Chapter 1
The Nature of Economics

Chapter Overview

This opening chapter introduces economics as a social science. The chapter begins with the central concept of economics: scarcity of resources. Economics is defined and the sub-areas of macroeconomics and microeconomics are introduced. Economic rationality and self-interest are discussed, and their implications for decision making and economic model building are examined. Economics as a science is closely associated with the development of models. To aid understanding of this concept there is a significant section on the methodology of economics. Model construction, the role of assumptions, and determining the usefulness of a model are discussed. The chapter also examines the difference between positive and normative economics. There is a discussion of why it is important to clearly separate these two areas of analysis. The last section discusses the role of economics in government policy making and fulfilment of socioeconomic goals. Appendix A which follows chapter 1 discusses material relating to the construction and interpretation of graphs.

Chapter Objectives

After studying this chapter, students should be able to

1.1 Explain the meaning of scarcity.

1.2 Define economics and distinguish between microeconomics and macroeconomics.

1.3 Describe how resource use decisions are affected by the rationality assumption, costs and benefits at the margin, and incentives.

1.4 Explain the three key processes involved in the scientific method.

1.5 Distinguish between positive and normative economics.

1.6 Describe the relationship among theories, policies, and socioeconomic goals.

Chapter Outline

1.1 Scarcity

Scarcity means that it is impossible to have enough income or wealth to satisfy every desire—it is not the same thing as poverty. It exists in all societies and at all income levels because human wants exceed what can be produced with the limited resources and time that nature makes available.

a. Scarcities and wants: Wants refer to the goods and services that we wish to consume as well as the goals that we seek to achieve. These goods, services, and goals require the use of our scarce or limited resources.

b. Scarcity and Resources: Resources or factors of production are inputs used in the production of things that people want. Production can be defined as virtually any activity that results in the conversion of resources into goods and services.

i. *Land* is often called the natural resource and consists of all the gifts of nature.

ii. *Labour* is the human resource, which includes all productive contributions made by individuals who work.

iii. *Physical Capital* is all manufactured resources that are used for production.

iv. *Human Capital* comprises the accumulated training and education workers receive that increase their productivity.

v. *Entrepreneurship* is a type of labour, that organizes, manages, and assembles the other factors of production to make business ventures. It encompasses the risks associated with introducing new methods and other types of new thinking that could lead to more money income.

The incomes earned by land, labour, capital, and entrepreneurship are referred to as rent, wages, interest, and profit, respectively.

1.2 Defining Economics

Economics is the study of how people allocate their limited resources to satisfy their unlimited wants. The ultimate purpose of economics is to understand choices.

a. Microeconomics versus Macroeconomics

Economic analysis is typically divided into two types:

Microeconomics: That part of economic analysis that studies the individual decision making undertaken by individuals (or households) and by firms.

Macroeconomics: That part of economic analysis that studies the behaviour of the economy as a whole. It deals with economy-wide phenomena such as changes in unemployment, the general price level, and national income.

b. The Power of Economic Analysis: The purpose of economic analysis is to understand how people make decisions: how much they work, what they buy, how much they save, and how they invest their savings. It helps to develop insights about people, markets, and economies. Our task throughout this text is to expose students to the *economic way of thinking.* The principles of economic analysis are based on a few fundamental ideas that can be applied in many different situations.

1.3 Rational Decision Making

The economic way of thinking assumes that individuals are motivated by self-interest and therefore respond to situations of scarcity in a rational manner.

a. The Rationality Assumption: The assumption that individuals act as if they were rational. They will not intentionally make decisions that would leave them worse off.

b. Opportunity Cost: Scarcity requires that choices be made. When one choice is made, another is given up. The value of the best, or highest valued, alternative that must be sacrificed is called the opportunity cost of the choice that was made. In economics cost is always a forgone opportunity.

c. *Making Decisions at the Margin*: Many decisions involve making small incremental adjustments to an existing plan of action. A rational decision-maker takes an action if and only if the *marginal or extra benefit* of the action exceeds the *marginal or extra cost.*

d. *Responding to Incentives*: An incentive is something that encourages us to engage in a given activity. People react to an incentive by making a rough comparison of marginal costs and benefits.

e. *Defining Self-Interest*: The pursuit of goals makes the individual feel better off. In economic analysis these goals are often those that can be measured in monetary terms, although the pursuit of other goals such as prestige, love, or power can be analysed using this concept.

1.4 The Scientific Method

Economics is a social science that makes use of the same types of methods that are used in biology, chemistry, and physics. Economic models or theories, which are simplified representations of the real world, are developed and used as aids in understanding, explaining, and predicting economic phenomena in the real world.

a. *Models and Realism:* A model should capture the essential relationships that are sufficient to analyse the specific problem or answer the specific question being asked. No economic model is complete in the sense of capturing every detail and relationship that exists. A model is by definition an abstraction from reality. This does not mean that models are deficient simply because they are unrealistic and use simplified assumptions. Every model in every science requires simplification compared to the real world.

b. *Assumptions:* These define the set of circumstances in which a model is most likely to be applicable. Every model, therefore, must be based on a set of assumptions. The *Ceteris Paribus* Assumption (All Other Things Being Equal) is the assumption that nothing changes except the factors being studied. It is used to isolate the effect a change in one variable has on another one, by assuming that all other variables do not change.

c. *Testing Models*: A model is useful if it yields usable predictions and implications for the real world. If a model makes a prediction and factual evidence supports that prediction, then the model is useful.
d. *Models of Behaviour, Not Thought Processes*: Models relate to the way people act in using limited resources and not to the way they think. Models normally generalize people's behaviour. Economists are interested in what people actually do rather than what they think they will do.

1.5 Positive Versus Normative Economics

Positive economics deals with what is. Positive economic statements are "if-then" statements. *Normative economics* deals with what some person thinks ought to be. Normative economic statements involve value judgments and usually have the words "ought" or "should" in them.
A Warning: Recognize Normative Analysis: Positive economics predicts consequences of actions, it can be used to predict the effects of various policies, to see if the policies in fact aid in achieving desired goals. Positive economics cannot provide criteria for choosing which outcomes or goals are preferable.

1.6 Economic Policy and Socioeconomic Goals

Government policies typically promote five socio-economic goals: full employment, efficiency, economic growth, price stability, and an equitable distribution of income.
Theory and Policy: Economic Theories and models can be used to evaluate and formulate policies aimed at promoting socioeconomic goals

Points to Emphasize

1. Scarcity

This is the central concept in economics. All economic analysis derives from this condition. Stress that scarcity arises because at any given time people want more than their resources will allow them to produce. The classic way to define scarcity is that wants are unlimited while resources are limited. Resources are anything that can be used to produce things people want.

It is important to stress that scarcity is a relative concept. Even though not everyone has "unlimited" wants, people usually want more than they can have at the moment. As income rises, so do wants. Studies by Simon Kuznets and Milton Friedman provide evidence of this fact. Kuznets found that between 1869-1929 real national income rose by a factor of 4, but the APC remained constant. Other studies suggest that the APC has actually risen since then. Friedman reported in *The Theory of the Consumption Function* that the APC remains constant even cross-sectionally as income goes from lower levels to higher levels out of permanent income. Also, poverty in Canada is defined at levels that would be considered affluence by people in many countries.

2. Resources

Resources are things that produce goods and services. At any given time, resources are fixed. Generally, students will agree that this is so. Thus at any given time, the amount of goods and services that can be produced is limited. Over time resources have increased. Indeed, 150 years ago petroleum was not even a resource—today; it is one of the most important. Advances in technology allow society to use things that were previously not resources. Over time, an increase in resources does not allow society to eliminate scarcity, because, at any given time, resources are fixed while wants are not.

3. The Discipline of Economics

Economics is the study of how people make choices to satisfy their wants. Wants have a special meaning in economics—they represent those things that people would buy if their income were unlimited. In economics we note that income is in fact limited. This means that people must make choices. These choices are made on the basis of rational self-interest. This means that people make choices that, in their view, make them better off. People do not voluntarily make choices that they believe will make them worse off. This assumption of rational behaviour underlies all economic decision-making.

4. Economic Models

Economic models are simplified representations of the real world, but frequently present problems because they are so abstract. The goal is to realize that only essential relationships are needed to deal with the problem at hand. A classic example of using an abstract theory is the decision of whether to take an umbrella when one is going outside. If a person misses the weather report, then it is possible to look outside at the sky. If the sky is overcast or if dark clouds can be seen in the distance, then a prudent individual will carry an umbrella. One reason is that clouds are often associated with rain. If there are clouds of a certain type, then rain is likely, but not certain. To know if rain will actually fall in a given place requires a complete knowledge of the atmospheric conditions covering a rather large area Therefore the simplest theory that can predict is the one that should be used—if it is cloudy, take an umbrella.

5. Prediction: The Test of a Theory

A model is useful only if it predicts—that is, if it yields useful implications of how things happen in the real world. It is not correct to fault a model because its assumptions are unrealistic, or because it is too abstract. The test of a theory is its ability to predict. Economists cannot undertake controlled experiments the way chemists can. What is done instead is to look at

evidence to see if the model can predict. Tests are usually completed using statistical evidence and techniques. A great deal of economic research is empirical testing of theories.
The circular flow of income model can be used to illustrate the kind of predictions that economic models can provide. This model can also be used to illustrate the differences between macroeconomics (the overall size of the flow) and microeconomics (the working of each market).

6. The Individual in Economic Analysis

The unit of analysis is the individual. It is often difficult for students to distinguish between the individual as an abstraction, and a given individual in the real world. The difference between the two can be explained in the following way. The individual as an abstraction is a hypothetical "typical" individual or, as the psychologists would say, a "normal" individual. This is someone whose behaviour is that which is expected most of the time from most people. Obviously, it is possible to find individuals who are "abnormal," or who do not behave in the typical way. When we say that the individual is motivated by rational self-interest, this does not exclude the possibility that individuals may choose to act other than in their own self-interest (e.g., those who sacrifice their own lives to save that of a child). It only says that, in most of our affairs, we choose to do those things that we believe will benefit us in some way—while choosing not to do those things that we believe will make us worse off. Economists have found that economic models work best when the individual is the unit of analysis because at the basis of every decision there are individuals making choices.

7. Graphing

Graphing is usually difficult for students to grasp. It is worthwhile spending some time going over basic graphing techniques and terminology before getting into Chapter 2. These pictures of relationships between variables simply create confusion rather than clarifying the issue being presented when students are trying to figure out where the graph comes from, and what is meant

by an inverse or positive relationship, while at the same time attempting to make sense of the actual economic analysis.

Further Questions for Class Discussion

1. *Political disturbances in the Persian Gulf often lead to increases in the price of oil*; and *you will often hear people say that we should not let the price rise.*

Ask your students the difference between these statements. Obviously, the first is a positive statement. Generally, a political disturbance actually leads to reduced supplies, or to fears of reduced supplies, or both. Price then rises. Whether oil prices should rise is a normative statement. Nothing scientific can be said about it since it is based on a value judgement.

2. *The pursuit of profit is frequently viewed in our society as greed, and therefore bad.*

If this were true, what would the effects of banning profits be in our type of economy? As the text points out, Adam Smith stated that "it is not from the benevolence of the butcher, the brewer, or the baker, that we expect our dinner, but from their regard to their own interest." What this implies is that if they do not make a profit, they will not supply meat, drink, or bread, because they would not benefit. Production is guided by profits in a market economy. If there were no profits allowed, then there would be no (legal) production of goods and services for sale by private individuals.

"For Critical Analysis" Questions: Answers appear on pages 462-478 of the Macro text and pages 428-445 of the Micro text.

"Business Application" Problems: Answers appear on pages 446-448 of the Micro text and pages 479-482 of the Macro text.

Answers to End-Of-Chapter Problems

1.

a. Human capital

b. Land

c. Entrepreneurship

d. Physical capital

e. Labour

2.

The central economic concern in web design is that resulting from scarcity: 'wants' exceeding what can be produced with 'finite resources'. The web designers' 'wants' include maximum exposure for their products, greater revenues from sale of advertising space to other companies, and an uncluttered high quality web page. The concern is that the web designer has 'finite resources' such as limited screen space and limited time to hold the web surfers' attention. Faced with scarcity, the web designer would make rational choices by applying marginal analysis deciding on a particular alternative only if the extra costs do not exceed the extra benefits.

3.

a. Macroeconomic, as the unemployment rate is national or economy wide.

b. Microeconomic, as wage increases of specific occupations, such as nurses and doctors, relate to specific parts of the economy.

c. Microeconomic, as prices of a specific part of the economy—cigarettes—are being studied.

d. Macroeconomic, as the inflation rate tracks the average price of all goods, which is an economy wide measure.

e. Macroeconomic, as the nation's total annual production is an economy wide measure.

f. Microeconomic, as an individual firm's situation, such as Eaton's bankruptcy, focuses on a specific part of the economy.

4.

Paul should only include the costs for rent, car, groceries, etc. if they are going to be more than in Montreal. And then, he should only include the extra cost, not the whole cost. Plus he should include any lost income if he is giving up his job while he is away.

5.

Jon's marginal cost of enrolling in the 2 month computer course equals the cost of tuition, books and fees plus the 2 months if earnings he sacrifices.
This amounts to: $4500 + (2 × 3000) = $10 500

6.

Yes. The individuals are employing resources in uses where the marginal benefit exceeds the marginal cost so as to maximize self-interest. At the margin, any time that they allocate to charity costs upper income people more than lower income people.

7.

No, your cash withdrawals are not free as there is an opportunity cost equal to the interest sacrificed by not putting your $5000 in an account (or another investment) giving you a higher rate of interest.

8.

The key economic concept explaining the popularity of online dating websites is that of opportunity cost: The value of the best alternative that must be given up because a choice was made. The time and money spent dating several potential mates in search of an ideal mate could

be devoted to alternative uses such as labour market activity or leisure. Individuals in search of mates would pay for online 'matches' if the extra costs of the online services do not exceed extra benefits. Growing popularity of online dating websites suggests that the extra benefits outweigh the extra costs.

9.

The decision based on availability of funds is not a rational one. In order to allocate resources in a manner that maximizes the satisfaction of the city's wants, the mayor should compare the marginal (extra) benefit of constructing the city hall with the marginal (extra) cost, including alternatives sacrificed. If the extra benefit to the city of constructing the city hall is less than the value of some other alternative that has to be sacrificed, such as paving of city roads, the mayor's decision is not rational.

10.

Making decisions at the margin means that we are comparing the extra benefits with the extra costs. If the extra gains are larger than the extra losses, we decide to undertake the action. Otherwise, we do not. The view in question is not compatible with this rule. The government should compare the extra dollars spent in the health care system (the marginal cost) with the value of the time saved in hospital waiting lists (the marginal benefit).

11.

a. We should observe younger drivers to be more frequently involved in traffic accidents than older persons.

b. Slower monetary expansion should be associated with less inflation.

c. Professional basketball players receiving smaller salaries should be observed to have done less well in their high-school studies.

d. Employees being promoted rapidly should have lower rates of absenteeism than those being promoted more slowly.

12.

a. A new technology enables producers to produce laptops at a lower cost.

b. Below seasonal temperatures will discourage people from extending their vacation.

c. Corporate revenues will grow in the future.

13.

a. Positive, for it is a statement that can be tested by the facts.

b. Normative, involving a value judgment about what should be.

c. Normative, involving a value judgment about what should be.

d. Positive, for it is a statement that can be tested by the facts.

14.

a. With the high taxes on corporate profits, the government can promote better health care services. However, this policy can conflict with development of corporations. Since they are taxed severely, they might invest less in the future.

b. This policy can promote better surveillance or management of investment plans but may conflict the equity principle of income taxation schemes.

c. This policy can promote a better standard of living for those who are on welfare, but under this policy, more people may choose to collect welfare.

d. High taxes on luxury goods may promote an extra saving for public investments but may have an adverse impact on the exportation of luxury goods.

Answers to Appendix A Problems

A-1.

a. Price is independent, number of notebooks is dependent.

b. Work-study hours is independent, credit hours is dependent.

c. Hours studied is independent, and grade is dependent.

A-2

a. Direct.

b. Inverse.

c. Direct.

A-3.

x	**y**
4	12
3	9
2	6
1	3
0	0
-1	-3
-2	-6
-3	-9
-4	-12

See graph, Micro, page 413; Macro, page 462.

A-4.

a. Above x-axis and left of the y-axis.

b. Below x-axis and right of the y-axis.

c. On x-axis and right of the y-axis.

A-5.

If you move along the line in Problem A-3 from point *D* to point *E*, the slope equals the change in the *y*-values divided by the change in the *x*-values, which is: (12 – 6)/(4 – 2) = 6/2 = 3.

A-6.

x	4	3	2	1	0	-1	-2	-3	-4
y	16	9	4	1	0	1	4	9	16

Plot x against y.

A-7.

For the ordered pair (4, 16) the tangent line is upward sloping, slope is positive.

For the ordered pair (0, 0) the tangent line is horizontal, slope is zero.

For the ordered pair (–4, 16) the tangent line is downward sloping, slope is negative.

A-8.

a. Positive

b. Positive

c. Negative

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