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Chapter 1 INTRODUCTION TO ECONOMICS

IN THE CHAPTER:

- Methodology of Economics
- Problem of Scarcity
- Production-Possibility Frontier
- Principle of Increasing Costs
- ✓ Scarcity and the Market System
- ✓ True or False Questions
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Methodology of Economics

Economics is a social science that studies individuals and organizations engaged in the production, distribution, and consumption of goods and services. The goal is to predict economic occurrences and to develop policies that might prevent or correct such problems as unemployment, inflation, or waste in the economy.

Economics is subdivided into macroeconomics and microeconomics. Macroeconomics studies ag-

gregate output, employment, and the general price level. Microeconom-

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ics studies the economic behavior of individual decision makers such as consumers, resource owners, and business firms.

The discipline of economics has developed principles, theories, and models that isolate the most important determinants of economic events. In constructing a model, economists make assumptions to eliminate unnecessary detail to reduce the complexity of economic behavior. Once modeled, economic behavior may be presented as a relationship between dependent and independent variables. The behavior being explained is the dependent variable; the economic events explaining that behavior are the independent variables. The dependent variable may be presented as depending upon one independent variable, with the influence of the other independent variables held constant (the *ceteris paribus* assumption). An economic model will also specify whether the dependent and independent variables are positively or negatively related, i.e., moving in the same or opposite directions.



Ceteris paribus is Latin for "other things being equal." This phrase is used often by economists in modeling to isolate the relationship between specific dependent and independent variables.

Example 1.1

We shall assume that the amount a consumer spends (*C*) is positively related to her disposable income (Y_d) , i.e., $C = f(Y_d)$. Table 1.1 presents data on consumer spending for five individuals with different levels of income. As seen in the table, consumption and disposable income display a positive relationship.

The data from Table 1.1 are plotted in Figure 1-1 and labeled C_1 . The dependent variable, consumer spending, is plotted on the vertical axis and the independent variable, disposable income, is plotted on the horizontal axis. Graphs are used to present data and the positive or negative relationship of the dependent and independent variables visually.

(in \$)			
Individual	Disposable Income (Y_d)	Consumption (C)	
А	20,000	20,000	
В	21,000	20,750	
С	22,000	21,500	
D	24,000	23,000	
Е	27,000	25,250	

Table 1.1

Problem of Scarcity

Economics is the study of scarcity—the study of the allocation of scarce resources to satisfy human wants. People's material wants, for the most part, are unlimited. Output, on the other hand, is limited by the state of



Figure 1-1

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technology and the quantity and quality of the economy's resources. Thus, the production of each good and service involves a cost. A good is usually defined as a physical item such as a car or a hamburger, and a service is something provided to you such as insurance or a haircut.

Scarcity is a fundamental problem for every society. Decisions must be made regarding *what* to produce, *how* to produce it, and *for whom* to produce. *What* to produce involves decisions about the kinds and quantities of goods and services to produce. *How* to produce requires decisions about what techniques to use and how economic resources (or factors of production) are to be combined in producing output. The economic resources used to produce goods and services include:

- Land. The economy's natural resources—such as land, trees, and minerals.
- Labor. The mental and physical skills of individuals in a society.
- **Capital**. Goods—such as tools, machines, and factories—used in production or to facilitate production.

The *for whom* to produce involves decisions on the distribution of output among members of a society.

Remember

Economics helps to solve the three important questions of *what* to produce, *how* to produce it, and *for whom* to produce.



These decisions involve opportunity costs. An *opportunity cost* is what is sacrificed to implement an alternative action, i.e., what is given up to produce or obtain a particular good or service. For example, the opportunity cost of expanding a country's military arsenal is the decreased production of nonmilitary goods and services. Opportunity costs are found in every situation in which scarcity necessitates decision making.

Opportunity cost is the value-monetary or otherwise-of the next

best alternative, or that which is given up. This concept is used in both macroeconomics and microeconomics.

Production-Possibility Frontier

A production-possibility frontier shows the maximum number of alternative combinations of goods and services that a society can produce at a given time when there is full utilization of economic resources and technology. Table 1.2 presents alternative combinations of guns and butter output for a hypothetical economy (guns represent the output of military goods, while butter represents nonmilitary goods and services). In choosing what to produce, decision makers have a choice of producing, for example, alternative C—5,000 guns and 14 million units of butter—or any other alternative presented.

Alternative Outputs	Guns (thousand units)	Butter (million units)
Α	0	20
В	2	18
С	5	14
D	9	6
Е	10	0

Table 1.2

This production-possibility schedule is plotted in Figure 1-2. The curve, labeled PP, is called the production-possibility frontier. Point C plots the combination of 5,000 guns and 14 million units of butter, assuming full employment of the economy's resources and full use of its technology, as do all of the alternatives presented in Table 1.2.

The production-possibility frontier depicts not only limited productive capability and therefore the problem of scarcity, but also the concept of opportunity cost. When an economy is situated on the productionpossibility frontier, such as at point *C*, gun production can be increased only by decreasing butter output. Thus, to move from alternative *C* (5,000 guns and 14 million units of butter) to alternative *D* (9,000 guns and 6 million units of butter), the opportunity cost of the additional 4,000 units of gun production is the 8 million less units of butter that are produced.

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Figure 1-2

The production-possibility frontier shifts outward over time as more resources become available and/or technology is improved. Growth in an economy's productive capability is depicted in Figure 1-2 by the outward shift of the production-possibility frontier from PP to P'P'. Suppose a society chooses to be at point C. When the production-possibility frontier shifts outward, 4,000 additional guns can be produced without sacrificing any butter production, as seen at C'. This example should not be construed as a refutation of the law of opportunity cost just because fewer sacrifices may be made when growth occurs. When there is full utilization of resources and an absence of growth, additional gun production is possible only when the output of butter is decreased.

Points on a production-possibility frontier are considered to be efficient. Points within the frontier are inefficient, and points outside the frontier are unattainable. Points C and D are efficient because all available resources are utilized and there is full use of existing technology. Positions outside the production-possibility frontier are unattainable since the frontier defines the maximum amount that can be produced at a given time. Positions within the frontier are inefficient because some resources are either unemployed or underemployed.

Principle of Increasing Costs

Resources are not equally efficient in the production of all goods and services, i.e., they are not equally productive when used to produce an alternative good. This imperfect substitutability of resources is due to differences in the skills of labor and to the specialized function of most machinery and many buildings. Thus, when the decision is made to produce more guns and less butter, the new resources allocated to the production of guns are usually less productive. It therefore follows that as larger amounts of resources are transferred from the production of butter to the production of guns, increasing units of butter are given up for fewer incremental units of guns. This increasing opportunity cost of gun production illustrates the principle of increasing costs.



The principle of increasing opportunity cost is the reason why the production-possibility frontier is bowed outward from the origin of the graph, and not a straight line.

Scarcity and the Market System

As we have seen, two of the most important economic decisions faced by a society are deciding what goods and services to produce and how to allocate resources among their competing uses. The combination of goods and services produced can be resolved by government command or through a market system. In a command economy, a central planning board determines the mix of output. The experience with this system, however, has not been very successful, as evidenced by the changing economic and political events in the 1990s in the command economies of Eastern Europe and the former USSR.

In a market economy, economic decisions are decentralized and are made by the collective wisdom of the marketplace, i.e., prices resolve the three fundamental economic questions of what, how, and for whom. The