

Social Dynamics

Book Review by H. Lorne Carmichael

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The Dynamics of Modern Society, Lutz Leisering and Robert Walker, eds., The Policy Press, Bristol, Great Britain, 1998

Social Dynamics, Steven Durlauf and H Peyton Young, eds., The Brookings Institution Press, Washington D.C., USA, 2001

These books, one written by sociologists and the other by economists, each claim to be about Social Dynamics. In reading the books together one might expect to find a synthesis that encompasses the best of both disciplines. But the hope is proven false, since the term has come to mean completely different things in the two disciplines. Ironically, what is new about social dynamics to the sociologists is old hat to the economists, and vice versa; what is new to the economists has been at the heart of sociology for decades.

The Dynamics of Modern Society is a book written largely by sociologists who are excited about the use of dynamic techniques in the statistical analysis of poverty. They recognize that while poverty is a permanent fixture of developed economies it is often a temporary condition for the people affected. In this volume some twenty authors in a total of fifteen essays discuss the importance of measuring the incidence and duration of poverty and illustrate with several data sets, mostly drawn from Great Britain, Germany and Sweden. A common element is the authors' surprise at the vigor of the flows into and out of this unfortunate state.

Social Dynamics, on the other hand, is a book written by economists who are interested in modeling explicitly the many non-market influences that people have on each other's behaviour – conformism, envy, and more – and on doing so with a set of mathematical and computational techniques that focus explicitly on the path that societies take when they move from one situation to the next. Eleven authors in eight essays

consider the social factors that are normally lacking in economic models, but of course are central to sociology. Two papers are concerned with econometrics, but the overall focus is on theory and numerical simulation.

Perhaps it should not be surprising that a term could come to mean different things in these particular disciplines since it is only when people communicate regularly with each other that they require a common language. But it does raise some questions about the social dynamics of Economics and Sociology. Why have these professions developed independently? Would more communication help? Is it likely to happen? Reading these books does provide some insights, although they are not entirely optimistic.

For this reviewer (an economist) the statistical ideas in *The Dynamics of Modern Society* were quite familiar. Apart from a slight difference in emphasis the issues are exactly those first raised in Economics by researchers studying job search behavior (e.g., Salant, 1977) and further explored by Clark and Summers (1979) among others. The most helpful reference in an Economics journal on the various measures of duration and their mathematical connections is probably still Carlson and Horrigan (1983).

The editors of this book contribute an early chapter on the definition and use of dynamic techniques. However, they do not really get to the heart of the very difficult issue of measurement. Suppose we begin with data on the life histories of exactly twelve people over a period of twelve years. A situation where one of the twelve is in poverty over this entire period is quite different than one where each person experiences poverty for one year out of twelve. In the latter case the incidence of poverty (i.e. are you poor?) stays constant at one in twelve but the prevalence (i.e. have you ever been poor?) reaches one in one. The second case has less inequality, but even this case may be worse than one where each person experiences poverty for exactly one month out of each year, since the hardship associated with a short spell may be much less.

Together average duration, incidence, and prevalence can paint a useful picture of inequality and the degree of hardship associated with poverty in a society. But the reality is still more complicated. There are different measures of average duration, for example, and

when the distribution of spell lengths has a long tail they can give very different answers. Measuring the change in prevalence over time requires long data samples. The way that poverty is measured is important since it affects the public perception of the seriousness of the problem and can have a big effect on the design of policy. I would have liked to see the editors take more of a stand on how these data should be collected and disseminated.

The authors in this volume all credit Mary Jo Bane and David Ellwood (Bane and Ellwood, 1986) for the introduction of dynamic methods to Sociology. In this volume Ellwood contributes an account of the lessons he learned as a director, along with Bane and Bruce Reed, of the welfare reform initiative undertaken by Bill Clinton in 1993. I don't suspect it took Ellwood long to write this essay, but he speaks thoughtfully and his comments provide a useful balance to the general enthusiasm of the other authors.

Ellwood argues that dynamic thinking has an enormous effect on the design of policy. In a static world one tries to identify those who are poor and provide aid through a welfare payment of some kind. In a dynamic society one tries to reduce duration by speeding the transition out of poverty. There is hope – the challenge is to get people back into the mainstream where they can be self sufficient.

But, as Ellwood point out, this emphasis on individual solutions may not always be appropriate. Natural heterogeneity in a population means that some people will always make it out of poverty while others do not. One can always ask why one person succeeds and another fails, but the most effective actions may still be through broader fiscal, monetary or regulatory policy.

More generally, dynamic analysis identifies events in a person's life and tries to establish relationships among them. Some of these events appear to be real (marriage, or a new job) but others are created by the data (a transition across an arbitrarily drawn poverty line). Some of these latter transitions will reflect a major change in income and life-style, while others may not. On the other hand a marriage may be an event in that it changes one's tax status, but if the couple have been living together for years it may not indicate a major change in life-style or household income. Ellwood expresses some

nostalgia over his early work when he had only 300 observations and was able to get to know each data point personally.

Most of the other papers in this volume study panel data on the incidence of poverty. For the most part the analysis is straightforward and descriptive, but the data themselves are often quite interesting. We find, for example, that:

- for American women, marriage increases the probability of a transition into poverty, and increases the probability of a transition out of poverty (Martha Hill, Daniel Hill and Robert Walker);
- the increasing number of lone parents in Britain is due in large part to the increasing duration of this state (Stephen McKay);
- flows into and out of poverty among the elderly are much slower than those for prime age members of the population, and tend to be associated with the death of a spouse (Michael Wagner and Andreas Motel);
- there was remarkable convergence in poverty rates between East and West Germany in the first four years after reunification (Peter Krause); and
- flows into social assistance programs in Britain during the recession of the early 1990's were spread quite evenly across demographic groups, but the less educated, older, and less mobile workers experienced much longer durations (Robert Walker and Karl Ashworth).

If there is an overall conclusion to this book it is that poverty is remarkably dynamic, even in Europe where OECD data (for example) show that labour market flows can be much slower than in North America. Although there is little that is really new in the techniques, readers with an interest in the facts about poverty will find much of value here.

The second volume, *Social Dynamics*, is part of a series from MIT Press on Economic Learning and Social Evolution edited by Ken Binmore. In a short preface, Binmore explains that the series will have two unifying features:

“The first will be a rejection of the outmoded notion that what happens away from equilibrium can safely be ignored. The second will be a recognition that it is no longer enough to speak in vague terms of bounded rationality and spontaneous order. As in all movements, the time comes to put the beef on the table – and the time for us is now.”

What a wonderful beginning. The book is about the mechanics of social change, and studies among other things the fact that individuals have an urge to conform with their peers and to treat some as role models. Of course the book is also trying to create social change in the beliefs of its readers. Normally an academic book does this with appeals to our rationality, and much of this one is no exception. But here Binmore is practicing what he wants to preach. He asks us to accept his ideas not because they are correct, but because the old ones are “outmoded” – i.e., no longer a focus for the conformity of our peers. “Conform with us!” he says. And who better to serve as role models than he and his colleagues, blessed as they are with insight, courage, and determination. The arrogance here is charming.

The basic structure of an “interactionist” model is simple enough. There is a finite population of individuals each with representable preferences over some field of choice. Choice may be subject to constraints, but these are entirely standard. What is new is an interaction term that links each person’s preferences to the choices made by everyone else. For example, other things equal a person might want to emulate the most popular choice in the overall population, or he might care about the choices made by his closest neighbours. Most generally, the preferences of each person could be affected by the individual choices of each of the other people in the population, and by a person specific amount in each case. Models like these can become enormously complex. Like recent advances in econometrics this is a style of modelling that has blossomed along with recent advances in computing power.

If you can read only one chapter make it the second one, an introduction written by Lawrence Blume and Stephen Durlauf. It is broad in coverage, clearly written, informative,

and balanced. Especially good is the idea that this approach (like any other) is best seen as a language. No language is perfect, but each may be particularly well suited to the expression of a particular set of concepts or ideas. Learning a new language literally expands the set of things one can appreciate.

The next two essays outline the empirical challenges that must be faced in order to measure the strength of interactionist forces in society. Robert Moffit makes it clear that the problem has resisted analysis for many years and does not seem to be weakening with age. Edward Glaeser and Jose Sheinkman outline several possible strategies, including one that would measure conformist forces by exploiting the difference between the within city variation in a choice and the between city variation. However, the strongest direct support for the interactionist approach is probably still informal – in the analysis of our own actions and those of the people we know well.

Peyton Young contributes two explicit examples. One is a model where people want to conform with the choices of their closest neighbours and the other (with Robert Axtell and Joseph Epstein) is an evolutionary bargaining model where agents have a visible characteristic that may be used to condition their strategies. In each case the outcomes tend to be heterogeneous – agents form into groups defined by a common behavioral choice. Readers familiar with Young's other published work will find little here that is new, but the non technical exposition is excellent.

Samuel Bowles provides a study of the role of group competition in the growth of cultural norms. Interactionist models take an evolutionary approach to the agent's choice of strategy. But when agents are conforming with their neighbours, competition to determine the fittest behavioral rule may be stronger at the group level. It follows that cultural norms may guide behavior towards actions that are socially efficient, at least within the group. The essay includes a fascinating study of the growth of the nation-state in Europe in the period from 1000 AD to 1500 AD, and it does makes one reflect on the flaring competition between Islam and Christianity.

Ken Binmore gets the last word with a short essay on the conflict between fairness and

authority as decisionmaking tools for societies, and the conditions under which one might usurp the other. Relative to the other contributions the emphasis is more towards readability than rigor, and in the end some of his comments on English bureaucracy and politics become a bit self-indulgent. Nonetheless it is a thoughtful piece by someone who has contributed a rich set of ideas to the topic.

Two things separate this book from mainstream economics – the focus on out of equilibrium dynamics and the explicit introduction of an interaction term in individual utilities. Not every paper exhibits both characteristics. In particular, despite Binmore’s admonitions in the preface there is a great deal of talk about equilibrium. This term was borrowed many years ago from Physics to describe a situation where, conditional on outside events, the elements of a dynamic system will take on particular values and stay there. Equilibrium models have predictive power in that if the model is true there will be restrictions on the correlations among certain variables at any given point in time, and on the response of the variables to exogenous shocks.

Out of equilibrium dynamics are considered in a few papers, but even here the emphasis is on regions of the outcome space in which the system will spend a lot of time. In other words the outcomes in these regions are not equilibria, but they are like equilibria in that the predictive power of the model arises in the same fashion. If the model is true then at any given time we are more likely to find the system in one particular region than than we are to find it elsewhere.

The problem is that with a few minor changes one could build a similar model that had an equilibrium somewhere in the middle of this region. We would then have a model that makes the same empirical predictions from essentially the same assumptions. So the gains from this “out-of-equilibrium” style of analysis are not entirely clear. We come back to the language metaphor – some ideas can be expressed in many languages, but the language of equilibrium is already widely spoken and understood.

A truly non equilibrium approach would require a complete change in empirical strategy. An ever-evolving dynamic system will place few restrictions on the

contemporaneous correlations of its many variables. As we emerge from one recession, for example, interest rates may be rising and as we get out of the next one they may be falling. In the background are inherently unmeasurable variables like the response of investor expectations to the announced intentions of the Central Bank.

In a model like this it is true that at each stage the next state of the system will depend in a precise way on the current state and on the values of certain exogenous variables. Accurate prediction is possible, but it will require a deep understanding the structure of this system. But how are we to learn this structure if the standard econometric tools won't help? It may be that the only method is through common sense (guided by theory) and the study of history. Policymakers know this already, of course, and their almost complete disregard of modern macroeconomics is a powerful indictment of equilibrium methods.

The use of an interaction term in utility makes this work a branch of Behavioral Economics. Experimental work has uncovered a host of other factors that affect behaviour in social situations, including concerns for equity, reciprocity, and the intentions of others. This work is rapidly advancing, but apart from Finance where there are great amounts of money to be made it has yet to penetrate the mainstream. There is a reason for this, I think, and it has little to do with the correctness or the empirical usefulness of the approach. The problem with most behavioral models is that they do not provide a framework for doing welfare economics that is consistent with the normative prejudices of most economists.

At the center of welfare economics is the idea that laws and economic policies should be evaluated only by their effects on individual welfare. A simple interactionist model might postulate that individual welfare depends on consumption of a single good C and some other qualitative choice ω according to a function like $U(C, \omega) = C - |\omega - \bar{\omega}|$, where $|\omega - \bar{\omega}|$ is the absolute difference between the individual's choice and the average of the choices made by other members of the social group. People like more consumption, but also like to conform with their peers. Suppose that we are at a conforming equilibrium and

that some random factor occasionally intervenes to make an individual think about experimenting with a new choice of ω . This seems straightforward, but notice that any individual member of this group that decides not to conform will impose a negative externality on her society. Interactionist effects by construction are external to the market. Standard arguments suggest that a tax on nonconformers or some other more coercive measure might be an optimal policy.

Mainstream economists, and I think most of the behavioral variety, are going to be uncomfortable with a model that suggests a general urge to conform gives society the right to punish nonconforming behaviour. Rather, most of us support freedom of expression unless the expression is genuinely harmful to others. We are not allowed to drive on the wrong side of the road, for example, since this puts life and property at risk. But dangers to life and property have no special status in an interactionist utility function. Loss of property and unhappiness about an out of date hairstyle get equal importance. It will be a major challenge for the interactionist approach to determine just how much moral force each of the interactions should carry.

These two books, one from Sociology and one from Economics, are clearly about very different things. What they have in common is that each draws from the other's discipline. The economists are perhaps more willing to admit to the provenance of their ideas (at least they cite a few Sociologists), but there is no sense in either book that the ongoing work will be interdisciplinary. Should it be?

Unfashionably, perhaps, I tend to think not. In reading these books one gets the distinct impression that Economists and Sociologists are very different people. Politically the Sociologists lean much more to the left, and are much more willing to advocate for social change. In their introduction, for example, Leisering and Walker argue that the dynamics of modern society are the dynamics of poverty – nothing else matters. Few Economists would go this far.

More importantly, the aesthetics that define excellent research in the two disciplines are very different. It is probably true that Economists and Sociologists each seek the

understanding that comes after careful study of a complicated issue. But brains work differently, and this feeling of enlightenment can be triggered by very different stimuli. An Economist looks for a relatively simple but explicit model that will connect the underlying causes and effects, often taking delight in its mathematical sophistication and beauty. A Sociologist seems to prefer a simple yet illuminating taxonomy – a list of categories into which each instance of the phenomenon under study will comfortably fit.

This is not to say that Economists and Sociologists have nothing to learn from each other. Indeed if anything these two books make clear just how wasteful it is to ignore knowledge and ideas that are available for free in another discipline. Going forward if the key is not collaboration and joint research, it will be the widespread dissemination of specialized research. Books like these, written as they are in clear, jargon free prose, go a long way toward this goal.

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