Economic Issues and Policy

Fifth Edition

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Thank you for examining and/or choosing this new edition of my textbook. In each successive edition, aside from updating, I’ve tried to make the book superior to the previous edition. I’ve listened to students, instructors, and my own intuition. I hope you will be pleased with the textbook and the changes, and I also have some requests to make of you. But first let me tell you about the book.

About the Book

This text is intended for a nontechnical, issues-oriented economics course, usually a 100-level course at four-year universities. It is often a general education course. The book is also appropriate for two-year colleges and other institutions, as well as economic education programs for elementary and secondary teachers. Chapters are designed so that they can be taught in any order after Chapter 1. Each chapter includes references to other chapters that mention similar topics.

I have over 20 years of experience teaching issues-oriented economics. Usually, these students are not economics majors, although many decide to major or minor in economics after taking this course. My goals in writing this book have always been to make students aware of social issues in the world around them and to facilitate their understanding of these issues and related policy options from an economic perspective. I have also always hoped that it would inspire students to become involved with the issues in order to make this a better world. Students are often unaware that the important issues of our day, even ones that directly affect them—the environment, our health care programs, our educational system, crime and drugs, and matters as weighty as war and peace—are rooted in economics. Furthermore, students often set aside as too complex the issues that are recognized as economic, such as unemployment and inflation or trade and budget deficits. They believe that these issues are better left for the experts. Students need to know that all of these issues are indeed relevant and within their ability to understand. They need to comprehend these issues to make sound choices and form intelligent opinions. Of course, before students are willing to commit themselves to the lifelong learning of economics, they first need to be convinced that it is relevant to their lives and that it is interesting!

The discussion of issues in this book is relevant and current. I have deliberately included and highlighted issues of gender, race, and ethnicity, as well as issues that are international in scope. Students are invited to broaden their sensitivity to global and multicultural issues through topics such as migrant farm workers, Colombian coca growers, immigrants to the United States, court rulings on affirmative action, the incidence of hate crimes, and others. Further, they are offered an understanding of the incredible poverty found in Africa, Asia, and Latin America, not to mention the poverty that takes place here in the United States.

Economic theory is used to analyze social and economic issues and the implications of potential policies. The level of technicality is deliberately appropriate for an economic issues course with no prerequisites, unlike other issues texts that attempt to
incorporate all relevant principles and theory into pages better focused on the issues themselves. The text is written in a clear and student-friendly manner. Graphs are straightforward and normally illustrate only one concept per graph. Except for the appendices, only two basic types of graphs are used in the text: production possibilities and demand and supply (and aggregate demand and supply). More technical material and additional examples are frequently placed in appendices.

This text generally presents economic theory in a straightforward, market-oriented framework, but the policy discussion is not limited to such a narrow context. Instead, diverse policy perspectives are offered. As a result, the book contains a more liberal orientation than one that would rely on market analysis only. Indeed, the careful presentation of both economic conservative and liberal viewpoints is one of the unique characteristics of this book. Students generally have opinions, and they often consider themselves to be either conservative or liberal, but they rarely have the sophistication to understand the economic meaning of these terms and how their viewpoints tie into one or the other general philosophy. The ViewPoint section at the end of each chapter clarifies these notions, giving students a framework within which to understand their own economic philosophies. Please point out to your students the importance of reading the ViewPoint sections, which clarify the economic conservative and liberal views on the topics of the chapter. Otherwise, as you know, students are inclined to skip the “boxes.” The ViewPoint section of Chapter 1 is especially important, insofar as it introduces students to what it means to be an economic conservative or an economic liberal. It sets the stage for further discussion of this topic in relation to the issues in chapters to come.

The Economic Toolbox at the beginning of each chapter lists the key economic concepts addressed in that chapter, providing instructors with a helpful course-planning tool and students with a proven effective pre-reading strategy. Additional Internet exercises are included in the Discussion and Action Questions at the end of each chapter to help students learn to use the Internet for data collection and research.

Once our students begin to understand the economic issues around them, the text has the final explicit objective of involving our students in the issues and challenging them to have an impact on our world. This is evidenced throughout the text and especially in the Discussion and Action Questions at the end of each chapter, as well as in the Epilogue entitled “You and the World Around You.”

Changes in the Fifth Edition

First, the world has changed enormously in the few years since the fourth edition. As I write this, we have our first African American president. Our economy is in a recession. The government is a major shareholder in several large corporations. The stock market has crashed. Unemployment has spiked. Budget deficits are at record levels. But, of course, you know all this, and textbook authors have had to make a mad dash to update suddenly obsolete books.

Secondly, in addition to updated data and analysis, I’ve sought to improve the order of the chapters. The order of Chapters 1 through 4 remains the same, and these chapters are placed within a section entitled Introduction to Economics, Scarcity, Public Goods, and Spillovers. These early chapter topics were chosen both for their interest to students and their order of presentation of economic concepts. Chapter 1 has always presented the introductory concepts of scarcity, production possibilities, and demand and supply. Also, one of the important features of this text—the economic conservative vs. economic liberal viewpoint—is explained and emphasized, along with a basic explanation of the capitalist vs. socialist economic model. Chapter 2 on crime and drugs presents an example of a public good, that of crime prevention. Cost-benefit analysis is utilized, and elasticity is introduced. Pollution as a negative externality and education as a positive
one are introduced in Chapters 3 and 4, respectively, and cost-benefit analysis is utilized once again.

Section II is entitled The Economics of Social Issues. It contains a new ordering of Chapters 5 through 9, covering the topics, in order, of discrimination, U.S. poverty, housing, health care, and social security. Important new information on the housing market and health care is included.

Section III focuses on global topics, including Chapter 10 (World Poverty), Chapter 11 (Global Agriculture), and Chapter 12 (International Trade). While international content permeates through all of the chapters, these three chapters are interconnected in such a way that makes the new ordering more appropriate.

Newly ordered Chapters 13 through 16 address the topics of market power, unemployment and inflation, government macroeconomic policy, and government taxes and borrowing. The section is entitled Microeconomic and Macroeconomic Issues, and the chapters naturally include new information on the automobile industry, the financial crisis, the recession, the Economic Stimulus Bill, monetary policy, and budget deficits. And finally, Section V (You and the World Around You) contains Chapter 17 (Globally Free Markets for the Twenty-First Century?) and the Epilogue (which invites students to synthesize all they have learned about economic conservative and liberal viewpoints and to put it to the test of assessing the future of the world economy). I think this is the last time the chapters will be re-ordered!

As before, each student who purchases a new textbook will receive an access card. This card provides the code that will gain them access to InfoTrac College Edition and South-Western’s Economic Applications, where they will find hands-on exploration and analysis of the latest economic news stories, policy debates, and data. These resources also offer an excellent research starting point for class assignments such as papers, projects, and presentations. In addition, I have included boxes in the margins of the textbook that will point the students to a specific Economic Applications feature that relates directly to the text discussion at hand.

**My Requests of You**

First, instructors and reviewers tell me that they like the global content as it weaves throughout the textbook and as it takes particular focus in Chapter 10 on world poverty, Chapter 11 on global agriculture, Chapter 12 on international trade, and Chapter 17 on global markets; yet they often complain that they don’t have time to include these chapters. Please do make a point of utilizing these chapters! The developing world of Africa, Asia, and Latin America now includes close to four-fifths of the world’s population, and our students need far more education about these parts of the world than they typically receive. Please at least review these chapters before making a decision on whether to include them on your syllabus. I hope that you will like them too!

Second, some studies suggest that today’s youth are disinterested in the world around them. I don’t believe this is true. In the post 9/11 era, students are indeed looking at the world around them, struggling to understand the relevance of global and socioeconomic issues to their own lives, and trying to discern the role they themselves will play in our complex and interdependent world. We can help them. Many of the Discussion and Action Questions are designed to make students think about what they can do, and the Epilogue encourages them to take action. Please ask your students to read this material, and let’s challenge them to make a difference, whether it is fighting for fair trade coffee on campus, seeking an end to cocoa slavery in West Africa, boycotting big-box stores with poor labor practices, or conserving and protecting our global environment. Thank you for your impact on your students, and through them, your contributions to our world!
Ancillaries

The Instructor’s Manual with Test Bank—revised for the fifth edition—reveals the goals and objectives on a chapter-by-chapter basis. The manual contains teaching and lecture suggestions (based on my own education in how students think), as well as additional discussion or lecture examples to use in class. It also contains some answers and comments on the Discussion and Action Questions at the end of each chapter in the textbook. The instructor’s manual also contains sample multiple-choice, true-and-false, critical thinking, and short-answer (including graphical) questions, providing instructors with plenty of choices for exams. The manual also includes suggested Web sites for instructors and/or students. Whether you are a novice or a seasoned teacher, I think you will find material in the instructor’s manual that is beneficial to you.

On the Web site you will also find PowerPoint lecture slides, thoroughly revised for the fifth edition.
The world has changed before your very eyes! Within the last few years, we’ve elected the first African American president. Our nation has tumbled into recession, and the government is a major shareholder in several large corporations. We’ve endured a housing crisis and a financial crisis. The stock market crashed! The budget deficit soared. You probably know people who have gone bankrupt, lost their homes, or become unemployed.

This book will help you understand many of these topics. It focuses on the economics of social issues. It includes those issues that you would normally consider to be economic by nature, such as unemployment and budget deficits. But it also includes a variety of other social issues that you might not ordinarily think of as economic ones: illegal drug use, the plight of our nation’s homeless, the degradation of our environment, the problems in financing your higher education, and the issue of affirmative action. These and many other issues are addressed in this book.

The basic economic tools in the text can be used as a framework for understanding the various social issues in the world around us. They can provide greater insight into issues such as health care, poverty, and discrimination. They can help us understand government policy within our nation. They can help us comprehend economic events in other countries, including those countries making a transition from socialism to capitalism in Eastern Europe and those countries struggling with poverty in the developing world. In short, these tools can be used again and again to examine problems and issues present in our world today as well as in the future.

The book is intended to be student friendly. The graphs are straightforward and clear. You may be relieved to know that these graphs boil down to just two basic types: production possibilities and demand and supply. The definitions of economic vocabulary in the margins of each chapter help you cut through any economic jargon. The issues are current. The text is clear, lively, and to the point, with a minimum of technicality. The material is presented in a way that you should find relevant to your personal life. It includes issues of gender, race, and ethnicity. And because the world is so rapidly becoming interdependent, there is plenty of discussion of international topics.

The book is intended to get you to think. As you acquire a basic understanding of economics, you also acquire a framework within which to form and justify your personal opinions about economic issues. Are you a conservative or a liberal? Do you even know what these terms mean in the context of economics? Briefly, an economic conservative has the view that less government involvement in the economy is best. An economic liberal believes that more government involvement is best. Both of these are further explained in the ViewPoint section of Chapter 1, and the ViewPoint sections in subsequent chapters focus on specific issues and policies from both an economic liberal and economic conservative perspective. You will do yourself a great service by carefully reading the ViewPoint section in each chapter.

Finding solutions to economic problems is not easy. People of different philosophies can hold very different viewpoints, despite a common understanding of economic concepts. Here is where you, the student, come in. This book will provide a basic
economic framework for discussing social issues and problems, but you must determine your own viewpoint on these issues and problems.

Each chapter opens with a feature that will help you prepare for the material in the chapter: “The Economic Toolbox.” The Economic Toolbox lists the key economic concepts addressed in the chapter. Reading this list prior to your reading of each chapter will improve your reading comprehension in two ways: if you are unfamiliar with any of the concepts listed, you can mentally prepare for taking in new information; if you are familiar with some of the concepts (and you will find as you work through the chapters that concepts are often repeated), you can use your prior knowledge to deepen your understanding of the concept as it is presented in a new context.

Within your new textbook, you will find an access card. It provides the code that will gain you access to InfoTrac College Edition and South-Western’s Economic Applications, where you will find hands-on exploration and analysis of the latest economic news stories, policy debates, and data. It also offers an excellent research starting point for class assignments such as papers, projects, and presentations. In addition, I have included boxes in the margins of your textbook that will point you to a specific Economic Applications feature that relates directly to the text discussion at hand.

Discussion and Action Questions at the end of each chapter will stimulate your thinking about what you have just read. Many of the questions direct you to Web sites that provide a wealth of economic information and perspectives. If you do not use these questions for discussion and action in class, try to answer one or two on your own or with a classmate. You will find that your understanding of the issue will grow and the relevance of the issue will increase.

Many of the Discussion and Action Questions, as well as the Epilogue to the book, challenge you to try to make a difference in the global society in which we live. I challenge you to confront the various issues head on and to use the suggestions to find ways that you can impact our society for the better.

Now, enjoy your discovery of the world of economic issues!
I owe a debt of gratitude to many people. First, thank you to the thousands of students who have allowed me to experiment on them. As a result of their enthusiasm and idealism, they are responsible for my love of teaching. I could never have written a book without them!

Second, I appreciate the support provided by some wonderful student assistants, especially Rachel Carlson, Anna Andaházy, Christina Brux, and Shao-Enmin. Look out world, because these young people will barrel us into the future with their gifts of friendship and energy. There is no such thing as a lost generation!

Third, the comments of my colleagues guided me in this revision. I am grateful for their perspectives and the extensive sharing of their experience and recommendations: Carlos Aguilar (El Paso Community College), Erwin Blackstone (Temple University), David Gillette (Truman State University), Cynthia Harter (Eastern Kentucky University), Tori Knight (Carson-Newman College), Cathy Lawson (Missouri Western State University), James M. Leaman (Eastern Mennonite University), Robert Rebelein (Vassar College), Steve Robinson (University of North Carolina at Wilmington), and Robert D. Schuttler (Marian University). I am also grateful to my colleagues at the University of Wisconsin-River Falls who have helped me with this text, especially Dr. Dawn Hukai and Steve Dewald.

I am grateful to the team at South-Western, especially Steve Scoble, Henry Cheek, Katie Yanos, Starratt Alexander, and Michelle Kunkler.

And finally, I am grateful for the love and support of family and friends. Most of all, Mom, you’re forever in my heart.

Jacqueline Murray Brux
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Introduction to Economics, Scarcity, Public Goods, and Spillovers

Chapter 1  Introduction
Chapter 2  Crime and Drugs
Chapter 3  The Environment
Chapter 4  Education
Chapter 1 ROADMAP

The Economic Toolbox

The Economic Toolbox is a feature of each chapter. It points out specific economic topics that will be covered, alerting you to watch for these concepts in the chapter.

- Scarcity
- Resources
- Production possibilities
- Opportunity costs
- Unemployment
- Economic growth
- Demand and supply
- Equilibrium
- Microeconomics
- Macroeconomics
- Economic conservative
- Economic liberal
Welcome to economics! Welcome? To the dismal science? To the colorless pages of The Wall Street Journal? To the realm of boring statistics, intimidating jargon, complex graphs, and middle-aged men and women in three-piece business suits carrying leather briefcases?

Welcome? To terms such as budget deficit, balance of trade, national debt, recession, money supply, exchange rate, sub-prime market, and market equilibrium? Do we really want to know what these phrases mean? Do we really want to look at the graphs, charts, numbers, and newsprint? Can these possibly have meaning for our lives? Can they possibly be understood by average citizens such as these right here in this classroom?

Perhaps surprisingly, the answer to all of the preceding is a resounding yes … not because we enjoy jargon and numbers, but rather because we want answers to important questions. Will I be able to get a job when I graduate? Why does a marketing professor make more than an English professor? Will I be helped or hurt by a raise in the minimum wage? Why are college costs so high? Should students receive greater financial aid? Why do female workers earn only 80 percent as much as male workers? Why do we go to war? Why does hunger persist in a world of plenty? Why does poverty exist in the midst of affluence? Who will eat, and who will not? Who will find jobs, and who will not? Whose children will have quality education and health care, and whose children will not?

If you’ve ever wondered about the questions raised above in the Introduction, or questions like them, then you are interested in economics. This is because economics deals primarily with scarcity: how should we allocate our limited resources to satisfy seemingly unlimited human wants and needs? Once you understand a little economic reasoning, you will be able to answer the world’s (and your) pressing questions better than most of the politicians, newscasters, and opinionated people who persistently tell you what to believe. Survival in the face of scarcity is what economics is all about. Understanding a few economic concepts allows you to analyze these issues yourself and come up with your own answers to these questions. So, let’s get started.
some are human resources (labor). These resources are scarce in the sense that there are not enough of them to produce everything we need and desire. Even when using all resources as efficiently and completely as possible, and using all modern technology to its fullest extent, there is some limit to the amount we can currently produce. Scarcity forces us to choose among competing uses for society’s resources. What to produce and how to distribute this output to society’s citizens are the most basic economic choices to be made.

The easiest way to think about the problem of societal choice is by looking at a basic economic concept and graph called the production possibilities curve. (I promise that only two basic graphs will be used to analyze the issues in this book.) The production possibilities curve shows the maximum amounts of two different goods that can possibly be produced during any particular time period using society’s scarce resources. Because reality is complex, economists try to simplify it by making assumptions about the basic elements involved in analyzing an issue. In examining production possibilities, we must make these simplifying assumptions about our economy:

1. All available resources will be used fully.
2. All available resources will be used efficiently.
3. The quantity and quality of available resources are not changing during our period of analysis.
4. Technology is not changing during our period of analysis.
5. We can produce only two goods with our available resources and technology.

Let’s consider the implications of these simplifying assumptions. First, all available resources are used fully, so that no workers are unemployed, no factory buildings sit idle, and so forth. (This does not mean that we fail to conserve some of our resources for the future. If we think that the habitat of the snowy owl is important ecologically, we simply do not make that part of the available resources.) Second, efficiency means that we use our knowledge and technology to produce the maximum amount of output with these resources. These first two assumptions mean that our economy is doing the best that it can; it is operating fully and efficiently. Third, the quantity and quality of our resources are not changing. This means that over the current time period, workers do not begin new training programs to make them more productive, new natural resources are not discovered, and so on. The next assumption is similar. Technological change—which might give us a better means of producing more goods with the same resources—is not occurring. We make these last two assumptions to deal with the world as it is right now, and not how it might become in the future. And finally, to simplify our analysis (and because here we graph in only two dimensions), we assume that we can produce only two goods with our resources. Let’s pick bread and roses as the goods.

One of our choices is to put all of our resources and technology into the production of bread. This choice might give us 150 units of bread. Whether these bread units are loaves, cases, truckloads, or tons is irrelevant here. Let’s suppose they are tons.

Two old adages suggest that man (and woman) cannot live by bread alone and that life is richer if we stop and smell the roses. So, let’s allow another choice and take some resources and some technology out of bread production and use them to produce roses. Now, we might end up with 20 units of roses and only 120 tons of bread. Again, the nature of the units is irrelevant; our rose units might be bouquets, boxes, truckloads, or tons. Let’s suppose they are tons. (Note, however, that we had to give up 30 tons of bread production in order to produce the 20 tons of roses.)

Another alternative might be to give up even more bread, leaving us with bread production of only 90 tons, in order to produce 40 tons of roses. (Note that, once again, we had
to give up 30 tons of bread production in order to get the additional 20 tons of roses.) The alternatives could go on and on and might be summarized in a production possibilities table such as Table 1-1. Note that each alternative A through F represents one possible combination of bread and roses that we could produce.

The information in Table 1-1 can be easily displayed in a production possibilities curve, or graph. Don’t let graphs intimidate you. They can be very useful. Every graph has just two axes, and each axis shows the amounts of one variable. As you move along the axes away from the origin, the amounts of the variables increase. In Figure 1-1, the horizontal axis represents tons of roses, and the vertical axis represents tons of bread. Each point in the graph represents a row in the table, and the labeling of the points corresponds to the alternatives in the table. Connecting all points gives us a production possibilities curve, which shows the alternative combinations of maximum quantities of bread and roses that our country is capable of producing. (Even though we end up with a straight line, we still call it a production possibilities curve. The appendix to this chapter considers the more realistic production possibilities curve that is actually bowed outward.)

A number of important concepts are illustrated by the production possibilities curve. The most basic concept is that there is some limit to what we can produce. Thus, to produce more of one good, we must give up production of something else. This reality
**Opportunity cost**
The best alternative forgone in order to produce or consume something else; what you give up to get something else.

**Unemployment**
A situation in which resources are not fully used in production.

**Economic growth**
A sustained increase in production, represented by an outward shift of the production possibilities curve.

is what economists refer to as opportunity cost. **Opportunity cost** is the best alternative that is forgone in order to produce or consume something else. The opportunity cost of producing roses is not measured in dollars but in the bread that we give up when we produce these roses. And the opportunity cost of producing bread is the roses we give up when we produce this bread. As economists are fond of saying, there is no free lunch! There is an opportunity cost to everything.

The second economic concept that is illustrated by production possibilities is that of **unemployment**. Realize that our alternative combinations of the two products represent possible quantities. We have explicitly assumed the full use of our resources, knowledge, and technology; hence, the phrase production possibilities. In actuality, we rarely if ever produce to our full potential. In reality, some resources may go unused: factories are idle and workers are laid off. Nor do we always use resources in the most efficient manner. In these cases, we will not be on the production possibilities curve, but at some point below it, such as U (representing unemployment) in Figure 1-1. At point U, we are producing only 40 tons of roses and 60 tons of bread, though we could produce more of both if we had full employment. Clearly, we could do much better by putting idle resources to work and moving our way back out to the production possibilities curve.

Finally, it is evident that our country need not be restricted to a single production possibilities curve forever. Economies may grow, and the variables that we assumed are unchanging (resources and technology) certainly do change over time. **Economic growth** may occur if the quality or quantity of society’s resources increases, or if new technologies are developed so that we can produce more output with our available resources. Such growth would be reflected in an outward shift of the entire production possibilities curve, as illustrated in Figure 1-2. Such a shift would enable us to move to a point such as point G (representing growth) on the new production possibilities curve.

**FIGURE 1.2** • Production Possibilities Curve with Economic Growth
Note that more of both bread and roses can be produced when the production possibilities curve shifts outward as a result of economic growth.
Clearly, point G (with 80 tons of roses and 90 tons of bread) is superior to a point such as D (with 60 tons of roses and only 60 tons of bread) on the original curve. Such growth is possible only over time, and not in the current time period illustrated by the first production possibilities curve.

Of course, our country and world are capable of producing more than just two goods. We produce trucks, spaghetti, gasoline, DVD players, swimming suits, and a bewildering array of merchandise that fills our shopping centers. We also produce services such as health care, education, road repair, and cellular phone service. We can easily imagine infinite combinations of all the goods and services that an economy can potentially produce. We cannot graph these infinite combinations, however, because our graphs have only two axes. So, bread and roses simply represent one of an infinite set of choices. We can make our graph a bit more realistic by redefining the axes. We might redefine the horizontal axis as staple goods and the vertical axis as luxury goods. Or we could divide our economy’s output into agricultural goods and manufactured goods, or consumer goods (goods that are purchased by consumers) and capital goods (goods such as factory buildings and machinery that are used to produce other goods). We may examine the choice between military goods and civilian goods. Or we may look at the production possibilities for private goods (such as DVD players and hamburgers, which are provided by businesses) and public goods (such as police and fire protection, which are provided by government). Thus, we can realistically consider many choices involved in the production of various types of output.

I hope you don’t suspect that the purpose of the production possibilities exercise was merely to illustrate some economic concepts and drawings. It wasn’t. It has very important real-world relevance. It suggests to us first of all that we can never be absolutists when it comes to our nation’s spending priorities. If we wish to devote more of the country’s current resources to environmental protection, for example, we may have to give up part of our space program. If we wish to expand public education, we may have to give up some of our national defense. Or if we wish to have more government goods and services overall, we must give up some private goods. We can’t have more of everything. We can’t insist on any spending priority without limit, because there are always opportunity costs to consider.

The production possibilities curve also helps us realize that the costs of unemployment are not limited to personal hardships experienced by the unemployed person and his or her family, although these personal costs may be severe. Costs are also borne by our nation and our world as a whole in the form of reduced production. If we waste our resources through inefficient production techniques, output is similarly reduced. In a world of scarcity, we must see to it that our resources are fully and efficiently employed in the present, and we can then seek to expand our productive potential in the future.

And the problem of scarcity is real. Worldwide, more than 25,000 children die every day from poverty-related causes. Many of the world’s citizens lack basic nutrition, health care, education, shelter, clothing, clean water, and hygiene. Many of the world’s nations lack basic infrastructure in the form of communications, transportation, sanitation, and electricity. Any time a poor country makes a decision to improve transportation, for example, as an investment in the future, many of its citizens may die of hunger in the present. Even in a prosperous country such as ours, close to 13 percent of the population is poor. As we shall see in Chapter 6 on U.S. poverty, these people do not receive adequate food, shelter, health care, clothing, and other necessities. Our nation as a whole lacks sufficient environmental protection, first-rate educational opportunities, and quality health care for all.

The issue of opportunity costs was widely discussed in the context of the war in Iraq. As of June 2006, an emergency spending bill had been signed by President Bush,
bringing the total amount spent in the war to $320 billion. Estimates exceed $1 trillion spent before the war is over. This is enough to eliminate poverty in the United States and the world many times over. Choices as to what we produce and how much we produce are clearly important to our citizens and the citizens of the world.

**Economics and Distribution**

Although production choices are important, they really tell us only half of the story. At least as important are choices relating to the distribution of goods and services.

The reason there is hunger in a world of plenty is not a problem of production but of distribution. Poor people and poor governments lack the income to purchase the food that is produced. In terms of our current example, who should receive the bread and roses after they are produced? Should the decision be based on equality so that everyone receives the same amount of every good that everyone else does? Should people receive a share of the goods and services that is proportional to their contribution to producing those goods and services? Should the government make the distribution decisions, perhaps giving higher rations to those most “deserving” (however that might be determined)? Should the government ensure that all residents receive adequate housing, health care, nutrition, and education, with less-vital goods distributed on the basis of people’s incomes and desires? Should all goods and services be distributed on the basis of people’s incomes? On what basis should distribution choices be made?

As we will see, in a market-based economy such as ours, the choices of distribution as well as production are based primarily on prices. And prices are determined by demand and supply.

**Demand and Supply**

**Demand**

Have you ever had to hire a tutor to help with your coursework? (I hope you haven’t had to in economics, at least not yet!) What are some of the factors that would determine the number of tutoring hours you would wish to purchase? Probably the degree of difficulty of the coursework is important, and so is your income, which will determine how much tutoring you can afford. Most likely, the price of tutoring services is important to you as well. All other things being equal, you would probably be inclined to purchase more tutoring service hours at $1 per hour than at $5 per hour. Most of us tend to behave in the same way. At very high prices, we tend to be frugal in our use of tutoring services. We will ask more questions in class, study with a friend, or visit the teacher during office hours (maybe bringing along an apple or two). We will perhaps study harder (or take the consequences) rather than pay the fee for many hours of tutoring services if the price is high. At lower prices, we are willing and able to purchase more hours of tutoring. Let’s focus on the price variable for a moment.

Let’s assume that you attend a large university where there are many students who want tutors as well as many students willing and able to tutor. Suppose we consider all your school’s students and their desire to purchase tutoring services. Let’s assume that the time period is one week and that all factors other than price (such as course difficulty and student income) are held constant. (Economists usually say “all other things equal” to specify that all other factors that might influence the quantity demanded are unchanging.)

To illustrate this example further, let’s put this information into a tabular format. Let’s consider people’s willingness to buy tutoring services, where P stands for alternative possible prices of tutoring services and Q^D (quantity demanded) stands for the
amounts of tutoring that students are willing and able to purchase at these various
prices. This is reflected in Table 1-2, which shows alternative prices and the quantities
that people are willing and able to purchase at these prices. This is called a demand
schedule. It is clear that if tutoring prices are low (say, $2 per hour), the quantity
demanded will be high (80 hours). If tutoring prices are higher ($4 per hour), the
quantity demanded will be lower (40 hours). This simple commonsense idea that
people will be willing and able to buy more of a good or service at low prices than
at high prices is a fundamental economic principle, the law of demand, which is
usually stated as follows: price and quantity demanded are negatively related, all
other things equal. This means that when price goes up, quantity demanded goes
down, and vice versa.

We can place the information from Table 1-2 into a graph of demand, illustrated in
Figure 1-3. A graph of demand is referred to as a demand curve (even though demand
curves are often drawn as straight lines). The price of tutoring services (P) is on the
vertical axis, and the quantity of services demanded (number of hours) is on the
horizontal axis, which is labeled Q for quantity. Plotting the information in each of
the rows a through e in the table gives us points a through e in the graph. Connecting
these points gives us the demand curve in Figure 1-3. The demand curve (labeled D for
demand) indicates all possible combinations of alternative prices and quantity
demanded, assuming that all factors except price that could affect quantity demanded
are held constant.

**TABLE 1-2**  • Demand Schedule for Tutoring Services, One Week

<table>
<thead>
<tr>
<th>Alternative</th>
<th>P ($ per hour)</th>
<th>Q (hours)</th>
</tr>
</thead>
<tbody>
<tr>
<td>a</td>
<td>$1</td>
<td>100</td>
</tr>
<tr>
<td>b</td>
<td>2</td>
<td>80</td>
</tr>
<tr>
<td>c</td>
<td>3</td>
<td>60</td>
</tr>
<tr>
<td>d</td>
<td>4</td>
<td>40</td>
</tr>
<tr>
<td>e</td>
<td>5</td>
<td>20</td>
</tr>
</tbody>
</table>

**FIGURE 1-3**  • Demand for Tutoring Services, One Week

**Demand schedule**
A table showing the quantities that consumers are willing to buy at alternative
prices during a specified time period.

**Demand curve**
A graph showing the quantities that consumers are willing to buy at alternative
prices during a specified time period.
Note that the demand curve is downward sloping, reflecting the law of demand. A higher price is associated with a lower quantity demanded (40 hours at $4 per hour), whereas a lower price is associated with a larger quantity demanded (80 hours at $2 per hour).

What if one of the other factors affecting demand was to change? Course difficulty might increase, for example. Or student incomes might increase, making students better able to afford tutoring. Each of these examples would increase the demand for tutoring services. You probably can add to the list of things that would increase the demand for tutoring.

An increase in the demand for tutoring services will result in an entirely new demand schedule, such as the one in Table 1-3. We can plot this new information in the same graph as before, and we end up with an entirely new demand curve, D'. (See Figure 1-4.) Demand has increased so the demand curve has shifted forward, or to the right. Note that for every price that existed before, a higher quantity demanded now exists.

If an event causing a decrease in demand were to occur (say, a decrease in student incomes), the demand curve would shift backward, or to the left. For every price on the new demand curve, a smaller quantity would exist.

### Table 1-3 • Increased Demand Schedule for Tutoring Services, One Week

<table>
<thead>
<tr>
<th>Alternative</th>
<th>P ($ per hour)</th>
<th>Q^D (hours)</th>
</tr>
</thead>
<tbody>
<tr>
<td>a'</td>
<td>$1</td>
<td>140</td>
</tr>
<tr>
<td>b'</td>
<td>2</td>
<td>120</td>
</tr>
<tr>
<td>c'</td>
<td>3</td>
<td>100</td>
</tr>
<tr>
<td>d'</td>
<td>4</td>
<td>80</td>
</tr>
<tr>
<td>e'</td>
<td>5</td>
<td>60</td>
</tr>
</tbody>
</table>

### Figure 1-4 • Increased Demand for Tutoring Services, One Week

Demand curve D' represents larger quantities demanded at each price than does demand curve D.
Supply

Now let’s consider the other side of the market for tutoring services, the supply side. Imagine the students at your school who not only don’t need tutoring but who are actually able to tutor. This is the group of students who might supply tutoring services for a fee. What are the factors that influence these students’ willingness to offer their tutoring services for sale? Probably the costs associated with providing the service are important. The most obvious cost is the value of the tutor’s time. Remember that opportunity costs are always important. The opportunity costs of a tutor’s time may be quantified easily if an adult tutor hires a babysitter while he or she tutors or if the tutor forgoes income from alternative employment. Some costs that are less easy to quantify are just as real. The tutor might be giving up precious study time, quality time with friends and family, or simply valued leisure time. Although it’s hard to attach a dollar value to these costs, they remain important. Remember that there is no free lunch; every choice has an opportunity cost; every activity chosen entails another activity given up.

Another factor affecting the total quantity of tutoring services supplied will be the number of tutors available. If we experience an increase in enrollment of top-notch students who are dying to become tutors, we can expect more tutoring services suddenly to be supplied.

The price that tutors can receive for their services will also be an important determinant of their willingness to supply these services. Let’s focus our attention on this price variable for a moment. Let’s look at the supply of tutoring services in a one-week time period, when all the factors except price that might affect the number of tutoring hours supplied are held constant. It is realistic to assume that individual tutors will be more willing to provide tutoring services at a high price than at a low price. The higher price will allow them to cover their babysitting expenses more easily or will serve as a stronger inducement to give up leisure or time with friends and family. It will compensate them better for other job prospects they don’t pursue because they are tutoring. In simple terms, the higher the price, the greater the incentive to provide tutoring services. Tutors (and business firms) will offer for sale a larger amount of the good or service at higher prices rather than at lower prices. This is known as the law of supply, which is usually stated as follows: price and quantity supplied are positively related, all other things equal. This simply means that price and quantity supplied (the amount offered for sale) change in the same direction. If price goes up, so does quantity supplied; if price goes down, so does quantity supplied.

The behavior of all tutors as a group might be summarized in Table 1-4, which is a supply schedule showing different quantities of tutoring hours supplied (Q₅) at the alternative prices that the tutors might receive. The quantities represent the total number of hours supplied by the group as a whole at each alternative price over the specified time period.

<table>
<thead>
<tr>
<th>Alternative</th>
<th>P ($ per hour)</th>
<th>Q₅ (hours)</th>
</tr>
</thead>
<tbody>
<tr>
<td>v</td>
<td>$1</td>
<td>20</td>
</tr>
<tr>
<td>w</td>
<td>2</td>
<td>40</td>
</tr>
<tr>
<td>x</td>
<td>3</td>
<td>60</td>
</tr>
<tr>
<td>y</td>
<td>4</td>
<td>80</td>
</tr>
<tr>
<td>z</td>
<td>5</td>
<td>100</td>
</tr>
</tbody>
</table>
one-week time period. All the factors other than price that might affect the tutors’ willingness to tutor do not change. Thus, the only thing changing is the price determinant.

We can place the information from the supply schedule in Table 1-4 into a graph of supply, or a supply curve. The axes are identical to those in the demand graphs, with price on the vertical axis and quantity on the horizontal axis. Plotting the information in each of the rows v through z gives us points v through z on the graph. Connecting these points gives us the supply curve S in Figure 1-5. The supply curve indicates all possible combinations of quantity supplied and alternative prices with the assumption that all other factors affecting supply are held constant. Note that the supply curve is upward sloping, reflecting the law of supply: price and quantity supplied increase together.

What if one of the other factors affecting supply was to change? Babysitting costs might decrease so that some tutors would be more willing to provide tutoring services, for example. This would increase the supply of tutoring services. You can probably list other factors that would increase the supply of tutoring. Changes in the costs of producing or supplying a product are among the most important factors causing a shift in the supply curve.

An increase in the supply of tutoring services as a result of lower babysitting costs will result in an entirely new supply schedule, such as the one shown in Table 1-5.

**TABLE 1-5** Increased Supply Schedule for Tutoring Services, One Week

<table>
<thead>
<tr>
<th>Alternative</th>
<th>$P$ ($ per hour)</th>
<th>$Q^s$ (hours)</th>
</tr>
</thead>
<tbody>
<tr>
<td>v'</td>
<td>$1$</td>
<td>60</td>
</tr>
<tr>
<td>w'</td>
<td>$2$</td>
<td>80</td>
</tr>
<tr>
<td>x'</td>
<td>$3$</td>
<td>100</td>
</tr>
<tr>
<td>y'</td>
<td>$4$</td>
<td>120</td>
</tr>
<tr>
<td>z'</td>
<td>$5$</td>
<td>140</td>
</tr>
</tbody>
</table>

Supply curve
A graph showing the quantities that suppliers are willing to sell at alternative prices during a specified time period.

Law of supply
There is a positive relationship between price and quantity supplied.
Note that for each price, a larger quantity supplied now exists. Lower costs always cause a forward shift in the curve, whereas higher costs always cause a backward shift in the curve.

If we plot this new information on the same graph as the original supply curve, we have an entirely new supply curve $S'$, as indicated in Figure 1-6. Supply has increased, and the supply curve has shifted forward, or to the right, showing increased quantities supplied at each of the given prices.

If an event (such as an increase in babysitting costs) causing a decrease in the supply of tutoring were to occur, the supply curve would shift backward, or to the left. There would be a smaller quantity supplied at every price on the new supply curve.

Putting Demand and Supply Together

We can now consider the entire market for tutoring services at your school for the time period of one week. We have a demand schedule (or curve) that reflects the buyers’ (students’) attitudes toward purchasing tutoring services. And we have a supply schedule (or curve) that reflects the sellers’ (tutors’) attitudes toward supplying tutoring services. We simply have to put demand and supply together. Let’s put them together graphically first. We will consider the original demand curve $D$ and the original supply curve $S$, which are shown together in Figure 1-7, on page 14.

As you can see, there is only one point in the graph (point E) where quantity demanded (which we read off the demand curve $D$) is equal to quantity supplied (which we read off the supply curve $S$). This point occurs at the intersection of demand and supply and corresponds to a price of $3 and quantities demanded and supplied of 60 hours a week. **At point E, the market for tutoring services is in equilibrium, or a state of balance, because the amount of tutoring services that students are willing and able to purchase is identical to the amount that tutors are willing to provide.** This equilibrium can also be seen in Table 1-6 (on page 14), which shows the original supply and demand schedules and (in bold) the equilibrium price and quantity.
The market for tutoring services naturally tends to move toward the equilibrium point. To illustrate this tendency, consider what would happen if tutors were charging less than the equilibrium price of $3 an hour. Suppose that the tutors were charging only $1 an hour. At $1, the quantity demanded (100) exceeds the quantity supplied (20) by 80 hours. There would be a shortage of tutoring services of 80 hours, because at $1, buyers regard tutoring as a bargain, whereas sellers have little incentive to provide tutoring. (Note that in a technical sense, shortages only occur when market prices are below the equilibrium price.) Students will bid for the tutoring services that are available, and in the process the price will be bid up. Put yourself in the position of a student who needs tutoring. You would quite likely offer slightly more than $1 to a tutor so that you would receive the tutoring instead of your friend. Your (former) friend would probably be trying to do the same. In this process, the average price of tutoring would be pushed up. The bidding up of the price will continue only as long as the shortage exists, and as the price rises, the shortage will disappear. Two things happen as price increases: (1) buyers decrease the quantity they demand, and (2) sellers increase the quantity they offer for sale. This process of rising price, decreasing quantity

\[ \begin{array}{c|c|c|c} \text{P ($ per hour)} & \text{Q}^S (\text{hours}) & \text{Q}^D (\text{hours}) \\ \hline \$1 & 20 & 100 \\ 2 & 40 & 80 \\ 3 & 60 & 60 \\ 4 & 80 & 40 \\ 5 & 100 & 20 \end{array} \]

The market will clear at point E. At $3, quantity demanded equals quantity supplied.

FIGURE 1.7 • Market for Tutoring Services, One Week

\[ Q \text{ (hours of tutoring services)} \]

EconNews

“It Doesn’t Look Like Food Prices Will Get Any Better This Year”

There are many reasons why food supply cannot keep up with increased demand. Read about them by navigating to Economic Fundamentals and clicking on Equilibrium.

http://www.cengage.com/economics/econapps

Shortage

A situation in which quantity demanded is greater than quantity supplied. This occurs only when the price is lower than the market level.
demanded, and increasing quantity supplied is shown in Figure 1-8. The process will come to a screeching halt when equilibrium is reached at point E. Because the shortage no longer exists, the price will rise no higher. Economists usually refer to this phenomenon as the rationing function of price. This means that the movement of the price has ultimately rationed away the shortage. Without the ability of prices to adjust by moving upward, the shortage would have persisted indefinitely. Socialist countries have often done just that—they have prohibited prices from adjusting upward. As a result, shortages have been commonplace.

Now consider the opposite possibility. Tutors might be charging a price—say, $5—that is above the equilibrium price. Perhaps they feel that they can make a lot of income at this high price. There is, however, a problem in the market at this price. At $5 an hour, the quantity (20 hours per week) of tutoring services demanded will be very small. But tutors will be willing to supply a large quantity (100 hours per week) because they have so much incentive. The difference between the quantity that tutors supply and the amount that students actually buy (quantity demanded) is a surplus of unsold services in the market. [Note again that in a technical sense, surpluses only occur when market prices are above the equilibrium price.] Surpluses cause the price to fall. Tutors will undercut one another’s price to get some business, and the price will fall until it reaches the $3 equilibrium. As the price decreases, quantity demanded will increase, quantity supplied will decrease, and the surplus will disappear. This process is illustrated in Figure 1-9, on page 16. The process comes to a halt when equilibrium is reached. The falling price has rationed away the surplus.

Shifts in Demand and Supply

The market for tutoring services will remain in equilibrium at point E unless some other factor affecting the market changes. Because things rarely remain unchanged, it is important to consider what might happen if the variables affecting either the demand for or the supply of tutoring services were to change.
Consider our earlier example in which an increase in student incomes caused an increase in the demand for tutoring services. The only thing that we are doing differently now is considering this shift in demand in the context of demand, supply, and equilibrium. The demand curve will shift forward to $D_0$, as illustrated in Figure 1-10.

Note that the supply curve will not shift. The old demand curve $D$ becomes irrelevant, $\$1\,\,P\,\,20\,\,0\,\,4\,\,0\,\,3\,\,S\,\,E\,\,D\,\,60\,\,80\,\,100\,\,Q\,\,(\text{hours of tutoring services})$

**FIGURE 1-9** • Response to a Surplus of Tutoring Services
At a price of $5, quantity supplied exceeds quantity demanded by 80 hours. This 80-hour surplus will cause price to fall to the equilibrium price of $3.

Consider our earlier example in which an increase in student incomes caused an increase in the demand for tutoring services. The only thing that we are doing differently now is considering this shift in demand in the context of demand, supply, and equilibrium. The demand curve will shift forward to $D'$, as illustrated in Figure 1-10. *Note that the supply curve will not shift.* The old demand curve $D$ becomes irrelevant, $\$1\,\,\,P\,\,20\,\,0\,\,4\,\,0\,\,3\,\,S\,\,E\,\,D\,\,60\,\,80\,\,100\,\,Q\,\,(\text{hours of tutoring services})$

**FIGURE 1-10** • Effects of Increased Demand for Tutoring Services
The increase in demand from $D$ to $D'$ causes equilibrium price to increase from $3$ to $4$ and equilibrium quantity to increase from 60 to 80 hours.
and a new equilibrium \( E' \) exists at the intersection of the new demand curve \( D' \) and the old supply curve \( S \). By reading the new equilibrium price and quantity off the respective axes, we see that price has increased to $4 an hour and quantity has increased to 80 hours per week. Because demand has increased, the market price has increased, and suppliers have moved up their supply curve and increased the amount that they are willing to offer for sale (the quantity supplied). The increased demand curve and the unchanged supply curve have thus caused an increase in both equilibrium price and equilibrium quantity.

The opposite phenomenon would have occurred if there had been a decrease in demand. If student incomes had decreased, causing a decrease in demand, the demand curve would have shifted backward. The new equilibrium point would show that both price and quantity would have decreased.

Now consider the supply side of the tutoring market. Recall that a decrease in babysitting costs causes an increase in the supply of tutoring. If this increase occurs, the supply curve will shift forward but the demand curve will not shift. This phenomenon is illustrated by the shift of supply from \( S \) to \( S' \) in Figure 1-11.

The new equilibrium \( E' \) is found at the intersection of the original demand curve \( D \) and the new supply curve \( S' \). We see that the price has decreased to $2 an hour, while the quantity has increased to 80 hours per week. As a result of an increase in supply, the market price went down, so students (consumers) moved down along their demand curve, increasing the amount of tutoring services that they were willing and able to buy. Because supply increased, price decreased and the quantity exchanged increased. The increased supply curve and the unchanged demand curve have caused a decrease in the equilibrium price and an increase in the equilibrium quantity.

If supply had decreased because babysitting costs had increased, causing tutors to desire a higher price for tutoring services, the opposite phenomenon would have occurred. The supply curve would have shifted backward, resulting in a new equilibrium. The market price would be higher, but the equilibrium quantity would be lower.

**FIGURE 1-11** - Effects of an Increased Supply of Tutoring Services

The increase in supply from \( S \) to \( S' \) will increase equilibrium quantity from 60 to 80 hours but decrease equilibrium price from $3 to $2.
The Real World

Whew! What a lot of graphs! But you now have learned the basic tools to answer many of life’s economic questions. All markets have a demand (buyer’s) side and a supply (seller’s) side. And the things that affect supply and demand are the commonsense sorts of things described in the tutoring market example.

Demand curves shift if the number of buyers changes, if consumers’ incomes change, if consumers’ tastes change, or if the prices of other goods that the consumers regard as substitutes or complements change. In our tutoring example, a substitute for tutoring might be buying and using the study guide that goes along with the textbook. Substitute relationships occur when the consumer substitutes one good for the other good. A classic example of substitutes is butter and margarine. Complements are the opposite of substitutes. If the consumer uses more of one good, he or she will also use more of the other. A good example of complementary goods is digital cameras and flash memory. If the price of digital cameras goes down, all other things constant, more digital cameras will be purchased. With more digital cameras in the hands of consumers, there will be a greater demand for flash memory.

Supply curves shift if the number of sellers changes or if the factors that affect the producers’ (sellers’) costs change. So, a rise in the energy costs of a manufacturer will decrease the supply of manufactured goods. If businesses must pay higher wage rates to produce the same amount of output, the supply of output will decrease. On the other hand, if the price of raw materials goes down, the supply of the product for which the materials are used will increase. If the government taxes the production of a good or service, the supply of output will decrease; if the government provides subsidies (which lowers costs), however, the supply of the product will increase. Technological change that increases business efficiency and lowers the cost of producing each unit of output will increase the supply of output.

Figure 1-12 shows the factors that commonly cause real-world demand or supply curves to shift. Assume that you wake up some morning and read the following newspaper headlines: “Drought in Brazil destroys coffee crop. Coffee prices skyrocket!”

### Factors That Cause Real-World Demand Curves to Shift

1. Changes in the number of consumers who wish to purchase the product.
2. Changes in the tastes of the consumers in the market.
3. Changes in the prices of complements or substitutes.
5. Changes in consumers’ expectations about the product’s future price or availability.

### Factors That Cause Real-World Supply Curves to Shift

1. Changes in the number of sellers in the market.
2. Changes in the prices of resources used to produce the product.
3. Changes in the technology used to produce the product.
4. Changes in the prices of other products that could be produced with the same resources.
5. Changes in government taxes or subsidies.
6. Changes in sellers’ expectations about the product’s future price.

**FIGURE 1-12** Factors That Cause Real-World Demand and Supply Curves to Shift

If you follow a step-by-step procedure, it is not hard to answer this question. 1) Draw a graph showing the particular market (coffee, books, chocolate, etc.) in equilibrium. Always label your equilibrium price along the vertical axis (label it P) and equilibrium quantity along the quantity axis (label it Q). 2) Consider the situation that is occurring. Decide whether its first and primary effect is on consumers or suppliers. Your answer will determine whether the demand or supply curve will shift. You will shift only one curve in each graph! Determine whether this curve should increase or decrease, and shift the curve forwards or backwards accordingly. 3) Find the new point of equilibrium and label the new equilibrium price and quantity along their respective axis. 4) Finally, compare the new quantity with the old quantity and the new price with the old price. It’s as easy as pumpkin pie when there is a bumper crop of pumpkins! See Figure 1-13 for the analysis of these newspaper headlines.

FIGURE 1-13 ● Newspaper Headlines: Demand and Supply
Which Comes First?
Which came first, the chicken or the egg? Which comes first, the price or the quantity? We know that price determines both quantity demanded and quantity supplied. Yet demand and supply together determine the market price of the product. In a market economy, it is the simultaneous interaction of all prices, quantities, demands, and supplies that ultimately determines the final market price and the market quantity exchanged. And, of course, in the real world, demand and supply may both continually shift backward and forward, causing prices to continually change as well. Often, however, one curve will have a dominant shift in one direction, and this can explain much of the fluctuation that we see in real-world prices. In this text, we will keep things straightforward by generally shifting only one curve per graph.

Efficiency and Equity

Understanding demand and supply gives us greater insight into the working of the market economy and its production possibilities, because demand and supply determine how much of each particular good or service is produced. High prices encourage frugality. Only those most willing (with the greatest desire) or most able (with the greatest income) will purchase the product at high prices. The marketplace sifts out those with lesser preferences or lesser ability to afford the product, and the market thus serves as an allocating mechanism. High prices also encourage producers to offer more for sale.

In many ways, this function of market prices is desirable. Prices encourage thrift and careful choices among competing goods. Goods and services are allocated to those most willing to pay. Thus, the market is an effective allocative device. Without prices, products might go to people who do not strongly desire them and thus be wasted. Shortages of highly desirable goods and surpluses of less desirable ones might occur. But in the market, prices ration away these shortages and surpluses, suggesting that the marketplace is very efficient as a means of allocation and distribution.

On the other hand, the distribution of goods and services may not be equitable. Equity is a value-laden concept, and economists cannot say whether a particular distribution is fair. Certain results of market activity may not seem fair to some of us. A student may truly need tutoring services but not be able to afford them and thus fail the course. Children may go without milk, the homeless without shelter, and poor pregnant women without prenatal care because their low incomes render them unable to pay the prices that the market determines for these products. We might summarize by saying that the market entails both positive and negative aspects. The marketplace is often efficient, but not necessarily equitable.

A Glimpse of the Future

Most economists agree that the marketplace performs many useful functions. As just described, the marketplace is generally considered efficient. Market prices provide proper incentives for producers to supply desired products and for consumers to choose their purchases wisely. A market-based economy tends to be highly productive. The combination of competition and proper price signals encourages efficient production of the products desired by consumers in the least costly manner.

Despite the benefits of a market economy, most economists recognize that the marketplace can also fail. The existence of many market failures does not necessarily
imply that the marketplace itself is a failure. Rather, it points to ways that the government may become involved in the marketplace to assure that all societal needs are met. The following list of market failures also provides a glimpse into the chapters yet to come in this textbook.

Public Goods and Services
Public goods and services have unique characteristics that make it unlikely that the market will provide enough of them. As a result, the government often provides them. Public goods and services include national defense, police and fire protection, public libraries, highway construction, crime prevention, and others. At least to some point, the use of public goods and services by some of us does not keep others from using them. Your driving on the highway does not keep others from driving along it, for example. Public goods and services are unlikely to be provided by the marketplace because they cannot be divided into small segments and offered for sale. For example, it doesn’t make sense for each individual consumer to purchase one mile of a highway. Furthermore, if a private consumer does buy such a good or service, it is difficult to keep people who do not pay for the product from using it. Take fire protection, for example. Suppose the 100 merchants in the downtown section of your town decide to pay a fee for fire protection. Suppose that one merchant refuses to pay for fire protection, and that naturally, this is the place that burns down. Even though this person has not paid the fee, the other businesses cannot afford to let it burn. If it burns, it will endanger the properties of the other businesses. Fire protection is thereby provided. Most economists agree that the provision of public goods and services is an appropriate role for government. Our disagreement concerns just what goods and services these will be, and how much of them we want. These disagreements are not trivial; they are taken up in Chapter 2 on crime prevention activities and drug control. They are also addressed in topics involving education, health care, and others.

Spillovers
Economic efficiency and equity cannot occur when spillovers exist. Economic spillovers occur when some cost (or benefit) related to production or consumption “spills over” onto people not involved in the production or consumption of the good. Pollution of our environment is the most obvious example. If a manufacturer pollutes our air and water in the process of production, we will bear the costs of this pollution even if we don’t own the company, work for the company, or buy its products. We bear the costs of pollution in terms of greater risk of illness, less aesthetic beauty, and lower-quality environment. The manufacturer has shifted part of the costs of production to society at large. Our natural resources are not being used appropriately, and our economy is not addressing our real needs and concerns. Our own dissatisfaction with the degraded environment will not remedy the problem unless collectively we are able to channel our concern through active government involvement. Issues surrounding pollution and government response are addressed in Chapter 3. Other goods and services provide spillover benefits to society. Education, discussed in Chapter 4, provides significant spillover benefits to society. The educated person is likely to be a more productive worker and to contribute more than the uneducated person to the economy. The educated person is more likely to vote and otherwise participate in government and public affairs. The educated person is less likely to be chronically unemployed or to commit a violent crime. He or she is more likely to pay taxes and less likely to be on welfare. The market will not, by itself, provide sufficient levels of education, because the market does not reflect these spillover benefits.
Equity
We’ve already noted that the marketplace is not necessarily equitable. Discrimination is an issue of equity and is addressed in Chapter 5. Poverty and inequality of income distribution are also issues of equity. We may argue that the inability of low-income people to meet their basic needs is unfair. We may also argue that the extreme inequality of income distribution within the U.S. economy is unfair. These issues are addressed in Chapter 6 on U.S. poverty. Topics in other chapters, such as housing and health care, also raise issues of equity. The problem of poverty at the global level, as well as how to reduce it, is addressed in Chapter 10.

Market Power and Trade
Our example of the demand and supply of tutoring services at a large university is one that approximates pure competition. There were many suppliers of tutoring services so that no single tutor could dictate the market price. If one of 100 tutors were to charge an exorbitant price, students would seek the services of the other 99. Competition protects us from unreasonable prices. We would not be protected if there were only one tutor. This monopoly supplier of tutoring services could charge a high price and consumers desiring the service would be forced to pay it. Even if there were a few more tutors available, this small group could hold back-alley meetings and fix the price of their services at a very high level.

Without competition, we would be at the mercy of this group. We would say that the single supplier and/or the price-fixing group possess market power, which is the ability of a supplier to influence the market price of its product. It is only with a large number of tutors—so many that it is unrealistic for them all to come to agreement about prices and so many that no individual supplier produces for a large share of the market—that market power is absent. To the extent that many U.S. industries consist of just a few dominant producers (examples are the automobile, steel, and breakfast cereal industries), competition is reduced and society’s well-being suffers. This problem of market power is discussed in Chapter 13.

Since market power arises when a small number of suppliers influence the market price of their product, it is reasonable to conclude that a larger number of suppliers, whether these are domestic or foreign producers, will serve to reduce market power. Many people are unaware of the important contribution of international trade in enhancing competition and reducing market power. Nevertheless, international trade is controversial, and these issues are explored in Chapter 12.

Special Markets
The markets for some products are often considered too important to be left alone to the marketplace. These markets include housing, health care, agriculture, and care of the elderly. Most societies have concluded that government involvement is necessary in most or all of these markets. Certainly, housing and health care, addressed in Chapters 7 and 8, are too important to human well-being to be left to the vagaries of the marketplace. Similarly, care of the elderly, addressed in Chapter 9 on Social Security, and food production, addressed in Chapter 11 on Global Agriculture, are also areas in which our government involves itself in the marketplace.

Stability
Finally, we return to the topic of production possibilities and employment. The factors that determine whether our nation will be on the production possibilities
curve (operating at full employment) or below the production possibilities curve (with unemployed resources) are very volatile. Thus, at times we may have very low employment, and at other times we may have high employment. Closely related are the factors affecting the average level of prices throughout our economy. When the average price level rises, we say that we have inflation. Because prices and employment tend to fluctuate a great deal, we say that our market economy is inherently unstable. We address these issues in Chapter 14 on Unemployment and Inflation, Chapter 15 on Government Macroeconomic Policy, and Chapter 16 on Taxes and Borrowing. In the process, we discover how our government and our central banking system can intervene in many ways to ensure greater stability of prices and employment.

Some Final Comments to Students

We’ve examined the production possibilities curve as a means of discussing scarcity. And we’ve studied the graphs of demand and supply to understand distribution. We will use these models throughout the text to analyze a variety of microeconomic and macroeconomic issues. Microeconomics deals with individual activity within the economy, whereas macroeconomics deals with the economy as a whole. Microeconomics covers topics such as the distribution of income within the country and the nature of individual markets such as agriculture, whereas macroeconomics covers topics such as total income and total output in the economy. When we speak of total output, we are really referring to gross domestic product. More specifically, gross domestic product (GDP) is the value of an economy’s total output of goods and services produced within a particular year. GDP will be a very useful concept throughout the textbook because we often use it as a frame of reference. For example, it is somewhat meaningless to talk of the millions of dollars spent on health care when a more meaningful topic of discussion is the expenditure on health care relative to GDP. This is because GDP is really the nation’s capacity to generate income that can be spent on health care or on any other good or service.

The terms private and public are also used throughout the text. The term private refers to individual people and businesses. It relates to private markets, which reflect consumer demand and producer supply. We speak of private spending (by people and businesses) and private ownership (by people and businesses). On the other hand, the term public refers to the government. Thus, we can speak of public spending and public ownership. Recall that we have already used these terms as we considered private and public goods.

As our world becomes increasingly internationalized, awareness of the economics of domestic social issues is insufficient. We must also be aware of our international economy. We must enter into the exciting world of international trade and finance, the devastating presence of international poverty, and the fascinating set of international issues addressed in Chapter 17. The world is alive on our TV sets and computer screens, in our travels and contacts with international students and faculty, and in our jobs of the future. We must be aware of our global world!

You, the Student

And now we’ve come back to the topic we started with: that is, you, the student. How do you fit into this world of economic problems and issues? What do these problems and issues mean for your life and well-being? And how can you affect the
The Epilogue tackles these questions, as do the discussion and action questions at the end of the chapters. Please read them! Also, read the ViewPoint sections in each chapter and begin to discover whether you fall on the economic left or right (or in-between) on each issue. And, study the vocabulary. The way to begin making changes is to educate ourselves. And once we educate ourselves, we can make a positive difference in our world. With that in mind, let’s begin the journey to understanding economic issues and policy!

**ViewPoint**

**The Economic Left and the Economic Right**

<table>
<thead>
<tr>
<th>The Economic Left</th>
<th>The Economic Right</th>
</tr>
</thead>
<tbody>
<tr>
<td>(Liberal)</td>
<td>(Conservative)</td>
</tr>
<tr>
<td>The Extreme Left: Pure Socialism</td>
<td>The Extreme Right: Pure Capitalism</td>
</tr>
<tr>
<td>Characteristics of Socialism:</td>
<td>Characteristics of Capitalism:</td>
</tr>
<tr>
<td>Government Ownership of Land and Capital</td>
<td>Private Ownership of Land and Capital</td>
</tr>
<tr>
<td>Government Economic Decision Making</td>
<td>Private Economic Decision Making</td>
</tr>
<tr>
<td>Values of the Left: Equity</td>
<td>Values of the Right: Efficiency</td>
</tr>
</tbody>
</table>

This book is intended to get you to think. As you acquire a basic understanding of economics, you also acquire a basic framework within which to form and justify your personal opinions about economic issues. Are you an economic conservative or an economic liberal? Are you conservative on some economic issues and liberal on others? Do you even know what these terms mean in the context of economics? From a U.S. perspective, being an economic conservative generally means believing in only a limited role for government in the economy. In the conservative view, the free market operates relatively well by itself, so that little government intervention in the form of regulations, taxes, and programs is needed. Indeed, economic conservatives believe that if left alone, the market will solve most economic problems. The conservative view exists on the right end of the economic philosophical spectrum. Being an economic liberal, on the other hand, generally means supporting far greater government involvement in the economy. In the liberal view, the marketplace entails many shortcomings, or market failures. These shortcomings can be rectified by government involvement. The liberal view is on the left end of the economic philosophical spectrum. Please keep in mind the economic spectrum throughout the textbook!

We have already discovered that although the marketplace tends to be efficient, it is not necessarily equitable. We’ve recognized that many market failures exist and that many goods and services are considered too important to leave solely to the market. All of these suggest some proper role for government in the economy. Nevertheless, there is probably no debate more contentious within societies than the ideal degree of government involvement in the economy.

The ViewPoint boxes at the end of each chapter clarify the positions of both economic liberals and economic conservatives in order to help you formulate your own beliefs. Keep in mind that while this section is intended to show opposite viewpoints, economists and policymakers often find themselves closer to the middle. On many issues, agreement among economists is widespread. Also keep in mind that an economic conservative or liberal is different from a social conservative or liberal. Social conservatives, for example, may oppose gun control and support prayer in schools. A social conservative (or liberal) may be entirely different from an economic conservative (or liberal). We will make this distinction throughout many chapters to come. Please make sure to read the ViewPoint sections! They are an essential feature of this book and will help you assess your own opinions. You may find that you are an economic liberal, or an economic conservative, or that your opinions vary with the particular issue.

**Economic conservative**

A person who believes in very low levels of government involvement in the economy.

**Economic liberal**

A person who believes in high levels of government involvement in the economy.
Summary

Economics deals primarily with scarcity: how shall we allocate our limited world resources to satisfy our seemingly unlimited human wants? Limited resources translate into limited production possibilities. The production possibilities curve shows us the alternative combinations of the maximum amounts of two different goods that can be produced during any particular time period, assuming full use of our technology and resources. Unemployment of resources results in production levels lower than those possible. Economic growth over time results in increasingly higher levels of production of all goods.

Our output and distribution decisions are mostly made in the markets for individual goods and services. Demand for a product by consumers and supply of a product by producers both hinge on the prices that must be paid or received. Demand and supply together determine the market equilibrium, establishing the going market price and the quantity exchanged. Our market economy ensures that goods and services are distributed only to those most willing and able to pay the market price. Markets are often considered to be efficient, but not necessarily equitable.

Market failures include the problem of public goods and services, the existence of spillovers, the issue of equity, the presence of market power, and the lack of stability in our economy. An important issue is the role of government versus the free market. Economic liberals prefer a large role for government in the economy, and economic conservatives prefer a small role. As you continue your reading, you will make your own decisions about whether you are liberal or conservative on certain issues. Finally, you will consider your role within our world economy.

Discussion and Action Questions

1. Suppose your friend is strong on defense and insists that we must bolster our national defense, whatever the cost. How can you use economic logic to make him or her aware of the opportunity costs associated with his or her objective?

2. Unemployment imposes serious hardship on out-of-work individuals and their families. What are the costs of unemployment to society as a whole? (Keep in mind the production possibilities curve.)

3. Why, in a rich nation, is it important that we fully use our resources and technology to maximize our nation’s output? Is it only the level of total output that is important, or are the types of output that we produce also important? Do you think that the distribution of this output (and the income generated by its production) is just as important as its total amount?

4. How do you think our nation’s output should be distributed according to income or according to some other standard (such as basic human need)?

5. Equilibrium implies that quantity demanded equals quantity supplied at a particular price. Must consumers and producers actually sit down to discuss and decide on an equilibrium market price, such as we may see in a farmers’ market or a flea market? Why or why not?

6. Does the efficiency of the price mechanism ensure that our market-based economy is an equitable one? Why or why not?

7. The following schedules are for bushels of apples in a local market. Graph the supply and demand curves. What are the equilibrium price and quantity?

<table>
<thead>
<tr>
<th>Price</th>
<th>Quantity Demanded</th>
<th>Quantity Supplied</th>
</tr>
</thead>
<tbody>
<tr>
<td>$20</td>
<td>200</td>
<td>1,000</td>
</tr>
<tr>
<td>18</td>
<td>400</td>
<td>800</td>
</tr>
<tr>
<td>16</td>
<td>600</td>
<td>600</td>
</tr>
<tr>
<td>14</td>
<td>800</td>
<td>400</td>
</tr>
<tr>
<td>12</td>
<td>1,000</td>
<td>200</td>
</tr>
</tbody>
</table>

   Now assume that an early freeze has decreased the apple harvest, and the new supply schedule is as follows. Has supply increased or decreased? What are the new equilibrium price and quantity? (Note that the demand curve is unchanged.)

<table>
<thead>
<tr>
<th>Price</th>
<th>Quantity Supplied</th>
</tr>
</thead>
<tbody>
<tr>
<td>$20</td>
<td>600</td>
</tr>
<tr>
<td>18</td>
<td>400</td>
</tr>
<tr>
<td>16</td>
<td>200</td>
</tr>
<tr>
<td>14</td>
<td>0</td>
</tr>
</tbody>
</table>

8. Go to the Web site at http://netec.mcc.ac.uk/JokEc, find a good economics joke, and share it with your teacher!

9. Become familiar with the EconApps Web site at http://www.cengage.com/economics/econapps and explore some of the topics mentioned in the margins of your book. This site includes South-Western’s dynamic Web features: EconNews Online, EconDebate Online,
and EconLinks Online. Organized by pertinent Economic topics and searchable by topic or feature, these will deepen your understanding of theoretical concepts through hands-on exploration and analysis of the latest economic news stories, policy debates, and data. You, the student, will find this site invaluable.

10. One additional source that may be useful if you need to do research on economics topics is the Web site of the British periodical, *The Economist*. Its articles on various topics can usually be understood by beginning students of economics. You can find this site at [http://www.economist.com](http://www.economist.com).

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**Note**

1. Many activists are encouraging a boycott of chocolate that has been produced with cocoa beans from West Africa, where people are virtual slaves to the cocoa companies. Other activists are encouraging people to purchase “fair trade cocoa” (and other fair trade products, such as coffee and tea). The situation of “cocoa slavery” and “fair trade” products will be discussed more in Chapter 13 on international trade.
Increasing Opportunity Costs

The production possibilities curve that we’ve considered is actually a simplified representation of the real world. Recall that for each additional 20 units of roses that were produced, society had to give up the production of 30 units of bread. This ratio of 20 units of roses to 30 units of bread remained constant, regardless of how much bread and roses were actually produced. In the real world, this ratio usually is not constant, but rather it is increasing. In other words, as we produce larger quantities of roses, we must usually give up increasingly larger quantities of bread. This is another way of saying that the opportunity cost increases as we produce more of one particular good. It increases because we ultimately use resources that are less well suited to producing more of this particular good. In our example, we would begin production by using those resources that are best suited for each product. As we produce more roses, we would eventually need to use resources that are more suitable for bread production (such as farmers who know little about roses and land not well suited to rose production), so that we would need to use larger and larger quantities of these resources to make up for their lower productivity. In other words, we must give up increasingly larger amounts of bread production in order to produce additional roses. And this means that the opportunity cost of rose production increases as we produce more and more of it. The same would be true for the production of bread.

Table 1-7 shows the production possibilities for bread and roses, under the more realistic assumption that opportunity costs are increasing. We note that if we begin with alternative A, 150 tons of bread and 0 tons of roses are produced. If we increase rose production by 20 tons, we will give up 5 tons of bread. If we produce 20 more tons of roses, we will give up 15 tons of bread. And if we produce 20 more tons of roses, we will give up 20 tons of bread. **In other words, we have increasing opportunity costs: as more and more of one good is produced, society must continually sacrifice increasingly larger amounts of the other good.**

<table>
<thead>
<tr>
<th>Alternative</th>
<th>Bread (tons)</th>
<th>Roses (tons)</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>150</td>
<td>0</td>
</tr>
<tr>
<td>B</td>
<td>145</td>
<td>20</td>
</tr>
<tr>
<td>C</td>
<td>130</td>
<td>40</td>
</tr>
<tr>
<td>D</td>
<td>110</td>
<td>60</td>
</tr>
<tr>
<td>E</td>
<td>70</td>
<td>80</td>
</tr>
<tr>
<td>F</td>
<td>0</td>
<td>100</td>
</tr>
</tbody>
</table>

**TABLE 1-7 • Production Possibilities Table with Increasing Opportunity Cost**

Increasing opportunity costs
As more of one good is produced, society must give up increasingly larger amounts of the alternative good.
Chapter 11 ROADMAP

Chapter 3 The Environment
- Certain farming practices are a source of pollution.
- Policies such as removing highly erodible land from cultivation satisfy both environmental and agricultural policy goals.

Chapter 5 Discrimination
- Immigrant farm workers and Native American populations work for low wages and/or lose their agricultural land.

Chapter 10 World Poverty
- U.S. agricultural subsidy and export policies harm developing country farmers.
- Agricultural development is essential to economic development in poor countries.

Chapter 11 Global Agriculture

Chapter 12 International Trade
- Agricultural products are a major U.S. export.
- Government policy toward U.S. agriculture affects our competitiveness in world markets.
- Developing countries produce and export primary commodities that face problems similar to those faced by U.S. agriculture.

Chapter 13 Market Power
- Concentration is increasing in farming.

The Economic Toolbox
- Inelastic demand
- Real price
- Immobile resources
- Agricultural subsidies
- Price supports (floors)
- Rationing function of price
- Dumping
- Concentration
- Biotechnology
- Target prices and deficiency payments (appendix)
Global Agriculture

The primary goals of agricultural policies should be providing food for all people and providing a decent life for farmers and farmworkers in this country and abroad. A key measure of every agricultural program and legislative initiative is whether it helps the most vulnerable farmers, farmworkers and their families and whether it contributes to a global food system that provides basic nutrition for all.

—THE U.S. CONFERENCE OF CATHOLIC BISHOPS, FARM BILL, FEBRUARY 2009

Do you agree with the statement above? Should the goals of a global food system be to provide food for all people and a decent life to farmers and farmworkers? As we read through this chapter, we will find that while these goals are laudable and reasonable, they are not always what drives agriculture policy, in the United States or abroad. We will begin our study by first considering agriculture in the United States (though much of this discussion is relevant globally), and ultimately examining global agriculture as it affects the world’s hungry people.

United States Agriculture

Rural America is home to a fifth of the Nation’s people, keeper of natural amenities and national treasures, and safeguard of a unique part of American culture, tradition, and history.

—STATEMENT BY THE U.S. DEPARTMENT OF AGRICULTURE, AN ENHANCED QUALITY OF LIFE FOR RURAL AMERICANS, 2005

This quotation paints an idyllic picture of rural America. Our nation takes pride in this environment that includes our natural resources, rural culture, and agricultural sector. Yet, we hear of problems in this sector—small farmers going bankrupt and farming towns losing residents. Indeed, annual Farm Aid concerts have $25 million since they began in 1985. The 2009 Farm Aid concert included singers Neil Young, Willie Nelson, John Mellencamp, and Kenny Chesney, and their stated goals include support for family farms, a fight against corporate agriculture, advocacy for fair farm prices, and encouragement of consumers to buy locally grown food. Clearly, there is concern for the small and family farmer.

So, what’s happening in agriculture? How does agricultural policy affect our farmers, and our small and family farmers in particular? How does it affect consumers? And how does it affect producers and consumers around the globe? In this chapter, we will discuss the unique characteristics of the American rural and agricultural sectors, the history and an evaluation of government policy toward agriculture, diversity and agriculture, U.S. and world hunger, and the politics and outlook for global agriculture in the future.
Characteristics of the Rural Sector

First, you probably know that the population of the U.S. rural sector is smaller than that of the urban sector. The rural sector is home to over 50 million inhabitants, while the urban sector comprises close to 254 million people. Rural incomes (an average person income of $29,000 per year) are lower than urban ones (an average of $41,000 per year). The rural poverty rate is estimated at 15.8 percent higher than the urban poverty rate estimated at 12.4 percent.

Clearly, in terms of these indicators, standards of living in our rural environments are poorer than those in our urban areas. Nevertheless, the rural sector is not synonymous with agriculture, so let’s consider the characteristics of the agricultural sector specifically.

Characteristics of Agriculture

Before we even consider agriculture in detail, you should be aware that in the most recent farm census, about 1,900,000 men were listed as farmers. In addition, over 306,000 women were farmers. Many more women contribute to farming in important ways. We should be certain to think of the farmer as “she,” as well as “he.”

Certain characteristics of agriculture distinguish the farm sector from the remainder of the economy. Some of this discussion involves the short run (one year to the next) and some involves the long run (over several years). The characteristics are as follows:

1. An inelastic demand for farm products in the short run
2. Extensive technological change in the past half century
3. Immobile resources

Let’s see how these characteristics affect farmers.

Inelastic Demand for Farm Products in the Short Run

Recall our discussion of inelastic demand when we considered the market for addictive drugs in Chapter 2. When we say that a product has inelastic demand, we mean that its buyers are relatively unresponsive to changes in its price. This means that buyers show little variation in the quantity they buy when the price changes. This is the case for most farm commodities, as well as the many commodity exports from developing countries that we discussed in Chapter 10. As discussed in previous chapters, we represent inelastic demand with a relatively steep demand curve. And, as we shall see, the inelasticity of demand has considerable significance for farm prices and farmers’ incomes.

Price Instability

Let’s begin by looking at the significance of the inelastic demand for farm products on the stability of farm prices in the short run. If demand is inelastic, the small fluctuations in supply that might result from either exceptionally good or exceptionally bad weather will have a resounding effect on the prices that farmers receive for their products. Figure 11-1 illustrates this effect. The demand curve is shown to be relatively steep, reflecting the fact that any small percentage change on the horizontal axis (quantity) is associated with a large percentage change on the vertical axis (price).

The graph in the figure shows a hypothetical demand curve for corn with an initial equilibrium price of $3 per bushel and an initial equilibrium quantity of 5 million bushels. Now consider an increase in supply from S to S’ caused by exceptionally good weather. The equilibrium quantity increases to 6 million bushels, which is a relatively small percentage increase (20 percent). Now consider the price change.
Because of the inelastic demand, the effect of the supply shift on the market price is very large. The increase in supply causes the price to fall all the way to $2 per bushel (a relatively large decrease of 50 percent). Similarly, a relatively small decrease in supply caused by poor weather (from S to S′) would cause a relatively large increase in price up to $4 per bushel (a 50 percent increase). The combination of short-run weather-related supply fluctuations and inelastic demand results in large fluctuations in agricultural prices in the short run. To convince yourself of the outcomes of inelastic demand, try drawing the same graph but with a flatter demand curve. When demand is not inelastic, identical fluctuations in supply will cause much less price variation than when demand is inelastic.

Farm Income

Now let’s consider how farmers’ incomes are affected by this inelastic demand in the short run. If good weather causes an increase in supply (a bumper crop), which causes price to decrease, then overall farm income will also fall. This is because income from a corn crop is equal to the number of units sold times the price at which they are sold. Refer again to Figure 11-1. At the initial price of $3, farmers sold 5 million bushels, earning income of $15 million from their corn crop. (Five million bushels times $3 per bushel is $15 million.) After the increase in supply, farmers sold 6 million bushels at a price of $2 per bushel. They earned only $12 million for their corn crop. Because consumers have an inelastic demand for agricultural products, a short-run decrease in price results in a short-run decrease in farm income. Similarly, a short-run increase in price (from bad weather) results in a short-run increase in farm income. (For a more mathematical discussion of the effects of elasticity on prices and income, see Appendix 1 of this chapter.)
Note that these counterintuitive results are true for total farm income, not the income of an individual farmer. The farmer who has lost an entire crop will certainly not have higher income in the bad-weather year. Also note that these were short-run results. Demand is inelastic in the short run; and supply, price, and income fluctuate in the short run. These refer to year-to-year situations, as opposed to changes that occur over a long period of time. We now consider this long-run time period.

### Extensive Technological Change in the Past Half Century

In the long run, technological change and slow growth in demand have caused the real prices of farm products to fall. (When we say real price, we mean the price as adjusted for inflation.) Commercial farmers have adopted new techniques and use new, efficient machinery. New high-yield crop varieties exist. Intensive use of fertilizers and pesticides increases yield per acre. Artificial insemination and other improved breeding techniques have resulted in more reliable growth in cattle herds. Center-pivot irrigation systems dot the Great Plains. And, as we discuss shortly, biotechnology is rapidly gaining supporters and opponents. In general, the results of these technological changes are a trend toward capital- and chemical-intensive agriculture, a move toward large-scale farming enterprises, and a pronounced increase in the supply of farm products. Although the number of farmers is much smaller than a half century ago, the supply of farm products has increased markedly.

As a result of this technological advance, American agriculture is highly productive, though it is not the most productive in the world. Table 11.1 reveals the productivity of many countries, where productivity is defined as agricultural value per worker. The most productive countries, in order, are Canada, France, and the United States. In general, the countries with the highest agricultural productivity are in the Western industrialized world. Eastern European and Latin American countries tend to range in middle productivity, and the least productive countries tend to be in South Asia and Africa (with the exception of South Africa).

Compared with the large increase in supply, the increase in Americans’ demand for food over time has been relatively small. That increase is attributable mainly to an increase in our population. We have grown more affluent over time, but we have spent

<table>
<thead>
<tr>
<th>Country</th>
<th>Value ($)</th>
<th>Country</th>
<th>Value ($)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Canada</td>
<td>44,143</td>
<td>Iraq</td>
<td>2,271</td>
</tr>
<tr>
<td>France</td>
<td>44,080</td>
<td>El Salvador</td>
<td>1,607</td>
</tr>
<tr>
<td>United States</td>
<td>42,744</td>
<td>Poland</td>
<td>1,408</td>
</tr>
<tr>
<td>Netherlands</td>
<td>42,049</td>
<td>Philippines</td>
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<td>Norway</td>
<td>37,039</td>
<td>Kyrgyzstan</td>
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<td>Malaysia</td>
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<td>Japan</td>
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<td>India</td>
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<tr>
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<tr>
<td>Russia</td>
<td>2,519</td>
<td>Ethiopia</td>
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<tr>
<td>South Africa</td>
<td>2,495</td>
<td>Burundi</td>
<td>70</td>
</tr>
</tbody>
</table>

*This is the additional value contributed per worker on average.

*Lowest among reporting countries.

our additional income on things other than food. As a people, we have been well fed for a great many years.

The combined effects of this large long-run increase in supply and the modest increase in demand have greatly decreased the real price of farm products. This change is not a year-to-year price fluctuation of the sort caused by agriculture’s inelastic demand, but a long-run trend instead. This is shown in Figure 11-2, where we see that the equilibrium quantity of agricultural products is larger but that the real price has decreased.

Immobile Farm Resources
The principal resource used in farming is, of course, land. With the exception of land near rapidly growing cities, which can be developed, most farmland has few alternative uses. So, although one farmer may leave farming and find a job in the city, land tends to remain in agriculture. Some other farmer buys the land and continues to farm it. If real prices fell as precipitously in other sectors as they have in farming, people and resources would rapidly flow out of these markets into other markets that are believed to be more profitable. But land is not removed from agriculture. Either farmland lies fallow or someone farms it. Agriculture’s main resource is slow to respond to adverse industry conditions.

The U.S. Department of Agriculture (USDA) conducts a Census of Agriculture every five years. The most recent census is for 2007. It is interesting to compare the percent of total land area in the United States classified as farmland for the last three censuses. In 1992 it was 41.8 percent, in 1997 it was 42.2 percent, in 2002 it was 41.4 percent, and in 2007 it was 40.8 percent. Clearly, the data support our thesis that farmland tends to be immobile.

Although the limited use to which farmland can be put undoubtedly contributes to this resource immobility, it can also be argued that the government’s agricultural
policies have kept agricultural resources in agriculture when they perhaps should have been transferred to other lines of production. Let’s consider this policy.

**Government Policy Toward Agriculture**

The U.S. government has been extensively involved in agriculture since the Great Depression of the 1930s. The entire country (indeed, much of the world) was in distress during the 1930s, but agriculture suffered more than other sectors. Real farm prices fell, and farm income and profits plummeted. Furthermore, the prices that farmers received for their crops decreased more than the prices that they paid for their inputs.

Because the price of farm products was too low to cover farmers’ costs, the government initiated a variety of policies to assist farmers. Congress passed the Agricultural Adjustment Act in 1933 to restore the standing of farm incomes relative to incomes in the rest of the economy. This was one of the first pieces of Franklin D. Roosevelt’s New Deal legislation to be enacted. The government has been extensively involved in agriculture ever since.

**The objectives of farm policy have been to stabilize conditions in farming and to increase real farm incomes.** Accordingly, programs were devised to affect the supply of agricultural products, the demand for agricultural products, and the price received by farmers. Two policy instruments were used early on. These were price supports and programs to restrict supply. As time passed, price supports became less important policy instruments, and target prices and deficiency payments became more important. All forms of government payments to farmers are generally referred to as agricultural subsidies. Our government has also attempted to increase the demand for agricultural products in order to raise prices. We now discuss the price supports, programs to restrict supply, and policies to increase demand, and we leave the discussion of target prices and deficiency payments for Appendix 2 of this chapter.

**Price Supports**

Price supports are examples of price floors, which are government-imposed minimum prices for a good or service. These minimum prices set a “floor” below which the market price is not permitted to fall. To be effective, which means to have an effect on the market, these price floors must be above the market equilibrium price. (A price floor set below the market equilibrium would not have an effect on the market, since the market-determined price would take over. There is no law that says the prices cannot go above a certain level.) Agricultural prices are thereby prevented from falling below the price floor. As we discussed in Chapter 1, markets tend to clear at an equilibrium price and quantity. In the process, shortages and surpluses are rationed away. This is the rationing function of price in a competitive market. When agricultural prices are kept artificially high, they cannot perform the rationing function. Let’s look at this problem through a hypothetical example of the U.S. wheat market in Table 11-2.
The equilibrium price is $3.50, at which both quantity demanded and quantity supplied equal 2,500 million bushels of wheat. At this equilibrium price, 2,500 million bushels will be exchanged and the market will clear. If price is temporarily above equilibrium, at $4, a surplus will exist in the market. Figure 11-3 shows the supply and demand data graphically, indicating the surplus at $4.

At the price of $4, farmers produce and offer 3,500 million bushels for sale, but consumers are willing to buy only 2,000 million, so only 2,000 million bushels are exchanged. The remaining 1,500 million bushels are an unsold surplus in the market. If the price is free to fall, the surplus will cause it to decrease. It will fall as long as there is a surplus to push it down. As price falls, a message is sent to buyers: increase the amount you demand, because price is falling. An opposite message is sent to sellers: decrease the amount you supply, because price is falling. Buyers and sellers each move down their respective demand or supply curve. When the equilibrium price ($3.50) is reached, quantity supplied equals quantity demanded, and there is no more surplus to drive the price down further. The falling price has rationed away the surplus. This process is what economists mean when they refer to the **rationing function of price**, which results in markets being an efficient means of allocating goods and services.

Now assume that the government had set the legal minimum price at $4, so that price could not fall in response to the surplus. The surplus would not be rationed away. Instead, the market would have a persistent surplus of wheat. And that is what happens when the government supports the prices of farm commodities. The price supports actually create surpluses.

The method by which some U.S. farm prices are supported is indirect, but the result is the same as the price floor. Prices are supported by granting farmers loans on their stored commodities through the Commodity Credit Corporation (CCC), which was established in 1933 for this purpose. Farmers can get loans on the value of their commodities at a rate established by the government (such as $4 per bushel). They put up their commodities as collateral. If the market price is above the loan rate, the farmer can withdraw the commodity from storage, sell the commodity, repay the loan,
and keep the profits. On the other hand, if the market price is below the support price, the farmer simply surrenders the commodity to the government instead of repaying the loan. The loan rate is therefore the effective price support. The government is the buyer of the surplus, and it is the government (and taxpayers) that bear the losses.

By means of price supports, income is redistributed to the farm sector from taxpayers in general. Whenever income is redistributed, some groups gain and others lose. Let’s look at the losers and the gainers. Taxpayers, who are also consumers, are obvious losers. Their taxes are used to buy and store the surplus at artificially high prices, and the higher prices lead to at least slightly higher food prices. (We say “slightly” because most of the price you pay for food results from the costs of processing and distributing the food, not from the cost of the farm products.)

Let’s summarize the results of the agricultural price floors. Agricultural prices are held artificially high, which encourages excess production. Surplus crops result, which are costly for the government and taxpayers. At the same time that surplus crops are produced, consumers are discouraged from purchasing the crops because of the artificially high prices. Our agricultural system is inefficient, and it transfers benefits to our farm sector.

The farm sector is the gainer, but in a manner that many taxpayers do not understand. The lion’s share of the support goes to large farmers, because the subsidy is paid on a per-unit-of-output basis. Large-scale farmers produce more bushels (units of output), so they receive bigger subsidy payments from the government. (Some of our subsidy programs pay per unit of land, such as per acre. This also benefits larger farmers, since they have more acres under production.) This reality undoubtedly conflicts with our vision of government farm programs as helping small, struggling American farmers. Most of us picture small-scale production on the “family farm” when we think of farmers. Agricultural economists Willard W. Cochrane and C. Ford Runge refer to the average citizen’s false image of agriculture as the “Little House on the Prairie” image. The average voter is far more likely to support farm programs that he or she believes guarantee a decent living to the hard-pressed, hardworking small farmer than to support programs that offer huge subsidies to large farms. We shall return to this topic shortly. Consider the following words of a farmer: “Nostalgically, many remember when farming was considered a comfortable, laid back, safe and healthy way of life. The farm was a ‘good place to raise kids.’ The hard work of farming was offset by a sense of independence, the joy of being your own boss.” This “nostalgic” view of farming does not apply to the bulk of agricultural production today.

**Programs to Restrict Supply**

Price supports have been combined with programs to reduce supply. Refer again to Figure 11-3. Assume that government analysts believe that a “fair” price for farm commodities is $4. This price would cover the costs of production, including some level of wages for the average farmer. One way to ensure that farmers receive $4 per bushel is to support the price at $4 and create a surplus in the process, as we’ve just discussed. Another method would be to shift the supply curve back to the point at which supply intersects demand at $4. The effects of this method are shown in Figure 11-4.

After the decrease in supply, the equilibrium price is $4, and the market clears with 2,000 million bushels of wheat being exchanged. No surplus results for which the government is the buyer of last resort. No storage charges will be incurred. No loss of the stored grain due to damage from rodents or simple deterioration with age will occur. Programs to reduce the supply of farm products appeared preferable to rigid price supports in the 1930s, and these programs continue to receive support.

Accordingly, the history of U.S. farm policy is filled with efforts to reduce supply. Early efforts were voluntary and often involved land rent payments on acres taken...
out of the production of specific crops coupled with support prices on crops grown on the individual farmer’s remaining land. Despite these attempts to control supply, the surpluses grew. Commercial warehouses were filled. Abandoned schoolhouses and (in some cases) churches were used for storage. Consequently, efforts to restrict supply became more formal and far-reaching.

In 1956, the Soil Bank was instituted. It encouraged the long-term withdrawal of farmland from production of any crops and stricter compliance with acreage controls on specific crops. Farmers were paid for not farming. In subsequent legislation, supply restriction programs were continued under other names: the Set-Aside program, the Payment-in-Kind (PIK) program, and the “10-year plan,” which encouraged farmers to put highly erodible acres in a long-term supply restriction program. Under the Set-Aside program, farmers were paid for setting aside and not farming a proportion of their total acres. They were guaranteed support prices on crops grown on their remaining acreage. Under the PIK program, they were given surplus commodities from the government’s storehouses instead of cash, but PIK resembled the Set-Aside program in other respects. The 10-year government plan required a longer commitment of farmers not to farm their entire acreage, and it restricted alternative uses of land by more than the two prior programs, but otherwise the programs were similar.

These supply restriction programs have not always worked. Acres were taken out of cultivation, but supply continued to increase, pushing down market prices. Why? Put yourself in the place of the American farmer. Would you put your best or your worst land in the Set-Aside program? Of course, you would put aside those swampy, poorly drained acres on which you get your tractor stuck every spring! You would be foolish to set aside well-drained, fertile acres in favor of your less-productive land. And that is what farmers have done: they have put their poorest land into supply restriction programs and then farmed the remaining acres more intensively. If rows of corn are planted closer together, and irrigation and fertilization of the crop is increased, the supply of corn increases despite acreage reduction programs. Simply by behaving in an economically rational way, the farmer dooms supply restriction programs to failure.

**Like price supports, supply restriction programs favor large farms over small farms.**

The more acres put into the supply restriction program, the larger will be the payment

![Figure 11-4](image-url)
to the farmer. And like price supports, supply restriction programs represent a redistribution of income from taxpayers at large to the agricultural sector.

The failures of price support and supply restriction policies are evident in the large stockpiles of agricultural products that have existed in the United States. These agricultural surpluses have pushed our government to experiment with demand-side programs in addition to supply restriction programs.

**Efforts to Increase Demand**

Efforts to decrease supply have been accompanied by various efforts to increase domestic and international demand for U.S. agricultural products. You are undoubtedly familiar with some of the programs used in an attempt to increase domestic demand. Surplus commodities are distributed to the public school system for use in the school lunch program. (This practice explains some of the strange menus you encountered as an elementary school student.) Food stamps are distributed to poor families so that they can purchase more food. (The food stamp program is now called SNAP, the Supplemental Nutrition Assistance Program.) Surplus commodities such as cheese and milk powder have been distributed directly to the poor through various welfare agencies and food banks. The objectives of these programs are both humanitarian and pragmatic. Feeding the poor and seeing that schoolchildren receive a free or subsidized lunch are worthy humanitarian aims, and the pragmatic purposes of these programs are to increase the demand for agricultural products and to get rid of our surpluses.

Foreign demand for U.S. farm commodities has been affected by two types of programs: foreign food assistance programs (such as Food for Peace) and export subsidies. The foreign food assistance programs have been a means of disposing of surplus commodities abroad. When U.S. surpluses accumulate, we distribute more food abroad. When our surpluses are smaller, we send less humanitarian food aid to developing countries. After the first war in Iraq, surplus milk powder was made available to citizens of that country. During the 1980s, when Congress restricted foreign aid funds to Ecuador because of its brutal government, administration officials deliberately sent far more surplus milk powder to the country than its residents could possibly consume so that Ecuadorian sales of the milk to other countries could bring in desired revenue. In the world food crisis of the early 1970s, millions died of famine while the United States cut off food aid because our surpluses were relatively low. In many cases, our food aid programs have done more harm than good to Third World residents, as we will see shortly.

The U.S. government also pays export subsidies (government financial assistance) to U.S. agricultural exporters, as well as the assistance to U.S. farmers that we’ve discussed. These serve to make our agricultural exports “more competitive” (cheaper) to foreign consumers. This causes an increase in foreign consumption of U.S. agricultural products because U.S. prices will be lower than those of other countries. Indeed, we have lowered the world price of some commodities so much that we have been accused of dumping, or selling our farm products abroad at prices well below cost. These types of subsidies have also been used to a large extent in much of Western Europe and Japan. The decrease in the price of U.S., European, and Japanese commodities has greatly upset the other grain-producing and grain-exporting countries of the world, such as Canada, and has triggered retaliation. They also have negative effects on developing countries, as we shall see. We will return to this issue shortly.

Efforts to increase the price of farm products by increasing demand have not been very effective. In most cases, we have merely disposed of accumulated surpluses. However, evidence indicates that some of the domestic programs meet their humanitarian objectives. For instance, the Food Stamp program increases poor families’ access to food.
Recent Agricultural Policy

In recent years, the United States has attempted to coordinate and reevaluate these various farm programs. In 1990, for example, farmers were first required to put some of their acreage in a supply restriction program if they were to participate in the deficiency payments program. Attempts were made to decrease farmers’ incentives to continuously increase yields. Then, in 1996, Congress passed the so-called Freedom to Farm Bill, which eliminated the target prices and deficiency payments on some crops such as feed grains and wheat. It provided income support payments based on acreage. Restrictions on what farmers could plant and remain eligible for government farm programs were virtually eliminated, an action that was viewed as a major step toward “getting the government out of farming.” The income support payments were scheduled to last for seven years until passage of the new farm bill. Farm bills are passed every five to six years.

The effects of the Freedom to Farm Act were what you probably would have predicted from reading the previous sections. At first, farmers were delighted to have less government interference with their decisions about what (and how much) to plant. However, farmers responded to the legislation by increasing supplies of corn and many other commodities, thereby causing international grain prices to fall to historically low levels. Many farmers’ incomes did not cover their costs. More farmers left agriculture. And in response to a number of natural disasters, such as floods and droughts, as well as the adverse market conditions just mentioned, Congress passed emergency farm aid measures in 1998, 1999, and 2000.

More recently, President Bush signed the 2002 farm bill, entitled the Farm Security and Rural Investment Act. This bill covers the time period from 2002 to 2007, but specifies expenditures for a 10-year time period. Once again, the benefits of the farm bill are heavily targeted to large U.S. farms and agribusinesses. Little was done to alter the price distortions and commodity overproduction that have resulted from previous farm bills. The new farm bill also eliminated many provisions that would have targeted assistance to small- and medium-sized farms. While it does expand programs for farmland conservation and rural development, it failed to address concentration in the U.S. farm industry or strengthen competition in rural America. Instead, this bill (along with the crop insurance bill) was slated to provide $191 billion in direct subsidies to farmers over the 10-year time period (which was more than what was expected to be spent on K–12 education and environmental protection combined over the same 10-year time period).7

In 2008, a new farm bill was passed, over President Bush’s veto. This bill was called the Food, Conservation, and Energy Act of 2008. This bill was mixed in terms of its impact on farmers, consumers, and low-income people. We will consider elements of this new bill shortly.

An Evaluation of U.S. Farm Policy

For 29 years, my family has made its living growing corn and soybeans in Mazon, Illinois—population 764. Most of my neighbors live on or near farms; they always have. Many of the people I worship with every Sunday at Mazon Congregational Church still work on farms, though they’re not sure how long they’ll keep going. Still, the personal satisfaction—the sense of fulfillment—that we all used to experience from working hard and bringing in a harvest has dwindled, and for some, disappeared. My first year in farming was 1973, and that year we sold corn for $3.90 per bushel; I was able to buy a new tractor for $12,500. Last year I sold corn for $1.90, and a similar new tractor cost $100,000.8
As is obvious to the farmer quoted here, government policies have not solved the core farm problem of declining real incomes to small- and medium-sized farmers, and they have had some unforeseen side effects. As we shall see, by treating a symptom rather than a cause, they have contributed to an increasingly concentrated agricultural sector and promoted productive techniques that have harmful environmental consequences. The benefits of our agricultural programs have gone largely to large and rich farmers. Additional issues involve farm workers and U.S. minority populations. The existence of biotechnology is just one more example of technical advance with questionable effects, and hunger continues to exist in one of the world’s richest countries.

**Treating a Symptom**

The low price of farm products is a symptom of a resource allocation problem in the economy. We simply produce too many farm products in comparison with other goods. The solution to the problem is to decrease the resources devoted to farming. As long as prices are supported artificially, there will be an incentive to continue to overproduce. Indeed, government policies are a part of the farm problem because they encourage the retention in agriculture of resources that would otherwise leave farming and be used for other purposes.

**Increasing Concentration in Agriculture**

A market is said to be concentrated if it contains a relatively few large firms. The current trend is toward greater concentration in agriculture. As we discussed previously, the “Little House on the Prairie” image of American agriculture is a false one today, but it was a more accurate image in the 1930s, when government involvement in agriculture began. The average farm was much smaller, and 25 percent of the population resided on farms. Now, only about 1 percent of the population is engaged in farming, and the average size of farms has greatly increased. And while small family farms account for most of the farms in the nation, they produce a modest share of farm output.

There is some evidence that concentration in agriculture has increased in recent years. Table 11-3 shows that the number of the largest farms (those with sales greater than $500,000 per year) has increased as a percentage of all farms (from 3.2 percent in 1997 to 5.3 percent in 2007). The form of farms has also changed slightly, with individually or family-owned farms and partnerships decreasing slightly as a share of

<table>
<thead>
<tr>
<th>TABLE 11-3</th>
<th>Farm Size by Annual Sales ($) and Farm Organization (%), 1997, 2002, and 2007.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1997</td>
</tr>
<tr>
<td>Sales (% of farms)</td>
<td></td>
</tr>
<tr>
<td>Less than $500,000</td>
<td>96.8</td>
</tr>
<tr>
<td>More than $500,000</td>
<td>3.2</td>
</tr>
<tr>
<td>Farm Organization (% of farms)</td>
<td></td>
</tr>
<tr>
<td>Individual/family, sole proprietorship</td>
<td>86.8</td>
</tr>
<tr>
<td>Family-held corporation</td>
<td>3.7</td>
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<tr>
<td>Partnership</td>
<td>8.4</td>
</tr>
<tr>
<td>Non-family corporation</td>
<td>0.4</td>
</tr>
<tr>
<td>Other: co-op, estate or trust, institutional, etc.</td>
<td>0.8</td>
</tr>
</tbody>
</table>

all farms over the period, and family and nonfamily corporations increasing slightly as a share of all farms. **To the extent that concentration has increased over the long run and somewhat over the short run, this raises concern over potential market power among these farms.** The effects of concentration are discussed in detail in Chapter 13 on market power.

**Distribution of Benefits**

We’ve noted that our agricultural programs largely benefit larger farms and agribusinesses, since subsidies are doled out per unit of output (or per unit of land under production). The more output or land, the more the subsidy.

The Environmental Working Group (EWG) records the value of agricultural subsidy payments that go to various recipients in the United States. It notes that 10 percent of the largest and richest U.S. farms collect almost three-quarters of all federal direct farm subsidies. Out of a total of about $5 billion in direct payments in 2007, 149 recipients each received over $250,000. Furthermore, 1,234 recipients received over $120,000, and 5,125 recipients received over $60,000. This leaves less than $2,000 on average for each of the remaining two million farmers.10

If our goal is to serve small and medium size farmers and to ensure a living for low income farmers, as suggested in the opening quotation to this chapter, then our subsidy programs distort this goal.

**Harmful Environmental Effects**

Another false image of American agriculture noted by Cochrane and Runge is that farmers are “stewards of the land” or protectors of the land and environment.11 Farming is viewed as a healthy, wholesome way of life. In fact, modern farming has been reliant on chemical fertilizers to increase yield per acre to thereby obtain more government payments. It relies on pesticides to decrease insect damage and maximize yield. It creates nitrate pollution of water wells in farm states and other environmental problems.

As people have left farming, they have been replaced by machines that are both expensive and dangerous. Farming is now one of the most dangerous sectors of the economy as measured by workplace accidents and deaths. Irrigation in the lower Midwest has damaged aquifers (underground water supplies serving large areas) but increased bushels per acre on which deficiency payments are earned. Commodity programs have encouraged the production of crops that are particularly likely to cause erosion, because these crops often have had high target prices. Farm life is neither particularly healthy nor environmentally benign. And our government programs have contributed to these adverse effects.

Some economists argue that the increasing concentration of agriculture worsens the environmental problems associated with large-scale production. Huge cattle feedlots, factory hog farms, and dairies with 1,200 cows on relatively few acres create significant problems of odor and waste disposal. Realistically, we will never return to the idealized notion of small family farms. We can, however, preserve the small- and medium-sized farms that remain if we adjust our national farm policy so that it no longer favors the largest producers. Policies that promote the greatest possible yield have proved self-defeating because they worsen the resource allocation problem and, in the process, increase concentration. Policies that promote a more diverse and less chemical-dependent agriculture appear to make more sense.

**Diversity and Agriculture**

Ironically, the original farmers and inhabitants of the land in the United States; that is, Native Americans; experience high rates of poverty and hunger. Nearly one-third of Native Americans live in poverty, and nearly one-fourth of all Native households are considered food insecure.12
Another particularly at-risk population includes farm workers (often Hispanic migrants from within the United States or across national borders). Many of these farm workers harvest fruit and vegetable crops, which are not covered by government agricultural subsidies. Wages to farm workers are often very low and their housing and living conditions are often quite poor. Another issue involves pesticide poisoning. An estimated 10,000 to 20,000 hired farm workers are poisoned by pesticides on the job each year. For example, farm workers and their children have an increased risk of leukemia, non-Hodgkin’s lymphoma, brain cancer, infertility, birth defects, and neurological disorders due to pesticide exposure. A recent study in Oregon found that migrant farm workers who had repeated exposures to neurotoxic pesticides scored far worse on tests of intellectual functioning, memory, and attention than did comparable immigrants who had no contact with pesticides. The problem is even more serious, given that poverty prevents many farm workers from receiving medical treatment when they are ill or injured. Despite the risks, the federal government has very few pesticide safety regulations that could protect farm workers.\textsuperscript{13}

A final diversity issue involves African-American farmers. In 1920, at the height of black farm ownership, 1 in 7 U.S. farms was operated by an African-American; by 1992, the number had fallen to 1 in 100.\textsuperscript{14} One reason for this decline may well be U.S. Department of Agriculture (USDA) policy. According to an article published by the Environmental Working Group, the USDA had systematically discriminated against African-American farmers for decades, denying them access to crop loans that were made to “similarly situated” white farmers in their communities. In 1997, a historic civil rights class action suit, known as \textit{Pigford v. Veneman}, was filed against the USDA. Two years later, the government admitted to wrongdoing and made a $2.3 billion settlement—the largest civil rights settlement in U.S. history. Implementation of the settlement has been difficult, however, and nearly 9 out of 10 African-American farmers who sought restitution through the case were denied. In 2008, a coalition of organizations led by the National Black Farmers Association lobbied to win several important items for black farmers in the most recent Farm Bill, which is expected to open up remuneration to as many as 80,000 farmers. The new Farm Bill also established an advisory committee to improve outreach to African-American farmers and placed a moratorium on foreclosures against any farmer who has a discrimination claim pending against the USDA.

\section*{Biotechnology}

Production of genetically modified organisms (GMOs) has increased greatly over recent years. U.S. agricultural companies have taken the lead in developing biotechnology, in which seed varieties are genetically altered in order to increase yields. Farmers use the GMOs as a means of preventing crop disease and reducing pesticide use. Some people have characterized biotechnology as the means to solve the ever-present problem of world hunger, much as the Green Revolution was expected to relieve famine in earlier decades. Opponents maintain that the environmental and health risks of biotechnology are severe and that technology will do little to help with world hunger reduction. They argue that the development of GMOs will primarily benefit large multinational corporations. The debate over GMOs is expected to continue for some time and to create controversy between leaders of various governments. The effect of biotechnology, for better or worse, is probably most pronounced for developing countries, as we shall see.

\section*{U.S. Hunger}

We have noted an overall trend of falling agricultural and food prices (in real terms), as well as fluctuation of food prices. However, retail prices of food rose 4.2 percent in 2007, the largest increase since 1990. Overall food price increases mask much larger
increases in specific food items, many of which are staples of American families. For example, milk, bread, flour, and eggs have experienced double-digit price inflation.\textsuperscript{15}

There are many reasons for this recent food price increase. One is a greater use of agricultural products for bio-fuels, which is subsidized by the U.S. government. Although evidence suggests that the use of corn to produce fuel may actually increase energy use and the release of greenhouse gases, the motivation has been to reduce energy use and the release of these gases. In any event, the increased demand for corn for this additional use caused corn prices to rise. As farmers responded to rising corn prices, they diverted their cropland out of other crops, such as wheat and soybeans, contributing to rising prices of these crops as well. Recent weather-related crop shortfalls of wheat and rice in various parts of the world also contributed to rising prices of these grains. Also, increasing incomes in populous countries such as China and India have encouraged their greater consumption of foodstuffs such as bread and meat (which uses large amounts of food grains in its production). Whether these food price increases represent a short-term fluctuation in prices, as was discussed at the beginning of the chapter, or a longer-term trend remains to be seen. To the extent that global warming causes greater fluctuation in weather patterns, we can expect to see fluctuation in production, especially in countries (such as those in South Asia) that are likely to be affected first. And as incomes continue to rise in countries such as China and India, prices are likely to rise as well.

These dramatically rising food prices have created difficulty for low-income consumers. Recent government data finds that 11.1 percent of households in the United States are food insecure, also called "at risk of hunger." A recent survey conducted by Spotlight on Poverty and Opportunity and the Alliance to End Hunger revealed that 28 percent of those surveyed said they worry very much about going hungry or somebody they know going hungry.\textsuperscript{16} Participation in the food stamp program (SNAP) has been approaching record highs. Food banks have reported a 20 percent increase in requests for help. Unfortunately, food banks have also suffered from rising food prices, making it more expensive for them to serve their clients. And because of the weak economy, private donations of food have fallen by almost 10 percent. Clearly, in times of greatest need, there is greatest difficulty in meeting this need.

**Global Agriculture and Developing Countries**

**Food Production and Hunger**

Some economists argue that our heavily subsidized agricultural sector produces commodities that compete unfairly with those of developing countries. The developing countries often rely on their own agricultural exports for much-needed foreign currency. If, for example, the price of rice produced in Arkansas is artificially low because of U.S. government subsidies, Thailand’s rice exports to the United States and to other trading partners will be diminished. This is an especially serious problem because the European countries and Japan, other potentially major markets for Third World agricultural exports, have policies similar to our own. Bread for the World, an organization concerned about world and domestic hunger, reports that the annual subsidy payments received by farmers in the rich countries (the United States, the European Union, and Japan) amount to about $280 billion, yet the total annual development assistance to the developing countries is about $60 billion, less than one-quarter of the subsidies.\textsuperscript{17} Since U.S. and European farm subsidies, as well as the use of biotechnology, serve to increase food production, it is natural to assume that they will reduce world hunger and famine. Let’s try to understand why this is probably not the case.
First, a lot of food is currently produced in the world. Except for the world food crisis years of the early 1970s and possibly very recently, our world has been characterized as having abundant supplies and indeed surplus stocks of agricultural products that are never even consumed. The problem of world hunger has far less to do with global food production and a lot more to do with how this produce is distributed. Food, as well as other production, is distributed to people who have the incomes to buy it. Low-income people in poor countries cannot afford to buy enough food for themselves and their families. Thus, hunger is a problem of poverty, not production. In addition, civil war, political instability, bad weather, poor transportation, and lack of storage facilities can exacerbate problems of hunger.

Second, we must remember that most residents of developing countries live in the rural sector and earn their incomes through crop production. When U.S. and European subsidized agricultural products flood the world markets, causing very low agricultural prices, poor farmers in developing countries earn little income from their production of food and thus become poorer. They also have less incentive to produce food. They may seek employment in sectors that can more reliably provide for the needs of their families. Or they may swarm to cities in hopes of higher incomes, but in reality become unemployed and live in squalid conditions. Although famine conditions require emergency food aid, prolonged food aid and dumping of agricultural products by developed countries actually exacerbate the problem of world hunger.

A third reason that developing countries are disadvantaged in agriculture has to do with the trade restrictions imposed by the wealthy countries. The developed countries, including the United States, impose import tariffs on products that developing-country farmers can produce cheaper than rich-country farmers, such as rice, sugar, and cotton. These trade restrictions prevent the agricultural commodities produced by developing countries from entering the United States and other prosperous countries, and cost developing countries billions of dollars in forgone sales. Once again, this harm done to developing countries by developed country trade restrictions by far exceeds any amount of development assistance offered by rich countries to poor countries.

Finally, the patents owned by U.S. multinational corporations and agribusinesses prevent outsiders from producing genetically modified food and allow these large U.S. corporations to flood the world market with their agricultural products. Just as Green Revolution technology wasn’t made available to many poor farmers in low-income countries in the past, the new biotechnology is not available to poor farmers throughout the world today. In addition to health and environmental concerns about biotechnology, the most likely economic effects will be large increases in world food production, causing lower prices of agricultural products and preventing poor farmers from succeeding in agriculture. And it is the latter outcome that may serve to increase, rather than decrease, world hunger.

Subsidies and Trade Negotiations

The new round of international trade negotiations offers both optimism and frustration for the developing world. As discussed in more detail in Chapter 12 on international trade, the latest round of trade negotiations is called the Doha Round, named after the city of its location, Doha, Qatar. The Doha Round is also referred to as the “Development Round” and has the objective of assisting the economic development of developing countries. The optimistic side is that a “policy space” is now in place within which the world trading system can address the development needs of poor countries. The frustrating aspect is that little has been accomplished in this direction since the beginning of the round in 2001. The developing countries want a reduction in rich-country agricultural subsidies, from which the rich countries have so far refused to budge. We should closely watch international developments to discover the direction
that the Doha Round will take. As this textbook goes to press, talks have continually
broken down over the issue of developed country trade restrictions.

The Complexity of World Hunger
World hunger is a complex issue. We’ve seen that, contrary to what we might think, food
aid and technological advances that result in lower food prices actually harm poor develop-
ing-country farmers (and benefit developing-country consumers, who may not be poor).
However, there are also plenty of poor consumers in developing countries, and many poor
farmers are actually net food purchasers (buying more food than they sell). These groups of
people are harmed by high food prices. The problem is that food policies are usually not
designed to assist the poor residents of the world. U.S. agricultural policies are designed to
help U.S. farmers, and the richer ones at that. U.S. trade restrictions are also designed to
help U.S. farmers and U.S. agribusiness. Genetically modified organisms are developed
by agribusiness in order to increase their own profits, and food aid is often motivated by the
benefits that accrue to U.S. food processing and shipping firms, as well as U.S. farmers. So
how do we meet the admirable goals expressed in the opening quotation to this chapter?
How do we establish a “global food system that provides basic nutrition for all”?

Bread for the World has recommended that all U.S. foreign aid policy be directed by
a single cabinet-level director with responsibility for coordinating all aspects of foreign
assistance. This would bring food aid and the policies of the Department of Agriculture,
as well as various aspects of many other government departments and agencies, under
the umbrella of the foreign aid director. The director would also coordinate discussions
with developing countries, as well as other foreign donors and institutions. Certainly
this type of directorship could have very positive results for dealing with an issue as
complex as world hunger.

Certain elements of policy are clear cut, however. First, emergency food aid is always
important during a food emergency. This is a much different situation than ongoing food
aid, which has more likelihood of creating rural poverty and food insecurity. Second, it is
better to purchase food from neighboring regions and distribute it to those affected by the
food emergency than it is to ship U.S. agricultural products as food aid. This is certainly
cheaper, thereby enabling a greater provision of food. But it also has the benefit of
bolstering food prices in the neighboring regions and thereby benefiting rural farmers
rather than undercutting them by a flood of food aid into the region. For example, if there is
a food emergency in the country of Zimbabwe (which we’ve noted elsewhere is in a state
of crisis), it would be cheaper and more efficient to buy food from neighboring Zambia,
and it would benefit rather than harm Zambian farmers as well. Third, if poor country
farmers are to benefit from expanding food technology, they will need access to inputs,
including seed varieties, fertilizers, extension services, and so on. Otherwise, technologi-
cal advances will lower global food prices, putting those poor farmers who cannot afford
the technology out of business, and exacerbating rural poverty in poor countries. Finally,
U.S. and other developed country agriculture subsidies and trade restrictions would need
to be modified in order to benefit, rather than harm, the developing countries of the world.

The New Farm Bill and the Politics
of U.S. Agricultural Policy

Given all the concerns we’ve raised in this chapter, it is no wonder that some people ask
why our taxpayers, many of whom have low or medium incomes themselves, should
shift their earnings to higher-income farms. And why do farm payments dwarf expen-
ditures for other programs that we’ve discussed in this text, including programs for
education, environmental protection, poverty reduction, health care, and housing? And
finally, why should high-income farmers and corporations receive government benefits
when smaller farmers and other small business owners receive little, if any? What are the politics behind all this, and how could our policy be improved?

If most Americans are concerned about small- to medium-sized family farmers, then most farm payments should not go to the wealthiest farmers and agribusinesses. The fact that they do is the effect of politics and economics. How many consumer groups band together and advocate against farm policy that raises the price of food purchased in supermarkets? If you said none, you are probably right. But—how do you think the U.S. farm lobby compares with this diffuse and uninformed consumer group? Farm lobbying groups have organized in virtually every state in our nation. These groups are well financed by the large commercial farmers who use their vast financial resources to seek, not just beneficial agricultural policies, but policies that particularly benefit them as opposed to smaller farmers. Unfortunately, the smaller farmers that need the government benefits are neither informed about the effect of policies nor powerful as a lobbying group.

In addition, almost all members of the U.S. House of Representatives have at least one crop in their states whose producers vote pro-farmer. Senators are overrepresented by rural populations that vote pro-farmer as well. It is difficult to be re-elected when ignoring this group of farmers. Typically, lobbying and voting do not emphasize the need to target benefits to the poorest farmers. And, despite the publicity surrounding the Doha Round of trade talks, many legislators are still uninformed or uninterested in the effect of our agricultural subsidies and trade policies on poor farmers in developing countries.

Can our agricultural policy be improved? Certainly! Many church, consumer, farm, environmental, and social justice groups came together in 2007 to address the problems of U.S. farm policy and to seek improvements in the 2008 Farm Bill along the lines of the quotation that opens this chapter. They achieved some, but not all, of their goals. Among the positive outcomes are the following:

- **Domestic Hunger**: Additional funding of $7.8 billion for SNAP that will enable higher benefits and increased eligibility for low-income recipients than before, $1.6 billion for the Emergency Food Assistance Program, and $1 billion for the Fresh Fruits and Vegetable program (a snack program for low-income public schools).
- **World Hunger**: Assurance that a strong trust of money be available for unforeseen emergency food needs and separate food-aid funding that is to be strictly reserved for nonemergency long-term development programs. In addition, some money will be set aside for local or regional purchases of food to be used as food aid within that locality.
- **Farm Payments**: Lower limits for government direct-payment eligibility from $2.5 million adjusted gross income (that is, income minus expenses) to $500 million for nonfarmers and $750,000 adjusted gross income for farmers. These still represent payments for highly profitable farmers and agribusinesses, but are somewhat better than before.
- **Conservation**: Provision of $4 billion in additional funding for conservation programs.
- **Social Disadvantaged Farmers**: Additional funding and a new Office on Small Farms and Beginning and Socially Disadvantaged Farmers that reports to the secretary of Agriculture.

Although the 2008 Farm Bill failed to make the large-scale changes necessary to shift our agricultural supports away from large farms and agribusiness, it did make modest changes in that direction and provide support for other important programs. Since passage of the Farm Bill, President Obama tried to reduce the income cap for receiving government direct payments, but the measure failed to pass through Congress. The reason, of course, was politics.

**A Final Note**

The world today is not meeting the goals expressed in the introduction to this chapter. In particular, we have still not achieved a “global food system that provides basic nutrition for all.” A new “world food crisis” developed in response to the 2007–2008 rise in food...
prices already referred to. The number of the world’s hungry increased by 100 million people, bringing the total to more than one billion hungry people by mid-2009. Seventeen percent of all people in developing countries are undernourished. In Africa and South Asia alone, the rates of undernourishment are 30 percent and 21 percent, respectively. Of course, children are affected first. One in every 10 infants in sub-Saharan Africa dies before reaching age one; one in seven children in Africa dies before age five.\textsuperscript{20}

Not only does hunger cause child and infant deaths, but it also leads to political instability, as exemplified by riots in the cities of Haiti, Egypt, and other countries around the world.

If you’ve read this chapter and found yourself interested in the problems of world and domestic hunger and poverty, there are lots of things you can do about it. Some of these are suggested in the Discussion Questions at the end of this chapter. In addition, you may want to check out the organization, Bread for the World. This organization, referred to in Chapter 10, is a citizens’ lobby that seeks to influence legislation regarding world and domestic hunger and poverty. It does this largely by informing people about the issues, pending legislation, and significant legislators. While it has a Christian perspective, it has links to a large number of other organizations of different faiths or no faith background that are involved in the same issues. You will find suggestions for how to make a difference. There are probably many other things that you and your friends can think of, including food drives, charity fundraisers, and letter-writing campaigns. You may especially want to contact your legislators to encourage their support for a revamping of foreign aid as was discussed in the section on the complexity of world hunger.

\textbf{ViewPoint}

\textbf{Conservative versus Liberal}

Conservative economists and politicians have argued for a long time that price supports, target prices, and supply restriction programs have contributed to our farm problem instead of solving it. Because of these programs, our country simply allocates too many resources to agriculture. Theoretically, conservatives would end virtually all farm programs and let market forces determine the outcomes for farmers. Also, by encouraging less government antitrust activity and fewer government environmental regulations (so that there is less government involvement in agricultural markets), the outcomes of conservative policy might be greater concentration in agricultural markets and unchecked environmental harm.

These conservative policies and outcomes might not actually take place, however, because politicians on both the left (liberal) and the right (conservative) face strong lobbying activity in favor of government programs that benefit farmers in their state. For example, conservative southern senators and representatives to Congress are under a great deal of pressure to support farm programs that benefit tobacco producers. There are other examples in almost every other state. And since large agribusinesses have more political power than do smaller farmers, the unequal distribution of the benefits of our farm programs has been accepted by many conservatives as a natural phenomenon.

Liberal economists and politicians, on the other hand, are more comfortable supporting agricultural programs. Liberals do not wholeheartedly endorse the programs, however, and many believe that they should be gradually phased out. Their major objection to the programs is that the bulk of government payments go to large farms rather than small family farms. They would also like government efforts to reduce concentration in agricultural markets and to ensure environmental protection. Finally, globally minded economists and politicians are concerned about the effects of U.S. programs on the poor in developing countries.
Summary

Agriculture is characterized by inelastic demand in the short run, fluctuations in short-run supply, immobile resources, and such rapid technological change that supply has increased far more rapidly than demand. Thus, despite high productivity, agriculture has long been a troubled sector of the U.S. economy. Since the 1930s, government policies aimed at the farm problem have promoted the overallocation of resources to the agricultural sector. Furthermore, despite these policies, the proportion of our population engaged in farming has shrunk to about 1 percent. Supply restriction programs, price supports, and target prices have not saved the small American farm but instead have contributed to the farm problem. Concentration has increased in agriculture, in part because of our farm policies. Policies that promote the greatest possible yield have proved self-defeating because they worsen the resource allocation problem and in the process increase concentration and payments for our richest farmers and agribusinesses.

Finally, our farm policies affect the rest of the world. The policies of such a large and prosperous country can either help or hinder the development efforts of developing countries. Our agricultural subsidies and trade policies create harm. Food aid, development assistance, and biotechnology all become possible solutions or contributors to the problem of world hunger, depending on how they are managed.

Discussion and Action Questions

1. How does demand inelasticity affect farm prices and farmers’ incomes? How does this issue compare between U.S. agricultural production and primary commodity production in developing countries (as will be discussed in Chapter 12 on international trade)?

2. What is the direction of the trend in concentration in farming? How have government programs contributed to this trend?

3. How do price floors interfere with the rationing function of price? Use price supports as an example. Can you think of any other examples of price floors in our economy? (Hint: Remember that there are markets for services as well as for goods!)

4. Why don’t supply restriction programs work well in increasing farm prices and incomes?

5. Do you believe that the government should be involved in agriculture? What kinds of policies would you suggest? Do you think that direct benefits to low-income farmers might be a possible solution?

6. Go to the Census Bureau Web site (http://www.census.gov). Look for information under agriculture. Can you find the number of farms in your state?

7. Visit the official Web site of the Department of Agriculture at http://www.usda.gov. What information can you find about current agricultural policy? What other type of material is available there?

8. Check out the statistical arm of the Department of Agriculture at http://www.nass.usda.gov. This site contains the latest of the agricultural censuses. Look up some statistics that you have interest in.

9. Go to the Web site of the Farm Services Agency at http://www.fsa.usda.gov/pas/farmbill/. Read more about the latest Farm Bill, including the answers to frequently asked questions.

10. The Web site of the Food and Agriculture Organization of the United Nations (FAO) provides information about U.S. farm subsidies and how they affect the rest of the world. Go to the Web site at http://www.fao.org and investigate the effects of U.S. agricultural subsidies on the developing countries of the world. This site contains information about biotechnology, farm conservation, hazardous pesticides, and more.

11. Go to http://www.ewg.org to see the home page of the Environmental Working Group. This nonprofit organization has assembled the records of farm benefits that have been paid to farmers as well as other types of information. Do you think this is a liberal or conservative Web site?

12. The USDA provides information that is not just beneficial to farmers. For example, go to the USDA Web site (http://www.usda.gov) and find information you may need about current food recalls!

13. Farmworker Justice is an organization dedicated to helping migrant and seasonal farm workers improve their working conditions and wages, labor and immigration policy, health and safety, and access to justice. Go to its Web site at http://www.fwjustice.org and find out more about these issues. If you are concerned about the issue, you may want to seek information on this site about what you can do to make a difference.

14. Have you ever thought about writing to your legislators about farm policy? Probably not! Consider some of the issues: farmworker justice, the effects of U.S. agricultural subsidies on poor farmers in developing counties, inefficiencies in our food aid programs, inequities in our farm programs, and so on. Have the issues raised in this chapter encouraged you to write such a letter? Do it! (You can find your senators at www.senate.gov and your representatives at www.house.gov.)
15. For which nonfarm products is demand likely to be inelastic? Why is this the case? For which types of products is demand more likely to be elastic? (This topic is discussed in Appendix 1 of this chapter.)

16. How do target prices differ from price supports? Do different groups win or lose from these programs? (This topic is discussed in Appendix 2 of this chapter.)

Notes


4. Technically, the measure is “value added” and not simply “value.” Value added refers to the additional value that the worker places on the product.


9. Cochrane and Runge, Reforming Farm Policy, p. 22.


15. Bread for the World, Hunger 2009: Global Development (Washington DC: Bread for the World Institute, 2009). Unless otherwise noted, statistics from this section are from this source.


18. The Green Revolution consisted of new high-yielding seed varieties that were designed to withstand climate and other conditions in developing countries. If used with proper (and expensive) chemical fertilizers, irrigation, and other inputs, they resulted in greatly increased yields of wheat, rice, and corn. Larger and wealthier farmers were able to adapt the new seeds and corresponding inputs, causing large increases in food production, consequent reductions in food prices, and increases in their own incomes. The problem was that most poor people in LDCs are farmers who were unable to adapt the new seeds and corollary inputs, and who produced low yields sold at the prevailing low prices. Their incomes and standards of living suffered.


Inelastic Demand

The graph in Figure 11-5 shows the same hypothetical demand curve for corn that we discussed previously. The graph shows an initial equilibrium price of $3 per bushel and an initial equilibrium quantity of 5 million bushels. Now consider an increase in supply from $S$ to $S'$ caused by exceptionally good weather. The equilibrium quantity increases to 6 million bushels, which is a relatively small increase of 20 percent. We calculate this increase in quantity by taking the 6 million bushels minus the 5 million bushels, giving us 1 million bushels. To express this in percentage terms, we take the 1 million bushels and divide by the original 5 million bushels, giving us a 20 percent reduction in quantity. This is shown in the following two steps:

1. $6 \text{ million bushels} / 5 \text{ million bushels} = 1 \text{ million bushels}$
2. $1 \text{ million bushels} / 5 \text{ million bushels} = 1/5 = 0.20 = 20\%$

Recall that to transform a decimal (such as 0.20) into a percent (such as 20%), you would move the decimal two spaces to the right and add a percent sign.

Now consider the price change. Because of the inelastic demand, the effect of the supply shift on market price is great. The increase in supply causes the price to fall all the way to $2 per bushel, a decline of 50 percent. We calculate the 50 percent decline by taking $3 per bushel minus $2 per bushel, giving us a $1 per bushel price.

![Figure 11-5](image)

**Figure 11-5** The Effect of Inelasticity on Price and Farm Incomes in the Corn Market
Because the demand for farm products is inelastic, an increase in supply from $S$ to $S'$ will cause a sharp percentage decrease in price, as well as a decrease in farmers’ incomes. Note that price falls from $3 to $2, while incomes decrease from $15 million to $12 million. Conversely, a decrease in supply to $S'$ will increase price to $4 and increase total farm incomes to $16 million.
To express this as a percent, we take the $1 and divide it by $2, giving us a 50 percent decrease in price. This is shown in the following two steps:

1. $3 per bushel/$2 per bushel = $1 per bushel
2. $1 per bushel/$2 per bushel = 1/2 = 0.50 = 50%

Alternatively, a relatively small decrease in supply caused by poor weather (from S to S') would cause a large increase in price of 50 percent (up to $4 per bushel). We summarize by stating that the combination of weather-related supply fluctuations and inelastic demand results in large fluctuations in agricultural prices in the short run.

Now let’s generalize the effects of an inelastic demand on farmers’ incomes in the short run. We’ve already noted that if good weather causes an increase in supply, which causes price to decrease, then overall farm income will also fall. This is because income from a corn crop is equal to the number of units sold times the price at which they are sold. Refer again to Figure 11-5. At the initial price of $3, farmers sold 5 million bushels, earning income of $15 million from their corn crop. (Five million bushels times $3 per bushel is $15 million.) After the increase in supply, farmers sold 6 million bushels at a price of $2 per bushel. They earned only $12 million for their corn crop. Because the farmers face an inelastic demand, a short-run decrease in price results in a short-run decrease in farm income. Similarly, a short-run increase in price (from bad weather) results in a short-run increase in farm income. These outcomes, as well as the outcomes in situations in which demand is elastic (instead of inelastic), are shown in Table 11-4.

**TABLE 11-4** • The Effects of Elastic and Inelastic Demand on Total Income

<table>
<thead>
<tr>
<th>When demand is</th>
<th>Then a decrease in price will cause</th>
<th>And an increase in price will cause</th>
</tr>
</thead>
<tbody>
<tr>
<td>Inelastic</td>
<td>Farm income to fall</td>
<td>Farm income to rise</td>
</tr>
<tr>
<td>Elastic</td>
<td>Farm income to rise</td>
<td>Farm income to fall</td>
</tr>
</tbody>
</table>

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By the 1960s, the government had acquired huge surpluses under the price support program. Something had to be done. In many commodity markets, rigid price supports were replaced by flexible price supports based on past market prices. These price supports (loan rates) were markedly lower than those used previously. They became a less important instrument of farm policy for most commodities, whereas target prices became a more important instrument. Under target pricing, farmers received direct payments. These payments are called deficiency payments. They cover the gap between the target price and the actual market price.

Figure 11-6 illustrates how target pricing works. Suppose that policymakers determine that a $4 target price is justified by the costs of producing wheat, but the market price is below $4. They establish $4 as the target price for wheat. At a target price of $4, farmers will offer 3,500 million bushels (quantity supplied) of wheat for sale.

Follow the arrow in the graph. The price at which buyers are willing to buy (quantity demanded) 3,500 million bushels is $2.50. So, the price will fall to $2.50, and the entire quantity supplied by farmers will be purchased. Farmers will receive $2.50 from the

**FIGURE 11-6** Effects of Target Pricing on the Wheat Market
With target prices, price is allowed to fall to the level that clears the market ($2.50); farmers receive deficiency payments for the difference between the target price ($4) and the market price ($2.50).
market for a bushel of wheat, but the government will send them a check for the difference between the target price ($4) and the market price ($2.50). So, for each bushel sold, the farmer will receive a government deficiency payment of $1.50. A farmer selling 10,000 bushels will receive a check for $15,000.

Target prices differ from the previously discussed price supports in a number of important ways. First, because the market price is much lower than the target price, the cost of farm commodities does not drive up the cost of food. Indeed, because target prices drive down the market price for farm products to below the free-market equilibrium, food is made cheaper for buyers. Second, because prices are lower for consumers whether they are in the U.S. or the export market, American farm products are more competitive on world markets at the lower prices. Of course, this causes the same problems for developing countries that we’ve already discussed. Third, the market is less distorted by target prices than by price supports, because no surplus is created. Finally, the costs to taxpayers of target prices and deficiency payments are easier to count because the costs associated with surpluses are not incurred.

Of course, some similarities occur between price supports, target prices, and supply restriction programs. They all result in a transfer of income from taxpayers to farmers. They all favor large-scale farmers over small farmers. And they all harm the exports of other nations, including the developing countries of the world.