

Review: Recent Revolutions in Economic Theory

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Recent Revolutions in Economic Theory

Microeconomics: Behaviour, Institutions and Evolution

by Samuel Bowles;
Indian edition: Oxford University
Press, 2004;
pp xv + 584, Rs 695.

E SOMANATHAN

Three revolutions have taken place in neoclassical economic theory over the last three decades. The first two proceeded contemporaneously and reinforced each other. These were the use of non-cooperative game theory to analyse interactions between small numbers of players, and the analysis of information and non-contractibility in transactions. The information revolution began with George Akerlof's paper 'The Market for Lemons' published in 1970 and continued over the next two decades with major insights coming in the 1980s. The third revolution was the entry and rapid spread of behavioural and experimental economics into mainstream (read American) economics journals in the 1990s, recognised by the award of the 2002 Nobel prize to pioneers in those fields.

Taken together, these revolutions have transformed the way that someone conversant with the frontier of research in economic theory would view the world. It often takes a generation, however, before what is common knowledge on the frontier makes its way into the perspective of practising economists and policymakers in governments. Even as the World Bank, the IMF, and economists in the US government were pushing the 'Washington consensus' on free market reforms in the 1980s, the theories underlying their prescriptions were being drastically qualified in the economics departments of the universities in which they had been trained. The public image of economics as a paean to the virtues of markets has

also mostly not yet changed in response to these changes in the content of economic theory.

Samuel Bowles' book is likely to be one of the important vehicles by means of which the new economics makes its way into the larger consciousness. It is a textbook aimed at postgraduate and advanced undergraduate students. But, in keeping with its subject matter and the career of its author, it does not read at all like a conventional textbook. The reader to whom Bowles speaks is a person curious to understand social reality in order to change it, and willing to pursue subtle arguments sometimes couched in mathematics, but never disengaged from what the abstractions represent. In the prologue the author asks "What can modern economics say about the wealth and poverty of nations and people? No less important, what can it do?"

The book is organised in four parts. Part I, 'Coordination and Conflict: Generic Social Interactions' introduces some of the tools used in the analysis: the first being non-cooperative game theory. Game theory is a tool used to predict the outcome of an interaction between a number of players, who may be persons, firms, or other organisations (and in biology, animals or genes). The players have a number of actions open to them. When they take these actions, an outcome results that give them *payoffs*, the payoffs varying according to the particular combination of actions taken by the different players. The object of the exercise is to predict which outcome can be expected to occur when each player is concerned only with getting the best possible payoff for himself. Bowles gives examples of situations that can be modelled as games in which the interaction is mainly one of conflict, meaning that different outcomes favour one player at the expense of the other: labour discipline, repayment of loans, deciding on the crop share in sharecropping, as well as examples in which the interaction is mainly

one of common interest meaning that there are outcomes that are better for all players than other outcomes: the evolution of property rights (we are both better off if we can agree not to harvest crops the other has sown), norms, and language.

Hawk-Dove Game

The standard way of predicting outcomes in game theory is to look at Nash equilibria, combinations of actions by the players such that none could get a higher payoff by *unilaterally* changing his action. In chapter 2, entitled 'Spontaneous Order', Bowles examines a simple model from biology which shows how property rights may evolve spontaneously as the outcome of a game in which players decide whether or not to fight over a resource. This is known as the 'Hawk-Dove' game. Hawks are players who always fight when they encounter a rival claimant for a resource, while doves cede the resource when they meet a hawk, and cede the resource half the time when they meet another dove. Hawks do better against doves than doves do against themselves because hawks always get the resource rather than getting it only half the time. As a result, hawks would proliferate in a population consisting mainly of doves either through learning and imitation of the strategy with the higher payoff, or because those with higher payoffs have genes that are more likely to leave descendants. However, doves do better against hawks than hawks do against themselves because they escape the destruction inflicted by fights. Therefore, doves proliferate in a population consisting mainly of hawks. The evolutionarily stable strategy is a mixture of hawks and doves. It is a Nash equilibrium with an additional stability property. The addition of the notion of dynamic evolution and stability in games is an important feature of the new economics and became widespread in economics only in the 1990s although it had been invented by biologists in the early 1970s.

The equilibrium is inefficient because the presence of hawks results in unnecessary fighting when they encounter each other. This gives room for another strategy which specifies 'fight if in prior possession of the resource, yield if not in

possession' to invade the population and proliferate. This strategy is called 'bourgeois' for obvious reasons. The bourgeoisie emerges as the winner because it reduces wasteful conflict in encounters with hawks (there is a fight with a hawk only if the bourgeois is in prior possession) and is more aggressive than the dove (it always wins the resource if it is in prior possession and gets it half the time otherwise). Once the bourgeoisie comes to constitute the entire population, there is no more conflict. The outcome is efficient.

A more sophisticated evolutionary model that is presented near the end of the book shows how private property rights may have evolved with the beginning of agriculture *prior to the emergence of states*, and why they are largely absent in hunter-gatherer societies.

The remainder of Part I introduces behavioural economics in the treatment of two important problems: coordination failures and bargaining. Both these are represented by appropriate games. These are two areas in which game theory, while making some progress, has not succeeded in adequately explaining the facts. Why are there coordination failures in some circumstances but not others? When are breakdowns in bargaining over the division of some economic surplus whether it is in wage, trade, or other negotiations likely to occur? Bowles' treatment of these issues, especially bargaining, is the best that I have seen. He introduces the experimental literature to show that the conventional assumption that all players have *self-regarding* preferences, that they never care about other players' payoffs or intentions, is false. Later, in Part III, he provides an account of why *other-regarding* preferences of certain kinds are likely to have evolved.

The experimental and psychology literature provides compelling, indeed, overwhelming, evidence that in addition to being concerned with their self-interest, people are inclined towards reciprocal behaviour as well as parochialism, care about their status vis-à-vis others, tend to have problems of self-control, are not good at making probabilistic judgements or assessing risks, and discount the near future at a greater rate than the distant future. There is, moreover, evidence that at least some of these preferences are endogenous, that is, they are dependent on the institutional environment. Economists, until the behavioural revolution of the 1990's that is still ongoing, steadfastly ruled all such

behavioural tendencies as being outside the domain of economics.

Behavioural Revolution

The behavioural revolution, unlike the other two that preceded it, challenges a fundamental precept of neoclassical economic theory: that of the self-interested, correctly calculating human being. As such, it has not yet achieved the universal acceptance that the other two have done among academic economists. Some of these economists still believe that to abandon the postulate of the self-seeking calculator would be to enter a world of theorising where wishful thinking takes the place of rigorous analysis. There is no doubt that this scepticism is based on real experience, most notably illustrated by the ideal of "the new socialist man" that was propagated under Soviet communism but failed to become a reality. Bowles wisely steers clear of this debate. He makes his point in the only way that will ultimately prevail: He presents analyses and evidence based on the new methods that is far more complete and compelling than that of the old theories. Behaviour in these models is not always constrained by the postulate of self-interest; instead, it is constrained by the requirement of evolvability under a well-specified selection process and hard, usually experimental, evidence.

Part II is the heart of the book. It begins with an account of the Walrasian (Arrow-Debreu) general equilibrium model and the first and second welfare theorems: that competitive equilibria are efficient and that any (distributionally desirable) efficient allocation can be achieved as a competitive equilibrium if lump sum transfers are made before exchange begins. Bowles points to the incomplete nature of this model as an explanation for the observed tendency of markets to result in convergence to a single price in each market and to allocate resources to uses where their value is highest. The Walrasian model does not explain how the equilibration occurs: in the model all trade takes place at the 'correct' prices. This is a fundamental problem with the Walrasian model: there is no plausible way to generate a dynamic process that would necessarily lead to a Walrasian equilibrium. However, one can use a non-Walrasian model, such as the one by Duncan Foley based on statistical mechanics, to examine the issue of the efficiency of competitive markets. In this model, individuals trade at any

prices between the lowest price at which the seller is willing to sell and the highest price at which the buyer is willing to buy (with some more likely than others). There is a stationary distribution of prices at which the average allocation is *approximately optimal*. However, there is no longer a single mapping from a set of endowments to an efficient allocation of goods. Many different efficient allocations may be reached from a given set of endowments and so there is no analogue of the second welfare theorem.

Incomplete Markets

More importantly, two of the most important kinds of markets, labour and capital markets are fundamentally incomplete because it is mostly not possible to contract over the quality of labour that a worker will supply or over the amount of a loan that will be repaid. This *non-contractibility* has far-reaching implications. Workers can only be induced to work hard by providing them with a *job rent*, a wage strictly higher than their next best option. By paying this wage, the employer exercises *short-side power* over the worker, meaning that the worker strictly prefers working for the employer to being fired, while the employer is indifferent between hiring this particular worker rather than any other in the pool that are unemployed or working at less desired jobs. This asymmetry arises because the worker is getting the better of the deal, as a result he is loath to lose it, and so the employer can, at little cost to himself, get the worker to perform tasks that the worker would otherwise refuse. Short-side power explains why competition for workers in the labour market is not sufficient to eliminate the arbitrary exercise of power by employers in the form of caste discrimination, sexual harassment, or plain sadism.

There must be involuntary unemployment in this model because, if there were not, then the threat of dismissal would no longer have bite, and so the worker would not work hard. Unemployment points to the presence of inefficiency: workers are willing to work at the going wage, but are denied the opportunity for this productive work. A criticism that was made of this theory when it was published in the 1980s was that employers should be able to 'sell' jobs and thus recover the job rents. The fact that they mostly do not do so undermined the theory. Bowles points out, (and this is where what I have called behavioural

economics comes in), that reciprocity motives on the part of workers will deter the employer from selling jobs. As long as the workers feel they are getting a rent they will *want* to repay the employer by working hard, which reduces monitoring and turnover costs for the employer. The fact that monitoring of workers is required shows that reciprocity motives, by themselves, are not sufficient to elicit effort levels as high as the employer can get by a combination of kindness and implicit threat of dismissal if a worker is found to be shirking.

Non-contractibility in the credit market has important implications as well. It means that, in general, the amount a borrower can borrow at a given interest rate will increase with his wealth. The reason is that a debtor will take fewer risks the more of his own capital he has invested in a project. Thus the wealthy are more likely to obtain the capital to be employers and exercise short-side power in the labour market and the poor are more likely to be employees on the long side of the labour market. Even though the poor may be able to work land more productively if they owned it (because incentives to work hard are correct) they may not possess the wealth necessary to borrow enough to buy it and may be too risk-averse, because of their poverty, to rent it on a fixed-rent basis. It is capital that hires labour, not the other way round. In such a situation, a redistribution of wealth to the poor would result in a productivity gain in addition to enhancing equity.

Best Exposition

While most (though not all) of the ideas in Part II are standard fare in post-graduate economics courses, this is by far the best exposition I have seen of them in one place. In large part, this is because Bowles, unlike most authors of microeconomics textbooks who have made their careers solving intriguing mathematical problems, is interested in what the theory can tell us about how the world around us actually works, and therefore, chooses simple models and presents them in perspective. In the standard texts, these ideas often come across as a series of models to 'solve' so that what the student eventually remembers most clearly is a technicality like the ubiquitous 'single-crossing assumption'. Of course, this choice means that a student intending to pursue research in economic theory must use this book in conjunction with more

standard fare (as Bowles himself recommends in his section on additional reading). I am strongly of the opinion, however, that students would be better served if this book were the primary text and the others additional reading rather than the other way round.

In Part III, Bowles models the co-evolution of institutions and preferences. He first discusses the evolution of private property and the norms of behaviour that support it and were made possible by the development of agriculture and, which, in turn, make agriculture possible. Then he turns to the evolution of conventions, as for example, in paying half the crop as a crop share and how these may change, using stochastic evolutionary game theory, and grafting on to it a model of intentional collective action. Finally, he presents a model of group selection to explain the evolution of altruism towards members of one's own group together with hostility towards others. These models illustrate how other-regarding preferences arise and co-evolve with the institutional environment. The fact that such co-evolution occurs means that the aims of the new economics have to be more modest than those of pre-behavioural neo-classical theory. If there is no ahistorical human being, then there can be no ahistorical economic theory.

It is worth remarking that the importance of these models lies in understanding preferences. To a large extent, the successes of economics have been built on a radical simplification: that only self-interest matters. This success is founded on the analysis of interactions of large numbers of anonymous individuals. It is notable that when it comes to the analysis of interactions between small groups of people, economics has been far less successful at explaining the facts, and there is no doubt that this is because in such interactions other-regarding preferences have a substantial influence on the outcomes. In related disciplines, these preferences can be even more important and the traditional approach of economics when exported to them can be downright embarrassing. As Joshua Epstein has said, rephrasing Marx, "Rational choice in economics and political science: tragedy and farce". Yet related social sciences have been less successful than economics because they have lacked a theory of behaviour. The promise of evolutionary modelling and experimental work in economics is one that may be very relevant

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to related disciplines, in part because it arose from those disciplines.

Collaboration with Anthropologists

This part of the book draws on fruitful collaborations with anthropologists. It is also less developed because it draws on newer work. I find the models not as empirically well-grounded as those in Part II and some of them unconvincing as plausible accounts of what actually happens. However, some of the ideas introduced are very important, such as that of multi-level selection. This kind of modelling, when well-grounded in historical data, is bound to lead to better insights into the evolution and organisation of states, markets and other institutions. The simulation of the evolution of altruistic behaviour introduces students to what may come to be an increasingly useful tool: agent-based modelling using increasingly widely available computing capacity.

In the concluding Part IV, the role of markets, states, and communities in economic governance is discussed. Bowles points to the different incentive problems that markets, states and communities face and what this implies for their relative strengths and weaknesses. Markets work well at allocating resources to high value uses when information is dispersed and externalities are not large. They provide incentives to those who own productive capacities and those who demand goods to reveal their true costs and willingness to pay so that resources can flow towards appropriate uses. It is the incapacity of states to do this that led to the ultimate demise of communism in the face of the relative success of the capitalist societies with which they competed. Markets work well when cooperation is not desirable, when it is better called collusion.

States, on the other hand, have an advantage when dealing with problems where cooperation, not competition, is needed to solve coordination problems. They work better when dealing with increasing returns. It is not efficient to define property rights or conduct contract enforcement for each transaction. States can do this far more cheaply by using their monopoly of coercion. In these activities they are complementary to markets. In others, such as health and social insurance, they can substitute for them. Of course, their very

monopoly power means that states have too much bargaining power in transactions with individuals. State officials have information that citizens do not and use this to extract rents (akin to a worker's job rent) even in electoral democracies. The presence of markets in conjunction with states leads to lobbying to change the state's rules or its allocation of resources to favour private interests, which can lead to huge distortions.

Social Sanctions

Communities do better than states and markets in situations where information is available to groups of individuals who interact frequently but not to the state, and where externalities or the lack of complete contracting mean that markets would fail. Examples include local commons, upkeep of residential neighbourhoods, credit cooperatives, and partnerships. Enforcement is achieved by social sanctions that are supported by preferences for reciprocity. Communities fail when the conditions given above for their success are not met, or when there is 'institutional crowding out' as when the state makes laws that inhibit community enforcement of socially useful norms. Of course, communities, like states, may also be oppressive.

Let us return to the questions posed in the prologue to the book, "What can modern

economics say about the wealth and poverty of nations and people? No less important, what can it *do*?" The book does not answer or even attempt to answer these questions. But it is certainly true that anyone attempting to answer these questions would be handicapped if they had not been exposed to the ideas in this book. In the Indian context, the question is: What should be done to put poverty behind us? The economic reformers in the government believe this is a matter of reducing the role of the state, (except to build national highways) and letting markets take over, the Left believes in land reform and opposing any privatisation, and the liberals in the National Advisory Council believe the government should privatise and liberalise in appropriate domains but do much more on health, education and social security. Except for the unconditional resistance to privatisation (which may be a political constraint rather than a real opinion), the book would suggest that there could be some merit to each of these policies. Deciding which combination of policies is best is a matter of careful empirical study, and, unavoidably in the face of incomplete knowledge, also judgement. As Bowles remarks, "Our understanding of microeconomics is fundamentally in flux. Little is settled. Nothing is complete". [17]

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Constructing History

Postcolonial Passages: Contemporary History-writing on India

by Saurabh Dube;
Oxford University Press, 2004;
pp x + 275, Rs 650.

JANAKI NAIR

Saurabh Dube put together a very useful collection called *Pasados Post-coloniales* that introduced the Spanish-speaking world to the work of some of India's most well known scholars, particularly those who were part of the Subaltern Studies project. There appears to have been eager reception of, and engagement with, this volume in Latin America. The current English version returns the collection, with

some changes, to an Indian audience. The purpose of this 'bringing together' is less clear. A portmanteau version of 'subaltern' scholarship of about two decades, which has already had such wide circulation and popularity, and also exists in selections, inevitably raises the question of the rationale of yet another selection, as the editor himself acknowledges. Nearly all the articles (including two of his own pieces) are previously published, or are (like Nicholas Dirks', *The Ethnographic State*) summaries of arguments that have received book-length treatment.

Dube spells out the rationale for this selection in his introduction, when he says the collection brings together "cultural histories and historical ethnographies that carefully question and critically elaborate colonialism and nationalism, empire and