Answer Key

Chapter 1: Welcome to Economics!

Self-Check Questions

1. Scarcity means human wants for goods and services exceed the available supply. Supply is limited because resources are limited. Demand, however, is virtually unlimited. Whatever the supply, it seems to be human nature to want more.

3. She is very productive at her consulting job but not very productive at growing vegetables. Time spent consulting would produce far more income than what she could save growing her vegetables using the same amount of time. So on purely economic grounds, it makes more sense for her to maximize her income by applying her labor to what she does best (i.e., specialization of labor).

5. There are many physical systems that would work, such as the study of planets (micro) in the solar system (macro) or solar systems (micro) in the galaxy (macro).

7. There are many such problems. Consider the AIDS epidemic. Why are so few AIDS patients in Africa and Southeast Asia treated with the same drugs that are effective in the United States and Europe? It is because neither those patients nor the countries in which they live have the resources to purchase the same drugs.

9. The United States is a large country economically speaking, so it has less need to trade internationally than the other countries mentioned. (This is the same reason that France and Italy have lower ratios than Belgium or Sweden.) One additional reason is that each of the other countries is a member of the European Union, where trade between members occurs without barriers to trade, like tariffs and quotas.

Review Questions

11. Economics factors into every major policy decision, economics encourages good citizenship, and economics makes for a well-rounded education.

13. Individuals, households, and businesses are all economic agents.

15. As a method of thinking that helps people draw correct conclusions

17. Firms are primarily sellers in the goods and services market, offering their wares to consumers. They are primarily buyers in the labor market, hiring employees to produce for them.

19. Globalization is an increase in connections and economic activity across international lines. Globalization allows small economies to take better advantage of the division of labor.

Critical Thinking Questions

21. With no trade, each individual must produce all the goods and services they want to consume. Therefore, by definition, they cannot specialize and obtain the benefits of specialization. With trade, on the other hand, an individual can specialize in what they do best, maximize production and income, and trade for whatever else they want to consume. In short, specialization results in a net gain rather than a loss.

23. A balanced federal budget and the balance of trade do not have direct effects on the well-being of individuals. While we can argue about what their long-term effects are, the standard of living (as measured by economic growth, for example) is directly responsible for how well-off people are within an economy, so that is what economists care about.

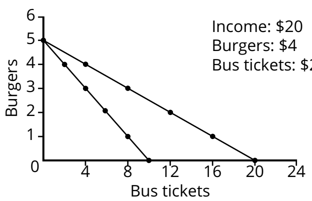
25. Economic models and the accompanying theories typically employ simplifying assumptions that, by definition, make the models less than perfectly realistic. If the models are good ones, they are still useful for understanding how a system works, in the same way that a physicist might assume an absence of friction to simplify his understanding of how a ball rolls across a surface. By making models simple, we can understand the basic mechanisms of how things like supply and demand work without having to worry too much about all the real-world complications.

27. Markets have historically been very good at creating wealth and innovation, but the governments of most modern countries have decided that certain market outcomes, such as extreme wealth inequality, are undesirable, and therefore intervene for the sake of what they view as fair or humane treatment of their citizens.

Chapter 2: Choice in a World of Scarcity

Self-Check Questions

1. The opportunity cost of bus tickets is the number of burgers that must be given up to obtain one more bus ticket. Originally, when the price of bus tickets was $1 per trip, this opportunity cost was $\frac{\$1}{\$4}$ or .25 burgers. The reason for this is that at the original prices, one burger ($4) costs the same as four bus tickets ($1), so the opportunity cost of a burger is four bus tickets, and the opportunity cost of a bus ticket is .25 (the inverse of the opportunity cost of a burger). With the new, higher price of bus tickets, the opportunity cost rises to $\frac{\$2}{\$4}$ or .50 burgers. You can see this graphically since the slope of the new budget constraint is flatter than the original one. If Alphonso spends his entire budget on burgers, the higher price of bus tickets has no impact, so the horizontal intercept of the budget constraint is the same. If he spends his entire budget on bus tickets, he can now afford only half as many, so the vertical intercept is half as much. In short, the budget constraint rotates clockwise around the horizontal intercept, flattening as it goes. Since the slope of the budget constraint reflects the opportunity cost of whatever good is on the vertical axis (in this case, bus tickets) the opportunity cost of bus tickets increases.



3. No. Allocative efficiency requires productive efficiency because it pertains to choices along the production possibilities frontier.

5. When individuals compare cost per unit in the grocery store or characteristics of one product versus another, they are behaving approximately like the model describes.

7. Assuming that the study is not taking an explicit position about whether soft drink consumption is good or bad, but just reporting the science, it would be considered positive.

Review Questions

9. A point inside the budget constraint indicates that the individual could have more of one good without having to give up any of the other. This is inefficient. A point outside the budget constraint is one that the individual cannot afford, as much as they might like to. The budget constraint line represents the set of all allocations of resources that are both efficient and possible.

11. The production possibilities frontier is the set of every combination of goods that is both possible and efficient to produce.

13. A choice above the *PPF* is not possible because the *PPF* already illustrates the maximum amount of production. Producing at a point inside the *PPF* is inefficient because more production could be achieved at no additional cost.

15. Productive efficiency means that it is impossible to produce more of one good without producing less of some other good. Allocative efficiency means that the combination of goods being produced represents the mix of goods most desired by society.

17. No. Economic models use simplifying assumptions to help us understand complex systems. These are useful but are not intended as a literal representation of actual behavior.

Critical Thinking Questions

19. The opportunity cost is defined as the ratio of the prices of the two goods. Since the prices of both goods doubles, the ratio stays the same, and the opportunity cost for Alphonso remains $\frac{1}{4}$ of a burger to buy one bus ticket. Once his income doubles as well, his budget constraint is unchanged because in both cases he can still choose five burgers, twenty bus tickets, or any combination in-between.

21. Allocative inefficiency is wasteful because it means that a nation is producing goods that are not the most highly demanded. Not only does this result in goods piling up on store shelves, but it means that people have to pay higher prices for the relatively scarce goods they actually want.

23. In order to make a normative statement, there must be an underlying assumption about what the goal of the policy is or what is right. A normative statement like "If your only goal is for fewer people to smoke, you should raise cigarette taxes" may be within an economist's realm of expertise, but typically, these sorts of statements contain a moral component that lies outside the domain of economics.

Problems

25. $\frac{\$24}{\$12} = 2$ pies

27. The opportunity cost of a pie is the absolute value of the slope of the budget line, which is $\frac{6}{2}$ or 3 magazines.

Chapter 3: Demand and Supply

Self-Check Questions

1. Since $3.60 per gallon is above the equilibrium price, the quantity demanded would fall, and the quantity supplied would rise. (These results are due to the laws of demand and supply, respectively.) The outcome of lower Q_d and higher Q_s would be a surplus in the gasoline market.

3. **a.** An improvement in technology that reduces the cost of production will cause an increase in supply at any price. Alternatively, you can think of this as a reduction in price necessary for firms to supply any quantity. Either way, this can be shown as a rightward shift of the supply curve.

b. An improvement in product quality is treated as an increase in tastes or preferences, meaning consumers will demand more paint at any price level, so demand in the present will increase or shift to the right. If this seems counterintuitive, note that demand in the future for the longer-lasting paint will fall since consumers are essentially shifting demand from the future to the present.

c. An increase in need causes an increase in demand: a rightward shift of the demand curve.

d. Factory damage means that firms are unable to supply as much in the present. Technically, this is an increase in the cost of production. Either way you look at it, the supply curve shifts to the left.

5. Step 1: Draw the graph with the initial supply and demand curves. Label the initial equilibrium price and quantity.

Step 2: Did the economic event affect supply or demand? Jet fuel is a cost of producing air travel, so an increase in price affects supply.

Step 3: An increase in the price of jet fuel caused an increase in the cost of air travel. We show this as a leftward shift of supply.

Step 4: A leftward shift of supply causes a movement up the demand curve, raising the equilibrium price of air travel and lowering the equilibrium quantity.

7. A price ceiling (which is below the equilibrium price) will cause the quantity demanded to rise and the quantity supplied to fall. This is why a price ceiling creates a shortage.

9. A price floor is a legal minimum price, but the market will choose the equilibrium price as long as the latter is above the former. In other words, a price floor below equilibrium will have no effect.

11. Social surplus is the sum of consumer surplus and producer surplus. A price floor reduces social surplus because with a price floor, the losses to consumers are greater than the benefits to producers. For example, when a government purchases excess supply from farmers in an effort to impact demand, the farmers benefit from the price floor, while taxpayers and consumers of food end up paying the costs.

Review Questions

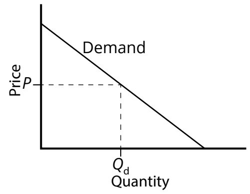
13. A downward-sloping demand curve means that buyers will demand less of a good the higher the price becomes.

15. An upward-sloping supply curve means that sellers are willing to supply more goods at higher prices.

17. At equilibrium, quantity demanded and quantity supplied are equal to one another. In a shortage, quantity demanded exceeds quantity supplied. In a surplus, quantity supplied exceeds quantity demanded.

19. If the price is above the equilibrium level, there will be excess supply, known as a surplus. If the price is below the equilibrium level, there will be excess demand, known as a shortage. This happens because the number of people who want to buy the good is not equal to the number of people who want to sell it at the given price.

21. Demand describes consumers' willingness to buy a good at any price. Demand is shown by the position of a demand curve: in other words, how far away from the origin it is. Quantity demanded refers to how much will be purchased at a single, specific price (at one point on the demand curve).



23. Economists try to isolate one variable to study at a time, holding all other factors constant. This can be challenging in the real world, but it is useful in economic models.

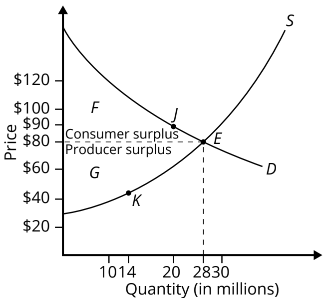
25. Supply shocks, such as natural disasters, can shift the supply curve. Changes in technology or the price of inputs can also have an effect.

27. A change in the price received by sellers will cause a movement along the supply curve. A change in the price demanded by buyers will cause a movement along the demand curve.

29. A price ceiling set below the equilibrium price will result in a greater quantity demanded than the quantity supplied, otherwise known as a shortage.

31. A price floor set above the equilibrium level results in a greater quantity supplied than the quantity demanded, otherwise known as a surplus.

33. The producer surplus is the extra benefit producers receive from selling a good or service, measured by the price the producer actually received minus the price the producer would have been willing to accept. The producer surplus is illustrated in the following demand and supply diagram in the area labeled *G*, which is the area between the market price and the segment of the supply curve below the equilibrium.



35. Economic efficiency of the market equilibrium is demonstrated when the total surplus is larger at equilibrium quantity and price than it would be at any other quantity. At the efficient level of output, it is impossible to produce greater consumer surplus without reducing producer surplus, and it is impossible to produce greater producer surplus without reducing consumer surplus, which would be evident of economic efficiency.

Critical Thinking Questions

37. There would be a shortage of gasoline. At such a low price, consumers would be very eager to buy, but producers would see limited profit opportunities. The quantity demanded would therefore exceed the quantity supplied by the market.

39. The equilibrium price merely equalizes the number of willing sellers and buyers. There would still be people willing to sell even if the price were to fall.

41. Assuming that milk is primarily consumed by children, an aging population will probably see a reduction in demand as baby boomers stop having children.

43. A reduction in the soda tax means that sellers receive a higher price for each soda sold. This will increase the supply of sodas.

45. Draw the graph of the initial supply and demand curves. Does the change affect demand or supply? Since tariffs affect the price consumers pay, the effect will be on demand. The reduction in the price of iPads causes a leftward shift in demand for the substitute good, the MacBook. The leftward shift in demand for MacBooks would cause a reduction in price and quantity sold.

47. The minimum wage is a price floor that prevents the price of labor from falling below a certain level. Like all binding price floors, this creates a surplus of labor, also known as unemployment. Those who do not offer enough productive value to earn the minimum wage will lose out on job opportunities they might otherwise have had. On the other hand, those who do manage to keep their jobs will benefit from higher wages. In this way, minimum wages make some workers better off but actually harm those who have the least education or skills and cannot compete for jobs at the higher wage level.

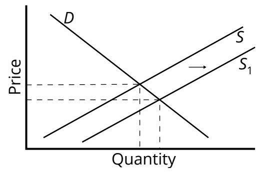
49. A reduction in property taxes would make it cheaper for landlords to own houses and rent them out, resulting in an increase in supply.

51. Voluntary transactions improve social welfare because they allow both the buyers and sellers to willingly engage in the market.

Problems

53. The quantity demanded will be higher than at the equilibrium price, and the quantity supplied will be lower, resulting in a shortage of 300 million gallons.

55. **c.** A rise in supply. For prices to fall while the quantity sold rises, supply must have increased. This is shown graphically by a rightward shift of the supply curve.



57. **a.** The new equilibrium price would be $12.00, and the new equilibrium quantity would be 18.

Price	Q_d	Q_s
$11.00	20	16
$12.00	18	18
$13.00	16	20
$14.00	15	21
$15.00	14	22

b. The new equilibrium price would be $13.00, and the new equilibrium quantity would be 22.

Price	Q_d	Q_s
$11.00	26	17.6
$12.00	24	19.8
$13.00	22	22
$14.00	21	23.1
$15.00	20	24.2

Chapter 4: Labor and Financial Markets

Self-Check Questions

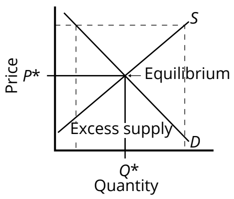
1. Changes in the wage rate (the price of labor) cause a movement along the demand curve. A change in anything else that affects demand for labor (e.g., changes in output, changes in the production process which use more or less labor, government regulation) causes a shift of the demand curve.

3. Since a living wage is a suggested minimum wage, it acts like a price floor (assuming, of course, that it is followed). If the living wage is binding, it will cause an excess supply of labor at that wage rate.

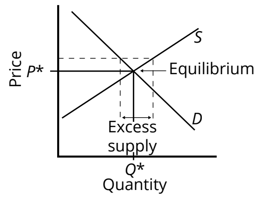
5. Changes in the interest rate (i.e., the price of financial capital) cause a movement along the supply curve. A change in anything else that affects the supply of financial capital (a non-price variable), such as income or future needs, would shift the supply curve.

7. b. A fall in demand, c. A rise in supply. At a lower demand, lenders will not be able to charge as much, and with more available lenders, competition for borrowers will drive rates down.

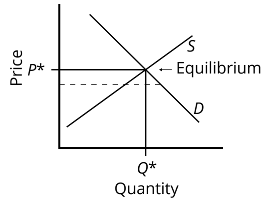
9. a. substantially above the equilibrium price. A price floor prevents a price from falling below a certain level but has no effect on prices above that level. It will have its biggest effect in creating excess supply if it is substantially above the equilibrium price. This is illustrated in the following graph.



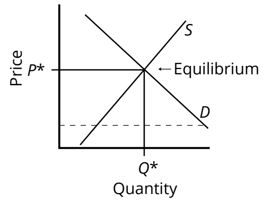
It will have a lesser effect if it is slightly above the equilibrium price. This is illustrated in the following graph.



It will have no effect if it is set either slightly or substantially below the equilibrium price since an equilibrium price above a price floor will not be affected by that price floor. The following graphs illustrate these situations.

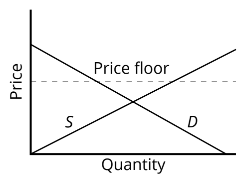


(a) Price floor slightly below equilibrium price



(b) Price floor substantially below equilibrium price

11. d. neither. A shift in demand or supply means that at every price, either a greater or a lower quantity is demanded or supplied. A price floor does not shift a demand curve or a supply curve. However, if the price floor is set above the equilibrium, it will cause the quantity supplied on the supply curve to be greater than the quantity demanded on the demand curve, leading to excess supply.



Review Questions

13. In labor markets, price is typically called a "wage."

15. Recessions and expansions in the economy can cause a shift in the demand for labor, as can changes in the price of capital (a substitute) and new production technologies.

17. Equilibrium is where the quantity of loanable funds demanded equals the quantity supplied.

19. Usury laws make lending less profitable, so they would hinder resolution of a shortage.

Critical Thinking Questions

21. Demand for the raw materials involved in production, such as steel or lumber, can be examples of derived demand.

23. For a minimum wage to be nonbinding, it must be set below the equilibrium wage. For the living wage price floor to be binding, it must be set above the equilibrium wage.

25. Borrowers would gain, as the amount of debt that could accrue was limited; lenders would lose, and their loans would become less profitable.

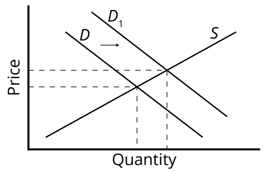
27. **a.** The price floor would result in more natural gas being supplied than the quantity demanded.

b. There would be a surplus of natural gas, with firms producing more than consumers would be willing to buy at the mandated price.

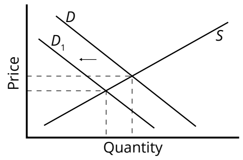
c. Policies that directly affect supply and demand are more efficient than price floors. For example, the government could shift investment away from public transportation and ethanol towards technologies that rely more heavily on natural gas to stimulate demand, or the government could stimulate supply by offering subsidies to producers.

Problems

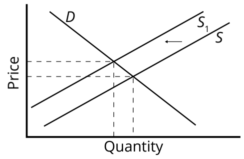
29. a. Since coal is a substitute for oil, an increase in the price of coal will shift the demand curve right, increasing wages and increasing the quantity of oil drillers employed.



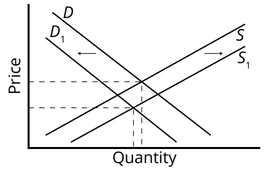
b. Oil-drilling equipment is a substitute for labor, so the demand curve for oil drillers shifts left, reducing wages and reducing employment.



c. The availability of new factory jobs shifts the supply curve for oil workers left, increasing wages and reducing the quantity of mining jobs.



d. Mandated expenditures on safety reduce the demand for labor, shifting the demand curve left, reducing wages, and reducing quantity. However, since drilling is safer, this may also cause an increase in the supply of workers as well, shifting supply to the right. The combination of both effects will reduce wages, but the effect on employment is indeterminate.



31. The equilibrium interest rate occurs where the quantity of borrowing equals the quantity of lending, here \$140 million. The equilibrium interest rate is therefore 7%.

With \$10 million less supplied at every interest rate, we see that 145–10 = 135. Thus, the new equilibrium interest rate is 8%. The interest rate has risen because there is now less money to go around for the same number of potential borrowers.

33. The drought is a supply shock that will reduce the supply of cocoa, whereas the health study will increase demand. Both of these shifts will result in higher prices, but they have opposite effects on the quantity produced and sold. Without knowing the magnitudes of the effects, we cannot say for sure what happens to the equilibrium quantity.

Chapter 5: Elasticity

Self-Check Questions

1. From Point *B* to Point *C*, prices rise from \$70 to \$80, and quantity demanded decreases from 2,800 to 2,600. So:

% change in quantity
$$= \frac{2{,}600 - 2{,}800}{(2{,}600 + 2{,}800) \div 2} \times 100$$
$$= \frac{-200}{2{,}700} \times 100 = -7.41$$

$$\text{\% change in price} = \frac{\$80 - \$70}{(\$80 + \$70) \div 2} \times 100$$
$$= \frac{10}{75} \times 100 = 13.33$$

$$\text{elasticity of demand} = \frac{-7.41\%}{13.33\%} = |-0.56|$$

The demand curve is inelastic in this area since the elasticity value is less than one.

Answer from Point *D* to Point *E*:

% change in quantity
$$= \frac{2{,}200 - 2{,}400}{(2{,}200 + 2{,}400) \div 2} \times 100$$
$$= \frac{-200}{2{,}300} \times 100 = -8.7$$

% change in price
$$= \frac{\$100 - \$90}{(\$100 + \$90) \div 2} \times 100$$
$$= \frac{10}{95} \times 100 = 10.53$$

elasticity of demand
$$= \frac{-8.7\%}{10.53\%} = |-0.83|$$

The demand curve is inelastic in this area since the elasticity value is less than one.

Answer from Point *G* to Point *H*:

% change in quantity
$$= \frac{1{,}600 - 1{,}800}{(1{,}600 + 1{,}800) \div 2} \times 100$$
$$= \frac{-200}{1{,}700} \times 100 = -11.76$$

% change in price
$$= \frac{\$130 - \$120}{(\$130 + \$120) \div 2} \times 100$$
$$= \frac{10}{75} \times 100 = 13.33$$

$$\text{elasticity of demand} = \frac{-11.76\%}{13.33\%}$$
$$= |-0.88|$$

The demand curve is inelastic in this area; however, it is approaching unit elasticity as the elasticity value gets closer to one.

3. The demand curve with constant unit elasticity is concave because at high prices, a one percent decrease in price results in more than a one percent increase in quantity. As we move down the demand curve, price drops, and the one percent decrease causes less than a one percent increase in quantity.

5. Carmakers can pass this cost along to consumers if the demand for these cars is inelastic. If the demand for these cars is elastic, the manufacturer must pay for the equipment.

7. It would mean the percentage change in quantity supplied as a result of a given percentage change in the price of gasoline.

9. The formula for cross-price elasticity is $\dfrac{\text{\% change in } Q_d \text{ for apples}}{\text{\% change in } P \text{ of oranges}}$ Multiplying both sides by % change in P of oranges yields:

$$\begin{aligned}&\text{\% change in } Q_d \text{ for apples}\\ &= \text{cross-price elasticity} \times\\ &\text{\% change in } P \text{ of oranges}\\ &= 0.4 \times (-3\%) = -1.2\%,\end{aligned}$$

or a 1.2% decrease in demand for apples.

Review Questions

11. The price elasticity of demand is the extent to which quantity demanded responds to a change in price.

13. A vertical line, since quantity will not change at all in response to a change in price

15. Quantity

17. Quantity

19. We should expect demand to be more elastic than supply in the short run since it takes time to vary production to supply more or less of a good. However, in the long run, supply is likely to be more elastic, as producers have a potentially unlimited ability to vary supply with prices.

21. The percent change in quantity demanded over the percent change in income: $E = \dfrac{\%\Delta Q}{\%\Delta I}$

23. The percent change in the quantity of labor supplied over the percent change in the wage rate: $E = \dfrac{\%\Delta Q}{\%\Delta W}$

Critical Thinking Questions

25. Due to the length of time it takes to travel across the Atlantic and the discomfort of traveling economy class, we would expect the sorts of people who purchase first class tickets to be largely unwilling to downgrade their preference for comfort, which yields an inelastic demand. Additionally, many transatlantic tickets are paid for by large companies on behalf of their employees, where price is less of a concern than for individuals traveling economy class.

27. Many internet companies fall into this model, where the addition of one more user to a website has almost zero cost. Any site that operates on a subscription service could potentially do this, at least in the short run.

29. The city should charge a toll at the unit elastic portion of the demand curve. Charging more than this will see a larger decrease in drivers that will reduce revenue, and charging less than this will not increase traffic enough to make up for the lost revenues.

31. Goods with high income elasticity could be classified as luxuries. We buy more of them as our incomes rise but are willing to give them up if our incomes fall. Goods with low income elasticities could be classified as necessities, where we don't vary our consumption much, no matter how much money we make.

Problems

33. $P = 48 - 3(5) = 33;$

$P = 48 - 3(6) = 30;$

$$E = \frac{\%\Delta Q}{\%\Delta P} = \frac{\left(\frac{6-5}{5}\right)}{\frac{30-33}{33}} = |-2.2|$$

35. $4(3) = Q = 12;$

$4(4) = Q = 16;$

$$E = \frac{\%\Delta Q}{\%\Delta P} = \frac{\left(\frac{16-12}{12}\right)}{\left(\frac{4-3}{3}\right)} = |1|$$

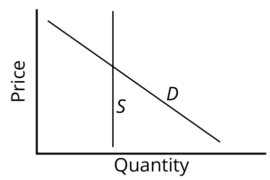
At the higher price, the elasticity should be the same.

$4(7) = Q = 28;$

$4(8) = Q = 32;$

$$E = \frac{\%\Delta Q}{\%\Delta P} = \frac{\left(\frac{32-28}{28}\right)}{\left(\frac{8-7}{7}\right)} = |1|$$

37. The supply of da Vinci paintings will be represented by a vertical line since no amount of price fluctuation can change them. Price is, therefore, wholly determined by the position of the demand curve.



39. Given that the patient will die without the aid of a dialysis machine, their demand will be almost perfectly inelastic, as they will be willing to pay any amount of money to survive. The demand curve is, therefore, a near-vertical line, and price is determined by the position of the supply curve.

Chapter 6: The Macroeconomic Perspective

Self-Check Questions

1. GDP is $C+I+G+(X-M)$,

$$\begin{aligned} \text{GDP} &= \$2{,}000 \text{ billion} \\ &\quad + \$50 \text{ billion} \\ &\quad + \$1{,}000 \text{ billion} \\ &\quad + (\$20 \text{ billion} - \$40 \text{ billion}) \\ &= \$3{,}030 \text{ billion} \end{aligned}$$

3. First, determine the real GDP in 2005 and 2020.

In 2005:

$$\text{real GDP} = \frac{13{,}036.6}{\frac{87.4}{100}} = 14{,}916$$

In 2020:

$$\text{real GDP} = \frac{20{,}893.7}{\frac{113.6}{100}} = 18{,}392.3$$

Then, calculate the percent change in real GDP from 2005 to 2020.

$$\frac{(18{,}392.3 - 14{,}916)}{14{,}916} \times 100 = 23.31\%$$

5. Yes, both scenarios are possible depending on whether GDP is growing faster or slower than the population. If the population grows faster than GDP, GDP increases, while GDP per capita decreases. If GDP falls, but population falls faster, then GDP decreases, while GDP per capita increases.

7. **a.** A more polluted environment would reduce the broad standard of living but not be counted in GDP, so a rise in GDP would overstate the standard of living.

b. A lower crime rate would raise the broad standard of living but not be counted directly in GDP, so a rise in GDP would understate the standard of living.

c. A greater variety of goods would raise the broad standard of living but not be counted directly in GDP, so a rise in GDP would understate the standard of living.

d. A decline in infant mortality would raise the broad standard of living but not be counted directly in GDP, so a rise in GDP would understate the standard of living.

Review Questions

9. Durable goods, nondurable goods, services, structures, and the change in inventories

11. Counting the same production twice will result in a reported GDP that is higher than the actual amount of production. This occurs if the manufacturing inputs are counted as well as the final product. For example, GDP counts the sale of a hamburger sold at a restaurant but not the sales of the bun, meat, and ketchup sold to the restaurant because all those inputs are counted at the final point of purchase.

13. Select a base year and measure changes in the value of the currency with respect to that year. The base year will have a price level of 100, and each other year's price level will be set accordingly. For example, if prices are 50% higher than in the base year, the price level will be 150. In short, to convert from nominal to real terms, for each year, divide the nominal figure by the price level and multiply by 100.

15. GDP is typically measured in a country's own currency, and countries have vastly different populations, making the comparisons not very informative.

Critical Thinking Questions

17. GDP as a static measure does not tell us about the pattern of economic growth, how well each individual in the economy is doing, nor the level of income inequality.

19. Increased population and increases in technology that allow workers to be more productive are just a couple of the many reasons that U.S. GDP is higher today.

21. Market exchange rates are subject to strong fluctuation, so depending on the time at which the comparison was made, you could come up with dramatically different levels of GDP that do not reflect the true economic well-being of the country.

23. Production of goods and services that is measured by GDP also generates pollution and other environmental damages. Conceptually, we should deduct the costs of all environmental damages from the calculation of GDP to obtain a "green" GDP. In practice, it is difficult to measure those costs, so the easiest solution may be to deduct all expenditures for pollution control from GDP.

Problems

25. It would be best to lend money in 1981, when the real interest rate is 18.9% – 10.3% = 8.6%. It would be best to borrow money in 1974, when the real interest rate is 10.8% – 11.0% = –0.2%

27. Ethiopia: $\frac{\$8 \text{ billion}}{55 \text{ million}} = \$145.46$

Costa Rica:

$\frac{\$9 \text{ billion}}{4 \text{ million}} = \$2,250.00$

Costa Rica's per capita GDP is much higher than Ethiopia's.

29. First, calculate the GDP per capita in CZK.

$$\text{GDP per capita} = \frac{1{,}800 \text{ billion}}{20 \text{ million}} = \text{CZK } 90{,}000$$

Then, divide by the exchange rate to get the GDP per capita in USD.

$$\frac{\text{CZK } 90{,}000}{\text{CZK } 20} = \text{USD } 4{,}500$$

The GDP per capita of the Czech Republic in U.S. dollars is USD 4,500.

Chapter 7: Economic Growth

Self-Check Questions

1. The Industrial Revolution refers to the widespread use of power-driven machinery and the economic and social changes that resulted in the first half of the 1800s. Ingenious machines—the steam engine, the power loom, and the steam locomotive—performed tasks that would have taken vast numbers of workers to do. The Industrial Revolution began in Great Britain and soon spread to the United States, Germany, and other countries.

3. Yes. Since productivity is output per unit of input, we can measure productivity using GDP (output) per worker (input).

5. The determinants of growth are technology, capital deepening, and investments in human capital. What seems to be more important is how they are combined.

7. Public education, low investment taxes, funding for infrastructure projects, and special economic zones

9. Relatively old technologies benefit low-income countries compared to high-income countries, who must invent new technologies to receive a benefit.

11. Productivity growth from new advances in technology will not slow because the new methods of production will be adopted relatively quickly and easily, at very low marginal cost. Also, countries that are seeing technology growth usually have a vast and powerful set of institutions for training workers and building better machines, which allows the maximum amount of people to benefit from the new technology. These factors have the added effect of making additional technological advances even easier for these countries.

Review Questions

13. Over the long run, a 2% difference in economic growth rates can be extremely significant, so the nation should be reasonably concerned about this.

15. As workers produce more, their wages will rise, and they will have more disposable income for consumption, leading to a rise in GDP per capita.

17. Capital deepening is when capital is increasing relative to the number of workers, which allows workers to become more productive.

19. High-income countries generally benefit most from growth in human capital and technology innovations, whereas middle- and lower-income countries benefit more from physical capital since a little mechanization can go a long way for countries that are still developing.

Critical Thinking Questions

21. Some models show that as a country industrializes, it experiences very high rates of growth that eventually flatten out. In all probability, these countries are simply catching up to the U.S. and will see their growth rates decline as they fully industrialize.

23. Answers will vary.

25. There could be many various ramifications depending on the situation, but for less developed countries, one possibility is the difficulty in managing households and raising children in an environment where both providers are working. There are also social norms and prejudice to be overcome that could make such a strategy less effective than it might otherwise be.

27. Technology refers to any sort of process that improves productivity. It need not be mechanical or electronic to be considered technology.

29. Increased education will limit obesity, as well as increased wealth that allows us to afford healthier food and more free time for physical activity.

Problems

31. 3% for 10 years:

$$12{,}000 \text{ euros} \times 1.03^{10}$$
$$= 16{,}127.00 \text{ euros}$$

3% for 30 years:

$$12{,}000 \text{ euros} \times 1.03^{30}$$
$$= 29{,}127.15 \text{ euros}$$

6% for 30 years:

$$12{,}000 \text{ euros} \times 1.06^{30}$$
$$= 68{,}921.89 \text{ euros}$$

33. If M is the productivity of the Mexican worker initially, then at the end of 25 years, the Mexican worker will have a productivity of $M \times 1.06^{25} = 4.3M$.

The New Zealand worker will have productivity of $8M \times 1.02^{25} = 13.1M$.

At the end of the 25 years, the average worker in New Zealand will be about three times more productive than the average worker in Mexico.

Chapter 8: Unemployment

Self-Check Questions

1. **a.** The population is divided into those in the labor force and those not in the labor force. Thus, the number of adults not in the labor force is $237.8 - 153.9 = 83.9$ million.

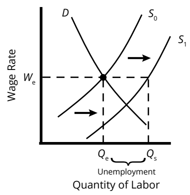
b. $\dfrac{139.1}{237.8} \times 100 = 58.5\%$

c. Since the labor force is divided into employed persons and unemployed persons, the number of unemployed persons is $153.9 - 139.1 = 14.8$ million. The percentage of the population that is unemployed is $\dfrac{14.8}{237.8} \times 100 = 6.2\%$.

d. $\dfrac{83.9}{237.8} \times 100 = 35.3\%$

3. Over the long term, the U.S. unemployment rate has remained at basically the same level. It rises during periods of recession and depression but ultimately returns to a range of 4% to 6%.

5. Because of the influx of women into the labor market, the supply of labor shifts to the right. Since wages are sticky downward, the increased supply of labor causes an increase in people looking for jobs (Q_s) but no change in the number of jobs available (Q_e). As a result, unemployment increases by the amount of the increase in the labor supply as shown in the following graph.



7. New entrants to the labor force, whether from college or otherwise, are counted as frictionally unemployed until they find a job.

Review Questions

9. The unemployment rate is the number of unemployed people divided by the labor force. The labor force participation rate is the number of people in the labor force divided by the total population.

11. All three of these examples count as employed since they are working in some sort of job.

13. The labor force participation rate is found by adding the number of employed people and the number of unemployed people, then dividing by the total adult population. When employed workers become unemployed, the labor force participation rate remains unchanged. When unemployed workers become reclassified as discouraged, the labor force participation rate declines.

15. A person is employed if they are working, even part-time. A person is unemployed if they are actively looking for a job but are unable to find one.

17. U.S. unemployment rates have generally been lower than in other high-income countries.

19. Cyclical unemployment rises during a contraction and falls during an expansion of the economy.

21. Contracts often prevent wages from adjusting quickly, and workers have a strong resistance to wage decreases, so downward wage adjustments are politically difficult for firms to manage rapidly.

23. The natural rate of unemployment is determined mainly by frictional unemployment, which is the unemployment that occurs when moving from job to job.

25. In general, the natural rate of unemployment should remain roughly the same over time, barring any drastic reforms to public policy.

27. Structural unemployment occurs when the skills of workers do not match what is demanded in the economy. For example, many workers in Detroit found themselves structurally unemployed when the American automobile industry fell into decline.

29. **a.** Cyclical **d**. Structural

b. Structural **e**. Structural

c. Frictional

Critical Thinking Questions

31. No, not necessarily. If unemployed workers become discouraged and drop out of the labor force, the unemployment rate will decline despite the bad economic conditions.

33. Hidden unemployment is usually higher when the unemployment rate is high because this indicates a generally weak labor market.

35. Because there are significant costs to recruiting and training new employees, firms will want to be sure that a change in sales, either positive or negative, will last before they lay off workers or hire new ones. This causes a lagged response. In addition, some firms have long-term contracts with their employees that prevent them from laying off workers at will.

37. The workers who are able to keep their jobs are decidedly better off with sticky wages in place, although those who do lose their jobs may not agree. Workers generally prefer the certainty of long-term contracts that prevent wages from falling because they do not personally face the unemployment consequences of their wages being sticky.

39. The natural rate of unemployment mainly drives this difference, as public policies in European countries more strongly favor labor unions and high minimum wages that increase the natural unemployment rate.

41. A natural unemployment rate of zero would mean that no one in the economy is looking for a job. This would make starting a new business impossible and would not be a good goal to pursue.

Problems

43. The unemployment rate is $\frac{500,000}{5,500,000} \times 100 = 9.09\%$.

The labor force participation rate is $\frac{5,500,000}{8,000,000} \times 100 = 68.75\%$.

45. As workers leave the labor force to retire, the supply of labor shifts left, driving up wages and reducing the number of people employed. The unemployment rate may drop, however, as baby boomers leave the labor force.

Chapter 9: Inflation

Self-Check Questions

1.

Items	Qty.	2016		2017		2018		2019	
		Price	Amount Spent	Price	Amount Spent	Price	Amount Spent	Price	Amount Spent
Bananas	12	$0.57	$6.84	$0.56	$6.72	$0.57	$6.84	$0.57	$6.84
Grapes	2	$2.76	$5.52	$2.64	$5.28	$2.58	$5.16	$2.45	$4.90
Grapefruit	3	$1.16	$3.48	$1.28	$3.84	$1.35	$4.05	$1.35	$4.05
Oranges	7	$1.25	$8.75	$1.34	$9.38	$1.41	$9.87	$1.37	$9.59
Total	-	-	$24.59	-	$25.22	-	$25.92	-	$25.38

3. The inflation rate is calculated as the percentage change in the price index from year to year.

Year	Price Index	Inflation Rate
2016	94.87	-
2017	97.30	$\frac{(97.30-94.87)}{94.87}\times 100 = 2.56\%$
2018	100.00	$\frac{(100-97.30)}{97.30}\times 100 = 2.77\%$
2019	97.92	$\frac{(97.92-100)}{100}\times 100 = -2.08\%$

5. Since the CPI measures the prices of the goods and services purchased by the typical urban consumer, it measures the prices of things that people buy with their paychecks. For that reason, the CPI would be the best price index to use for this purpose.

7. Borrowers benefit from high inflation because the amount of money they have to pay back is worth less than it used to be.

9. Because the mortgage has an adjustable rate, the rate should fall by 3%, the same as inflation, to keep the real interest rate the same.

Review Questions

11. Index numbers are easier to compare to one another, as the value of a dollar will change over time.

13. The inflation rate may be overstated because the basket of goods assumes that people will not substitute for cheaper alternatives when the prices of goods rise.

15. As measured by CPI, inflation in the last decade has typically been between 1% and 3%.

17. Deflation is negative inflation that occurs when most of the prices in the economy are falling.

19. Indexing is when some rate of payment is set to increase automatically at the same pace as inflation.

Critical Thinking Questions

21. For one thing, it does not account for a consumer's tendency to switch to a substitute good when the price of one type of fruit rises. The inflation rate might also fail to account for changes in the quality of fruit over time.

23. The GDP deflator is an aggregate of the entire economy, which is not representative of what households spend their money on.

25. One example might be a decision to index minimum wages to inflation. A minimum wage worker probably faces costs that are more represented by the CPI than by the GDP deflator.

27. The U.S. has been more careful about using monetary policy to inflate its currency than many other countries have been. This is probably in part because the Federal Reserve is shielded from the political process, unlike most other countries. Sometimes, countries have needed to print money to pay off debt, which we have not had to do yet.

29. The government is the biggest borrower of money, so it would likely benefit the most from inflation.

31. There is no perfect measure for inflation, so perfect indexing is not possible. No one metric can fully capture the complex nature of the price system, and you cannot index to multiple metrics at the same time.

Problems

33. The first index would look like this:

Year	Price Index	Inflation Rate
1	100.00	-
2	$\frac{£970}{£940} \times 100 = 103.19$	$\frac{(103.19 - 100)}{100} \times 100 = 3.19\%$
3	$\frac{£1{,}000}{£940} \times 100 = 106.38$	$\frac{(106.38 - 103.19)}{103.19} \times 100 = 3.09\%$
4	$\frac{£1{,}070}{£940} \times 100 = 113.83$	$\frac{(113.83 - 106.38)}{106.38} \times 100 = 7.00\%$

The second index would look like this:

Year	Price Index	Inflation Rate
1	$\frac{£940}{£1{,}070} \times 100 = 87.85$	-
2	$\frac{£970}{£1{,}070} \times 100 = 90.65$	$\frac{(90.65 - 87.85)}{87.85} \times 100 = 3.19\%$
3	$\frac{£1{,}000}{£1{,}070} \times 100 = 93.46$	$\frac{(93.46 - 90.65)}{90.65} \times 100 = 3.09\%$
4	100.00	$\frac{(100 - 93.46)}{93.46} \times 100 = 7.00\%$

Though the two price indices have different numbers, if you compute the percent change of each, you will see that the inflation rates are the same for both indices.

35. **a.** Largely unaffected, since COLAs allow wages to increase with inflation

b. Hurt, since their cash would be worth less

c. Hurt, since higher inflation lowers the real interest rate

d. Hurt, since their wages will be worth less

Chapter 10: The International Trade and Capital Flows

Self-Check Questions

1. The stock and bond values will not show up in the current account balance. However, the dividends from the stocks and the interest from the bonds will show up as an import to income in the current account balance.

3. **a.** Money flows out of the Mexican economy.

b. Money flows into the Mexican economy.

c. Money flows out of the Mexican economy.

5. $\frac{\$631\text{ billion}}{\$1{,}991\text{ billion}} \times 100 = 31.7\%$

7. The trade balance is the difference between exports and imports. The current account balance includes this number (whether it is a trade balance or a trade surplus), but it also includes international flows of money from global investments.

9. A trade deficit is determined by a country's level of private and public savings and the amount of domestic investment.

11. Incomes fall during a recession, and consumers buy fewer goods, including imports.

13. Foreign investors worried about repayment, so they began to pull money out of these countries. The rapid departure of that foreign capital staggered the banking systems and economies of these countries, plunging them into deep recessions.

Review Questions

15. A trade deficit occurs when imports exceed exports. A trade surplus occurs when exports exceed imports.

17. The U.S. trade balance has usually been in deficit.

19. The demand for capital and the supply of capital

21. Whether a country experiences a trade deficit or a trade surplus depends on the relationship between domestic saving and investment. If a country is investing more than it's saving, financial capital inflows will finance the investment, and the trade balance will go into deficit. This is not a bad thing since the investment will increase future income. If a country runs a larger budget deficit, the trade balance will also go into deficit, but this time there may be no additional future income. This would be a bad thing.

23. A large number of trading partners nearby, the overall size of the domestic economy, and political restrictions on trade are three factors that affect the relative size of a country's share of trade.

Critical Thinking Questions

25. To have a trade surplus means that exports exceed imports, so capital flows out of the country rather than into it. To be a net importer of capital requires a trade deficit.

27. Yes, because it depends on the income of other countries being used to purchase its goods and services.

29. It is generally better to be a lender, as the country will be able to earn interest payments on its loans.

31. It is more likely that the economy is in recession since the prices of its goods and services would be falling and attracting foreign buyers.

33. There is no obvious pattern. It will depend on the internal features of a country that makes it likely to be either a net exporter or a net importer.

Problems

35. **a.** The merchandise trade balance is the following:
exports of goods – imports of goods
= £192 billion – £225 billion
= –£33 billion.

b. The current account balance is the following:
balance of goods + balance of services + balance of income payments + balance of unilateral payments
= (£192 billion – £225 billion)
+ (£77 billion – £66 billion)
+ (£140 billion – £131 billion)
+ (£16 billion – £23 billion)
= –£20 billion.

37. **a.** Country A:

$$S+(M-X)=I+(G-T)$$
$$700+(M-X)=800+(600-0)$$
$$(M-X)=700$$

Country B:

$$S+(M-X)=I+(G-T)$$
$$500+(M-X)=400+(350-500)$$
$$(M-X)=250$$

Country C:

$$S+(M-X)=I+(G-T)$$
$$600+(M-X)=450+(650-500)$$
$$(M-X)=0$$

b. Country A has a trade surplus. Country B has a trade deficit. Country C has balanced trade.

c. Country A is a borrower, as it runs a government budget deficit. Country B is a lender, as it runs a government budget surplus. Country C has a balanced budget and is neither a borrower nor a lender.

Chapter 11: The Aggregate Demand/Aggregate Supply Model

Self-Check Questions

1. In order to supply goods, suppliers must employ workers, whose incomes increase as a result of their labor. They use this additional income to demand goods of an equivalent value to those they supply.

3. Higher input prices make output less profitable, decreasing the desired supply. This is shown graphically as a leftward shift of the aggregate supply curve.

5. Immigration reform as described should increase the labor supply, shifting *AS* to the right, leading to a higher equilibrium GDP and a lower price level.

7. An increase in the value of the stock market would make individuals feel wealthier and, thus, more confident about their economic situation. This would likely cause an increase in consumer confidence, leading to an increase in consumer spending, shifting the *AD* curve to the right. The result would be an increase in the equilibrium level of GDP and an increase in the price level.

9. Tax cuts increase consumer and investment spending, depending on where the tax cuts are targeted. This would shift *AD* to the right, so if the tax cuts occurred when the economy was in recession (and GDP was less than potential), the tax cuts would increase GDP and "lead the economy out of recession."

11. A smaller labor force would be reflected in a leftward shift of *AS*, leading to a lower equilibrium level of GDP and a higher price level.

13. Since the *AS* curve is vertical in the neoclassical zone, unless the economy is bordering the intermediate zone, a decrease in *AS* will cause a decrease in the price level, but no effect on real economic activity (i.e., real GDP or employment).

Review Questions

15. Say's law states that supply creates its own demand.

17. Neoclassical economists tend to believe in Say's law.

19. The horizontal axis shows the aggregate level of output, while the vertical axis shows the aggregate price level.

21. Consumption, investment, net exports, and government spending

23. Since the economy is producing an output far below potential GDP, it is easy to increase production in response to a small price change. Since all of the economy's resources are already fully employed, it becomes more difficult to increase supply further, even in response to a large price change.

25. A natural disaster or lack of availability of inputs could shift the *AS* curve to the left, while a new production technology could shift it to the right.

27. Stagflation occurs when an economy sees reductions in output and rising prices at the same time.

29. A shift to the right would increase prices and quantity, while a shift to the left will decrease prices and quantity.

31. Cyclical unemployment is illustrated by how close the equilibrium is to potential output.

33. An increase in net exports can increase aggregate demand, shifting it to the right and resulting in increased outputs and employment, as well as higher prices.

35. The neoclassical zone of the *AS* curve is the vertical portion of the curve, where shifts have little effect on output.

Critical Thinking Questions

37. These two perspectives are contradictory in terms of policy positions and cannot both be held simultaneously.

39. This would make production more expensive and result in a leftward shift of the *AS* curve, causing higher prices, lower output, and lower employment.

41. This would cause a shift to the right of the *AS* curve, resulting in lower prices, higher output, and higher employment.

43. In the short run, the *AD* curve would shift left and result in reduced prices, output, and employment. In the long run, it would most likely result in a rightward shift of supply as firms take advantage of the increased availability of loanable funds to make investments in capital and technology. This leads to lower prices, higher output, and more employment.

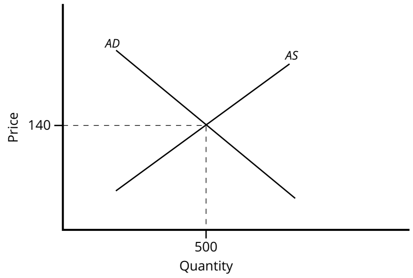
45. The tax cut will shift *AD* to the right, while the pessimism of businesses will shift *AS* to the left, resulting in an ambiguous change in output and employment but a certain change that causes higher prices.

47. The Keynesian zone of the *AS* curve assumes that an economy is producing at a level below potential GDP, so shifts in supply are reflected mainly by output rather than prices.

49. Answers will vary.

Problems

51. **a.** The equilibrium occurs at a price level of 140.



b. Unemployment would be high because the economy is producing at well below potential GDP, as we can see from the flat shape of the *AS* curve at equilibrium.

c. Concerns about inflation should be relatively low because small increases in price lead to high increases in output and, thus, employment.

d. The new equilibrium would occur at a price level of 120.

e. Prices, output, and employment will all decline.

Chapter 12: The Keynesian Perspective

Self-Check Questions

1. **a.** *AD* will shift right and may cause inflation if it goes beyond potential GDP.

b. *AD* will shift right and may cause inflation if it goes beyond potential GDP.

c. *AD* will shift right and may cause inflation if it goes beyond potential GDP.

d. *AD* will shift left and may cause recession if it goes beyond potential GDP.

e. Demand for cheaper imports increases reducing demand for domestic products. *AD* will shift left and may cause a recession.

3. An inflationary gap is the result of an increase in aggregate demand when the economy is at potential output. Since the *AS* curve is vertical at potential GDP, any increase in AD will lead to a higher price level (i.e., inflation) but not a higher real GDP. This is easy to see if you draw AD_1 to the right of AD_0.

5. A decrease in energy prices, a positive supply shock, would cause the *AS* curve to shift right, yielding more real GDP at a lower price level. This would shift the Phillips curve toward the origin, meaning the economy would experience lower unemployment and a lower inflation rate.

7. The three problems center on the government's ability to estimate potential GDP, the decision to influence aggregate demand through tax changes or changes in government spending, and the lag time that occurs as Congress and the president attempt to pass legislation.

Review Questions

9. Changes in income tax rates or restrictions on free trade could cause aggregate demand to shift.

11. Since wages and prices cannot adjust quickly, markets cannot come into equilibrium, and labor surpluses (unemployment) result.

13. The short-run tradeoff between inflation and unemployment

15. Keynesians prescribe increasing aggregate demand through government spending during a recession and reducing aggregate demand through reductions in spending during inflation.

Critical Thinking Questions

17. From a Keynesian perspective, the inexpensive goods the U.S. imports from China detract from aggregate demand and reduce the amount of U.S. economic output and employment.

19. Wages tend to be stickier in the downward direction because employees are often unwilling to take a pay cut. There is a strong psychological resistance to wage decreases, whereas wage increases have no such issue.

21. The 1970s taught us that we can have both high inflation and high unemployment. More recently, however, we have seen relatively low inflation accompanying high unemployment, so the Phillips curve may be useful.

23. Some policies have included subsidies to struggling industries, such as automobiles and banks, while others have involved direct government spending on infrastructure projects, as well as extended unemployment benefits. Policy makers have encountered resistance to these ideas both on the grounds of fairness and worries over the widening budget deficit.

Chapter 13: The Neoclassical Perspective

Self-Check Questions

1. No, this statement is false. It would be more accurate to say that rational expectations seek to predict the future as accurately as possible, using all past experience as a guide. Adaptive expectations are largely backward-looking; that is, they adapt as experience accumulates but without attempting to look forward.

3. The statement is accurate. The theory of rational expectations can be considered a version of neoclassical economics because it argues that potential GDP and the rate of unemployment are shaped by market forces as wages and prices adjust. However, it is an extreme version because it argues that this adjustment takes place very quickly. Other theories, like adaptive expectations, suggest that adjustment to the neoclassical outcome takes a few years.

Review Questions

5. Neoclassical economics focuses on the long term, where all factors have time to adjust to changing conditions.

7. The long-run aggregate supply curve is vertical because, in the long run, output depends on the factors of production, not on prices.

9. The Keynesian would argue that aggregate demand needs to be stimulated, whereas the neoclassical economist would argue that the economy is undergoing a necessary correction and should be left alone.

11. They focus more on inflation. Attempts to correct cyclical unemployment will only result in inflation, whereas inflation itself can be tremendously damaging to an economy.

13. Aggregate demand will not determine output, only changes in the price level.

15. No, a neoclassical economist would not advise such a policy for fear that it would simply result in a higher price level without corresponding increases in output.

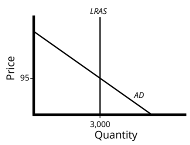
Critical Thinking Questions

17. If people have rational expectations, they will expect prices to fall immediately, so prices will fall, minimizing the duration of recessions. In a world of perfect rational expectations, the economy will exhibit no business cycles at all, always operating at potential GDP and full employment.

19. Keynesians criticized the package for not being large enough to have the desired effect. Neoclassical economists criticized it for having the potential to cause vast amounts of inflation and, since it is not possible to boost long-run output through spending, create another bubble just like the one that caused the Great Recession.

Problems

21. a.



b. Equilibrium output is 3,000, and the price level is 95.

c. Equilibrium output remains at 3,000.

d. Equilibrium output remains at 3,000.

e. Shifts in aggregate demand cannot affect the output level but could be used to alter the price level.

Chapter 14: Money and Banking

Self-Check Questions

1. Within the walls of the casino, chips fit the definition of money; that is, they serve as a medium of exchange, a unit of account, and a store of value. Chips do not work as money once you leave the casino, but many kinds of money do not work well in other areas. For example, it is hard to spend money from Turkey or Brazil at a U.S. supermarket or movie theater.

3. The currency and checks in M1 are easiest to spend. It is harder to spend M2 directly although if there is an ATM, you can turn M2 from your savings account into M1 quite quickly. If your answer is about credit cards, then you are really talking about spending M1 from the account of the credit card company, which you will repay later when your credit card bill comes due.

5. A bank's assets include cash held in its vaults, but assets also include monies that the bank holds at the Federal Reserve Bank (called reserves), loans that are made to customers, and bonds.

Review Questions

7. A unit of account, a medium of exchange, a store of value, and a standard of deferred payment

9. This is when two parties discover that each has something the other wants, and a rate of exchange can be agreed upon.

11. M2 measures savings and money market accounts in addition to M1.

13. A balance sheet shows all of a bank's assets and liabilities.

15. The net worth of a bank is the bank's assets minus liabilities.

17. Liabilities must be paid off on demand, while assets take time to accrue.

19. Banks create money by loaning out deposits to borrowers, creating a multiplier effect on the money supply.

Critical Thinking Questions

21. Commodity money can take any number of forms, with gold and silver being the most popular, but this does not exclude other kinds as well. Technology has made digital currency possible, a new idea with interesting potential.

23. The Federal Reserve is responsible for conducting the nation's monetary policy. To do that, it needs to keep track of how much money is in circulation. The two primary measures of the supply of money are M1 and M2. The money supply is correlated with total expenditure in the economy, which affects the level of economic activity and the rate of inflation. Since the purpose of monetary policy is to influence economic activity and inflation, the Federal Reserve tracks M1 and M2.

25. Individuals would view a bank deposit as an asset since they can draw upon it at any time and a loan as a liability since they have to repay it. A bank takes the opposite view since it has to pay deposits back but can collect on loans.

27. Since a smaller portion of each deposit is being lent out, the multiplier will decrease. This means fewer loans given and less economic growth.

Problems

29. Neither of these measures changes if there are no loans. However, with loans, M1 and M2 can increase through multiple loans created by the \$100 deposit. The increase in M1 and M2 would be equal to:

$$\left(\$100 - \left(\$100 \times \text{reserve requirement}\right)\right) \times \text{money multiplier}$$

In other words, if the reserve requirement was 20%, the money multiplier would be:

$$\frac{1}{0.2} = 5$$

Thus, the increase in the money supply would be:

$$\left(\$100 - \left(\$100 \times 0.2\right)\right) \times 5 = \$400$$

Therefore, M1 and M2 could grow by a total of \$400 as a result of putting \$100 into the banking system.

31. **a.** Assets: \$20 million in reserves. Liabilities: \$20 million in deposits.

Assets		Liabilities	
Reserves	\$20 million	Deposits	\$20 million
Total	\$20 million	Total	\$20 million

b. Assets: \$1 million in reserves and \$19 million in loans. Liabilities: \$20 million in deposits.

Assets		Liabilities	
Reserves	\$1 million	Deposits	\$20 million
Loans	\$19 million		
Total	\$20 million	Total	\$20 million

c. The money multiplier is the inverse of the reserve requirement, which in this case is 20, so the \$19 million in deposits will increase the money supply by \$380 million:

$$\left(20{,}000{,}000 - \left(20{,}000{,}000 \times \frac{1}{20}\right)\right) \times 20 = 380{,}000{,}000$$

Chapter 15: Monetary Policy and Bank Regulation

Self-Check Questions

1. Longer terms insulate the Board from political forces. Since the presidency can potentially change every four years, the Federal Reserve's independence prevents drastic swings in monetary policy with every new administration and allows policy decisions to be made only on economic grounds.

3. The fear and uncertainty created by the suggestion that a bank might fail can lead depositors to withdraw their money. If many depositors do this at the same time, the bank may not be able to meet their demands and will, indeed, fail.

5. An increase in reserve requirements would reduce the supply of money since more money would be held in banks rather than circulating in the economy.

7. An increase in the amount of available loanable funds means that there are more people who want to lend. They, therefore, bid the price of borrowing (the interest rate) down.

9. If consumer optimism changes, spending can speed up or slow down. This could also happen in a case where consumers need to buy a large number of items quickly, such as in a situation of national emergency.

Review Questions

11. Buying and selling bonds on the open market, changing the discount rate, and altering reserve requirements

13. The deposits held by banks are being insured, and the insurance premiums are paid by the banks themselves.

15. The central bank is the lender of last resort, ensuring that funds are available even if other banks are unwilling to offer loans.

17. Buying bonds on the open market causes an increase in the money supply.

19. Lowering the discount rate reduces the price of borrowing, so banks borrow more reserves, and the money supply increases as the reserves are lent out.

21. Loose monetary policy lowers interest rates, while tight monetary policy raises them.

23. Contractionary monetary policy would be the appropriate response. Reducing the money supply would raise interest rates and prevent prices from rising so quickly.

25. Expansionary monetary policy would stimulate demand and boost employment to hasten a recovery from the recession.

27. The velocity of the money supply is the rate at which money changes hands in the economy.

29. The central bank decides on a desirable inflation rate and expands or contracts the money supply until that rate is observed.

Critical Thinking Questions

31. Monetary policy is more agile than fiscal policy because it does not have to be approved by Congress. On the other hand, monetary policy tends to be more inflationary than fiscal policy.

33. Banks could either sell off some assets, such as government bonds, or begin issuing fewer loans and foreclosing on delinquent loans.

35. Rule-based monetary policy limits changes in the money supply based on some predefined rule, such as increasing the money supply 1% per year or increasing it at the same rate as GDP growth, whereas discretionary monetary policy allows for more flexibility in response to unforeseen events. Advocates for rule-based monetary policy argue that the decision made by central bankers can be overreactions based on fear or public opinion and that a steady, predictable policy is preferable. Advocates for discretionary policy claim that rules cannot account for unforeseen changes in the economy, and the central bankers need to be able to respond using their own judgment.

Problems

37. The new balance sheet will read:

Assets		Liabilities	
Reserves	$30	Deposits	$100
Bonds	$50 − $10 = $40	Net Worth	$30
Loans	$50 + $10 = $60		

39. Nominal GDP will increase by (\$100 billion × 3) = \$300 billion

41. **a.** $400 \times V = 1{,}500$; $V = 3.75$

b. Velocity will have increased: $400 \times V = 1{,}600$; $V = 4$

c. $350 \times V = 1{,}500$; $V = 4.29$

Chapter 16: Exchange Rates and International Capital Flows

Self-Check Questions

1. **a.** The British use the pound sterling, while Germans use the euro, so a British exporter will receive euros from export sales, which will need to be exchanged for pounds. A stronger euro will mean more pounds per euro, so the exporter will be better off. In addition, the lower price for German imports will stimulate demand for British exports. For both these reasons, a stronger euro benefits the British exporter.

b. The Dutch use euros, while the Chileans use pesos, so the Dutch tourist needs to turn euros into Chilean pesos. An increase in the euro means that the tourist will get more pesos per euro. Consequently, the Dutch tourist will have a less expensive vacation than planned and be better off.

c. The Greeks use euros, while the Canadians use dollars. An increase in the euro means it will buy more Canadian dollars. As a result, the Greek bank will see a decrease in the cost of the Canadian bonds, so it may purchase more bonds. Either way, the Greek bank benefits.

d. Since both the French and Germans use the euro, an increase in the euro, in terms of other currencies, should have no impact on the French exporter.

3. Lower U.S. interest rates make U.S. assets less desirable compared to assets in the European Union. We should expect to see a decrease in demand for dollars and an increase in supply of dollars in foreign currency markets. As a result, we should expect the dollar to depreciate compared to the euro.

5. The problem occurs when banks borrow foreign currency but lend in domestic currency. Since banks' assets (loans they make) are in domestic currency, while their debts (money they borrow) are in foreign currency, when the domestic currency declines, their debts grow larger. If the domestic currency falls substantially in value, as happened during the Asian financial crisis, then the banking system could fail. This problem is unlikely to occur for U.S. banks because, even when they borrow from abroad, they tend to borrow dollars. Remember, there are trillions of dollars in circulation in the global economy. Since both assets and debts are in dollars, a change in the value of the dollar does not cause banking system failure the way it can when banks borrow in foreign currency.

7. A contractionary monetary policy, by driving up domestic interest rates, would cause the currency to appreciate. The higher value of the currency in foreign exchange markets would reduce exports since, from the perspective of foreign buyers, they are now more expensive. The higher value of the currency would similarly stimulate imports because they would now be cheaper from the perspective of domestic buyers. Lower exports and higher imports cause net exports (*M*–*X*) to fall, which causes aggregate demand to fall. The result would be a decrease in GDP working through the exchange rate mechanism, reinforcing the effect contractionary monetary policy has on domestic investment expenditure. However, cheaper imports would stimulate aggregate supply, bringing GDP back to potential, though at a lower price level.

9. Variations in exchange rates, because they change import and export prices, disturb international trade flows. When trade is a large part of a nation's economic activity, the government will find it more advantageous to fix exchange rates to minimize disruptions of trade flows.

Review Questions

11. Tourists to the U.S. and foreign investors who want to invest in American companies will need to buy dollars, while tourists traveling abroad and importers of foreign goods will want to sell dollars in exchange for other currencies.

13. Hedging involves making longer-term contracts with fixed exchange rates to protect oneself from unexpected changes in the value of a currency.

15. Yes. People who expect a stronger exchange rate will buy dollars in anticipation of rising prices, and this increased demand will actually cause the exchange rate to rise.

17. Yes. A higher inflation rate causes the exchange rate to depreciate since people buying the currency know that it will be worth less in the future and are not willing to pay as high a price.

19. The exchange rate determines to a large extent the amount of imports and exports in a country, which have an effect on the money supply and GDP; additionally, the exchange rate affects flows of financial capital into or out of the country, which affect financial markets and interest rates as well as the money supply. For these reasons, the central bank wants to be aware of changes to the exchange rate.

21. A floating exchange rate allows relative prices of currencies to fluctuate freely. A soft exchange rate maintains a certain range of acceptable exchange rates. A hard peg maintains a single, fixed exchange rate, and dollarization is the practice of adopting another country's currency completely.

Critical Thinking Questions

23. A nation might dollarize to facilitate a large number of transactions with the country issuing the parent currency or to guard against wild currency fluctuations by standardizing to a stable, well-known currency.

25. A higher expected exchange rate should result in lower bond yields since the higher demand for bonds will drive the interest rate down.

27. No. Exchange rates will be different between different trading partners, and the balance of trade will differ as well.

29. Mexico would probably benefit from a soft peg exchange rate to make sure international prices do not fluctuate too much but still allow some room for inflation.

Problems

31. The pound was stronger than the dollar and appreciated from 1996 to 1998.

Chapter 17: Government Budgets and Fiscal Policy

Self-Check Questions

1. The government borrows funds by selling Treasury bonds, notes, and bills.

3. Yes, a nation can run budget deficits and see its debt-to-GDP ratio fall. In fact, this is not uncommon. If the deficit is small in a given year, then the addition to debt in the numerator of the debt-to-GDP ratio will be relatively small, while the growth in GDP is larger, so the debt-to-GDP ratio declines. This was the experience of the U.S. economy from the end of World War II to about 1980. It is also theoretically possible, although not likely, for a nation to have a budget surplus and see its debt-to-GDP ratio rise. Imagine the case of a nation with a small surplus in a recession year, when the economy shrinks. It is possible that the decline in the nation's debt, in the numerator of the debt-to-GDP ratio, would be proportionally less than the fall in the size of GDP, so the debt-to-GDP ratio would rise.

5. Corporate income tax on their profits, individual income tax on their salary, and payroll tax taken out of the wages they pay themselves

7. The tax is regressive because wealthy income earners are not taxed at all on income above $147,000. As a percent of total income, the Social Security tax hits lower-income earners harder than wealthier individuals.

9. To increase employment

11. Automatic stabilizers take effect very quickly, whereas discretionary policy can take a long time to implement.

13. Employment would suffer as a result of too little spending.

15. The government would have to make up the revenue either by raising taxes in a different area or cutting spending.

Review Questions

17. A new infrastructure project or an increase in the income tax rate are examples of fiscal policy. However, neither increased spending due to changes in the interest rate on federal bonds nor increased tax revenues due to rising national income are examples of fiscal policy.

19. The main categories are national defense, Social Security, health care, and interest payments on past borrowing.

21. Individual income tax, payroll tax, corporate income tax, and capital gains tax

23. Budget deficits have generally expanded in recent decades.

25. Expansionary fiscal policy increases spending to boost aggregate demand, while contractionary fiscal policy reduces spending to keep prices down.

27. Discretionary fiscal policy must be enacted through Congress, while automatic stabilizers take place without any legislative action.

29. The standardized employment budget describes what the unemployment rate would be if the economy is producing at potential GDP.

31. An argument for a balanced budget is that the national debt is damaging over the long term due to the rising costs of interest payments, and forcing a balance every year encourages Congress to spend conservatively. An argument against a balanced budget is that Congress needs to have flexibility in spending to respond to recessions with fiscal policy.

Critical Thinking Questions

33. States and cities are in a better position to judge their needs in these areas, and it is also deemed fairer to only tax residents of the affected area in order to pay for these programs.

35. These products tend to be more heavily purchased by low-income individuals, so the tax they pay constitutes a higher share of their income than it would for a high-income buyer.

37. It is more likely to run surpluses because the greater amount of income will produce more tax revenue, and government spending should be relatively low to hold down the rate of inflation.

39. Yes for both questions. A budget deficit is an increase in a nation's debt. If GDP is expanding faster than the growth of debt, the debt-to-GDP ratio will fall. Conversely, if a nation's GDP is rising more slowly than its debt, the debt-to-GDP ratio will rise.

41. Expansionary fiscal policy is more attractive to politicians who believe in a larger government since it involves increasing government spending.

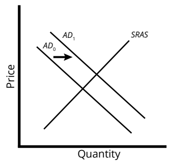
43. If people know that the tax decrease is temporary, they will not be as likely to spend their money but instead will save it, and the expected rise in aggregate demand will not occur.

45. Answers will vary.

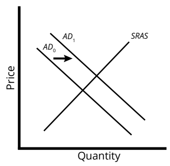
Problems

47. $3.5 billion + $400 million + $1 billion – $200 million = $4.7 billion

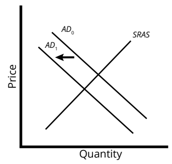
49. **a.** Expansionary, to stimulate demand



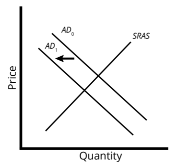
b. Expansionary, to stimulate demand



c. Contractionary, to fight inflation

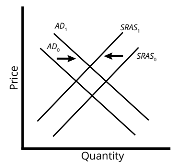


d. Contractionary, to fight inflation



e. While expansionary fiscal policy could be used to stimulate AD and employment, this would have no long-run effect on the natural rate of unemployment, simply a higher price level.

f. Expansionary, to stimulate demand



Chapter 18: The Impacts of Government Borrowing

Self-Check Questions

1. Use the national saving and investment identity to solve this question. In this case, the government has a budget surplus, so the government surplus appears as part of the supply of financial capital.
quantity of financial capital supplied = quantity of financial capital demanded

$$S + (T - G) = I + (X - M)$$
$$600 + 200 = I + 100$$
$$I = 700$$

3. In the last few decades, spending per student has climbed substantially. However, test scores have fallen. This experience has led experts to argue that the problem is not just limited resources but also how schools are organized and managed and what incentives they have for success. There are several proposals to alter the incentives that schools face but relatively little hard evidence on what proposals work well. Some examples of proposals are testing students regularly, rewarding teachers or schools that perform well on such tests, requiring additional teacher training, allowing students to choose between public schools, allowing teachers and parents to start new schools, and giving students vouchers that they can use to pay tuition at either public or private schools.

5. Ricardian equivalence means that private saving changes to offset exactly any changes in the government budget. Thus, if the deficit increases by 20, private saving increases by 20 as well, and the trade deficit and the budget deficit will not change from their original levels. The original national saving and investment identity is written below. Notice that if any change in the ($G - T$) term is offset by a change in the S term, the other terms do not change. Therefore, if ($G - T$) rises by 20, S must also increase by 20.
quantity of financial capital supplied = quantity of financial capital demanded

$$S + (M - X) = I + (G - T)$$
$$130 + 20 = 100 + 50$$

Review Questions

7. Reduced investment, a wider trade deficit, and increased savings

9. Fiscal policy can increase government spending on goods and services, which boosts aggregate demand and leads to increased economic output.

11. Grants to universities and funding for NASA and other types of scientific research can improve technologies over time.

13. The theory of Ricardian equivalence holds that private savings change to offset changes in the government budget.

15. A larger budget deficit will cause an increase in the trade deficit when private savings do not offset the spending and private investment is not fully crowded out.

Critical Thinking Questions

17. Decreased investment in capital will reduce future economic growth since large quantities of new, well-maintained capital will be unavailable for growing industries.

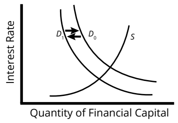
19. Private firms already have the experience and the profit motive to do good work in this field, while government lacks the specialization to do as well.

21. There must be a lack of private investment so that private investors are not competing for the funds used by the government.

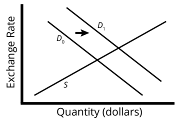
23. As the government relies less on foreign investment, the trade deficit will decrease, and the exchange rate will depreciate.

Problems

25. A reduction in private investment, reflected in a leftward shift of the demand for capital, could be compensated for by an increase in government spending, shifting the curve back right.



27. When foreigners buy U.S. debt, their demand drives up the price of the dollar. This makes domestic goods relatively more expensive compared to those of other countries and reduces the quantity of exports, while increasing the quantity of imports.



29. Since the budget deficit is always 2 million shillings, the accumulated debt after 10 years will be 20 million shillings.

Chapter 19: Macroeconomic Policy around the World

Self-Check Questions

1.

	Rank by GDP	Rank by GDP per Capita
East Asia and Pacific	1	3
South Asia	5	6
Sub-Saharan Africa	7	7
Europe and Central Asia	2	2
Latin America and Caribbean	4	4
Middle East and North Africa	6	5
North America	3	1

3. **a.** The following table provides a summary of possible answers.

High-Income Countries	Middle-Income Countries	Low-Income Countries
• More educated workforce • Create, invest in, and apply new technologies • Adopt fiscal policies focused on investment, including investment in human capital, technology, and physical plant and equipment • Create a stable and market-oriented economic climate • Monetary policy to keep inflation low and stable • Minimize the risk of exchange rate fluctuations while also encouraging domestic and international competition	• Invest in technology, human capital, and physical capital • The incentives of a market-oriented economic context • Work to reduce government economic controls on market activities • Deregulate the banking and financial sector • Reduce protectionist policies	• The eradication of poverty and extreme hunger • Achieving universal primary education • Promoting gender equality • Reducing child mortality rates • Improving maternal health • Combating HIV/AIDS, malaria, and other diseases • Ensuring environmental sustainability • Developing global partnerships for development

b. Fundamental policies that must be nurtured are adopting government policies that are market-oriented and focused on educating the work force and population. After this is done, low-income countries focus on eradication of other social ills that inhibit their growth. The economically challenged are stuck in poverty traps. They need to focus more on health and education and create a stable macroeconomic and political environment. This will attract foreign aid and foreign investment. Middle-income countries strive for increases in physical capital and innovation, while higher-income countries must work to maintain their economies through innovation and technology.

5. Aside from a high natural rate of unemployment due to government regulations, subsistence households may be counted as not working.

7. An increase in government spending shifts the *AD* curve to the right, raising both income and price levels.

9. Given the high level of activity in international financial markets, it is typically believed that financial flows across borders are the real reason for trade imbalances. For example, the United States had an enormous trade deficit in the late 1990s and early 2000s because it was attracting vast inflows of foreign capital. Smaller countries that have attracted such inflows of international capital worry that if the inflows suddenly turn to outflows, the resulting decline in their currency could collapse their banking system and bring on a deep recession.

Review Questions

11. GDP per capita is the most common measure of the standard of living.

13. Geography, demography, industrial structure, and institutions

15. High savings rates, investment in human capital, seeking out appropriate technologies, and letting free markets work uninhibited

17. They are not unemployed in the same sense that we use the term in Western countries because the structure of their economy is different.

19. Yes, low-income countries without disciplined macroeconomic policies are at risk for high inflation. High inflation is still an issue in some middle-income economies as well.

21. A sudden influx of capital to correct the trade imbalances in these countries can lead to irresponsible lending and widespread loan defaults, resulting in financial crisis.

Critical Thinking Questions

23. In poverty, all income tends to go toward immediate needs, such as food and shelter, with none left over for investment.

25. No. Protecting workers from being fired provides a strong disincentive for employers to hire since they will not be able to lay off employees who turn out to be poor performers, so the labor market will be distorted.

27. Since there is a greater amount of money in a high-income economy, it requires a much greater increase in the money supply to cause significant inflation.

Problems

29. a. Answers will vary depending on the year of data retrieved. Data shown here is from 2020.

- India
  - GDP = $2.5 trillion
  - Population = 1.38 billion
  - GDP per capita = $1,818
  - Mortality rate = 27.0 per 1,000 live births
  - Health expenditure per capita = $63.8 (data from 2019)
  - Life expectancy = 69.9 years
- Spain
  - GDP = $1.2 trillion
  - Population = 47.4 million
  - GDP per capita = $24,939
  - Mortality rate = 2.7 per 1,000 live births
  - Health expenditure per capita = $2,711.2 (data from 2019)
  - Life expectancy = 82.3 years
- South Africa
  - GDP = $335.6 billion
  - Population = 59.3 million
  - GDP per capita = $5,659
  - Mortality rate = 25.8 per 1,000 live births
  - Health expenditure per capita = $546.7 (data from 2019)
  - Life expectancy = 64.4 years

b. Answers will vary.

c. With the rule of 72, an economy growing at 1% a year will double in approximately 72 years. Using the data you obtained, divide 72 by the growth rate for each country to determine the length of time it will take for their economies to double.

31. Answers will vary.

Chapter 20: International Trade

Self-Check Questions

1. False—anything that leads to different levels of productivity between two economies can be a source of comparative advantage. For example, the education of workers, the knowledge base of engineers and scientists in a country, the part of a split-up value chain where they have their specialized learning, economies of scale, and other factors can all determine comparative advantage.

3. In answering questions like these, it is often helpful to begin by organizing the information in a table. Notice that, in this case, the productivity of the countries is expressed in terms of how many workers it takes to produce a unit of a product.

Country	1 Sweater	1 Bottle of Wine
France	1 worker	1 worker
Tunisia	2 workers	3 workers

In this example, France has an absolute advantage in the production of both sweaters and wine. You can tell because it takes France less labor to produce a unit of the good.

5. There are several possible advantages of intra-industry trade. Both nations can take advantage of extreme specialization and learning in certain kinds of cars with certain traits, like gas-efficient cars, luxury cars, sport-utility vehicles, higher- and lower-quality cars, and so on. Moreover, nations can take advantage of economies of scale so that large companies will compete against each other across international borders, providing the benefits of competition and variety to customers. This same argument applies to trade between U.S. states, where people often buy products made by people in other states, even though a similar product is made within the boundaries of their own state. All states—and all countries—can benefit from this kind of competition and trade.

7. A nation might restrict trade on imported products to protect an industry that is important for national security. For example, Nation X and Nation Y may be geopolitical rivals, each with ambitions of increased political and economic strength. Even if Nation Y has a comparative advantage in the production of missile defense systems, it is unlikely that Nation Y would export those goods to Nation X. It is also the case that, for some nations, the production of a particular good is a key component of national identity. In Japan, the production of rice is culturally very important. It may be difficult for Japan to import rice from a nation like Vietnam, even if Vietnam has a comparative advantage in rice production.

Review Questions

9. Comparative advantage leads to gains from trade when countries specialize and produce mainly what they do best.

11. Yes. Comparative advantage is defined by what you have to give up to produce a good. If the opportunity cost of production is low, a country will still have a comparative advantage even when at an absolute disadvantage.

13. Trade that takes place within a specific industry

15. Splitting up the value chain involves different countries undertaking different stages of production for a good.

Critical Thinking Questions

17. To a certain extent, yes. Greater natural resources or access to the sea can lead to absolute advantage for certain goods.

19. Tunisia has the lower opportunity cost for producing sweaters because it only has to give up $\frac{2}{3}$ of a bottle of wine for each sweater, whereas France has to give up 1 bottle of wine for each sweater. France has the lower opportunity cost of producing wine because it only has to give up 1 sweater per bottle of wine, whereas Tunisia has to give up $1\frac{1}{2}$ sweaters. The opportunity cost of a good is what you have to give up to get it.

21. When both the United States and Mexico shift production of shoes and refrigerators toward their comparative advantage, the combined production of both goods rise, as illustrated in the following table.

Country	Shoe Production	Refrigerator Production
United States	3,500	26,000
Mexico	6,000	2,500
Total	9,500	28,500

In this scenario, the U.S economy, after specialization, will only benefit if it exports fewer than 6,000 refrigerators and imports at least 1,500 pairs of shoes. If the United States exports more than 6,000 refrigerators and imports fewer than 1,500 pairs of shoes, it would not gain from trading with Mexico. Additionally, the Mexican economy, after specificalization, will only benefit if it imports at least 2,500 refrigerators and exports no more than 2,000 pairs of shoes. Like the United States, Mexico will not experience gains from this particular trade relationship unless these conditions are met.

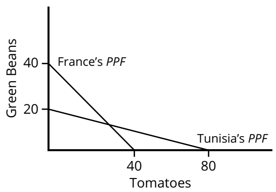
23. The theory of comparative advantage suggests that trade should happen between economies with large differences in opportunity costs of production. Gains from trade emerge as a result of comparative advantage. Intra-industry trade is the trade of goods within the same industry between countries. While it may appear that intra-industry trade contradicts the theory of comparative advantage, they can be harmonious because the division of labor that occurs with intra-industry trade leads to learning, innovation, and unique skills that accompany specialization. Splitting up the value chain is a recent trend in international trade. When countries produce a good in stages, intra-industry trade between similar countries leads to economic gains, which is the goal of comparative advantage.

25. Intra-industry trade is the trade of goods within the same industry from one country to another. Intra-industry trade may seem surprising from the point of view of comparative advantage because the theory of comparative advantage suggests that trade should happen between economies with large differences in opportunity costs of production. Typically, intra-industry trade involves countries with similar economies.

27. Even though low-income countries benefit more from trade than high-income countries, a low-income country may put up barriers to trade, such as tariffs on imports, in order to protect certain vested economic, social, and cultural interests. Because of this, tariffs are traditionally considered a political tool.

Problems

29. a. The *PPF* for France will range from 40 green beans to 40 tomatoes. The *PPF* for Tunisia will range from 20 green beans to 80 tomatoes.

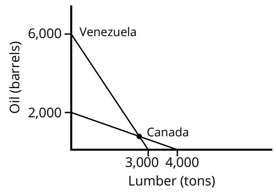


b. Tunisia has the absolute advantage in tomatoes, and France has the absolute advantage in green beans.

c. France has a comparative advantage in green beans, and Tunisia has a comparative advantage in tomatoes.

d. Even giving up 1 tomato would allow France to gain from trade since it could exchange the additional green bean for 4 tomatoes from Tunisia. France should not give up any green beans but instead produce them exclusively since it can trade each green bean for 4 tomatoes.

31. a.



Canada can produce between 2,000 barrels of oil and 4,000 tons of lumber. Venezuela can produce between 6,000 barrels of oil and 3,000 tons of lumber.

b. They should get at least 500 barrels of oil for their 1,000 tons of lumber. Asking for more than this will result in gains from trade.

c. This price is also beneficial for Venezuela, for if they wanted to produce 1,000 tons of lumber themselves, it would cost 2,000 barrels of oil.

d. If Canada asks for more than 2,000 barrels of oil for their lumber, it would be cheaper for Venezuela to produce it themselves.

33. Taiwan will not be able to compete in the market with South Korea, whose economies of scale allow the production of more phones at a lower price. South Korea has no reason to pay a higher price for Taiwanese phones, and Taiwan cannot sell at South Korea's prices without taking a loss.

Chapter 21: Globalization and Protectionism

Self-Check Questions

1. This is the opposite case of the Work It Out in Lesson 21.1. A reduced tariff is like a decrease in the cost of production, which is shown by a rightward shift of the supply curve.

3. Trade barriers raise the prices of goods in protected industries. If those products are inputs in other industries, it raises their production costs and prices, so sales fall in those other industries. Lower sales lead to lower employment. Additionally, if the protected industries are consumer goods, their customers pay higher prices, which reduces demand for other consumer products and, thus, employment in those industries.

5. By raising incomes, trade tends to raise working conditions also, even though those conditions may not (yet) be equivalent to those in high-income countries.

7. Since trade barriers raise prices, real incomes fall. The average worker would also earn less.

9. If imports can be sold at extremely low prices, domestic firms would have to match those prices to be competitive. By definition, matching prices would imply selling under cost and, therefore, losing money. Firms cannot sustain losses forever. When they leave the industry, importers can take over, raising prices to monopoly levels to cover their short-term losses and earn long-term profits.

11. Low-income countries can compete for jobs by reducing their environmental standards to attract business to their countries. This could lead to a competitive reduction in regulations, which would lead to greater environmental damage. While pollution management is a cost for businesses, it is tiny relative to other costs, like labor and adequate infrastructure. It is also costly for firms to locate far away from their customers, which many low-income countries are.

13. Restricting imports today does not solve the problem. If anything, it makes it worse since it implies using up domestic sources of the products faster than if they are imported. Also, the national security argument can be used to support protection of nearly any product, not just things critical to our national security. For example, there are many products, like mohair, that were protected decades ago that we have substitutes for today.

15. A free trade association offers free trade between its members, but each country can determine its own trade policy outside the association. A common market requires a common external trade policy in addition to free trade within the group. An economic union is a common market with coordinated fiscal and monetary policy.

17. Reductions in tariffs, quotas, and other trade barriers; improved transportation; and communication media have made people more aware of what is available in the rest of the world.

19. Consumers get better or less expensive products. Businesses with the better or cheaper products increase their profits. Employees of those businesses earn more income. On balance, the gains outweigh the losses to a nation.

Review Questions

21. Tariffs, or taxes on imported goods; import quotas, which limit the number of goods that can be imported; and nontariff barriers, which cover all rules, regulations, and contracts involving imports

23. It increases the number of jobs because the gains from trade create wealth and spur on further production.

25. Trade tends to increase the average wage as workers are able to be more productive.

27. Protecting infant industries is done to give them time to develop, become efficient, and be profitable. The fear is that a new industry may be crushed by competition before it has a chance to develop a valuable new product or technology. However, once these protections are in place, industries will not relinquish them without a fight, and repeal is difficult.

29. This happens when countries compete to attract business by weakening environmental standards until all such standards have been eliminated in the bidding war.

31. If there is a war or other international conflict, countries may be unable to acquire goods through trade, so it is important that they have the capacity to produce them domestically.

33. Trade barriers have generally been reduced in recent decades.

35. Consumers gain from trade, but domestic producers can lose.

37. Sometimes, governments subsidize domestic industries that lose from trade or help workers retrain for more competitive professions.

Critical Thinking Questions

39. The rest of the tariff is paid by the importer, in the same way that a tax is split between a consumer and producer.

41. Labor standards and working conditions reflect the income in a country. Strong labor standards are a luxury that low-income nations can't afford. If they were to mandate higher labor standards, wages would have to be reduced or prices of products raised. Given their low incomes, workers prefer wages to labor standards. Additionally, in order to remain competitive and export their goods, low-income countries don't have the luxury of enacting stricter standards.

43. It is difficult for governments to identify good candidates for infant industry protection, especially since all industries have incentives to lobby for such protection. The best examples are those that require a limited period of time to develop and become internationally competitive, after which the protection will be removed. Computers are not good candidates because the technology changes so quickly that governments will end up protecting old technologies while the industry has moved on to something better.

45. Americans would likely resent the interference of other countries.

47. If products are really unsafe, putting tariffs on them will not eliminate consumption entirely, whereas the unsafe consumer products argument might be successful.

49. Like everything else, there are diminishing marginal returns in negotiation. If all the best, most obvious policies have already been implemented, it will be more difficult to resolve the remaining issues.

51. The advent of cellular phones damaged many of the old companies that provided landline service or sold pagers and answering machines, but the cell phone was a decided improvement over the previous technology.

53. **a.** Trade will ultimately increase wages for workers as a group, even if some workers lose out in the short run.

b. Competitive pressure helps industries stay strong. Blocking competition by hindering trade will ultimately weaken industries, not strengthen them.

c. Since trade is more efficient, the same output can be achieved at a lower cost to the environment.

d. Strong trading partners are less likely to enter into wars with each other since it would be to both countries' economic disadvantage. Similarly, a trading partner is more likely to assist in a war with a third party in order to preserve the gains from trade.

Problems

55. **a.** To compute equilibriums, we set quantity demanded equal to quantity supplied and solve. For Thailand:

$$60 - P = -5 + \frac{1}{4}P;\ P = 52.$$

$Q = 8$. For Japan:

$$80 - P = -10 + \frac{1}{2}P;\ P = 60.$$

$Q = 20$.

b. At the new price, Thailand will produce

$$-5 + \frac{1}{4}(56.36) = 9.09$$

cameras and demand $60 - 56.36 = 3.64$ cameras. Japan will produce

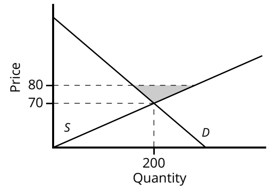
$$-10 + \frac{1}{2}(56.36) = 18.18$$

cameras and demand $80 - 56.36 = 23.64$ cameras. So, Japan will import at least 6 cameras ($23.64 - 18.18$) from Thailand (since fractions of cameras cannot be consumed). Thailand will export those cameras.

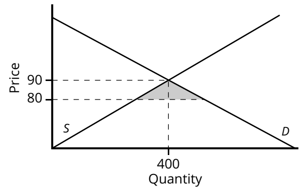
57. **a.** The equilibrium occurs where quantity demanded equals quantity supplied. The equilibrium price in Pepperland is \$70, and the equilibrium quantity is 200. The equilibrium price in the Land of Submarines is \$90, and the equilibrium quantity is 400.

b. The equilibrium price would be \$80, where the total quantity demanded across both countries equals the total quantity supplied.

c.



(a) Pepperland



(b) Land of Submarines

d. Pepperland exports 50 units of steel to the Land of Submarines.

e. The quota will injure consumers in the Land of Submarines by driving the price up, but it will benefit producers. The reverse is true for Pepperland.

f. The equilibrium level of imports is 50, so a quota of 70 would be nonbinding and have no effect.