Book Reviews

Individual Behavior and Economic Outcome

Beyond Economic Man. A New Foundation for Microeconomics. HARVEY LEIBENSTEIN. Harvard University Press, Cambridge, Mass., 1976. xiv, 298 pp., illus. $15.

Conventional or, more correctly, textbook microeconomic theory has tended to assume that households maximize utility and firms maximize profits or minimize costs. In this deliberately provocative book, Leibenstein challenges these assumptions and proposes to construct a microeconomic theory on the basis of assumptions about the objectives and the behavior of the individual economic actors that constitute households or firms. This is indeed a powerful idea with many potentially fruitful applications, and it deserves the serious attention of the economics profession.

Leibenstein argues that the actions of a group such as a household or a firm are necessarily amalgamations of the actions of its individual members, each of whom has different, possibly conflicting, objectives and opportunities. Moreover, these groups, or subgroups thereof, are usually sufficiently small that the actual or potential impact of the action of any individual member on the well-being of the other members is clearly identifiable and nonnegligible. Therefore each individual member, in choosing a course of action, will in general need to take into account the actual and potential actions of the other members as well as his own objectives and constraints. The environment, which includes the information, incentive, institutional, and organizational structures within which these actions take place, affects the impact of the actions. In addition, certain types of actions, while technologically feasible, may be forbidden by the constitution, conventions, customs, or laws that prevail in the environment. The theory of games is ideally suitable for the analysis of such situations. In Leibenstein's treatment, which relies heavily on game theory, the environment and the restrictions on the actions of individual members constitute the "rules" of the game.

It is well known that in most games there can be many possible solutions or outcomes, corresponding to different assumptions about the modes of behavior of the actors, with classically competitive behavior—that is, each economic actor acting as if he has no impact on others and others have no impact on him—being only a very special case. Moreover, even if the outcome of a game, given the rules, is perfectly determinate (though not necessarily unique), it does not necessarily follow that the behavior of the household or firm can be explained in terms of an entity singlemindedly pursuing an objective. It will be an accident, under Leibenstein's general formulation, if a household behaves as if it were a single utility-maximizing individual. And it will take rather ingeniously designed information, incentive, institutional, and organizational structures to ensure that a firm truly maximizes profits or minimizes costs.

A theory based on consideration of the objectives and behavior of individual members of groups, such as the one proposed by Leibenstein, is inherently richer in its consequences than a theory that treats a group as if it were an individual. If Leibenstein's theory is valid, an outcome depends not only on the objectives of and the constraints upon each individual member, but also on interaction among members and on the environment as defined above. The major accomplishment of Leibenstein's book is to demonstrate forcefully and convincingly the critical importance of intragroup interactions and the environment in the determination of economic outcomes.

Nevertheless, adoption of Leibenstein's formulation does not mean that conventional microeconomic theory need be discarded. If one takes the environment, that is, the rules of the game, as fixed and the objectives of the individual members as given, one may still legitimately pose the question whether the household behaves as if it were maximizing utility or the firm as if it were maximizing profits or minimizing costs, within the confines of its environment. This is a question that can only be settled through an examination of the empirical evidence.

The existence of intragroup interaction and the crucial and possibly dominant role played by the rules of the game raise the possibility that a Pareto-inferior economic outcome may result, that is, that the achievement of a more favorable outcome for some members would not necessarily lead to a less favorable outcome for others. A Pareto-inferior outcome may be improved upon either through coalition formation or through modifications of the rules of the game. Leibenstein emphasizes this important idea throughout the book.

For instance, Leibenstein's concept of X-efficiency can be economically meaningful only in terms of the changes in productivity that result from rearrangement of the information, incentive, institutional, and organizational structures of the environment. Unmeasurable variables, such as discipline, enthusiasm, intensity of effort, knowledge, and morale, that affect manager and worker productivity are themselves products of the environment. X-efficiency, then, reflects the differences in productivity levels that correspond to different environments. It is a useful concept only insofar as it refers to sustainable differences in productivity. Transitory differences, due for instance to a sudden surge or collapse of worker morale or to sunspots, and differences in productivity due to statistical variations in worker and manager abilities, as distinct from efforts, do not, strictly speaking, reflect X-efficiency. Since it encompasses the effect of the environment, Leibenstein's concept of X-efficiency is much more general than the Schumpeterian notion of "animal spirits." It may, however, be compared to the Marxian notion that one can develop the "forces of production" by changing the "social relations of production."

It is clear that X-efficiency merits further intensive study. The interesting questions are: How important empirically is X-efficiency? What are the determinants of X-efficiency? Can one design an information and incentive structure, subject to existing institutional, legal, and organizational constraints and given the utility functions of the economic actors, that will ensure the attainment, or approximate attainment, of maximum X-efficiency? Finally, what are the costs, pecuniary and nonpecuniary, of changing the environment in order to attain a higher level of X-efficiency?

Although Leibenstein does not argue that changes in the environment are cost-

less, he does not elaborate on how these changes may be effected. In game situations in which an initial equilibrium is Pareto-inferior, some kind of concerted action or outside intervention is necessary to reach a new and presumably better equilibrium. It may involve the formation of a coalition or the modification of certain rules of the game. The process through which these changes may be brought about must be studied and understood before a concept such as X-efficiency can have any operational significance.

Of course, another way of effecting change in economic outcomes is to transform the objectives, attitudes, and behavior of the individual economic actors. For instance, the members of a firm may be educated to become more public-spirited and less selfish, and productivity may in fact rise as a result. It is not clear whether Leibenstein would include this type of productivity change under the rubric of X-efficiency, since there is virtually no mention of attitude or behavior modification in this book.

In order to study the behavior of a household or a firm as the result of a game, it is essential to study the determinants of the choices of the individual members at the individual level. Leibenstein discards the conventional perfectly knowledgeable, perfectly foreseeing, and mechanically and perfectly utility-maximizing economic actor and replaces him with an economic actor who may not possess complete information or perfect discriminatory power, and who may even have "thick" indifference surfaces. Leibenstein also assumes that the processes of decision-making, adjustments, and transactions are not costless. The economic actor is faced with both subjective and objective costs of information collection (or experimentation), processing (or calculation), adjustments, and transactions. Leibenstein does not use these terms, but the costs that he refers to are nevertheless the same as those taken into account by modern economic theorists in their analyses of these same economic phenomena. Given that these costs exist, and assuming that the economic actor does not derive any direct satisfaction from incurring them, it is immediately obvious that there will be a bias in favor of maintaining the status quo in the face of small perturbations of the system unless certain thresholds are exceeded. This bias leads to the existence of what Leibenstein calls "inert areas," which he uses to explain a variety of economic phenomena.

There is one other central idea in the book, that is, that certain "targets," or "standards," or "social reference groups" influence economic behavior. Leibenstein attempts to explain behavior in terms of an economic actor's desire to be in some sense "close" to these norms. However, his explication leaves unanswered the fundamental question of how these norms are determined. Conformity and emulation may have great power to explain the lack of dispersion of actions, but they do not explain why a norm is what it is for a given population. In this regard, Leibenstein's theory is really incomplete. This type of theory does not explain the underlying structure, and although it may do quite well in the short run, it may fail miserably if conditions change sufficiently to shift the "norm."

Has Leibenstein completely abandoned the notion of an "economic man?"

A careful reading of his book suggests that he has not. While the economic actor in Leibenstein's theory differs significantly from his classical counterpart in his knowledge, discriminatory power, and computational ability, and although he has to bear a greater variety of pecuniary and nonpecuniary costs, he is nevertheless assumed to choose from his possible actions the most preferred one. For example, Leibenstein assumes that "each member [of a household] wants as much as possible of the household income" (p. 184). The individual's motivation is still primarily economic; his objective is primarily private; and his considerations are primarily selfish. In fact, the economic actor may have become even more calculating, since he is now expected to take into account the actions and potential actions of the other members of his group. Thus it appears that Leibenstein has merely made "economic man" more realistic and sophisticated and less mechanical without making major changes in the assumptions about his nature and motivation.

It is relatively easy, however, to introduce into Leibenstein's analytical framework the assumption that the levels of well-being of each of the other members of a group, or the quantities of specific commodities consumed by each of the other members of a group, enter directly into the determination of each individual member's objective or utility function. This assumption represents a true departure from the "economic man" paradigm and may indeed lead to interesting new outcomes.

Finally, one cannot conclude this review without commenting on Leibenstein's view of the methodology of economic science, since he devotes a whole chapter to it. Leibenstein asserts that in economics "explanation without prediction is sufficient." Almost all economists agree that explanation is necessary. But to claim that explanation in itself is sufficient to validate a theory leaves one with no rational basis for discriminating among competing theories, all of which may appear to explain the historical data well but may yield different predictions. Leibenstein's view on this issue does not represent that of the majority of the members of the economics profession. Whether his theory as expounded in this book, promising as it seems, will become the foundation for a new microeconomic theory depends not so much on its ability to explain observed historical facts as on its ability to help economists predict outcomes more accurately.

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Paleoceanography

Jurassic Environments. A. HALLAM. Cambridge University Press, New York, 1975. x, 270 pp., illus. $32.50. Cambridge Earth Science Series.

The Jurassic Period (135 to 195 million years ago) is best known as the interval during which the present Atlantic Ocean began to be formed by rifting apart of the previously unified Pangean continent. To geologists the name Jurassic is inextricably tied to a host of famous rocks including the Solnhofen Limestone (with its *Archaeopteryx*), the Minette iron ores of Lorraine, and the western North American Morrison Formation with its renowned dinosaur faunas.

Previous monographs on geologic periods (including Arkell's monumental treatment of the Jurassic published in 1956) have been devoted to detailed descriptions of stratigraphic sections. Hallam's approach is different in that he provides an interpretative account. *Jurassic Environments* treats of geography, bathymetry, tides, currents, temperatures, salinity, and biogeography. In fact, the book might as well be called applied paleoceanography.

In matters geologic, approximately half the book is a synthesis of facies patterns of sand, calcareous, siliceous, and ironstone deposits of northern, central, and southern Europe and northern Africa. A brief chapter (15 pages) treats facies of the United States Western Inte-