

1

Introduction

1.1 Economics defined	1
1.2 The scope of economics	3
1.3 Allocating resources	5
1.4 Adam Smith and the invisible hand of free enterprise	6
1.5 Economic performance: An overview	8
1.5.1 Economic growth	8
1.5.2 The transformation of agriculture	11
1.5.3 Unemployment	12
1.5.4 Inflation	15
1.5.5 Foreign exchange rates	16
1.5.6 Inequality	18
1.6 Prospectus	19
Summary	20
Exercises	20

1.1 Economics defined

In a general way, everyone knows what economics is about. All of us participate in the market, buying our bread or the daily paper, searching for a job or relaxing with an inheritance, borrowing for a car or investing in the stock market. We are all part of a system, a system in which some fare much better than others. We are all threatened, but some more than others, by the prospect of unemployment. All of us must worry that in the years to come inflation will erode the value of our savings. All of us can hope to benefit from vigorous economic growth and the maintenance of economic stability. But how should economics be defined?

A modern dictionary¹ defines our subject as follows:

¹*The American Heritage Talking Dictionary*, 3rd edition, 1994.

2 *Economics with Calculus*

ec·o·nom·ics *n.* *Abbr. econ. (used with a sing. verb). The social science that deals with the production, distribution, and consumption of goods and services and with the theory and management of economies or economic systems.*

Writing more than a century and a half ago, philosopher-economist John Stuart Mill [1806–1873] presented a quite similar statement in his popular *Principles of Political Economy*:

[The] subject is wealth. Writers on Political Economy profess to teach, or to investigate, the nature of Wealth, and the laws of its production and distribution: including, directly or remotely, the operation of all the causes by which the condition of mankind, or of any society of human beings . . . is made prosperous or the reverse.

Renowned British economist Alfred Marshall [1842–1924] defined economics as follows in his *Principles of Economics*:²

Economics is a study of mankind in the ordinary business of life; it examines that part of individual and social action which is most closely connected with the attainment and with the use of the material requisites of well-being.

In contrast, a modern intermediate microeconomics text explains:³

Economics is traditionally defined as the study of *the allocation of scarce resources among competing end uses*. This definition stresses two important features of economics. First, productive resources are scarce — they do not exist in sufficient amounts to satisfy all human wants. This scarcity imposes a variety of constraints on both the choices available to a society and the opportunities open to its members. [Second,] choices must be made about how . . . resources will be used. The necessity to make choices leads to the second feature of economics: the concern with how those choices are actually made.

By the time you have finished this book, this last definition may well make the most sense.

²Alfred Marshall's highly successful text, first published in 1890, went through eight editions.

³Walter Nicholson, *Microeconomic Theory: Basic Principles and Extensions*, Dryden, 1995, p 3.

1.2 The scope of economics

These definitions do not indicate the full range of issues studied by economists. For starters, a good way to understand the scope of economics is to consider the following short list.

- How markets work to determine prices and allocate resources.
- How governments influence, for better or for worse, market outcomes through tax policy, tariffs, subsidies, patent protection, environmental policy, etc.
- How a nation's central bank (e.g., the Federal Reserve System of the United States) may influence the money supply, interest rates, unemployment, inflation, and the rate of growth of output.
- How we measure income inequality, inflation, unemployment, and productivity growth.

This is only a short list. Economic researchers today are interested in a much longer list of topics.

One might define economics as what economists study and economists as those who study economics. While such a definition is obviously circular, something of the flavor of what economics is all about can be obtained by perusing the titles of working papers reported on Table 1.1.⁴ The topics range from the stock market to monetary policy and from software development to smoking cessation. The papers were produced by the distinguished group of economists associated with the National Bureau of Economic Research (NBER). Founded in 1920, the NBER is a private, nonprofit, nonpartisan research organization dedicated to promoting a greater understanding of how the economy works. The more than 500 professors of economics and business now teaching at universities around the country who are NBER researchers are leading scholars in their fields. As the list makes clear, these scholars are putting the research techniques of economists to work on a wide range of exciting topics.⁵

⁴A working paper, such as those listed on the table, is a preliminary draft research report that the author circulate for comment and suggestions before the final version of the paper is published in an economics journal, often more than a year after the working paper has been made available to interested scholars.

⁵The NBER Website, <http://www.nber.org>, contains a complete list of the working papers produced over the years. Included are abstracts summarizing in a couple of paragraphs the main points of each paper. More than this, faculty and students at universities that subscribe to the service may download over the Internet the complete text of any NBER working paper in PDF format.

4 *Economics with Calculus*

Table 1.1. Working papers produced by NBER scholars (week of August 1–7, 1999).

Tradable Deficit Permits: Efficient Implementation of the Stability Pact in the European Monetary Union, Alessandra Casella #7278
Race and Home Ownership, 1900 to 1990, William J. Collins and Robert A. Margo #7277
Price Stability as a Target for Monetary Policy: Defining and Maintaining Price Stability, Lars E.O. Svensson #7276
Size and Growth of Japanese Plants in the United States, Bruce A. Blonigen and KaSaundra Tomlin #7275
The Effects of Direct Foreign Investment on Local Communities, David N. Figlio and Bruce A. Blonigen #7274
The Competition between Competition Rules, Hans-Werner Sinn #7273
Liquidity Crises in Emerging Markets: Theory and Policy, Roberto Chang and Andrés Velasco #7272
Consumption Over the Life Cycle, Pierre-Olivier Gourinchas and Jonathan A. Parker #7271 (IFM, EFG)
ABC at Insteel Industries, V.G. Narayanan and Ratna G. Sarkar #7270
An Empirical Characterization of the Dynamic Effects of Changes in Government Spending and Taxes on Output; Olivier Blanchard and Roberto Perotti #7269
Taxing Retirement Income: Nonqualified Annuities and Distributions from Qualified Accounts, Jeffrey R. Brown, Olivia S. Mitchell, James M. Poterba, and Mark J. Warshawsky #7268
No Contagion, Only Interdependence: Measuring Stock Market Co-movements, Kristin Forbes and Roberto Rigobon #7267
Is Hospital Competition Socially Wasteful? Daniel P. Kessler and Mark B. McClellan #7266 (HC)
International Institutions for Reducing Global Financial Instability, Kenneth Rogoff #7265
Trade and Growth: Import-Led or Export-Led? Evidence from Japan and Korea, Robert Z. Lawrence and David E. Weinstein #7264
Can Capital Mobility be Destabilizing? Qinglai Meng and Andrés Velasco #7263
Determinants of Smoking Cessation: An Analysis of Young Adult Men and Women, John A. Tauras and Frank J. Chaloupka #7262
Optimal Monetary Policy Inertia, Michael Woodford #7261
Quality Certification and the Economics of Contract Software Development: A Study of the Indian Software Industry; Ashish Arora and Jai Asundi #7260
A Tax on Output of the Polluting Industry is not a Tax on Pollution: The Importance of Hitting the Target; Don Fullerton, Inkee Hong, and Gilbert E. Metcalf #7259
Is There Monopsony in the Labor Market? Evidence from a Natural Experiment Douglas Staiger, Joanne Spetz, and Ciaran Phibbs #7258
The Band Pass Filter, Lawrence J. Christiano and Terry J. Fitzgerald #7257
Assessing the Impact of Organizational Practices on the Productivity of University Technology Transfer Offices: An Exploratory Study, Donald Siegel, David Waldman, and Albert Link #7256
The Japanese Recession of the 1990s: An Exploration of Its Causes, Albert Ando #7255

Table 1.1. (Continued)

Distortionary Taxation, Excessive Price Sensitivity, and Japanese Land Prices, Kiyohiko G. Nishimura, Fukuju Yamazaki, Takako Idee, and Toshiaki Watanabe #7254
Are All Banking Crises Alike? The Japanese Experience in International Comparison, Michael Hutchison and Kathleen McDill #7253
Tax Policy and Consumer Spending: Evidence from Japanese Fiscal Experiments, Katsunori Watanabe, Takayuki Watababe, and Tsutomu Watanabe #7252
Determinants of the Japan Premium: Actions Speak Louder than Words, Joe Peek and Eric S. Rosengren #7251
The Japanese Banking Crisis: Where Did It Come From and How Will It End?, Takeo Hoshi and Anil Kashyap #7250
Environmental Policy and Firm Behavior: Abatement Investment and Location Decisions under Uncertainty and Irreversibility; Anastasios Xepapadeas #T0243

1.3 Allocating resources

Although economists investigate a wide range of problems, there is one unifying concern that provides coherence to the investigations of economists. Economists are concerned with resource allocation. Here is a set of questions about resource allocation that every society must resolve, one way or another:

- Who will work at what job?
- What will be produced?
- Who will receive what?

For a colony of ants and for a hive of bees the answers to these questions are determined genetically — some are born to be workers, some may be drones, but only one is destined to be the queen. Quite complex societal relationships can be genetically coded, but programmed species cannot adapt rapidly to change. In medieval Europe, who tilled the fields, who shod the horses, and who was lord of the manor was determined by what one's father had done — arrangements based on custom rather than genetically programmed can breakdown within a generation or two in response to changing technologies.

Our modern economy is a decentralized system. No central planning agency makes basic decisions about what to produce, who shall work at what job, or who will get to consume how much of what goods. In our decentralized system what happens is the result of millions of individual decisions. The amazing thing is that this decentralized system somehow works:

6 *Economics with Calculus*

Consider, if you will, the yellow lead pencil, one of the simplest devices manufactured in our economy today. Yet no one person knows how to make this simple product. The lumberjack who cuts down the cedar tree knows his trade well but does not know how to mine the graphite. The miner does not know the process by which the graphite is mixed with lead to make sure that the final product is a number 2 1/2 pencil and not a 4 or a 2. Neither the lumberjack nor the miner knows how to mix the yellow lacquer used in coloring the pencil or how to make the eraser that smudges the page when you try to correct a mistake.

Somehow, the market system manages to coordinate the diverse activities of individual decision-makers in a way that results in a useful product rather than chaos. Adam Smith provided a first step toward understanding how this process works more than two centuries ago.

1.4 Adam Smith and the invisible hand of free enterprise

Economics is more than a set of research techniques. It is more than a set of loosely connected topics. Economists share a common interest in a controversial proposition eloquently stated in 1776 by Adam Smith, a Scottish Professor of Moral Philosophy, in *An Inquiry into the Nature and Causes of the Wealth of Nations*:

Every individual endeavors to employ his capital so that its product may be of greatest value. He generally neither intends to promote the public interest nor knows how much he is promoting it. He intends only his own security, only his own gain.

While Smith may sound cynical in asserting that the selfish pursuit of one's own interest rather than altruism is the prime motivator of economic behavior, he went on to argue that greed is good:

And he is in this led by an invisible hand to promote an end that is no part of his intention. By pursuing his own interest he frequently promotes that of society more effectively than when he really intends to promote it. It is not from the benevolence of the butcher, the baker and the candlestick maker that we expect our dinner, but from their regard to their own advantage.

Adam Smith was clearly articulating two basic principles underlying economic thinking to this day.

- First of all, we have the behavioral assumption that people are motivated by the desire to maximize their own wellbeing or satisfaction.
- Second, and even more controversial, is the proposition that self-interested behavior can contribute to the betterment of society.

In talking about the “invisible hand” Smith was not referring to the intervention of a big brother or a divine force. He was talking about a force of nature, like gravity or magnetism. The crux of the argument is the proposition that the selfish motivation of economic agents will be held in check by market forces, at least under competitive conditions. As Smith himself emphasized, the pursuit of self-interest must not be totally unconstrained. To take but one example, if property rights are not protected, the butcher, the baker and the candlestick maker will find it to their advantage to close up shop rather than have the fruits of their labor taken by greedy thieves. Adam Smith was optimistic, given his assumption that self-interest is the prime motivator of human behavior, in concluding that the pursuit of individual self-interest frequently contributes more effectively than altruism to the betterment of society.

Smith was arguing in his *Wealth of Nations* against excessive government regulations of economic activity and economic planning. He favored free enterprise and free international trade unconstrained by excessive government regulation, tariffs or quotas. While Smith was eloquent, his proposition that self-interested behavior is in the public interest is counter-intuitive rather than self-evident. Conventional wisdom does not condone selfish behavior. Generosity is customarily considered a virtue, particularly in others.

Ever since the publication of the *Wealth of Nations*, economists have debated the validity of Smith’s argument. Greed may be good but subject to constraints — obviously, the market system cannot function if property rights are not protected and contracts are not enforceable. Over the years economists have devoted much effort to determining the precise conditions under which self-interested behavior, guided by the market mechanism, will most effectively contribute to the public good. Much of this textbook is devoted to the study of the controversial issues raised by Adam Smith more than two centuries ago.

1.5 Economic performance: An overview

To study economics is to study the economy and ways of looking at it. Indeed, economics could be defined as the study of how the system works and why it sometimes fails. In this introductory chapter we shall take a brief advanced peak at historic economic achievements and recurring problems. Since this is just a quick overview, we will leave to Chapter 8 a detailed explanation of the precise way in which economic performance is measured.

1.5.1 *Economic growth*

How the output per capita produced by the United States economy has fluctuated historically is reported on Figure 1.1.⁶ During the 20th century the U.S. sustained an average annual growth rate in per capita output of 2.1% — that may seem like a small percentage, but compounded over 100 years it constitutes a remarkable century of progress. The *Economic Report of the President* for year 2000⁷ summed up the implications of this achievement as follows:

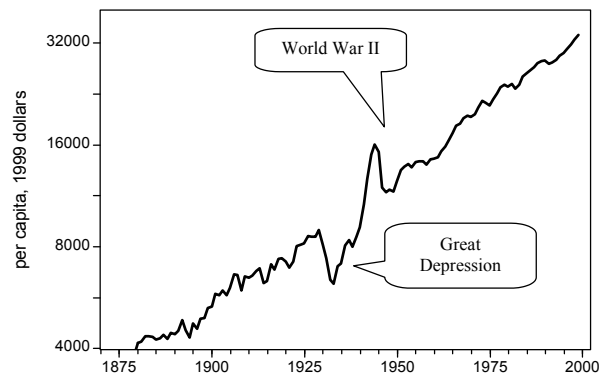


Fig. 1.1. Growth of the American economy
Output per capita, adjusted for inflation (GDP measured in dollars of 1999 purchasing power).

⁶Output per capita is calculated by dividing the Gross Domestic Product (GDP) by population. Such concepts as GDP and the consumer price index will be explained in Chapter 8.

⁷*Economic Report of the President together with the Annual Report of the Council of Economic Advisers*, United States Government Printing Office, 2000, p. 35.

Over the past century the U.S. economy ... has found the 2% answer to the American dream. [When] living standards rise at 2% annually, they double every 35 years.⁸ This means that by the time they reach their mid-30s, parents can provide their children with a standard of living that is twice the level that they themselves enjoyed as children. When incomes grow at this pace, each generation experiences a far more affluent lifestyle than the previous one, and over the course of a lifetime, Americans can expect, on average, a fourfold increase in living standards.

If economic growth were to continue at this pace into the 21st century, today's generation of college students might reasonably expect to enjoy a doubling or tripling of living standards long before they reach retirement age!

The President's *Economic Report* went on to exclaim (p. 278):

To appreciate how far we have come, it is instructive to look back on what American life was like in 1900. At the turn of the century, fewer than 10% of homes had electricity, and fewer than 2% of people had telephones. An automobile was a luxury that only the very wealthy could afford. Many women still sewed their own clothes and gave birth at home. Because chlorination had not yet been introduced and water filtration was rare, typhoid fever, spread by contaminated water, was a common affliction. One in 10 children died in infancy. Average life expectancy was a mere 47 years. Fewer than 14% of Americans graduated from high school.

Table 1.2. A century of progress.

	1900	1950	2000
Life Expectancy at Birth			
Men	46.3	65.6	73.9
Women	48.3	71.1	79.4
Infant Mortality Rate	99.9	29.2	7.2

Source: *Economic Report of the President*, 2000, p. 166.

Note: The infant mortality rate is the number of deaths of children under one year per 1,000 live births in a calendar year.

⁸ $(1 + 0.02)^{35} = 1.9999$.

The international comparisons of output per capita presented on Table 1.3 reveal that the United States has no monopoly on growth. Citizens in all these countries experienced a remarkable increase in material comforts, but there were considerable variations in living standards. In 1820 the United Kingdom led the world, producing almost three times as much per capita as Japan and 40% more per worker than the United States. By 1989 the UK had fallen to 5th place and Japan had soared to 2nd place. The next table compares the growth of China with that of the major western countries over a six hundred year time span. In 1400, the best available evidence indicates, China was ahead of the West in terms of output per capita. No wonder Marco Polo [1254?–1324?], the legendary Italian merchant-explorer, had been amazed by the great wealth he observed on his travels to China. In Chapter 12 we shall be looking at the sources of economic growth.

Table 1.3. Comparative economic performance.

Country	(US\$, 1985)				1820–1989	
	1820	1913	1950	1989	Growth factor	Growth rate % per annum
Australia	1,242	4,523	5,931	13,584	11	1.4%
Germany	937	2,606	3,339	13,989	15	1.6%
Italy	960	2,087	2,819	12,955	13	1.6%
Japan	588	1,114	1,563	15,101	26	1.9%
United Kingdom	1,405	4,024	5,651	13,468	10	1.3%
United States	1,048	4,854	8,611	18,317	17	1.7%

Source: Reprinted by permission of Oxford University Press from Angus Maddison, *Dynamic forces in capitalist development: A long-run comparative view*, 1991, pp. 6–7.

Table 1.4. Comparative performance: China and the West.

Year	(Population in millions; GDP per capita in 1985, US\$)			
	1400	1820	1950	1989
China				
Population	74	342	547	1,120
GDP per capita	500	500	454	2,361
The West (Western Europe plus Australia, Canada and the U.S.)				
Population	43	122	412	587
GDP per capita	430	1,034	4,902	14,413

Source: Reprinted by permission of Oxford University Press from Angus Maddison, *Dynamic forces in capitalist development: A long-run comparative view*, 1991, p. 10.

We must also ask why some nations have been left behind in misery while much of the world has surged ahead. More than half the children in Bangladesh suffer from malnutrition. Male life expectancy is only 50 years in Kenya. In Haiti less than half the population can read.⁹ Harvard professor Benjamin M. Friedman explains:¹⁰

... the most pressing economic problem of our times is that so many of what we usually call ‘developing economies’ are, in fact, not developing ... [M]any if not most of the world’s poorest countries, where very low incomes and incompetent governments combine to create ... appalling human tragedy, are making no progress — at least on the economic front.

Some progress has been made, but it is painfully slow. Xavier Sala-i-Martin estimates that the proportion of the World’s population subsisting on less than \$2.00 per day has fallen from 44% to 18% over the last quarter century.¹¹ The improvement has been uneven, and many remain in abject poverty. Far from starting to catch up, some of the world’s poorest countries have been slipping further and further behind.

For developing countries that are heavily dependent on agricultural exports, what happens from one year to the next depends not only on the size of their harvest but also on the price that world markets offer for their products. For example, when Vietnam became a major coffee supplier in the 1990s, the world price of coffee dropped precipitously. Honduras, El Salvador and Uganda were particularly hard hit by the price collapse because coffee was their major export.

1.5.2 *The transformation of agriculture*

U.S. agriculture provides a spectacular example of how advances in productivity transform society:

⁹For information about global poverty, see *World Development Report 2000/2001: Attacking Poverty*, Oxford University Press, 2001: <http://www.worldbank.org/poverty/wdrpoverty/>.

¹⁰Benjamin M. Friedman, “Globalization: Stiglitz’s Case,” *New York Review of Books*, 15 August 2002.

¹¹Xavier Sala-i-Martin, “The disturbing ‘rise’ of global income inequality,” NBER working paper no. 28904, April 2002.

- The value of output produced by each farmer increased on average by about 3% per year throughout the 20th century, more than doubling every 25 years.
- During the past 75 years, production of corn has increased five times over even though the number of acres planted in corn was cut by 16%.
- Since 1975 meat production has increased by 11.5% even though the number of cattle and calves has dropped by about a quarter.
- In 1900 about 40% of civilian workers in the United States were employed on the farm; today only about 2% of the workforce is in agriculture.
- Because the ability of America to produce food has far outstripped the needs of our growing population, roughly 25% of today's farm output is exported.

Mechanization, education, hybrid seed corn, commercial fertilizers and chemical pesticides all contributed to a remarkable expansion in output that is produced with fewer resources. Increased farm productivity has permitted a substantial expansion in farm output coupled with a spectacular decline in farm employment.

The task of adjusting to the increasing bounty of nature generated by technological progress proved far from easy. From the farmers' viewpoint, increased farm productivity had its downside. As will be explained in Chapter 3, increasing productivity contributed to a *fall* in the prices farmers received for their product. A decline of farm incomes relative to what could be earned elsewhere pushed the farmers from their land. The exodus of workers from the farms meant that a large segment of the population had to abandon a cherished way of life. In later chapters we shall be looking at the variety of programs that the government adopted in an effort to ease the plight of the farmer.

1.5.3 *Unemployment*

The historical record makes clear that under capitalism the path of economic expansion is not always smooth sailing — this can be seen by looking back at the output data on Figure 1.1 and the unemployment record on Figure 1.2. The Great Depression of the 1930s stands out on Figure 1.2 as an economic disaster of the first order, for the unemployment rate climbed to 25%. One worker in four could not find a job! The graph also shows that the pace of economic advance is frequently interrupted by recession periods in which output falls below trend and unemployment

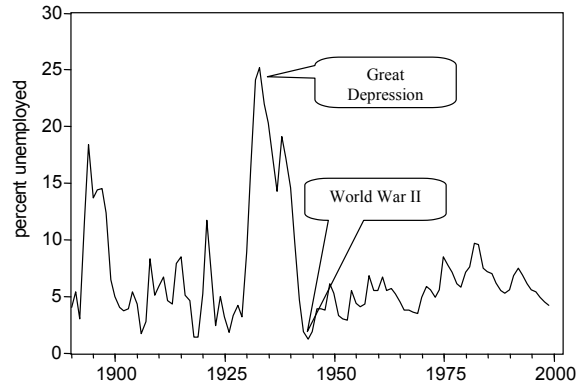


Fig. 1.2. A century of unemployment — USA

The unemployment rate is the proportion of those willing and able to work who cannot find jobs. The unemployment rate peaked at 25% in the depths of the Great Depression of the 1930s. It reached an all time low of 1.2% during World War II.

sharply increases. President William Clinton was one of only a few presidents so fortunate as to escape having an economic recession named in his honor. Presidents Eisenhower, Nixon, Ford, Carter, Reagan and both Bushes all suffered from recessions during their terms of office. The electorate blamed President Herbert Hoover for the Great Depression of the 1930s, voting him out of office after only one term.

That the United States does not have a monopoly on recessions is clear from the international evidence on unemployment presented on Table 1.5. All modern industrialized countries suffer from periods of recession, but some are more susceptible to this economic disease than others. It is interesting to observe that for the first couple of decades after World War II the United States was second only to Canada in terms of the seriousness of the unemployment problem. But in more recent decades the United States has done much better relative to all the other countries listed on the table. The prolonged boom that the United States enjoyed during the last decade of the 20th century was not fully shared with the rest of the industrialized world. And to the surprise of almost everyone, shortly into the 21st century the United States economy slipped into a serious recession.

After explaining how unemployment and recessions are measured in Chapter 8, several chapters will be devoted to an analysis of what is known about the causes of unemployment and the way in which government policy makers attempt to cope with them.

Table 1.5. International comparisons of unemployment rates (%).

YEAR	U.S.	Canada	Australia	Japan	France	Germany	Italy	Netherlands	Sweden	UK	Average
1960	5.5	6.5	1.6	1.7	1.5	1.1	3.7	NA	1.7	2.2	2.8
1969	3.5	4.4	1.8	1.1	2.3	0.6	3.5	NA	1.9	3.1	2.5
1975	8.5	6.9	4.9	1.9	4.2	3.4	3.4	5.1	1.6	4.6	4.5
1979	5.8	7.5	6.3	2.1	6.1	2.9	4.4	5.1	2.1	5.4	4.8
1983	9.6	11.9	10.0	2.7	8.6	6.9	5.9	11.4	3.5	11.8	8.2
1989	5.3	7.5	6.2	2.3	9.6	5.7	7.8	7.0	1.6	7.2	6.0
1990	5.6	8.1	6.9	2.1	9.1	5.0	7.0	6.2	1.8	6.9	5.9
1991	6.8	10.3	9.6	2.1	9.6	5.6	6.9	5.9	3.1	8.8	6.9
1992	7.5	11.2	10.8	2.2	10.4	6.7	7.3	5.6	5.6	10.1	7.7
1993	6.9	11.4	10.9	2.5	11.8	7.9	10.2	6.6	9.3	10.5	8.8
1994	6.1	10.4	9.7	2.9	12.3	8.5	11.2	7.2	9.6	9.7	8.8
1995	5.6	9.4	8.5	3.2	11.8	8.2	11.8	7.0	9.1	8.7	8.3
1996	5.4	9.6	8.6	3.4	12.5	8.9	11.7	6.4	9.9	8.2	8.5
1997	4.9	9.1	8.6	3.4	12.4	9.9	11.9	5.3	10.1	7.0	8.3
1998	4.5	8.3	8.0	4.1	11.8	9.4	12.0	4.0	8.4	6.3	7.7
1999	4.2	7.6	7.2	4.7	11.1	9.0	11.5	NA	7.1	6.1	7.6
Averages	U.S.	Canada	Australia	Japan	France	Germany	Italy	Netherlands	Sweden	UK	Average
1959–1974	5.0	5.2	2.1	1.4	2.0	0.8	3.4	3.4	1.9	2.9	2.74
1975–1999	6.6	9.1	7.7	2.6	9.2	6.2	7.4	7.2	4.3	8.5	6.88
1990–1999	5.8	9.5	8.9	3.1	11.3	7.9	10.2	6.0	7.4	8.2	7.84
1959–1999	6.0	7.5	5.5	2.2	6.4	4.1	5.8	6.9	3.4	6.3	5.27
Maximum	9.7	11.9	10.9	4.7	12.5	9.9	12.0	11.5	10.1	11.8	8.80
Minimum	3.5	3.4	1.3	1.1	1.2	0.3	2.4	3.1	1.2	2.0	2.14

Notes: NA ~ not available

The data for Germany after 1990 relate to unified Germany

Source: Department of Labor web page.

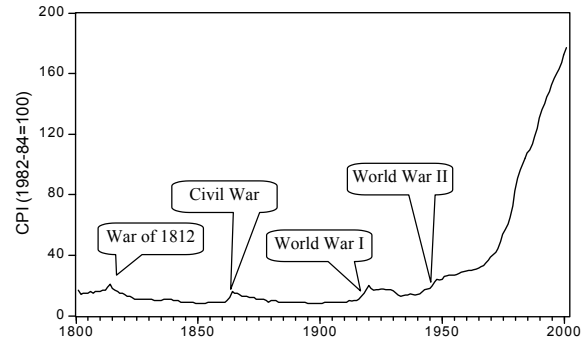


Fig. 1.3. Two centuries of inflation — USA

This graph shows that while inflation had its ups and downs in the 19th century, prices ended up at about the same level at the end of that century as they had been at the beginning. The last half of the 20th century was obviously a much more inflationary story.

1.5.4 Inflation

No country has escaped inflation — a general tendency for prices to rise — but some countries have suffered much more than others over the years. A careful study of Figure 1.3 will reveal that inflation is particularly likely to occur when military conflict leads to a substantial increase in government spending and the quantity of money in circulation.¹² Inflation was a world wide problem in the 1970s, thanks in part to the Organization of Petroleum Exporting Countries (OPEC) success in pushing up the price of oil.

Over the years inflation takes its toll on the purchasing power of a nation's currency. The statisticians at the United States Bureau of Labor Statistics estimate that in year 2000 a representative market basket of goods cost the consumer 7.1 times as much as that same basket would have cost in 1950 — prices increased at an average annual rate of 4%. Figure 1.4 reveals that in recent decades Germany has had somewhat less inflation than the U.S. while Japan has had more. But all these inflations are moderate when compared with the runaway inflations experienced by Indonesia and Israel, as can be seen by comparing Figure 1.5 with Figure 1.4, once the difference in scale is noted. In Indonesia's worse year prices on average increased by more than 1000%! In 1985 Israeli prices jumped by 375%!

¹²In Chapter 8 we will learn how to interpret other types of graphs which provide a more accurate indication of the extent of inflation.

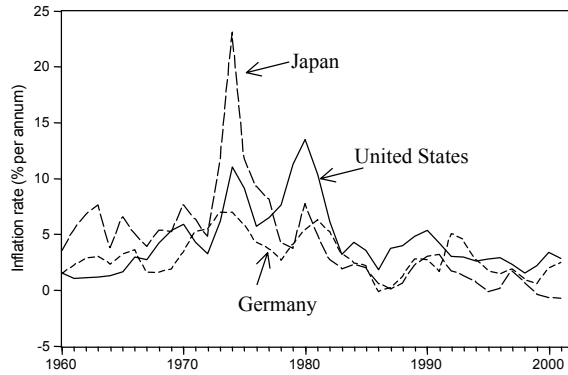


Fig. 1.4. Inflation in Germany, Japan and the United States

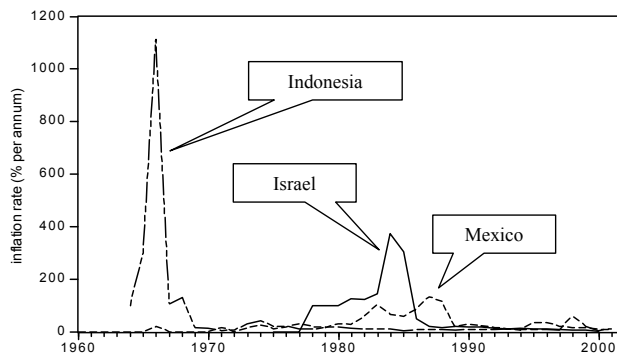


Fig. 1.5. Inflation in Indonesia, Israel, and Mexico

Chapter 8 explains how inflation is measured and discusses strategies by which the public tries to adapt to rapidly rising prices. Later chapters look at the causes of inflation and the policies that countries have adopted in attempting to control the problem.

1.5.5 Foreign exchange rates

Students traveling abroad find it necessary to convert their own currency into that of the country they are visiting. American students planning to spend a semester in France or Italy will want to know how many Euros they will be able to get for a dollar — that is the foreign exchange rate.

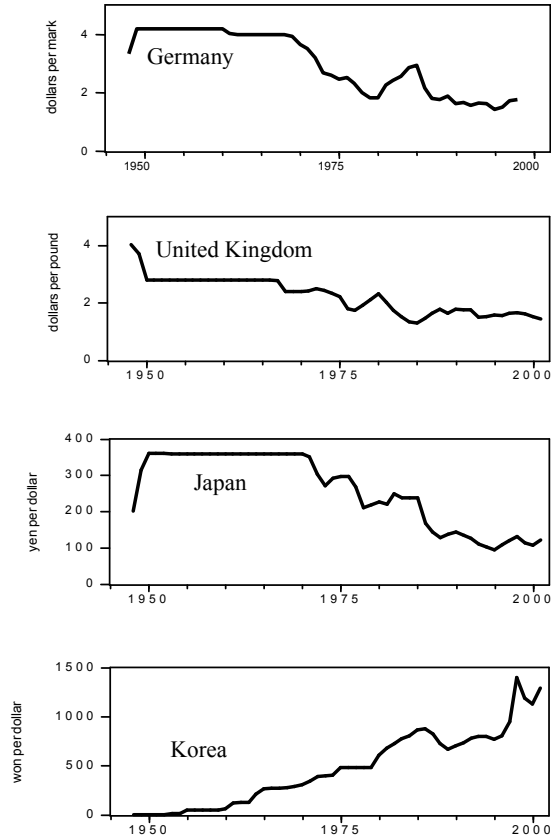


Fig. 1.6. Foreign exchange rates
 The graphs reveal that while Americans now get fewer Japanese yen for a dollar, over the years the German mark, the Korean won and the British pound have all lost value relative to the dollar.

Figure 1.6 reveals that exchange rates can fluctuate markedly over the years and indeed from one week to the next. It is not unheard of for students from abroad whose study in America appeared to be more than adequately financed to have suddenly found themselves short of dollars when the value of their currency dropped substantially in the foreign exchange marketplace. In Chapter 3 we will be studying how prices are determined in the market place, including the price of foreign currency.

There is an intriguing feature about these graphs of exchange rate fluctuations that distinguishes them from plots of inflation and unemployment.

At times exchange rates have been remarkably stable. As a matter of government policy, exchange rates are sometimes fixed rather than allowed to fluctuate in response to changing economic conditions. In Chapters 3 and 11 we will be learning how governments can, for better or for worse, try to stabilize certain prices, including the prices of agricultural commodities as well as foreign exchange rates.

While exchange rates are at times remarkably stable, thanks to government intervention, sometimes they are subject to extreme fluctuations. Look at the unexpected collapse of the Korean won on Figure 1.6!¹³ Exchange rate crises were experienced in Mexico in 1994–1995, in many Asian countries in 1997–1998, in Russia in 1998 and in Argentina in 2001. Currency crises are tremendously disruptive. When a country's currency collapses the nation's importers find that they must pay much more in terms of the domestic currency (peso or won) on purchases made in foreign markets. Banks become unstable. Unemployment soars. The people may riot in the street. Governments collapse when they cannot find a politically acceptable way out of crisis.

1.5.6 *Inequality*

In thinking about how well the economy functions, we must worry not only about how much it manages to produce but about who gets what share of the output. During the last quarter century, not all groups in the United States have shared in the expanding economy. Figure 1.7 shows that those in the 95th percentile (the top 5% of families) have had expanding opportunities while those below the median (the bottom half of the population) have had little or no growth in family income since the late 1970s. In Chapter 7 we shall learn how inequality is measured. We shall find that while per capita income is much higher in the United States than in India, income inequality is about the same in the two countries. Income is much less equally distributed in Brazil and Mexico than in the United States. Income is more equally distributed than in the United States in the majority of industrialized countries, notably Japan. We will also find that inequality among the different countries of the world is much greater than inequality within nations.

¹³The exchange rate scale is quoted as won per dollar on this graph, which means that a rise in the curve signifies a reduction in the value of the won *vis-a-vis* the dollar.

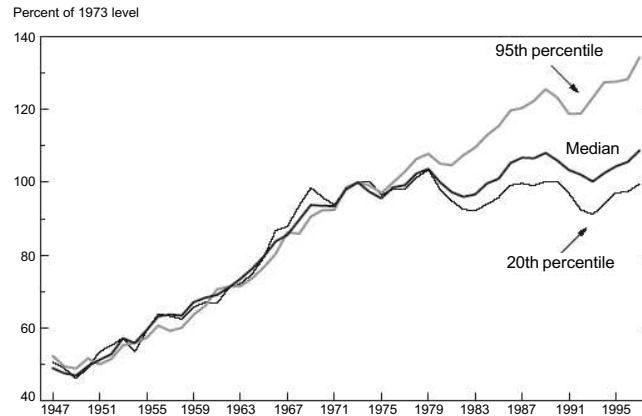


Fig. 1.7. Growth in real family income, 1947–1997
 Growth in real family income has slowed and inequality has increased since 1973.
 Source: *Economic Report of the President*, 1999.

1.6 Prospectus

This introductory chapter presented several definitions of economics. But no definition can fully capture the true spirit of what economics is all about. Economists bring with them when they study an issue a unique mindset or unifying viewpoint that differs from that of political scientists, sociologists, and others who may be investigating the same phenomenon. Part of that viewpoint is provided by the common concern of economists with the issues of free trade and resource allocation that were articulated so clearly by Adam Smith in his *Wealth of Nations*. The underlying theme of economics since the days of Adam Smith is the theme of this book. It is the proposition that markets do work to allocate resources. This optimistic proposition is tempered by the realization that markets do not work perfectly. Markets sometimes fail. Government does have a role to play in the market place. But how broad a role should this be? Through the study of economics we may hope to learn about what policy remedies work and what economic medicines may do more harm than good.

Economics as a discipline advances not only from the pace of its own momentum but also from the task of trying to explain unanticipated economic developments, such as the 25% unemployment rate suffered in the 1930s, the surprising success of the American economy in mobilizing for World War II, the unpredicted great inflation of the 1970s, and the happy blend of full employment coupled with low inflation in the 1990s. To study

economics is to advance one's understanding of how the system works and why it sometimes fails.

Summary

1. There is no shortage of definitions of economics. One dictionary defines economics as the social science that deals with the production, distribution and consumption of goods and services. A more technical definition, which will make more sense by the time you have finished this book, states that “economics is the study of the allocation of scarce resources among competing end users . . .”.
2. A list of working papers produced by scholars associated with the National Bureau of Economic Research indicated something of the range of topics that economists study.
3. Economists are concerned with resource allocation: Who will work at what job? What will be produced? Who will receive what?
4. In his *Wealth of Nations*, published in 1776, Adam Smith argued that individuals are motivated by their own self interest, but in pursuing it they are guided as if by an invisible hand so as to promote the good of society. The question of when and how markets work to channel self interested behavior for the good of society is a central theme of economic thought.
5. For much of the world the 20th century was a remarkable period of progress. The infant mortality rate fell from 99.9 per 1,000 to 7.2 per 1,000 and life expectancy increased from about 47 to 76 years. Living standards in the United States doubled every 35 years.

Exercises

Note: The exercises at the end of each chapter are designed to help readers test and strengthen their understanding of analytical materials. Symbols distinguish two types of questions:

- * Indicates questions that elaborate on the analysis of the text, often by considering different applications of the techniques or asking the students to solve slightly more complicated problems. Sometimes they involve extensive independent projects.
- # Distinguishes questions that are more demanding mathematically than the material in the text.

***Project**

This book obviously cannot cover all the topics of interest in as broad a field as economics. Find an article in an economics journal on a topic of particular interest to you that is written by a professional economist for economists. You might look in the *American Economic Review*, the *Quarterly Journal of Economics*, or *Econometrica*. Avoid the *Wall Street Journal*, the *Harvard Business Review*, or other sources that are not written for professional economists.

Do not get bogged down in the details but try to understand the gist of the article by focusing on the introduction and concluding sections of the paper. Put your article aside and read it again when you have finished working through this book. You will be surprised at how much more sense the article makes by the end of the semester. Of course, you should not be surprised to find that there remain some technical details that you cannot understand after only one semester of economics.

You must provide the topic, but how will you find the article? Your best strategy depends on what library resources are available.

Search Strategy #1

You can look on the NBER website mentioned in footnote 5: <http://www.nber.org>. It has a search facility that will help you uncover any articles written on your chosen topic.

Search Strategy #2

If your library has access to *EconLit* you can search in his comprehensive source for articles published on your topic in any economic journal since 1969.

Search Strategy #3

If your library has *JSTOR* you can not only search for articles on your topic published in any of the 25 leading economics or finance journals in this wonderful data base. You will be able to download the article you found from this archive and print it on your computer.

Write a review

Write a three or four page review of your article. You should explain the method of analysis used by the author (theoretical, statistical?), the type of evidence presented (time series or survey data, experimental?), and the major conclusions of the paper. Did you find the argument convincing? See examples on the EconCalc Web Page: <http://mlovell.web.wesleyan.edu/StudentPapers/>.