

Introduction to the Instructor's Manual

This Instructor's Manual parallels the organization of the textbook with 31 one-concept chapters. Each chapter contains four components. First is suggested teaching tips. We try to point out where students are likely to have difficulty so you can be prepared for a little extra emphasis. Goals for the chapter are also given. The second component is answers to the discussion questions at the end of each chapter. Third, each chapter has multiple choice questions for use as a test bank which is available separately. Finally, there is a set of transparency (power point) masters.

Either teaching or taking an economics course requires hard work, and we have provided help for you and the student. Other than the text and lecture, the best source of preparation is the study guide. We have prepared a study guide expressly to complement this text. The study guide include an introduction to graphing as well as, for each of the 31 chapters, a summary, a self-review fill in the blank, problems, In the News readings with questions, a practice test, and complete answers. The In the News reading are a substitute for the usual boxed material in some texts and have the added advantage of providing the student with an opportunity to practice a specific analytical task. The practice test questions are not repeated in the test bank. The study guide is available free of charge on the web at http://www.cba.bgsu.edu/faculty_staff/hoag/studyguide.html. It is in PDF format.

The text includes, at the end of each chapter, key concepts, discussion questions, and multiple choice questions. The key concepts are listed to give the student a concise list of terms to understand. These terms are also found in the glossary. The discussion questions give the student the opportunity to review and apply the concepts from the chapter. The one-concept chapter results in a generous number of discussion questions for each topic. Complete answers to all discussion questions are given here in the instructor's manual and may be copied and distributed to the students. These exercises will go a long way toward helping students develop command of the material.

One of the most important ideas that you can convey to your students on the first day of class is that they must listen carefully. A large part of the confusion that they might have in economics occurs because they are not familiar with the vocabulary. Students must get the vocabulary if they are to understand what is going on. Misunderstanding with "capital" and "scarcity" are fundamentally problems of vocabulary. We commonly think of capital as money and frequently think of scarcity as rarely found. These definitions are not the definitions of economics and much economics will be misunderstood if the vocabulary is not carefully understood. In this light, economics is like a foreign language.

You may be aware, unfortunately, that few students sign up for economics gleefully. You can face their fears directly and agree that the course is different than many of their other courses. This means that the students must prepare differently for this course than for other courses. Also point out that many students have managed to successfully pass the course and there is even life after economics!

How can the students prepare for this class? There is no good substitute for daily preparation. Reading the text before class will be useful as well as reading the text again

after class. Making notes in the text or in their notebooks will be helpful. Special attention must be paid to the definitions. The students must know the definitions if the economics is to make sense. If some idea is not clear, encourage them to ask about it. If they do not, they will be sure to after the test. Good study habits will do wonder for their performance and attitude about the course. While the use of a study guide will provide strong students with an organized, more efficient use of their time, it is the marginal students who will obtain the greatest returns. Successful completion of the one-concept chapters in the text will provide positive feedback and improve performance.

The course requires not just memorization, although memorization will help, but an understanding of the process of choice and its impacts. While much of economics seems abstract, students will be learning the power of the economic way of thinking. You might point out that the material that they are learning in technical and job related course will most likely be obsolete in ten years. Only the basic ideas and thought processes that they learn in courses like economics will still be useful then. The economic way of thinking will not be diminished by the passing of time.

We would like to thank Tami Thomas and Karen Masters of the Word Processing Center in the College of Business Administration at Bowling Green State University for their help in converting hard copy to electronic material. This task would have been a whole lot harder without their help.

The first and second editions of this Instructor's Manual were published by Prentice-Hall.

Table of Contents

Module 1 The Economic Problem

- Chapter 1 The Meaning of Economics
- Chapter 2 Methods
- Chapter 3 Production Possibilities
- Chapter 4 Economic Systems

Module 2 Price Determination

- Chapter 5 Demand
- Chapter 6 Supply
- Chapter 7 Market Equilibrium
- Chapter 8 Price Elasticity

Module 3 Behind The Supply Curve

- Chapter 9 Diminishing Returns
- Chapter 10 Cost
- Chapter 11 Revenue
- Chapter 12 Profit
- Chapter 13 Perfectly Competitive Supply
- Chapter 14 Monopoly
- Chapter 15 Imperfect Competition
- Chapter 16 Demand for Inputs

Module 4 Measuring The Economy

- Chapter 17 Unemployment and Inflation
- Chapter 18 Gross Domestic Product
- Chapter 19 Price Indexes
- Chapter 20 Business Cycles

Module 5 The Level of Income

- Chapter 21 Consumption and Investment
- Chapter 22 Macro Equilibrium
- Chapter 23 Government
- Chapter 24 The Keynesian Cross
- Chapter 25 Fiscal Policy

Module 6 Money

- Chapter 26 Money
- Chapter 27 Monetary Tools
- Chapter 28 Money and the Level of Income
- Chapter 29 Economic Policy

Module 7 Trade

- Chapter 30 Trade Without Money
- Chapter 31 Trade With Money

Module 8 Conclusion

Chapter 1

THE MEANING OF ECONOMICS

IMPORTANT TOPICS

resources
scarcity
choices
opportunity cost

GOALS

understand the scope of economics
recognize the existence of scarcity
examine the relation of scarcity, choice, and opportunity cost

TEACHING TIPS

This is an essential chapter because the fundamental economic problem is described and provides the motivation for studying economics. If students understand this first chapter, much of what they do later will be easier.

This chapter is organized around the definition of economics, and the definition is taken apart, analyzed, and rejoined. There are several important points where students may stray. First is that money is not capital. Capital is a good used in the production of another good. Money itself is not used to produce other goods. Students usually have little concept of the nature of money but will be helped in Chapter 26.

A second important point is the link between scarcity and choice. Choice originates from scarcity. The problem is that students think of scarcity as meaning rarely found. Economists think of scarcity as limited relative to the need or want for the item. The economic meaning of scarcity must be stressed before the need for choice is obvious.

Opportunity cost is also fundamental. Students and even other social scientists ignore this important concept. You may want to go around the room and see if various students can give an example of an opportunity cost that they have faced that day. This is a good exercise in that it gets the class involved and also provides the students with personal examples of this concept. They are then more likely to remember it.

The same can be done with the concept of models. Examples such as globes, clocks, toys, and maps make the concept more understandable. Also provide students with or ask students to provide examples of positive and normative statements. Be sure to point out that positive statements, such as I have two noses, do not necessarily have to be true.

ANSWERS TO DISCUSSION QUESTIONS

<u>1. Inputs</u>	<u>Classification</u>
land	land
plants (from nursery)	capital
water (from hose)	capital
hoe	capital
labor	labor
fertilizer	capital
planning	entrepreneurship

2. Money definitely is scarce. But is it a resource? It is not land, labor, or entrepreneurship. Is it capital? It is man made, but is it used to produce some good? Do we use dollars for hammers? Are dollars burned as fuel to heat metal or make energy? Since we do not use money itself to produce goods, money is not capital as we have defined it.

So just what does money do? A major function of money is to facilitate exchange, either with another person now or at some future time. Of course, if there is no one else with whom to trade, money loses its usefulness. On the other hand, exchange between people occurs even when there is no money, only then goods and services will be traded for other goods and services. Economic activity will go on even if there is no money. That means that money is not a resource.

3. Labor incorporates the element of time, as in man-hours of labor. Technology is represented by capital.
4. The expression means that there is some other use of money (or time) that has a greater opportunity cost.
5. The average visitor to Disney has to wait in line, especially for the more popular rides. Thus time is scarce. Every minute spent in line is time that cannot be spent on a ride; every minute spent on a ride cannot be spent on another ride.
6. The soap sample had definite medical and time costs for the approximately 1,000 people who consumed it. No sample is free. It may have a zero dollar price, but to use the sample requires time, time that could be used in doing something else. Also, the resources that went into the sample could have been used to make something else. So by getting a sample of soap, you did not get a sample of lemonade.
7. For the student, the cost is the income that could have been earned while in school as well as the financial cost of school. Even if you work and go to school, you could have done something else with your school time. If your parents pay, their opportunity cost is the value of the alternative use of their money, perhaps a car or a more comfortable retirement. The society gives up the output that college professors and other personnel could produce in another line of work. The society also gives up the alternative use of the college campus.
8. Seed corn can be consumed now for its nutritive content or that present satisfaction can be forgone in favor of planting the seed corn and enjoying the benefits of its future yield.

Chapter 2 METHODS

IMPORTANT TOPICS

why models are used
elements of a model
model classification

GOALS

recognize the necessity of models
understand the use of models in economics

TEACHING TIPS

Almost nowhere else in the experience of the student is a model a standard way to approach a problem. They simply have little experience with this method. Moreover, they are not sure what a model is. A couple of points need stressing here. First, the definitions are essential to the understanding of and working with economic models. Many terms have common everyday meanings and then unique meanings in economics. It is easy to become confused using the everyday meaning when doing economics. Second, the assumptions limit the way we may think about the problem. That means that when answering questions, students must do so within the confines of the model. Thus a student is not allowed to answer a question based on what she believes to be true, but the student is being asked to answer using a particular model. In macro, for example, when the government increases spending, it need not be true that there is a one-for-one reduction in spending by some other sector. Total output can rise. Third, though students have little formal experience with the method, they are active in its use. Students use models in their thinking, but they are often not aware of the models they use. Hence it can be useful to point out to them, as they respond to our questions, that they are using a model, maybe just not the model under discussion.

ANSWERS TO DISCUSSION QUESTIONS

- Normative.
 - Positive.
 - Normative.
 - Positive.
 - Positive.
 - Normative.
- This book is a model of economics. You can't be given economics, but you can be given a model which simplifies reality so that it can be understood. When you understand this book, then you understand the scope of economics that this book covers.
- It is hard enough to explain the eclipse of the moon with a model, but to explain it without a model is nearly impossible. In the eclipse of the moon, the earth gets between the sun and

the moon blocking the sun's rays from the moon. But to understand the above statement, you have to hold a model of how the earth and moon move relative to the sun. So that explanation assumes an underlying model.

4. The average student is registered for six classes is a positive statement. The statement saying that six is too many is normative.

5.
 - a. macro, normative.
 - b. macro, positive.
 - c. micro, normative.
 - d. micro, positive.

Chapter 3 PRODUCTION POSSIBILITIES

IMPORTANT TOPICS

- production possibilities
- scarcity, choice, and opportunity cost
- law of increasing costs
- changing the assumptions - employment
- changing the assumptions - resources and technology

GOALS

- understand production possibilities
- understand that scarcity forces choice
- understand the law of increasing costs and why it is true
- understand what happens to production possibilities when the assumptions change

TEACHING TIPS

Refer students to the study guide for the Introduction to Graphs. Production possibilities is a particularly simple example of an economic model and therefore is useful as an example of what economists do with models. Production possibilities is an important pedagogical model because it illustrates that scarcity requires choice. Since choice is required, the choice that a society makes will depend on the goals it has. Thus the goals of a society can be used to indicate where a society may choose on the production possibilities curve.

The main stumbling block seems to be the law of increasing costs. Students seem convinced that the law of increasing costs implies that the production possibilities is negatively sloped. It is hard to get them to see that the law implies that the production possibilities is concave. This problem may be rooted in the fact that the student does not clearly understand the opportunity cost concept and how to find opportunity cost using production possibilities. The use of colored chalk can sometimes help in finding opportunity cost. As each extra unit of bread is added, mark the opportunity cost with a colored line showing the amount of wine given up. Change colors with each added unit of bread.

The straight-line production possibilities curve is not discussed in the text. You may find it a desirable class exercise. The student then sees the impact of constant opportunity cost.

Production possibilities is included in the trade chapters, notably Chapter 30. You might want to point out as you discuss production possibilities here that different countries have different production possibilities, and the resources and technology that a country has will determine the shape and location of its production possibilities.

ANSWERS TO DISCUSSION QUESTIONS

1. Sending a man to the moon and back required resources.
Those resources could have been used to produce some other good - health care in Appalachia, defense, or roads, as well as newspapers, bicycles, or baseballs.
2. Your production possibilities will probably bow out. Why? Suppose that you start with all

your time spent in leisure, and no time spent in studying. Your grades will be awful. The first hour you spend studying will have a large impact on your grades. Then as you spend more and more time studying, your grades will go up. But they will go up less and less for each added hour spent studying. This means that production possibilities will bow out.

3. If the quantity and quality trade off as the production possibilities shows, then the best education would go to zero students. As the quantity increases, then the quality falls.
4. Being inside the production possibilities means that not all resources are used or that some resources are used inefficiently. positions outside the production possibilities require more resources and/or better technology than we have. We cannot be outside production possibilities.
5. Labor is a resource. More labor means that more output can be produced. If there is zero population growth, the amount of labor available stays the same. That means that any outward shift in production possibilities occurs because of increases in other resources or improvements in technology.

Water is an important natural resource. A drop in the water table means that more resources must be used to find and supply water. Thus the production of other output will grow at a slower rate. The production possibilities will move out more slowly than it would otherwise or it may move in if water becomes scarce enough.

A movement toward current consumption means that less is available for capital production. Future consumption will be less than otherwise. This is a movement along the production possibilities between today's consumption and tomorrow's consumption.

An energy-saving technology will cause fewer resources to go into the production of the same amount of energy. The unused resources can be used to produce more of both goods. The production possibilities will shift outward.

6. In this situation, we are moving along the production possibilities. At first, the least productive peanut fields will be turned into orange groves. These fields will be relatively better at producing oranges. As peanut fields are reduced further, land that is more productive for peanuts will be removed from production. But this land is less productive for oranges, and the increase in orange production will be smaller than before. So orange production will rise at a decreasing rate.

Chapter 4 ECONOMIC SYSTEMS

IMPORTANT TOPICS

- allocation of resource
- economic goals
- economic systems
- circular flow model

GOALS

- understand the economic questions
- know the economic goals
- be able to identify the economic systems
- understand the circular flow model

TEACHING TIPS

The student should finish the chapter with three main ideas. First is that somehow resources will be allocated. Resource allocation is not just left to chance. Second is that economic goals and economic systems are related. And finally, that the economy is made up of interrelated parts as shown in the circular flow model.

Students have rarely looked at the economic world around them and tried to make sense out of it. They see that goods are produced but do not ask why those goods and not others. They do not ask why a firm decides to produce a good in a certain way. They may be aware of the assembly line but do not realize that there may be alternative ways to produce the good. And when it comes to distributing the output, they clearly understand the role of wealth, but the source of wealth may not be clear. The three economic questions of what, how, and for whom will give focus to their inquiry.

Goals are an important part of economics and will be referred to again in the policy chapter, Chapter 29. The fact that goals trade off reinforces the opportunity cost concept. The idea that goals are important in the choice of an economic system is not one that's obvious to students. You might ask your students what changes have been occurring in Russia, Eastern Europe, and China and why these changes are occurring. To highlight this point, you should ask them what goals capitalism pursues and what goals communism pursues. Then direct their attention to the goals. Do some systems more easily achieve some goals than other systems? The link between goals and the economic system is important. The difference between the actual economic systems is important too. Students are frequently not well informed about what the differences are. The focus of the rest of the text is capitalism, but students should have some idea of the alternatives to capitalism.

Make sure that students do not confuse their concept of "the public" with the public versus private sector. Some students are not acquainted with the terminology public ownership, public good, and so on, and will need help with this distinction throughout the course.

The circular flow is a simple macro-level model of the economy. It provides a view of the economy as being made up of parts. This view means that what happens in one part of the economy will have impacts on other parts of the economy. Reverse the markets and/or the sectors and have the students redraw the flows. This helps convince the students not to memorize a picture but to understand the relationships. The circular flow model will be referred to again

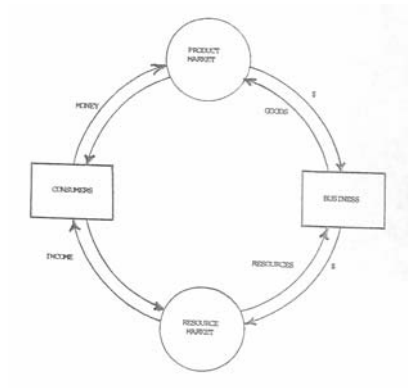
when GDP is discussed, Chapter 18.

ANSWERS TO DISCUSSION QUESTIONS

1. One system would allow Santa to be a centralized decision maker and plan the entire economy. Santa would decide what toys to produce, which elves would work on which toys, and which boys and girls received the toys. Under another system, Santa would just fill orders placed by the children. The elves would decide how to make the toys in the least amount of time. The toys would be distributed by Naughty and Nice.
2. Many resources go into cars. The engine block can be made of steel or aluminum. The body can be made of steel, fiberglass, or plastic. The technologies are also varied. Cars can be produced on an assembly line and finished at the rate of about one a minute or they can be produced by hand assembly and finished at the rate of two a day. The how question asks how we put the resources together to make a car. You can see that there are many different ways.
3. We will suggest several possible economic goals and how they might trade off.
 - a. Clean environment and economic growth. We can have more economic growth if we do not worry about what happens to the environment. Or, if we reduce pollution, we take resources that could otherwise be used to increase the rate of growth.
 - b. Economic freedom and clean environment. If by economic freedom we mean the freedom of the firm to pollute, then there is a clear trade-off between this economic freedom and a clean environment. Is there a trade-off if economic freedom means freedom for consumers to have clean air?
 - c. Efficiency an equitable distribution of income. Efficiency means getting the most possible output from the resources. This requires incentives to get people to work hard and incentives to get people to take the hard and risky jobs. Thus pay will not be divided equally, if that's what we mean by equity. So efficiency will conflict with equity. Suppose that we define equity in terms of paying for productivity. Then is there a trade-off between efficiency and equity?
4.
 - a. Communism.
 - b. Capitalism.
 - c. Socialism.
5. Even wealthy nations must be concerned about scarcity. Scarcity is the universal problem faced by all societies regardless of their economic system. Communism allocates resources by centralized decision making. Capitalism relies on markets.
6. Under communism, labor is allocated by a central plan. If more labor is needed in farming, workers are moved from the factories to the farms. Under capitalism, labor is a resource bought and sold in a market. When there is an increase in the need for a particular kind of labor, the market will send a signal of higher wages and sway more labor into these jobs. Enough people will, by choice, select these jobs.

7. The situation in the USSR, Eastern Europe, and China is in flux. Check your newspaper and television news for the latest details.

8.



Chapter 5 DEMAND

IMPORTANT TOPICS

- demand
- law of demand
- change in quantity demanded
- change in demand
- determinants of demand

GOALS

- know the definition of demand
- understand that demand slopes downward to the right
- understand when demand shifts
- understand when we move along demand

TEACHING TIPS

This chapter is a pivotal chapter. If the students understand demand, they will better understand supply. And understanding both demand and supply will improve their understanding of market equilibrium. Supply and demand should be one of the main tools that they take with them from the course. So it is important to carefully lay this foundation.

The law of demand is important. How consumers react to changes in price is going to be important in the equilibrium discussion. The student must get this. The main difficulty is knowing what demand is and distinguishing a movement of the curve from a movement along the curve. The definition of demand is essential. If students can get it in mind, they are likely to keep the subtleties straight. Asking students to define demand in class is a beneficial exercise. Get them to see that demand is the whole curve.

A useful approach is to announce that you are going to put a student's demand for widgets on the board. Ask the student a series of "What if the price is?" questions and record the quantities demanded. Make sure that the law of demand is adhered to. If not, point out to the student the lack of logic of trying to buy less at a lower price if more would be bought at a higher price. After a few prices, ask students one at a time to come to the board and circle demand. They will start by circling a particular quantity. After many circles, circle all the information on the board. Now define demand and later remind students that demand was the whole schedule.

Now it is easy to pull the law of demand from the schedule, discuss it and then plot demand, showing the law of demand in the downward slope. Illustrate movements along the curve due to a change in price and then introduce a shift right and left in the curve due to a change in determinants.

The determinants of demand are important because they tell why the curve shifts. This is also important for the market equilibrium chapter. Students sometimes shift demand when they should not and sometimes do not shift demand when they should. They should understand that the determinants of demand determine whether demand shifts or not. Given mastery of the determinants of demand, the distinction of movements of the curve and movements along the curve should be fairly easy.

It is useful at this point to pose situations and question whether each is a change in

demand or quantity demanded. Have the students come to the board and graph their response. When there is a change in the price of a related good, have a pair of students at the board showing the effect on both goods. Have the class check out the graphs and have the class put into words the results of the graphs. Watch out for students concluding that demand changed when the price changed.

A review of the definition of demand at the end of your discussion is a good cap. By going back to the definition, the student will be reinforcing the idea that demand is the whole curve and that the determinants of demand cause the demand to shift.

ANSWERS TO DISCUSSION QUESTIONS

1. No, don't pay that bill! We cannot tell how many shovels will be bought unless we know the price. Remember, demand tells us how much will be bought at each price. The consultant did not find demand.
2. There are many examples of inverse relationships. For one, when the temperature goes down, people wear more clothing. For another, when people get older, they are generally less active. Anytime you see one thing going up and causing another to go down, there is an inverse relation between them.
3. Two reasons why the law of demand works are the substitution effect and the income effect of a change in price. The substitution effect occurs because as the price of ice cream falls, you substitute it for other goods, cheesecake, key lime pie, and rum babas. The income effect occurs because the reduction in price makes you feel richer even though your income has not changed. The reduction in price allows you to buy more ice cream with your limited income.
4. Too-Sweet hopes that by advertising, the quantity people would be willing to buy at each price will increase. Too-Sweet expects demand to increase.
5. Nothing has happened to the demand for computers! But the quantity demanded has increased. Be careful to distinguish between demand and the quantity demanded.
6. Cultured pearls are many times more expensive than imitation pearls. As income rises, we would expect an increase in demand, a rightward movement of the demand curve for cultured pearls. The demand curve for imitation pearls will decrease, move left, as income rises. This identifies imitation pearls as an inferior good.
7. When the price of movie tickets rises, fewer tickets will be purchased - the quantity demanded decreases. Therefore, less popcorn will be bought at the same price of popcorn. The demand for the complementary good - popcorn-decreases. The demand for video cassette recorders - a substitute for movie theater tickets - will increase due to the higher price of the substitute. An increase in demand for video tape recorders means that more will be bought at the same price, so therefore demand for video cassette tapes - a complement - will also increase. Demand for video cassette tapes will shift to the right.

8.
 - a. Increase in demand for shrimp.
 - b. Increase in quantity demanded for shrimp.
 - c. Increase in demand for cocktail sauce, a complement.
 - d. Decrease in demand for lobster, a substitute.

9. When the price of swim suits rises, the demand for swim suits is unchanged. There is a decrease in the quantity demanded of swim suits. Since there are fewer swim suits bought at the higher price, fewer swim towels will also be bought at the same price of swim towels. When the price of swim suits increased, the demand for swim towels - a complement - decreased.

10. The income effect of a change in price is one basis for the law of demand and helps explain why price changes the quantity demanded. When income changes, so does demand since income is a determinant of demand.

11. People do not buy houses because of the higher price. One thing Uncle Effron ignores is that income also went up during the time that price rose. Thus what Uncle Effron sees is the outcome of shifts in demand, not movements along demand. The law of demand only applies to movements along demand. He has not proved the law of demand false. Uncle Effron should re-read Chapter 5.

Chapter 6 SUPPLY

IMPORTANT TOPICS

supply
law of supply
change in supply
change in quantity supplied
determinants of supply

GOALS

know the definition of supply
understand that supply slopes upward to the right
distinguish supply and a change in supply

TEACHING TIPS

Supply is the "other half". If the students have understood demand, there is a good chance that they will understand supply. The ideas are similar, and we do about the same thing in supply as we did in demand.

Again the law of supply is important. The students should understand that firms adjust output in response to a change in price. This information will be important in the next chapter where equilibrium is established.

The second lesson is to clearly distinguish a movement along supply and a movement of the entire supply curve. Movements along the curve occur only when there is a change in the price of the good. Anything else causes a movement of the supply curve. The students should understand the difference between the two movements and why they occur.

The students can be informed that supply will be revisited in later chapters when the students actually derive the supply curve of the firm.

ANSWER TO DISCUSSION QUESTIONS

1. An economist would wonder about price. Supply tells how many are produced for sale at each price. In this newscast, there is no mention of price. An economist would say the discussion was not about supply would say the discussion was not about supply.
2. There are many relations which are direct. For example, if you take more courses, you will need more textbooks. The more plants you have, the more watering you must do. The more miles you drive, the more gas you use. When one thing increases causing something else to increase too, there is a direct relation between them.
3.
 - a. A change in quantity supplied of mopeds.
 - b. A change in supply of mopeds.
 - c. A change in supply of mopeds.

4. When the price of gasoline rises, there is no change in the supply of gasoline. The firm will increase the quantity supplied of gasoline and decrease the supply of diesel fuel. There is a movement along the supply of gasoline and a shift of the supply of diesel fuel to the left.
5. An increase in the price of labor will reduce the supply of widgets and shift the curve to the left. The increase in wages makes the production of widgets more expensive so the firm will produce fewer units at each price.
6. A new hybrid corn is a change in technology. Thus there is an increase, a shift to the right, of the supply for corn.
7. Dr. Leedom will decrease the quantity supplied. In terms of opportunity cost, if Dr. Leedom is getting a lower price per bottle of elixir, then Dr. Leedom may have other more profitable uses of his time. Thus Dr. Leedom will spend less time making the elixir and more time doing other things.
8. When your wage goes up to \$15.00 per hour, you will tutor more. The reason is that the higher wage is higher than your opportunity cost of other activities and so you will reduce your participation in other activities. There are many other things you want to do. Before you were only paid \$3 to tutor. Every hour spent not tutoring was \$3 lost. Now it is \$15 lost. You can see that you will spend more time tutoring because of what you give up when you do not tutor. (For an advanced discussion, an instructor can bring in the idea of a backward-bending supply curve. In this case, you make enough additional money from the higher wage to allow you to tutor less, have more income, and have more time to spend the income)
9. Uncle Effron had ignored the determinants of supply. When supply is discussed, the determinants are fixed. This means that there are no changes in nature, or the cost of production, the price of other goods, or expectations of a change in price. In the case of gasoline, there was a change in the cost of production when foreign owners of the crude oil decided to raise the price of the crude. Thus the supply curve shifted to the left. We will see in the next chapter what impact this will have on the price of the gasoline.

Chapter 7 MARKET EQUILIBRIUM

IMPORTANT TOPICS

- market demand and supply
- surplus
- shortage
- equilibrium
- shifts in demand or supply

GOALS

- understand how market equilibrium is achieved
- use equilibrium to explain changes in price and quantity
- utilization of the tools of supply and demand

TEACHING TIPS

This chapter puts together the material from the previous two chapters and discusses how equilibrium is achieved in a market. This chapter is the heart of a good deal of economics. If students can master the tools of supply and demand, they have achieved a major goal. These ideas will be applied again and again in following chapters.

The greatest difficulty with this chapter seems to be that students get things out of order. The shortage and surplus argument is well understood on its own. But somehow when a shortage or surplus actually occurs, students are perplexed about what will happen next. In addition, when applying supply and demand, students may get turned around. Somehow they will start with a shortage and correctly predict that price must rise. Then since price went up, supply went up too and demand went down. This is confused. In this chapter, students should recognize that demand (supply) is capable of changing price, but price cannot change demand (supply). The price goes up because of the surplus and neither supply nor demand change because of the change in price. Encourage the students to provide step-by-step descriptions of what happens in the shortage case and the surplus case.

After your presentation of the material, have four students come to the board and each draw a market with an equilibrium price and quantity. Then assign one student an increase in demand, one a decrease in demand, one an increase in supply, and one a decrease in supply. Have each determine the new equilibrium price and quantity. Have the students at their seats provide assistance when necessary. All four changes are on the board at the same time, students can see that other students can deal with the concepts, and there is more class involvement. You can also suggest a change, such as in supply, in one market and let students follow through the impacts in related markets. Again, have the student identify the shortage or surplus after the shift and explain the adjustment to equilibrium.

ANSWERS TO DISCUSSION QUESTIONS

1. At \$15 a pair, there will be a surplus of gloves. The quantity supplied will be greater than the quantity demanded at that price. At \$5 a pair, there will be a shortage. The number of pairs consumers will try to buy will be greater than the number of pairs producers are willing to produce.
2. The tendency is to return to the naturally messy, cluttered, or dirty condition and once there, remain, unless equilibrium is again disturbed by a flurry of cleaning.
3. When the price is above equilibrium, the quantity supplied will be greater than the quantity demanded. This means that there is a surplus of the good in the market. To get rid of the surplus, the firms will try to attract buyers by lowering the price. Thus if the price is above equilibrium, there is an automatic force that will cause the price to fall. When the price is below equilibrium, there is a shortage of the good. The quantity demanded will be greater than the quantity supplied. To try to get the good and to persuade the firms to produce more, buyers will bid up the price. Thus there is an automatic force that will cause the price to rise when there is a shortage of a good.
4. The amount of coal used for the next 2,000 years will depend on the price of coal. After all, if the price of coal goes to \$1 per ton (it now varies between \$20 and \$35 per ton), you can be sure that coal will be used much more quickly than it is now and our 2,000 year supply may not last half that long. Or if the price would go up to \$60 per ton, our 2,000 year supply may last much longer than that. So how long the coal will last will depend on the price of coal, not just on the quantity of coal in the ground.
5. The higher price of gasoline decreased the demand for large automobiles - a complement. Both the equilibrium price and quantity of large autos fell. Supply was unchanged. The quantity supplied was less at a lower price while the quantity demanded increased.
6. The demand for the X-box increased through a change in taste. There was a temporary shortage. The amount people wanted was more than the amount produced. The price was bid up. At a higher price, the quantity demanded decreased and the quantity supplied increased. The higher price eliminated the shortage and the market was cleared. The increase in demand resulted in a rise in both equilibrium price and quantity.
7. The market for seismologists is just like any other market. If there is an increase in supply, we would expect that the price, the wage, will decrease and the equilibrium quantity will increase. This is because the increase in supply will cause a surplus of seismologists. The surplus will cause the wage to fall. Some who thought they wanted to be seismologists will decide that at the lower wage, they should do something else instead. Further, employers will discover that they can afford more seismologists at the lower wage, so the quantity hired will rise.

8.
 - a. When the price of fertilizer goes up, there is an increase in the cost of producing petunias and the supply of petunias will decrease. Thus the equilibrium price of petunias will rise, and the equilibrium quantity will fall.
 - b. The ability of petunias to reduce the chances of a cold will convert many into petunia lovers. The demand for petunias will increase. The increase in demand will increase both the equilibrium price and quantity of petunias.
 - c. The reduction in the cost of production will cause the supply to increase. The increase in supply will cause the equilibrium price to fall and the equilibrium quantity to increase.
 - d. The reduced membership will cause the demand for petunias to decrease. The decrease in demand will cause the equilibrium price to fall and the equilibrium quantity to decrease too.

9. When a new broccoli plant increases the supply, there will be a decrease in the price and an increase in the quantity of broccoli bought and sold. The market for brussels sprouts will be affected. There will be a shift, a decrease, in the demand for brussels sprouts. Thus we would expect a decrease in both the price and the quantity of brussels sprouts bought and sold. Because of the decreased production of brussels sprouts, there is a decrease in demand for land to grow brussels sprouts. We would expect the price of the land to fall and less to be bought and sold.

10. Super Bowl tickets are priced below equilibrium, creating a shortage. This shortage provides an opportunity for scalpers who buy tickets at the NFL price to sell at a higher price. If the equilibrium price were \$25 per seat and the NFL charged \$25, there would be no one without a ticket willing and able to pay more and no one for scalpers to sell to.

11. The expectation of a higher price by enough people and acted upon will be sufficient to increase market demand and consequently the price of the candy bar.

Chapter 8 PRICE ELASTICITY

IMPORTANT TOPICS

- price elasticity of demand
- determinants of price elasticity of demand
- price, elasticity, and total revenue

GOALS

- understand the meaning of elasticity of demand
- find the determinants of price elasticity of demand
- explore the relationship between price and total revenue

TEACHING TIPS

The idea of elasticity is important because of the desire to know how much quantity will change if price changes or how much price will change if quantity changes. Elasticity is one of the more common questions discussed by economists in their own literature.

The difficulty in this chapter is that students do not seem to understand what elasticity measures. It helps to emphasize that elasticity measures the percentage change in quantity demanded relative to the percentage change in price. If the percentage change in quantity demanded is larger than the percentage change in price, then demand is elastic, and so on.

The determinants of elasticity do not seem to pose a problem for most students. This discussion is fairly straight forward and students understand the material. The relationship of the price elasticity of demand and total revenue is troublesome for students. Just when they think that they understand the inelastic case, then it is all turned around on them with the elastic case. Careful review is required.

We do not stress the actual calculation of the elasticity. This is a topic you may wish to expand on in your class. We also did not illustrate elasticity with graphs. We would like to have had the luxury of doing that so that the relation between the elasticity and the total revenue could be made clearer. You may find this to be a good topic for your classroom. You may also want to talk about the elasticity of supply. This topic is similar to the elasticity of demand and can be introduced fairly easily.

ANSWERS TO DISCUSSION QUESTIONS

- Elastic.
 - Unitary elastic.
 - Inelastic.
- Of course Harvey will respond to a change in price. Harvey may reduce his use of electricity if the price of electricity goes to \$100 per kilowatt hour. If not, what about at \$1,000? At \$10,000? What Harvey is telling us is that his demand for electricity is very inelastic. But it may be less inelastic than Harvey thinks. It is easy to say that if the price goes up, we will not respond. But when the price does go up enough, we do respond. There is a difference between Harvey's demand this year and Harvey's demand next winter.

The big difference is that between the two winters, Harvey could convert from electric heat to natural gas or oil or liquid petroleum. If Harvey does switch, he would be responding to the increase in the price of electricity and indicating that his demand for electricity is more elastic than he said.

3. The more that apples are considered a luxury, the fewer the acceptable substitutes, and the larger the percentage of the budget, hence, the less elastic and the more inelastic demand is. But we would expect apples to have a relatively elastic demand if they are considered a necessity, have many acceptable substitutes, and are a small percentage of the budget.
4. A bumper crop will have the effect of shifting the supply of the good, say oats, to the right. This will reduce the equilibrium price of oats. If the demand for oats is inelastic, the percentage decrease in price will be greater than the percentage increase in quantity demanded. Thus the total revenue of farmers will fall. The fall in total revenue is expected when the price of an inelastic good declines.
5. If the demand for a college education at a particular college is elastic, then a lower price will increase quantity by enough to offset the reduced price per student. This means that the college will actually increase its total revenue if it decreases its price.
6. When the price goes up, what will happen to the revenue of the firm? If demand is elastic, then the total revenue will fall as the firm increases its price. This will make So So Products even worse off.
7. If demand for diamonds is inelastic due to being a large part of the budget, then total revenue would increase with price. But if diamonds are considered to be a luxury, or if there are many acceptable substitutes, demand would be more elastic and total revenue would fall with a higher price of diamonds.

Chapter 9 DIMINISHING RETURNS

IMPORTANT TOPICS

short run and variable inputs
total and marginal product
diminishing returns

GOALS

learn the concepts of total and marginal product
understand the law of diminishing returns and why it is true

TEACHING TIPS

Diminishing returns is important because it determines the shape of the marginal cost curve discussed in Chapter 10. The law is due to fixed factors and the fact that resources are not perfect substitutes. The imperfect substitutability of resources is also the reason for the law of increasing costs, as discussed in Chapter 3.

The main difficulty for students is in distinguishing the marginal from the average. They do not focus on the added output from the added input. Since the marginal is such an important concept in Chapters 9 - 16, it is essential that the students get the concept in this chapter. An emphasis on Table 9-1 should clarify the marginal product. The best exercise is to have students calculate the marginal product on their own and determine the point of diminishing returns.

One other problem is that students forget that the law of diminishing returns is only true in the short run. In the long run, the law does not hold. Once all inputs become variable, the substitution for fixed factors is no longer a consideration. The distinction between fixed and variable inputs and the short and long run should be stressed. It is useful to provide additional examples and to encourage students to develop their own.

The relation between the marginal and the average is discussed in Chapter 10 with the marginal and the average cost. You may want to discuss the relation here. You can have your students calculate an average product column in Table 9-1 to concretely illustrate that marginal product is not an average product. This can also be done by Discussion Question 6 at the end of the chapter. We do not discuss the marginal-total relation. But it would be appropriate to discuss it here if you wish to.

ANSWERS TO DISCUSSION QUESTIONS

1. Suppose that the fixed factor is the amount of capital needed to produce the output. In that case, the long run for the steel industry will be substantially longer than for the corner lemonade stand. It takes years to build a new factory to produce steel, but it takes only a short time to expand the corner lemonade stand.
2. Diminishing returns occurs because there is a fixed factor. To increase output, the firm can increase the use of the variable factors but cannot increase the use of the fixed factor. So the firm ends up increasing variable factors as a substitute for increasing the fixed factor. Since

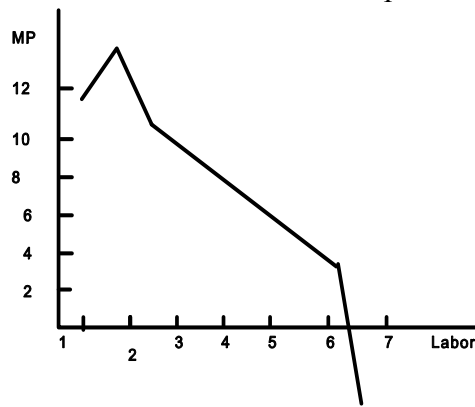
resources are not perfect substitutes for one another, the more substitution, the greater the effect. Equal increases in the variable factor will cause the output to increase by smaller and smaller amounts.

3. The main flaw is that the speaker is talking about the long run when all factors are variable. If all factors are variable, we are in the long run, and the law of diminishing returns will not apply.
4. The main reason is that there have been improvements in technology so that the amount of food that can be grown on a given plot of land has increased many times since Malthus was writing. The point is that in the long run everything can change, including the technology. Thus diminishing returns will not hold. But what if technology no longer improves?
5. Diminishing returns does not depend on the way the economic society is organized. The question is, in what time span can the government move factors? In a time span short enough so that one factor cannot be changed, we are in the short run and the law of diminishing returns holds. Thus the law of diminishing returns is just as true for communist countries as it is for capitalistic countries and everything in between.
- 6.

(1) Labor L	(2) Total Product TP	(3) Marginal Product $\Delta TP / \Delta L$	(4) Average Product TP/L
0	0	-	-
1	10	10	10
2	22	12	11
3	30	8	10
4	46	6	9
5	40	4	8
6	42	2	7
7	35	-7	5

We can see by the calculations that the average product and the marginal product are different. The average tells the output per unit of variable input while the marginal tells the change in output due to a change in the variable input. Diminishing returns starts with the third unit of labor when the marginal product is first less than for the previous unit of labor.

7. The marginal product first rises then falls with output.



8. The single fixed factor determines a short-run process with diminishing returns so that the marginal product will eventually diminish to zero or less, and total output cannot increase.

Chapter 10 COST

IMPORTANT TOPICS

- total cost
- implicit cost
- average total cost
- marginal cost
- the average-marginal relation

GOALS

- understand how costs behave and why
- understand how cost concepts are related
- relate marginal cost to marginal product and diminishing returns

TEACHING TIPS

Cost is an important component of the supply decision. The firm will need to know its costs before it can make its own supply decision. An understanding of the costs and their relationships will support an understanding of the supply decision in Chapter 13.

There are two essential concepts in this chapter. First is that implicit cost is a component of cost. The implicit cost must be included so that when normal profit is attained in Chapter 12, we know that the firm is getting a satisfactory return. Thus the inclusion of the implicit cost should be stressed now. Implicit cost seems a foreign concept and should be approached carefully. Students should recognize that implicit cost is an extension of the opportunity cost concept to include all opportunity costs of production.

The second essential concept is the marginal cost. Understanding that the marginal cost measures the change in total cost caused by a change in output is vital. A portion of the marginal cost will become the firm's supply curve.

One stumbling block is the mistaken idea that average total costs are constant. Students think that if you can produce one unit for \$4, then you could produce 1,000,000 units for \$4 each. The assumption of constant returns to scale is difficult to break. You might appeal to the law of diminishing returns and the average-marginal relation. Point out that in the short run an increase in production will require that the marginal cost goes up and then the average total cost will have to change.

We have utilized both schedules and graphs to illustrate the cost concepts. We believe that the student should be able to do both. Some instructors may find that one approach or the other is more successful for them.

There is no discussion of the relation of the marginal to the total in this text. If it is a topic you wish to cover, you should introduce it here.

Students generally are not thrilled at the prospects of studying cost. You might point out that the behavior of costs are predictable, of no little consequence in a seemingly unpredictable world. And in the development of the cost concepts, we obtain marginal cost, one-half of the decision-making process. The effort seems a small cost to pay.

ANSWERS TO DISCUSSION QUESTIONS

1. The expenses that vary with the number of doughnuts made are the variable costs. The remaining costs are fixed. So electricity, flour, sugar, labor and machine maintenance are variable while the rent and insurance are fixed.
2. No. Joe has forgotten to include all his costs. Even though he owns his own lot, he is giving up the income he could earn if he used the lot for some other purpose. The family members also give up the income that they could earn in other occupations. Those resources are not free to Joe, and he must include those implicit costs when he calculates the cost of doing business.
3. Besides the usual tuition, books, gas, or room and board, don't forget one of the greatest costs, the opportunity cost of your time, what you could have earned if you had been employed instead of attending classes.

4.

Output	ATC	MC	TC
1	100	--	100
2	65	30	130
3	50	20	150
4	45	30	180
5	44	40	220
6	46	56	276
7	50	74	350
8	55	90	440
9			

5. The rise or fall of marginal cost tells us nothing about the rise and fall of average cost. What we need to know is whether the marginal cost is above or below the average cost. If the marginal cost is above the average cost, then the average cost will rise. If the marginal cost is below the average cost, then the average cost will fall.
6. Marginal cost is not the same as the average total cost. The marginal tells how much more it costs to produce the next unit. The average spreads the total cost equally over each unit already produced. The cost of the next unit and the cost per unit are not the same.

Chapter 11 REVENUE

IMPORTANT TOPICS

- market structure
- perfect competition
- total revenue and marginal revenue
- monopoly

GOALS

- understand total revenue and marginal revenue
- understand the relationship between the revenues of firms
- identify perfect competition as a price taker
- identify monopoly as a price searcher

TEACHING TIPS

While the idea of market structure is fairly easy for students to understand, it is sometimes difficult for them to understand how market structure and revenues are related. With both perfect competition and monopoly, we are considering the simpler case of firms with unrelated revenues.

It is more difficult yet to get students to understand that by perfect competition, we mean something other than the firms are rivals. You should stress that perfect competition has a different meaning than competition, rivalry. We have tried to always write perfect competition to emphasize the distinction between perfect competition and rivalry. Also, a perfectly competitive market is composed of those firms engaged in perfect competition.

The marginal revenue is an important concept and will be used in Chapters 12 - 16. It is desirable to make sure that students understand it now. A main complication in perfect competition is that students sometimes do not know where the price came from. You should stress that the price is the equilibrium price determined by supply and demand in the market, as discussed in Chapter 7.

For monopoly, the fact that the marginal revenue lies below demand is not easy for students to get. The numerical example provided will usually do the trick. The other difficulty with monopoly is that students sometimes do not recognize that the firm and the market are the same. We cannot distinguish the firm and the market as we can in perfect competition. Students should also see that by observing the marginal revenue, we can determine whether or not the firm is perfectly competitive.

ANSWERS TO DISCUSSION QUESTIONS

1. The elements of market structure are the number of firms in the market, freedom of entry, and the degree to which the product is standardized. Market power refers to the ability of a firm to control the price of its output. The greater the number of firms, the less the control over price for any one firm. Free entry means that no one firm can control the price. If any firm tries to set price, new firms can enter the market and charge a lower price. If the product is standardized, no one firm can charge a higher price. The more standardized the product, the less control any one firm has over price. A perfectly competitive firm is one of many firms, each producing a standardized product in an industry with free entry. Each one of these elements suggests that the firm will have no control over price. Thus perfectly competitive firms do not have market power.
2. The link between one firm's revenue and another firm's revenue is the price. If the price you charge affects the price another firm can charge, then your revenues will be related. Suppose that there are two firms in the same industry, and the industry is not perfectly competitive. If the product is standardized, then one firm cannot charge more than the other firm because if it does, the firm with the higher price will lose part of its market. If the product is not standardized, there can be a difference in price as large as the value of the difference in the products. Larger differences in price will cause one firm to lose part of its market to another firm. Thus the price of one firm's output is related to the price of another firm's output. So if one firm lowers price, the other firm will also make an adjustment in price. The revenues of both firms will change.
3. No, Dustbowl Films is not perfectly competitive. A perfectly competitive firm has a constant marginal revenue. If the marginal revenue decreases with output, the firm is not perfectly competitive.
4. The statement is not true. Automobile producers are a few firms that produce a product that is not standardized. Their market is not easy to enter. These elements suggest that the firms in the auto market have market power and are not perfectly competitive.
5. The price in a perfectly competitive market is determined by the intersection of supply and demand. The market price determines the demand and the marginal revenue for the perfectly competitive firm.
6. Marginal revenue measures the change in "total revenue when the firm sells one more unit.
7. Demand curves slope downward because consumers respond to price changes by changing quantity. That is true of the market demand curve and the monopoly demand curve, which is a market demand curve. The individual firm in perfect competition has a horizontal demand curve at the market price because the firm cannot change the price and the firm can sell all it wants without having to lower price.
8. A monopoly firm faces a downward-sloping demand curve. To sell another unit, it must reduce the price. That means the firm will gain the price of the next unit but will lose the difference in price for all previous units. The result, marginal revenue, is always less than price. A perfectly competitive firm can sell all it wants at the market price. This firm does not

have to reduce price to sell another unit. Its marginal revenue is the price of the unit.

Chapter 12 PROFIT

IMPORTANT TOPICS

- the economic meaning of profit
- profit maximization
- the short run

GOALS

- introduce economic profit
- examine profit maximization for both perfect competition and monopoly
- develop short-run profit outcomes for perfect competition

TEACHING TIPS

An understanding of the economic meaning of profit is the first step in this chapter. A distinction between economic profit, normal profit, and economic loss is useful. Students should recognize that implicit costs have been accounted for.

The idea that firms maximize profit is central to economic analysis. We use this assumption in the next chapter to find the perfect competitor's supply curve. In this chapter the profit maximizing rule is discussed. The most difficult aspect of the rule is that when the marginal cost is greater than the marginal revenue, the firm should reduce output. Students have a hard time seeing that here profit rises as output falls. The problem can be overcome if you carefully go over the marginal concepts.

Sometimes students believe that if marginal revenue equals marginal cost, then profit is zero. They confuse profit and marginal profit. You should also be sure to point out that the size of profit cannot be determined without average total cost. We did not do profit maximization with numbers. You may find it useful to go back to Chapter 10 and use the cost numbers given there and some revenue numbers of your own choosing to further support the discussion. The profit maximization argument is the same for a monopoly as for perfect competition. The difficult point again is when marginal cost is greater than marginal revenue. Students seem to have trouble seeing that profit rises as output falls. If you have successfully convinced them for the perfectly competitive firm, this will not be a problem.

After a horizontal demand, the downward-sloping demand of the monopolist seems foreign to some students. They need to be reminded that, in this case, MR is below demand. The new problem is the determination of the price. Any weakness in understanding the demand curve is revealed here as students tend to choose the $MR = MC$ price rather than the profit maximizing price. Students also refuse to give up the idea that a monopoly can charge any price it likes. You may overcome this misconception by asking the students that if the firm can charge any price it likes, why doesn't it charge an infinite price? The role of demand should be made clear by this discussion.

Once profit maximization is determined, the three short-run outcomes are discussed for the perfectly competitive firm: economic profit, normal profit, and economic loss. This material leads into the discussion of the long run in the following chapter.

ANSWERS TO DISCUSSION QUESTIONS

1. Sad, sad, sad. The problem is that your accountant did not include any of your implicit costs. Thus you were paid \$10 for a whole year's worth of your labor. Assuming that your time is worth more than \$10 a year, your total cost is greater than your total revenue and your firm made an economic loss.
2. Normal or zero economic profit means that the opportunity cost of all the resources used in production is exactly equal to the revenue obtained by selling the good. With normal profit the firm earns just enough to keep the resources employed.
3. If the firm produces where MR is greater than MC, then the firm can increase profit by increasing output. By producing and selling one more unit, the firm will sell the unit for more than the unit cost to produce. The total profit will rise by the difference between MR and MC. If the firm produces where MR is less than MC, then the firm can increase profit by reducing output. If the firm reduces output, the firm will reduce cost by more than what the unit sells for. The total profit will rise by the difference between the MC and MR. Thus if the firm produces at any level of output except where MR equals MC, then the firm can increase profit by moving to the point where MR and MC are equal.
4. Business decisions are made by marginal analysis. So are many individual decisions. A comparison of the marginal benefits (revenue) against the marginal costs yields the greatest total satisfaction (profit).
5. Marginal profit is MR minus MC. When marginal profit is zero, neither MC nor MR is greater; therefore, $MR = MC$ and profit is maximized.
6.
 - a. If price rises, the firm will adjust by increasing the level of output. When the price goes up, the firm's marginal revenue goes up and intersects the marginal cost at a higher level of output. To maximize profit, the firm will increase the amount it produces.
 - b. If price falls, the firm will adjust by decreasing the level of output. When the price goes down, the firm's marginal revenue goes down and intersects the marginal cost at a lower level of output. To maximize profit, the firm will reduce the amount it produces.
7. A perfectly competitive firm will not advertise. Its costs would increase and its profit would fall. It can already sell all it produces at the market price. If it did advertise, it would be attempting to differentiate its product and would no longer be a perfect competitor.
8. Don't agree with Uncle Effron. If a monopoly can charge any price it likes, why doesn't it charge an infinite price? Because no one would buy the good at that price. Remember that consumers do have alternatives and if the price gets too high, the consumer will choose a substitute. Uncle Effron has neglected the demand curve. The firm can only charge the prices that consumers have indicated that they are willing and able to pay.

9. The condition-for profit maximization is the same for monopoly as for the perfectly competitive firm. In both cases, if profit is maximized, $MC = MR$.
10. Observe that by increasing output from X, $MR > MC$ which means that profit can be increased by further increases in output. So profit cannot be maximum at X.

Chapter 13 PERFECTLY COMPETITIVE SUPPLY

IMPORTANT TOPICS

- shutdown decision
- supply
- the long-run equilibrium
- evaluating perfect competition

GOALS

- use profit maximization to obtain the firm's supply
- examine the perfectly competitive firm in the long run
- discover why competition is desirable

TEACHING TIPS

This chapter is the final product of the previous four chapters. It utilizes diminishing returns, cost, revenue, and profit. From this integration, the supply concept is derived. From the previous chapter, we know that the $MR = MC$ rule leaves the firm best off if it decides to produce. How does the firm decide whether or not to shut down? Students seem to understand the shutdown decision if you can keep their attention focused on the variable rather than the fixed cost. The next step is to determine the supply. This requires putting together profit maximization and the shutdown decision. Students tend to ignore the role of profit maximization in the calculation of supply.

The long-run problem is discussed next. We do not distinguish between the long-run and short-run cost or revenue curves. This means that no new ideas are needed to make the long-run argument. We come to the standard conclusion that a normal economic profit is earned. This result is the basis for the evaluation of perfect competition.

We conclude that perfect competition provides an efficient allocation of resources. You may want to point out that if there are other economic goals, then perfect competition may lose some of its luster. And too, one may wonder whether or not our economy is really competitive enough to be sure that the efficiency claim of the model carries over to reality. Chapter 15 contains a discussion of market failures to further balance the argument.

Request that the students draw the long-run equilibrium for perfect competition, both the industry and firm, at their seats. At the same time, have several students draw the outcome on the chalkboard. We find that students are lax on the thought process of re-creating the long-run outcome themselves.

ANSWERS TO DISCUSSION QUESTIONS

1. To decide whether or not to shut down, the firm compares the price to the average variable cost. If the firm shuts down, then it will have no revenue and no means to pay the fixed cost. If the price is above the average variable cost, then the firm will produce. The firm can at least cover all of its variable cost, and loses less than its fixed cost, so it will produce and not shut down. If the price is below the average variable cost then the firm will shut down. If the firm cannot cover all of its variable cost, then it will not

produce because it will be unable to cover any of its fixed cost and some part of its variable cost. It would reduce its loss to only its fixed cost by shutting down.

2. Consider the shutdown decision. Since the firm covers all of its variable costs and some part of its fixed costs, it would be foolish to shut down, produce no product, earn no revenue, and be unable to pay any of its fixed cost.
3. The firm should increase production. Since marginal revenue is greater than marginal cost, the firm will increase its total profit by \$.12. If marginal revenue were \$1.18, the firm should reduce production since by reducing production, total cost would fall by \$1.25 and total revenue would only fall by \$1.18. Total profit would rise by \$.07. If marginal cost were \$1.25 and equal to marginal revenue, then output should not change since any change in output would cause MR and MC to be unequal. If the lowest average variable cost were \$1.42, the firm should shut down since the average variable cost is more than the price. The firm would lose less by shutting down.
4. At any price above the average variable cost curve, the firm will produce the quantity where the price (MR) equals the marginal cost, the quantity on the marginal cost at that price, because of profit maximization. This portion of the marginal cost tells the quantity the profit-maximizing firm will produce at each price. The firm will produce zero at prices below the average variable cost curve because of the shutdown decision. Thus the marginal cost curve above the average variable cost will be the short-run supply curve for the perfectly competitive firm.
5. Diminishing returns eventually turns the MC curve upwards and some portion of the rising MC curve above the shutdown point is the perfect competitor's supply curve.
6. A fall in market demand will lower the market price and therefore the demand curve (price and MR) facing the perfect competitor. Firms are now in the short run facing economic loss. In the new long-run adjustment, firms will leave the market. increasing the market price until the remaining firms make a normal profit. The new long-run equilibrium means a lower level of market output which has responded to the decrease in market demand.
7.
 - a. When an economic profit occurs, firms will enter the perfectly competitive industry since firms can earn more in this industry than in other industries. The new firms will cause an increase in the quantity produced at each price. This increase in the industry supply curve will cause the price to fall and reduce the economic profit. This process will continue as long as there is economic profit in the industry.
 - b. When an economic loss occurs, firms will leave the perfectly competitive industry since they can earn more in another industry. This reduction in the number of firms will cause the industry supply curve to decrease. The price will rise and the economic loss will be reduced. This process will continue as long as there is economic loss in the industry.

- c. When a normal profit occurs, there is no incentive for firms to enter or leave the perfectly competitive industry. Thus there is no reason for the price to rise or fall and the industry is in long-run equilibrium.
8. Efficiency means that the firm is producing the output with the fewest possible resources, the lowest ATC. If an inefficient firm becomes efficient, then more output can be produced with the same resources.
 9. When the firm is producing on the ATC curve, it is being as efficient as possible with resources at that level of output. The problem is that the resources are combined most efficiently only at the output level yielding the lowest ATC.

Chapter 14 MONOPOLY

IMPORTANT TOPICS

barriers to entry
long-run monopoly
evaluating monopoly

GOALS

understand the economic impact of monopoly
recognize that monopoly misallocates resources

TEACHING TIPS

Chapter 10 introduced the cost concepts for all market structures. In Chapter 11, monopoly was defined and the revenue concepts introduced. Chapter 12 solved the dilemma of the price searcher - the appropriate price and output combination - by developing and applying the profit maximizing rule to monopoly. This chapter is entirely devoted to monopoly, from providing a rationale for their development and continued existence in the form of barriers to entry, to evaluating the impact of long-run monopoly. There are no new graphs, just a payoff by applying previously learned concepts.

The main new material in the chapter is barriers to entry. Barriers to entry are fairly straightforward. Be sure that students clearly understand natural monopoly and economies of scale.

The long run discussion is similar to the perfectly competitive case. The evaluation of monopoly is done in terms of efficiency and the monopoly is found to be inefficient. This discussion is usually clear to students, once they recognize that the lowest point on the ATC designates the most efficient level of output.

ANSWERS TO DISCUSSION QUESTIONS

1. If air travel is the good in question, then the single airline is a monopoly. If transportation is the good in question, then the market is more competitive. The definition of the market will affect what the market structure is.
2. In any given area, there are probably a number of egg sellers. The product is standardized and entry is relatively easy. The market is perfectly competitive. Color your eggs green to differentiate your product. Then urge consumers, by advertising, to look for the green eggs at their grocers. You could erect barriers to entry by forming an industry association in which membership would be required before a firm could sell eggs. Memberships in the association could then be sold. This would effectively increase the cost of being an egg producer. To make a stronger barrier, the association could limit the number of member firms. This would effectively close the industry to new competitors. The loss of free entry would make the industry less competitive.

3. If Cousin Sybil reads fewer palms, her costs per palm will rise as she backs up on her falling average total cost. Her profits are likely to go down, and her normal profit will become an economic loss. If the situation is the same for her new competitor, the market is unable to support more than one palm reader.
4. Diminishing returns determines the shape of marginal cost regardless of whether the firm is monopoly or perfectly competitive. The cost considerations for all market structures are identical; only the revenue considerations are different. Diminishing returns implies that after some point, if we want to obtain the same amount of added output, we will need more and more of the variable input. Thus the added cost per added unit of output, the MC, will eventually rise.
5. If the two firms face the same costs, then the monopoly will have a higher price and a smaller quantity than a perfectly competitive firm.
6. A misallocation occurs when the good is not produced at the lowest possible cost. The perfectly competitive firm in the long run produces at the minimum of the average total cost. That means that the good could not be produced for less and have the firm survive. But in monopoly, the firm will produce at a point where costs are higher than the minimum of the average total cost. The good could be produced for less.

Chapter 15 IMPERFECT COMPETITION

IMPORTANT TOPICS

monopolistic competition
oligopoly
antitrust
market failures

GOALS

have the student recognize the complexities that occur when the revenues of firms are interrelated
understand that because of misallocation of resources, there are policies that attempt to change the way firms behave
recognize that perfect competition will not always allocate resources desirably, even in the long run

TEACHING TIPS

This chapter is related to the previous chapters in that the marginal concepts are used to discuss profit maximization. But the focus of this chapter is not on the profit maximization argument itself, but rather on how firms respond to each other in their attempts to maximize profit.

Although the kinked demand model may be outdated, it still provides a useful tool for students to recognize the degree of interdependence that exists in oligopoly and the reason for the reluctance to resort to price competition. You may wish to use the prisoner's dilemma game to reinforce these points. Continue to emphasize that competition is fierce in oligopoly, but that it usually comes in forms other than price. A classroom discussion of advertising might be appropriate here.

We have limited space to discuss alternative models. We almost surely have left out your favorite. That would be excellent material to include in your classroom activities. Also there is abundant material for an expanded antitrust discussion. There are legal cases that may be discussed, and there are volumes on antitrust policy. For those who find this material fascinating, it would be appropriate to introduce more examples of these ideas here.

The market failure discussion is necessarily brief, due to space constraints, but we felt that there should be some balance in presentation of the perfectly competitive model. More class time will be needed to go into depth on this subject. There are plenty of sources on externalities, public goods, and other cases of market failure. If you have the time, this would be a good place to go beyond the text.

ANSWERS TO DISCUSSION QUESTIONS

1. The auto industry is not perfectly competitive because there are not many firms, the product is not standardized, and entry is not easy. This industry involves a few firms, a differentiated product, and barriers to entry. The auto industry is made up of oligopoly firms with market power.

2. In imperfect competition, the firm has a downward-sloping demand. So to sell another unit, the firm must lower price on all units sold. This means that the marginal revenue will be the price of the new unit minus the reduction in revenue due to the lower price on the old units. Since to obtain marginal revenue we subtract something from the price, and the price is on demand, marginal revenue is below demand.
3. The problem with price cutting is that when one firm cuts price, the others will be forced to cut price too. Even though firms sell more, their profits are reduced. Thus we would expect only strong or aggressive firms to engage in price cutting and they would do so in an attempt to force out other firms and increase their own market power. The reluctance to engage in price cutting means that the firm will use other tactics to compete. It may advertise to differentiate its product, stress service, and so on. Competition based on price is a risky strategy unless a firm knows that it can win.
4. Monopolistic competition has many sellers, a differentiated product, and easy entry. Oligopoly has few sellers, a standardized or differentiated product, and barriers to entry. Monopolistic competition is like monopoly in that it has a differentiated product, but unlike monopoly in that it has many sellers and easy entry. Monopolistic competition is like perfect competition in that both have many sellers and easy entry. But the differentiated product distinguishes monopolistic competition from perfect competition. Oligopoly is distinguished from monopoly in that oligopoly has few sellers and monopoly has only one. Both will have barriers to entry. Oligopoly differs from perfect competition in that oligopoly has only a few firms and has barriers to entry.
5. Lighthouses are a public good. The problem is to determine who uses them. Is it fair to charge ships that do not use the lighthouses? Perhaps the most likely solution is to charge each ship a small fee on the grounds that it may use some lighthouse and thus should pay for the service in general.

6. One solution is to weigh the benefits and costs to society of reducing the pollution. Then the optimal level will be where the marginal benefit is equal to the marginal cost. In practice, it is difficult to estimate the benefits since some benefits are not valued in a market (saving Adirondack forests from acid rain) or have public good aspects (providing clean air). The costs are somewhat easier to calculate since they will likely fall on someone. But note that the optimal level of pollution will not be zero. After a large part of the pollution is removed, it becomes increasingly expensive to remove more of the pollution, and probably not worth the marginal benefit.
7. Uncle Effron may be right, but there are at least two cases where perfect competition may not allocate resources well. In the case of public goods, your consumption of a good does not diminish my consumption. So if you pay for the good, I can also have the good and as much as I want without having to pay. So I have an incentive to say that I do not want the good and will not pay for it. You, of course, have the same incentive. Thus the desired amount of the good will not be produced.

In the case of externalities, a resource is used without payment. When a firm pollutes, it uses the air for a dump. Since each of us suffers only a little from the pollution, it may not be worth it to each of us individually to try to get the pollution reduced, but it may be worth it to the society. But because it is difficult to get action by the whole group, the pollution will continue.

Chapter 16 DEMAND FOR INPUTS

IMPORTANT TOPICS

- marginal revenue product
- marginal input cost
- profit maximization
- input demand
- wage determination in markets

GOALS

- realize that the firm is a demander as well as a supplier
- understand how the firm decides how much labor to use
- be able to obtain the demand for labor
- understand the process of wage determination

TEACHING TIPS

This is the final chapter in micro. Again we build on the ideas of chapters 9, 10, and 11. It is desirable to point out to the students that, up to now, we have described the firm as a supplier. Now we look at the firm as a demander. We have also looked at the consumer as a demander of output. Now we think of the consumer as a supplier of resources. A quick look at the circular flow model might be in order to locate the buyers and sellers in the product and resource markets.

The basic discussion of profit maximization is similar to the output case. Be sure to point out that no new information is required to solve the problem for the firm of how much labor or any other input to hire. The information used to decide how much output to produce is merely put together in a different way to decide how much labor to hire. Thus to decide the amount of labor is to decide the amount of output, and vice versa.

The main difficulty in this chapter is that there are two new curves, the marginal input cost and the marginal revenue product. However, the similarities to the $MR = MC$ solution simplify the instructional process.

Our discussion of wage determination in the labor market clearly requires perfect competition. Many students who are acquainted with labor unions will not see the reality of this model. We do not have space to discuss unions and the labor market in detail and have omitted a discussion of monopsony. You might do this if you have time. There is market power on both sides of the market, and wages may be affected by how the power is used.

ANSWERS TO DISCUSSION QUESTIONS

1. If the government were interested in maximizing profit, it would want to increase the number of auditors it hires. The reason is that the marginal revenue product, measured by the added money brought in, is greater than the marginal input cost, measured by the extra cost of the auditors. Thus the IRS should be hiring more auditors, not less, since the benefits exceed the costs.

2. At each price of labor, the firm will hire the amount of labor so that profit is maximized. This occurs where the wage, the marginal input cost, equals the marginal revenue product. Thus at each price of labor, the amount of labor demanded is found on the marginal revenue product curve. So the marginal revenue product is the same as the demand for labor.

3. If the firm hires labor so that the MRP is greater than the wage, then by increasing the amount of labor, the firm can increase profit. By hiring another unit of labor, total revenue will go up by the MRP and total cost will go up by the wage. Since MRP is greater than the wage, the firm adds more to revenue than to cost and total profit rises. Profit rises by the difference between the MRP and the wage.

If the firm hires labor so that the MRP is less than the wage, then the firm can increase profit by reducing the amount of labor. By using one less unit of labor, total revenue will fall by the MRP, and total cost will fall by the wage. Since the wage is greater than the MRP, the cost will fall by more than the revenue, and total profit rises. Profit rises by the difference between the wage and the MRP. So if the firm wants to maximize profit, it will hire labor to the point where the MRP equals the wage because any other amount of labor will make profit smaller.

4. The law of diminishing returns implies that the marginal product will eventually fall. Since the demand for labor is the MRP, which is marginal revenue times marginal product, the fact that the marginal product falls means that the MRP will also fall. Thus the shape of marginal product, due to diminishing returns, determines the shape of the MRP, the demand for labor.

5. Yes, Aunt Ettie should hire another picker. The MRP is the marginal product, 400, times the marginal revenue, \$1. Thus the MRP of the picker is \$400. This is greater than the \$350 wage. Aunt Ettie would pocket the extra \$50 the worker brought in but was not paid. If the cost of the worker were \$450, then Aunt Ettie should not hire the worker. Since the MIC is greater than the MRP, the worker costs Aunt Ettie more than the worker brings in. This means that Aunt Ettie's profits would go down if this worker were hired.

Chapter 17 UNEMPLOYMENT AND INFLATION

IMPORTANT TOPICS

- unemployment
- causes of unemployment
- full employment
- inflation
- causes of inflation

GOALS

- know what unemployment is and why it is a problem
- understand the causes of unemployment
- understand the problem of defining full employment
- know what inflation is and why it is a problem
- understand the causes of inflation

TEACHING TIPS

This chapter introduces the two major problems of the macro economy, unemployment and inflation. They are introduced now so that the students can recognize why macro policy is important. Before starting this chapter, find out whether your students are aware of the current rates of unemployment and inflation and discuss their perceptions of these problems. It will be interesting for them to compare their perceptions to reality.

Students generally understand the definition of unemployment. The causes of unemployment are not difficult either. The main problem is to define full employment and to realize that others may have a different definition. Students readily understand what inflation is. They sometimes do not understand the impacts of inflation. This will require some emphasis. Also, the causes of inflation seem more difficult than the causes of unemployment. Students may require careful explanation.

The topics of unemployment and inflation will be utilized throughout the remaining chapters. Chapters 18 and 19 will develop the macro measurements of GDP and price indexes. The trade-off between unemployment and inflation is discussed in Chapter 29.

ANSWERS TO DISCUSSION QUESTIONS

1. The population is divided into two groups, those in the labor force and those out of the labor force. The labor force is divided into two groups, those employed and those unemployed but looking for work.
2. There is debate over this issue. One problem is that some people may quit looking for a job because they become discouraged and leave the labor force. These people will not count as unemployed even though they would be willing to work if they could find employment. So the unemployment rate is an imperfect measure of unemployment.

3.
 - a. Seasonal.
 - b. Cyclical.
 - c. Frictional.
 - d. Structural.
4. Most will agree that at full employment there will be some frictional unemployment. And most will agree that full employment should not include any cyclical unemployment. The debate will come over whether there should be any seasonal or structural unemployment at full employment. There will also be debate over whether frictional unemployment is really 4% of the labor force, or 7%, or some other percentage.
5. The current consumption of the wealthy need not decline since they can simply choose to save less. But the poor must now borrow three times what they were previously borrowing or reduce consumption.
6. Inflation will reduce your spending power. When prices go up, the amount you can buy with a given amount of income will be reduced. The way to avoid the impact of inflation is to arrange to have your income go up as fast as your expenses. How can you "arrange" that? It is hard to say, and may be impossible. One attempt by unions is to include a cost of living adjustment, COLA, in the contract. When inflation goes up, wages automatically go up by the same amount. This provides some protection from rising prices.
7. During inflation, prices are rising and the value of money is falling. The dollars you have set aside will now buy less, so the value of your saving is reduced.
8. A negative inflation rate means that the average price level is falling and is lower than in the previous year. This is deflation.
9.
 - a. Demand-pull.
 - b. Cost-push.
 - c. Expectations.
 - d. Hyperinflation.
 - e. Supply-shock.
10. You will have to weigh the cost of each evil and also decide on whom the cost fall. The cost of unemployment to the society is the lost output. The individual loses income and the benefits that the income can bring. The main cost of inflation is that it redistributes income. It may be difficult to discover exactly who the gainers and losers are. If the inflation becomes hyper, then the inflation disrupts economic activity. Which of these you see as the greater evil will depend on how you react to the possibility of your own unemployment and the possibility of your own gain or loss from inflation.

Chapter 18 GROSS DOMESTIC PRODUCT

IMPORTANT TOPICS

- microeconomics and macroeconomics
- income, output, and employment
- gross domestic product
- shortcomings of GDP

GOALS

- distinguish microeconomics and macroeconomics
- understand the relation between income, output, and employment
- know what gross domestic product is
- know what GDP measures and does not measure

TEACHING TIPS

The distinction between micro and macro must be understood. The questions they examine and their approaches to problems are different. The introductory material in this chapter points out the distinctions. The remainder of this chapter is devoted to the measurement of the output of the economy. It is the first of two chapters on macro measurement. The next chapter discusses price indexes. Once the measurement topics are covered, business cycles are introduced. After business cycles, the macro theory begins.

Students have a terminology problem with income. Students also have trouble understanding the relationship between income and output. Students do not know what happens to the money a firm takes in by selling output. They seem to think that the money just disappears. They see no relation between the output produced and sold and the income payments to factors. Make sure that students realize that all money coming into a firm is used to pay for resources. What to students appears to be "left over" in fact is the return to entrepreneurship. The circular flow model seems to work well at this point. The fact that output requires labor is not hard for students to understand.

Gross domestic product in general is not too difficult. Students seem to have some trouble realizing which transactions are actually counted. They do not always see which transactions are final transactions. The stress here should be on the sales to consumers, business, and government. Stock and bond transactions are not included. The terminology problem with capital and investment resurfaces here. Your patented speech on the economic meaning of investment will be useful.

The meaning of GDP is easy enough. You should also stress what GDP is not. Students do not always appreciate this information. There seems to be a feeling that these "details" are just nit-picking. You could counter this attitude by pointing out that when the newscaster says GDP went up, they might want to know what this really means. To ignore these "details" is to not be able to answer the question.

ANSWERS TO DISCUSSION QUESTIONS

1. In one sense economics is economics; it is all concerned with allocating scarce resources. But in micro the focus is on the individual consumer, the individual firm, and the individual market. In macro, the focus is on the society, the aggregate or total of these individual decisions.
2. This is an example of the fallacy of composition. If one farm doubles its output of oats, the farmer will be better off since this action by itself will not affect the price of the oats. But if all farms double their production of oats, the supply of oats will increase, the equilibrium price will fall, and all farmers will be worse off.
3. GDP measures the value of the final output produced in an economy during a year. It is not a measure of economic health.
4. The problem is that if we add up the value of all goods produced, intermediate goods will be counted more than once. But since only final goods can be consumed, we use the GDP number to measure output because it is a better measure of what is available for consumption.
5. The expenditure approach yields the same GDP number as the income approach because the money that is spent on final output is received as income by someone. Thus what is spent is income. Income and output are the same because all income is generated from the production of output and is the payment to the resource owners.
6.
 - a. Consumption.
 - b. Investment.
 - c. Consumption.
 - d. Government expenditure.
 - e. Investment.
7. The purchase of corporate bonds by Uncle Effron was not investment. If Uncle Effron bought the bonds from someone else, then there was simply a trade of one asset, money, for another, the bonds. If Uncle Effron bought new bonds from a firm, he still did not invest. Investment will occur when and if the firm takes the money it got from Uncle Effron and buys a new machine or a new factory.
8. GDP is consumption plus investment plus government spending plus exports minus imports so GDP would be $\$100 + \$10 - \$15 = \95 .
9. The value of the very ugly shirt will be added to inventories and will show up in investment.

Chapter 19 PRICE INDEXES

IMPORTANT TOPICS

- price indexes
- consumer price index
- limitations of the CPI
- real GDP

GOALS

- understand what a price index is and what it measures
- gain familiarity with the consumer price index
- understand the limitations of the CPI
- understand how real GDP is found and what it means

TEACHING TIPS

This chapter is introduced by stressing the need to adjust GDP for changing prices. Students tend to ignore warnings not to compare money GDP. Most students have not knowingly encountered price indexes before. As a classroom exercise, aid the students in the construction of their own price index, imagined or real. Students should be informed that a price index such as the CPI may not truly measure the price changes that an individual faces.

The harder part of the chapter is the material on real GDP. Students do not seem to understand that real GDP has removed the impact of prices on the measure of output. Perhaps the most successful solution to this problem is have students research money GDP, real GDP, and the GDP price deflator for the last 20 or 25 years. They can easily see that real GDP has not gone up as fast as money GDP, and they also see that prices have gone up quickly. They can also find times when real GDP went down while money GDP went up.

Getting the students to think in terms of real variables is important because the relationships discussed later, notably the consumption function, are done in real terms. This approach also accounts for the lack of prices in these relationships.

ANSWERS TO DISCUSSION QUESTIONS

1. A price index measures the average price level of a selected combination of goods in terms of the base year prices.
2. If the inflation rate is 10 percent per year, then the dollar will decrease in value by 10 percent per year. The value of a dollar is measured by what you can buy with a dollar. A price index will measure the changing value of a dollar over time.
3.
 - a. This increased income and spending could result in demand-pull inflation.
 - b. The case of the union is somewhat more complicated. The union members will have extra income, which will allow demand to increase. But the increase in wages will cause the costs of the firm to rise, which may contribute to cost-push inflation.

- c. If the CPI overstates inflation and wages are tied to the CPI, every increase in the CPI will cause more inflation. Wages will be going up faster than inflation and the increase in wages will cause prices to rise even faster.
4. The CPI measures the change in the cost of a market basket of goods since the base year. If Uncle Effron is buying goods that are not included in the market basket or is buying a different combination goods than those in the market basket, then it is possible that Uncle Effron will experience a different rate of inflation.
 5. The difference between the CPI and other price indexes is the market basket. The CPI market basket is made up of representative consumer goods. The WPI includes selected goods that are sold at wholesale. The GDP price deflator uses a market basket that represents GDP, including government and capital goods.
 6. Real GDP measures the amount of output that the economy produces, valued in the prices of the base year. Real GDP is money GDP divided by the GDP price deflator. So real GDP is money GDP with the effect of changing prices eliminated.
 7. Higher. Assuming last year as the base year, real GDP this year would be $\$120/1.10 = \109.10 . If the inflation rate were 30 percent, real GDP this year would be lower than last year since real GDP would be $\$120/1.30 = \92.30 .
 8. Inflation occurred in every year but 1931-1933, 1938, 1939, 1949, and 1955. Deflation occurred in these years. These dates agree with Table 17-2.

Chapter 20 BUSINESS CYCLES

IMPORTANT TOPICS

- business cycles
- classical economics
- the Great Depression
- Keynes

GOALS

- understand that the level of GDP fluctuates
- realize that there are many ways to look at the economy
- recognize that some economic theories have been rejected
- begin a macro model of the economy

TEACHING TIPS

This chapter is a basis of much of what is to come. It introduces the idea that there is variation in the behavior of the economy, and that some of the variation may be controlled. It also suggests that there have been ways to look at the economy that have been rejected. Further, we introduce the Great Depression, an important period both for its economic impact and for the economic theories it generated.

The idea of a cycle is not hard to understand once the historical cycle is examined. The real question is whether there is some reason for the cyclical behavior, or whether the cyclical behavior is random. There are many theories that have been used to explain cycles. We briefly suggest alternative theories here to show the elusive nature of the business cycle and the persistence to find a satisfactory explanation. The economist as sleuth! Macro theories, such as the classical approach, have been subject to testing, revision, rejection, and in some cases, rebirth.

The Great Depression is now far enough away from most of our students that it no longer seems real. A look at the historical business cycle, Figure 20-2, emphasizes the magnitude of the problem. You might have to explain to them what the problem was. Not only was there unemployment, but there was no welfare or support systems. There was some charity and soup lines, but most people were reluctant to use those services. Also point out the dust bowl problem and failures in agriculture. This period is important because it dramatically affected those who lived through it and because, in reaction to it, many economic institutions were formed that may reduce the likelihood of its reoccurrence. Social Security and the Federal Deposit Insurance Corporation are two notable examples.

The importance of the Keynesian revolution is not just that it replaced the classical theory, but that it also brought a belief that control over some part of our economic life is possible. It was a revelation that we did not have to endure unemployment. The theory behind the Keynesian revolution will be the subject of the rest of the macro portion of the text. These basic concepts lead us to a more modern view of the economy in Chapter 29.

ANSWERS TO DISCUSSION QUESTIONS

1. The very idea of a cycle means that the economy will go up and down. The real question is how much regularity must there be for a cycle. The economy does not seem to be precisely regular. However, most economists agree that the movement of the level of income is regular enough so that business cycles exist. The movement of the level of income does not appear to be just random.
2. The phases are peak, recession, trough, and recovery.
3. In the classical view, the only way for there to be unemployment is to have a surplus of labor. However, the labor market would always regain equilibrium by causing the wage to decrease. Thus there could never be any continuous surplus of labor. Further, due to Say's Law, all the output produced at the equilibrium level of employment would be purchased and no workers would be laid off.
4. Say's Law says that supply creates its own demand. The meaning is that the output produced provides income and the income will be spent. Thus the production of output will create an equal amount of demand for the output. The flaw is that under some conditions, people may not spend all the income - saving. When this happens there is a fall in demand so that the output and the income generated fails to create sufficient demand to purchase all the output - surplus.
5. If there is a surplus of labor, wages fall in the perfectly competitive market. The reduction in wages causes the quantity demanded to rise and the quantity supplied to fall. This eliminates the surplus of labor. When the market adjusts slowly, the surplus of labor remains and results in continued unemployment.
6. The Great Depression was a powerful force in people's lives. You may find that people's behavior after World War II was affected by their experience in the depression. Some people did not trust banks. Some people were constantly worried about being laid off and would not buy a house because they were afraid of losing it. Others insisted on paying everything by cash and accepting no loans because they did not want to face the possibility that another depression would come and they would be unable to meet their obligations. Even twenty and thirty years after the depression, there were people behaving as if it would happen again.
7. The economy cannot be controlled if movements in GDP are essentially random. This view of the economy is substantially different from the Keynesian view, that the business cycle could be controlled by the actions of the government sector.

Chapter 21 CONSUMPTION AND INVESTMENT

IMPORTANT TOPICS

consumption
the marginal propensity to consume
saving
the marginal propensity to save
investment

GOALS

understand the determinants of consumption and saving
introduce the marginal propensities to consume and save
understand the determinants of investment

TEACHING TIPS

This chapter develops the ideas needed in the macro equilibrium chapter, Chapter 22. In addition, the discussion of investment will be used in Chapter 28 which links money to income. Further, a good understanding of the consumption function will make the discussion of the multiplier process in Chapter 23 easier.

Students easily understand the consumption function. However, it is important to remind them that we are talking about the macro relationship between aggregate income and aggregate consumption, not about individual income and individual consumption. Also, students may wonder why the price level does not enter the discussion. You may want to remind them that since both income and consumption are in real terms, neither is affected by changes in the price level.

Students well versed in the micro will have little trouble with the marginal propensity to consume. If you did the macro first, be sure to stress the marginal concept now. Students do not tend to think of saving as that which is not consumed. You may have to stress this point of view. Once students see this, the rest of the material is not hard. Even the marginal propensity to save becomes easy.

The investment discussion relies on an opportunity cost argument involving the interest rate. This is always a little subtle. You may want to go slowly on this idea until it takes hold. You might put the students into the role of a business trying to decide whether or not to buy capital. This practice may help them see what alternatives a firm faces so that the decision-making process is easier. It also helps to stress the definition of capital once again and then the definition of investment to avoid the confusion with money and personal investment.

ANSWERS TO DISCUSSION QUESTIONS

1. The consumption function is the amount that consumers will spend for consumption at each level of national income. The saving function is the amount that consumers will save at each level of national income.
2. Income consumption saving MPC MPS

\$100	\$120	\$-20		
200	190	10	.70	.30
300	260	40	.70	.30
400	330	70	.70	.30
500	400	100	.70	.30
600	470	130	.70	.30

3. Consumers in this model have only two options with their income. They may either spend or save. Out of every extra dollar of income they receive, some of it goes into additional spending, the MPC, and the remainder goes into additional saving, the MPS. Thus $MPC + MPS = 1$. Since income can only be consumed or saved, the sum of consumption and saving is income, or $Y = C + S$.
4. Business invests. Investment is expenditure by firms for new plants and equipment, and inventories. It is not expenditure by consumers for stocks, bonds, or other financial assets.
5. The purchase of bonds occurs when consumers consume less. Thus the purchase of bonds is saving, not investment.
6. If the interest rate is high, a firm must be able to earn a return from a machine at least equal to the interest rate. Otherwise the firm should put its money in the bank. As the interest rate rises, fewer and fewer possible machines will earn the higher interest rate so investment falls. This argument does not depend on whether the firm has the money in hand or has to borrow the money.

Chapter 22 MACRO EQUILIBRIUM

IMPORTANT TOPICS

equilibrium identified
why equilibrium occurs where it does
an alternate view of equilibrium
aggregate supply and demand

GOALS

understand where the macro equilibrium occurs and why
find the equilibrium level of income from another point of view
approach the determination of income from supply and demand

TEACHING TIPS

This chapter focuses on how the level of income is determined in a two-sector economy. The equilibrium concept is used again. The equilibrium level of income will be used in the chapters that follow as we examine the impact of fiscal and monetary policy on income. The equilibrium level is identified from three points of view. The $Y = C + I$ total spending model is introduced first. Then the bathtub is applied and last, aggregate demand and supply.

Our discussion starts with the relation between income and output. The standard equilibrium argument is made using inventories. We also examine the idea from the point of view of saving and investment. We use the bathtub as an analogy.

The bathtub model is featured for several reasons. One is that it is a model which easily explains the process. Another is that it represents the dynamics of the adjustment to equilibrium and gives the student an understanding of the complexities of the underlying process. The model emphasizes the importance of the level of saving and the interrelationships between consumption and saving, and investment and saving.

Finally we examine macro equilibrium in terms of aggregate supply and aggregate demand. This is the methodology that will be most frequently used in the remainder of the text. This approach is desirable because it allows the determination of both the level of output and the price level. Students grounded in supply and demand will have little difficulty. Emphasize, however, that we are referring to the quantities demanded and supplied at each price level. Also note that aggregate supply must be vertical at full employment.

ANSWERS TO DISCUSSION QUESTIONS

1. Total spending is the amount spent by all sectors of the economy. In the two-sector model it is the sum of consumption expenditure and investment expenditure.
2. Total spending is the total amount spent by all sectors of the economy; here it is consumption plus investment. Total output is the total amount produced by the economy, it is real GDP. Total income is the amount earned in the production of the total output. All three reflect the same concept as measured by real GDP.
3. There is only one level of income at which equilibrium will occur. It is the level of

income where total spending equals total output, or investment equals saving. If Uncle Effron meant that the equilibrium level had to be the full employment level, then there would be a dispute. We have not suggested that the equilibrium level and the full employment level are the same.

4. When total spending is greater than total output, the society is buying more than is being produced and firms find that inventories are falling. Firms will increase production to build up inventories. The increase in production generates an increase in income and employment.
5.
 - a. The level of income will fall.
 - b. The level of income will not change; it is in equilibrium.
 - c. The level of income will rise.
 - d. The level of income will rise.
 - e. The level of income will fall.
 - f. The level of income will not change; it is in equilibrium.
6. If Y is less than equilibrium, production and Y will rise because inventories will fall. If Y is greater than equilibrium, production and Y will fall because inventories will rise. Thus when inventories rise, Y will fall. When inventories fall, Y will rise. Thus there is a cycle of inventories and a cycle of income. But we cannot tell which came first.
7. If investment goes up, then the aggregate demand will increase and shift to the right. At each price, more is demanded. That means that at equilibrium, the level of income will go up and so will the price level. At the full employment level of output, only the price level can rise.
8. If aggregate demand rises, there will be a shortage, inventories will fall, and the price level will be bid up. If aggregate demand falls, there will be a surplus, inventories will rise, and prices will be bid down to reduce the excess inventories.

Chapter 23 GOVERNMENT

IMPORTANT TOPICS

taxes
government spending
equilibrium
income multiplier

GOALS

understand the role and economic impact of government
understand the income multiplier process

TEACHING TIPS

Here a third sector, government, is added to our macro equilibrium model. This chapter builds on the previous chapter in that the equilibrium argument will be repeated. The bathtub model is used as well as aggregate supply and demand, also, $Y = C + I + G$, total spending. This material will be used again in the next chapter and in Fiscal Policy, Chapter 25, and also in Chapter 28.

This chapter is essential to understanding fiscal policy. The initial topic is how taxes and government spending work. This material is not too difficult. Given this information, the macro equilibrium is revisited including the government sector. The equilibrium adjustments are made. Follow a change in G or T through the total spending $Y = C + I + G$ model, the bathtub, and the aggregate supply and demand model to show that all three views yield the same macro result.

The income multiplier is somewhat more difficult. Students have a little trouble getting all of the details down. The idea is complex. The main problem is understanding exactly how spending translates into income. If the consumption relation is well understood, the multiplier discussion will go more smoothly.

Students benefit from a liberal use of classroom examples and problems. They may appear to understand the multiplier concept until confronted with a specific problem. Role playing an example in class is useful. Increase spending by government by \$1 and record a few rounds in the class from George to Jill, etc., at various MPS levels.

The process following an initial decrease in spending should be emphasized, as it often does not get equal time and is overlooked by the student. When students can specify the specific change in spending necessary to obtain a targeted change in income, they are developing a facility with the income multiplier.

ANSWERS TO DISCUSSION QUESTIONS

1. Before the Great Depression, the government maintained a hands-off attitude toward the economy. This attitude was widely supported by citizens, business, and politicians. The basic idea was that government interference would make the economy worse off. Thus no action by the government was better than any action. This attitude was called *laissez-faire*.

2. An increase in taxes has the impact of reducing consumer spending so that aggregate demand decreases. A decrease in taxes will have the opposite effect. Consumers will have more disposable income to spend so aggregate demand will increase. An increase in government spending will increase aggregate demand. A decrease in government spending will cause aggregate demand to decrease.
3. When $I + G$ is greater than $S + T$, income will rise. As income rises, saving will also go up. This will cause $S + T$ to rise until $S + T$ is again equal to $I + G$, and a new higher equilibrium is reached.
4. If all consumers try to save more, the level of income falls. But saving depends on income and when income falls, saving also falls. So if enough consumers try to save more, they save less.
5. The fallacy of composition states that what is true for the parts is true for the whole. In this case since income is determined by consumers and businesses following their best interest, then income must be at the best level for the society. But what happens if the resulting level of income is at less than full employment? Is that best for the society? We see why the fallacy of composition is a fallacy. Government can deliberately change G or T to alter income in the best interest of society.
6.
 - a. 3
 - b. \$30
 - c. \$130
 - d. \$200
7. The income multiplier process works because one person's expenditure is another person's income. Suppose that there is an increase in government expenditure. Someone receives that expenditure as income. Thus the level of income rises. But the person who received the extra income will spend part of the extra income. That spending becomes someone else's income. The recipient of this income will spend part of the extra income which in turn becomes someone else's income and the process continues. The process stops because the amount of extra income passed on gets smaller with each round of additional spending because in each round some of the extra income is also saved. But the point is that the final change in total income is more than the initial change resulting from the increase in government spending.
8. When we drop a tennis ball, the ball at first bounces almost to the height from which it was dropped. Then on successive bounces, the bounce gets lower and lower. The total up and down distance the ball travels will be greater than the height of the first bounce. This is like the multiplier in that the drop is like the initial change in spending and each successive round of the multiplier is like another bounce. The total change of the multiplier process is greater than the initial bounce and each successive increase in income is smaller than the last just like the bouncing of a tennis ball. And as with a tennis ball, the income multiplier process eventually comes to a halt.

9. In this case, when government spending goes up by \$1, the level of income initially goes up by \$1. Now the recipient of the \$1 spends it all; there is no additional saving. This dollar of spending becomes someone's income. The entire dollar is spent and again becomes someone else's income. This multiplier process differs from the usual case because the amount spent is not decreasing in each round of spending. That means that the total spending and change to total income will be infinite since there will be an infinite number of rounds and each time \$1 is spent. If the MPC is one, then an increase in government spending will cause the level of income to rise to infinity.
10. a. At a 10% tax rate, the consumer will pay \$1,000 in taxes and have \$9,000 left to spend.
- b. At \$20,000 income and a 10% tax rate, the consumer has \$2,000 in taxes and \$18,000 left to spend.
- c. With \$20,000 in income and a 20% tax rate, the taxes are \$4,000 which leaves \$16,000 to spend. Disposable income has gone down with a higher tax rate.
- d. If the tax rate goes up as income goes up, the aggregate demand will go up at a slower rate.

Chapter 24 THE KEYNESIAN CROSS

IMPORTANT TOPICS

- the consumption and investment functions
- the equilibrium level of income
- government expenditure and taxes
- equilibrium again
- the income multiplier
- equilibrium using saving and investment
- total spending and saving and investment

GOALS

Find equilibrium level of income in a graphical model

TEACHING TIPS

This material is, in some sense, a review of past chapters presented in a graphical format. It is clearly not a chapter for all students. If you use this chapter, it would be good to be sure that students have a firm grip on graphical matters. A review of the graphing section of the study guide would be a good idea.

The consumption function is relatively straight forward, and the investment being constant is not hard. The sum of the functions is usually clear once it has been explained. The biggest sticking point is the graph of potential equilibrium. It is hard for students to see $C + I$ as a single variable, to be graphed on the vertical axis, in this case as a single number. Once they see this, the rest is pretty straight forward. Find equilibrium is not a hard thing after that. The explanation of the forces pushing us to equilibrium is not always easy. Students seem to think that economies look for the equilibrium.

Adding the government spending to the mix is not so hard, but taxes often confuse. The best thing is to have the student explain what happens to consumption when there is a tax. That is usually sufficient. The multiplier is a bit difficult as they do not see that the multiplier relates a shift in the spending curve with a change in output and exactly where these show up in the graph.

The saving and investment approach is also pretty easy, and it is not hard to see what is going on. The relation between the potential equilibrium and saving and investment approaches is not always clear to students – and when to use each is often an issue. But they should see that they would get the same result from either approach.

ANSWERS TO DISCUSSION QUESTIONS

1. The Keynesian Cross is a graphical representation of the bathtub model. Both are visual representations of the same economic principles. However, the Keynesian Cross is more precise; we can see exactly what happens and by how much in this model. In the bathtub, it is often hard to see where the equilibrium will actually end up. And sometimes it is hard to see that an equilibrium will occur at all.
2. If the marginal propensity to consume rises, then the equilibrium level of income will

rise. You can see the marginal propensity to consume as the slope of the $C + I + G$ curve. If the slope rises, the $C + I + G$ curve will intersect the potential equilibrium line at a higher level of income.

3. If taxes rise, the consumption function will shift down parallel to itself. Thus the $C + I + G$ curve will shift down and the equilibrium level of income will fall.
4. We have said that equilibrium occurs when total spending is equal to total income. Total spending is $C + I + G$ and total income is Y . So at equilibrium, $C + I + G = Y$. To graph this, we have one variable, $C + I + G$, on the vertical axis and the other variable, Y , on the horizontal axis. Then for the two variables to be equal, when Y is say 100, then $C + I + G$ must also be 100 for the two variables to be equal. We continue for each possible value of Y , and thus the distance from the origin to Y equals the distance from the origin to $C + I + G$. This is the definition of a 45° line.
5. If the MPC is one, then the $C + I + G$ line must have a slope of 1. But the potential equilibrium line also has a slope of 1. This means that the $C + I + G$ line and the potential equilibrium line never intersect (as long as I or G is positive)! There is no equilibrium.
6. In this case, there are not two different models. The $C + I + G = Y$ model, the Keynesian Cross, is one representation of the model. The $I + G = S + T$ model is a different representation of the same model. What we learn from one model we learn from the other.

Chapter 25 FISCAL POLICY

IMPORTANT TOPICS

- what fiscal policy is
- how fiscal policy works
- evaluation of fiscal policy
- the national debt

GOALS

- understand what fiscal policy is
- understand the strengths and weaknesses of fiscal policy
- assess the costs and burdens of the national debt

TEACHING TIPS

The material in this chapter will be discussed again in a broader context in the policy chapter, Chapter 29. That discussion will be easier if fiscal policy is covered carefully here. Given the orientation of the previous two chapters, the idea of fiscal policy should not be hard. The impacts of government spending and taxes were covered in Chapter 23 so the only additional question is how to use the federal budget to stabilize the level of income to full employment. This requires application of the income multiplier.

The evaluation of fiscal policy is not a difficult topic. The main problem is to assess the different costs and benefits. What may seem a cost to one will seem a benefit to another. The assessment should be done in terms of economic goals. Thus the goals given in Chapter 4 might be restated here.

One important question is whether there really is fiscal policy. If there is no conscious fiscal policy, we might ask whether we might be better off with a fiscal policy. A full answer to this question will have to wait until the policy chapter when modern schools of economic thought are discussed.

The national debt is sometimes an emotional issue. You should be able to have a vigorous class discussion over the merits of the national debt and whether there should be a law requiring a balanced budget. You might ask students on both sides what it would take to get them to change their mind about their position. It would be good if you could get the students to examine the debt issue in terms of costs and benefits. Again the cost to one may seem a benefit to another. But at least you will get the students to examine their root beliefs.

ANSWERS TO DISCUSSION QUESTIONS

1. The government can reduce government spending or it can raise taxes or it can do both.
2. The equilibrium level is the level that the economy naturally tends toward, where aggregate demand equals aggregate supply. The full employment level is the level where labor resources are fully employed. There is no reason to believe that the two are necessarily the same.

3. The budget could be a deficit (more spent than is collected in taxes), a surplus (less spent than is collected in taxes), or balanced (inflow equals outflow).
4. With a deficit, more is spent than is collected in taxes. That means that the aggregate demand will shift right and the equilibrium level of income will rise. Keynes argued for a deficit spending policy. He believed that there would be an increase in the equilibrium level of income. This increase in aggregate demand would have been an effective way to get out of the depression.
5. There are several problems with fiscal policy. First is that it takes time for the Congress to recognize that there is a problem. And it takes time to decide what to do. Then the policy will require time to work through the economy. By the time the policy is felt in the economy, it may be the wrong policy. In addition, there is a bias toward spending. No one wants to raise taxes, so to finance more projects, which everyone wants, the government must borrow. Finally, government spending will have a definite geographic bias.
6. There are many points of view about the size of the debt. There are some that feel that the size of the debt is manageable compared to what it was in the 1930s and 1940s. There are others who believe that the debt has grown entirely too large and every effort should be made to reduce it. Perhaps the best way to consider the debt is to think of the benefits and the costs. The benefits include having a higher level of output than we would have had and having a safe form of savings. The costs include the fact that when the government borrows, it takes funds that would have otherwise gone to the private sector. The interest payments on the debt are also a cost. Before we decide that the debt is unacceptable, we should weigh any positive value that has come from the making of the debt.
7. When the government runs a deficit, the government borrows money from people, banks, insurance companies, and so on, by selling them bonds. Another alternative is for this money to be lent to business. So when the government borrows, it is taking funds that might otherwise have gone to business. From another point of view, the increase in government spending that requires the government to borrow will cause higher interest rates and a reduction in the amount of investment.
8. Since over the period 1950 to 1980 the ratio of national debt to GDP went down, the GDP must have gone up more than the national debt.
9. No, the government could have chosen to increase spending for reasons other than a war and the impact on the economy would have been the same. Given the belief at the time of the depression that a balanced budget was desirable, it is unlikely that a deficit of sufficient size was politically feasible without a war.

Chapter 26 MONEY

IMPORTANT TOPICS

- what is money
- fractional reserves
- the creation of money
- the money multiplier

GOALS

- understand what money is
- understand money creation and the multiple expansion process

TEACHING TIPS

Money is an important component of our lives. We talk about and handle money nearly every day. It is important to understand what money is and how it works. This chapter introduces money and the multiple expansion of the money supply. These ideas are used in the next three chapters. The following material will be difficult if this foundation material is not understood.

Money is difficult. One reason is that we are so familiar with it that we do not think about its functions. Second is that we commonly use the term "money" as a substitute for the term "income". The two do not have the same economic meaning. Third, the definition of money in terms of its functions is abstract. Most students are not used to seeing definitions of this sort, and it does not look like a definition to them. The topic has many pitfalls.

Perhaps the best introduction to money is to ask the students to define money. They will probably answer dollars and coins. You can respond by asking what a dollar is. Then lead them into the functions of money definition. This will be useful because the students are developing and defending the definition and can see the pitfalls for themselves.

The fractional reserves story is the prelude to the creation of money discussion. The story is not hard. The implication of the fractional reserve system, that there is a multiple expansion process, is more complicated. Students sometimes have a hard time with the details. We have left out the accounting approach in the belief that the idea can be understood without the accounts. You may, of course, wish to do the accounting in your classroom.

An understanding of the money multiplier process begins with a clear concept of the reserve requirement, required reserves, and excess reserves. Students readily see the parallelism, when it is pointed out, between the reserve requirement and the MPS of the income multiplier. A chalkboard example of the multiplier process is again helpful.

ANSWERS TO DISCUSSION QUESTIONS

1. Time. One important benefit of money is that it saves time. Barter takes time, and if we can avoid barter, as we can when we use money, we have more time for other activities. Thus money economizes on time.
2. Money is something that is a medium of exchange, a standard of value, a store of value, and a measure of debt. Anything that satisfies these properties is money. So money is a figment of our imagination. What makes money valuable? The fact that we agree that

money is worth something by accepting it in trade, and the fact that the supply of money is limited. What is money worth? Whatever we can buy with it. Nothing backs our money supply except our willingness to accept it.

3. You can see that tomatoes would not make a good money. For one thing, tomatoes are hard to carry. They make a poor medium of exchange. How do you make change? Slice them up! Are you willing to carry change in your pocket? We can store tomatoes in the refrigerator or by canning, but even then they will eventually rot. So we cannot save our wealth in tomatoes. They do not make a good measure of value since tomatoes are not standard. They come in different sizes and for different purposes. Are slicing tomatoes and cooking tomatoes equivalent? And tomatoes would not remain scarce for long.
4. Cigarettes worked as a medium of exchange because everyone was willing to accept them and all goods and services were valued in terms of cigarettes. Cigarettes also served as a store of value. Cigarettes could be saved and a good, such as a tin of strawberry jam, could be purchased at a later date. Cigarettes could also be borrowed to make a purchase now. This money has the unusual property that it is also consumable. Most monies are not.
5. You can see that if the value of the money is falling quickly, it cannot act as a store of value, or a measure of debt. Too, as its value is quickly changing, it is hard to use money as a measure of value. But most important is that money acts as medium of exchange. That means that the money must be readily acceptable to both parties in the trade. But during a hyperinflation, one wants to get rid of money as fast as possible because whatever value it has is reduced within the hour. Thus money loses its value as a medium of exchange.
6.
 - a. Counted as money.
 - b. Not counted as money.
 - c. Counted as money.
 - d. Not counted as money.
 - e. Not counted as money.
7. Suppose that Bank A has excess reserves of \$100 and the reserve requirement is 50 percent. Bank A loans \$100 thus adding \$100 to the money supply. When the \$100 is spent, it is returned to Bank B. Bank B keeps \$50 in reserves against its new deposit of \$100 but can loan out the remaining \$50 of excess reserves. This action increases the money supply by \$50. When the money is spent, it is deposited in Bank C. Bank C keeps \$25 in reserves but loans out the remaining \$25 which adds \$25 to the money supply. This process continues until there are no more excess reserves left to loan out. The money supply has increased by a total of \$200, obtained by multiplying the initial excess reserves, \$100, by the reciprocal of the reserve requirement, the money multiplier of 2.

8. If there were a 100 percent reserve requirement, then all of every deposit would have to be held as required reserves and the banks would not have excess reserves to loan out. The multiple expansion process would not exist at all. Note that the money multiplier would be 1 divided by 1, which is 1. Every time new excess reserves were generated, the money supply would go up by that amount and no more since there would be no multiple expansion process.
9. a. Required reserves are \$10.
b. Excess reserves are \$10.
c. The bank can loan out the excess reserves, \$10.
d. Bank X can increase the money supply by \$10.
e. The banking system increases the money supply by \$100.

Chapter 27 MONETARY TOOLS

IMPORTANT TOPICS

the Federal Reserve System
tools of the Fed

GOALS

introduce the Federal Reserve System
develop the tools needed to control the money supply
understand how the tools can be used to control the money supply

TEACHING TIPS

This chapter builds on the last. Here we discuss the ways that the process of the multiple expansion of money can be initiated and the money supply controlled. The use of this process to affect the level of income is the subject of the next chapter.

The introduction of the Federal Reserve System is institutional material that the students should know so that they have some understanding of the institutions in the world around them. There are many details of the Fed that we have left out. The Fed and the district banks provide material that you may find useful which describes the responsibilities and workings of the Fed and the banking system in more detail. This material makes it easy to go beyond the text.

An introduction to the arsenal of the Fed - reserve requirement, discount rate, and open market operations - is important so that students realize that the Fed has policy options and does not depend only on one tool to achieve its goals. The material is not too hard. The most difficult material is the open market operation, which requires a little attention. It takes some effort to get straight that buying by the Fed in the open market expands the money supply, and that selling reduces the rate of growth of the money supply. We emphasize the impact of the Fed's policy tools on the excess reserves and money supply.

You may choose to pass over the material on bond prices and interest rates, but we find that the presentation of this detail makes the explanation for the workings of the Fed more concrete.

ANSWERS TO DISCUSSION QUESTIONS

1. The monetary tools of the Federal Reserve are open market operations, the discount rate, and the reserve requirement.
2. When the reserve requirement is lowered, all banks will have more excess reserves. That means that there can be an increase in the money supply since the excess reserves can be loaned out. Of course there is a multiplier process. Also note that the multiplier is now larger than before because the money multiplier is the reciprocal of the reserve requirement. When the reserve requirement goes down, the money multiplier goes up. When the reserve requirement goes up, excess reserves and the rate of growth of the money supply is reduced. The money multiplier is now smaller.

3. The discount rate is the interest rate that the Fed charges member banks for a loan. The discount rate is a signal to the banks of the Fed's willingness to make loans. If the Fed lowers the discount rate, then banks realize that the Fed is more willing to make loans and will therefore be more aggressive about making loans themselves. If the Fed raises the discount rate, then banks take that as a signal to be more conservative in making loans.
4. Open market operations are used to generate or take away excess reserves. For example, if the Fed buys bonds in the open market, the bonds are sold by someone. That someone will then have extra dollars that become new deposits in the banking system, and after the required reserves are deducted, there are excess reserves which the bank can loan out. Thus open market operations can easily generate excess reserves. If the Fed sells bonds in the open market, it receives the check and someone gets the bond. When the Fed uses the check to reduce bank reserves, it reduces the excess reserves of the banks and forces a contraction of the money supply. Open market operations are an important tool to affect the excess reserves upon which a multiple expansion or contraction of money is based.
5.
 - a. Reserves will go up by \$100.
 - b. Excess reserves go up by \$100.
 - c. The bank can loan out the excess reserves, \$100.
 - d. The money supply will increase by \$1000.
6. The Fed can entice people to buy the bonds if the bonds have an attractive rate of return. Note that the price of the bond and the yield on the bond, the interest the bond pays, are inversely related. So when the Fed sells bonds, the price of bonds falls which raises the interest the bonds pay. So people will want to buy the low priced, high yielding bonds. If the Fed buys bonds, it bids up the price of the bonds. People will sell their bonds to obtain the higher price. Thus the Fed can affect the bond market through the price of the bond and the effect of the price on the interest rate.

Chapter 28

MONEY AND THE LEVEL OF INCOME

IMPORTANT TOPICS

- the money market
- money and income
- the link from money to income
- monetary policy
- evaluation of monetary policy

GOALS

- understand the difference between money and income
- understand the impact of changes in the money supply on the interest rate
- understand how money affects the level of income
- evaluate monetary policy

TEACHING TIPS

This chapter uses information from the previous two chapters as well as some material from Chapter 21, Consumption and Investment. This chapter is essentially about monetary policy, one of the two major macro policy tools. Some of the ideas discussed here will be used in the next chapter on policy. The chapter contains two important themes: first, that money and income are not the same, and second, the mechanism by which money affects the level of income.

The chapter starts with a discussion of the money market. It will not be hard if the students have the micro market discussion well in hand. The main problem is that the model seems to conflict with their sense that the interest rate is determined by banks. They view the money market as not very competitive. The fact that there is a national money market should suggest that no one bank can by its own efforts dominate the money market. That does not mean that there is not a banking cartel.

That money and income are not the same is the next topic. There does not seem to be a guaranteed way to make the difference clear. One idea is to stress the stock nature of money and the flow nature of income. Another approach is to realize that one could be paid in goods and then barter for other goods. Students think this unrealistic, but that is just the point. Sometimes, just defining money as currency and checkable deposits and defining income as real GDP is the only thing that works.

The relation of money to income is the usual Keynesian argument. The money supply affects the interest rate, which affects the level of investment, which affects the level of aggregate demand and income. This process is not hard, except that the linkage goes through several steps and requires students to draw on accumulated knowledge.

The evaluation of monetary policy is not hard either. It may be useful to recall the evaluation of fiscal policy, Chapter 25, for the students so that they can compare and contrast the two policy options.

ANSWERS TO DISCUSSION QUESTIONS

1. People have two alternatives - they may hold money or they may hold interest-earning assets such as bonds. When the interest rate falls, the cost of holding money is low. When the interest rate rises, the cost of holding money is high and there is an incentive not to hold money and to hold bonds. Thus as the interest rate rises, people will exchange money for bonds. When the interest rate falls, we expect people to exchange bonds for money.
2. It may be true that banks have some market power in the setting of interest rates. But you can be sure that borrowers do some comparison shopping when they borrow money. So if one bank sets the interest rate higher than the other banks, it will have excess funds to loan out, and the bank will have to lower the interest rate. If the bank lowers the interest rate too much, it will have more requests for loans than it can handle, and the bank will raise the interest rate. So even if the market for money is not perfectly competitive, there is some competitive pressure which tends to keep the interest rate of one bank fairly close to the interest rates of other banks.
3. Money demand is the amount of money that people will hold at each rate of interest. Investment is the amount that firms will be willing to invest at each rate of interest. Money demand is about holding money while investment is about business spending.
4. The money supply and money demand together determine the interest rate. The interest rate determines the level of investment. Investment is one component of aggregate demand. Aggregate demand and aggregate supply together determine the level of income and the price level. If the money supply is increased, the interest rate will fall, the level of investment will rise, aggregate demand will rise, and so will the level of income if we are not at full employment. If we are at full employment, then the increase in aggregate demand will have no impact on the level of income, but the price level will rise. If the money supply falls, the interest rate will rise and the level of investment will fall. The decrease in investment will cause aggregate demand to fall, which will cause the level of income to fall.
5. Actually, Uncle Effron is right, except that there are a few details he managed to leave out. As the money supply increases, the interest rate will go down. This will cause more investment and hence aggregate demand will rise and so will the level of income, provided that we are not at full employment. If we are at full employment, an increase in demand will not change the level of income. If the money supply falls, the interest rate will go up, investment will fall, aggregate demand will fall, and so will the level of income. So except for the fact that Uncle Effron forgot about the link between the money supply and the interest rate, the link between the interest rate and investment, the link between investment and aggregate demand, and the link between aggregate demand and income, he didn't do too badly.

6. You might ask these questions. Is more money what the peasants really want? Can we distinguish money and income? When will more money make the peasants better off? A doubling of the money supply will cause the aggregate demand to increase. The impact on the level of income will depend on whether or not the kingdom is at full employment. If the kingdom is at full employment, the increase in the money supply is entirely translated into higher prices. The peasants would not be better off. If the economy is not at full employment, then both the level of income and the price level will go up. Whether the main impact will be on prices or income will depend on how close the economy is to full employment. The closer to full employment, the larger the impact on prices. A moderate increase in the money supply may cause the level of income to rise, but a large increase in the money supply is most likely to set off an undesirable increase in prices.
7. The Fed can change the money supply by using open market operations or by changing the reserve requirement. Changes in the discount rate will also influence the money supply. The purpose of monetary policy is to stabilize the business cycle. The hope is to make the cycle less intense.
8. One advantage of monetary policy is that it does not require congressional action. It is under the control of the Federal Reserve and can be quickly implemented. It is also flexible to use. Open market policy is made nearly every month. Further, monetary policy works through markets so that the policy is not aimed at target areas or groups as is fiscal policy. Disadvantages of monetary policy include imprecise information on the multiplier and other variables, time lags, and possible ineffectiveness during a recession.
9. It could not have hurt unless the money was bailed up and hit someone's house! On the other hand, once the money was spent and got into the banking system, the increase in the money supply and consequent increase in income depends on banks loaning the money out. If the money is not loaned out, the level of income will not rise as we generally expect.

Chapter 29 ECONOMIC POLICY

IMPORTANT TOPICS

- economic goals
- Phillips curve and stagflation
- policy failure
- other schools of thought
- goal trade offs

GOALS

- re-examine macro goals and potential policies
- recognize that under stagflation, traditional policies may fail
- examine other schools of economic thought
- realize that policy has an opportunity cost

TEACHING TIPS

This chapter is a capstone for the macro chapters. Much of the motivation for the discussion of tools we have had so far is in their policy application. In addition, it is useful to examine the extent to which there is more than one way to look at the world. Here, other schools of thought are briefly examined. You should not hesitate to bring in alternative schools of thought earlier in your classroom discussions or to expand on what the text presents here. Time constraints make it difficult to do even shady justice to the alternative theories. The final part of the chapter discusses the idea that goals trade off. To choose one goal may preclude choosing another. We have come full circle. We are back to the starting point of scarcity, choice, and opportunity cost in Chapter 1.

The discussion of goals returns to Chapter 4. You will not have to repeat the goals for the students as they are repeated in this chapter. You may want to suggest that the student reread the relevant section of Chapter 4 for a discussion of the importance of each goal.

The Phillips relation is discussed to indicate the trade-off between unemployment and inflation. Then we confront the fact that the Phillips curve may shift. The existence of stagflation is then discussed. Students may be unaware of the actual performance of the economy. You may want them to plot the actual unemployment and inflation rates from Chapter 17 so that they see the pattern.

The failure of traditional policies as a means of action against stagflation is observed. Alternative schools of thought are then discussed and their response to the stagflation issue is recorded. The economic schools are described with great brevity. You may want to spend more time in class going over these ideas. It is also useful to note that what is great today, may be passe tomorrow. Students should not expect that the models of today will be the basis for policy for the rest of their lives.

We did not include a discussion of incomes policy. This is a topic that from time to time is useful to discuss. It is one that may occur to the student. If so, you may want to spend some class time discussing it.

That goals trade off is an important issue. It is one that should not require a lot of time. But students must see that we cannot just treat one problem without regard to what will happen to some other economic variable. To advance one goal will require giving up some of another. Opportunity cost again.

ANSWERS TO DISCUSSION QUESTIONS

1. The major economic goals are:
 - economic growth
 - efficiency
 - economic freedom
 - equitable distribution of income
 - clean environment
 - full employment
 - price stability
2. An increase in aggregate demand increases output and prices. Thus unemployment falls and inflation rises. A decrease in aggregate demand reduces output and prices. Thus unemployment rises and inflation falls.
3. Stagflation occurs when the inflation rate and the unemployment rate both rise at the same time. Stagflation is shown in the Phillips curve by a shift of the curve to the right.
4. The classical economist maintains that there is no need for economic policy since government cannot have a positive effect on the business cycle. This point of view is echoed by the rational expectations economist.
5. The equation of exchange is $MV = PQ$. In words, the money supply times the velocity of circulation equals the price level times the amount of real output. The money supply is related to PQ by the velocity of circulation.
6. Monetarists believe that the only useful policy is monetary policy. This is because every added dollar spent by the government raises the interest rate by enough to make investment fall by one dollar. Thus the government crowds out private investment. So to stabilize the business cycle, the only tool that can help is the money supply.
7. The supply-side economist believes that the right strategy to overcome stagflation is to cause the aggregate supply to shift to the right. This movement in the supply will cause the price level to fall and the level of output to rise. The increase in aggregate supply can be accomplished by encouraging labor and business to be more productive. One method is by reducing taxes.

8. Keynesians believe that the business cycle can be stabilized by active economic policy including both fiscal and monetary policy. The rational expectations economist believes that economic policy is not effective because the people in the society can anticipate what policy the government will pursue and can adjust to that policy before it occurs. Monetarists believe that the only tool that is effective in stabilizing the economy is the money supply. Fiscal policy is ineffective because the government simply crowds out the private sector. Supply-side economists believe that economic policy must influence the aggregate supply.

There are two basic differences between economists. First is that different economists favor different goals. We should not expect that an economist who favors an efficient allocation of resources will suggest the same kind of policies as one who sees full employment as the more important goal. So one major difference between two disagreeing economists is the goals that they wish to pursue. The second difference is in the way that they see the world. The models economists build are reflections of the world as they see the world. There is no reason why two different people must have the same view of the world.

9. There is a lot of disagreement about what policy to pursue. The basic difference among economists involves values. Economists who favor the market and see it as a powerful mechanism for allocating resources are likely to not want the government to interfere in the market process. Economists who see the existence of externalities, public goods, and monopoly forces are less likely to depend on the market exclusively to allocate resources and so will want the government to interfere. Thus macro economists who favor rational expectations do not want the government to interfere. Economists who are Keynesian prefer some government interference. The fact that there is so much disagreement attests to the fact that there are a variety of different values underlying the analysis – reflecting the disagreements among the non-economists in the society. This disagreement is a healthy thing.

Chapter 30 TRADE WITHOUT MONEY

IMPORTANT TOPICS

absolute advantage
comparative advantage

GOALS

understand gains from trade

TEACHING TIPS

One of the most powerful instruments in the economic tool kit is gains from trade. It is a simple proposition and applies to all trade, including international trade. Gains from trade does require that both parties trade freely.

The absolute advantage argument is quite transparent and is not hard for students. And once they see the comparative advantage, it too is transparent. The most difficult thing is to transfer the idea to new settings. This requires the ability to calculate the opportunity costs of production. About the only way to hone this skill is by practice. Once students have that skill, the understanding of comparative advantage unfolds.

We include a concrete illustration of gains from trade in the form of production possibilities. Students are given another opportunity to utilize the Chapter 3 material and can now apply it to a new concept. The process is not difficult and the graphic analysis can sometimes make the case for trade stronger. It might be something to do in class if you have a group that does not rebel at the sight of a graph.

While comparative advantage determines when it is possible to gain from trade, whether or not trade occurs depends on the terms of trade. This is a somewhat subtle matter and requires attention.

ANSWERS TO DISCUSSION QUESTIONS

1. Cousin Sue may grow asparagus because she has soil conditions that are good for growing asparagus and she can trade it for something she likes better, spinach. And moreover, she will have more of what she likes because she can produce enough asparagus to allow her to buy more spinach than she could grow herself.
2. Blankstare should hire the typist. Specialization and trade make sense. Blankstare has the absolute advantage in both legal work and typing, but clearly the comparative advantage in legal work. The typist therefore has the comparative advantage in typing.
3. Just because one country can produce all goods with fewer resources than another country does not mean that both countries cannot gain from trade. The gains from trade occur because one country can produce a good at a lower opportunity cost than the second country, and the second country can produce the other good at a lower opportunity cost than the first country. So gains from trade depend on the opportunity cost of producing each good in each country, not on the amount of resources used in

producing the goods.

4. Comparative advantage is the situation that occurs when one country can produce one good at a lower opportunity cost than another country, while the second country can produce the other good at a lower opportunity cost than the first country. Comparative advantage does not depend on the price at which the goods sell. But the terms of trade must fall between the opportunity costs for trade to occur.
5. Figure 30-3 shows that if the two countries do not trade and are each on their own production possibilities, they will end up inside the world production possibilities. Thus each country could have more of each good if it would specialize in its comparative advantage and trade.

Chapter 31 TRADE WITH MONEY

IMPORTANT TOPICS

- foreign exchange rate
- foreign exchange market
- balance of payments
- barriers to trade
- free trade versus protectionism

GOALS

- understand how the price of a currency is determined
- understand the balance of payments
- discuss any advantages to restricting free trade

TEACHING TIPS

The determination of the exchange rate is an important topic in this chapter. The supply and demand tools are used again. The balance of payments is then discussed. This is a topic that will only come up if there is an exchange rate. The rest of the material in this chapter builds on the previous chapter. The case for free trade has been made and one question is whether there are times when free trade does not make sense.

The price of one currency in terms of another seems to be a problem for the students. If you go slowly and keep reminding them that dollars are trading for pounds, they will catch on. It is unlikely that they will appreciate that the market is symmetric in the sense that the demand for pounds is the supply of dollars and vice versa. It is probably better not to go into that fact.

The balance of payments is difficult only because it is not always obvious to the student how a transaction affects the accounts. We have tried to downplay the actual recording of transactions and only focus on the role of free trade in the balance of payments problem. Students are likely to know that there are barriers to trade. However, they may be unaware of the impacts of the barriers on the prices that they pay. These ideas also are applications of the supply and demand tools and are a useful review of that material.

The value of protectionism depends on the goals for the economy. To the extent that security is a goal, protectionism may be a useful policy tool. There are other goals which imply that protectionism is acceptable. We attempt to include both the costs and the benefits. Also note that for the free trade argument to be correct, the trade must be free, and one country must not be able to impose the terms of trade on another.

ANSWERS TO DISCUSSION QUESTIONS

1. The exchange rate is determined in a market. The rate at which pounds exchange for dollars is determined in a market with a supply of pounds and a demand for pounds. The intersection of the supply and demand determines the number of dollars needed to buy one pound.
2. a. The exchange rate will fall due to the increase in supply of pounds.

- b. The exchange rate will rise due to the increase in demand for pounds.
 - c. The exchange rate will rise due to the decrease in supply of pounds.
 - d. The exchange rate will fall due to the decrease in demand for pounds.
- 3.
- a. Current account.
 - b. Capital account.
 - c. Official transactions account.
 - d. Capital account.
4. The balance of trade is what we export minus what we import. The balance of payments is the sum of the current account and the capital account. So the balance of payments includes the capital account but the balance of trade does not.
5. Suppose that there are two countries, the United States and England. Suppose that the United States begins to run a balance of payments deficit because of England's decrease in demand for U.S. agricultural products. That means that the value of U.S. imports from England is now greater than the value of U.S. exports to England. Since there is a reduced demand for U.S. products in England, there must also be a reduced demand for dollars by England. The smaller demand for dollars means that the price of dollars in England will fall. This will make the price of U.S. goods in England go down and there will be an increase in the quantity demanded of U.S. goods. This will increase the value of U.S. exports and the balance of payments deficit will disappear.
6. The impact of a quota is to reduce the amount that can be imported. This means that the quantity actually bought in the market will be reduced. The price will rise. Thus the impact of the quota is to raise price and reduce quantity. A tariff will have a similar impact. A tariff is a tax on the imported good. This will shift the supply curve of the imported good to the left which will raise the price and reduce the quantity.
7. The impact of the quota will be to reduce the number of cars imported and raise the price of those cars, and due to less competition, the price of domestic cars.
- If autos are imported from foreign countries, it is probable that fewer auto workers will be employed in the United States. Thus employment will fall in the domestic auto industry. However, if the comparative advantage argument holds, there is some industry where the United States has a comparative advantage and the unemployed auto workers can be absorbed, although it may be a difficult process for the individual worker. If foreign countries have quotas or tariffs against U.S. products so that trade in those goods cannot occur, then there may be no place for the unemployed auto worker to go.
- Oil is relatively important for security and that may be a reason why we would be willing to put a quota on oil. If without a quota, the domestic firm could not compete, it would go out of business. In a time of emergency, there would be no domestic producers to provide the needed oil. In that case, the quota might be desirable just to keep domestic producers in business.