Economics as a science

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CHAPTER OUTLINE

economics The study of how individuals and societies choose to use the scarce resources that nature and previous generations have provided.

Economics is the study of how individuals and societies choose to use the scarce resources that nature and previous generations have provided. The key word in this definition is *choose*. Economics is a behavioral, or social, science. In large measure, it is the study of how people make choices. The choices that people make, when added up, translate into societal choices.

Why Study Economics?

To Learn a Way of Thinking

Three fundamental concepts:

- Opportunity cost
- Marginalism
- Efficient markets

Why Study Economics?

To Learn a Way of Thinking

Opportunity Cost

opportunity cost The best alternative that we forgo, or give up, when we make a choice or a decision.

scarce Limited.

Why Study Economics?

To Learn a Way of Thinking

Marginalism

marginalism The process of analyzing the additional or incremental costs or benefits arising from a choice or decision.

sunk costs Costs that cannot be avoided because they have already been incurred.

Why Study Economics?

To Learn a Way of Thinking

Efficient Markets—No Free Lunch

efficient market A market in which profit opportunities are eliminated almost instantaneously.

The study of economics teaches us a way of thinking and helps us make decisions.

Why Study Economics?

To Understand Society

Industrial Revolution The period in England during the late eighteenth and early nineteenth centuries in which new manufacturing technologies and improved transportation gave rise to the modern factory system and a massive movement of the population from the countryside to the cities.

The study of economics is an essential part of the study of society.

Why Study Economics?

To Understand Global Affairs

An understanding of economics is essential to an understanding of global affairs.

To Be an Informed Citizen

To be an informed citizen requires a basic understanding of economics.

The Scope of Economics

Microeconomics and Macroeconomics

microeconomics The branch of economics that examines the functioning of individual industries and the behavior of individual decision-making units—that is, firms and households.

macroeconomics The branch of economics that examines the economic behavior of aggregates—income, employment, output, and so on—on a national scale.

Microeconomics looks at the individual unit—the household, the firm, the industry. It sees and examines the "trees." Macroeconomics looks at the whole, the aggregate. It sees and analyzes the "forest."

The Scope of Economics

Microeconomics and Macroeconomics

TABLE 1.1 Examples of Microeconomic and Macroeconomic Concerns

Divisions of Economics	Production	Prices	Income	Employment
Microeconomics	*Production/output in individual industries and businesses*	*Price of individual goods and services*	*Distribution of income and wealth*	*Employment by individual businesses and industries*
	How much steel How much office space How many cars	Price of medical care Price of gasoline Food prices Apartment rents	Wages in the auto industry Minimum wage Executive salaries Poverty	Jobs in the steel industry Number of employees in a firm Number of accountants
Macroeconomics	*National production/output*	*Aggregate price level*	*National income*	*Employment and unemployment in the economy*
	Total industrial output Gross domestic product Growth of output	Consumer prices Producer prices Rate of inflation	Total wages and salaries Total corporate profits	Total number of jobs Unemployment rate

The Scope of Economics

The Diverse Fields of Economics

TABLE 1.2 The Fields of Economics

Behavioral economics	uses psychological theories relating to emotions and social context to help understand economic decision making and policy. Much of the work in behavioral economics focuses on the biases that individuals have that affects the decisions they make.
Comparative economic systems	examines the ways alternative economic systems function. What are the advantages and disadvantages of different systems?
Econometrics	applies statistical techniques and data to economic problems in an effort to test hypotheses and theories. Most schools require economics majors to take at least one course in statistics or econometrics.
Economic development	focuses on the problems of low-income countries. What can be done to promote development in these nations? Important concerns of development for economists include population growth and control, provision for basic needs, and strategies for international trade.
Economic history	traces the development of the modern economy. What economic and political events and scientific advances caused the Industrial Revolution? What explains the tremendous growth and progress of post-World War II Japan? What caused the Great Depression of the 1930s?

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The Scope of Economics

The Diverse Fields of Economics

TABLE 1.2 The Fields of Economics (continued)

Environmental economics	studies the potential failure of the market system to account fully for the impacts of production and consumption on the environment and on natural resource depletion. Have alternative public policies and new economic institutions been effective in correcting these potential failures?
Finance	examines the ways in which households and firms actually pay for, or finance, their purchases. It involves the study of capital markets (including the stock and bond markets), futures and options, capital budgeting, and asset valuation.
Health economics	analyzes the health care system and its players: government, insurers, health care providers, and patients. It provides insight into the demand for medical care, health insurance markets, cost-controlling insurance plans (HMOs, PPOs, IPAs), government health care programs (Medicare and Medicaid), variations in medical practice, medical malpractice, competition versus regulation, and national health care reform.
The history of economic thought,	which is grounded in philosophy, studies the development of economic ideas and theories over time, from Adam Smith in the eighteenth century to the works of economists such as Thomas Malthus, Karl Marx, and John Maynard Keynes. Because economic theory is constantly developing and changing, studying the history of ideas helps give meaning to modern theory and puts it in perspective.
Industrial organization	looks carefully at the structure and performance of industries and firms within an economy. How do businesses compete? Who gains and who loses?

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The Scope of Economics

The Diverse Fields of Economics

TABLE 1.2 The Fields of Economics (continued)

International economics	studies trade flows among countries and international financial institutions. What are the advantages and disadvantages for a country that allows its citizens to buy and sell freely in world markets? Why is the dollar strong or weak?
Labor economics	deals with the factors that determine wage rates, employment, and unemployment. How do people decide whether to work, how much to work, and at what kind of job? How have the roles of unions and management changed in recent years?
Law and economics	analyzes the economic function of legal rules and institutions. How does the law change the behavior of individuals and businesses? Do different liability rules make accidents and injuries more or less likely? What are the economic costs of crime?
Public economics	examines the role of government in the economy. What are the economic functions of government, and what should they be? How should the government finance the services that it provides? What kinds of government programs should confront the problems of poverty, unemployment, and pollution? What problems does government involvement create?
Urban and regional economics	studies the spatial arrangement of economic activity. Why do we have cities? Why are manufacturing firms locating farther and farther from the center of urban areas?

Trust and Gender

The Method of Economics

positive economics An approach to economics that seeks to understand behavior and the operation of systems without making judgments. It describes what exists and how it works.

normative economics An approach to economics that analyzes outcomes of economic behavior, evaluates them as good or bad, and may prescribe courses of action. Also called *policy economics*.

The Method of Economics

Descriptive Economics and Economic Theory

descriptive economics The compilation of data that describe phenomena and facts.

economic theory A statement or set of related statements about cause and effect, action and reaction.

The Method of Economics

Theories and Models

model A formal statement of a theory, usually a mathematical statement of a presumed relationship between two or more variables.

variable A measure that can change from time to time or from observation to observation.

Ockham's razor The principle that irrelevant detail should be cut away.

The Method of Economics

Theories and Models

All Else Equal: *Ceteris Paribus*

***ceteris paribus*, or all else equal** A device used to analyze the relationship between two variables while the values of other variables are held unchanged.

Using the device of *ceteris paribus* is one part of the process of abstraction. In formulating economic theory, the concept helps us simplify reality to focus on the relationships that interest us.

The Method of Economics

Theories and Models

Expressing Models in Words, Graphs, and Equations

Methods of expressing the quantitative relationship between two variables:

- *Graphing* (as presented in appendix)
- *Equations*, for example:

If over time U.S. households collectively spend, or consume, 90 percent of their income and save 10 percent of their income, we could then write:

$$C = .90\,Y \quad \text{and} \quad S = .10\,Y$$

where C is consumption spending, Y is income, and S is saving.

The Method of Economics

Theories and Models

Cautions and Pitfalls

The Post Hoc *Fallacy*

post hoc, ergo propter hoc Literally, "after this (in time), therefore because of this." A common error made in thinking about causation: If Event A happens before Event B, it is not necessarily true that A caused B.

The Fallacy of Composition

fallacy of composition The erroneous belief that what is true for a part is necessarily true for the whole.

The Method of Economics

Theories and Models

Testing Theories and Models: Empirical Economics

empirical economics The collection and use of data to test economic theories.

The Method of Economics

Economic Policy

Criteria for judging economic outcomes:

1. Efficiency
2. Equity
3. Growth
4. Stability

The Method of Economics

Economic Policy

Efficiency

efficiency In economics, allocative efficiency. An efficient economy is one that produces what people want at the least possible cost.

Equity

equity Fairness.

The Method of Economics

Economic Policy

Growth

economic growth An increase in the total output of an economy.

Stability

stability A condition in which national output is growing steadily, with low inflation and full employment of resources.

REVIEW TERMS AND CONCEPTS

ceteris paribus, or all else equal
descriptive economics
economic growth
economic theory
economics
efficiency
efficient market
empirical economics
equity
fallacy of composition
Industrial Revolution
macroeconomics
marginalism
microeconomics
model
normative economics
Ockham's razor
opportunity cost
positive economics
post hoc, ergo propter hoc
scarce
stability
sunk costs
variable

CHAPTER 1 APPENDIX

How to Read and Understand Graphs

A **graph** is a two-dimensional representation of a set of numbers, or data.

Time Series Graphs

A **time series graph** shows how a single measure or variable changes over time.

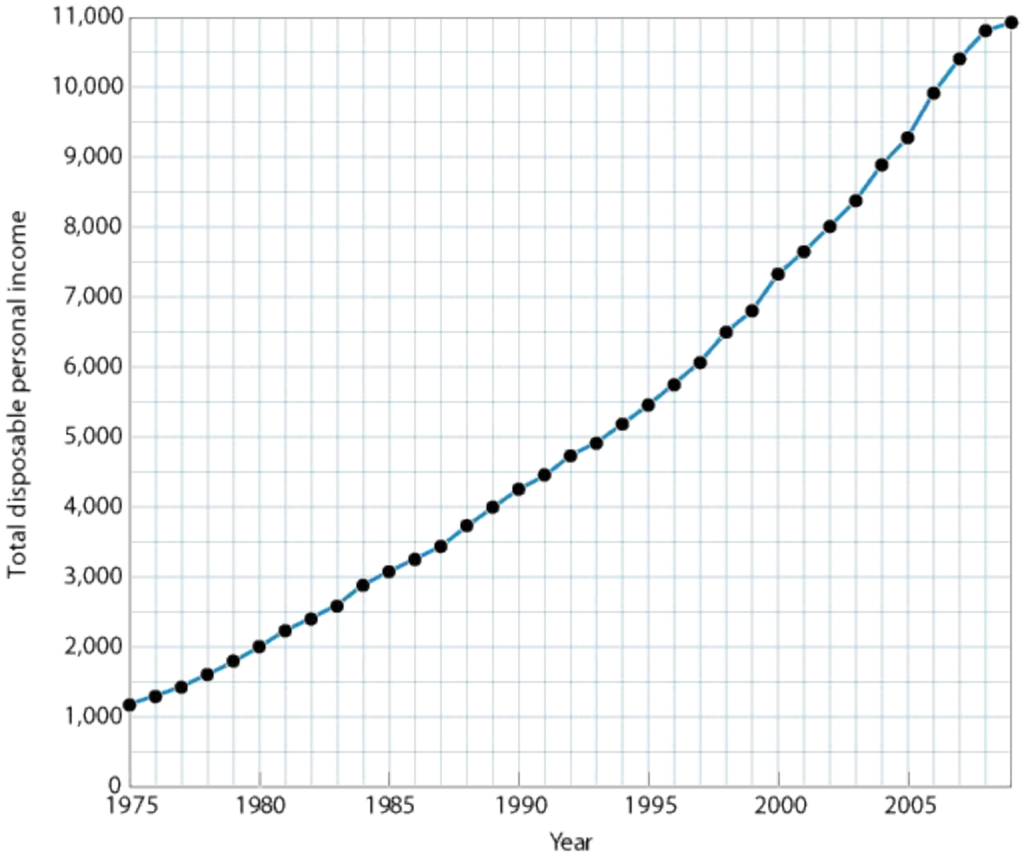
CHAPTER 1 APPENDIX

How to Read and Understand Graphs

Time Series Graphs

TABLE 1A.1 Total Disposable Personal Income in the United States, 1975–2009 (in billions of dollars)

Year	Total Disposable Personal Income	Year	Total Disposable Personal Income
1975	1,187.3	1993	4,921.6
1976	1,302.3	1994	5,184.3
1977	1,435.0	1995	5,457.0
1978	1,607.3	1996	5,759.6
1979	1,790.8	1997	6,074.6
1980	2,002.7	1998	6,498.9
1981	2,237.1	1999	6,803.3
1982	2,412.7	2000	7,327.2
1983	2,599.8	2001	7,648.5
1984	2,891.5	2002	8,009.7
1985	3,079.3	2003	8,377.8
1986	3,258.8	2004	8,889.4
1987	3,435.3	2005	9,277.3
1988	3,726.3	2006	9,915.7
1989	3,991.4	2007	10,403.1
1990	4,254.0	2008	10,806.4
1991	4,444.9	2009	10,923.6
1992	4,736.7		

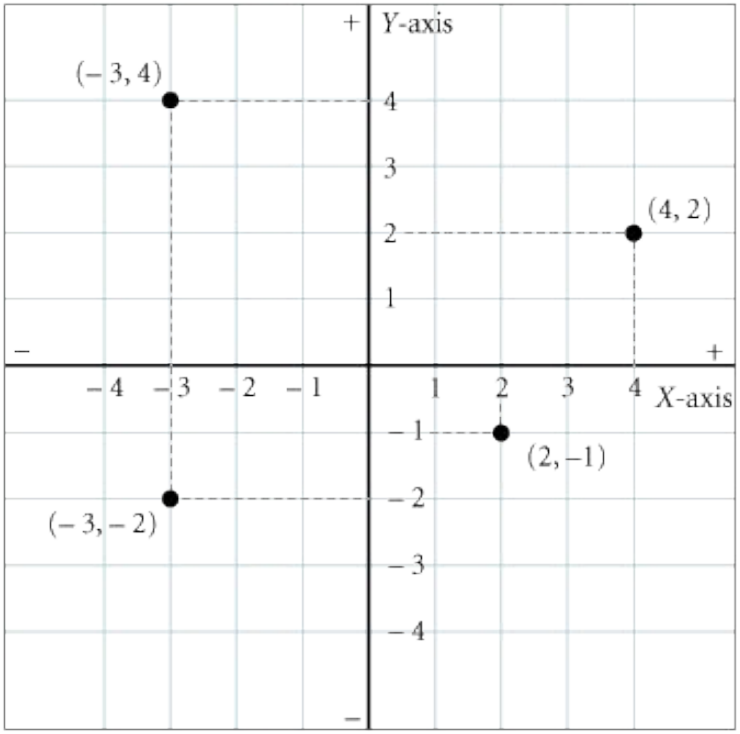


▲ **FIGURE 1A.1 Total Disposable Personal Income in the United States: 1975–2009 (in billions of dollars)**

CHAPTER 1 APPENDIX

How to Read and Understand Graphs

Graphing Two Variables on a Cartesian Coordinate System



◄ **FIGURE 1A.2 A Cartesian Coordinate System**

A Cartesian coordinate system is constructed by drawing two perpendicular lines: a vertical axis (the *Y*-axis) and a horizontal axis (the *X*-axis). Each axis is a measuring scale.

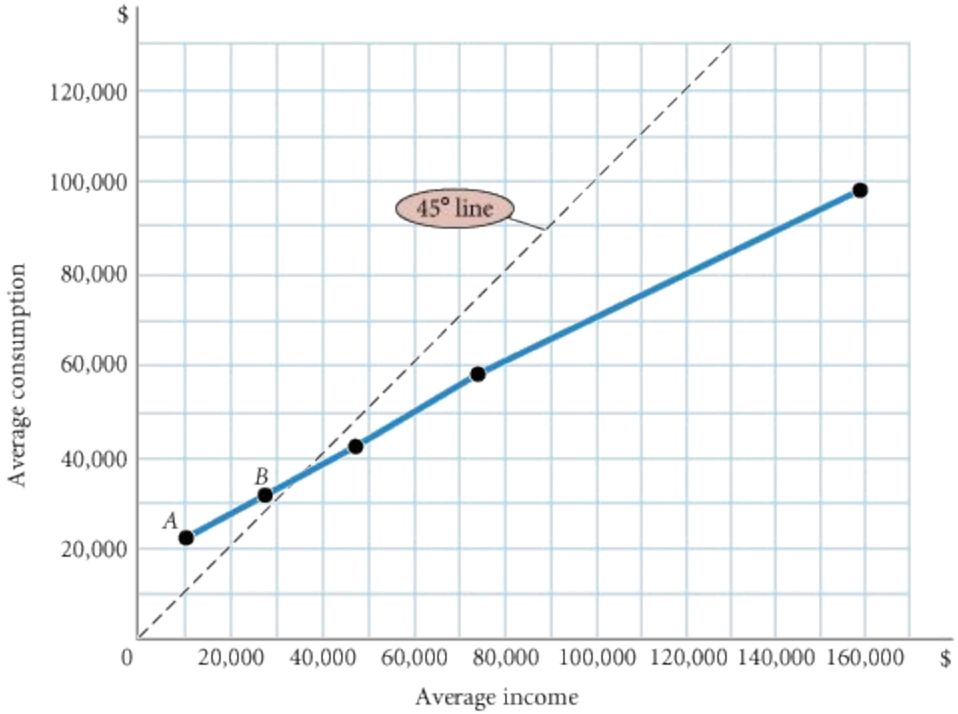
CHAPTER 1 APPENDIX

How to Read and Understand Graphs

Plotting Income and Consumption Data for Households

TABLE 1A.2 Consumption Expenditures and Income, 2008

	Average Income before Taxes	Average Consumption Expenditures
Bottom fifth	$ 10,263	$ 22,304
2nd fifth	27,442	31,751
3rd fifth	47,196	42,659
4th fifth	74,090	58,632
Top fifth	158,652	97,003



▸ **FIGURE 1A.3 Household Consumption and Income**

A graph is a simple two-dimensional geometric representation of data.

This graph displays the data from Table 1A.2. Along the horizontal scale (*X*-axis), we measure household income. Along the vertical scale (*Y*-axis), we measure household consumption.

Note: At point *A*, consumption equals $22,304 and income equals $10,263.

At point *B*, consumption equals $31,751 and income equals $27,442.

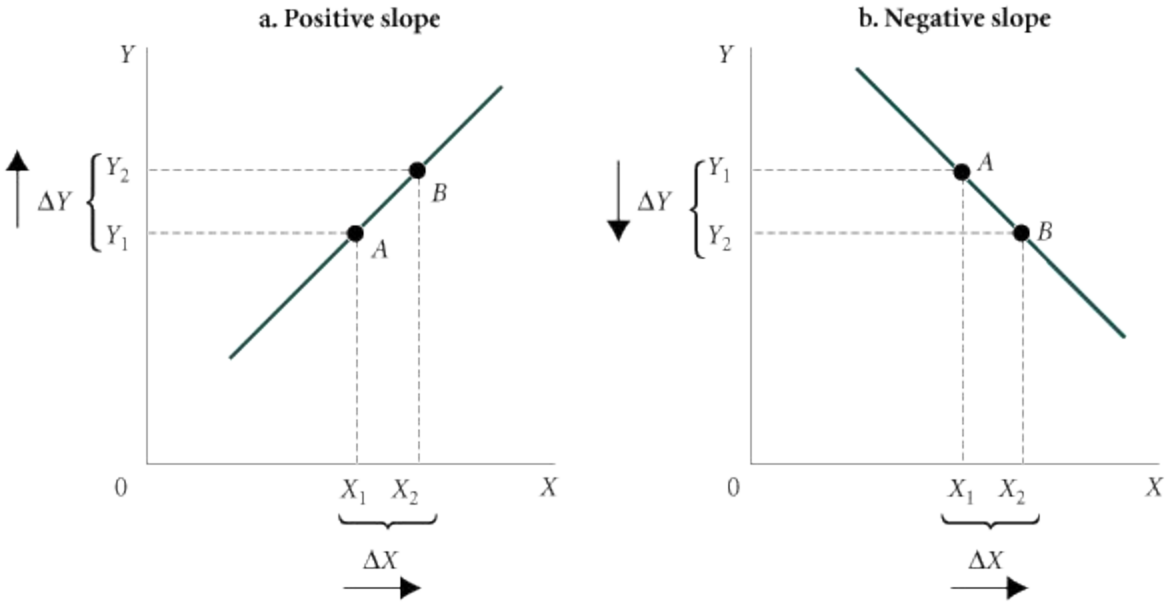
CHAPTER 1 APPENDIX

How to Read and Understand Graphs

Slope

$$\frac{\Delta Y}{\Delta X} = \frac{Y_2 - Y_1}{X_2 - X_1}$$

▼ **FIGURE 1A.4** **A Curve with (a) Positive Slope and (b) Negative Slope**



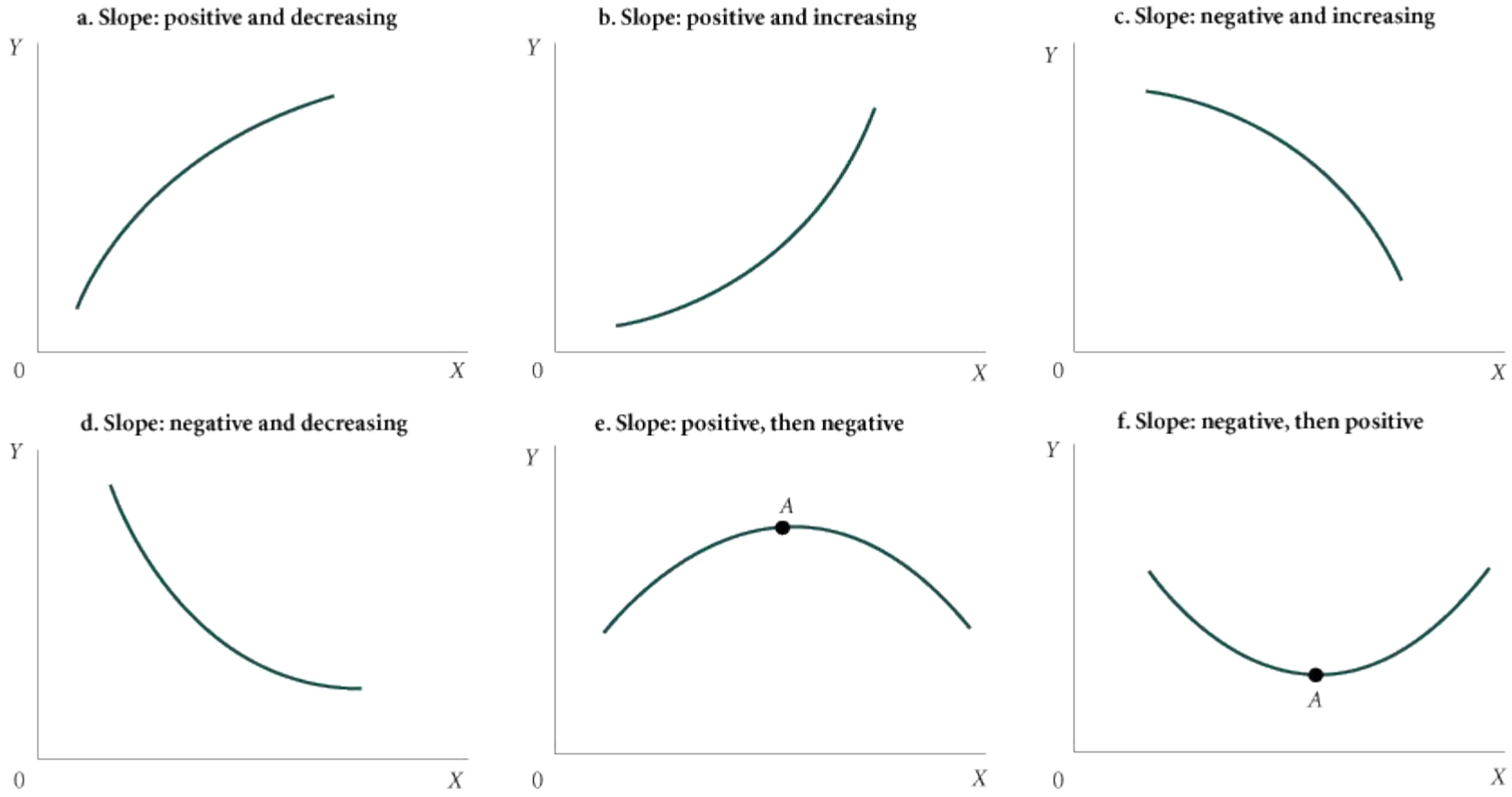
A *positive* slope indicates that increases in *X* are associated with increases in *Y* and that decreases in *X* are associated with decreases in *Y*.

A *negative* slope indicates the opposite—when *X* increases, *Y* decreases; and when *X* decreases, *Y* increases.

CHAPTER 1 APPENDIX

How to Read and Understand Graphs

Slope



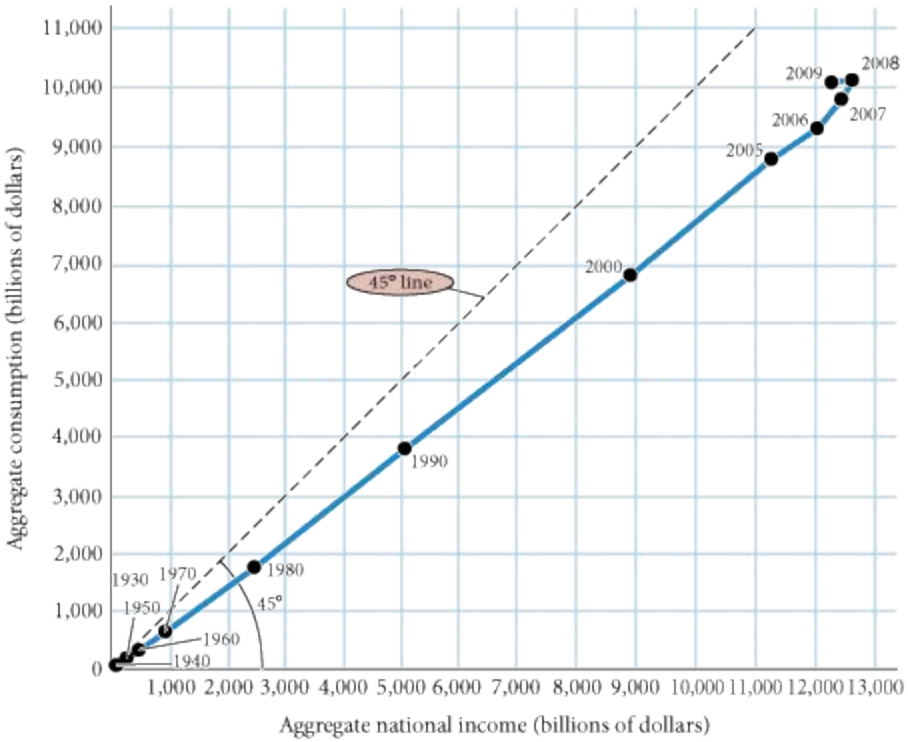
▲ **FIGURE 1A.5 Changing Slopes along Curves**

CHAPTER 1 APPENDIX

Some Precautions

TABLE 1A.3 Aggregate National Income and Consumption for the United States, 1930–2009 (in billions of dollars)

	Aggregate National Income	Aggregate Consumption
1930	82.9	70.1
1940	90.9	71.3
1950	263.9	192.2
1960	473.9	331.8
1970	929.5	648.3
1980	2433.0	1,755.8
1990	5059.8	3,835.5
2000	8938.9	6,830.4
2005	11,273.8	8,819.0
2006	12,031.2	9,322.7
2007	12,448.2	9,826.4
2008	12,635.2	10,129.9
2009	12,280.0	10,089.1



▸ **FIGURE 1A.6 National Income and Consumption**

It is important to think carefully about what is represented by points in the space defined by the axes of a graph.

In this graph, we have graphed income with consumption, as in Figure 1A.3, but here each observation point is national income and aggregate consumption in *different years*, measured in billions of dollars.

APPENDIX REVIEW TERMS AND CONCEPTS

Cartesian coordinate system

graph

negative relationship

origin

positive relationship

slope

time series graph

X-axis

X-intercept

Y-axis

Y-intercept