CHAPTER 1

Introduction

> The work of human thought should withstand the test of brutal, naked reality. If it cannot, it is worthless.
>
> —CZESLAW MILOSZ

There is a growing perception that a new approach is needed in economics if it is to be a useful branch of learning and provide the explanatory power and guidance needed for policy. Frey and Eichenberger concluded from their survey of economics and economists that with economics' continuing emphasis on formalized, abstract, and institution-nonspecific research, its future seems rather gloomy (1993, 192).

The emphasis in contemporary economics on technical virtuosity in manipulating mathematics tends to turn students into truffle hounds—people finely trained for a single narrow function and not much good for anything else (Viner 1991, 393). In the World Bank, we found that it would usually take several years of bank experience before such economics graduates would have learned enough to be trusted to analyze real problems. For the same reason, Stephen Roche, head of the global economics group at Morgan Stanley, will not hire economics Ph.D's if they haven't had substantial experience outside of the university: "We insist on at least a three-to-four year cleansing experience to neutralize the brain-washing that takes place in these graduate programs" (Cassidy 1996, 51–52).

While economists working in the economy are coping with the rich complexities of the real world, leading theorists of the formalist economics school have limited themselves to refining mathematically the implications of a few sharply defined axioms (Solow 1997b, 43). Their subject matter consists of completely rational agents devoted to maximizing their self-interest within elegant theoretical structures that aspire to fit into a general equilibrium model.

Before World War II, mathematics in economics was usually employed as an alternative means of explanation or a means of testing the logic or rigor of an argument. It is still useful to do so. Since World War II, the temptation for economists to approach theory with the mind-set of a

mathematician was strengthened by a large influx into the profession of people who had majored in mathematics or physics in college but had moved on to the greener pastures of economics in graduate school. As Gerard Debreu, who followed this career path, has recognized, when mathematics has imprinted its values on a theorist, those values "may play a decisive role. The very choice of the questions to which he tries to find answers is influenced by his mathematical background. Thus, the danger is ever present that the part of economics will become secondary, if not marginal, in that judgment" (1991, 5).

Yet, while he was warning economists of the dangers of mathematics, Debreu was also commending the axiomization of economics. But a branch of learning that consists of a structure of mathematical reasoning erected on a set of axioms is a subspecies of mathematics pure and simple. And, as the great physicist Richard Feynman observed, "mathematics is not a science." A science is concerned with reality (1995, 47). An economics that is only a branch of mathematics cannot grasp the richness of the reality of an economy constructed and run by human minds. with all of their complexity.

There is danger in drawing conclusions from logic alone that are not validated by the real world: hydrogen is highly flammable and oxygen is necessary for combustion, yet pouring H_2O on a fire extinguishes it!

To be valid, a scientific theory must meet the following tests:

- The assumptions must be isomorphic to reality.
- From these, there must be a clear chain of correct logical or logico-mathematical reasoning leading to conclusions.
- These conclusions must be testable for isomorphism to reality.
- If a single link in chain this is broken, the theory fails. (Kamarck 1983, 3–6)

Milton Friedman, of course, was right in insisting that it matters that an economic hypothesis should result in successful prediction. But this criterion does not go far enough. A scientific theory should also provide an understanding of what underlies the predicted results. Knowing, as the ancients did, that the phases of the moon predicted the tides provided only a correlation, not an adequate theory. This came only when Newton's theory of gravitation explained why and when the tides and their heights occurred.

Formalist theory is uncomfortably similar to medieval scholasticism.[1] Scholastics trusted the logical coherence of the system as a guarantee of the unrestricted relevance of their primary notions and used endless debate,

unrelieved by direct observation, as their method for the furtherance of knowledge. The scholars of the Middle Ages show so much acuteness and force of mind that not a flaw in the superstructure of the theory they are rearing escapes their vigilance. Yet they are blind to the obvious unsoundness of the foundation in their data (Macaulay [1831] 1833, 211). Scholastic philosophy was dispatched to oblivion by the modern scientific approach with its emphasis upon facts, directly observed, directly employed.

Formalist theory is basically Platonic—pure, timeless, valid under all circumstances, and highly abstract. It may make some contribution by providing benchmark insights in showing the unrealistic assumptions (perfect foresight, infinite time optimization, and universal perfect competition) that are necessary and sufficient for its model to work. The theory is not an accurate representation of the complex, adaptive, learning behavior of human beings in the real economy, and its self-imposed limitations leave out important forces that affect the economy. William James called this approach "tender-minded" in contrast to the empiricist "tough-minded" emphasis on the concrete, diverse reality of the world (1907, 490–91).

Formalist theory should not be confused with the use of formal or mathematical methods of reasoning in empirical economics. Models—mathematical, verbal, or diagrams—based on empirically derived assumptions, taking account of pertinent institutions and real motivations governing economic agents, are often highly rewarding in understanding the real world (Solow 1997b). Many valuable models are based on ad hoc, essentially empirically derived assumptions. Raymond Vernon has pointed out that in the partial equilibrium oligopolistic teaching that business schools do there are all kinds of formal minimodels that are quite helpful in predicting what individual firms might do under some circumstances. They are not general equilibrium models, however, and they go astray if they are stretched too far. One drawback to model building Robert Solow describes as follows:

> [One kind of] model-builders' busywork is to refine their ideas to ask questions to which the available data cannot give the answer. . . . [P]eople are recruited . . . whose interest is more in method than in substance. As the models become more refined, the signal-to-noise ratio in the data becomes very attenuated. Since no empirical verdict is forthcoming, the student goes back to the drawing board—and refines the idea even more. (57)

Ronald Coase argues, correctly, that assumptions should be realistic, that economists can learn from observing reality, and that this is particularly necessary when we need to break our existing habits of thought (1991, 11). The ultimate justification for economics is that it may aid us in secur-

ing the relevant knowledge of the real world that can help us to understand and manage it. The right approach is to look objectively at what we need to know so as to be able to analyze more accurately.

William James emphasized testing an asserted truth against reality: to cling to facts and concreteness; grasp a generalization, and provide an example drawn from reality. But many economists are prejudiced against so-called anecdotal evidence. An awkward fact is put down by parroting "It's only anecdotal evidence". But unless theories are tested against reality what validity do they have?

Science can be defined as being either (1) an exact science such as physics, in which mathematics correctly and precisely describes and explains the reality that is its subject matter; or (2) a method of thought that obtains verifiable results by reasoning logically from observed fact. A scientist recognizes regularities and compresses their description into theories (Gell-Mann 1994, 100). Economics can never be an exact science like physics because its subject matter is not amenable to physicslike treatment (see Kamarck 1983). It can and should meet the criteria of the second definition of science.

When economics balances a whole structure of theory on a patently inaccurate, overly simplified description of human psychology, it can meet neither criteria of a science. This effort to erect a theory on an assumed narrow interpretation of the *why* of human behavior is futile and unnecessary. All we need to do is concentrate on the *what* and *how.* Physics has become the queen of sciences by explaining the what and how of gravitation and the other great laws of the universe, but it cannot explain the why—in other words, what makes it go (Feynman 1995, 107). Which is more helpful in understanding an economy, a report on the economic behavior of living human beings that tests true in experience or a theory that is internally consistent but has no basis in the real world?

An example of the latter is a theory advanced by Robert Barro (a modern economic star who was courted by both Columbia and Harvard), which suggests that government spending has no effect on the current consumption of consumers.[2] Consequently, government fiscal policy is impotent. Barro assumes that each generation is as concerned for the welfare of its descendants as for itself—the world can be taken as equivalent to being inhabited by infinitely long-lived consumers. Therefore, whenever a government increases its spending and incurs debt, taxpayers (who in essence are assumed to live forever), realizing that they will have to pay higher taxes in the future to pay off this debt, will immediately offset increased government spending by increasing their own saving by an equivalent amount.

Professor Barro apparently never asked whether he or anyone he knew

had ever reacted to an increase in the government deficit in this way or whether there was any statistical basis for his thesis. His Harvard colleague, N. Gregory Mankiw, pointed out that the theorem is inconsistent with the empirical findings that consumption tracks current income and numerous households with near zero wealth could not, even if they wanted to, save more to help their descendants pay higher taxes in the future (Mankiw 2000b, 121). Paul Samuelson more devastatingly commented that "it is not without humor to hear a grown scholar allege that each new tax reduction will cause us to save more against the day when our children will be taxed to meet the entailed deficit (1989, 97). Barro's theory, imposingly entitled the Ricardian equivalence theorem, is rather an instance of what Schumpeter called Ricardian vice—jumping to policy conclusions from a highly abstract base.

Another problem, which economics can avoid by concentrating on material welfare as the classical economists did, is the logical cul-de-sac that contemporary theory has driven itself into. It adopts *intrapersonal* comparisons of utility (the psychological satisfactions derived by people from their consumption) as the basis of the theory of demand but denies *interpersonal* comparisons as a basis for welfare economics. It assumes first that people have the same psychology and then denies that they do (Blaug 1980, 89). Comparative statistics of national income and its distribution are drained of meaning, and the usefulness of economics in much policy making is largely destroyed.

Following on from this, there is a widespread view to which even some highly regarded theorists succumb to on occasion: The results of a market operating without government interference, which may lead to a Pareto-optimum (i.e., no reallocation of resources and output can make anyone better off without making at least one person worse off), is confused with an optimum optimorum (the best of the best)—a Panglossian best of all possible worlds. But this neglects the important factors of the effects of income distribution and ethical considerations.

In chapter 2, I present a quick survey of two major limitations of economics. The first flows from the inherent problems of all measurement and the particular problems that economics encounters in trying to grasp the economy, as spelled out in my *Economics and the Real World* (1983). The result is that achievable accuracy in comprehending the economy is strictly limited. The second limitation is that we can only hope to understand the economy by supplementing economics with other disciplines.[3]

Chapters 3–5 are devoted to the first two canonical assumptions of last century's economics. The canonical hypotheses are, in Robert Solow's words, "greed, rationality, and equilibrium" (Kreps 1997, 59). Greed and

rationality are the components of the fundamental assumption or axiom on which neoclassical economic theory rests. My text is devoted to dissecting the fundamental axiom and supplementing its narrowness, inadequacy, and inaccuracy with more realistic assumptions. Chapter 6 discusses markets, which are more complex than the conventional theory assumes. Chapter 7 addresses change and growth. The third canonical hypothesis, "equilibrium," which is borrowed from classical mechanics, ignores real historical time and directly contradicts the most important defining characteristics of the economy: change and growth. In modern capitalist market economies, change and growth are the very essence of the system.

So far, the discussion has been concerned with the subject matter on which economics customarily focuses: exchange transactions in the market. But, although some economic theorists have tried valiantly to bring all relationships under this rubric, the world is more complex. There are two other kinds of transaction relationships, modes of relating to people, that are important. These are gift and coercion. Gift relationships characterize primitive economies, and there is a large body of writing by anthropologists on this. Gift relationships still persist to some degree in modern economies (in families, in nonprofits, and even between governments, as in the Marshall Plan and some aid to less developed countries), but these are largely peripheral to our text. The exercise of coercive power as a basis for transactions is much more important. Pursuit of personal profit is not always to the benefit of society. Economics tends to overlook the fact that often there is a choice. One may earn a living by being productive or taking advantage of the possession of coercive power and preying on or battening as a parasite on others. Chapter 8 examines this neglected aspect of economics. Chapter 9 sums up.

Modern economics is not monolithic. Empirical economists have won wide acceptance as successful policy and decision makers. Federal Reserve governors, presidents of Federal Reserve Banks, and top officials in the U.S. Treasury are routinely economists. An economist has even been governor of the Bank of England.

While economics outside of formalist theory is not as vulnerable to criticism, there are problems. In this book, I will try to show what needs to be modified or discarded in the basic theory as well as what needs to be added if economics is to become a more useful branch of learning for the twenty-first century. The general approach guiding this book responds to a concern voiced by John Hicks: "We have sought to justify our economic concepts in terms of considerations that are appropriate to the natural sciences; not observing that what economics tries to do . . . is essentially different."