Harsanyi, 1969). To avoid this problem, many RC theorists adopt a heuristic principle that is clearly elaborated by Stigler and Becker (1977): Behavioral changes should be explained by changes in the restrictions of behavior and not by changing tastes. The fruitfulness of this principle will of course depend on the concept of preferences. In Becker's (1976; see also 1996) approach tastes are conceptualized in a specific way: Preferences refer to basic commodities such as physical health, social approval and so on, that is "goods" that are directly related to "utility". These utility arguments are assumed to be interpersonally identical. That means, these tastes are possibly an aspect of human nature that is historically and interculturally more or less stable. Moreover, in Becker's approach it is not always necessary to develop specific assumptions about these basic commodities and actors' tastes. It suffices to postulate hypotheses on how these commodities
— whatever they may be — are related to other goods or activities that are prone to “produce” these commodities. For example, a capitalist entrepreneur will want to maximize her firm’s profits not because the values profit per se, but because profit maximization will allow her to satisfy more fundamental needs. Under quite general conditions, increasing profits lead to increasing income from entrepreneurial activity and this will increase the chance to produce the more fundamental commodities (for some sociological applications of this approach cf. Lindenberg, 1986, 1996a,b). Thirdly, this assumption of stable and interpersonally identical tastes should not be over-emphasized (see also Becker, 1996). Notice first that tastes should not always be considered as purely self-interested. Nature has endowed human beings with altruistic preferences at least with regard to certain contexts and vis à vis specific interaction partners (see Becker, 1976: 282–294).

Another aspect closely related to arguments of this type refers to the emotions such as guilt. An endowment of actors with these emotions may be evolutionary stable if they help those actors to commit themselves to cooperative behavior in interactions and if there exists a mechanism to make sure that cooperators are not exploited by opportunists (see Frank, 1988; but see also Elster, 1998). There may even be situations such as that precise and empirically testable theories of preference formation are applicable. Very important theoretical work by Becker and Murphy (1988; see also Becker, 1996) suggests that preferences can be contingent on past choices. Important types of behavior patterns related to these preferences are habits, traditions and addictions (cf. Becker, 1992). This approach is illuminating because it means that RC models for the first time allow for a theoretical and empirical analysis of the effects of past behavior. (There are also certain classes of game theoretic models that can deal with a shadow of the past.)


Choice in situations of risk and uncertainty, means that actors do not know for certain which outcomes result from their actions. In this case, the decision process is somewhat more complex because preferences have to be defined over so-called risky or uncertain prospects (sometimes called lotteries). A risky prospect \( L \), denoted as \( L = (A, p; B, 1 - p) \), yields outcome \( A \) with probability \( p \) and outcome \( B \) with probability \( 1 - p \). Rationality under risk requires again that the actor’s choice behavior be governed by a set of consistency or rationality postulates. The rationality postulates for behavior under uncertainty are a subset of the set of rationality postulates under risk in the case that \( p = 1 \) holds for every prospect.

However, in addition to assumptions about consistency (transitivity and connectedness), some other axioms describing an agent’s decision-making behavior vis à vis risky prospects are needed (see for example, Harsanyi, 1977: Ch. 2). The basic reason for this is the fact that an ordinal utility scale is not sufficient to represent choice under risk. In order to be able to measure utility on an interval scale one needs axioms that yield more than complete orderings among prospects. In particular, one will need an Archimedean axiom (continuity axiom) and an independence axiom. One implication of this is the linearity of utility functions in probabilities (cf. Machina, 1987: 124–127). These axioms are empirically testable.

One fundamental result (proved by v. Neumann and Morgenstern for the first time) is the expected utility theorem: Given that the preferences over risky prospects fulfill the rationality postulates, then an order-preserving cardinal utility function \( U \) representing theses preferences exists which is unique up to linear transformations \( aU + b (c > 0) \). Interpreting this theorem note that an actor’s choice behavior can be described by saying that he maximizes a cardinal utility function, i.e. chooses the action that will yield him the highest expected utility. It is worth noticing that this theorem allows for a theory-oriented measurement of utility (or preferences over risky prospects). Within the social sciences, utility scales build a singular example of measuremennt on the level of an interval scale that is theoretically sound and based on an axiomatized procedure (cf. e.g. Hogarth, 1987: 278–279; and Davis and Holt, 1993: 115–117 for brief descriptions of such procedure).

The expected utility hypothesis is frequently applied in RC sociology. For example, Coleman (1990: Ch. 5) argues that trust relations are formed if trustees decide to invest trust in accordance with the rules of rational decisions under risk. Expected utility models certainly show close affinities to other models of behavior, e.g. expectancy-value theories and other theories of motivation in psychology. One should, however, keep in mind that all of these models require cardinal measurability of utility or value and consequently the validity of a set of strong rationality criteria. It would be problematic in empirical applications of expected utility theory to try to measure value or utility by procedures that at best can generate ordinal scales. In principle, utility or preferences over lotteries are measurable, but it will not be very convenient to do so in a survey study. Generally, utility measurement will be possible mainly in the sociological laboratory (cf. the discussion of experimental work in Davis and Holt, 1993: Ch. 8; and Camerer, 1995).

This does not, however, present an obstacle to the application of RC in empirical research. It seems not only extremely hard to measure utility directly in a survey study but also generally unnecessary. The main reason is that RC models should yield many empirical predictions that can be tested via survey research or other types of studies. These predictions contain statements about variables that can be measured by objective indicators because they depend on restrictions and social conditions affecting an individual’s incentive structure (using examples of RC analyses of environmental behavior this argument has recently been illustrated by Diekmann, 1996 — but see also Opp, 1998 for a different approach).

B.3. Rational Choice in Social Interactions: Game Theory

The hypothesis of expected utility maximization is a necessary but not sufficient condition to yield predictions in situations composed of interacting individuals. Social interaction among rational individuals means that the outcomes of actor \( A \) are determined not only by \( A \)'s choices but also by the decisions of actors \( B, C, \ldots \) and vice versa. Situations of this type are called strategic interactions.
The analysis of strategic interactions is the most complex task for RC approaches. Generally, utility maximization will not be a sufficient criterion. This is so because the expected utility of actor A’s strategy will be determined by actor B’s, C’s, ... decisions. These latter choices in turn depend on each other’s choices. However, A’s expectations will depend on B’s, C’s, ... expectations about A’s expectations ... and so forth. Obviously, continuing this reasoning generates a circle of higher-order expectations that cannot be broken up easily (cf. Lewis, 1969: 28; for an early analysis of higher-order expectations). This ‘Jordanian knot’ of mutually dependent expectations about expectations can, to speak, be ‘solved’ if one applies a core idea of modern game theory: the concept of a Nash equilibrium. A Nash equilibrium is a profile of strategies (actions) such that no actor has a positive incentive to unilaterally deviate from that profile, given that the other actors do not deviate from the profile.

In addition to the axioms of rational behavior under risk and uncertainty some further assumptions are required to justify the statement that rational actors will choose actions or strategy profiles that are components of a Nash equilibrium (cf. e.g. Bimore and Dagsupta, 1986: 4-5; Bicchieri, 1993). In particular, one has to assume that there is common knowledge among the actors that all actors follow the same rationality postulates.

Classical game theory is based on the assumption of complete information. Every actor is informed about her own preferences and about the preferences of every other actor. This information must be common knowledge (cf. e.g. Bicchieri, 1993). Modern Bayesian game theory which started from Harsanyi’s seminal contributions (1967, 1968a, b) is suitable to analyze games of incomplete information. It must, however, be assumed that all uncertainties of a game situation can be quantified by common prior probabilities of the actors (‘Harsanyi doctrine’). The analysis of Bayesian games generally requires refined concepts of an equilibrium. All of these refinements are based on the Nash equilibrium (cf. any modern game theory textbook, e.g. Rasmussen, 1994, for an overview). Other influential refinements of equilibrium refer to dynamic games. In such games actors frequently apply threats or promises in order to achieve a Nash equilibrium. There may, however, be threats or promises that are not credible because rational actors would not employ them (cf. Schelling, 1960 for numerous examples). Equilibria with credible threats or promises will be selected if another refinement, namely (subgame) perfectness, is adopted (cf. Selten, 1965).

Although RC theory generally is based on forward-looking behavior, there are instances such that a shadow of the past may influence today’s behavior. For example, consider Bayesian games of incomplete information. In such games, a common prior probability distribution, for example, one indicating the probability that some player is endowed with preferences of a particular type, is disclosed at the start of the game. All players react to this disclosure of information and possibly also — if the game contains a number of sequences — to the actions chosen by the other players. This information due to observable actions may be a basis for revisions of prior beliefs. This means that there will be a kind of Bayesian learning process referring to revising the belief that some particular actor is of a particular type. In this sense that rational actors revise their beliefs about certain features of the game structure in accordance with rules of Bayesian updating a learning process may take place (see e.g. the discussion in Bicchieri, 1993: Chs 3, 4). Sociologically relevant applications of games of incomplete information include for instance so-called trust games representing trust relations in Coleman’s (1990: Ch. 5) sense (cf. Dagsupta, 1988; Camerer, 1988; Snijders, 1996; Raub and Westie, 1996).

B.4. The Model of Man: Limitations, Alternatives and Extensions

Rational action theory is probably one of the theories that has been most severely tested empirically. One result of these tests is the discovery of a number of anomalies, i.e. empirical phenomena that systematically contradict predictions of the theory. Among the anomalies of expected utility theory are experimental results that refute the central assumption of linearity in the probabilities, for example the well-known Allais paradox (cf. Machina, 1987: 127-135). Other anomalies are so-called framing effects, preference reversal effects and effects that are a result of irrational judgmental heuristics with regard to (subjective) probabilities (for comprehensive surveys and references on these anomalies see e.g. Machina, 1987; Camerer, 1995; see also the contributions in Hogarth and Reder, 1987 and Thaler, 1992: Chs 6, 7, 8).

There are also empirical anomalies referring to game situations. One important example is that the amount of cooperation observed in social dilemmas and public goods production situations is significantly higher than predicted by game theoretical rationality standards (see e.g. Thaler, 1992: Ch. 2; Green and Shapiro, 1994: Ch. 5 and the references therein). Anomalies are nowadays widely acknowledged and there seems to be a consensus among RC theorists and economists that humans in fact act boundedly rational.

RC theory in sociology is part of a program that is sometimes labelled ‘explanatory sociology’ (Wippel, 1985, 1996; Esser, 1993). Explanatory sociology aims to explain sociological explananda, i.e. collective phenomena, nomologically by using law-like assumptions about human nature. The theoretical primacy of individuals should be distinguished from the analytical primacy of the social context and of the social outcomes of individual actions (see Wippel and Lindenberg, 1987; Lindenberg, 1990). This distinction is important because it is a much more difficult and important task to analyze micro-macro relations than just to analyze individual behavior. RC theory is that part of explanatory sociology that is endowed with a powerful heuristic to provide micro-macro linkages. The basic reason is that RC’s micro theory of perfectly rational behavior consists of a deductive theoretical model. This feature of RC theory is particularly important because one main aspect of the micro-macro linkage, as conceived in methodological individualism, is a twofold problem of deduction: (1) What are the consequences of a set of assumptions about individual actions for the system level of collective phenomena? (2) What are the consequences of a set of statements about social conditions (contexts) for the antecedent conditions of individual actions? The first of these questions refers to a theoretical aggregation problem, the second is concerned with a problem of bridge assumptions. Both
of these problems will be tractable if there is an explicit (mathematical) model that connects these levels (cf. Coleman, 1964a, 1990; Fararo, 1989; Hummell, 1972; Lindenberg, 1977, 1985; Weesie, 1988; Ziegler, 1972).

It may be the case that in spite of anomalies, models of perfectly rational individuals are important in more than a heuristic sense. It has been argued that some of the sociologically relevant predictions of RC models referring to macro outcomes are robust under quite general conditions (cf. e.g. Coleman, 1987). In particular, it can be shown that some elementary principles of the basic theory of rational action, namely consequences of the generalized law of demand qualitatively predicting changes of behavior in the aggregate, are robust even in the case of certain types of irrational behavior (Becker, 1962). This result, however, does not extend to other circumstances. It can be demonstrated that continuous choice models and quantitative predictions of market equilibria are generally not robust if the actors’ behavior departs from perfect rationality (Akerlof and Yellen, 1985; Russell and Thaler, 1985). Coleman’s exchange system models would be a case in point: predictions of these models will not be very robust if actors were not fully but only boundedly rational. With regard to game situations of strategic interactions it is not difficult to see that outcomes can change dramatically if actors’ behavior is governed by principles of bounded rationality. Other reactions to decision anomalies point that it might be the case that institutional arrangements developed in order to cope with particular anomalies (Frey and Eichenberger, 1989).

There are some contributions that attempt to show that several novel empirical predictions result from particular models of boundedly rational behavior (e.g. Heiner, 1983; Thaler, 1980). The framing of situational conditions may account for many important sociological phenomena that apparently cannot be explained by standard RC theory (see e.g. Lindenberg, 1988; Lindenberg and Frey, 1993, Esser, 1996; but see also Wittman’s, 1995: Ch. 5 for a critique of framing explanations). With regard to social interactions evolutionary game theory (cf. Axelrod 1984 as an example for an informal evolutionary approach) recently has evolved within the social sciences to cover outcomes of social interactions that are due to boundedly rational behavior and to individual and social learning processes. There has been considerable progress with respect to new equilibrium concepts and dynamic process models that will probably be very important for the social sciences and sociology in particular (see the comprehensive surveys of those works in Weibull, 1995; and Samuelson, 1997).

C. The Emergence of Social Norms

Many, if not most, social scientists would agree that the Hobbesian problem of social order is one of the most important questions that should be answered by social theory. Parsons (1937) not only reintroduced this question into sociology, he also gave an answer known as the “normative solution” (Ellis, 1971). Roughly, the normative solution to the problem of order states that there must be a value consensus among the actors in a social system. These values must be further supplemented by social norms. The Parsonsian conception of norms includes the idea that (internalized) norms yield a generalized categorical commitment to core societal values (cf. Münch, 1982). Similar theses have been advanced from a Weberian perspective; social order could not be stable if the actors would not accept certain values unconditionally. There must be a certain amount of “value rationality”. Rational choice must be constrained by values that the actor is not willing to trade-off when more attractive opportunities arise (cf. Voss, 1998a).

To be sure, recently even some theorists sympathetic with RC have advanced conceptions of norms that come close to the Parsonian tradition. Elster (1989: 98–107) defines norms by the feature that they are not future- or outcome-oriented. That is, they cannot be explained by optimizing behavior and they have an “independent motivating power”, in particular independent of self-interest (Elster, 1989: 125).

RC theorists have objected that the normative solution is unsatisfactory for two reasons. First, proponents of the normative solution always take norms as given and therefore cease to really solve the difficult problem posed by Hobbes (cf. e.g. Coleman, 1964b). This point is analogous to Parsons’ (1937) critique of Hobbes’ coercive solution. Hobbes, according to Parsons, introduced the state as a deus ex machina without providing satisfactory arguments about the emergence of this central authority. Likewise, Parsons failed to show how norms emerge in the first place. Second, the concept of norms as internalized and as involving an unconditional commitment seems invalid for theoretical as well as empirical reasons. Empirically, there are numerous observations indicating the emergence of norms that generate at least some local social order which developed spontaneously and cannot be plausibly a product of socialization and internalization. Axelrod (1984) describes norms in trench warfare of World War I. Elliston (1991: 191–206) mentions norms that came into existence among a community of eighteenth and nineteenth century whalers to regulate high-sea fisheries. The situations described in these case studies resemble Hobbesian states of nature (see also Ostrom, 1990) for illuminating case studies on common pool resources. There is no central authority that could enforce an agreement about socially advantageous rules. It seems very unlikely that soldiers had learned to internalize the norm of “live and let live” through some extended process of socialization. It seems equally unlikely that whalers have internalized rules about adequate behavior in conflicts about whales arising in high-sea fisheries. Another objection is that the idea of a categorical commitment is theoretically as well as empirically extremely implausible. RC approaches to norms argue that norms will always hold conditionally.

C.1. What are Norms?

The most promising approach to social norms stems from game theory. Game theoretical concepts may be employed to explicate a usage of the term norm that is quite standard within the sociological tradition. Following M. Weber, norms can be considered as particular regularities in the behavior of a population of actors. Of course, not every regularity can be denoted a social norm. Certain regularities are individual regularities (e.g. many people take a shower in the morning).
Sociologically interesting are social regularities arising in recurrent situations of social interdependence. Certain classes of norms have the feature that they will in cases of deviant behavior be enforced by sanctions (see Geiger, 1970: 43–91; Popitz, 1980). To make this concept of a norm more precise, we assume that the actors are involved in a situation of strategic interdependence. Of particular interest are such situations that are called social dilemmas. The prisoner’s dilemma is a very important case in point. Other dilemmas comprise coordination games and bargaining games (cf. for an explanation in game theoretical terms Harary, 1977; see also Raub and Voss, 1986). These situations are dilemmas because rational action will yield inefficient outcomes. For example, in the prisoner’s dilemma universal defection is the unique Nash equilibrium. This equilibrium corresponds to an outcome that is collectively suboptimal in the Pareto sense. That is, every actor would be better off, if universal cooperation could be achieved. The prisoner’s dilemma can be considered as a very simple representation of Hobbesian anarchy (cf. the discussion in Taylor, 1976, 1987). Some further classification will prove helpful. Given an RC approach, norms will be effective if (some) actors in that situation derive a benefit from that. The set of actors who benefit from the norm may be called beneficiaries. The set of actors whose actions are targets of the norm can be called target actors. Social norms with the feature that beneficiaries and target actors interact such that the set of target actors is a subset of the set of beneficiaries may be called conjoint norms (Coleman, 1990: Ch. 10; Geiger (1970) and Popitz (1980) called these norms reciprocal norms).

C.3. A General Hypothesis

Considering conjoint social norms a general hypothesis is as follows: social norms develop and maintain such that their content serves to maximize the aggregate welfare of the beneficiaries (adopted from Ellickson, 1991: 167; see also e.g. Coleman, 1990: Ch. 10; or Opp, 1979a for similar hypotheses). Instead of welfare or wealth maximization it would be natural to speak about efficient (in the Pareto sense) outcomes because this terminology corresponds better to game theoretical thinking. The meaning is roughly the same.

Note that this hypothesis has a functionalist flavor. A more concrete version of this hypothesis would say that norms serve the interests of the beneficiaries in that they yield outcomes that are superior in terms of Pareto optimality (see also Ullmann-Margalit, 1977). However, it seems quite obvious that this hypothesis is not sufficient for an RC explanation of conjoint norms. Let us restrict our attention for the moment to the prisoner’s dilemma. In the prisoner’s dilemma, rational behavior means universal defection. This inefficient outcome generates, as expressed by Coleman (1990: Ch. 10) a “demand” for a social norm that prescribes universal cooperation. If that norm would be realized, the beneficiaries would be better off. But how can the norm be realized? Knowing that regularities of behavior that conform to a norm are stable if they result, to speak technically, from a Nash equilibrium, this problem corresponds to the following questions: (1) What are the conditions for an efficient equilibrium of universal cooperation in a prisoner’s dilemma type situation? Answers to this question can be broadly classified into exogenous and endogenous solutions. Exogenous solutions draw on conditions such that third parties are involved in the process of enforcement. Another type of exogenous approach would refer to internal sanctions and internalized feelings of guilt and so forth that enforce norms. The problem with these explanations is that they are incomplete. Answering the Hobbesian question would require to explain the emergence and stability of a third party or of an internal sanctioning system. These explanations therefore need to be complemented by an endogenous explanation. Let us restrict our attention to endogenous solutions. Since in an ordinary prisoner’s dilemma type situation there is no cooperation among rational actors, the emergence of norms must depend on threats of sanctions that are created by the target actors themselves. This leads to the second question: (2) What are the conditions for the emergence of sanctions that not only are consistent with Nash equilibrium behavior but also are credible? Technically spoken, what are the conditions for (subgame) perfect equilibria?

C.3. The Effective Realization of Social Norms

Answering the two main questions inevitably will lead to the idea that repeated interactions may change actors’ incentives in a social dilemma situation (cf. Taylor, 1976; Axelrod, 1984; see also Voss, 1982, 1985; Kliemt, 1986; Raub and Voss, 1986). Repeated interactions allow for the applicability of a special type of endogenous sanctions. An example are so-called trigger strategies (cf. Pudenberg and Maskin, 1986). These strategies demand conditional cooperation, that is, to cooperate as long as the other actors cooperate. Otherwise the strategy prescribes defection. A necessary condition for such a strategy to be in equilibrium with itself is that the actors’ “shadow of the future” (Axelrod, 1984) is large enough. The shadow of the future corresponds to the actors’ (conditional subjective) probabilities that the iteration of the game will be continued for another period. It can easily be seen that the threat to defect in an iterated dilemma game is in fact credible if universal defection is an equilibrium in the (noniterated) constituent game.

This general idea suggests that social norms of universal cooperation emerge endogenously in dilemma situations if the population of actors is a close-knit community (Ellickson, 1991: 167). A close-knit community is defined as a social network whose members have credible and reciprocal prospects for the application of power against one another and good supply of information on past and present internal events” (Ellickson, 1991: 181; see also Taylor, 1982; Raub and Voss, 1986 for similar arguments and for hints on the correspondence between game theoretical conditions of cooperation and social conditions of close-knit communities).

This approach, though an illuminating first step, has limitations. One limitation is that the trigger strategy is not the only kind of sanctioning mechanism in real life interactions. In real life situations we encounter sanctions of a retributive type (Boyd and Richerson, 1992), that is, sanctions of a more active type than to defect. Examples of those sanctions are ostracism or the threat to exit a situation, gossip and physical retaliation (cf. Ellickson, 1991; Ostrom, 1990 for some ethnographic descriptions). Coleman (1990: Ch. 11) points out that “incremental” sanctions that deny social
approval to someone who deviated from a norm are very important. At first glance, the application of these sanctions may generate a so-called higher-order problem of cooperation (Oliver, 1980; Axelrod, 1986; Heckathorn, 1989; Coleman, 1990: Ch. 11): if the application of sanctions is necessary to realize a socially optimal outcome and given the assumption that sanctions are costly, there will be free riding problem of a higher order. The problem can also be expressed referring to meta norms (Axelrod, 1986) that prescribe the application of sanctions toward defectors.

There is some indication that the higher-order problem might well be over emphasized (see Voss, 1998b). Most contributions on the higher-order problem do not explicitly use game theoretical models. For example, Coleman's (1990: Ch. 11, 926–930) analysis does not use one game theoretical model that simultaneously represents the decision to cooperate or to defect on both levels (norm level and meta norm level). There is no identification of perfect equilibria. The same is true of other work on the same topic (e.g. Heckathorn, 1988, 1989, 1990). However, if sanctioning is embedded into a dilemma game explicitly, the picture of the second-order problem may change. Some work on ostracism and exit strategies shows that these opportunities may indeed make cooperation easier to achieve than the employment of indirect sanctions of the trigger type alone (see Hirschleifer and Rasmussen, 1989; Schlässler, 1989, 1990; Vanberg and Congleton, 1992). Other work points out that punishment strategies may enforce cooperation even in single shot games if the threat of punishing defection is severe enough (Boyd and Richerson, 1992). It can even be shown that the application of those strategies can be a credible threat (Voss, 1998b).

In addition to game theoretical arguments one other aspect is worth noticing. It may be the case that the application of sanctions is generally not very costly in particular in comparison to the harm that sanctions may cause (Hardin, 1995: 52–53). This seems plausible at least with regard to the sanction of denying someone one's social approval.

C.4. Discussion

The sketch of an explanation of conjoint social norms demonstrated that in principle social order emerges among self-interested rational actors if appropriate social conditions are given. It is even the case that social structural conditions with a somewhat shorter "shadow of the future" allow for the endogenous enforcement of conjoint norms in dilemma situations. This is so because there may be multilateral reputation effects in social networks (cf. Raub and Weesie, 1990) that serve to compensate the lack of a large "shadow of the future".

However, this general approach to social norms is incomplete. There are many instances such that people follow social norms without credible external sanctions. For instance, it is difficult to understand why people conform to the norm to tip in restaurants that they are sure never to visit again. There is ample evidence of cooperation in situations with external incentives to free ride (see references in section B.4, above). This suggests that internal incentives should be incorporated into an RC analysis of social norms (cf. e.g. Frank, 1992: 150–152 who comments critically on Coleman's approach; cf. also Ziegler, 1997). Contrary to the traditional sociological approach, internalized norms should not be treated as given, exogenous factors. It seems, however, difficult to explain the development of preferences that prescribe certain norm-oriented types of behavior in a way that is consistent with RC theory.

Only quite recently have several approaches been undertaken to tackle this problem. One important observation in this context is that intrinsic motives may play an instrumental role in an actor's ability to achieve rewards that are material or social (e.g. social approval). For example, considering a standard (single-shot) prisoner's dilemma situation, an actor would be better off in terms of its natural (material and social) preferences if it were endowed with internalized "moral" preferences that prescribed conditional cooperation instead of unconditional defection. Under these circumstances an actor with moral preferences would cooperate with a partner who is also endowed with moral preferences. The resulting outcome would be superior even in terms of the actors' natural preferences (cf. Sen, 1974: 80). Some contributions attempt to demonstrate that rational actors would choose such moral preferences if they had an opportunity to modify their preferences (see in particular Gauthier's (1986) seminal enterprise; cf. also Bicchieri, 1993: 202–213 for comments on game theoretical perspective; other works in this direction include e.g. Hegselmann et al., 1986 and Raub and Voss, 1990).

Another body of work is based on the assumption of bounded rationality. First of all, the notion of action frames as used in several branches of interpretive sociology and in cognitive psychology (e.g. Kahneman and Tversky's prospect theory) may be relevant in this context. The basic idea is that actors use situation-specific decision rules. If a situation is framed to be governed by social norms, the individual would use a normative decision rule (e.g. Lindenberg, 1988). The main desideratum of such an analysis is that ad hoc explanations must be strictly avoided. Every behavior could in principle be "explained" by postulating specific preferences. Similarly, framing explanations could be immunized against critique by just assuming a specific frame or decision rule for any specific pattern of behavior. It is furthermore important to model the interplay between intrinsic and extrinsic rewards explicitly (see on this point e.g. Frey, 1994; Kreps, 1997). Otherwise, framing models would not achieve any theoretical progress as compared to conventional concepts of an oversocialized homo sociologicus.

Still another body of work is based on the idea that boundedly rational actors are endowed with preferences that are subject to evolutionary forces (see in particular Frank, 1988). Most recent work on evolutionary game theory suggests that social norms may develop due to evolutionary (learning) processes and are related to stable equilibria of such processes. This approach sheds light on the evolution of conventions which can be grasped as evolutionary equilibria of coordination problems (see Young, 1996). Other work combines novel ideas from evolutionary game theory with experimental work on social dilemma and bargaining games to analyze the evolution of behavior patterns that seem to be governed by norms of fairness (Bimmore and Samuelson, 1994; Samuelson; 1997: 162–167).
D. Applications of Rational Choice Theory in Various Fields of Sociology

As already mentioned, RC theory is appropriate to explain macro phenomena on the basis of individual behavior. In this chapter we will hint at some of such applications of RC theory in various empirical fields of sociology. Our aim is to show for which types of research problems the empirical test of RC theory was successful.

A first area to be reviewed is economic behavior, where analysis based on rational actors has a long tradition in the social sciences. It deals with the central question of how actors coordinate their behavior for the allocation of resources in a group or society. Neoclassical economics stresses the role of markets assuming that supply and demand of rational actors with complete information yield an efficient allocation of goods. The medium of exchange within this model is money, which is used by the actors to value the goods exchanged on the market. As Coleman (1994) pointed out, RC-applications in economic sociology complement this framework usually by two points: first, the social conditions of economic decisions are considered and, second, institutions are brought back into analysis especially by treating these not as given. Concerning the first point, RC-theorists take the social preconditions as well as the social framework of allocation and exchange into consideration. That is, individuals are not treated as isolated in a world of anonymous markets but are seen as social actors. For example, money is not the only — and often not even the most important — utility argument. Social approval, social support or power are other important goods exchanged and allocated within social systems (Coleman, 1990: 119–144). Frank (1985) argued that wage differences in U.S. labor markets are not as large as the economic theory of individual productivity predicts. Assuming that workers are interested in wage as well as in their local social status, he explains this tendency of wage equalization by a market for status: in a group of workers, more productive workers can claim a higher status only if the less capable colleagues stay in their reference group. Consequently, the latter have to be compensated by the highly productive workers with parts of their potential income. Another example of the importance of non-monetary exchange is given in Coleman (1990: 136–142) who analyzes social exchange processes in the classroom. He shows that the distribution of grades in a class can be explained by the assumption of a market structure. Teachers and students exchange grades for effort whereby a competition for the best grades exists. These examples make evident that the social preconditions of exchange are an important factor which RC-analysis should take into consideration.

The social framework of rational decision making in economic settings influences not only the kind of objects which are exchanged. The resources the actors are provided with also result from the social structure they are embedded in. For example actors can invest as well as make use of their so-called social capital which is constituted by their networks of social relations (Coleman, 1990: Ch. 12). One example of the relevance of social networks and social support for market exchange is the success of newly founded businesses being influenced by the support an entrepreneur receives via his personal network (Brüderl and Preisendörfer, 1997). However, networks can also restrict the actors. If markets are interpreted as a network of individual or corporative actors, the structure around these actors — resulting in a certain distribution of power or information — influences their success in the market (Burt, 1982, 1983, 1992; Braun, 1993).

Concerning economic institutions, two questions arise: first, which alternative institutional mechanisms — defined as rules and constraints which lead to stable behavior — are chosen by rational actors? As Williamson (1985) pointed out, these institutional mechanisms can be placed on a scale with perfect markets on the one end and organizations on the other extreme with several hybrid forms in between. A second aspect concerning institutions is related to the question of how different institutional settings influence the behavior of actors and the resulting allocation. Contrary to neoclassical arguments, these results can be collectively inefficient. Both questions lead to the analysis of organizations as the alternative form of allocation and coordination. Concerning organizations, RC-analysis can focus on two types of actors: individual and corporate actors. Individual actors are usually the object of analysis when intra-organizational processes and problems are to be explained. In this context constraints on action due to organizational structure are of interest. One special type of structural constraint is provided by groups of actors which have to produce a common output. In such a situation, the actors are often faced with a collective goods problem (Olson, 1965). If the individual output cannot be measured by the management, every actor has incentives to show less work effort (Alchian and Demsetz, 1972; Hechter 1987; Petersen, 1992; Lazear, 1995). It can be argued (cf. Miller, 1992) that self-regulated teams in industrial organizations are faced with serious cooperation problems which can be solved by selective incentives like social norms, status or emotions. There is some evidence (cf. Abraham, 1996) that the competition for status in a firm can have positive consequences for the productivity the employees bring to the workplace.

Besides studies concerning collective goods problems, several other examples of the empirical analysis of rational actors in organizations can be found. There are many contributions dealing with employee turnover and the stability of employment relations, or the intrafirm mobility and career ladder of employees (see e.g. Brüderl, 1991). Common to all of these studies is the assumption that the organization provides a given social structure which determines choices and behavior of the actors within it.

Another type of organizational analysis is given if organizations themselves are defined as units of action. This concept of corporate actors (Coleman, 1974, 1990) fits phenomena like the success of firms, the strategies of employers within employment relations or the analysis of buyer-supplier relationships. Like individual actors, organizations are often confronted with problems of cooperation and trust concerning their relations with actors outside their boundaries. This problem becomes more severe in view of the fact that business partners are relying to a relatively low degree on legal norms and enforceable contracts (Macaulay, 1963; Ellickson, 1987, 1991). Hence rational behavior of corporate actors in this case means that they will try to regulate their problematic relationships with appropriate cooperation mechanisms (cf. Rauh and Weesie, 1993: 3). Alliances for research and development between firms are one example of such governance structures. Here the corporate actors face the problem that quality and quantity of the resources
provided by the partner cannot be completely controlled. Since the incentives for free-riding are more severe when the volume of the project and the dependency of both firms are high and there is little experience with the partner, the actors will invest more resources in cooperation mechanisms (Blumberg, 1997).

Another subject of RC-analyses are families and households. The family as a basic unit of social life has always been a central topic within the social sciences. On the collective level, families are the main place of socialization in society. On the individual level, families and households can be seen as an attempt by actors to benefit from collective action due to economies of scale or an efficient division of labor. It is mostly this second aspect which is highlighted by RC-approaches to families and households. The pioneering work of Gary S. Becker (1962; 1976; 1981) deals with the behavior of family members within a market-oriented framework. His theoretical analysis is based on three core assumptions: the concept of human capital, a theory of time allocation and the idea of a common household production. In this sense, households are organized groups of actors with common interests trying to maximize a common household objective function. Marriage relationships come into existence because they may provide additional individual benefits for the partners. This is a result of the division of work within the common household if there exist comparative advantages between spouses (Becker, 1981: Ch. 2).

This theoretical framework — often called new home economics — deals mainly with five topics (see Krüßberg et al., 1986). First, the marriage decision can be analyzed as goal-oriented behavior. The individuals who are acting in the marriage market decide voluntarily to build a marriage partnership (Becker, 1981: Ch. 2). In this process, the actors evaluate basic commodities provided by the partner like “children, prestige and esteem, health, altruism, envy and pleasure of the senses” (Becker, 1981: 8). On the basis of these commodities, they try to maximize the expected gains of a future partnership by choosing the “best” partner available on the market. Because this evaluation does not end with the wedding, the second application consequently deals with the stability of marriage partnerships. The divorce of marriage partners can be explained within this framework by the expectation of advantages and disadvantages of the partnership in the future. This depends not only on the market situation itself but also on the costs and possibilities of searching for an alternative partner. Because the partners do not have complete knowledge about all possibilities, divorce is treated as a consequence of imperfect information in the marriage market (Becker et al., 1977; Becker, 1981: Ch. 10; Brickell and Diekmann, 1994). In an empirical analysis Becker et al. (1977) show empirical evidence for such a market-based and search-theoretical argumentation (cf. also Diekmann and Klein, 1991; South and Lloyd, 1995).

A third scope of investigation focuses on the decision for having children in a marriage relationship. The analysis of fertility is based on the assumption that children are basic commodities which are “consumed” by the marriage partners because of their positive utility. This “value of children” can be influenced by intrinsic motives as well as physical benefits like the future support by the descendents. Because this consumption requires certain resources and the quality per child is important for the parents, fertility is explained as the decision of how to spend the available resources under certain constraints. (Becker, 1981: Ch. 5; Friedman et al., 1994, for empirical studies see South and Lloyd, 1992; Brickell and Diekmann 1994). This argument can also be used to derive hypotheses concerning intergenerational effects between parents and children in the society. Education and occupation of children can be seen as a result of specific investments by the parents. These investments were made either by altruistic motives or due to the expectation that children with high incomes will be better able to support their parents later on. Coleman (1990: Ch. 22) stresses this expectation by arguing that the shift to modern social security systems produces failures of socialization. If older people receive pensions from the state and are not dependent on financial support from their children, rational actors no longer have incentives to invest in their descendants. This could explain for example the observation that Turkish immigrants have a heavily reduced fertility after having settled down in Germany (Nauck, 1993). Moreover, the employment of parents — and especially of the mother — outside the family household reduces the amount of social support — that is the social capital within the family — a child can rely on. This leads to incomplete socialization and lower chances of accumulating human capital. Empirically, there is evidence of a positive relation between the social capital of the parent-child relationship and the rates of school drop-out (Coleman, 1988, 1990: Ch. 22). The hypothesis, that the institutional context influences the possibility for transferring human capital within a society is also supported by comparative empirical work on Japan and the U.S. (Jhingon, 1993).

The allocation of household resources is also a central argument concerning the fifth topic of division of labor and gender roles within the household. Based on the central assumption, that the household members produce basic goods like monetary income and childbearing, the question of who is responsible for which commodities arises. One important example of this type of question is the analysis of female labor market participation, which is interpreted as a decision of the household concerning the human capital and time resources of its members. Due to distinct capabilities and skills of the family members, a division of labor arises which can lead to traditional gender roles: because women often have lower occupational qualifications on the one hand and comparative advantages concerning child care on the other, the theory predicts a tendency to assign the female labor force to the private household (Becker, 1981: Ch. 2). This argument corresponds with some empirical work on labor market participation of household members which provides evidence as well as additional insights (e.g. Funk, 1993; Bernasco, 1994; Bryant and Zick, 1994).

Although the approach of the new home economies seems to be a powerful explanatory instrument, some critical points have to be mentioned. As Berk (1980: 138) noticed, phenomena like exploitation by the male partner or conflicts between the household members are difficult to analyze with this theoretic framework. Although a common household utility function does not rely on the absence of divergent interests, the conflicts are avoided by side-payments within the household. However, this argument ignores cooperation and distribution problems due to common as well as conflicting interests of the marriage partners (Ben-Porath 1982: 54). For example the renouncement of occupational work by one partner requires
trust concerning future compensations. However, due to the decreasing stability of marriage relationships, these future payoffs are uncertain. Consequently, marriage partners need mechanisms of governance to solve problems of trust and cooperation (see England and Farkas, 1986; Raub and Westie, 1993). In other words, it is necessary to take into consideration the transaction costs of family life, which can be defined as "the costs of information collection, advertisement, and negotiations, the creation of provisions and guarantees for enforcement, and so on." (Ben-Porath, 1980: 5). Here the assignment of different mechanisms like contractual agreements or specific investments can be analyzed as decisions of rational actors. This argument leads to a framework "in which the utility of individual household members becomes the fundamental building block" (Berk, 1980: 140). Several empirical studies show evidence that the governance of marriage relations due to basic cooperation problems is an important aspect of household analysis (see Giesen, 1994; Abraham and Funk, 1997).

In political sociology, rational choice applications mainly address political collective action. In this field, rational actors are usually confronted with severe free-rider problems. Although the results of political action like voting, demonstrations, strikes or even revolts and revolutions could be beneficial to each actor in a group, the individual contribution has only trivial effects. Because the political action of an actor leads to individual costs, rational choice approaches face the problem of explaining the production of a collective good by a large group. As Opp (1996) points out, a solution must identify the individual benefits and costs emerging for collective political action. There are two types of arguments concerning these factors: first, we assume that the actors do not care about their opportunities of free-riding. This can be the case if the actors have strong intrinsic values like ideologic convictions (Boudon, 1986) or if they are not aware of the marginal impact of their individual contribution (Moore, 1995; Klandermans, 1997: 13). Empirical results indicate that actors form indeed specific expectations about their influence on the results of collective action that do not correspond with objective probabilities (Finkel et al., 1989; Moe, 1980).

A second possibility to overcome the collective goods problem are positive or negative selective incentives. These come into being either by negative sanctions e.g. due to group norms (Goldstone, 1994) or by benefits like social approval (Lindenberg, 1989). It can be shown that social incentives via personal networks are an important factor for the explanation of individual protest participation during the East German revolution (Opp and Germ, 1993).

Another important aspect of political action is the dynamics of collective action. Here rational choice theory can be helpful in explaining changes in the extent of political action. The general hypothesis is that decreasing individual costs and increasing benefits will lead to a higher chance of a contribution to the collective good. Several studies present empirical evidence for this general assumption (Opp, 1994; Opp and Germ, 1995). These costs and benefits of a single actor can be influenced by the group itself not only by explicit sanctions and benefits but also by constraints of individual action. This latter aspect can be elaborated by using threshold models of collective behavior (Schelling, 1978; Granovetter, 1978; Kuran, 1995). A basic idea is that the decision of an actor to join a politically active group depends on the number of other people who already participate in the action. For example, considering the decision to join a forbidden demonstration, each actor builds an expectation about the size of the demonstration because this will have an impact on the probability of sanctions: the larger the group, the less likely an individual will be punished by agents of the established regime. Hence it is assumed that each actor will have a threshold, depending on the number of people already demonstrating. If the group succeeds in growing at the beginning and if there is an appropriate distribution of thresholds among the actors, the group size will increase rapidly (Maxwell and Oliver, 1993; Granovetter, 1978). It has been argued that the dynamics of the revolution in East Germany in 1989 fits this theoretical model (Prosch and Abrahám, 1991; Braun, 1995; see also Kuran, 1991 in this context).

However, for the explanation of political protest and its different types the described arguments have to be blended. A first step toward such a model is suggested by Oberschall (1994). He stresses the fact that collective political action usually consists of contributions by small groups. Within these groups there is an assurance effect: groups may provide selective incentives, and consequently, considerably higher individual thresholds may be reached. In combination with different production functions for different types of protest, the realization of collective protest becomes more likely than in a world of atomized individuals.

One other field concerning the problem of collective goods and therefore applications of RC-theory is ecological behavior. The quality of our environment like clean air or drinkable water is the aggregate result of actions by numerous individuals and corporate actors. For most cases it can be assumed that the actors have the opportunities to choose between different courses of action which lead to distinct ecological consequences. One example is the choice of the vehicle to use. In general, it can be assumed that cars harm the environment much more than trams or public buses, but the environmental benefit is only marginal if a single actor decides to use the train instead of his car. On the other hand, ecological behavior often leads to higher costs for the individual actors: using public transportation is often more expensive and time-consuming than private car usage. This collective dilemma arises either because of the failure to measure individual contributions to pollution or due to the non-existence of rights which prevents the assignment of fees for polluting behavior. Contrary to these theoretical considerations, results of empirical studies show ecologically conscious behavior for some situations without the "classical" instrument of financial fees or legal norms (for an overview see Diekman, 1996). One example is the wide-spread behavior in Germany to separate different types of rubbish for recycling although there are no financial incentives to do so. In an RC-framework there are three possible explanations for this observation.

The first one focuses on the repeated interactions among the actors. If the collective good can be realized by a group of people, the members have the possibility to implement social norms by reciprocity in future interactions (see also Section C). The observation that residential areas with one-family houses are cleaner than those large apartment buildings can be explained by social control. Although each individual may have an incentive to throw some waste on the street, everyone knows that others will observe this uncooperative behavior and punish it by behaving the same way. Because every actor prefers a clean street, the actors
will cooperate if uncooperative behavior is well observable. Several empirical studies give support for a positive correlation between cooperative ecological behavior and the closure of local networks (Diekmann and Pretzendorf, 1998; Diekmann et al., 1995). While this argument stresses sanctions by social control, the second possibility of explanation relies on social rewards assuming that actors are interested in social approval. For these authors, ecological behavior provides an additional benefit if there is a widespread opinion that environmentalist attitudes should be rewarded (Braun and Franzen, 1995). For the third argument, the traditional R-C model is modified by the assumption of moral preferences in form of environmentalist attitudes. However, these attitudes do not automatically lead to cooperative behavior. Instead, actors compare the intrinsic benefits with the costs of ecological behavior. This yields the so-called low-cost hypothesis (see e.g. Husayni, 1969): if ecological behavior causes only low costs for an actor, it is more likely that she will take her moral sentiments into consideration. This argument can explain why people behave cooperatively in such situations like separating rubbish for reycling and defect in others like resigning the use of cars (Diekmann, 1996).

Although rational actors face norms and expectations of other individuals in a given social context, they can decide to offend against these restrictions. Hence deviant behavior of rational actors can be modeled by considering costs like negative sanctions and benefits as in the form of gains from illegal behavior. Consequently, RC analysis of crime assumes that crime is purposive, goal-oriented behavior of an offender to obtain basic commodities like "money, status, sex and excitement" (Clarke and Felson, 1993: 6). In this sense, criminal behavior does not differ from other, legal behavior. For the central question of how criminal behavior can be reduced, RC approaches focus on two core factors: first, the degree of criminal punishment and, second, the probability of punishment. These expected costs of crime are subject of consideration because the benefits of criminal behavior usually cannot be easily influenced. If we assume rational actors, this suggests the hypothesis of deterrence: the more severe the punishment for a crime and the more likely the offender will be captured and sentenced, the lower the crime rate in a group or society will be. However, actors are not completely informed about these factors. Instead, offenders calculate risks and gains of their crime ex ante on the basis of bounded rationality (e.g. Carroll and Weaver, 1986).14

Within the RC approach to criminal behavior, two central positions can be found. First, there can be a market for criminal activities. Here goods like drugs or security by mafia-like actors (Gambetta, 1993) are traded on an illegal market. In such a situation, crimes often provide monetary gains to the criminals which are influenced by demand and supply. These factors are subject to prevention strategies which try to reduce the market profits of offenders. On the basis of this framework two consequences can be derived: first, a society without crime is impossible if there is a demand for these goods. Crime therefore is a "normal" feature of societies in Durkheim's sense (Ehrlich, 1996). This results from the fact, that a reduction of supply leads to rising prices and therefore to higher benefits for suppliers. Because higher profits compensate greater risks of detection, there will always be a criminal entrepreneur on this market (Becker and Stigler, 1974). Secondly, this theoretical approach predicts a correlation between indicators of economic welfare and crime rates: for example, the lower the returns for legal activities, the higher will be the demand for illegal activities (Ehrlich, 1996).

Another approach investigates criminal behavior in non-market structures. It has been pointed out (e.g. Clark and Felson, 1993) that for certain types of crimes — like murder or shoplifting — the assumption of a demand side in most cases is not realistic. Although the offender in these situations tries to gain a benefit from her crime, there is no price or allocation of illegal goods. In these cases, RC-analysis focuses on the relation between expected costs of crime and the situational constraints. Besides consequences on situational design like special cars for women in the subway, interesting predictions on a macro level can be derived: for example, increasing female labor market participation may lead to higher rates of housebreaking because houses and apartments are empty during the daytime.

A growing field of RC-applications is in the sociology of religion.15 Contributions to this topic are mainly based on two theoretical concepts: first, religion as market behavior and, second, religion as human capital. Within both concepts, religious behavior is often considered as a matter of individual choice based on cost-benefit calculations (e.g. Iannaccone, 1995; Chaves, 1995; Durk and Greeley, 1991). The market approach focuses on religion as a marketable commodity which is offered by religious entrepreneurs like churches or sects and consumed by the worshippers (Iannaccone, 1988; Finke and Stark, 1988; also Berger, 1967: Ch. 6). Such models usually contain the assumption that the demand for religion is fairly constant and variations in religious behavior are due to variations of supply of religious services (Finke et al., 1996: 203). The different level of religious behavior between countries is a typical question related to this model. For the general hypothesis that a higher extent of competition leads to a higher religious vitality, several studies provide empirical evidence. Iannaccone (1991) presents cross-national data indicating that the existence of a religious monopoly leads to less demand for religious behavior. Stark (1992) shows on the basis of 45 Catholic countries that Catholicism is weakest in the absence of religious competition. Similarly, Chaves and Cann (1992) found for eighteen western countries a negative correlation between the level of religious regulation by the state and weekly church attendance. Moreover, the results of Chaves et. al. (1994) indicate that the model is also applicable to non-Christian churches. They found in eighteen predominantly Christian countries a negative correlation between the level of stately regulations and the frequency of pilgrimage to Mecca of Muslims which is interpreted as a measure of devotions.

The second concept of religion as human capital relies on the assumption that religious actors make investments concerning their religious behavior which are lost if religious beliefs are abandoned.16 Moreover, such investments often lead to more knowledge about the consumed commodity and therefore to a higher utility (Iannaccone, 1990). Hence the character of these investments in one's religious denomination, which are mainly subject of socialization (Greeley, 1998), yields a tendency to consume more of this good in the future (Becker, 1996). A possible hypothesis derived from this model is that a conversion between particular religious groups is more likely if the groups are similar (see Iannaccone, 1990: 300-301 for details and empirical evidence). Another consequence of the model concerns the
religion. The behavior of marriage partners: due to the higher amount of homogeneous religious human capital, spouses of the same religion can produce religious commodities more efficiently and should therefore show more religious participation than spouses with different faith (Iannaccone, 1990: 303–306).

References


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Endnotes

1. There are some convenient surveys of the main ideas these social thinkers contributed to modern social theory (Hayek, 1967; Schneider, 1967; Vanberg, 1974: Ch. 1; Muller, 1993; Levine, 1995: Ch. 7).


3. For the distinction between risk and uncertainty see e.g. Hartany (1977: Ch. 2).

4. For a survey concerning markets in economic and sociological theory see Swedberg (1994), with respect to RC theory see Coleman (1994).

5. This corresponds with central ideas formulated by Granovetter (1973, 1985) who focused the "social embeddedness" of actors acting on markets. For rational choice explanations of these networks effects see Montgomery (1991, 1994).

6. See also the results in Boidel et al. (1996).

7. Of course, the distinction between individual and corporate actors is only a heuristic one. The appropriate level of analysis depends on the kind of question and the methods used.


9. For this point see also the classification in Lichbach (1994).

10. However, threshold models cannot explain the decline and fluctuation of participation in the demonstrations subsequent to the overthrow of the last socialist government. Using a game theoretical model, Lohmann (1994) provides a more sophisticated explanation for rising and falling participation in the so-called Monday demonstrations in Leipzig in 1989.

11. A collection of empirical studies based on this model can be found in Cornish and Clarke (1986). More empirical evidence about the relevance of costs and benefits for criminal behavior can be found in Cameron (1993).

12. We are indebted to Andrew Greely for important hints on this subject.

13. Such investments could be for example "the skills and experience specific to one's religion include religious knowledge, familiarity with church ritual and doctrine, and friendships with fellow worshipers" (Innes, 1990: 259).

14. Another explanation of this status quo concerning mobility among religious denominations is offered by Chaves and Montgomery (1996) who suggest that risk-averse behavior and framing effects are responsible for this empirical fact.