

that can be enjoyed even by those who do not contribute to their production. The result can be free-rider problems at multiple levels (Heckathorn, 1989). Free-riding is possible at either the primary level (for example, stealing), or at a second level (for example, failing to help enforce norms against theft). Resolving the first-order collective action problem (prohibiting theft) therefore requires resolving the second-order free-rider problem (motivating individuals to participate in norm enforcement). A regress arises because were the second-order problem to be resolved normatively, for example, a norm mandating participation in norm enforcement, this would produce a third-order free-rider problem, and so forth to ever-higher levels. A number of solutions to this problem have been proposed. For example, Taylor (1982) argues that the second-order free-rider problem is not a true social dilemma because the cost of participating in norm enforcement is generally trivial. The cost of participating in norm enforcement may even be negative. For example, gossip is both an important mechanism of norm enforcement, and a common though often deplored form of recreation. The implication is that the second-order collective action problem is not a social dilemma. Another solution (Heckathorn, 1989) suggests that hypocrisy may play a constructive social role by facilitating the emergence of norms. For example, lawmen in the old American West were frequently brutally corrupt, violating the very rules they imposed on others, but their cumulative effect was to increase the level of social order, eventually bringing one another into control. Thus 'hypocritical cooperators', persons who defect at the first level but cooperate at the second, can trigger a norm emergence process that eventually brings them under control. Alternatively, a division of labor between first and second level cooperation can persist, as in the emergence of a hierarchy. For in a hierarchy, superordinates specialize as second-level cooperators by establishing and enforcing the regulations that govern the labor of their subordinates, the first-level cooperators. As this example illustrates, hypocritical cooperation, as theoretically defined, need not have negative connotations, but rather can merely reflect a special form of division of labor. In this division of labor, higher-level cooperators are compensated for that cost by being able to defect at the lower level. Both these approaches to revolving the second-order free-rider problem view the actions by which norms are created and enforced as purposive.

Markets are the second basic institutional form. They are based on aggregations of exchanges between single actors, where these exchanges may involve individuals, as in peasant

markets, corporate actors, as in capital markets, or a mix of individual and corporate actors, as when individuals make purchases from corporations. Markets as thus conceived include not only the systems of monetary transactions upon which economists have traditionally focused, but also phenomena of traditional sociological concern. For example, marital choices aggregate to form a marriage market (Coleman, 1990) in which an individual's market value depends on a variety of factors, including employment prospects, physical attractiveness, and personality attributes. An important focus of socialization is the effort to instill attributes that will increase the person's value in the marriage market. Similarly, friendship choices aggregate to form a status market, in which high status is definable as high value in the friendship market (Coleman, 1990).

The relationship between individual and collective interests in markets is highly variable. In the fortunate and unlikely event of perfect convergence, no social dilemma arises, and the result is the invisible hand, a *non-dilemma*. In contrast, when convergence is imperfect, one or more of the three above-described social dilemmas can arise. The problematic nature of trust marks the presence of a Prisoner's Dilemma. For example, fortune hunters marry for money rather than love. Bargaining marks the presence of another social dilemma. For example, in dowry systems, the amount of the dowry is generally negotiated. Similarly, when marriages are arranged, arranging a suitable match for a child can become a means by which parents enhance their wealth or social position, thereby providing the basis for competition and conflict between parents and children. Coordination problems are prominent in consensual marriage systems. The result tends to be assortative mating, in which partners tend to have equal values in the marriage markets. However, the complexity of the information upon which marriages are based means that any marriage system includes a coordination problem of enormous complexity. Thus marriage markets entail problems of trust, competition, and coordination, which reflect each of the above three social dilemmas.

Studies of non-economic markets, such as Coleman's (1990) use of neoclassical economic theory to analyze marriage markets, may appear to provide support for the stereotype of rational choice as a form of economic imperialism, wherein rational choice sociology would thereby be reduced to the application to sociological phenomena of economic theory. However, this concern about economic imperialism is invalid for two reasons. First, neoclassical economic theory is most powerful when applied to perfect and near-perfect markets, in which the

above-described social dilemmas are resolved by the market's invisible hand. Contributions to the understanding of how social dilemmas are resolved have come from many disciplines, and few of these analyses are grounded in neoclassical economic analysis. Second, most phenomena of traditional sociological concern cannot be usefully conceptualized as markets but instead correspond to other institutional forms.

Consistent with the traditional sociological focus on norms, a special focus for rational choice sociology concerns the embeddedness of norms in markets. This is a major theme in the rapidly growing field of economic sociology (Smelser and Swedberg, 1994). Markets are not the self-sufficient entities presumed in classical and neo-classical economics. Instead, they depend on a host of underlying norms, including the system of property rights upon which transactions are based, and norms structuring the transactions. The dependence of markets on a system of underlying norms was an important theme in Durkheim's ([1893] 1947) analysis of markets. However, this insight has now become the basis for a growing body of work. Similarly, in Coleman's (1990) analysis of social capital, he emphasized the importance of norms for economic growth and development. These include norms which require that obligations be fulfilled, and even norms that make it safe to walk at night.

Hierarchies are a third institutional form for which rational choice theories have been developed. Here the fundamental principle of organization is for a single actor to exert power or influence over a set of subordinate actors. In the simplest structure, subordinates in one relationship function as superordinates in other relationships, to form a pyramidal structure. Agency theory (Eisenhardt, 1985; Jensen and Meckling, 1976; White, 1985) is one of the rational choice theories used for analyzing hierarchical relationships. The theory focuses on *informational asymmetries* between individuals who contract for a service (principals), and those who hire them (agents). For example, in the relationship between patients (principals) and physicians (agents), the latter's vastly greater access to specialized medical knowledge creates opportunities to control the patient through evasion, dissimulation, mystification and many other deceptive practices (Waitzkin, 1991). Similarly, in the relationship between clients (principals) and lawyers (agents), the latter can use their specialized legal knowledge in ways that lead clients to act against their own interests (Bok, 1978). More generally, any bureaucracy can be seen as a chain of principal-agent relationships that link principals ('superordinates') to agents ('subordinates') charged with fulfilling their

delegated responsibilities. However, subordinates' differential control over information frequently enhances their power and provides the opportunity to manipulate their superordinates, so all hierarchical relationships include some scope of negotiation.

According to agency theory, two fundamental types of problems inevitably arise when the agent's interests fail to coincide with those of the principal. The first problem occurs *ex ante*, before the agent's services are retained. It is termed *adverse selection*, because the agents with the strongest incentives to offer their services to the principal tend to be those who are least well qualified or motivated. For example, when advertising for a job, the applicants who respond do not come from a random sample of all people who are qualified for the job, because most such people are satisfied with their current employment. Instead, responses come differentially from people who are unemployed or are in the process of losing their current jobs. This group contains a larger proportion of workers with problems in competence or reliability than does the working population at large. Identifying the true suitability of candidates for a job is difficult; because applicants who are least qualified have the greatest incentive to withhold information that reveals their deficiencies, so a coordination problem is complicated by a problem of trust.

A second type of agency problem occurs *ex post*, after an agent's services have been retained. If a principal lacks the means to monitor an agent's performance, the latter may act in ways that serve his or her interest at the principal's expense, thus a second problem of trust arises. This risk stems from postcontractual opportunism and is termed 'moral hazard', though it need not entail behavior that is either immoral or illegal. Problems of moral hazard arise to some extent in all organizations. Businesses lose far less money to robbery than embezzlement, for it is impossible to watch all employees all the time, especially those in positions of trust.

It might seem that suitably structured incentives could resolve agency problems; thereby creating the hierarchical equivalent of a perfect market that resolved all potential social dilemmas. However, just as perfect markets have characteristics that are seldom approximated in the real world, such as full information and the inability of individual buyers or sellers to affect aggregate price or demand, so too is a perfect incentive system impossible in realistic contexts. According to Holstrom (1982), an ideal incentive system would have three characteristics: (1) working effectively must be individually rational, (2) the outcome must be collectively rational, and (3) its costs must not exceed the enterprise's revenues. However, he

proved that these three conditions are incompatible. This arises, in essence, because ensuring that a worker will be motivated to work effectively requires incentives equal to that person's marginal product, that is, the difference between the product with and without that person's effort. However, when the level of interdependence is high, and hence the efforts of all are necessary to achieve a desired outcome, each individual's marginal product approximates the entire product, so each individual would have to be paid an amount approximating the total product. Given these constraints, no magic bullet (that is, no perfectly designed incentive system) with which to resolve social dilemmas in hierarchies appears possible. Therefore, institutional measures with which to resolve issues of trust, to limit the potentially destructive effects of competition and allocate scarce resources, and to resolve cooperation problems, will remain important features affecting the operation of hierarchies.

Hierarchies, like markets, can be combined with other institutional forms. For example, many firms contain an 'internal labor market', in which individuals compete for promotions. Therefore, a market can be embedded in a hierarchy (Miller, 1992). Yet, many markets have hierarchical elements, as in a 'price leader' system in which a specific firm decides when to raise prices and others in the industry follow. A hierarchy is then embedded in a market.

The embeddedness of norms in hierarchies is another important focus of rational choice sociology. It has long been recognized that parallel to each organization's formal structure, is an informal normative structure. Analyzing such organizationally embedded norms has now become central to what Nee and Ingram (1998) term the 'new institutionalism' in sociology, in which institutions are defined as networks of formal and informal norms. They reject the 'structural embeddedness paradigm' in which individuals are embedded in structures so inflexible as to preclude meaningful choice. Instead, their essential argument is that norms provide the missing link, with which to integrate a *choice within institutional constraints perspective* with the *network embeddedness approach*.

Elections are a fourth institutional form, in which multiple actors (the voters) take actions that affect the collectivity. All three types of dilemmas can occur in electoral systems. PD problems arise when candidates use deceptive or dirty campaign tactics, logrolling and the exchange of political favors involves bargaining, and when the electorate uses simplistic criteria to make choices among numerous issues and candidates that reflects coordination problems. This institutional form has been a traditional

focus of rational choice analysis in political science, though given the importance of political sociology as an area within the discipline, it should not be surprising that sociologists have also contributed in this area. For example, Kanazawa (1998) proposed a solution to the paradox of voter turnout, the problem of explaining why people would bother to vote given that the chance of influencing the outcome is null in systems with large numbers of voters.

The core-periphery structure in rational choice analysis

Traditionally, economists studied markets, political scientists studied elections and governmental hierarchies, and sociologists studied norms and hierarchies, including both systems of inequality and organizations. This rough division of labor has now blurred, reflecting the greater permeability of the division among the disciplines. The advent of rational choice has contributed to this process of integration. Because of its common theoretic vocabulary and focus on a central set of theoretic issues, theory development in rational choice exhibits a core-periphery structure. The core consists of bodies of theories and the associated common theoretic vocabulary, for example, general theories regarding social dilemmas and their modes of resolution. The periphery consists of substantive applications of rational choice theory to particular institutional forms, including tests of previously developed theory and analyses of specific phenomena. In this system, core and periphery are mutually interdependent, because substantive applications of rational choice theory draw on the core, and new theoretic developments frequently originate from research in substantive areas. Furthermore, because most rational choice scholars are involved both in development and elaboration of core theories and in substantive applications, there is no clear division of labor between theoretic and applied work. Yet the conceptual distinction between theoretic core and substantive periphery is none the less instructive, because a theoretic contribution resulting from substantive analysis radiates inward, affecting the body of core theory, and this in turn has implications that radiate outward to the array of other substantive areas in which rational choice analysis is pursued. For example, studies of social cooperation employing evolutionary game theory (Axelrod, 1984) have impacted fields ranging from evolutionary psychology and social movements to the philosophy of ethics. Thus, theoretic contributions arising in one substantive area can have implications in many

other substantive areas. This process provides theoretic integration and coherence to rational choice as an intellectual movement that transcends disciplines.

CONCLUSION

By way of conclusion, let us consider critiques of rational choice. Four traditional critiques of rational choice are now widely recognized as misconceptions. First, rational choice is not wedded to a grim view of actors as ruthless opportunists. Indeed, much sociological rational choice analysis focuses on altruistic and other non-egoistic behaviors (Hechter, 1987). Secondly, rational choice is not wedded to any particular political position. Rational choice scholars range from free-market conservatives to Marxists (Elster, 1990). Thirdly, rational choice theory does not require that actions have only intended consequences; indeed, enormous emphasis has been placed on analyzing social dilemmas such as the prisoner's dilemma, in which individually rational actions combine to produce a collective loss. Finally, rational choice is not an alien import, but has deep roots within sociology, in particular the methodological individualism of Max Weber (Swedberg, 1998).

Other critiques remain contested. One that has gained increasing prominence during the past decade holds that rational choice scholars are so excessively concerned with abstract theory that they avoid the deep engagement with empirical data that is essential to any adequate analysis. This argument was put forth independently by Green and Shapiro (1994) in a critique of political science applications of rational choice, and by Johnson and Keehn (1994) in a critique of applications to area studies. Both critiques received wide attention and produced a debate that included a book-length response to Green and Shapiro (Friedman, 1995). In evaluating this debate, it is important to distinguish between critiques that bear directly on the theoretical approach, versus critiques that bear on particular applications. The former are more important, because even the best theoretic approaches can be applied badly.

When applications of rational choice in sociology are examined, what is striking are the numbers that are rich in empirical detail. This is consistent with the sociological tradition of deep engagement with empirical data. Examples include Jankowski's (1991) book *Islands in the Street*, in which he reports the results of more than a decade of ethnographic study of thirty-seven street gangs in Boston, Los Angeles and New York. This included, for example, studies

of the choice to join a gang, which involved assessments by his ethnographic informants of a complex combination of costs and benefits. Costs included having to share income from criminal endeavors with other gang members, and a greater chance of being caught by police because greater numbers of persons would have detailed knowledge of the endeavor. Compensatory benefits included earnings that were more regular, less individual effort, smaller risk of physical harm when part of a gang action, protection for family members, and money for family emergencies. He studied the processes by which individuals climb the gang hierarchy and the alternative forms of gang hierarchies, which ranged from flat but rather autocratic structures, to steep and highly bureaucratized structures that included written bylaws and formal elections. An important focus of his analysis was the emergence and enforcement of norms within the gangs, focusing on issues such as trust, allocation of authority, and coordination. These norms limited violence and predation within the gang, and forbade activities that would harm the relations with the community on which gang stability rests. Other empirically rich applications of rational choice in sociology include Hechter's (1987) analysis of group solidarity, Brinton's (1993) analysis of gender roles in Japan, Kiser and Schneider's (1994) analysis of pre-modern states, Opp's (1988) analysis of political protest, Nee's (1996) studies of development in China, Brustein's (1996) analysis of the social origins of the Nazi party, and Anthony et al.'s (1994) analysis of the ratification debate following the US constitutional convention of 1787. In light of such studies, it is surprising that the view of rational choice as theory obsessed has gained such support. However, the role of rational choice as the *interlingua of the social sciences* may provide the answer. The language of rational choice can serve as the basis for richly textured descriptions, however when it does so, the use of theoretically grounded terms also serves to point to the bodies of rational choice theory that would be relevant to an explanation. Hence, theory in rational choice analyses never can recede into the background, so a feature of rational choice descriptions that should be regarded as positive may be misjudged as a deficiency.

Rational choice theories are currently in a state of flux. This includes areas of theoretic development designed to broaden the perspective beyond its traditional limits. For example, rational choice has been criticized for ignoring emotions, but several distinct rational choice theories of emotion have now been proposed (Brams, 1997; Frank, 1988; Hirshleifer, 1987; Lawler and Yoon, 1998). Countering the view of

rational choice as excessively rationalistic, rational choice theories of religion have also been proposed (Iannaccone, 1988; Stark 1999). Similarly, rational choice is sometimes criticized for treating preferences as fixed, and thereby ignoring preference change that is an important part of socialization, yet sociological rational choice theorists have offered several models intended to explain preference change (for example, see Lindenberg and Frey, 1993). Theories of socialization (Morgan, 1998; Yamaguchi, 1998) have also been proposed, and Rambo (1999) proposed a partial integration of rational choice and cultural sociology. Given the rate at which rational choice theory and applications are advancing, it is impossible at this time to offer a definitive assessment of its ultimate potential. However, two developments appear to be clear. First, a distinctively sociological form of rational choice analysis is in the process of development; a body of work that both reflects two important traditions within sociology, a substantive emphasis on norms and inequality and a commitment to deep engagement with empirical data. Second, this development will occur, not in isolation, but in a manner that draws upon and enriches theory-driven empirical research in other disciplines.

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