

Rationality

In its broadest sense, rationality may be defined as the ‘disciplined use of reasoning and reasoned scrutiny’ (Sen 2002; 19). The capacity for reasoned scrutiny is the ultimate ‘black box’ to which scientists and philosophers appeal to explain how human beings make inferences and deductions, unify facts under propositions, and justify assumptions like ‘the duality of agency and structure.’ In the sciences that make economic relationships their subject matter, rationality refers more narrowly to the capacity of an ‘actor’ or ‘agent’ to deliberate over ends and means, to weigh alternatives, and to select those means and methods that the chooser considers effective in practical conduct. Due to its intimate connection to human agency, some conception of rationality is implicated in the theories of action of all the social sciences, including anthropology.

One conception of rationality, however, proved to be particularly attractive in explanatory social science: reasoned scrutiny governed by the principle of maximization. Under this conception, it is not enough for actors to identify alternatives, to sort them into better or worse based on their understanding of how the world works, and to devise courses of action that seem to them to be feasible and/or proper under the circumstances. Rather, for decisions like picking a seed for the winter wheat, the rational actor seeks the best seed for her money, that is to say, the ‘optimal’ choice within the limits of her resources and priorities. Importantly, like rational actors generally, the seed buyer can be said to have maximized her outcomes in choice even if she wound up with the third best seed, since the rejected options presumably were worth less to her than other uses of her resources. Theories that equate rationality with maximization are called ‘rational choice theories.’ Since the 1970s, attempts to supplant existing theories of practical rationality with models of maximizing agency stimulated heated controversies in economic sociology and other disciplines.

Rationality as Maximizing Intentionality

The development of game theory, decision theory, principal-agent theory, and social choice theory from the a priori premise of maximizing intentionality must be considered the supreme intellectual achievement of the social sciences in the twentieth century. These disciplines have made and continue to make significant contributions to political theory, strategic studies, policy studies, social network analysis, and economic sociology. Yet they also provoke increasingly urgent metatheoretical questions. What are the distinctive features, the limits and possibilities of human rationality? How does practical rationality differ from the disciplined use of reasoning that prevails in mathematics, natural science, and metatheory? Can the mathematics of extrema—a group of functions that reveal the maxima and minima of sets of points in coordinate space—be imported from the natural sciences, where they identify the paths of ‘least effort’ or ‘efficiency’ of physical processes, to the sciences of human action without fundamentally distorting the latter’s subject matter?

The last question is particularly germane, since the first social science to use the mathematics of extrema to model practical rationality—neoclassical economics—borrowed its equations from kinetics, the branch of mechanics dealing with energy and motion. By making ‘utility’ the economic equivalent of kinetic energy, neoclassical economics modeled the rational agent as a particle of desire in a dynamic field of utility (Mirowski 1989). The new conception of homo economicus did not arrive uncontested. As early as the 1880s, the Austrian school of economics opposed the use of the infinitesimal calculus to measure the incremental gains in satisfaction (‘utility’) that consumers derived from their trades and purchases, on the grounds that utility was a discrete rather than continuous variable. The Austrians called marginal utility the ‘subjective theory of value’ and emphasized an aspect of rationality overlooked by the mathematical economists, its role in intersubjective understanding (without which no trade or purchase could be undertaken). But Austrian

subjectivism lost ground during the 1920s. In his discussion of the theories of action of Alfred Marshall, Vilfredo Pareto, and Max Weber, Talcott Parsons (1937) adopted what by then had become the conventional view of rationality: To be rational was to employ the laws and methods of contemporary science in the solution of practical problems. Consequently, Parsons (1937; 58) argued, the actor should be conceived as a rational being ‘analogous to the scientist.’ In place of the actor’s own subjective reconstruction of his pre-choice deliberations, the theorist of economic phenomena would substitute a choice function suitable for a species of actor-scientists.

Two groups of choice function predominate in the disciplines that equate rationality with maximization: the ‘utility functions’ of neoclassical demand theory, which apply under conditions of certainty (where the outcomes of action are distinctly knowable and measurable), and the ‘preference schedules’ of expected utility theory, which apply under conditions of risk and uncertainty. Under conditions of certainty, like those pertaining to the seed buyer, the rational actor is modeled as if she formulated mental graphs of indifference curves prior to allocating her scarce resources in choice. Under conditions of risk and uncertainty, the rational actor is modeled as if he prioritized his options by assigning both outcome and probability values to them. Theorists justify these choice functions on grounds of tractability, not realism. They are easy to manipulate, even if few choosers use graphs and matrices to scrutinize their options. Moreover, they generate definite predictions about the options a maximizing agent would choose under different regimes of incentives and costs.

The use of utility functions to represent how choosers choose is used extensively in rational choice theory. Here the rational peasant or voter or welfare recipient is modeled to act as if he puts the choice-relevant variables (for simplicity, x and y) into an equation like $u = f(x, y)$. Plotted onto a two-dimensional graph, the equation yields a demand curve

from which the actor can read the maximand, the highest value of the function. That becomes his first choice, though constraints may compel him to accept a less-favored option. When there are many constraints, the actor-scientist devises a more complex equation or a series of them.

Expected utility theory's representation of rationality as preference-ordering dominates decision theory, strategic studies, and the economics of information. In this representation, the rational actor first makes a complete list of her options. She then assigns utility and probability weights to each of them, makes pair-wise comparisons of the combined utility-probability scores, and rank-orders the scores from the most-preferred to the least-preferred. Rationality is just the ability to carry out these tasks and to move down the preference schedule consistently. As long as the preference schedule is well-ordered (i.e., complete and transitive), maximization follows automatically. So does predictiveness. Actors with similar preferences and risk tolerances acting in similar situations with similar resources at their disposal will act in similar ways, insofar as they are rational.

Critiques of Rationality as Maximization

There is no question about the productiveness of the rational choice paradigm or its ability to shape the research agendas and vocabularies of the social sciences. Yet many consider the conception of rationality as maximizing intentionality to be simplistic, inappropriate for everyday practical conduct, and hyperrational. Expected utility theory, in particular, has been subject to vigorous criticism by Herbert Simon, Daniel Kahneman, Amos Tversky, Jon Elster, and Amartya Sen.

In thirty years of research, numerous studies on laboratory subjects document routine violations of expected utility theory's rationality and probability axioms. Subjects in these studies fail to compare and rank all the options in their feasibility set, even when making apparently simple consumer choices. When choices implicate values, subjects exhibit 'multiple equilibria' and hence cannot optimize. Subjects appear to

‘regret’ previous rankings and reverse preferences, establish preferences between equivalent options, allow losses to loom larger than gains when estimating risks, and allow the description (framing) of the question to affect their perception of the probabilities involved. In other studies, subjects willingly incur travel costs to save a few dollars on low-priced items but not on higher priced ones (thus violating the principle of marginal costs), and fail to see opportunity costs as equivalent to out-of-pocket expenses. In his review of the literature, Thaler (1991) found varying percentages of subjects to be in violation of 13 of 15 tenets of economic rationality. As one review article concluded, ‘at the individual level most of the empirical evidence is difficult to reconcile with the principle of EU [expected utility] maximization’ (Schoemaker 1982; 530). Violations of the transitivity axiom (according to which, if A is preferred to B and B to C, then A is preferred to C) are particularly serious, since ‘if preferences are not transitive, then rational choice theory will have little explanatory power’ (Cook and Levy 1990; 7).

Theories using utility functions have been better able to deflect the judgment of predictive failure. That is because they leave so many factors affecting the choice situation exogenous to choice and because constraints can include virtually anything, including ‘self-imposed constraints’ stemming from norms that condemn maximizing behavior as selfishness. In contemporary rational choice theory, preferences and even ends are considered exogenous and attributed to pre-intentional ‘tastes’ and ‘desires’. For the most part economists grant to psychology the task of developing a theory of preference formation. An exception is Becker (1996), who argues that sociological variables such as peer pressure and parental influences can better explain the stability of preferences during a round of choice making. Most of the critiques of utility maximization offered by economic sociologists—the social construction of tastes, the priority of institutions, the precondition of trust, etc.—fall on deaf ears. They deal either with preference formation or constraints, neither of which

touches the ultimate, endogamous drama of the prioritizing individual weighing her options alone.

The use of utility functions to model the choice process becomes particularly controversial when constraints broaden to include intra-personal conditions. Under these conditions, utility maximization often becomes vacuous (content-free), tautological (true by definition), and circular (especially when preferences are read backwards from choices). Some rational choice theories, for example, consider the ‘choice’ of habits and addictions to be maximizing behavior: Habits economize on search costs while addictions steeply discount the future in favor of present satisfactions. Even apparently suboptimal choices, these theorists argue, will be seen as maximizing when all the unfactored cognitive costs and self-imposed constraints are included in the model (Schoemaker 1982). In response to Herbert Simon’s claim that intendedly rational actors satisfice rather than optimize because of the high search costs involved in studying all the consequences of all the options in their choice sets, Beach and Mitchell (1978) argue that people make ‘metadecisions’ between the decision strategies in their repertoire. Like the seed buyer who husbands her resources, cognitive-effort maximizers select coin-flipping or satisficing for their lesser-valued pursuits and reserve expected utility procedures for their higher-valued ends. When theorists start adding unobservable constraints to the choice function to account for unexplained variance, or add meta-levels of rationality to explain away evidence of suboptimal behavior, maximization becomes an irrefutable assumption that no longer generates testable predictions.

A number of efforts are underway to decouple rationality and maximization. A promising line of work seeks to develop tractable models of ‘minimal’ or ‘quasi-rationality’ (Thaler 1991). Another approach differentiates optimization from maximization, and redefines the latter as the selection of the option that is merely no worse than any other (Sen 2002). Still another develops a rule-based—normative—conception of

rationality, treating maximization as a special case (Parsons 1937). All of these alternatives are compatible with economic sociology's view of rationality as collectively practiced, culturally and institutionally embedded intentionality.

Christopher Prendergast
Illinois Wesleyan University

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