

Jon Elster

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New Horizons in Economic Thought: Appraisals of Leading Economists, edited by Warren Samuels (Edward Elgar Publishing, 1992)

Jon Elster has made important contributions to several fields, including rational choice theory, political science, and philosophy. The breadth and depth of his writings are striking in a time of high specialisation; he is read and discussed by political scientists, economists, and philosophers. His work is difficult to summarise in a slogan, but virtually all of it has to do with problems of rational choice explanation in social science, much of it has a methodological dimension, and it is generally informed by a broad and deep acquaintance with relevant literatures in economics, political science, history, philosophy, and psychology. In what follows I will discuss Elster's contributions to a series of problem areas: the foundations of the theory of rationality, social welfare theory, philosophy of social science, and analytical Marxism. It is impossible to touch on every point of interest, or even a representative sampling; instead I will single out several important areas of controversy for closer inspection. And since I will dwell at times on points of criticism, it must be emphasised at the outset that I regard Elster's work with enormous respect. He has made possible a deeper understanding of a variety of important issues in a handful of disciplines. And he has drawn attention to important conceptual issues in the foundations of economic theorising. The fertility of his mind combined with his prolificacy have combined to make a singularly important contribution to the human sciences.

Foundations of rational choice theory

Much of Elster's work involves explication of the central assumptions of rational choice theory. Economists and decision theorists tend to adopt a thin and unnuanced conception of rationality, in which rational choice is strictly characterised by fixed preferences, cardinal utilities, subjectively-construed probabilities, and conformity to appropriate axioms of choice. Call this the "thin" theory of rationality. This theory makes it possible to represent problems of choice in a highly compact and formal manner, and to arrive at provable results in decision theory, game theory, and microeconomics. Many observers would now agree that the thin theory is a poor description of actual human

decision-making behavior.¹ Elster shows, however, that there are also unresolved conceptual problems contained within this theory. And he demonstrates that it is desirable to provide a more elaborated account of rational decision-making if rational-choice theory is to be of much use in understanding social behavior in all but the most narrowly defined market contexts.

What is rationality?

Before we can consider non-standard cases of rational choice we need a more detailed account of what we understand by rational behavior in the clear cases. Elster's work contains a number of discussions of this central topic. In *Ulysses and the Sirens* he analyzes rational choice as the outcome of a two-step process: "To explain why a person in a given situation behaves in one way rather than in another, we can see his action as the result of two successive filtering processes. The first has the effect of limiting the set of abstractly possible actions to the feasible set, i.e. the set of actions that satisfy simultaneously a number of physical, technical, economic and politico-legal constraints. The second has the effect of singling out one member of the feasible set as the action which is to be carried out" (1979/1984:76; see also 1989c:13-14). This is a useful preliminary statement of the concept of rationality. It serves well as a framework in terms of which to understand the fields of microeconomics, game theory, and the like; for these fields concentrate on the techniques of optimisation through which an agent can select the optimal choice among the feasible set (the second filter). But the definition also sheds light on the importance of social and natural constraints on action (the first filter). This feature of rational action implies that there may be patterns of choice that can be explained, not as the result of optimising deliberation, but as the result of a particular set of institutional constraints. Economists are inclined to emphasise the importance of optimisation within stylized environments (markets); whereas political scientists often focus on variations in the environment of choice as the critical variable underlying patterns of social behavior. Elster's characterisation of rationality leaves room for both forms of social explanation.²

¹ See work by Kahneman, Slovic, and Tversky (1982), Herbert Simon (1979, 1983), and Cherniak (1986) for arguments to this effect.

² A more comprehensive statement of Elster's conception of rationality occurs in chapter I of *Sour Grapes* (1983e). This chapter serves both as an extensive introduction to the central ideas of rational choice theory and a thoughtful

Turn now to problems deriving from foundational assumptions of rational choice theory. Perhaps the cornerstone of rational choice theory is the theory of preference. Individuals are assumed to have complete, consistent preference orderings which can in turn be represented by cardinal utility functions through von Neumann lotteries on pairs of alternatives. In the thin theory preferences are taken as exogenous and fixed; the theory is designed to answer the question, how should I act given this set of preferences? But Elster shows that a number of problems arise in interpreting the theory of preference. I will consider several of these topics briefly and then look in greater detail at Elster's treatment of the problem of time preference.

Endogenous change of preference

The thin theory of rationality takes the agent's preferences as given or exogenous; microeconomics and decision theory has to do with optimisation given a particular preference ranking of alternatives. But what if my actions today can lead to a shift in my preferences tomorrow? This expands the problem of choice dramatically; for now I must deliberate, not only over how best to achieve my current preferences, but what preferences to cultivate for tomorrow. Are there rational grounds for making such choices?³

Suppose my preference structure today is this: I place very high value on becoming one of the world's ten best chefs. All other careers are pale in comparison. If this is a fixed preference (or at least a circumstance out of my control) then the options available to me are limited to the means I might choose to pursue this goal (chef school, a sou-chef position in a Paris restaurant, etc.). Now suppose that my options are extended by allowing the possibility that I might voluntarily change my preferences. I can now choose between pursuing my old preferences or undertaking a course of psychotherapy that will rid me of this demanding ambition and establish a new and more attainable goal. The conceptual problem is this: on what basis should I deliberate about this choice? It cannot be on the basis of my existing preference structure, since that is what is up for grabs. We might attempt to deal with this problem through recourse the idea of a second-order preference ranking: a preference ranking of preference rankings (Sen 1982a, Harsanyi 1982). In this case we might reason that it is preferable to adopt a lifeplan (first-order preference structure) in which the chief goals are reasonably attainable, over

posing of a number of current problems in the theory of rational choice. See also his introduction to *Rational Choice* (1986a).

³ Elster discusses this problem in "Imperfect Rationality: Ulysses and the Sirens;" Elster 1979/1984:76-85.

one in which the prospects of success are vanishingly small. The central point, however, is clear: the thin theory of rationality lacks resources for resolving this problem of choice. The problem of choosing to change one's preferences or utility function cannot be reduced to a problem of utility maximisation; other rational considerations must be brought into play.

Hysteresis

Turn now to a problem of methodology in the theory of preference. The Bayesian treatment of subjective probabilities and the von Neumann approach to cardinal utilities both depend on working out the agent's probability and utility space through a series of questions about alternatives: do you prefer x with certainty or a lottery with probability p of winning y and probability $1-p$ of winning z ? The probability p is then altered until we arrive at a probability p^* for which the agent is indifferent between the two options; this information can then be used to assign a cardinal utility to x . The problem that Elster raises is this: do we have any reason to think that the resulting value p^* is path-independent; or is it likely on the contrary that the agent will arrive at different values depending on whether the starting value is high or low (1979/1984:129)? (This argument converges to some extent with Kahneman and Tversky's analysis of the sensitivity of choice to the decision frame; Kahneman, Slovic, and Tversky 1982.) The path-dependence of the outcome of a causal process is sometimes referred to as hysteresis; and this sensitivity of the outcome to the particular order of questions raises a serious problem for the interpretation of subjective probabilities and cardinal utilities. For if we are not confident that the agent would have arrived at p^* no matter what order the choices were presented to him, then it is no longer justifiable to regard p^* as a unique measure of the agent's relative valuation of x , y , and z .⁴

Imperfect rationality

Turn now to problems of imperfect rationality. Elster has written a great deal on the issue of the role of self-imposed constraint within rational choice. Here the problem derives from the fact that real decision-makers are less than completely regulated by rationality. Thus we suffer from weakness of the will (an inability to execute a decision we have determined to be for the best, all things considered), emotion, impulsiveness, habit, and self-deception.

⁴ Elster raises a number of other interesting problems in the foundations of subjective probability theory in *Solomonic Judgements* (1989d:36-62).

These failures of rationality raise two sorts of problems. First, we need to have a more adequate conceptual analysis of the features of human practical cognition that interfere with reason. How is self-deception possible, since it seems to involve believing what I know to be false? Does weakness of the will derive from factors outside of rationality, or is it a feature of the process of rational deliberation itself?⁵ Second, we need to consider another second-order problem of rational choice: how the rational agent can choose to act in the present so as to minimise the consequences of these features of imperfect rational capacity in the future. Elster contributes to both topics, but particularly useful is his discussion of the latter under the general topic of the problem of Ulysses and the Sirens. It is possible for rational agents to anticipate failures of rationality in the future and arrange constraints on their future choices that will guarantee the behavior selected today as optimal. Suppose that I undertake a plan for tomorrow that I judge today to be best, all things considered: I will arise, breakfast, and spend the day completing an important professional task. Suppose I also anticipate, however, that the day will be fine, the sand and sun will beckon, and that I will be irresistibly drawn to the beach--with the result that the task will remain unfinished. Finally, suppose that I prefer that the task should be finished to the pleasures of a day on the beach. Under these circumstances, what actions are available to me today to see that my will is accomplished tomorrow? Elster argues that the central resource available is that of precommitment-- creating a constraint on my future actions that will compel me to act in the future as I decide today (1979/1984). In this example I might break the legs on my beach chair, knowing that the prospect of a day on the beach without a chair will be entirely less attractive to me tomorrow than it would in the presence of the chair. If I were perfectly rational such stratagems would be unneeded; if I were entirely immune to the call of reason they would be unavailable.

Time preferences

Each of these is a topic where Elster has focused our attention on an underlying conceptual or methodological problem in the foundations of the theory of rational choice. I now consider a final topic in somewhat greater detail with a more critical eye. Elster broadens the usual framework of rational

⁵ Elster discusses self-deception in Ulysses and the Sirens (1979/1984:157-179), in *Sour Grapes* (1983e:141-166). He treats weakness of the will in a number of places: in Ulysses and the Sirens (1979/1984:37-47), in *Solomonic Judgements* (1989:17-19), and in "Weakness of the Will and the Free- Rider Problem" (1985e).

choice by raising the problem of intertemporal planning: how should rational agents take future utilities into account in current choices? When they consider it at all economists generally treat this problem along the lines of an annuity: future utilities are discounted by a uniform rate, compounded by the number of periods into the future the utility occurs.⁶ This account may be represented formally as:

$$PVU(u)=u/(1+r)^n$$

where PVU is the present value of utility, u is the future utility, r is the discount rate, and n is the number of time periods. We may refer to this as "uniform exponential discounting." If we adopt this approach, then the problem of the rationality of time preferences reduces to this: is it rational to adopt a positive discount rate, or does rationality require that $r=0$? And second, if a positive discount rate is rational, are there any rational grounds for selecting one value of r rather than another; or is this simply a matter of individual preference?⁷

Elster formulates the problem more generally. He considers a general intertemporal utility function governing n periods of the following form:

$$1 \quad U = d_1 * u(x_1) + d_2 * u(x_2) + \dots + d_n * u(x_n)$$

where d_i are the discount coefficients for each period; $d_{i+1} < d_i$ for each i ; and u is the agent's intratemporal utility function (which is assumed to be unchanging over time, reflecting the assumption that preferences do not change over time). The problem of time preference then concerns the allocation of a quantity of resources over n periods. If u is a diminishing function of resources and if the agent has no pure time preferences, then U is maximised by distributing resources equally over n periods.

Elster poses two questions about this construction. First, is there any rational basis for discounting the future at all? And second, are there any consistency requirements governing the discount coefficients? He accepts the point argued by others that pure time preference for the present over the future

⁶ See, for example, Shubik 1982:287-189 and Axelrod 1984:13.

⁷ It is not self-evident that utilities should be treated along these lines; the rationale for discounting utilities, if any, must be different from that for discounting resources or money. It is rational to discount future sums of resources because current use of those resources would lead to increase over time (through the rate of real growth or the interest rate). Utility is produced by the expenditure of resources; but utility itself cannot be "invested" productively.

is irrational.⁸ If faced with the choice of one unit of utility today or next year, Elster contends (assuming that next year is certain), the agent should be indifferent between the two options; it is irrational for the agent to prefer today's consumption over next year's consumption merely because it is the present. The only justification for time preference, therefore, is the element of risk and uncertainty posed by the future. (I will refer to this as "actuarial discounting.") Elster further shows that it is possible to define a precise sense of intertemporal consistency using this formulation (1979/1984:68-72). Some settings of the discount coefficients give rise to inconsistent time preferences: the allocation that maximises U in period 1 gives rise to a different value for consumption in period 2 than will be chosen in period 2. The agent is thus led repeatedly to change his plan from one year to the next. And Elster maintains that only uniform exponential discounting satisfies this condition (1979/1984:71; 1983e:7; 1989a:20-21).

Elster concludes, then, that rationality requires, first, that agents ought not discount the future over and above what risk requires; and second, that if they do discount the future it should be done on the basis of uniform exponential discounting. I will argue here that Elster's formulation of these issues is infelicitous, however, and that his central conclusions are unconvincing. To the extent that discounting is based on actuarial risk, it will not be exponential; non-exponential discounts are not always inconsistent; and, more tentatively, I will hold that rationality requires time discounting if we are to make sense of savings, investment, and interest.

The clearest rationale for discounting the future is the element of risk and uncertainty. There is a finite probability--increasing over time--that the agent will not live to enjoy the fruits of his savings. However, it emerges that the riskiness of the future does not give rise to uniform exponential discounting. Actuarial tables provide a statistical estimate of the probability of an individual's surviving any particular year (e.g. age 40 to age 41). Let p_i represent the probability of surviving the i th year once having attained the $(i-1)$ th year. From these data it is easy to compute the probability today (in my fortieth year) of my surviving to enjoy the fruits of my 52nd year; it is simply the product of the probabilities of my surviving each intervening year. Let the series cp_i represent the cumulative probability of surviving the i th year. This will be a decreasing series. We may now represent the problem of intertemporal planning along the lines of a problem of decision-making under

⁸ Examples of philosophers who make this assumption include Norman Daniels (1988:158, 164-169) and Derek Parfit (1984:158 ff.). Parfit discusses another way in which time preferences might come to be inconsistent: I might have different discount rates for near and distant future utilities (1984:161).

risk, which can be solved by maximising expected utility. Suppose that utility is a diminishing function of income $u(m)$. Then in allocating resources today I should choose an allocation m_i of funds M over n time periods that maximises the expected utility of the intertemporal allocation. This construction reduces time preference to risk; on this approach, there is no pure time preference, but only an expected utility maximisation. Here again we have an expression that represents intertemporal planning in terms of discount coefficients and a fixed utility function:

$$2 \quad U = cp_1 * u(x_1) + cp_2 * u(x_2) + \dots + cp_n * u(x_n)$$

Here the coefficients cp_i are the cumulative probabilities of surviving to the i th year. In this case, however, the coefficients are not uniform or exponential. The coefficients are diminishing since they are cumulative products of probabilities; but each coefficient is specific to the period to which it corresponds (since that year is characterised by a specific actuarial probability of survival). So if time discounting reflects actuarial risk, we can conclude that it should not take the form of uniform exponential discounting. Figure 1 illustrates the marked difference between actuarial and exponential discounting.⁹

⁹ If the probability of survival were constant over time, then actuarial discounting would be exponential, with pn as coefficient for the n th term. It might be possible to argue that agents have sufficient concern for future generations that their savings behavior is not driven by the risk of death (which is the factor that leads to steadily rising estimates of risk); in this case it would be plausible to postulate a constant risk factor-- thereby producing an exponential rate of discount.

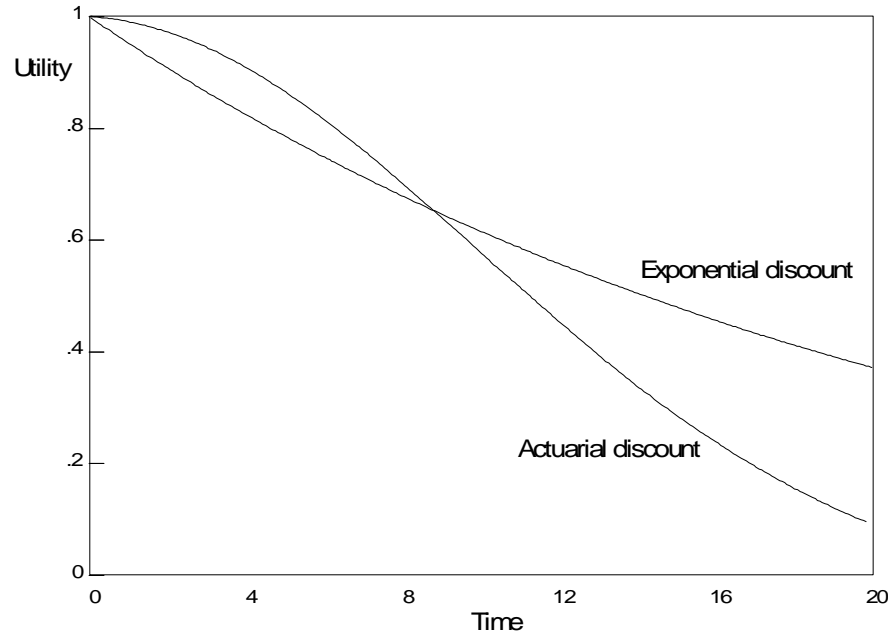


Figure 1. Actuarial versus exponential time discounting

Turn now to the problem of consistent time preference. Elster proposes that consistency of time preferences requires that we make use of an intertemporal utility function that produces allocations in the first period over n periods that will not be overturned when applied in the second period. He contends that the only consistent scheme of time preferences is one based on exponential discounting (1979/1984:71; 1983e:7). However, this conclusion follows from an artifact of his construction. Elster assumes that the coefficients in expression 1 are indexed on the current year; so when the agent deliberates next year he or she will once again be faced with coefficient d_1 . However, the actuarial-discount construction requires that the coefficients be fixed by a particular starting point (e.g. the agent's birth year), because the coefficient reflects the probability of surviving that particular year. So as the agent moves through life his utility function loses terms on the left; whereas Elster's construction loses terms on the right. It is this aspect of Elster's construction that gives rise to inconsistent preferences over time. If we accept Elster's formulation, then only exponential discounting is consistent over time. However, the more general expected utility formulation with fixed indexing (expression 2) produces consistent preferences as well, in Elster's sense; when the agent reconsiders the allocation problem for the remaining years in the

following period, he will arrive at the same distribution over the remaining years. But it requires that each year remain dated within the utility expression. And with fixed coefficients indexed to birth year the problem of inconsistency disappears.

Finally, let us consider Elster's contention that pure time discounting is irrational. (Pure time discounting disappears on the actuarial approach: here the agent prefers the present not merely because it is present, but because the future is increasingly uncertain.) Is it irrational to prefer today's utility over tomorrow's? I do not have a general answer to this question, but we get some further grip on the question by considering how time preference relates to the existence of a positive interest rate on resources. Upon reflection it can be seen that a zero rate of utility discounting implies that the rate of interest on money should be zero as well. This is plainly not the case; therefore it follows that agents do discount future utilities. Time discounting of utilities is thus interwoven with the fact of a positive interest rate on resources, which in turn corresponds to a positive real growth rate.

Suppose that utility is produced only by income and that income shows diminishing marginal utility. And suppose that money is compounded and discounted by the interest rate i . The question is whether there is a utility discount function that follows from this set of facts. Let $PVU(u)$ be the hypothetical utility discount function. If we assume that the interest rate is an equilibrium rate reflecting agents' savings choices, then the following condition must be satisfied:

$$U(m) = PVU((1+i)^n * m)$$

That is, it must be the case that the utility of the cost of an annuity is equal to the present discounted utility of the future value of the annuity after n periods. If the utility of current money is greater than the discounted future utility of the annuity, then individuals will choose not to save at the prevailing interest rate, which will lead to an increase in i to the point where the condition is satisfied; whereas if the current utility of the annuity is greater than the utility of its cost, then there will be excess demand for annuities, leading to a drop in the interest rate. For any utility function there is a utility discount function that corresponds to this equilibrium condition, in this respect: it discounts future utilities so that the present utility of the future value of an annuity equals the price of the annuity. If the utility function is assumed to be a Cobb-Douglas function, then we get a particularly simple outcome; the equilibrium discount rate for utility is an exponential function as well:

$$PVU = \frac{1}{(1+i)^{a*n}} * u$$

Thus in the Cobb-Douglas case the utility discount rate is exponentially related to the interest rate.¹⁰ These considerations give rise to an indirect argument for the rationality of time-discount of utilities: only if there is such a discount can we make sense of the existence of a positive interest rate.

Theory of social welfare

Turn now to Elster's contributions to the theory of social welfare. Elster has written frequently on topics falling broadly within the theory of social choice broadly construed; here I will briefly describe several topics of interest. A good example of Elster's contributions in this area may be found in his introduction (with Aanund Hylland) to *Foundations of Social Choice Theory* (Elster and Hylland, eds. 1986). In just a few pages Elster clarifies the original motivations of the theory of social choice (the practical problems of designing voting schemes and aggregating social welfare; 2-3); he illustrates some of the connections between the theory of social choice and other topics-- e.g. distributive justice and game theory; and he focuses attention on several conceptual problems lying at the heart of the theory-- e.g. the assumption that preferences are exogenous to processes of public decision-making or the problem of defining the boundaries of a given electorate (6-8).

Social decision processes and individual preferences

As we saw in the first section, Elster is interested in the problem of endogenous preference change. He believes that this problem recurs in the case of social decision-making, giving rise to a serious foundational problem in social choice theory. The central problem of social choice theory is usually formulated along these lines: given a set of individuals and fixed preference rankings, what decision rule or voting scheme can be put forward to arrive at a consistent social preference ranking? And what social preference ranking emerges from these individual preferences? In "The Market and the Forum" Elster argues that this formulation misses a crucial element of the political

¹⁰ However, exponential discounting of utilities arises only if the utility function itself is exponential. If we go through the same line of reasoning on the assumption of a logarithmic utility function ($u = k \log(m)$), then the corresponding discount function will be linear: $PVU(u) = u - nk \log(1+i)$.

process within a democracy: the fact that individual preferences are formed through the process of political decision-making itself (1986e:106-112). So individual preferences are not prior or exogenous; instead, they take form through the process of political discussion and debate.¹¹ And Elster takes this fact to cast some doubt on the adequacy of social choice theory: the theory abstracts from a feature of social deliberation that is essential to understanding the process of social decision-making.

Is this a telling objection? I think not. Elster is right in drawing attention to the ways in which preferences are shaped through debate. But once we acknowledge this fact and admit of an extended process of discussion and persuasion, we are once again confronted with the same problems that first engaged Arrow and others. At some point it is necessary to aggregate individual preferences into a single social preference ranking; and at this point the original problem of social choice arises once again. This point emerges most clearly if we consider a comparison that Elster does not consider: the contrast between a formal social choice function and Rawls's conception of wide reflective equilibrium.¹² In each case we are attempting to characterize a rational process of collective decision-making. In the former case, however, individual beliefs and preferences are fixed, and the sole problem is how to generate a consistent social choice. In the latter case, we are to suppose that individuals retain an open mind concerning their beliefs and preferences as they consider arguments, moral reasons, and alternative factual beliefs advanced by other citizens. The group reaches individual-level equilibrium when all relevant considerations (moral, theoretical, factual) have been voiced and each individual has settled on a coherent set of preferences and beliefs. We may imagine that each individual has altered his or her beliefs and preferences in various ways. Now, however, we are faced anew with the problem of social choice: how can these beliefs and preferences be aggregated to a consistent collective preference ranking? There is nothing in this process that allows us to conclude that unanimity will emerge through debate; instead, it is perfectly consistent, even probable, to suppose that individuals will still disagree in their rankings of social alternatives. So the point that beliefs and preferences are themselves affected by the process of social deliberation, does not alter the fact that some rule of aggregation or other must be chosen to move from individual preferences to social choice.

It may be noted that this discussion raises once again the problem of hysteresis, at two levels. To the extent that citizens' preferences are affected by the character and order of arguments to which they are exposed during an

¹¹ Here Elster draws on Jürgen Habermas's theory of the ethics of discourse.

¹² John Rawls, *A Theory of Justice* (1971).

extended period of debate, there is no reason to expect a unique equilibrium set of individual preference rankings; rather, different equilibria result from different discussion pathways. And second, different schemes of preference aggregation (social choice rules) may lead to different social preference rankings. On this view, then, problems of social choice have large stretches of indeterminacy (a conclusion that is distressingly familiar from our ordinary experience of political and group decision-making).

Alternatives to capitalism

Are there alternatives to capitalism? This question has acquired new significance following the collapse of the bureaucratic socialist economies of Eastern Europe. It is now fairly clear that state-owned and managed enterprises have serious economic defects-- incentive problems, inefficient patterns of investment, misallocations of resources across industries, and insufficient production of consumer goods. Do these defects entail that capitalism is the only economically viable form of economic organization for modern industrialized societies, or are there alternative institutions that are more democratic and less exploitative than those of contemporary industrialized capitalism, and that achieve comparable levels of productivity and efficiency?

Elster has written a good deal on several alternative possibilities. He discusses the viability of worker-owned cooperatives in "From Here to There; or, If Cooperative Ownership is So Desirable, Why Are there So Few Cooperatives?" Here his central conclusion is that the usual complaints about the inefficiency of worker-owned cooperatives are not compelling, and that the demands of justice give a strong reason for an economic democracy to experiment with this form of economic organization (1989b:111).

Elster also considers a major institutional reform within capitalism: the creation of a state-backed right to work. "A legally enforceable right to work would be part of the broader spectrum of rights that make up the modern welfare state" (1988c:55). Elster discusses the concept of a right to work within the context of current discussions of rights more generally, and he outlines a Marxian rationale for emphasizing the positive value of work, based on the ideal of self-realization through work. Meaningful work is a prerequisite for self-respect, on this account.¹³ This latter point, however, yields a normative argument against institutionalizing a right to work: the fact that the state must heavily subsidize one's work undermines the satisfaction and self-respect that

¹³ Elster returns to this theme in "Self-realisation in Work and Politics;" Elster and Moene, eds. 1989:127-158.

one can derive from it (1988c:74). And Elster further concludes that the economic constraints any economy is likely to face make a guaranteed right to work impossible. For both economic and moral reasons, then, Elster argues that it is better on balance not to institutionalize a legal right to a job.¹⁴

Philosophy of social science

Turn now to another large area in which Elster has made an important contribution: the philosophy of social science. The philosophy of social science has changed a great deal in the past fifteen years, and Elster's writings have contributed a good deal to the progress in this area. This field is concerned with problems in the logic and methodology of the social sciences: What is a good social explanation? How should social explanations relate to facts about individuals? Is there a distinctive social science method, or should the social sciences emulate the natural sciences? How do empirical methods constrain social hypotheses? Through the early 1970s this field was dominated by writings that were largely aprioristic and uninformed by much current social science research. Since that time, however, philosophers have increasingly recognised the need for a close acquaintance with extensive examples of social science inquiry so that the philosophy of social science will bear a recognisable relationship to the empirical work currently being done on social phenomena. Elster has written extensively in the philosophy of social science in the past ten years, and his writings have had a substantial effect.

The importance of social-science practice

In his book *Explaining Technical Change* (1983a) Elster offered a novel approach to the study of the philosophy of social science. Instead of posing a series of apriori questions about the social sciences in general, Elster organised his discussion around an important instance of social inquiry--the explanation of the incidence and diffusion of technical change--and undertook to extract methodological lessons from several empirical research traditions. This approach involved a "case-study" method for the philosophy of social science, and Elster was among the first to employ this method in the philosophy of social science. As Elster puts the point, "empirical work conducted in isolation from the philosophy of science may be no worse for that, whereas the

¹⁴ Elster raises related issues in his discussion of Krouse and McPherson's (1986) conception of a "property-owning democracy" in "Comments on Krouse and McPherson's 'A 'mixed'-property regime'" (1986a).

philosophy of science atrophies if it is not in close and constant touch with the development of current thinking on empirical matters" (1983a:11). (Historians and philosophers of natural science had adopted this perspective in the 1960s, but philosophers of social science were slow to follow.) The resulting book is successful on several levels. It provides a very useful exposition of some of the central ideas in the philosophy of social science--in particular, the relation between causal, functional, and intentional explanation. It offers an extensive development of Elster's important criticisms of functional explanation in social science (discussed below). And, substantively, it presents and discusses the main theories of technical change clearly and insightfully, with the effect of clarifying and enriching future debate on this issue.

Linked with this view of the importance of the actual practice of social scientists is Elster's insistence on what may be called "methodological pluralism" in the social sciences. Against the idea that there should be one comprehensive social theory, or one coherent set of theoretical ideas that are used to ground all social explanations, Elster offers the metaphor of a tool box. A good tool box consists of a number of different implements, no small number of which will do to replace all the rest. Rather, it is the diversity of the tools that constitutes the real utility of the collection. Likewise, Elster suggests that the social sciences need to resort to a large collection of theoretical tools--models, modes of analysis, quantitative techniques, and the like--in order to explain diverse social phenomena. There is a tendency within philosophy to try to reduce complexity to simplicity; Elster refreshingly affirms complexity and casts doubt on the goal of unification of the social sciences. His book *Nuts and Bolts for the Social Sciences* (1989c) puts the case clearly and well: in order to explain social phenomena it is necessary for the investigator to have recourse to a variety of theoretical tools. These tools may then be used to construct accounts of the mechanisms that underlie various social processes. Rational choice theory and game theory represent one section of the box; but sociologists' analysis of the workings of normative systems, cognitive psychologists' accounts of inference and illusion, even the psychoanalyst's treatment of self-deception constitute other--and non-reducible--sections of the box as well.

Methodological individualism

Elster's most important substantive contribution to the philosophy of social science is his renewed defense of the doctrine of methodological

individualism.¹⁵ He describes this doctrine in these terms: "By [methodological individualism] I mean the doctrine that all social phenomena--their structure and their change--are in principle explicable in ways that only involve individuals--their properties, their goals, their beliefs and their actions" (1985b:5). Methodological individualism is really two doctrines: a claim about social entities and a claim about social explanations. The ontological thesis denies that there are social entities independent from individuals; the thesis about explanation holds that assertions of explanatory relations among social facts need to be reduced to explanatory relations among individual-level facts. To explain a social phenomenon it is not sufficient to assert causal or functional regularities among social entities. Rather, it is necessary to provide a detailed account of the mechanisms at the individual level by which the causal properties or functional needs of the social system are imposed on other social institutions and practices. (That is, it is necessary to provide an account of the microfoundations of a given social process.)¹⁶ Thus macroexplanations are insufficient unless accompanied by an analysis at the level of individual activity that reveals the mechanisms that give rise to the pattern to be explained. This line of argument represents a sophisticated form of methodological individualism, and unlike earlier arguments for methodological individualism it has the merit of being informed by knowledge of a variety of examples of social explanation.

Elster's commitment to methodological individualism aligns closely with his emphasis on the utility of the tools of rational-choice theory in social explanation. Methodological individualism forces the social scientist to turn to the individual-level processes that produce social outcomes; and rational-choice theory offers a general account of what those individual-level processes are. Rational-choice theory thus functions as a research program for social science: to explain social outcomes as the aggregate result of individuals' calculating efforts to pursue their interests given their beliefs about the environment of choice. This program is plausible because human beings are purposive beings capable of forming beliefs and choosing actions on the basis of their goals and beliefs. This is not to say that human beings are perfectly or always rational; and in fact, much of Elster's effort is spent analyzing failures of rationality. But it does imply that rational-choice theory provides a common starting-point for analysis of social phenomena.

¹⁵ Earlier exponents of methodological individualism include J. W. N. Watkins and Karl Popper.

¹⁶ See Roemer 1982b and van Parijs 1983 for arguments that Marxist explanations require microfoundations.

The rational-choice approach generally gives short shrift to the workings of norms and values in human action. However, much of Elster's more recent work gives more attention to the role of norms and values in motivating or constraining individual choice. Whereas some social scientists within a rational-choice framework have sought to minimise the role of norms and values (e.g. Samuel Popkin in *The Rational Peasant*; 1979), Elster has come to recognise that reference to normative systems has a place within an individualistic theory of social action.¹⁷ This is a step forward in the direction of a more empirically adequate theory of individual motivation, and one that can eventually be deployed to produce more complex models of social processes that reflect both prudential and normative motivations. But Elster rightly emphasises that it is perfectly consistent for an individualist theory to introduce social norms into its explanations (1989a:105); contrary to Durkheim's familiar view that norms have a supra-individual status, it is plain enough that norms can only be embodied in the actions, sanctions, gestures of approval and disapproval, etc., of particular individuals.

A particularly successful application of the doctrines of methodological individualism may be found in Elster's critique of functional explanation in social science (1983a:49-68; 1979/1984:28-35; 1982c). Social scientists have often been inclined to offer functional explanations of social phenomena-- explanations of social features that explain the presence and persistence of the feature in terms of the beneficial consequences the feature has for the ongoing working of the social system as a whole. It might be held, for example, that sports clubs in working-class Britain exist because they give working-class men and women a way of expending energy that would otherwise go into struggles against an exploitative system, thus undermining social stability. Sports clubs are explained, then, in terms of their contribution to social stability. This type of explanation is based on an analogy between biology and sociology. Biologists explain traits in terms of their contribution to reproductive fitness, and sociologists sometimes explain social traits in terms of their contribution to "social" fitness. However, Elster shows that the analogy is a misleading one, because there is a general mechanism establish functionality in the biological realm that is not present in the social realm. This is the mechanism of natural selection, through which a species arrives at a set of traits that are locally optimal. There is no analogous process at work in the social realm, however; so it is groundless to suppose that social traits exist because of their beneficial consequences for the good of society as a whole (or important sub-systems within society).

¹⁷ Other rational-choice attempts to incorporate norms into the model include Margolis (1982), Sen (1982, 1987), and Levi (1986).

This discussion shows that Elster's defense of methodological individualism has been an important corrective to some tendencies within the social sciences. However, Elster has sometimes been accused of having an excessively individualist approach to social explanation (for example, by Andrew Levine in his review of *Making Sense of Marx* [1986]). Elster holds that good social science explanations need to have microfoundations, and putative explanations that lack such foundations must be revised or rejected. On the whole this is a salutary recommendation for the social sciences; in too many instances it is possible to find sociologists or historians explaining outcomes as the result of group interests, latent functions, or other ungrounded social processes. Here I will suggest, however, that Elster's formulation of the doctrine of methodological individualism is in the end overly restrictive; there is a class of satisfactory social explanations that do not require microfoundations as a condition of adequacy (though it is certainly a reasonable research goal to attempt to provide such foundations). If this criticism is convincing, then Elster is guilty of the sort of over-generalisation about social science method that his tool-box metaphor would reject: he is extending a perfectly legitimate but partial methodological strategy to a comprehensive requirement on all social explanation.

The macro-explanations whose adequacy I will defend fall generally within the category of causal-structural explanations. The claim that the alliance structures within which the European powers were located between 1912 and 1914 was a proximate cause of the outbreak of war is an instance of such an explanation (Williamson 1989). In such explanations the social scientist asserts a causal relation between two or more elements of social structure, and offers empirical support for this causal hypothesis that depends on historical evidence pertaining to the patterns or regularities of these structures across a number of cases.¹⁸

How are such hypotheses to be empirically evaluated? First, comparative study of a set of cases permits a direct empirical test of causal hypotheses of this sort. A comparative study identifies a small class of relevant cases; it specifies the social variables under scrutiny (state structure, land tenure relations, existence of elite parties, etc.); and it determines whether there are credible causal sequences among these variables in the several cases. And

¹⁸ Theda Skocpol's comparativist study of the causes of successful revolution is a well-known example of such explanations. Skocpol asks what explains the success of revolutions in a small number of cases and the failure of revolutionary movements in many more cases; her explanation is couched at the level of such structural variables as administrative competence, land tenure systems, and form of military organization.

second, it is possible to provide qualitative analysis of the social mechanisms that lead to changes of state in the social variables. For example, it is perfectly credible that an overextended state will have more difficulty suppressing banditry on the periphery than one in the fullness of its powers; we can easily sketch in the institution-level causal mechanisms that lead to this outcome. Causal-structural explanations, then, represent examples of causal analysis that depend only on the relations between various elements of social structure--without identifying the individual-level processes that give rise to these structural relations.

In defending the adequacy of this sort of structural explanations I do not mean to suggest that such explanations cannot be provided with microfoundations; in fact I believe that they can.¹⁹ Rather the methodological point is that the social scientist is not obliged to provide such foundations as a minimal condition of adequacy; it is possible to have the right sort of empirical support for a causal hypothesis about the connection between two or more elements of social structure, so that it is not necessary to derive this connection from underlying individual-level processes.²⁰

Analytical Marxism

Turn now to a final area of Elster's work: critical analysis of Marx's theories of society and politics. Marxism underwent a renaissance in the English-speaking world in the 1970s through the contributions of a generation of analytically gifted political scientists, economists, and philosophers. Now referred to as "analytical Marxism,"²¹ this body of work shed new light on central topics within classical Marxism: historical materialism, the theory of exploitation, the class-conflict model of social change, the theory of ideology, and much else. Elster was one of the central contributors to these

¹⁹ For consideration of this point in application to Skocpol's argument consider Michael Taylor's valuable essay "Rationality and Revolutionary Collective Action" (1988).

²⁰ For further discussion of the shortcomings of strong reductionism or individualism in social science see my *Varieties of Social Explanation* (1991).

²¹ Some of the chief writings within analytical Marxism include John McMurtry, *The Structure of Marx's World-view* (1977); G. A. Cohen, *Karl Marx's Theory of History: A Defence* (1978); John Roemer, *Analytical Foundations of Marxism* (1981); and Adam Przeworski, *Capitalism and Social Democracy* (1985). Two collections of articles have appeared as well: Terence Ball and James Farr, eds., *After Marx* (1984) and John Roemer, ed., *Analytical Marxism* (1986).

developments, emphasising particularly the rational-choice foundations of many of Marx's central arguments. Elster argues that Marxist explanations require microfoundations, and that the tools of rational choice theory, including particularly game theory, are well-suited to provide such foundations. His book *Making Sense of Marx* (1985b) represents a largescale development of his interpretation of Marx's position on all the central issues; in addition he has published a large number of articles on these topics as well as a brief introduction to Marxism (1986d).

Rational-choice Marxism

G. A. Cohen's book *Karl Marx's Theory of History* (1978) was one of the most influential of the flurry of publications within analytical Marxism. Cohen argued that Marx's theory of historical materialism was coherent and plausible, and that it depended essentially on a pattern of functional explanation. He conceded that it is also possible to attempt to identify the causal processes that underlie functional relations (what Elster calls microfoundations and Cohen calls "elaborations" of a functional explanation), but he maintained that it is not mandatory to do so in order to assert a functional explanation. As shown above, Elster has formulated a powerful critique of the use of functional explanations in social science, so it is unsurprising that Elster challenged Cohen's formulation. In a series of publications Elster deployed these arguments against Cohen and appears to have the stronger case. Elster's arguments show that Cohen's reconstruction of functional relations among social phenomena requires supplementation with an account of the microfoundations of these functional relations. General claims like "the capitalist state functions to stabilise capitalist property relations" must be supplemented with accounts of the processes within capitalist society through which the needs of stability are impressed on the structure and behavior of the capitalist state.

The call for microfoundations for Marxism is well and good; but what sorts of underlying mechanisms are available for grounding Marxist explanations? Elster argues that Marx's chief arguments are generally compatible with a rational-choice model of explanation, and that the relevant microfoundations may be constructed on the basis of rational-choice analysis of the choices made by participants within the context of the institutions of capitalism. Along with several other theorists (particularly John Roemer [1981, 1982b] and Adam Przeworski [1985a, 1985b]) Elster made a strong case

for joining classical Marxism with some of the tools of rational-choice theory and game theory.²²

Elster puts this perspective to particularly useful work in his treatment of the problem of class politics: under what circumstances are classes capable of achieving collective action in pursuit of shared interests (1985b:359 ff.)? Classical Marxism holds that classes tend to become class-conscious (that is, aware of shared interests), and class-active (that is, motivated to act as a group in pursuit of shared interests). But once we adopt a rational-choice perspective, this assumption is suspect, since it takes no account of public goods problems (free-rider problems and collective action problems). If we are to put forward a theory of class politics at all, it must include an account of the processes through which classes are capable of constituting themselves as political agents; and this means we need an account of the micromechanisms of collective action within a class society. In "Three Challenges to Class" (1986i) and "Marxism, Revolution, and Rational Choice" (1988d) Elster turns his attention to this set of problems. He emphasises the importance of providing an account of the microfoundations of collective action, since most instances of political collective action involve the pursuit of public goods. It is not sufficient, therefore, to refer to the shared interests that members of a class have in the attainment of a political end; it is necessary to identify as well the individual-level circumstances that given potential participants an incentive to involve themselves in the collective action. Otherwise we should expect free-riding and prisoners' dilemmas to make collective action unattainable. Others have treated this problem as well;²³ but Elster's discussions carry the issue a step forward. Here again is an instance of Elster's ability to bring some of the results of one area of social research fruitfully to bear on a topic in a non-standard area.

Marx's economics

Much of Elster's discussion of Marx and Marxism is admirable and useful. He avoids sterile debates over the meaning of various passages in Marx's work, reflecting a concern to make sense of the doctrines rather than the texts. And he provides a provocative and extended treatment of virtually all the major ideas in Marx's writings--exploitation, freedom, alienation, socialism, materialism, and the labor theory of value. Whether the reader agrees or

²² The rational-choice foundations of Marx's economics are explored in my *Scientific Marx* (1986).

²³ See, for example, Buchanan (1982), Michael Taylor (1988), and Shaw (1984).

disagrees with a particular claim of Elster's, there is enough extensive discussion of the topic to permit a high level of specific and focused argument. In the remainder of this section, however, I will take issue with one of Elster's central claims about Marx: that Marx's economics are hopelessly dated and that we have little to learn from Marx's economic analysis of capitalism. He writes in his short introduction to Marx, "Today Marxian economics is, with a few exceptions, intellectually dead" (1986d:60). This is an excessively negative and sweeping judgment, however; Marxist economic theory has more analytical scope and power than Elster credits it with. This bears out the impression that occasionally arises in Elster's book that he sometimes makes rather less sense of Marx than he might.

Elster's critique of Marx's economics (1985b:119-65) focuses on the labor theory of value (LTV). The labor theory of value can be summarised in these terms: the value of a good is equal to the total quantity of socially necessary labor time involved in its production. If we make several debatable assumptions (fixed coefficients of production, constant returns to scale, homogeneous labor and no joint products), it is possible to give a coherent economic statement of the LTV. For n sectors we have:

$$x_j = a_{0j} + a_{1j} + \dots + a_{nj} * x_n$$

where x_i are the labor values for each good, a_{ij} are the production coefficients and a_{0j} is the direct labor involved in producing x_j (1985b:128-130). This gives us a system of n linear equations from which it is possible to solve for the vector $\{x_i\}$ of labor values for n goods. This in turn permits us to define the basic concepts of Marxist economics: surplus value, the rate of surplus value, the organic composition of capital, and the rate of profit (132). The labor theory of value can thus be formulated consistently and precisely. Elster argues, however, that the theory has absolutely no economic significance: it cannot be used as a theory of price, profits, accumulation, crisis, or to derive predictions about the systemic tendencies of the capitalist mode of production.

Elster's criticisms of the labor theory of value as a theory of price are compelling but familiar. The fact of a uniform rate of profit across sectors with differing capital-labor ratios guarantees that values and prices will systematically diverge. This is the familiar "transformation problem" that has been treated convincingly by Morishima, Roemer, and other mathematical Marxist economists. Elster concludes that labor values have no explanatory role; labor values are determined by the production function which also determines profits and prices, so we can bypass labor values without difficulty (1985b:137-138). He goes on to argue that the Marxian framework fails to explain the imperative toward technical change within capitalism (143 ff.) and

that Marx's theories of economic crisis are defective as well. These negative conclusions are taken to justify the sweeping judgment quoted above: Marxian economics is a dead-end.

I believe that Elster's summary treatment of the Marxian economic framework is precipitous. There is no doubt that Marx's own mathematical formulations of the labor theory of value and the economic tendencies of the capitalist system are weak by contemporary standards. The more important questions are these: is there a core of economic insight contained in Marx's economics? Can these insights be given rigorous mathematical formulation? And do the resulting models have some utility in analyzing the dynamics of contemporary capitalism? I hold that a more sympathetic reading of Marx's economics suggests an affirmative answer to each of these questions.

The central economic insights in *Capital* are these. First, Marx, like other classical economists, placed priority on the process of production. The labor theory of value is Marx's attempt to capture the idea that the social value of a commodity (and ultimately its price) is ultimately related to its social cost of production; and the embodied labor time in a commodity is a measure of its social cost of production. It emerges from the work of Sraffa, Leontief, Roemer, and others that this insight can be better captured in terms of the linear algebra of an input-output system (a Leontief production system). Using such a system it is possible to define the equilibrium conditions of prices, quantities, wages, and profits that serve to satisfy a given level of final demand, given the assumption of fixed coefficients of production. (This construction also permits us to derive labor values for commodities.) In the end, then, the labor theory of value has been superseded by a superior system for representing the structure of a capitalist economy. But it is reasonable to regard this as a technical refinement to a substantive economic insight--not a profound reversal or repudiation of Marxian economics. Marxian economics without the labor theory of value is still recognisably Marxian.

The second major insight in Marxian economics is the emphasis on the process of surplus extraction and distribution of wealth across wages and profits. Again, Marx's own formulation of this point occurs within the context of the labor theory of value; Marx analyzes profits in terms of his concept of surplus value. But we can admit the technical inadequacies of the LTV without abandoning the substantive point that economic surpluses are created and distributed by a market economy, and that distribution matters. Here Stephen Marglin's work is a strong example of fruitful contemporary research within a broadly Marxian framework. Marglin shows that a neo-Marxian economic model sheds a good deal of light on the growth and distribution features of modern capitalist economies (Marglin 1984). Likewise, current research within structuralist economics has absorbed this basic Marxian insight. Thus Lance Taylor summarises the program of structuralist economics in terms of

the centrality of the "extended functional distribution" of income (the differential distributive effects of alternative economic policies), the economic power of various institutions and groups (landlords, rentiers, organised labor) in determining economic outcomes, and the importance of changes in income and wealth distributions in macroeconomic dynamics (1990:2-4). The models that structuralist economists construct are generally couched in terms of linear Leontief production systems, not the labor theory of value; but their attention to distribution, class, and the economic significance of social and political institutions owes much to Marxian economic theory.

Finally, Marx's economics must be credited for its emphasis on discerning the longterm dynamic properties of a capitalist economy. Elster directs severe criticism against Marx's theory of economic crisis (1985b:154-165), but this appears to reflect excessively high expectations of predictive success from a first-generation economic theory. (The successes of neoclassical theories of recession, unemployment, or inflation are not staggeringly impressive either.) What Marx's economics encourages us to do is to attempt to arrive at models of capitalist economies that begin in the production process, that focus analysis on the distributive processes through which real wages and profits are determined, and that permit us to derive some predictions about the medium-term and long-term behavior of a system of labor-hiring, profit-maximising firms in a global economic system. And the achievements of neo-Marxian economists along these lines are not insignificant.²⁴

Elster's dismissal of Marxian economics, then, is unjustified. Neoclassical economics, Keynesian economics, structuralist economics, and Marxian economics each represent more or less coherent constellations of analytical techniques, substantive assumptions about economic causality, and assumptions about the social context of economic activity. In order to compare these theories we need a view of the criteria that ought to be used to evaluate alternative economic programs of research. Mathematical rigor is one virtue of a research framework in economics, but there are others as well: fruitfulness in stimulating further research, realism of assumptions, ability to handle new economic problems, predictive success, and conformity to accepted theories in other areas of social science.²⁵ The problem of choice among research frameworks in economics is no simpler than the problem of theory or paradigm

²⁴ Work by Ernest Mandel (1978), John Roemer (1981, 1982a), and Wolff and Resnick (1987) illustrates the continuing utility of this framework.

²⁵ Recent work in the philosophy of science bears out the point that theories are evaluated on the basis of multiple desiderata. See Newton-Smith (1981), Laudan (1977), and Brown (1987), as well as a number of the essays in *Scientific Revolutions* (Hacking, ed. 1981).

choice in other areas of science, and it is certainly not the case that the neoclassical framework wins hands down. This means, in turn, that it is justifiable to continue to pursue the program of Marxian economics, and my own judgment is that this framework is able to explain some features of the capitalist economy that other approaches are unable to do.

Conclusions

I have only touched on a few main themes drawn out of Elster's work. I hope, though, that I have made it plain that there is much to be learned from careful reading of this body of work. In his treatment of the foundations of rationality, in his extensive discussions of the logic of the social sciences, and in his sustained critical perspectives on Marxist theory, Elster has made important contributions to several areas of the social sciences. And even in those instances where other scholars will disagree with his analysis of a particular issue, his clarity and detailed grasp of the issues lead to a higher level of debate.

Can we draw any general conclusions about Elster's contributions? It may be said that Elster's particular significance is not to have put forward profoundly original solutions to longstanding technical problems in economics; instead, his work serves two other important functions. First, he aims to establish linkages between the technical economic literature and other areas of social and political thought. Elster's work often serves as a power belt, conveying some of the results of a technical area of economic theory to applications in various areas of social science and philosophy. Unlike A. K. Sen or Kenneth Arrow whose writings have changed the ways in which we think about various topics in economic theory, Elster's work is primarily of value for his ability in bringing technical insights and models to bear on problems outside the traditional economic domain.

A second virtue of Elster's work is equally important: Elster is more inclined than most economists to consider the philosophical foundations of various domains of economic theory. There is a tendency within economic theory for fascination with the mathematical apparatus to crowd out reflective analysis of the underlying assumptions that the apparatus depends on--for example, the significance of utility functions. Elster, however, is prepared to step back and consider the background assumptions more fully, and to attempt to say how well or poorly a given formalisation succeeds in capturing the original intuition. There is a need for both kinds of work within economic theory, but Elster's contributions to the philosophical analysis of economic pre-suppositions are particularly valuable.

References

Elster's publications

- Elster, Jon. 1976a. "Some Conceptual Problems in Political Theory" in *Power and Political Theory*. See Barry 1976.
- _____. 1976b. "A Note on Hysteresis in the Social Sciences." *Synthese* 33:371-391.
- _____. 1978a. "Exploring Exploitation." *Journal of Peace Research* 15:3-18.
- _____. 1978b. "The Labor Theory of Value." *Marxist Perspectives* 3:70-101.
- _____. 1978c. *Logic and Society*. Chichester: Wiley.
- _____. 1979/1984. *Ulysses and the Sirens: Studies in Rationality and Irrationality*. Cambridge: Cambridge University Press.
- _____. 1980a. "Cohen on Marx's Theory of History: Review of G. A. Cohen, *Karl Marx's Theory of History*." *Political Studies* 28:121-128.
- _____. 1980b. "Negation active et negation passive." *Archive Europeennes de Sociologie* 21:329-349.
- _____. 1980c. "Reply to Brian Barry." *Political Studies* 28:1 (1980).
- _____. 1980d. "Reply to Comments on Logic and Society." *Inquiry* 23:213-232.
- _____. 1980e. "Un historien devant l'irrationnel: lecture de Paul Veyne." *Social Science Information* 19:773-804.
- _____. 1981a. "'Introduction' to Kolm (1981) and van der Veen (1981)." *Social Science Information* 20:287-292.
- _____. 1981b. "Un Marxisme Anglais." *Annales: Economies, Societes, Civilisations* 36:745-757.
- _____. 1982a. "Belief, Bias and Ideology" in *Rationality and Relativism*. See Hollis and Lukes 1982.
- _____. 1982b. "A Paradigm for the Social Sciences?" *Inquiry* 25:3 (1982).
- _____. 1982c. "Marxism, Functionalism, and Game Theory." *Theory and Society* 11:453-482.
- _____. 1982d. "Roemer versus Roemer: A Comment on 'New Directions in the Marxian Theory of Exploitation.'" *Politics & Society* 11:3.
- _____. 1982e. "Sour Grapes--Utilitarianism and the genesis of wants" in *Utilitarianism and Beyond*. See Sen and Williams 1982.
- _____. 1983a. *Explaining Technical Change*. Cambridge: Cambridge University Press.

- _____. 1983b. "Exploitation, Freedom and Justice." *Nomos* 26:277-304.
- _____. 1983c. "Marx et Leibniz." *Revue Philosophique* 173:167-177.
- _____. 1983d. "Reply to comments." *Theory and Society* 12:111-120.
- _____. 1983e. *Sour Grapes: Studies in the Subversion of Rationality*. Cambridge: Cambridge University Press.
- _____. 1984. "Historical materialism and economic backwardness" in *After Marx*. See Ball and Farr 1984.
- _____. 1985a. "The nature and scope of rational-choice explanation" in *Actions and Events*. See Le Pore 1985.
- _____. 1985b. *Making Sense of Marx*. Cambridge: Cambridge University Press.
- _____. 1985c. "Rationality, Morality, and Collective Action." *Ethics* 96:136-155.
- _____. 1985d. "Sadder but Wiser? Rationality and the Emotions." *Social Science Information* 24:375-406.
- _____. 1985e. "Weakness of Will and the Free-Rider Problem." *Economics and Philosophy* 1:231-65.
- _____. 1986a. "Comments on Krouse and McPherson's "A 'Mixed'-Property Regime." *Ethics* 97:146-153.
- _____. 1986b. "Comments on van Parijs and van der Veen." *Theory and Society* 15:709-722.
- _____. 1986c. "Further Thoughts on Marxism, Functionalism, and Game Theory" in *Analytical Marxism*. See Roemer 1986.
- _____. 1986d. *An Introduction to Karl Marx*. Cambridge: Cambridge Univ Press.
- _____. 1986e. "The Market and the Forum: Three Varieties of Political Theory" in *Foundations of Social Choice Theory*. See Elster and Hylland 1986.
- _____. 1986f. "The Possibility of Rational Politics." *Critica* 18:17-62.
- _____. 1986g. Reply to Symposium on Making Sense of Marx. *Inquiry* 29:65-77.
- _____. 1986h. "Self-realization in Work and Politics: the Marxist Conception of the Good Life." *Social Philosophy & Policy* 3:97-126.
- _____. 1986i. "Three Challenges to Class" in *Analytical Marxism*. See Roemer 1986.
- _____. 1988a. "Consequences of Constitutional Choice: Reflections on Tocqueville" in *Constitutionalism and Democracy*. See Elster and Slagstad 1988.
- _____. 1988b. "Economic Order and Social Norms." *Journal of Institutional and Theoretical Economics* 144:357-66.

- _____. 1988c. "Is there (or should there be) a right to work?" in *Democracy and the Welfare State*. See Gutmann 1988.
- _____. 1988d. "Marx, revolution and rational choice" in *Rationality and Revolution*. See M. Taylor 1988.
- _____. 1989a. *The Cement of Society: A Study of Social Order*. Cambridge: Cambridge University Press.
- _____. 1989b. "From Here to There; or, If Cooperative Ownership is So Desirable, Why are There So Few Cooperatives?" *Social Philosophy & Policy* 6:93-111.
- _____. 1989c. *Nuts and Bolts for the Social Sciences*. Cambridge: Cambridge University Press.
- _____. 1989d. *Solomonic Judgements: Studies in the Limitations of Rationality*. Cambridge: Cambridge University Press.
- _____. 1990. "Local Justice and Interpersonal Comparisons" in *Interpersonal Comparisons of Welfare*. See Elster and Roemer 1990.
- _____, ed. 1986a. *Rational Choice*. New York: New York University Press.
- _____, ed. 1986b. *The Multiple Self*. Cambridge: Cambridge University Press.
- _____ and Aanund Hylland, eds. 1986. *Foundations of Social Choice Theory*. Cambridge: Cambridge University Press.
- _____ and Karl Ove Moene, eds. 1989. *Alternatives to Capitalism*. Cambridge: Cambridge University Press.
- _____ and John Roemer, eds. 1990. *Interpersonal Comparisons of Welfare*. Cambridge: Cambridge University Press.
- _____ and R. Slagstad, eds. 1988. *Constitutionalism and Democracy*. Cambridge: Cambridge University Press.

Other references

- Axelrod, Robert. 1984. *The Evolution of Cooperation*. New York: Basic Books.
- Ball, Terence and James Farr, eds. 1984. *After Marx*. Cambridge: Cambridge University Press.
- Barry, Brian, ed. 1976. *Power and Political Theory*. Chichester: Wiley.
- Brown, Harold I. 1987. *Observation & Objectivity*. Oxford: Oxford University Press.
- Buchanan, Allen. 1982. *Marx and Justice*. Totowa, NJ: Littlefield, Adams.
- Cherniak, Christopher. 1986. *Minimal Rationality*. Cambridge: MIT Press.
- Cohen, G. A. 1978. *Karl Marx's Theory of History: A Defence*. Princeton: Princeton University Press.

- Daniels, Norman. 1988. *Am I My Parents' Keeper? An Essay on Justice Between the Young and the Old*. Oxford: Oxford University Press.
- Gutmann, Amy. 1988. *Democracy and the Welfare State*. Princeton: Princeton University Press.
- Hacking, Ian, ed. 1981. *Scientific Revolutions*. Oxford: Oxford University Press.
- Hahn, Frank and Martin Hollis, eds. 1979. *Philosophy and Economic Theory*. Oxford: Oxford University.
- Harsanyi, John C. 1982. "Morality and the Theory of Rational Behavior" in *Utilitarianism and Beyond*. See Sen and Williams 1982.
- Hollis, Martin and Steven Lukes, eds. 1982. *Rationality and Relativism*. Cambridge: MIT Press.
- Kahneman, D., P. Slovic, and A. Tversky. 1982. *Judgment under Uncertainty: Heuristics and Biases*. Cambridge: Cambridge University Press.
- Krouse, Richard and Michael McPherson. 1986. "A 'Mixed' Property Regime: Liberty and Equality in a Market Economy." *Ethics* 97:119-138.
- Laudan, Larry. 1977. *Progress and its Problems*. Berkeley: University of California.
- Le Pore, Ernest and Brian P. McLaughlin, eds. 1985. *Actions and Events: Perspectives on the Philosophy of Donald Davidson*. Oxford: Basil Blackwell.
- Levi, Isaac. 1986. *Hard Choices*. Cambridge: Cambridge University Press.
- Levine, Andrew. 1986. "Review of Making Sense of Marx." *The Journal of Philosophy* 83:721-28.
- Little, Daniel. 1986. *The Scientific Marx*. Minneapolis: University of Minnesota Press.
- _____. 1991. *Varieties of Social Explanation: An Introduction to the Philosophy of Social Science*. Boulder, CO: Westview Press.
- Mandel, Ernest. 1978. *Late Capitalism*. London: Verso.
- Marglin, Steven. 1984. *Growth, Distribution, and Prices*. Cambridge: Harvard University Press.
- Margolis, Howard. 1982. *Selfishness, Rationality, & Altruism: A Theory of Social Choice*. Chicago: University of Chicago.
- McMurtry, John. 1977. *The Structure of Marx's World-view*. Princeton: Princeton University Press.
- Morishima, Michio. 1973. *Marx's Economics*. Cambridge: Cambridge University Press.
- Newton-Smith, W. H. 1981. *The Rationality of Science*. Boston: Routledge & Kegan Paul.
- Parfit, Derek. 1984. *Reasons and Persons*. Oxford: Oxford University.
- Popkin, Samuel L. 1979. *The Rational Peasant*. Berkeley: University of California.

- Przeworski, Adam. 1985a. *Capitalism and Social Democracy*. Cambridge: Cambridge University Press.
- _____. 1985b. "Marxism and Rational Choice." *Politics & Society* 14:379-409.
- Rawls, John. 1971. *A Theory of Justice*. Cambridge: Harvard University Press.
- Roemer, John. 1981. *Analytical Foundations of Marxism*. New York: Cambridge University Press.
- _____. 1982a. *A General Theory of Exploitation and Class*. Cambridge: Harvard University Press.
- _____. 1982b. "Methodological Individualism and Deductive Marxism." *Theory and Society* 11:513-520.
- _____, ed. 1986. *Analytical Marxism*. Cambridge: Cambridge University Press.
- Rotberg, Robert I. & Theodore K. Rabb, eds. 1989. *The Origin and Prevention of Major Wars*. Cambridge: Cambridge University Press.
- Sen, Amartya K. 1982a. "Rational Fools" in *Choice, Welfare and Measurement*. See Sen 1982b.
- _____. 1982b. *Choice, Welfare and Measurement*. Cambridge: MIT Press.
- _____. 1987. *On Ethics & Economics*. New York: Basil Blackwell.
- Sen, Amartya and Bernard Williams, eds. 1982. *Utilitarianism and Beyond*. Cambridge: Cambridge University Press.
- Shaw, William. 1984. *Marxism, Revolution, and Rationality in After Marx*. See Ball and Farr 1984.
- Shubik, Martin. 1982. *Game Theory in the Social Sciences Concepts and Solutions*. Cambridge: MIT Press.
- Simon, Herbert. 1979. "From Substantive to Procedural Rationality" in *Philosophy and Economic Theory*. See Hahn and Hollis 1979.
- Simon, Herbert A. 1983. *Reason in Human Affairs*. Stanford: Stanford University.
- Skocpol, Theda. 1979. *States and Social Revolutions*. Cambridge: Cambridge University Press.
- Sraffa, Piero. 1960. *The Production of Commodities by Means of Commodities*. Cambridge: Cambridge University Press.
- Taylor, Lance, ed. 1990. *Socially Relevant Policy Analysis: Structuralist Computable General Equilibrium Models For the Developing World*. Cambridge: MIT Press.
- Taylor, Michael. 1986. "Elster's Marx." *Inquiry* 29:3-10.
- _____. 1988. "Rationality and Revolutionary Collective Action" in *Rationality and Revolution*. See Michael Taylor 1988.

- _____, ed. 1988. *Rationality and Revolution*. Cambridge: Cambridge University Press.
- Van Parijs, Philippe. 1981. "Why marxist Economics Needs Microfoundations." *Review of Radical Political Economics* 15:11-24.
- Williamson, Jr., Samuel R. 1989. "The Origins of World War I" in *The Origin and Prevention of Major Wars*. See Rotberg and Raab 1989.
- Wolff, Richard D. and Stephen A. Resnick. 1987. *Economics: Marxian versus Neoclassical*. Baltimore: Johns Hopkins University Press.