

Reviews

Karl A. Fox and Don G. Miles, eds., *Systems Economics: Concepts, Models, and Multidisciplinary Perspectives*. Ames, Iowa, USA: Iowa State University Press, 1987.

'The objectives of this book are to describe, develop, and advocate a systems approach to economics and to illustrate the prospective scope and power of this approach' [p.XV]. It is directed toward economists and agricultural economists at the graduate and undergraduate levels.

A look at the list of contributors shows that it consists entirely of economists and agricultural economists, so it is difficult to see why the subtitle includes the term 'multidisciplinary perspectives.' One reason seems to be simply that that is one of the goals being advocated. Considering the ethnocentrism of the 'economic imperialists' of our time, this goal cannot be advocated too much or too often. The other reason seems to be that some of the authors base their models on the work of psychologist R.G. Barker (1968).

The book consists of ten essays in two parts, ('general' and 'applications') and two appendices (one on systems thinking and one on systems approaches in other disciplines). The essays seem closely tied together, more so than one might expect from a collection and more than is suggested by the caveat in the preface [p.IX]: 'The authors are independent and original thinkers and in no way constitute a school.' Independent and original, yes. But if the authors are not a school, their book is perhaps a course.

For those of you new to economics, Kenneth Boulding is the Buckminster Fuller of that field and – considering his prolific output – perhaps also the Issac Asimov. It used to be an unwritten rule that his was the first or the last essay in any anthology that included him: he is at his best when he sets the

tone or sums it up. Here his paper comes first. It is an example of Gassler's First Law of Intellectual History: never write more than one book. Reason: They'll forget the others and your views will be distorted. Actually it is an example of the First Corollary: If you do keep writing, put everything you ever said into your current work, so that in case it is the only one remembered your views will not be distorted. Anyone who has read *Ecodynamics* or most anything Boulding has written since can probably skip Chapter 1 for that reason. If however you are like me and want to refresh yourself with some vintage Boulding you will not be disappointed.

It was good that the Lawlor paper was placed early in the book. It is an introduction to general systems theory, a review and summary of general equilibrium theory in economics, and a critique of the latter in terms of the former. He claims that general equilibrium models fail to distinguish open from closed systems and that they conceive of the whole as distinct from its parts rather than as closely related to them. This second problem is due to two further failures: lack of an adequate theory of the dynamics of attaining equilibrium, and lack of adequate treatment of the role of economic information. I have some quibbles with the critique, but I may assign the paper to my classes in economic theory and operations research.

The theme of Gardiner's essay on systems theory and mathematical economics seems to be that economists have been doing systems theory all along without knowing it. He defines a system, lists several properties, and applies them to economic growth, stability, causality, and comparisons across countries. His notion of systems theory differs from mine: through most of the paper he defines a 'system' as identical to a mathematical function. Most of the models described were new to me, and the explanations were terse and confusing. Several times I had trouble justifying steps; in the bottom of p.54 I am convinced he reversed the values of Y2 and Y1. In short, I did not find the essay useful to illustrate the main point.

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Sengupta's paper was interesting at first, though it jumped a little back and forth between ideas. Too much of it, however, seems merely a restatement of economic theory with new names: the last few pages seem to be just a restatement of some questions in the economics of uncertainty. The notion of 'behavioral setting', central to the paper, promises a generalization beyond strictly 'economic' behavior. In fact, on page 73, the author promises that 'a set of market prices is not required.' Yet on the very next page the use of 'imputed prices' is crucial to the argument with no explanation of how to get them. Output measurement and evaluation are a central problem in the economic analysis of non-market activity, and a paper that merely assumes imputed prices does not extend neoclassical theory at all but merely repeats it with different words. If I missed the point, perhaps it was because there was so little here on the way this approach differs from conventional theory.

The paper by Glenn Johnson states that agricultural economists researching multidisciplinary subjects and practical problems (which are also generally multidisciplinary) have made some progress in meeting McCloskey's and Kirzner's criticisms of the neoclassical paradigm. In spite of the postwar introduction of neoclassical methods into agricultural production economics, farm management researchers still devoted attention to managerial processes, technological change, and institutional changes in the farm sector. Others stressed human capital, institutionalist approaches, and practical aspects of international agricultural development. Nonetheless, neoclassical 'modernist' approaches did slow the profession down. However, those in the field (in all senses of that word) discovered more eclectic methods, one of which was the systems simulation (with or without computer) with which Johnson was involved in Nigeria and Korea about 20 years ago.

Based on his experience, Johnson lists several aspects of what he calls a general systems simulation model. They include the requirements that it be multidisciplinary, normative as well as positive, problem-oriented even at the expense of disciplinary completeness, and involve the decision makers as well as the model builders (cf. Ackoff, 1979a and b). Evaluation of such models should be on the

models' own terms: coherence, correspondence with reality, clarity, and workability. The latter is more important to decision makers than to disciplinary peers, but we must beware of the differences in the purposes of disciplinary, subject-matter, and problem-solving models.

Much of the experience of agricultural economists supports the critiques given by McCloskey and Kirzner, but there is also room for mathematical, computerized, narrowly disciplinary models as components of the problem solving approach.

The short chapter by Miles on the systems economics of a small Australian poultry farm was, alas, too short. I learned little about either applied systems economics or poultry farms. The conclusions seemed to follow not from the sketchy description but from general knowledge of systems – e.g., 'the whole is not always improved by improving the performance or structure of a subsystem or component' (p.117).

Fox's description of eco-behavioral science and social system accounts is exciting. He bases his ideas on the notion of a 'behavioral setting' (church, store, home, etc.). We find, for example, that a child's behavior changes markedly from one setting to another but remains more or less consistent within each. So too for adults. These settings have data sets associated with them (e.g., government statistics on occupations), so they can be fruitfully used now to help create a system of social accounts. The essay itself has a few drawbacks; not all terms are defined before they are used ('claim-operations', 'action patterns'), and it is short on examples of specific applications. I am convinced that social accounts should be encouraged, but the essay does not persuade me that the terminology of eco-behavioral science contributes much. It does explain a little more than Sengupta's chapter and perhaps should be read before it.

If Fox's chapter left me hungry, von Moeseke's chapter began to quiet my appetite. It is a good, straightforward exposition of a mathematical programming model that includes time and money constraints and explicitly links neoclassical choice theory with socioeconomic variables such as 'social position'. I felt as though I now had a clear idea of what 'eco-behavioral science' can do for economics. Perhaps this should be read before Fox. I may

assign it in class. My only reservation is, how much 'systems theory' is here? But I don't care; it's interdisciplinary, and that is important in itself. Emphasis is on observability.

James R. Prescott's chapter on 'community dynamics' tries to move closer to empirical examples of the use of the eco-behavioral concepts. It does manage to provide a few interesting tidbits: drop-out rate from high school is related to the state of the local economy; church attendance is related to the proportion of people who have had deaths in the immediate family. I am left wondering (a) again, what does all this have to do with general systems theory (besides the three flow charts on pp. 172–175) and (b) what does it tell us that we do not already know? Specifically, how does it reorganize our existing knowledge so that we see new relationships?

The concluding chapter, 'Summary and Overview' does its job nicely. Gassler's Law of Chapter Titles states that a 'summary' is always a 'conclusion' and vice versa. This is an exception. I would like to have seen more suggestions for course syllabi and curriculum construction, but otherwise I got what I hoped for in this last chapter.

There are two appendices. The first, by Don Miles, is a short treatment of 'Wholistic Analysis, Problem Shifting Analysis, and Systems Economics.' The writing would have flowed better if 'the author' had simply referred to himself as 'I'; if the first person is good enough for Paul Samuelson, it should be good enough for the rest of us. The original part of this appendix flows much better than the literature review; I was reminded of Boulding's sweeping, eloquent style in these few pages. I would have liked much more in this section. My only complaint is that he does not define field theory; for that we must wait for Appendix 2.

Karl Fox's appendix is a bibliographic essay of suggested readings for students in systems economics. It is interesting and inspiring, but its purpose is not quite clearly spelled out. Contrary to the title of the appendix, these are not systems thinkers. They are great synthesizers of the past (Ibn Khaldun, Issac Newton, Sewall Wright, etc.) whose works can inspire students and provide them with a lot of general information at the same time. I would, however, suggest that instructors also remember

that there is a value to integrating the social (and other) sciences as they are at present, not as, say, Kurt Lewin fifty years ago may have wanted them to have been.

Did the book fulfill its purposes? I would say it did so adequately but not spectacularly. As an anthology, it suffered some of the usual unevenness; many of the general systems concepts developed in early chapters were ignored in later ones. The authors themselves seem unaware of the recent outburst of interdisciplinary activity by economists, going under the names of 'socioeconomics', 'social economics', 'behavioral economics', etc. — some of which is tied to more recent work in psychology (Lea, 1987).

But perhaps that is asking too much. At any rate, I have ordered it for my college library and plan to assign parts of it as a text. I recommend others to do the same.

The book is dedicated to Kenneth Boulding, whom we know as one of the founders of the general systems movement. It is pointed out in two places that he got the John Bates Clark Award in his younger days (which is the only age that economists may get it) and that five of the first six winners went on to get the Nobel Prize.

The uncharitable would ask why he was the one who did not. My favorite answer is that he is too far ahead of his time. Whenever I come up with an absolutely brilliant and slightly unorthodox idea, I almost invariably find it mentioned in one of his papers written at least twenty years ago.

My second favorite answer is that he fails Gassler's Infallible Test for determining whether a Nobel Laureate deserves the prize. Collar a graduate student and call out the Laureate's name. If the student can give the title of a book the person wrote and if the person then continued with a career of influential publications, then he or she deserves the prize. (Having a theorem named after you counts in lieu of a book: that's how Bertil Ohlin passes.) Only two current Laureates fail that test, Ragnar Frisch and Richard Stone (I remember searching for two days through two universities saying 'Who's Richard Stone?' before finding a professor who remembered the UN and the Stone-Geary utility function.) Boulding does not pass the test, because most grad students have not (or barely) heard of

'Spaceship Earth' or *The Economy of Love and Fear*. (It's not that the latter is short; so is Robert Solow's *Growth Theory*).

A more important and presumably related question is asked by Robert Heilbroner in his 1975 review of Boulding's *Collected Papers*. Heilbroner wonders why Boulding does not have a school of thought in economics surrounding him, as do Clark winners Paul Samuelson and Milton Friedman.

I used to think the answer was that Boulding's work was so creative and pervasive that economists of all persuasions could admire it, but my casual search of the literature yields a rapidly declining number of references to his work in new books across the spectrum.

Having studied Boulding for over twenty years and having been one of his last doctoral students, and the only one in the last few years before retirement who shared virtually all his interests (though not his talents), I have evolved another answer. Kenneth's lack of administrative skill [Kerman, 1974, pp.73,306] has kept him from following up the influences of his writings with encouragement and assistance to a group of younger scholars interested in pursuing lines of research inspired by him. He also has an exaggerated fear of being a 'guru' to his students.

It is not only his students that can be left hanging. He has founded or co-founded a number of organizations or projects. Those which he founded and let go, flourished, like the ISGSR. Those that he founded and held on to, never grew, like the Association for the Study of the Grants Economy, or even died, like the Grants Economics series.

Kenneth Boulding deserves to be honored, and it is appropriate that a book entitled *Systems Economics* be dedicated to him. It is up to those of us who still feel his influence to push on even when the one who scouted the planet for the first time occasionally loses the keys to the shuttlecraft.

When he retired, his university replaced him with an econometrician. I hope that some university somewhere is replacing another retiree with a scholar even half as creative as Kenneth Boulding.

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- Past,' *Journal of the Operational Research Society*, 30(2), 1979a, pp. 93–104.
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Martin K. Starr, ed., *Global Competitiveness: Getting The U.S. Back On Track*, W.W. Norton: New York and London, 1988, pp. 338.

The American Assembly, an affiliate of Columbia University, has published, under the editorship of Professor Martin K. Starr, an important book dealing with the contemporary American economy. The ten articles making up the body of the book were background papers for the American Assembly meeting held November 19–22, 1987. The aim of the meeting was to develop specific recommendations for restoring and enhancing the competitiveness of the American economy. The recommendations are addressed to the U.S. government and private sector and are contained in the Final Report of the American Assembly. The book, in addition

to the ten papers, includes the Final Report, a Preface by Daniel A. Sharp, President of the American Assembly, and an Introduction by the editor.

The U.S. economy has undergone great change since the late 1960s and early 1970s. Americans have experienced many problems associated with that change. It is characteristically American to begin this kind of book by exploring the problems of the economy and their consequences. In Japan, it is likely that the opposite would have been done. Japan's has become one of the major economies in the world. However, no matter how many times the Japanese are told they have become rich, they do not feel it. They continue to be preoccupied with the economic problems surrounding them.

The underlying theme of the book is that America's economic troubles are largely made in America. Thus the solutions must also be made in America. In the opening paper, *Crisis: The Uncompetitive Society*, Richard D. Lamm points to economic problems deriving from the legal system, health care, the tax system, the costs of capital (the inadequate rate of savings), the debt bomb, education, social benefits, crime, defense expenditures, political structure, physical infrastructure, culture, demographic diversity, immigration and hubris. In short, little is left untouched.

In the second, the analytical part of the book, Tyson examines the usefulness and effectiveness of the governments targeting economic policy, both micro and macro, so as to create American competitiveness. She refers to industrial policies such as those that have been in use in Japan. In considering the potential effectiveness of government policies, the assumption must necessarily be made that the governmental policy makers and bureaucrats of a country are smarter than private-sector decision makers and that they do not make mistakes. That is a difficult assumption and is probably not true even in Japan. There is no guarantee that government employees are indeed smarter and have a more comprehensive understanding of the world economy than individuals in the private sector. Bureaucrats are bureaucrats are bureaucrats wherever they may be.

More significantly, in Chapter 5 Hessel, Mooney and Zeleny expound what they call a management

technology for the new competitive era. They see many current problems deriving not from governmental actions but from currently accepted management doctrine. They hold that all theories of management must have a limited life expectancy and argue that all traditional theories have been made obsolete by contemporary patterns of world competition. A new theory, Integrated Process Management (IPM), is proposed, which is related to W.E. Deming's approach. Their argument begins with an interesting proposition: We often fail to see the paradox in accepting simultaneously that the whole is greater than the sum of the parts and that the whole can be reconstructed from its parts. (p. 123). They represent their new technology as a loop which combines the customer, input plan, production process and output (p. 145, Fig. 9).

Chapter 9, *From Complacency to Strategy: Retaining World Class Competitiveness in Services* by Dorothy I. Riddle and Kristopher J. Brown, is an especially important one. They deny most of the common-sense premises about the service sector, lack of capital intensiveness, low value added, low wages, etc., and illustrate the real meaning off a service economy. Their reasoning should be expanded because it may well lead to a new theory of the service sector.

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When the writers in *Global Competitiveness* maintain that America's problems are made in America they are essentially correct. To deal with the problem of competitiveness, Americans must first define the problem exactly and then explore alternate solutions. One must, however, bear in mind that the world's economy is international and increasingly linked and interdependent. No economy can be an autarchy. America's problems were made in the U.S.A. but at the same time they were also made in Japan and the rest of the world.

Since World War II the United States has been the 'deep pockets' market for products (manufactured goods and services) of the rest of the world. Despite the shock in August 1971 when President Nixon tried deliberately to weaken the U.S. dollar's position as the world market's key

currency, the world continues to accept the dollar as the medium of exchange in international markets. In consequence, America can produce any scale of trade deficit without having to be concerned about its gold accumulation. Americans can buy too much at high prices, thereby literally creating the 'competitiveness' of the rest of the world. Had these other countries to rely on the demand of their own economies, prices and profits would be far lower.

Computer chips are an excellent example. Because there are not many uses for the chips in a number of the East-Asian countries in which they are produced, the price of chips in these countries would tend to be low and would be so even if wages were much higher. But there is an enormous demand for these devices in the United States, making these countries automatically competitive.

There is little doubt, however, that there are areas in which the United States must shoulder the responsibility for inadequate competitiveness. In much of the research recently published on competitiveness there seems to be a taboo against inquiring into the work habits of Americans. Do they work hard enough? Do they work conscientiously enough? Do they work long enough? If the problem today is that, 'Made in the U.S.A. has gone from a hallmark of craftsmanship to a question mark of quality' (p. 275), American workers need to work harder and more carefully and American management must be oriented to accomplishing this.

The Japanese have been denigrated for their ethics of hard work. Recently the Japanese government has been making a major effort to shorten the working hours of the Japanese. This may not be as desirable a policy as it appears on the surface. The younger generation of Japanese is already far less committed to the work ethic than its elders. Social change often has a tendency to lag behind economic change. It might be noted that many companies overcame the storm of the yen devaluation after October 1985 only through the extra hard work of their employees.

Lamm points out in his introductory chapter, 'America must rediscover some of the old values of hard work, thrift, discipline and sacrifice.' (p. 41.) And to remain competitive, Japan must not forget these values.

In *Global Competitiveness* there is only one reference to Japan's part in America's competitiveness problem. It may, therefore, be useful to add here a few words about an appropriate role for Japan in bettering the world's competitiveness problem. It has already been pointed out that money (a key currency) can enhance the competitiveness of nations. The United States made that contribution to much of the world in the postwar period. Given the great trade imbalances of recent years, Japan has acquired an enormous accumulation of the key currency. Japan could create competitiveness in many other countries by supplying U.S. dollars to the world market from its accumulation. Alternatively, Japan could offer higher prices for U.S. commodities or the products of other countries. The problem in Japan is that the huge accumulation of dollar profits has not been widely distributed to the Japanese people. The dollars are held for the most part by the government, financial institutions and a relatively small number of companies.

Japan, with its huge accumulation of dollars, could well assume the role of being the 'deep pockets' market for the rest of the world. Japan could create a demand for goods produced in much of the world over a long period of time, thereby permitting other nations to become competitive and to better the economic status of their people. Such action would parallel American conduct during the post-World War II period and would contribute greatly to orderly economic growth.

Regrettably it is far easier to propose such a policy than to implement it. Implementation would require substantial and continuing increases in real, not nominal personal income, in short, a broader distribution of the accumulated dollars. Implementation would also require a rather fundamental change in the orientation of public- and private-sector leaders. Most of these leaders, being members of an older generation, still perceive Japan to be a weak and vulnerable nation. Their actions do not indicate any real understanding of Japan's situation as an economic superpower.

Much more could be said about this subject but should be left to a more suitable place. Let it be said here that the American Assembly has given us a fine contribution to the examination of a complex and

difficult subject, competitiveness. At no time in history has there been a period of more rapid, profound and widespread economic change than the present one. The Soviet Union and China and their associates are talking of change from the foundation up; in 1992 a vast new economic entity is to come into being in Europe; in Asia, Japan and the tigers have given the world a demonstration of the potential of rapid economic growth; and the United States, still at the cutting edge of economic evolution, is undergoing a process of change so fundamental that its outcome is difficult to imagine. *Global Competitiveness* supplies an analysis of the

problem of competitiveness focused upon the American situation, one that should be widely read not just by academics and commentators but by policy makers in both the public and the private sectors.

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