INTRODUCTION: SCOPE AND METHODOLOGY OF ECONOMICS

I.1 SCOPE OF ECONOMICS

Over the past hundred years or more, economics has become a rather well-defined member of the social sciences. While several related disciplines are concerned with social action dominated by a means-end relationship, the particular relationship unique to economics can be stated with some precision. As most *Principles* texts avow, economics is a study of the economical allocation of scarce physical and human means (resources) among competing ends—an allocation that achieves a stipulated optimizing or maximizing objective. The area of study is circumscribed by the stipulation that the means consist of human and natural resources and that the ends be economic goods or economic objectives.

I.1.a—Ends and Goals

It is helpful to distinguish between *ends* and *goals.* The combined process of production and exchange is one in which a collection of resources distributed among individuals is transformed into a collection of economic goods, with the latter distributed among the responsible agents. The two distributions are, of course, not necessarily the same. Let us define economic goods themselves as *ends.* Then the word *goal* may be used to describe the fundamental motivations of the various economic agents. For example, economists frequently assume that consumers attempt to maximize their satisfaction and that entrepreneurs attempt to maximize profit. So defined, the *goals* of economic agents provide the economist with a frame of reference that permits systematic analysis of individual economic behavior. The behavior of one agent vis-à-vis another is likely to be, in some sense, competitive. But in a broader view, it is the mutual cooperation of agents with conflicting goals that is ultimately responsible for the production of economic goods and services.

When the principles of microeconomic behavior have been discovered, our attention can then be focused on a macroeconomic problem that has beset economics from its inception as a science. Indeed, one might say it was the attempt to resolve this problem that caused economics to become a science. The problem may be stated as a question: will the independent maximizing behavior of each economic agent eventually result in a social organization that, in a rather normative sense, maximizes the well-being of society as a whole? Adam Smith suggested an answer to this when he presented his doctrine of the "invisible hand." According to Smith, each individual, bent on pursuing his own best interest, is inevitably led, as if by an unseen hand, to pursue a course of action that redounds to the advantage of society as a whole. This is a happy and optimistic doctrine. It has, however, been increasingly questioned as the social and industrial milieu has undergone great change. For, as will be seen, if all economic agents are atomistic in size, relative to the total economic society, then either Smith's "invisible hand" or an IBM machine will seek out an optimal organization of economic activity. But, on the contrary, if all agents are not atomistic, one is compelled to ask if this optimum will be reached. Or will the very large agents play an economic game in which they achieve gains, but only at the expense of counterbalancing losses on the part of smaller units? The answers to these questions are not at all clear. But they are very important, both from the standpoint of theory and from that of policy.

Although the course for which this text has been prepared is primarily concerned with the analysis of microeconomic behavior, we must not lose sight of the dominant quaesitum, i.e., social welfare. To this end, we shall assess each facet of individual behavior in terms of social welfare and finally conclude with a chapter devoted to welfare economics.

1.1.b—Relation of Economics to Other Social Disciplines[1]

Broadly conceived, social science is the study of the totality of man's social behavior. However, this totality is so extensive in scope that no individual scholar could confidently hope to gain knowledge in

[1] For a thorough discussion, see J. J. Spengler, "Generalists versus Specialists in Social Science: An Economist's View," *American Political Science Review*, XLIV (1950), pp. 358–79.

depth of every aspect of such behavior. As Smith long ago pointed out, division of labor tends to augment total physical production; similarly, division of academic labor tends to enhance our total understanding of man's social action. But the division of a social totality into compartments is not so easily accomplished as is the division of jobs along an assembly line; nor do the division lines stay put once they are determined. The various areas of study are interrelated, and it is only by somewhat arbitrary decisions that the subject matter of social science is divided among the various specialties.

In this light, Spengler says that ". . . since the several segments of social studies are mutually interrelated, a specialist's mastery of the behavior-forms allotted to his social science is governed by his understanding of related behavior-forms treated by other social sciences."[2] Yet this understanding is, to some extent, made more difficult by the very process of specialization itself. In the first place, ". . . important modes of collective behavior have escaped significant analysis because no unseen hand has been present to coordinate the activities of diverse specialists and insure analysis of *all* significant forms of interpersonal behavior." Second, ". . . developments within fields of specialization frequently have weakened and sometimes have nearly destroyed interfield communication. The comparatively homogeneous tongue of what passed for social science in the past seemingly has given place to a Babel of symbol-ridden jargons."[3]

Accordingly, to promote a wider general understanding of social behavior, there is need for interdisciplinary cooperation in the study of certain problems that transcend any one special field and, furthermore, for the development of a comparatively uniform language base. Through foundation grants and certain university-sponsored interdisciplinary projects, some advances have been made in the direction of greater cooperation among specialists. This, in turn, has been considerably facilitated by the fairly recent introduction of a new language which permits specialists to communicate one with another with precision and clarity. More specifically, the utilization of mathematics, its language and its logic, has stimulated, perhaps more than ever before, interdisciplinary understanding and cooperation.[4]

[2] *Ibid.*, p. 359.

[3] *Ibid.*, p. 360.

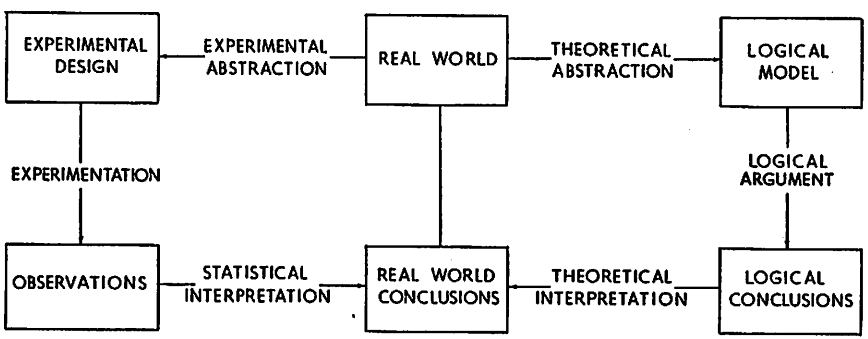
[4] As examples, see Paul Lazerfield (ed.), *Mathematical Thinking in the Social Sciences* (Glencoe: Free Press, 1954), and Herbert Simon, *Mathematical Models of Man* (New York: John Wiley & Sons, Inc., 1957).

I.2 METHODOLOGY

A person observing the real world of economic phenomena is confronted with a mass of data that is, at least superficially, meaningless. In order to discover order in this morass of facts and to arrange them in a meaningful way, it is necessary to develop theories to explain various aspects of human behavior, and thus to explain the otherwise meaningless data. By abstracting from the real world, it is possible to achieve a level of simplicity at which human action may be analyzed. But in the process of abstraction, the analyst must be careful to preserve the essential features of the real-world problem with which he is concerned. That is to say, simplification is necessary; but at the same time a theory must capture the essence of the fundamental economic problem it is designed to solve.

I.2.a—Model Analysis

For this reason, it is important to give attention to the use of model analysis in general before undertaking a study of specific economic models. It is convenient to do this schematically with the aid of the following diagram.[5]



The real world usually serves, at least tentatively, as the starting position. A particular problem, or merely a desire to understand, motivates one to move from the complicated world of reality into the domain of logical simplicity. By means of theoretical abstraction, one reduces the complexities of the real world to manageable proportions. The result is a logical model presumably suited to explain the phenomena observed. By logical argument (i.e., deduction) one then arrives at logical or model conclusions. However, these must be transformed, by means of theoretical interpretation, into conclusions about the real world.

[5] Adapted from a diagram appearing in C. H. Coombs, Howard Raiffa, and R. M. Thrall (eds.), "Mathematical Models and Measurement Theory," *Decision Processes* (New York: John Wiley & Sons, Inc., 1954), p. 22.

Let us summarize to this point. The economist, having begun with a portion of the real world, proceeds, through the use of completely theoretical means, to arrive at conclusions about the real world. His first step entails abstraction from the real world into a simplified logical model. His second step requires the use of logical argument to arrive at an abstract conclusion. His final step consists of a return to the real world by means of an interpretation that yields conclusions in terms of the concrete, sensible world of physical reality.

The same result may presumably be achieved by another method. Let us call it the *statistical method* to distinguish it from the *deductive method* previously discussed. Again starting from the real world, we may, by means of experimental abstraction, arrive at an experimental design. That is, we may, by a process of simplification, design a statistical model that is useful in analyzing the real world. In this instance, however, we obtain observations by experimentation, rather than theorems by logical deduction. These observations, given proper statistical interpretation, yield conclusions concerning the real world.

Although there is some disagreement over the relative merit of the two methods, the tenor of present thinking is that they are complementary. That is to say, deductive and statistical methods are mutually reinforcing, rather than completely alternative, instruments of analysis. However, since professional opinion regarding methodology is still somewhat diverse, this chapter will conclude with a brief discussion of three main types of positions commonly held.[6]

I.2.b—Extreme Apriorism

One group embraces theorists who feel that only the right-hand portion of our diagram is applicable. This group, prominent since the time of John Stuart Mill, has such modern advocates as Mises,[7] Robbins,[8] and Knight,[9] all of whom presumably believe that economic

[6] The remainder of this chapter is based on Fritz Machlup, "The Problem of Verification in Economics," *Southern Economic Journal,* XXII (1955), pp. 1–21.

[7] Ludwig von Mises, *Human Action* (New Haven: Yale University Press, 1959).

[8] Lionel Robbins, *An Essay on the Nature and Significance of Economic Science* (2d ed.; London: Macmillan & Co., Ltd., 1935).

[9] Frank H. Knight, "The Limitations of Scientific Method in Economics," in R. G. Tugwell (ed.), *The Trend of Economics* (New York: Crofts, 1930). Reprinted in *The Ethics of Competition* (New York: Harper, 1935).

theory is not amenable to verification or refutation on purely empirical grounds. Instead, they think that ". . . economic science is a system of a priori truths, a product of pure reason . . . , a system of pure deduction from a series of postulates. . . ."[10]

One of the clearest explanations of the position held by these writers is found in Mises's definition of a praxeologist, or what Machlup calls an extreme apriorist. According to Mises, a praxeologist is one who believes (a) that the fundamental premises and axioms of economics are absolutely true; (b) that the theorems and conclusions deduced from these axioms by the laws of logic are, therefore, absolutely true; (c) that, consequently, there is no need for empirical testing of either the axioms or the theorems; and (d) that the deduced theorems could not be tested, even if it were desirable to do so. Thus the extreme apriorist relies upon introspection and logic to develop the whole body of economic principles.

1.2.c—Ultraempiricism

At the opposite pole is a group, led by T. W. Hutchinson,[11] whose members Machlup calls ultraempiricists. Fundamentally, this group ". . . refuses to recognize the legitimacy of employing at any level of analysis propositions not independently verifiable."[12] Instead of beginning with a system of axioms, the ultraempiricists presumably prefer to start with a body of what they call facts. Starting with facts of course entails sacrificing the very simplicity that is sought. One's approach immediately involves all of the complexities of the real world; and he is deprived of the use of the single tool—model analysis—that enables him to escape the morass of meaningless facts and to reach conclusions of some generality.

1.2.d—Logical Positivism

The final methodological position is labeled "logical positivism." It has been clearly stated by Bridgman[13] and various "operational philosophers,"[14] and it finds wide acceptance among modern econo-

[10] Machlup, *op. cit.*, p. 5.

[11] T. W. Hutchinson, *The Significance and Basic Postulates of Economic Theory* (London: Macmillan & Co., Ltd., 1938).

[12] Machlup, *op. cit.*, p. 7.

[13] P. W. Bridgman, *The Logic of Modern Physics* (New York: Macmillan Co., 1927).

[14] See, for example, Anatol Rapoport, *Operational Philosophy* (New York: Harpers, 1954).

mists.[15] The positive economists agree that the basic axioms or assumptions of theory are not subject to independent empirical verification. At the same time, they consider it both possible and desirable to test the deduced hypotheses, and thereby to test indirectly the system of axioms underlying economic theory.

In sum, the apriorists believe that no aspect of economic theory is susceptible of empirical test, whereas the empiricists think that every facet of theory can and must be proved empirically at each step in a chain of analysis. The positive economists take a middle position. They assert that the conclusions (or theorems) of a model should be tested. If these conclusions are found to be in sufficiently close correspondence with reality, the basic assumptions underlying the model are deemed acceptable. Accordingly, positive economics puts primary emphasis upon the predictive powers of a model: if the predictions derived from one model prove "better" than the corresponding predictions drawn from another model, the former is tentatively selected as preferable. If subsequently a theory is advanced that explains more of the relevant facts or, in a probabilistic sense, conforms more closely to reality, this new theory is deemed superior to the one previously accepted. In every case the test is a pragmatic one: that theory is to be preferred which best explains the observable phenomena of economic life.

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[15] For example, P. A. Samuelson, *Foundations of Economic Analysis* (Cambridge: Harvard University Press, 1947); Milton Friedman, "The Methodology of Positive Economics," *Essays in Positive Economics* (Chicago: University of Chicago Press, 1953), pp. 3–43; and Machlup, *op. cit.*

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PART I

Theory of Consumer Behavior and Demand

Broadly speaking, there are three sets of economic agents: consumers, entrepreneurs, and resource owners. Resource owners furnish the inputs used to produce whatever bill of goods is dictated by market forces. In return for the use of their resources, the resource owners receive money income. This money income, in turn, enables them to function as consumers.

Entrepreneurs organize production and, ultimately, determine the supply of goods and services in free markets. Those entrepreneurs who organize production efficiently and are successful in anticipating consumer desires are rewarded with money income in the form of profit. They are thereby also able to enter the market as consumers.

Some people earn money income by selling resources or the use of resources. Others earn income by using their special resource (entrepreneurial skill) to organize production. All people who earn money income belong to the set of economic agents called consumers. There are, of course, other members of this group. Family members who are dependent upon the income earner participate in the household budget decisions and are, therefore, consumers. People who are not able to earn money income receive money by some type of transfer payment and are also in the consumer category.

For our present purpose, the *source* of money income is not material. Only the fact that money is received by households and spent on consumer goods is of importance. Each household determines how to allocate its money income among the vast array of consumer goods