ECONOMICS

An Introductory Analysis

BY PAUL A. SAMUELSON

Professor of Economics

Massachusetts Institute of Technology

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ECONOMICS

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Preface

THIS book is written primarily as a textbook for those who will never take more than one or two semesters of economics but are interested in the subject as part of a general education. It aims at an understanding of the economic institutions and problems of American civilization in the middle of the twentieth century. National income provides the central unifying theme of the book.

No previous knowledge of economics is assumed. Each topic is developed leisurely and at length in recognition of the principle: "Short writing makes long reading." No use is made of mathematical equations or symbols. Even the currently fashionable use of geometric diagrams has been subordinated to an unusually extensive application of arithmetical examples, supplemented by pictorial charts.

With the needs of the intelligent layman in mind, the author has been ruthless in omitting completely many of the usual textbook topics and in reducing to more appropriate emphasis the conventional "marginal" analysis of "value and distribution" theory. This has released space for an extended presentation of the rich array of quantitative material about economic institutions that has become available for the first time only within the past half-dozen years. It has also made possible an increased emphasis on governmental and sociological influences. A modified case method has been used in the treatment of labor problems, business organization, and personal finance.

The subjects finally included represent a compromise, as they cover both (1) those economic topics important for understanding the postwar economic world and (2) the topics people find most interesting. Somewhat to the author's surprise, these two categories turned out in practice to coincide almost perfectly. The instinct of the nonspecialist is nearly infallible. The topics that excite him and pique his curiosity—the public debt, unemployment, inflation, social security, and so forth—are also of primary economic significance. The subjects that he finds tedious—bills of exchange, time and place utility, the pre-1913 National Banking System, and so forth—are usually of secondary importance from the standpoint of political economy.

Today the nonspecialist in physics deserves and expects to learn about

atomic energy and nuclear structure in his first year of study, rather than to remain bogged down in elementary experiments on falling bodies and heat calorimetry. Why then should teachers of economics withhold from the first-year course the really interesting and vital problems of over-all economic policy?

Two concrete examples may help to suggest the direction of the elementary economics text of the future. The Committee for Economic Development is a middle-of-the-road business group that initiates fundamental research in economic policy. Its leaders include the president of the Studebaker Automobile Company, the publisher of the Saturday Evening Post, a Republican Senator from New England, and other public-spirited businessmen. Every intelligent citizen should be able to read critically the important reports of this group, ranging as they do from international trade to postwar reconversion. But do present-day economics texts, built on foundations laid down at about the time of World War I, with chapters on monopolistic competition and national income appended—even the best of them—help in the above task?

Or, to take a second example: Perhaps present-day Americans will have no more important civic duty than that of approaching critically the President's Economic Report to Congress. Is it too much to ask of the text of the future that it contribute toward the effective performance of this task?

Over the past few years, several thousand civilian and armed-forces students—largely studying engineering or business—have been introduced in the M.I.T. required beginning course to such topics as saving and investment and income determination. The tentative verdict of the more than two dozen instructors that have participated is that introductory analysis of income determination is easier and more interesting than introductory "value and distribution theory." For this reason, the latter subject is treated in Part Three, after the treatment of income determination in Part Two.

Obviously, the present approach cannot avoid controversial problems and would not if it could. What it can try to do is avoid indoctrination and propagandizing. The important thing is to provide the analytical machinery that will enable the reader to arrive at, and defend, his own opinion, and, what is hardly less important, to understand the position of those with whom he most disagrees. If an author succeeds in providing this analytical insight, he need not worry unduly over the fact that any lengthy work will inevitably reveal some of his own personal predilections to the discerning reader.

The present work should provide material enough for a full year's course. A suggested table of contents for a one-semester course (like the author's at

Massachusetts Institute of Technology) is also included. By itself, Part One can be used for economic readings in an integrated social science survey course. Part Two may be used as a self-contained unit by intermediate money and banking and business-cycle courses to help fill the long-felt gap in introductory textual material on the theory of employment.

Each chapter has been planned to constitute a unit of understanding and is provided with an analytical summary and with discussion questions. Where a chapter tends to become long from the standpoint of classroom assignment, it has been broken up into sections A, B, and so forth. At numerous places, material has been placed in the appendix to a chapter. Such material is not necessarily more difficult, but it is usually something that can be eliminated if time is short. It is hoped that the introduction to the fundamentals of accounting will be found a useful part of the elementary course.

In the unexpectedly pleasurable task of writing and rewriting the various carlier versions of the present work, the author has incurred stupendous intellectual obligations—more than can be acknowledged. His M.I. T. colleagues have been shamefully exploited for their specialized knowledge and judicious criticism; special indebtedness is acknowledged to Profs. Robert L. Bishop, Ralph E. Freeman, Douglass V. Brown, Charles A. Myers, and Richard M. Bissell, Jr.; and to Drs. John G. Turnbull, Arthur G. Ashbrook, Jr., and John T. Wheeler. Numerous other economists in academic, government, and business life have been helpful, especially Prof. Daniel C. Vandermeulen of the Claremont Men's College, and Prof. George N. Halm of Tufts College and the Fletcher School of Law and Diplomacy. It may be added that the author's frequent refusal to accept good advice limits completely the liability of his intellectual creditors for any inadequacies of the present work.

Finally, it is pleasant to acknowledge the editorial and secretarial aid of Mrs. Lucy C. Maisel, Mrs. Elizabeth Metzelaar, Ethel Downer, Helen Sahagian, Mrs. Olive Gibson, and Mrs. Eleanor Clemence.

Paul A. Samuelson

Cambridge, Mass.

April, 1948

A ONE-SEMESTER COURSE SUGGESTED OUTLINE FOR

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- B. The Technological Choices Open to Any Society
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PART ONE

Basic Economic

Concepts and

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Chapter 1: Introduction

FOR WHOM THE BELL TOLLS

The Dean of the Harvard Law School used to address the entering class: "Take a good look at the man on your right, and the man at your left; because next year one of you won't be here." Much the same can be said of everyone's stake in the successful functioning of the economic system.

When, and if, the next great depression comes along, any one of us may be completely unemployed—without income or prospects. Or if not totally unemployed, only partially employed at reduced hours and pay in an uninteresting dead-end job, without hope of advancement or assurance of keeping even what little we have. There is no vaccination or advance immunity from this modern-day plague. It is no respecter of class or rank. Neither veteran's preference nor go-getter pep talks nor advanced degrees can guarantee a job when whole factories are shutting down and when every industry is contracting production and employment.

From a purely selfish point of view, then, it is desirable to gain understanding of the first problem of modern economics: the causes on the one hand of unemployment, overcapacity, and depression; and on the other of prosperity, full employment, and high standards of living. But no less important is the fact—clearly to be read from the history of the twentieth century—that the political health of a democracy is tied up in a crucial way with the successful maintenance of stable high employment and living opportunities. It is not too much to say that the widespread creation of dictatorships and the resulting World War II stemmed in no small measure from the world's failure to meet this basic economic problem adequately.

POVERTY MIDST PLENTY

Modern economics tries to explain, among other things, how it is that nations are alternately afflicted with the dizzy ups and downs of business activity. In the old days before science and the industrial revolution had

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developed our tremendous mechanical, electrical, and technological inventions, there were often periodic famines. The statistics of marriages varied inversely with the price of bread. Thousands or millions would die as a result of floods, droughts, or other easily recognized natural catastrophes. Everyone knew the causes of disasters, but nobody could do much about them.

Today it is just the opposite. Now we know how to produce an abundance of goods, but we are subject to periodic depressions of obscure causation. Bread is cheap in depression, but present-day marriages follow job opportunities rather than the cost of food. Famine due to crop failure in one part of the world can now be relieved by shipments from elsewhere. People go hungry in modern slumps not because we can produce too little but seemingly because we can produce too much. A man from Mars or a Rip Van Winkle from an earlier century would have been at a loss had he returned to the world of the 1930's. He would have thought that everybody had lost his senses. Little pigs were plowed under while families did without meat. Because we had new efficient factories, we did without production. Because we had too many skilled and willing hands, unemployment prevailed. Everybody tried to save and hoard money, with the result that everyone got poorer and poorer.

The man from Mars would have been even more surprised to observe that the onset of history's most destructive and bloody war, instead of depressing American business conditions further, had just the opposite effects. Business boomed as never before. Prices had to be held in rather than supported. Family and business savings mounted. Despite shortages, the American civilian standard of living surpassed all previous levels.

ECONOMIC DESCRIPTION AND ANALYSIS

It is the first task of modern economic science to describe, to analyze, to explain, to correlate these fluctuations of national income. Both boom and slump, price inflation and deflation, are our concern. This is a difficult and complicated task. Because of the complexity of human and social behavior, we cannot hope to attain the precision of a few of the physical sciences. We cannot perform the controlled experiments of the chemist or biologist. Like the astronomer we must be content largely to "observe." But economic events and statistical data observed are unfortunately not so well behaved and orderly as the paths of the heavenly planets. Fortunately, however, our answers need not be accurate to several decimal places; on the contrary, if only the right general direction of cause and effect can be determined, we shall have made a tremendous step forward.

Knowledge and understanding of nature and society are worth while for

their own sake. Just as it is interesting to know the paths of planets and the antics of atoms, it is worth while to know how banks create money, how inflations behave, how supply and demand help to determine prices. In addition to knowledge for its own sake—and to most people of far greater importance—there is the hope that the findings of physics may help engineers make useful technological improvements, that the study of physiology may promote medical advancement, and that the dispassionate analysis of how economic events happen will enable society to devise ways to keep some of the more unpleasant ones from happening.

ECONOMIC POLICY

This brings us to the important problem of economic policy. Ultimately, understanding should aid in control and improvement. How can the business cycle be diminished? How can economic progress be furthered? How can standards of living be made more equitable?

At every point of our analysis we shall be seeking to shed light on these policy problems. But to succeed in this, the student of economics must first cultivate an objective and detached ability to see things as they are, regardless of his likes or dislikes. The fact must be faced that economic subjects are close to everybody emotionally. Blood pressures rise and voices become shrill whenever deep-seated beliefs and prejudices are involved; many of these prejudices are thinly veiled rationalizations of special economic interest. A doctor passionately interested in stamping out disease must train himself to observe things as they are. His bacteriology cannot be a different one from that of a mad scientist out to destroy the human race by plague. Wishful thinking is bad thinking and leads to little wish fulfillment.

In the same way there is only one valid reality in a given economic situation, however hard it may be to recognize and isolate it. There is not one theory of economics for Republicans and one for Democrats; not one for workers and one for employers. It appears that careful students are coming into increasingly greater agreement on the broad analytical outline of the forces determining national income and full employment, such as is sketched in later chapters.

This does not mean that economists always agree in the *policy* field. One economist may be for full employment at any cost; another may not rank it of primary importance; still another may be of the opinion that the problem will take care of itself in the immediate years ahead. Ethical questions each citizen must decide for himself, and an expert is entitled to only one vote along with everyone else.

COMMON SENSE AND NONSENSE

Economics is not an easy subject. True, it does not require the mental application of, say, mathematics. But there is a definiteness in mathematics despite its complexity, so that most people feel that, by gritting their teeth and applying themselves sufficiently, they can learn to solve such things as quadratic equations just as other ordinary mortals have done.

Economics at first seems less definite. The world of prices, wages, interest rates, stocks and bonds, banks and credit, taxes and expenditure is a complicated one. Every question seems to have two (or more!) sides, and often the right answer seems to be only that of the last man to buttonhole you.

Now no one can understand a complicated subject like chemistry prior to long and careful study. This is an advantage and a disadvantage. The man on the street or behind a newspaper desk cannot possibly consider himself a final authority on these subjects—which is all to the good. On the other hand, the new student must be made familiar with all the basic concepts for the first time, all of which takes a good deal of time.

From childhood days on, everyone knows something about economics. This is both helpful and deceptive: helpful, because much knowledge can be taken for granted; deceptive, because it is natural and human to accept uncritically the truth of superficially plausible views. Everyone of college age knows a good deal about money, perhaps even more than he realizes. Thus he rightly laughs at the child who prefers the large nickel to the small dime or the shiny quarter to the paper dollar bill; and at the Basque peasants who murdered the visiting artist for his book of blank checks.

But a little knowledge may be a dangerous thing. Because a union leader has successfully negotiated several labor contracts, he may feel that he is an expert on the economics of wages. A businessman who has "met a payroll" may feel that his views on price control are final. A banker who can balance his books may conclude that he knows all there is to know about the creation of money. And an economist who has studied the business cycle may be under the illusion that he can outguess the stock market.

Moreover, peculiarly in a field where such an everyday concept as "capital" may have 10 or more different meanings, we must watch out for the "tyranny of words." The world is complicated enough without introducing further confusions and ambiguities because two different names are unknowingly being used for the same thing, or because the same word is being applied to quite different phenomena. Jones may call Robinson a liar for holding that the cause of depression is oversaving, saying, "Underconsumption is really the cause." Schwartz may enter the argument with the assertion, "You are both

wrong. The real trouble is underinvestment." They may continue to argue all night, when really if they stopped to analyze their language, they might find that there were absolutely no differences in their opinions about the facts and that only a verbal confusion was involved.

Similarly, words may be treacherous because we do not react in a neutral manner to them. Thus a man who approves of a government program to ration housing will call it a program of "social planning" while an unsympathetic opponent will describe the same activity as "totalitarian bureaucratic regimentation." Who can object to the former, and who could condone the latter? Yet they refer to the same thing. One does not have to be an expert in semantics—the study of language and its meaning—to realize that scientific discussion requires us to avoid such emotional terminology, wherever possible.

THEORY VERSUS PRACTICE

associations, and business concerns, accurate statistical knowledge available. We do. Bales of census data, market information, and financial statistics have been collected by governments, trade this limitation and many others, our quantitative economic knowledge is far on a green robe in spring will the trees afterward do the same. 1 As a result of little arsenic are both necessary to kill his enemy, or that only after he has put causes when controlled experimentation is impossible is well illustrated by from complete. This does not mean that we do not have great amounts of the confusion of the savage medicine man who thinks that witchcraft and a transportation improvements, nor of both together. The difficulty of analyzing mentally-to isolate the effects of the tax, with "other things being equal." Otherwise, he will understand the economic effects neither of taxation, nor of imposed, pipe lines were first introduced. Nevertheless, he must try—if only tion, he may be vexed by the fact that, in the same year when the tax was placed. If he wishes to determine the effect of a gasoline tax on fuel consumpdo and do not get penicillin injections. The economist is less fortunately things equal" by using two test groups who differ only in the fact that they to determine the effects of penicillin on pneumonia may be able to "hold other conditions characteristic of scientific laboratories. A physiologist who wishes not possible to make economic observations under controlled experimental The economic world is extremely complicated. Furthermore, it is usually

Even if we had more and better data, it would still be necessary—as in every

¹ In logic this is sometimes called the post hoc, ergo propter hoc fallacy (after this, therefore secause of this).

science—to simplify, to abstract from the infinite mass of detail. No mind can apprehend a bundle of unrelated facts. All analysis involves abstraction. It is always necessary to idealize, to omit detail, to set up simple hypotheses and patterns by which the mass of facts are to be related, to set up the right questions before we go out looking at the world as it is. Every theory, whether in the physical or biological or social sciences, distorts reality in that it oversimplifies. But if it is a good theory, what is omitted is greatly outweighed by the beam of illumination and understanding that is thrown over the diverse empirical data.

Properly understood, therefore, theory and observation, deduction and induction cannot be in conflict. Like eggs, there are only two kinds of theories: good ones and bad ones. And the test of a theory's goodness is its usefulness in illuminating observational reality. Its logical elegance and fine-spun beauty are irrelevant. Consequently, when a student says, "That's all right in theory but not in practice," he really means "That's not all right in theory," or else he is talking nonsense.

THE WHOLE AND THE PART

The first lesson in economics is: things are often not what they seem. Some examples chosen at random may illustrate this:

- If all farmers work hard and nature cooperates in producing a bumper crop, total farm income falls.
- 2. One man by great ingenuity in hunting a job or by a willingness to work for less may thereby solve his own unemployment problem, but all cannot solve their problems in this way.
- 3. Higher prices for one industry may benefit its members but, if the prices of everything bought and sold increased in the same proportion, no one would be any better off.
- 4. It may pay the United States to reduce tariffs charged on goods imported even if other countries refuse to do likewise.
- It may pay a business firm to take on some business at much less than full costs.
- 6. Attempts of individuals to save more in depression may lessen the total of the community's savings.
- What is prudent behavior for an individual or a single business firm may at times be folly for a nation or a state.

In the course of this book, each of the above seeming paradoxes will be resolved. Once explained, each is so obvious that you will wonder how anyone could ever have failed to notice it. This again is typical of economics. There

are no magic formulas or hidden tricks. Anything that is really correct will seem perfectly reasonable once the argument is carefully developed.

At this point it is just as well to mention that many of the above paradoxes hinge around one single confusion or fallacy, called by logicians the "fallacy of composition." What is true for each is not necessarily true for all; and conversely, what is true for all may be quite false for each individual. Especially where his own interests are at stake, an individual tends to look only at the immediate effects upon himself of an economic event. A worker thrown out of employment in the buggy industry cannot be expected to reflect that new jobs may have been created in the automobile industry. But we must be prepared to do so. The reader should try to give other examples of this fallacy; e.g., standing on tiptoes at a parade, counterfeiting meat-ration coupons, cutting production in order to raise one's prices, etc.

In an introductory survey, the economist is interested in the workings of the economy as a whole rather than in the viewpoint of any one group or unit. Social and national policies rather than individual policy are his goals. Too often, everybody's business is nobody's business. It is just as well, therefore, to understand at the beginning that an elementary course in economics does not pretend to teach one how to run a business or a bank, how to spend one's money wisely, or how to get rich quick from the stock market. However, it is to be hoped that general economics will provide a useful background for many such activities.

Certainly the economist must know a good deal about how businessmen, consumers, and investors behave and think. This does not mean that those individuals must use the same language and methods in coming at their decisions as economists find useful in describing their behavior—any more than the planets need know that they are following the elliptical paths traced by the astronomer. Just as many of us have been speaking prose all out lives without knowing it, so many businessmen would be surprised to learn that their behavior is capable of systematic economic analysis. This unawareness is not necessarily to be deprecated. It does not help a baseball pitcher to know the laws of aerodynamics; in fact, if we become self-conscious about how to button our shirts, we may find it harder to do.

THROUGH THE LOOKING GLASS

Here at the beginning it is best to point out one further source of difficulty which runs through economic discussions. When there is substantially full employment, certain important economic principles are valid. When there is substantial unemployment, many things go exactly into reverse. We then

move into a topsy-turvy wonderland where right seems left and left is right; up seems down; and black, white.

Mathematicians tell us that in addition to Euclidean geometry there exist non-Euclidean geometries. In these non-Euclidean worlds, two parallel lines may meet—just as on the spherical surface of the earth two "parallel" lines perpendicular to the equator meet at the pole. What is true of one kind of world may be false of another. Similarly, for the modern world of unemployment, the conclusions of the old classical or Euclidean economics may be not at all applicable.

This difference between what is true when there is full employment and when there is unemployment may be illustrated by three examples, all of which will be fully explained later and need not be understood at this point:

- 1. Men mine gold from the bowels of the earth only to have it go back to the earth in the vaults at Fort. Knox, Ky. How good or bad this strange procedure is depends in an important way upon whether or not there is full employment.
- 2. Nations try in the worst way to raise their standards of living by exporting goods and by not importing them from other countries. This anxiety to give away goods would be merely stupid under conditions of full employment, but it makes some sense in a world of unemployment.
- 3. Thriftiness and parsimony may be individual and social virtues during a war or boom period, while during a depression these individual virtues may be self-defeating social vices that intensify our ills and represent the height of folly.

After one has thoroughly mastered the analysis of national income determination, it is not hard to steer one's way with confidence in these seemingly difficult fields. The important hard kernel of truth in the older economics of full employment can then be separated from the chaff of misleading applications. Moreover, as we shall see later, if modern economics does its task well so that widespread unemployment is substantially banished from democratic societies, then its importance will wither away and the traditional economics (whose concern is wise allocation of fully employed resources) will really come into its own—almost for the first time.

A preview of the ground to be covered may be helpful. Here in Part One we deal with the facts, institutions, and analysis necessary to an understanding of national income or output. In Part Two we analyze the causes of prosperity and depression—how the processes of saving and investment interact to determine the level of monetary purchasing power, income, and employment all over the world. Part Three is concerned with the forces of competition and mo-

nopoly which determine the composition of the national income, both in terms of goods and services and in terms of its distribution among different workers and property owners.

QUESTIONS FOR DISCUSSION

- 1. How do you expect to fare in the next depression?
- 2. Why does the physicist often talk about a frictionless system, when there is no such thing? Is there any justification for this?
- 3. Discuss the emotional content of the following words: regimentation, planning, usury, monopolist, gambling, speculation, American way of life, free enterprise, cartels, thrift, hoarding.
- 4. Give an example of the fallacy of composition.
- 5. Give an example of an economic principle which is valid when there is full employment but misleading when there is unemployment.

Chapter 2: CENTRAL PROBLEMS

OF EVERY ECONOMIC SOCIETY

AT THE foundations of any community there will always be found a few universal economic conditions. Cerrain background problems hold as much for our present-day economy as they did in the days of Homer and Caesar. And they will continue to be relevant in the "brave new world" of the years ahead.

In this chapter we shall see what some of these universal conditions are: (A) how every society must meet a triplet of basic problems of economic organization; (B) how technological knowledge together with limited amounts of economic resources defines the available choices between goods and services open to a community, and how these production possibilities are subject to changing costs and to the law of diminishing returns; (C) finally, the underlying population or human basis of any economy.

The above topics form the three parts of this chapter. We leave to Chap. 3 those important special economic features characteristic of our own mixed system of private and public enterprise.

A. PROBLEMS OF ECONOMIC ORGANIZATION

Any society, whether it consists of a totally collectivized communistic state, a tribe of South Sea Islanders, a capitalistic industrial nation, a Swiss Family Robinson or Robinson Crusoe, and one might almost add, a colony of bees, must somehow meet three fundamental economic problems.

1. What commodities shall be produced and in what quantities? That is, how much and which of many alternative goods and services shall be produced?

2. How shall they be produced? That is, by whom and with what resources and in what technological manner are they to be produced?

3. For whom are they to be produced? That is, who is to enjoy and get the benefit of the goods and services provided? Or, to put the same thing in another way, how is the total of national product to be distributed among different individuals and families?

These three questions¹ are fundamental and common to all economies. In a primitive civilization, custom may rule every facet of behavior. What, how, and for whom may be decided by reference to traditional ways of doing things. To members of another culture, the practices followed may seem bizarre and unreasonable, but the members of the tribe or clan may be so familiar with existing practices as to be surprised, and perhaps offended, if asked the reason for things. Thus, some tribes consider it desirable not to accumulate wealth but to give it away in the *pollatch*—a roisterous celebration. But this deviation from the acquisitive behavior of competition will not surprise anthropologists who know from their studies that what is correct behavior in one culture is often the greatest crime in another.

In the bee colony, all such problems, even those involving an extraordinarily elaborate cooperative division of labor, are solved automatically by means of so-called "biological instincts."

At the other extreme we can imagine an omnipotent, benevolent or malevolent, dictator who by arbitrary decree and fiat decides just what, how, and for whom economic activity is to be carried on. Or we might still have organization by decree, but with decrees drawn up by democratic vote; or what is more likely in view of the multiplicity and complexity of economic decisions, with decrees drawn up by selected legislative or planning authorities.

Finally, as Chap. 3 develops at length, in a so-called "capitalist free-enter-prise economy," a system of prices, of markets, of profits and losses primarily² determines what the methods of production and costs of goods shall be; and finally, how much different people shall get of the total national product or income as their share (for services performed and property supplied, or through government legislation) out of which to buy goods and services.

¹Some economists would list a fourth fundamental question. When are goods to be consumed? That is, how much of present consumption shall we give up in order that resources may be devoted to producing capital goods that will increase future consumption. However, this may be treated as a special case under the problem of deciding what goods and services—present consumption goods versus capital goods—shall be produced.

² There never has been a 100 per cent purely automatic enterprise system. Even in our capitalistic system, the government has an important role in modifying the workings of the price system.

PROBLEMS OF ECONOMIC ORGANIZATION

The study of economics can provide part of the material necessary in answering these questions. Many specialists other than economists could also help in providing relevant facts and analysis bearing on them. Thus, psychology (the study of mental behavior), sociology (the study of group behavior), anthropology (the study of races and cultures), and even physiology (the biological study of how organisms function) might cast light on what people want in the way of goods and services: why they sometimes like nourishing food and sometimes do not; why people often find it as necessary to have a shiny automobile as a wife or a baby, and so forth.

of the early 1930's) are so often tempted to do. energy units, as retired engineers (viz., the short-lived technocrat movement muddled thinking that results from an attempt to reduce all values to ergs or second is using up a cheaper source of energy. We must also guard against the according to the second law of thermodynamics) than a second, provided the has a greater ratio of useful work (less useless heat and energy dissipation any process. And he may choose to disregard the physical fact that one process the first law of thermodynamics asserts that no energy can be created or lost in mist may regard a certain process as more efficient than another even though psychological tastes and social institutions for granted. Moreover, even in the much of the technological groundwork for granted, just as he must often take of goods and services. By a division of labor common to all sciences, he takes cal laws that determine how certain resource inputs are transformed into output produced. It is not the task of the economist to deal with the precise technologitechnological sphere, his interests are not those of the physicist. The econoprovide much of the basis for the second question of how goods are to be Then, too, such noneconomic studies as the physical sciences and engineering

When we come to the third question of the desirable distribution of wealth and income between individuals, we leave the field of science altogether. *De gustibus non est disputundum*: there is no disputing (scientifically!) tastes; and the same goes for ethics. We must leave the definition of social *ends* to the philosopher, the theologian, the statesman, and to public opinion.

To summarize the results of this section:

Economics cannot try to cover every fact of the universe. It must take certain things for granted as having been established by workers in other scientific fields. The institutional framework of society, the tastes of individuals, the ends for which they strive—all these must be taken as being given. These and more. For the character and quantity of resources and the technological facts about their combinations and productive transformations must also be taken as given.

Economics can, then, pursue the positive task of describing, analyzing, and understanding the processes that take place within the above framework. More than that, economics—and here it becomes "political economy"—can hope to appraise, and improve, the efficiency with which a community mobilizes its means to achieve the prescribed ends.

Fortunately, there is some underlying agreement with respect to social ends. Most western peoples profess to prefer (1) a measure of individual freedom of choice and action, (2) a high and improving standard of living, (3) an equitable distribution of income between classes so that gross inequalities are to be tolerated only if there is some strong and compelling reason.¹

It is easy to see, therefore, that full employment, which we have taken to be the central problem of modern economics in the Introduction, must be viewed against the backdrop of two broader goals characteristic of any economy—past, present, or future. It is not enough simply to get men and machines employed at any old job, such as digging holes and then filling them. Rather must the goals be (1) useful or wise employment of resources, i.e., a better, larger, and more stable level of production and consumption; and (2) an equitable distribution of that output between individuals.

From this point of view, unemployment is seen to be such an important evil precisely because it does represent one very unwise use of resources (in fact complete wastage!) and because it falls so heavily on those who already have been most adversely treated in distribution of income. The appendix is not the most important organ in the body, nor is the wisdom tooth anything but the least important. Yet each of these requires a great deal of attention. Similarly, full employment would not be characterized as such an important problem were it not for the fact that it is the one which has been "acting up" most in our generation and that it therefore is first on the social agenda calling for action. As the problem of unemployment is solved, other problems of wrong What, How, and For Whom, such as are created by monopolistic trade practices, excess corporate profits, international barriers, or wrong location of labor, will move up to first place on the program.

Solving the problem of unemployment and low income is particularly important because our failure here aggravates almost every other economic prob

The careful reader will note that some of these ends may be in partial conflict. Thus, shall a man be free to water milk? Or to exploit "his" patented invention so as to earn more in a year than most men can earn in a century? Freedom and equality may come into partial conflict. In itself "equality of opportunity" is an ambiguous slogan. What does it mean to treat equally people who have different amounts of property and different abilities? Moreover, a lottery or sweepstake provides equality of opportunity but a very bad distribution of income.