

Twenty-First Edition

Economics of Social Issues

Charles A. Register
Paul W. Grimes

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Economics of Social Issues

Twenty-First Edition

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About the Authors

Charles A. Register completed his undergraduate studies in economics at the University of Maryland in 1980. He received his master's degree and a Ph.D. from Oklahoma State University with specializations in labor economics and public finance. He is an eclectic and prolific researcher with works appearing in journals such as *Review of Economics and Statistics*, *Journal of Public Economics*, *Public Choice*, *Land Economics*, *Southern Economic Journal*, *Industrial and Labor Relations Review*, and *Financial Management*, among others. He has a long and distinguished career as an academic administrator serving as department chair at the University of Baltimore, Mississippi State University, and Florida Atlantic University where he now teaches. He has coauthored the last fourteen editions of *Economics of Social Issues*. Professor Register is a former college basketball player and enjoys deep sea fishing off the coast of Florida.

Paul W. Grimes earned his undergraduate and master's degree in economics at Pittsburg State University in Kansas. He received his Ph.D. from Oklahoma State University in 1984. After 25 years of teaching and administrative service to Mississippi State University, he retired to return to his undergraduate alma mater as dean of the Kelce College of Business. He has authored numerous articles in the fields of economic education, labor economics, and public policy. The National Association of Economic Educators honored him with the Henry H. Villard Research Award for his career contributions to economic education research. He is also a past recipient of the Kenneth G. Elzinga Distinguished Teaching Award presented by The Southern Economic Association. This volume marks the tenth edition of *Economics of Social Issues* coauthored by Professor Grimes. He enjoys international travel and recreational sports with his family.

Preface

Welcome to the twenty-first edition of the first textbook to introduce the social issues approach to the teaching of economic principles. This text covers both micro and macro topics, making it ideal for one-term, nonmajor economics issues and social problems courses as a main text. However, this text can also function as a supplement to an economic principles or survey course. Over the years, our revisions to each edition of *Economics of Social Issues* have attempted to reflect the important societal trends and public debates current at the time. Currency and relevance are the motivations behind the major changes that previous users will quickly find in this volume. Although the specific topics and organization of the material continue to evolve, at least one thing remains a constant: our basic teaching objectives designed to produce economically literate citizens. These objectives are to (1) create student interest in the study of economics and (2) provide a framework of basic analytical tools useful in the understanding of social issues. To reach these objectives, we first introduce and discuss the important aspects of a contemporary social issue. Next, we develop the economic concepts and principles germane to the issue. Finally, we apply these principles to the issue to resolve it. The issues throughout the text are arranged so that basic economic concepts are logically developed and an understanding of these concepts is reinforced through repeated use and application. Enough flexibility is built in, however, to give instructors the ability to experiment with different sequences of topics and chapters. As always, we carefully choose relevant social issues that not only stimulate classroom discussion but also lend themselves to helping students learn the important basic principles of economics.

To support each student's needs, each chapter contains an outline and learning objectives to help focus learning. Opening vignettes illustrating pertinent economic issues introduce chapter discussion, and marginal definitions and notations clarify terms and provide insight into discussions for students. End-of-chapter materials include a summary, a checklist of important economic concepts, discussion questions, a list of additional readings, and Internet resources, all of which reinforce new material. Finally, a student-friendly glossary facilitates absorption of new vocabulary.

WHAT'S NEW

The early twenty-first century has proven to be a time of dramatic economic change. In preparing the twenty-first edition, our principal concern was to capture the essence of the underlying trends that are shaping today's perspectives on the social issues we explore throughout the text while maintaining and enhancing the uniqueness of our pedagogical approach to teaching basic economic concepts.

Our longtime readers will notice the absence of Ansel Sharp's name in the author byline. We are saddened to report Ansel's passing and wish to acknowledge his contributions to this book and to our lives for the past thirty years. Along with Richard Leftwich, Ansel originated the social issues pedagogy and championed it

as an alternative approach to introducing college students to the field of economics. Over the years, many thousands of students have benefited from his insights and pedagogical innovations. His mentoring friendship is greatly missed and will never be forgotten.

All chapters have been evaluated for currency and accuracy, statistical data has been updated throughout, and learning objectives have been added to the start of each chapter. Other numerous updates and edits which enhance the learning experience, can be found throughout and are detailed below:

Chapter 1: Alleviating Human Misery

- World population and demographic statistics updated to most recent year available.
- International GDP and income data updated to latest year available.
- Revised international comparisons and analysis of living standards.

Chapter 2: Economic Systems, Resource Allocation, and Social Well-Being

- Reference to latest policy changes implemented by the Obama administration.

Chapter 3: Governmental Control of Prices in Mixed Systems

- Discussion of ongoing eclipse of the federal minimum wage by state-enacted minimum wage laws.
- Rewritten discussion and analysis of the housing market with respect to rent control policies.
- Figures edited and enhanced to improve clarity and readability.
- Updated Online Resources.

Chapter 4: Pollution Problems

- Updated Checklist of economic concepts.

Chapter 5: Economics of Crime and Its Prevention

- Table 5.1 extended to include five additional years of crime data.
- Discussion of recent decriminalization of marijuana by Colorado and other states.
- Updated Checklist of economic concepts.

Chapter 6: The Economics of Education

- New opening vignette to illustrate the economic benefits of higher education.
- Table 6.2 and discussion updated to reflect the most recent international comparison data.

Chapter 7: Poverty amidst Plenty

- Titled edited to reflect new chapter focus.
- Figure 7.1 extended to include four additional years of poverty rate data.
- Tables and discussion updated to reflect current poverty income thresholds.
- Table 7.3 and its discussion extended to reflect relative income distribution for the decade ending in 2010, plus annual data for 2013.
- Reorganized discussion on discrimination effects on income.
- Elimination of discussion and analysis of the “Old Welfare System.”

Chapter 8: Economics of Monopoly Power

- Revised discussion of nonprice competition to include advertising through electronic media.
- Revised data and discussion on the automotive industry bailout during the Financial Crisis.
- Updated Additional Readings and Online Resources

Chapter 9: The Economics of Professional Sports

- Updated player salaries and team revenues in tables and graphs.
- Updated Additional Readings and Online Resources

Chapter 10: Competition in the Global Marketplace

- New opening vignette to illustrate recent European protests concerning free trade agreements.
- Updated exchange rates included in Table 10.2.
- Revised Table 10.3 to reflect changes in U.S. Current and Capital Accounts.
- Discussion of on-going changes in U.S. relations with Cuba and how it affects the embargo.
- Map of Europe in Figure 10.7 revised to reflect changes in European Union membership.
- New discussion of recent Euro crises precipitated by problems in Greece.
- Updated Additional Readings.

Chapter 11: Economic Growth

- All real GDP numbers adjusted to 2009 as the base year.
- All tables and figures using GDP statistics updated to include data through the latest year available.
- Table 11.3 revised to reflect changes in the composition of the Leading Economic Indicators Index.

- Revised discussion of the Great Recession and a new Figure 11.5 to incorporate latest statistics available.
- New forecast projections of economic growth to reflect changes in recent annual growth rates.
- Updated Additional Readings and Online Resources.

Chapter 12: Money, Banking, and the Financial System

- Revised Figure 12.1 and accompanying discussion to extend time series through January 2015.
- Text reflects appointment of new Fed Chairperson Janet Yellen who replaced Ben Bernanke.
- New Figure 12.6 incorporated to reflect historical changes in bank reserves held in the U.S.
- Updated Additional Readings and Online Resources.

Chapter 13: Unemployment and Inflation

- Worked examples of calculating unemployment rates incorporate more recent data.
- Table 13.1 updated with the latest labor force statistics for each demographic group.
- New Figure 13.2 reflects historical changes in the unemployment rate.
- Worked examples of calculating inflation rates incorporate more recent data.
- Figure 13.3 extended to reflect inflation rates up to 2015.
- Updated Additional Readings.

Chapter 14: Government Spending, Taxation, and the National Debt

- Figures 14.1 through 14.3 and accompanying discussions extended to incorporate data up to 2015.
- Revised discussion on latest government expenditure patterns.
- Updated comparative international tax rates incorporated into Table 14.1.
- Discussion and tables updated to reflect recent changes in U.S. income tax rate brackets.
- Four additional years of data added to Table 14.5 reflecting changes in the national surplus/deficit and national debt.
- Updated Additional Readings and Online Resources.

Chapter 15: Social Security and Medicare

- New population tree in Figure 15.1 to reflect the latest demographic trends by age group.
- All Social Security projections updated throughout the discussion.

- Table 15.2 updated to reflect latest average monthly benefits by Social Security recipient category.
- Figure 15.2 revised to reflect most recent distribution of income sources of the elderly.
- Figures 15.5 and 15.6 and accompanying discussion updated to reflect most recent data on sources of health care spending and categories of health care expenditures.
- New section added to discuss the Affordable Care Act (ACA) and its impact on the health care market and social insurance programs.
- New Table 15.6 to identify and illustrate the insurance provisions of the ACA.
- Updated Additional Readings and Online Resources.

SUPPLEMENTS

All ancillary materials are available on the Web site at www.mhhe.com/RG21e. The *Instructor's Manual* and *Test Bank* are posted on the password-protected instructor portion of the site. Accessible to both students and instructors are PowerPoint presentations, study tips, and self-quizzes designed to enhance the student learning experience. Also available are *Breaking News Updates*, which include links to articles in popular news sources that relate to each chapter of the text, followed by 2–3 discussion questions about the article and chapter. This material is updated every semester.

THE SOCIAL ISSUES PEDAGOGY

To those instructors who are contemplating the adoption of a social issues approach to teaching economic principles, we would like to call your attention to the following research article: “The Social Issues Pedagogy vs. the Traditional Principles of Economics: An Empirical Examination,” *The American Economist*, vol. 41, no. 1, Spring 1998. This paper was written by Paul along with Professor Paul S. Nelson of the University of Louisiana at Monroe. It presents the results of a controlled experiment comparing the learning of students enrolled in a social issues–oriented course that used a previous edition of this book with students who took traditional principles of economics courses and used a standard encyclopedic text. The results are encouraging in that no significant difference was found between students in the social issues course and students enrolled in the traditional macroeconomics principles course, after controlling for student demographic characteristics, prior experiences, and academic aptitude. Furthermore, the results strongly indicate that the students in the social issues course had a higher probability of course completion relative to those in the control group. In this era, in which student retention is becoming more important, we strongly believe that this result suggests an important positive spillover benefit of our pedagogical approach that those who design economics courses and curriculum should consider.



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Many of the features included in this edition are based on suggestions made to us by the following recent reviewers of our book:

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Charles A. Register

Paul W. Grimes

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Chapter One

Alleviating Human Misery The Role of Economic Reasoning

Chapter Outline

World Poverty and Economics

Our Insatiable Wants

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*The Capacity of the Economy
to Produce*

*Assessing Well-Being Using
GDP*

Causes of Poverty and Requisites of Economic Growth

Can Governments Help?

Governments of LDCs

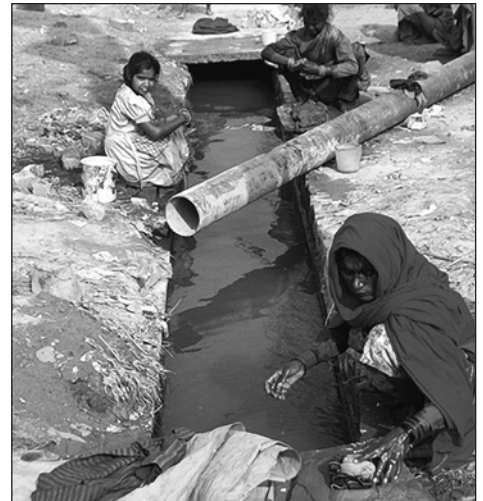
Governments of DCs

Summary

Learning Objectives

After completing this chapter,
you will be able to:

1. Explain how Gross Domestic Product can be used to assess a country's economic performance and what its shortcomings are.
2. Identify the primary factors that determine a country's wealth.
3. Discuss the roles that governments can play in improving economic well-being.



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Along a road in Matabeleland, barefoot children stuff their pockets with corn kernels that have blown off a truck as if the brownish bits, good only for animal feed in normal times, were gold coins.

In the dirt lanes of Chitungwiza, the Mugarwes, a family of firewood hawkers, bake a loaf of bread, their only meal, with 11 slices for the six of them. All devour two slices except the youngest age two. He gets just one.

And on the tiny farms here in the region of Mashonaland, once a bread-basket for all of southern Africa, destitute villagers pull the shells off wriggling crickets and beetles, then toss what is left in a hot pan. "If you get that, you

have a meal," said Stanford Nhira, a spectrally thin farmer whose rib cage is etched on his chest and whose socks have collapsed around his stick-like ankles.

The half-starved haunt the once bountiful landscape of Zimbabwe, where a recent United Nations survey found that 7 in 10 people have eaten either nothing or only a single meal the day before.

Still dominated after nearly three decades by their authoritarian president, Robert Mugabe, Zimbabweans are now enduring their seventh straight year of hunger. This largely man-made crisis, occasionally worsened by drought and erratic rains, has been brought on by catastrophic agricultural policies, sweeping economic collapse, and a ruling party that has used farmland and food as weapons in its ruthless—and so far successful—quest to hang on to power.

But this year is different. This year, the hunger is much worse. The survey conducted by the United Nations World Food Program in October found a shocking deterioration in the past year alone. The survey, recently provided to international donors, found that the share of people who had eaten nothing the previous day had risen to 12 percent from 0, while those who had consumed only one meal had soared to 60 percent from only 13 percent last year.

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WORLD POVERTY AND ECONOMICS

Some two-thirds of the world's population go to sleep hungry at night. The World Bank estimates that perhaps as much as one-fifth of the world survives on no more than \$1 per day. Outright famine regularly occurs in various parts of the world—recent examples being the mass starvation of an estimated 1 million people in Ethiopia during the drought of 1984–1985; the estimated 3 million who died, mostly from disease and malnutrition, in Congo between 1998 and 2003; the ongoing catastrophe in North Korea that has caused many to rely on grass and tree bark as part of their daily diets; the 6 million Sudanese fleeing to the Darfur region from the country's ongoing civil war that the United Nations says are all currently at risk of starvation; and, of course, the miserable plight of Zimbabweans discussed in this chapter's opening vignette. Most of the hungry have no protection from the summer's heat or the winter's cold. They receive little or no medical care and live in unsanitary surroundings. Infant mortality is high, and life expectancy is low. While in the United States 6 infants out of each 1,000 live births die before reaching their fifth birthday, the rate explodes to more than 1 in 30 in places such as Nigeria and Tanzania. At the opposite end of life, the typical Angolan can expect to die about 30 years earlier than his or her contemporary in the United States. At the same time, the severe and long-lasting worldwide

economic downturn of the late 2000s shows that no economy is immune from the ravages of poverty. Recognition of the misery of poverty leads us to ask the questions: Why is it so? What are the causes? How can it be alleviated? This in turn leads us directly into the province of economics. An assessment and an analysis of poverty problems require an explicit understanding of the very foundations of economic activity. In this section, we sketch out these foundations.

Our Insatiable Wants

Economic activity springs from human wants and desires. Human beings want the things necessary to keep them alive—food and protection from the elements of nature. We usually want a great many other things, too, and the fulfillment of these wants and desires is the end toward which economic activity is directed.

As nearly as we can tell, human wants in the aggregate are unlimited, or insatiable. This is true because once our basic needs are met, we desire variety in the way they are met—variety in foods, in housing, in clothing, and in entertainment. Additionally, as we look around, we see other people enjoying things that we do not have, and we think that our level of well-being would be higher if we had those things, too. But perhaps most important, want-satisfying activity itself generates new wants. A new house generates wants for new furnishings—the old ones look shabby in the new setting. A college or university education opens the doors to wants that would never have existed if we had stayed on the farm or in the machine shop. To be sure, any one of us can saturate ourselves—temporarily, at least—with any one kind of good or service (like ice cream or beer), but almost all of us would like to have more than we have of almost everything and higher qualities of purchases than we now can obtain.

Our Limited Means

The fundamental economic problem is that the means available for satisfying wants are *scarce* or limited relative to the extent of the wants. The amounts and qualities of goods and services per year that an economic system can produce are limited because (1) the resources available to produce them cannot be increased by any great amount in any given year and (2) the technology available for production is subject to a limited degree of annual improvement.

An economy's *resources* are the ingredients that go into the making of goods (like automobiles) and services (like physical examinations). Production is similar to cooking. Resources (ingredients) are brought together; technology is used to process these resources in certain ways (mixing and cooking them); and finally a good or service results (a cake, perhaps). Some outputs of production processes are used directly to satisfy wants. Others become inputs for additional production processes. The resources available in an economy are usually divided into two broad classifications: (1) labor and (2) capital.

Labor resources consist of all the efforts of mind and muscle that can be used in production processes. Included are the ditchdigger's effort along with that of the heart surgeon and the university professor. There are many kinds and grades of labor resources; their main common characteristic is that they are human.

labor resources

The physical and mental efforts of an economy's people that are available to produce goods and services.

capital resources

All nonhuman ingredients of production. Capital resources can be further divided into natural and man-made categories.

Capital resources consist of all the nonhuman ingredients that go into the production of goods and services. They include both natural and man-made ingredients of production. Ingredients such as land that is usable for agriculture or as space for production facilities, rivers, forests, and mineral deposits are all examples of natural capital resources. Man-made capital resources include factories and tools and machinery built up over time as well as semifinished materials such as sheets of steel and business inventories.

Resources are always scarce relative to the sum total of human wants. Consider the U.S. economy. The U.S. population is about 316 million. Most U.S. citizens want more things than they now have. Can the economy increase next year's production enough to fulfill all these wants? Obviously not. The labor force available from the present population cannot be increased substantially in either quantity or quality very quickly. Both may be increased over time by increasing the size of the population and through improving the education and training of the general population, but this increases total wants, too. The stocks of buildings, machines, tools, raw and semifinished materials, and usable land are not susceptible to rapid increases either; instead they are accumulated slowly over time.

technology

The know-how and the means and methods of production available within an economy.

Technology refers to the known means and methods available for combining resources to produce goods and services. Given the quantities of an economy's labor and capital resources, the better its technology, the greater the annual volume of goods and services it can turn out. Usually improvements in technology in an economic system result from increasing the scope and depth of its educational processes and from an ample supply of capital that provides a laboratory for experimentation, practice, and the generation of new ideas.

The Capacity of the Economy to Produce

Gross Domestic Product

The fundamental economic problem facing any society is scarcity: That is, in no society does there exist the resources and technology necessary to produce enough goods and services to fully satisfy all wants and desires. In much of the world, scarcity translates directly into the type of grinding poverty that was described in the introduction to this chapter. And even in relatively wealthy countries like the United States and Canada, while scarcity results in abject poverty for comparatively small minorities of the overall populations, even those at the top of the income spectrums, no doubt, feel that their overall level of well-being could be enhanced by higher quantities and qualities of existing goods and services or by greater invention and innovation of new products. It is scarcity that forces each society to make economic choices as to how its resources can be best used. As a guiding principle, most economists define the best use of resources as that use which most fully satisfies the wants and desires of an economy's people. Put slightly differently, throughout our analysis, we assume that the goal of an economic system is to minimize the effects of scarcity or, more positively, to maximize social well-being. A first step in determining how well an economy is doing relative to this goal is to ascertain how effectively the economy is translating its labor

gross domestic product (GDP)

The market value of all final goods and services produced within an economy during a specific time period. GDP ignores the issue of whether ownership of the resources used for the production is domestic or foreign.

and capital resources into goods and services. To this end, we wish to quantify, in dollar terms, the production of goods and services within an economy. Our primary measure of production is **gross domestic product (GDP)**, which measures the total market value of all final goods and services produced within an economy during a specific time period.

As is true with any type of accounting, the measurement of national production using GDP can be quite misleading unless we have a clear understanding of what is, and what is not, measured by GDP. First, it is essential to bear in mind that GDP is measured in terms of market values or market prices. As such, increases in GDP can come about either through increases in the production of goods and services or simply through increases in average prices. The impacts of the two clearly have different effects on social well-being. Second, it is important to remember that GDP measures the total value of production taking place within a country, regardless of who might own the resources used in production. For example, even though Toyota Camrys are produced with capital resources owned by a Japanese company, the fact that the cars are built in Kentucky causes them to be considered part of U.S. GDP. From the opposite perspective, Chevrolet Impalas, being built in Canada, are not considered part of U.S. GDP even though Chevrolet is a division of an American firm. Finally, since we hope to use GDP as a first approximation of how well an economy is doing in fulfilling the goal of maximizing well-being, it is important to note that GDP is a measure of the dollar value of production only, which indicates nothing about who actually benefits from that production. Sometimes in the popular press GDP is referred to as the “economic pie.” And if one wishes to assess how well an economy is doing in satisfying wants and desires, it is essential to know the size of the pie that is available for consumption. Equally important, however, is the number of people the pie must be distributed among and how evenly the pie is distributed. We take up each of these issues in detail later in this chapter.

Production Possibilities

Given an economy’s available stocks of resources and level of technology, the combinations of goods and services that can compose its GDP are practically limitless. For simplicity, suppose that it produces only two items—food and education—and that all of its resources are devoted to producing these two items. The curve *AE* in Figure 1.1, called the **production possibilities curve**, represents all the maximum possible combinations of food and education that can be produced during one year. Thus, GDP might consist of 100 million tons of food per year if no education is produced as shown by point *A*, or 100 million student-years of education if no food is produced as shown by point *E*. Of course, there is no reason to devote all resources to producing one or the other of the two items, and thus a combination such as 90 million tons of food and 40 million student-years of education, as shown by point *B*, or any other combination along *AE* is possible. Equally possible is a combination like *F*, which yields a GDP of 50 million tons of food and 40 million student-years of education. This combination is clearly inefficient, however, because with the same stocks of resources and

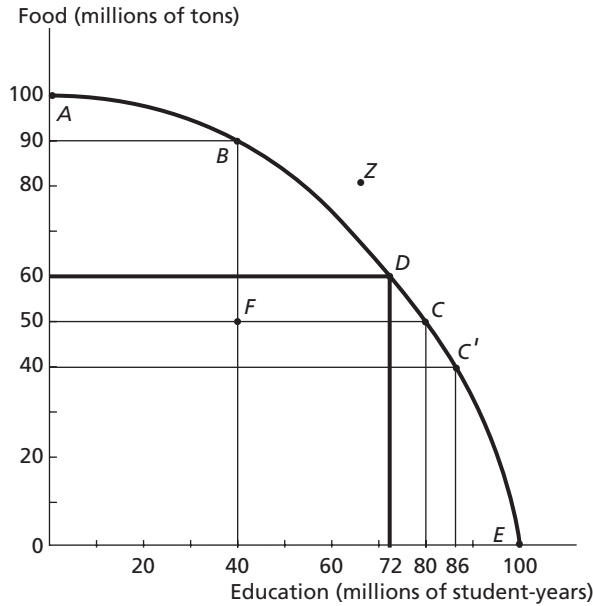
production possibilities curve

Graphical representation of the maximum quantities of two goods and/or services that an economy can produce when its resources are used in the most efficient way possible.

FIGURE 1.1 Production Possibilities Curve for an Economy

Curve AE shows the maximum combinations of food and education that the economy's available resources and existing techniques of production can produce annually. Combinations such as F imply either unemployment or underemployment of resources or inefficiency in production. Those such as Z are not attainable without increases in the quantity or quality of the economy's resources or an improvement in its production technology.

If the economy is originally producing combination D and then moves to combination C , the opportunity cost of the additional 8 million student-years of education is the 10 million tons of food that must be given up to produce it.



level of technology, the economy could produce up to 90 million tons of food without having to cut production of education below the 40 million student-year level. To be operating below the production possibilities curve indicates that either some of the economy's resources are not being used (called unemployment) or not being used to their fullest extent (called underemployment), or the economy is not using the best available technology. Operating below the curve would be of little consequence were it not for the fundamental economic problem of scarcity. That is, operating below the production possibilities curve makes the already difficult problem of scarcity worse. Ideally, of course, given scarcity the economy would like to operate at a point like Z or any other point lying outside the production possibilities curve. Such combinations are not possible, however, without either an increase in the quantity or quality of resources available or an improvement in technology.

The Opportunity Cost Principle

Have you heard the expression "There is no such thing as a free lunch"? Actually, this is a simple way of expressing one of the most important concepts in economics,

opportunity cost principle

The true cost of producing an additional unit of a good or service is the value of other goods or services that must be given up to obtain it.

increasing opportunity cost

As more of a particular good or service is produced, the cost in terms of other goods or services given up grows. This gives the production possibilities curve its bow shape.

the **opportunity cost principle**. Suppose the economy is producing combination *D*, containing 60 million tons of food and 72 million student-years of education. Now let the output of education be increased to 80 million student-years. What is the cost to society of the additional 8 million student-years of education? The opportunity cost principle embodies an often overlooked but obvious point: If society's resources are initially fully and efficiently used as is true at *D*, an increase in the production of one good or service can come about only if the production of another good or service is reduced. In this sense, the true cost or opportunity cost to society of the additional 8 million student-years of education is the 10 million tons of food that must be forgone. An economy's ability to produce is limited by its resources and technology, and so more of one product necessarily means less of another or others.

The downward slope of the production possibilities curve shows the opportunity cost principle, or trade-off in production, that exists when an economy is operating at maximum efficiency. A quick glance at the production possibilities curve further indicates that this trade-off of food for education is not constant, however. That is, while the move from *D* to *C* requires society to give up 10 million tons of food for the additional 8 million student-years of education, the next 10 million tons of food given up releases only enough resources to produce an additional 6 million student-years of education (shown as the move from *C* to *C'*). In opportunity cost terms, it is becoming more costly for the economy to shift production from food to education. It is this **increasing opportunity cost** of production that gives the production possibilities curve its convex, or bow, shape.

The increase in opportunity costs as the economy concentrates more of its resources on producing education is due to the fact that all resources are not perfectly substitutable for one another. Suppose the economy is initially at point *A* on the production possibilities curve, producing only food, but then decides to produce some education as well. The cost in terms of forgone food is likely to be relatively low initially since the first resources to be taken out of production of food tend to be those resources that are least effective in producing food. That is, the first labor resources taken from food production will likely be those farmers and farm laborers who are not very good at farm life; the first land to be converted to school yards and university campuses is likely to be least fit for agricultural pursuits, and so on. As production of education is expanded further, resources of greater value in food production are increasingly drawn into educational pursuits, and thus relatively more food must be given up. The same would be true with all resources—not simply labor and land. This is especially true in a modern and quite complex economy in which there is a high degree of specialization among many, if not most, productive resources. The more specialized and less easily substituted an economy's resources are, the more extreme will be the bow in its production possibilities curve.

The Optimal Combination of Goods and Services

All combinations of food and education along the production possibilities curve *AE* in Figure 1.1 imply that the economy is producing as much of the two goods as possible, given its technology and scarce resources. But which of these combinations is best, or optimal? To answer this, recall that the primary goal we established

for an economy was to maximize social well-being. Thus, the best combination is that which increases social well-being as much as possible. To see how we might, at least abstractly, arrive at this optimal combination, suppose that the economy is initially at combination *A* on the production possibilities curve, producing only food. What happens to well-being as the economy begins to move down the production possibilities curve toward point *B* and starts producing some education as well? For the shift to be consistent with the goal of maximizing social well-being, the public must be better off after the shift than it had been before. To make this determination, first consider the negative side of the shift. With each successive student-year of education produced, a certain amount of food must be given up. We call this the opportunity cost of the additional unit of education or, in slightly different terms, the **marginal social cost (MSC)** of the education. On the positive side, however, the shift in production gives society access to newly produced education, and the enhanced social well-being from each successive student-year of education is called the **marginal social benefit (MSB)** of the new schooling.

To determine whether each successive student-year of education between *A* and *B* should be produced, **cost-benefit analysis** can be applied. In general terms, cost-benefit analysis indicates that expansion of an activity serves to enhance well-being when it yields greater benefits than costs. Applying cost-benefit analysis in this context, we can conclude that each additional student-year of education should be produced as long as its marginal social benefit is at least as great as its marginal social cost.

Movements along the production possibilities curve then can be evaluated based on a comparison of marginal social benefits and costs. Any movement for which $MSB > MSC$ of necessity improves social well-being, while the reverse would lead to falling well-being. With these tools we can get a better handle on the question of the optimal combination of goods and services. Suppose that for each successive student-year of education from *A* to *B*, social well-being is, in fact, enhanced since $MSB > MSC$. What about further movements down the curve? If these first increments in the production of education yielded greater benefits than costs, why would this not continue to be true as even more of the economy's resources are devoted to education? Unfortunately, this will not be the case indefinitely because with each increase in the production of education and the corresponding fall in the production of food, the benefits of further shifts to education decline while the costs rise. From society's perspective, the greatest marginal benefit from education no doubt comes as the public moves from illiteracy to basic, functional literacy. Especially in modern society, anyone who is unable to read and do simple arithmetic will have great difficulty making a significant contribution to GDP. Beyond basic literacy, while additional years of education clearly add to well-being, their addition is likely to be, on average, of declining value. Thus, as production is shifted from food to education, the greatest marginal value is found for the early increments in education. In other words, as more education is produced and consumed, the *MSB* from additional education falls.

marginal social cost (MSC)

The true cost (opportunity cost) borne by society when the production of a good or service is increased by one unit.

marginal social benefit (MSB)

The true benefit to society of a one-unit increase in the production of a good or service.

cost-benefit analysis

A technique for determining the optimal level of an economic activity. In general, an activity should be expanded so long as the expansion leads to greater benefits than costs.

On the cost side, recall that the production possibilities curve is bow-shaped due to the concept of increasing opportunity cost of production. In this context, as we expand the production of education, the value of the food that we must give up rises—that is, the *MSC* of education—increases. As we move down the production possibilities curve, then, any gap between *MSB* and *MSC* that might initially exist tends to narrow. Once we reach the combination at which $MSB = MSC$, no further shifts in production will lead to increasing well-being. To go beyond this point would imply that we produced and consumed an increment in education which was not worth what it cost. Consequently, the optimal combination of goods and services is defined as that combination where the marginal social benefit of production just equals marginal social cost. How does a complex modern economy arrive at this combination of goods and services and the allocation of resources embodied in it? This question is the basis for Chapter 2.

Economic Growth

Thus far we have only considered combinations either on or below the production possibilities curve. What about a combination such as *Z* in Figure 1.1, or any other combination lying outside the production possibilities curve *AE*? As noted above, these combinations are not attainable given the economy's current stock of resources and level of technology. Over time, however, combinations lying outside *AE* can become attainable if the economy is able to either increase its quantity or quality of resources or improve its level of technology. Figure 1.2 shows three

FIGURE 1.2 General and Specific Economic Growth

The outward shift in the production possibilities curve from *AE* to *A'E'* in (a) indicates that, due to either an increase in the quantity or quality of resources or an improvement in technology, the economy can produce more of both food and education. This is referred to as general economic growth. When the increased quantity or quality of resources or improvement in technology applies only to the production of education as in (b) or food as in (c), the economy is experiencing specific economic growth.

