CHAPTER 11

Aggregate Demand and Aggregate Supply

Chapter 11 introduces another macro model of the economy, one based on aggregate demand and aggregate supply. This model overcomes a limitation of the aggregate expenditures model because the price level is allowed to vary rather than be fixed. The ***aggregate demand–aggregate supply model*** allows you to both determine the size of real domestic output or the level of prices at any time and understand what causes output and the price level to change.

The aggregate demand (AD) curve is downsloping because of the real balances, interest rate, and foreign-purchases effects resulting from changes in the price level. With a downsloping aggregate demand curve, changes in the price level have an inverse effect on the level of spending by domestic consumers, businesses, government, and foreign buyers, and thus on real domestic output, assuming *other things equal.* This change would be equivalent to a movement along an existing aggregate demand curve: A lower price level increases the quantity of real domestic output demanded, and a higher price level decreases the quantity of real domestic output demanded.

Although the aggregate expenditures model is a fixed-price-level model and the aggregate demand–aggregate supply model is a ***variable-price-level-model,*** there is a close relationship between the two models. The important thing to understand is that prices can be fixed or constant at different levels. The AD curve can be derived from the aggregate expenditures model by letting the price level be constant at different levels. In this case, the lower (the higher) the level at which prices are constant in the aggregate expenditures model, the larger (the smaller) will be the equilibrium real GDP in that model of the economy. Various output-price-level combinations can be traced to derive an AD curve that slopes downward.

The aggregate demand curve can shift (increase or decrease) because of a change in the nonprice-level ***determinants of aggregate demand.*** The determinants include changes in factors affecting consumer, investment, government, or net export spending. These determinants are similar to the components of the aggregate expenditures model. It is easy to show the relationship between the shifts in the two models. A change in spending will cause a shift (upward or downward) in the aggregate expenditures schedule. The initial change in spending when multiplied times the multiplier would be equal to the size of the horizontal shift in AD, assuming a constant price level.

The ***aggregate supply (AS) curve*** differs from the shape of the aggregate demand curve because it reflects what happens to per-unit production costs as real domestic output increases or decreases. For the purposes of this analysis, it has three ranges: (1) At a low level of real domestic output, the price level is relatively constant, so this is the ***horizontal range*** of the aggregate supply curve; (2) in the ***intermediate range,*** the level of real domestic output rises along with the price level, so the curve is upsloping; and, (3) at a high level of real domestic output, there is a ***vertical range*** of the aggregate supply curve.

You should remember that an assumption has also been made that other things are equal when one moves along an aggregate supply curve. When other things change, the aggregate supply curve can shift. The ***determinants of aggregate supply*** include changes in input prices, changes in productivity, and changes in the legal and institutional environment for production.

The intersection of the aggregate demand and aggregate supply curves determines ***equilibrium real output*** and the ***equilibrium price level.*** Assuming that the determinants of aggregate demand and aggregate supply do not change, there are pressures that will tend to keep the economy at equilibrium. If a determinant changes, then aggregate demand, aggregate supply, or both, can shift.

When ***aggregate demand increases,*** this can lead to changes in equilibrium real output and the price level, depending on the range on the aggregate supply curve in which the economy is operating. In the intermediate and vertical ranges of AS, a change in AD will cause an increase in the price level. Thus, in these ranges the change in AD may not have its full multiplier effect on the real GDP of the economy, and it will result in ***demand-pull inflation.*** There can also be a ***decrease in aggregate demand*** in the horizontal range of the aggregate supply curve. In this case, there will be downward price inflexibility. This result arises for several reasons, as you will learn from the chapter in the text.

Aggregate supply may increase or decrease. An increase in aggregate supply gives a double bonus for the economy because the price level falls, and output and employment increase. Conversely, a decrease in aggregate supply doubly harms the economy because the price level increases, and output and employment fall, and thus the economy experiences ***cost-push inflation.***

The aggregate demand–aggregate supply model is an important framework for determining the equilibrium level

of real domestic output and prices in an economy. The model will be used extensively throughout the next eight chapters to analyze how different parts of the economy function.

■ CHECKLIST

When you have studied this chapter you should be able to

☐ Contrast the aggregate expenditures and the aggregate demand–aggregate supply models by comparing the variability of the price level and real GDP.
☐ Define aggregate demand.
☐ Describe the characteristics of the aggregate demand curve.
☐ Use the real-balances, interest-rate, and foreign purchases effects to explain why the aggregate demand curve slopes downward.
☐ Derive the aggregate demand curve from the aggregate expenditures model.
☐ Identify the four major spending determinants of aggregate demand.
☐ List the four factors that may change consumer spending.
☐ State two factors that change investment spending.
☐ Explain what changes government spending.
☐ Identify the sources of changes in net export spending.
☐ Explain how the four major spending determinants of aggregate demand (and their underlying components) can increase or decrease aggregate demand.
☐ Explain the effect of a change in aggregate expenditures on the aggregate demand curve.
☐ Define aggregate supply.
☐ Describe the shape of the aggregate supply curve and name its three ranges.
☐ Identify the three major spending determinants of aggregate supply.
☐ List three factors that change input prices.
☐ Define productivity and explain how it changes.
☐ Identify two factors that change the legal-institutional environment.
☐ Explain how the three major determinants of aggregate supply (and their underlying components) can increase or decrease aggregate supply.
☐ Explain when real output and price level will be in equilibrium and why the economy will tend to produce this output and price level (rather than another combination).
☐ Show the effects of an increase in aggregate demand on the real output and the price level when the economy is in the horizontal, vertical, and intermediate ranges.
☐ Explain what determines how large the multiplier effect on the equilibrium real GDP will be in the aggregate demand–aggregate supply model.
☐ Illustrate the effects of a decrease in aggregate demand on real output and the price level when the economy is in the horizontal, intermediate, and vertical ranges.
☐ Give five reasons for downward price-level inflexibility.
☐ Predict the effects of an increase and a decrease in aggregate supply on the price level.

■ CHAPTER OUTLINE

1. This chapter introduces the ***aggregate demand–aggregate supply model*** of the economy to explain why real domestic output *and* the price level fluctuate. This model has an advantage over the aggregate expenditures model because it allows the price level to vary (rise and fall) rather than be constant or fixed as in the aggregate expenditures model.

2. ***Aggregate demand*** is a curve that shows the total quantity of goods and services that will be purchased (demanded) at different price levels.

a. The aggregate demand curve slopes downward for three reasons:

(1) ***Real-balances effect:*** An increase in the price level also decreases the purchasing power of financial assets with a fixed money value, and because those who own such assets are now poorer, they spend less for goods and services; a decrease in the price level has the opposite effects.

(2) ***Interest-rate effect:*** With the supply of money fixed, an increase in the price level increases the demand for money, increases interest rates, and as a result reduces those expenditures (by consumers and business firms) that are sensitive to increased interest rates; a decrease in the price level has the opposite effects.

(3) ***Foreign purchases effect:*** An increase in the price level (relative to foreign price levels) will reduce U.S. exports, expand U.S. imports, and decrease the quantity of goods and services demanded in the U.S. economy; a decrease in the price level (relative to foreign price levels) will have opposite effects.

b. The aggregate demand curve can be derived from the intersections of the aggregate expenditures curves and the 45 degree curve. As the price level falls, the aggregate expenditures curve shifts upward and the equilibrium real GDP increases, but as the price level rises, the aggregate expenditures curve shifts downward and the equilibrium real GDP decreases. The inverse relationship between the price level and equilibrium real GDP is the aggregate demand curve. Note that for the aggregate expenditures model, changes in

(1) wealth increase or decrease the consumption schedule;

(2) the interest rate increase or decrease the investment schedule; and

(3) imports or exports shift the net export schedule.

3. Spending by domestic consumers, businesses, government, and foreign buyers that is independent of changes in the price level are ***determinants of aggregate demand*** that shift it, as outlined in Figure 11–3.

a. For domestic consumers, increases in wealth, improved expectations, reductions in indebtedness, or lower taxes can *increase* consumer spending and aggregate demand; decreases in consumer wealth, less positive expectations, increases in indebtedness, and higher taxes decrease consumer spending and aggregate demand.

b. For businesses, lower interest rates and higher expected returns on investment may *increase* investment

spending and aggregate demand. Higher interest rates and lower expected returns on investment may *decrease* investment spending and aggregate demand. Expected returns on investment are influenced by expectations about future business conditions, technology changes, the degree of excess capacity, and business taxes.

c. More government spending tends to *increase* aggregate demand and less government spending will *decrease* it, assuming that tax collections and interest rates do not change as a result.

d. Net export spending and aggregate demand are *increased* by increases in the national incomes of other nations and by a dollar depreciation; declines in the incomes of foreign buyers and a dollar appreciation tend to *decrease* net exports and aggregate demand.

e. If the price level is constant, any change in the nonprice-level determinants of consumption and planned investment that shifts the aggregate expenditures curve upward (downward) will increase (decrease) the equilibrium real GDP and shift the AD curve to the right (left) by an amount equal to the initial increase (decrease) in aggregate expenditures times the multiplier.

4. ***Aggregate supply*** is a curve that shows the total quantity of goods and services that will be produced (supplied) at different price levels. The curve has three ranges:

a. In the ***horizontal range*** (when the economy is in a severe recession or depression), the aggregate supply curve is horizontal. The price level will not rise when producers supply larger quantities of goods and services.

b. In the ***intermediate range*** the supply curve slopes upward. The price level will rise when producers supply larger quantities of goods and services.

c. In the ***vertical range*** (when the economy is at full-capacity output), the aggregate supply curve is vertical. A rise in the price level cannot result in an increase in the quantity of goods and services supplied.

5. The ***determinants of aggregate supply*** that shift the curve include changes in the prices of inputs for production, changes in productivity, and changes in the legal and institutional environment in the economy, as outlined in Figure 11–6.

a. Lower prices for productive domestic resources (land, labor, capital, and entrepreneurial ability) and imported resources tend to reduce unit costs of production and *increase* aggregate supply, whereas higher input prices, which may be brought about by more market power on the part of resource suppliers, will tend to *decrease* aggregate supply.

b. As productivity improves, per-unit production costs fall and aggregate supply *increases*; the converse occurs when productivity falls.

c. A decrease in the level of business taxation or reduced regulation of business may improve the business environment and *increase* aggregate supply; the opposite actions may *decrease* aggregate supply.

6. The ***equilibrium domestic output*** and the ***equilibrium price level*** are at the intersection of the aggregate demand and the aggregate supply curves.

a. In the intermediate range, if the price level were below equilibrium, then producers would supply less real output than was demanded by buyers. Competition among buyers would bid up the price level and producers would increase their output, until an equilibrium price level and quantity was reached.

b. In the horizontal range, the price level is constant. If the actual output were greater (less) than the equilibrium output, producers would find that their inventories were increasing (decreasing), and they would contract (expand) their output to the equilibrium output.

7. The aggregate demand and aggregate supply curves ***shift to change equilibrium.***

a. An ***increase in aggregate demand*** in
(1) the horizontal range would result in an increase in real output, but the price level would remain unchanged,
(2) the intermediate range would result in an increase in both real domestic output and the price level,
(3) the vertical range would result in an increase in the price level, but the real domestic output would remain unchanged.

b. The ***multiplier effects*** vary. If the economy is operating along the
(1) horizontal range of the AS curve, an increase in AD will have no effect on the price level and the increase in the equilibrium real GDP will equal the full multiplier effect of the increase in aggregate expenditures,
(2) intermediate range the increase in AD will increase the price level and the increase in the equilibrium real GDP will be less than the full multiplier effect of the increase in aggregate expenditures,
(3) vertical range the increase in AD will increase the price level and have no effect on the equilibrium real GDP. The multiplier would equal zero.

c. A ***decrease in aggregate demand*** in the horizontal range of the aggregate supply curve simply reduces real output and not the price level. This ***price level is inflexible downward*** for at least five interrelated reasons: long-term wage contracts, efficiency wages, the minimum wage, menu costs, and fear of price wars.

d. A ***decrease in aggregate supply*** means there will be a decrease in real domestic output (economic growth) and employment along with a rise in the price level, or cost-push inflation.

e. An ***increase in aggregate supply*** arising from an increase in productivity has the beneficial effects of improving real domestic output and employment while maintaining a stable price level.

■ HINTS AND TIPS

1. Aggregate demand and supply are the tools used to explain what determines the economy's real output and price level. These tools, however, are ***different from the demand and supply*** used in Chapter 3 to explain what determines the output and price of a *particular* product. Instead of thinking about the quantity of a *particular* good or service demanded or supplied, it is necessary to think

about the total or *aggregate* quantity of all final goods and services demanded (purchased) and supplied (produced). You will have no difficulty with the way demand and supply are used in this chapter once you switch from thinking about a *particular* good or service and its price to the *aggregate* of all final goods and services and its average price.

2. The ***aggregate supply curve*** has a strange shape because there are three ranges—horizontal, intermediate (upsloping), and vertical. Make sure you understand the rationale for each range. Also, the shape of the aggregate supply curve means that graphically an *increase* in aggregate supply will move aggregate supply both *downward* (in the horizontal range) and *outward* (in the upsloping and vertical ranges). The opposite is the case for a decrease in aggregate supply. Check your understanding of this point by referring to Figure 11–6 in the text.

3. Make sure you know the difference between a ***movement*** along an aggregate demand or supply curve and a ***shift*** in an aggregate demand or supply curve. Figures 11–3 and 11–6 in the text are extremely valuable summaries of the determinants of aggregate demand and aggregate supply that shift each curve.

■ IMPORTANT TERMS

aggregate demand–aggregate supply model
aggregate demand (AD)
real-balances effect
interest-rate effect
foreign purchases effect
determinants of aggregate demand
aggregate supply (AS)
horizontal range (of AS curve)
intermediate range (of AS curve)
vertical range (of AS curve)
determinants of aggregate supply
productivity
equilibrium price level
equilibrium real output
efficiency wages
menu costs

SELF-TEST

■ FILL-IN QUESTIONS

1. In the aggregate demand–aggregate supply model, the price level is (fixed, variable) _____, but in the aggregate expenditures model, the price level is _____.

2. Aggregate demand and aggregate supply together determine the equilibrium real domestic (price, output) _____ and the equilibrium _____ level.

3. The aggregate demand curve shows the quantity of goods and services that will be (supplied, demanded) _____ or purchased at various price levels. It slopes (upward, downward) _____ because of the (real-balances, consumption) _____ effect, the (profit, interest) _____-rate effect, and the (domestic, foreign) _____ purchases effect.

4. For the aggregate demand curve, an increase in the price level leads to (an increase, a decrease) _____ in the quantity of real domestic output demanded, whereas a decrease in the price level leads to _____ in the quantity of real domestic output demanded, assuming other things equal.

5. In the aggregate expenditures model, a lower price level would (raise, lower) _____ the consumption, investment, and aggregate expenditures curves, and the equilibrium level of real GDP would (rise, fall) _____. A higher price level would (raise, lower) _____ the consumption, investment, and aggregate expenditures curves, and the equilibrium level of real GDP would (rise, fall) _____. This (direct, inverse) _____ relationship between the price level and equilibrium real GDP in the aggregate expenditures model can be used to derive the aggregate (demand, supply) _____ curve (or schedule).

6. For the aggregate demand curve, when the price level changes, there is a (movement along, change in) _____ the curve. When the entire aggregate demand curve shifts, there is a change in (the quantity of real output demanded, aggregate demand) _____.

7. List the four factors that may change consumer spending, and thus shift aggregate demand:

a. _____
b. _____
c. _____
d. _____

8. List two major factors that may change investment spending, and thus shift aggregate demand:

a. _____
b. _____

9. Aggregate demand can also shift because of changes in government (spending, regulation) _____; it may also shift because of a change in national income abroad or exchange rates that affect net (import, export) _____ spending.

10. If the price level were constant, an increase in the aggregate expenditures curve would shift the aggregate

demand curve to the (right, left) _____ by an amount equal to the upward shift in aggregate expenditures times the (interest rate, multiplier) _____. A decrease in the aggregate expenditures curve would shift the aggregate demand curve to the (right, left) _____ by an amount equal to the (upward, downward) _____ shift in aggregate expenditures times the (interest rate, multiplier) _____.

11. The aggregate supply curve shows the quantity of goods and services that will be (demanded, supplied) _____ or produced at various price levels. In the horizontal range of the aggregate supply curve, as domestic output increases, the price level (is constant, increases) _____; in the intermediate range, as domestic output increases, the price level _____; and in the vertical range, domestic output remains constant and the price level _____.

12. The basic cause of a decrease in aggregate supply is (an increase, a decrease) _____ in the per-unit costs of producing goods and services, and the basic cause of an increase in aggregate supply is _____ in the per-unit costs of production, all other things equal.

13. Aggregate supply shift may result from

a. a change in input prices caused by a change in

(1) _____

(2) _____

(3) _____

b. from a change in (consumption, productivity) _____

c. from a change in the legal and institutional environment caused by a change in

(1) _____

(2) _____

14. The equilibrium real domestic output and price level are found at the (zero values, intersection) _____ of the aggregate demand and the aggregate supply curves. At this price level, the aggregate quantity of goods and services purchased (demanded) is (greater than, less than, equal to) _____ the aggregate quantity of goods and services produced (supplied). And at this real domestic output, the prices producers are willing to (pay, accept) _____ are equal to the prices buyers are willing to _____.

15. In the horizontal range of aggregate supply, if the actual real domestic output were greater than the equilibrium domestic output, producers would find that their inventories were (increasing, decreasing) _____ and they would (expand, reduce) _____ their production. At less than the equilibrium domestic output, producers would find that their inventories were (increasing, decreasing) _____ and they would (expand, reduce) _____ their production.

16. When the economy is producing in the horizontal range of aggregate supply, an increase in aggregate demand will (increase, decrease, have no effect on) _____ real domestic output and will _____ the price level; in the intermediate range, an increase in aggregate demand will _____ real domestic output and will _____ the price level; and in the vertical range, an increase in aggregate demand will _____ real domestic output and will _____ the price level.

17. Were aggregate demand to increase, the flatter the aggregate supply curve, the (greater, smaller) _____ would be the multiplier effect on the real equilibrium GDP and the _____ would be the effect on the equilibrium price level; the steeper the aggregate supply curve, the _____ would be the multiplier effect on the equilibrium real GDP and the _____ would be the effect on the equilibrium price level.

18. The price level is inflexible downward when aggregate demand decreases in the (vertical, horizontal) _____ range. This effect occurs because of wage (contracts, flexibility) _____, workers are paid (efficiency, inefficiency) _____ wages, there is a (maximum, minimum) _____ wage, businesses experience menu (benefits, costs) _____, and there is fear of (price, wage) _____ wars.

19. An increase in aggregate supply will (increase, decrease) _____ real domestic output and _____ the price level. A decrease in aggregate supply will (increase, decrease) _____ real output and _____ the price level.

20. Demand-pull inflation is the result of (an increase, a decrease) _____ in aggregate demand, and in the intermediate range, is accompanied by (an increase, a decrease) _____ in real output. Cost-push inflation is the result of _____ in aggregate supply and is accompanied by _____ in real output.

■ TRUE–FALSE QUESTIONS

Circle T if the statement is true, F if it is false.

1. The aggregate demand–aggregate supply model is a variable-price-level model that permits analysis of simultaneous changes in real GDP and the price level. **T F**

2. The aggregate demand curve slopes downward. **T F**

3. A fall in the price level increases the real value of financial assets with fixed money values and, as a result, increases spending by the holders of these assets. **T F**

4. A fall in the price level reduces the demand for money in the economy and drives interest rates upward. **T F**

5. A rise in the price level of an economy (relative to foreign price levels) tends to increase that economy's exports and to reduce its imports of goods and services. **T F**

6. The higher the price level, the smaller the wealth of consumers and the lower the consumption schedule (curve). **T F**

7. An increase in the price level will shift the aggregate expenditures schedule upward. **T F**

8. A change in aggregate demand is caused by a change in the price level, *other things equal.* **T F**

9. A fall in excess capacity, or unused existing capital goods, will retard the demand for new capital goods and therefore reduce aggregate demand. **T F**

10. The real-balances effect is one of the determinants of aggregate demand. **T F**

11. A high level of household indebtedness will tend to increase consumption spending and aggregate demand. **T F**

12. Appreciation of the dollar relative to foreign currencies will tend to increase net exports and aggregate demand. **T F**

13. The aggregate supply curve has a downsloping range. **T F**

14. When the determinants of aggregate supply change, they alter the per-unit production cost and thereby aggregate supply. **T F**

15. Productivity is a measure of real output per unit of input. **T F**

16. A change in the degree of market power or monopoly power held by sellers of resources can affect input prices and aggregate supply. **T F**

17. Per-unit production cost is determined by dividing total input cost by units of output. **T F**

18. At the equilibrium price level, the real domestic output purchased is equal to the real domestic output produced. **T F**

19. In the intermediate range on the aggregate supply curve, an increase in aggregate demand will increase both the price level and the real domestic output. **T F**

20. In the horizontal range on the aggregate supply curve, an increase in aggregate demand will have no effect on the real equilibrium GDP of the economy and will raise its price level. **T F**

21. The greater the increase in the price level that results from an increase in aggregate demand, the greater will be the increase in the equilibrium real GDP. **T F**

22. Inflation has no effect on the strength of the multiplier. **T F**

23. Fear of price wars tend to make the price level more flexible rather than less flexible. **T F**

24. An increase in aggregate supply increases both the equilibrium real domestic output and the full-employment output of the economy. **T F**

25. A decrease in aggregate supply is "doubly good" because it increases the real domestic output and prevents inflation. **T F**

■ MULTIPLE-CHOICE QUESTIONS

Circle the letter that corresponds to the best answer.

1. The aggregate demand curve is the relationship between the
(a) price level and the real domestic output purchased
(b) price level and the real domestic output produced
(c) price level and what producers will supply
(d) real domestic output purchased and the real domestic output produced

2. When the price level rises,
(a) holders of financial assets with fixed money values increase their spending
(b) the demand for money and interest rates rises
(c) spending that is sensitive to interest-rate changes increases
(d) holders of financial assets with fixed money values have more purchasing power

3. One explanation for the downward slope of the aggregate demand curve is that a change in the price level results in
(a) an income effect
(b) a substitution effect
(c) a foreign purchases effect
(d) a multiplier effect

4. If the price level in the aggregate expenditures model were lower, the consumption and aggregate expenditures curves would be
(a) lower, and the equilibrium real GDP would be smaller
(b) lower, and the equilibrium real GDP would be larger

(c) higher, and the equilibrium real GDP would be larger
(d) higher, and the equilibrium real GDP would be smaller

5. A decrease in the price level, other things held constant, will shift the
(a) consumption, investment, and net exports curves downward
(b) consumption, investment, and net exports curves upward
(c) consumption and investment curves upward, but the net exports curve downward
(d) consumption and net export curves upward, but the investment curve downward

6. The aggregate demand curve will tend to be increased by
(a) a decrease in the price level
(b) an increase in the price level
(c) a depreciation in the value of the U.S. dollar
(d) an increase in the excess capacity of factories

7. A sharp decline in the real value of stock prices, which is independent of a change in the price level, would best be an example of
(a) the interest-rate effect
(b) the foreign purchases effect
(c) a change in household indebtedness
(d) a change in real value of consumer wealth

8. An increase in aggregate expenditures shifts the aggregate demand curve to the
(a) right by the amount of the increase in aggregate expenditures
(b) right by the amount of the increase in aggregate expenditures times the multiplier
(c) left by the amount of the increase in aggregate expenditures
(d) left by the amount of the increase in aggregate expenditures times the multiplier

9. The aggregate supply curve is the relationship between the
(a) price level and the real domestic output purchased
(b) price level and the real domestic output produced
(c) price level that producers are willing to accept and the price level purchasers are willing to pay
(d) real domestic output purchased and the real domestic output produced

10. In the intermediate range, the aggregate supply curve is
(a) upsloping
(b) downsloping
(c) vertical
(d) horizontal

Suppose that real domestic output in an economy is 50 units, the quantity of inputs is 10, and the price of each input is $2. Answer Questions 11, 12, 13, and 14 on the basis of this information.

11. The level of productivity in this economy is
(a) 5
(b) 4
(c) 3
(d) 2

12. The per-unit cost of production is
(a) $0.40
(b) $0.50
(c) $2.50
(d) $3.50

13. If productivity increased such that 60 units are now produced with the quantity of inputs still equal to 10, then per-unit production costs would
(a) remain unchanged and aggregate supply would remain unchanged
(b) increase and aggregate supply would decrease
(c) decrease and aggregate supply would increase
(d) decrease and aggregate supply would decrease

14. All else equal, if the price of each input increases from $2 to $4, productivity would
(a) decrease from $4 to $2 and aggregate supply would decrease
(b) decrease from $5 to $3 and aggregate supply would decrease
(c) decrease from $4 to $2 and aggregate supply would increase
(d) remain unchanged and aggregate supply would decrease

15. If the prices of imported resources increase, then this event would most likely
(a) decrease aggregate supply
(b) increase aggregate supply
(c) increase aggregate demand
(d) decrease aggregate demand

16. If Congress passed much stricter laws to control the air pollution from business, this action would tend to
(a) increase per-unit production costs and shift the aggregate supply curve to the right
(b) increase per-unit production costs and shift the aggregate supply curve to the left
(c) increase per-unit production costs and shift the aggregate demand curve to the left
(d) decrease per-unit production costs and shift the aggregate supply curve to the left

17. An increase in business taxes will tend to
(a) decrease aggregate demand but not change aggregate supply
(b) decrease aggregate supply but not change aggregate demand
(c) decrease aggregate demand and decrease aggregate supply
(d) decrease aggregate supply and increase aggregate demand

18. If in the horizontal range of the aggregate supply curve, the real domestic output is less than the equilibrium real domestic output, producers find
(a) their inventories decreasing and expand their production
(b) their inventories increasing and expand their production
(c) their inventories decreasing and contract their production
(d) their inventories increasing and contract their production

Answer Questions 19, 20, 21, and 22 on the basis of the following aggregate demand–aggregate supply schedule for a hypothetical economy.

Real domestic output demanded (in billions)	Price level	Real domestic output supplied (in billions)
$1500	170	$4000
$2000	150	$4000
$2500	125	$3500
$3000	100	$3000
$3500	75	$2500
$4000	75	$2000

19. The equilibrium price level and quantity of real domestic output will be
(a) 100 and $2500
(b) 100 and $3000
(c) 125 and $3500
(d) 150 and $4000

20. The horizontal range of the aggregate supply curve is associated with the quantity supplied of
(a) $4000
(b) $4000 and $3500
(c) $3500 and $3000
(d) $2500 and $2000

21. If the quantity of real domestic output demanded increased by $2000 at each price level, the new equilibrium price level and quantity of real domestic output would be
(a) 175 and $4000
(b) 150 and $4000
(c) 125 and $3500
(d) 100 and $3000

22. Using the original data from the table, if the quantity of real domestic output demanded *increased* by $500 and the quantity of real domestic output supplied *decreased* by $500 at each price level, the new equilibrium price level and quantity of real domestic output would be
(a) 175 and $4000
(b) 150 and $4000
(c) 125 and $3000
(d) 100 and $3500

23. When the economy is in the horizontal range, an increase in aggregate demand will
(a) increase the price level and have no effect on real domestic output
(b) increase the real domestic output and have no effect on the price level
(c) increase both real output and the price level
(d) increase the price level and decrease the real domestic output

24. An increase in aggregate demand will increase the equilibrium real GDP if the economy is operating in the
(a) horizontal range only
(b) intermediate range only
(c) horizontal or intermediate range
(d) vertical range only

25. An increase in aggregate demand will increase both the equilibrium real GDP and the price level if the economy is operating in the
(a) horizontal range only
(b) intermediate range only
(c) intermediate or vertical range
(d) vertical range only

26. In the aggregate demand–aggregate supply model, an increase in the price level will
(a) increase the real value of wealth
(b) increase the strength of the multiplier
(c) decrease the strength of the multiplier
(d) have no effect on the strength of the multiplier

27. Aggregate demand decreases and real output falls but the price level remains the same. Which factor most likely contributes to downward price inflexibility?
(a) an increase in aggregate supply
(b) the foreign purchases effect
(c) lower interest rates
(d) efficiency wages

28. Menu costs, wage contracts, and fear of price wars are associated with
(a) a price level that is inflexible upward
(b) a price level that is inflexible downward
(c) a domestic output that cannot be increased
(d) a domestic output that cannot be decreased

29. An increase in aggregate supply will
(a) reduce the price level and real domestic output
(b) reduce the price level and increase the real domestic output
(c) increase the price level and real domestic output
(d) reduce the price level and have no effect on real domestic output

30. If there were cost-push inflation caused by decreased aggregate supply,
(a) both the real domestic output and the price level would decrease
(b) the real domestic output would increase and rises in the price level would become smaller
(c) the real domestic output would decrease and the price level would rise
(d) both the real domestic output and rises in the price level would become greater

■ PROBLEMS

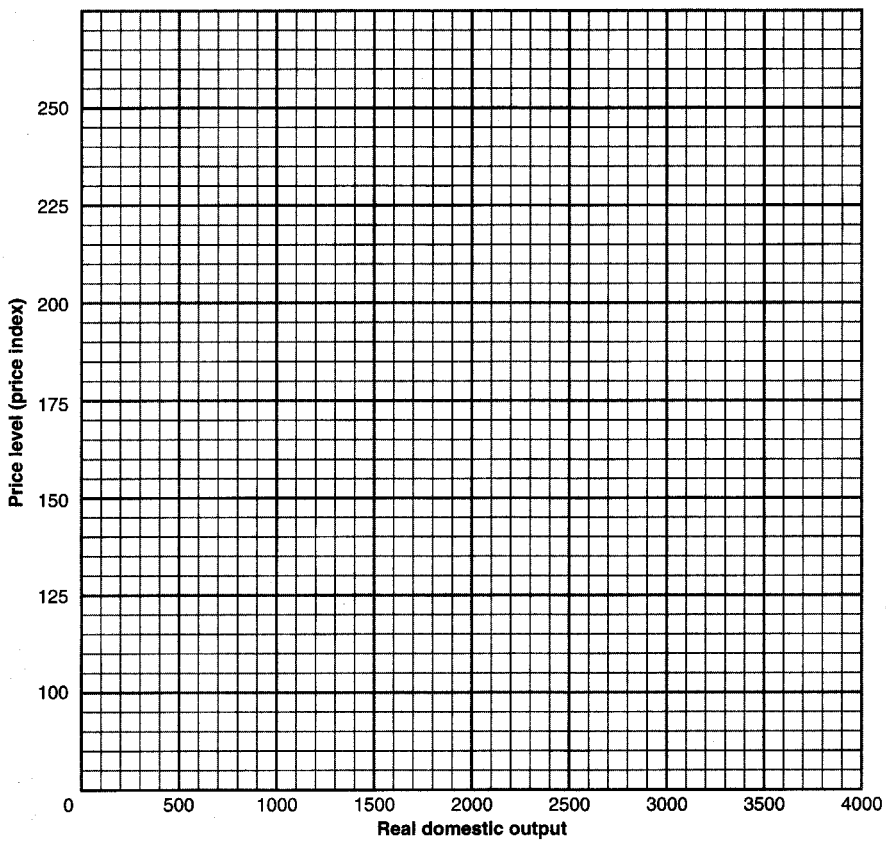
1. Following is an aggregate supply schedule.

Price level	Real domestic output supplied
250	2000
225	2000
200	1900
175	1700
150	1400
125	1000
125	900
125	0

a. The economy is in the
(1) horizontal range when the real domestic output is between _____ and _____.
(2) vertical range when the real domestic output is _____ and the price level is _____ or more.
(3) intermediate range when the real domestic output is between _____ and _____.
b. Plot this aggregate supply schedule on the accompanying graph.
c. The following table has three aggregate demand schedules.

Price level	Real domestic output demanded		
(1)	(2)	(3)	(4)
250	1400	1900	400
225	1500	2000	500
200	1600	2100	600
175	1700	2200	700
150	1800	2300	800
125	1900	2400	900
100	2000	2500	1000

(1) On the graph, plot the aggregate demand curve shown in columns 1 and 2; label this curve AD_1. At this level of aggregate demand, the equilibrium real domestic output is _____ and the equilibrium price level is _____.
(2) On the same graph, plot the aggregate demand curve shown in columns 1 and 3; label this curve AD_2. The equilibrium real domestic output is _____ and the equilibrium price level is _____.
(3) On the same graph, plot the aggregate demand curve shown in columns 1 and 4; label it AD_3. The equilibrium real domestic output is _____ and the equilibrium price level is _____.



2. Column 1 of the following table shows the real GDP an economy might produce.

(1) Real GDP	(2) $AE_{1.20}$	(3) $AE_{1.00}$	(4) $AE_{0.80}$
$2100	$2110	$2130	$2150
2200	2200	2220	2240
2300	2290	2310	2330
2400	2380	2400	2420
2500	2470	2490	2510
2600	2560	2580	2600

a. If the price level in this economy were $1.20, the aggregate expenditures (AE) at each real GDP would be those shown in column 2 and the equilibrium real GDP would be $_____.

b. If the price level were $1.00, the aggregate expenditures at each real GDP would be those shown in column 3 and the equilibrium real GDP would be $_____.

c. If the price level were $0.80, the aggregate expenditures at each real GDP would be those shown in column 4 and the equilibrium real GDP would be $_____.

d. Show in the following schedule the equilibrium real GDP at each of the three price levels.

Price level	Equilibrium real GDP
$1.20	$_____
1.00	_____
0.80	_____

(1) This schedule is the _____ schedule.

(2) The equilibrium real GDP is _____ related to the price level.

3. In the following list, what will most likely happen as a result of each event to (1) aggregate demand (AD); (2) aggregate supply (AS); (3) the equilibrium price level (***P***); and (4) equilibrium real domestic output (***Q***)? Assume that all other things remain constant when the event occurs and that the economy is operating in the intermediate range of the aggregate supply curve. Use the following symbols to indicate the expected effects: ***I*** = increase, ***D*** = decrease, ***S*** = remains the same, and ***U*** = uncertain.

a. A decrease in labor productivity.

AD_____ AS_____ ***P***_____ ***Q***_____

b. A fall in the interest rate for business loans.

AD_____ AS_____ ***P***_____ ***Q***_____

c. Consumer incomes decline as the economy moves into a recession.

AD_____ AS_____ ***P***_____ ***Q***_____

d. The price of oil on the world market falls to a low level.

AD_____ AS_____ ***P***_____ ***Q***_____

e. There is an appreciation in the value of the U.S. dollar.

AD_____ AS_____ ***P***_____ ***Q***_____

4. Following are hypothetical data showing the relationships between the real domestic output and the quantity of input resources needed to produce each level of output.

Output	Input	*Productivity* (1)	(2)	*Per unit cost* (3)	(4)	(5)
2500	500	_____	_____	_____	_____	_____
2000	400	_____	_____	_____	_____	_____
1500	300	_____	_____	_____	_____	_____

a. In column 1, compute the level of productivity at each level of real domestic output.

b. In column 2, compute the level of productivity if there is a doubling in the quantity of inputs required to produce each level of output.

c. In column 3, compute the per-unit production cost at each level of output if each unit of input costs $15, given the level of productivity in column 1.

d. In column 4, compute the new per-unit production cost at each level of output if each unit of input costs $15, given that there has been a doubling in the required quantity of inputs to produce each level of output as shown in column 2. What will happen to the aggregate supply curve if this situation occurs?_____

_____

e. In column 5, compute the new per-unit production cost at each level of output, given that input price is now $10 instead of $15 but the level of productivity stays as it was originally shown in column 1. What will happen to the aggregate supply curve if this situation occurs?_____

_____

5. Columns 1 and 2 in the table on the next page are the aggregate supply schedule of an economy.

a. The economy is in the

(1) vertical range when its real GDP is $_____ and the price level is $_____ or higher.

(2) horizontal range when its real GDP is $_____ or less and its price level is $_____.

b. If the aggregate demand in the economy were columns 1 and 3, the equilibrium real GDP would be $_____ and the equilibrium price level would be $_____, and if aggregate demand should increase by $100 to that shown in columns 1 and 4, the equilibrium real GDP would increase by $_____ and the price level would _____.

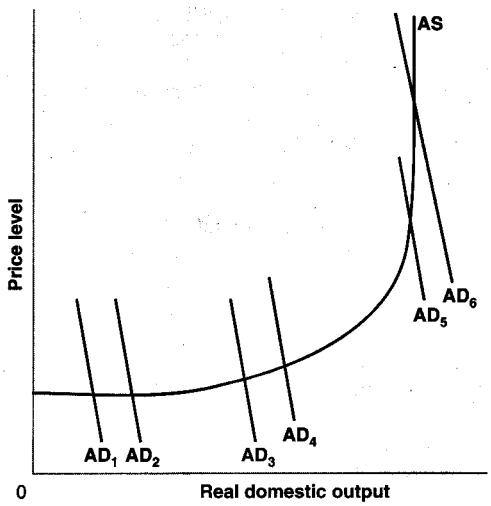
c. Should aggregate demand be that shown in columns 1 and 5, the equilibrium real GDP would be $_____ and the equilibrium price would be

(1) Price level	(2) Real GDP	(3) AD_1	(4) AD_2	(5) AD_3	(6) AD_4	(7) AD_5	(8) AD_6
$2.60	$2390	$ 840	$ 940	$1900	$2000	$2190	$2290
2.40	2390	940	1040	2000	2100	2290	2390
2.20	2390	1040	1140	2100	2200	2390	2490
2.00	2390	1140	1240	2200	2300	2490	2590
1.90	2350	1190	1290	2250	2350	2540	2640
1.80	2300	1240	1340	2300	2400	2590	2690
1.60	2200	1340	1440	2400	2500	2690	2790
1.40	2090	1440	1540	2500	2600	2790	2890
1.20	1970	1540	1640	2600	2700	2890	2990
1.00	1840	1640	1740	2700	2800	2990	3090
1.00	1740	1640	1740	2700	2800	2990	3090
1.00	1640	1640	1740	2700	2800	2990	3090

$_____, and if aggregate demand should increase by $100 to that shown in columns 1 and 6, the equilibrium real GDP would increase by $_____ and the price level would rise to $_____.

d. And if aggregate demand were that shown in columns 1 and 7, the equilibrium real GDP would be $_____ and the equilibrium price level would be $_____, but if aggregate demand increased by $100 to that shown in columns 1 and 8, the price level would rise to $_____ and the equilibrium real GDP would _____.

6. The following diagram shows an aggregate supply curve and six aggregate demand curves.



a. The movements of the aggregate demand curves from AD_1 to AD_2, from AD_3 to AD_4, and from AD_5 to AD_6 all portray (increases, decreases) _____ in aggregate demand.

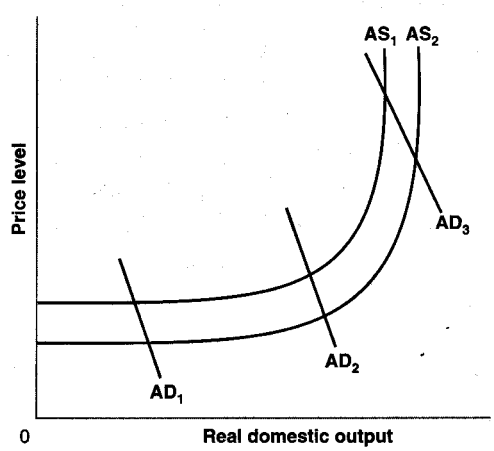
(1) The movement from AD_1 to AD_2 increases the (real domestic output, price level) _____ but does not change the _____.

(2) The movement from AD_3 to AD_4 will (raise, lower) _____ the price level and will (expand, contract) _____ the real domestic output.

(3) The movement from AD_5 to AD_6 will _____.

b. The movements of the aggregate demand curves to the left all portray (increases, decreases) _____ in aggregate demand. What effects will these changes in aggregate demand have on the real domestic output and the price level? _____

7. The following diagram shows two aggregate supply curves and three aggregate demand curves.



a. The movement of the aggregate supply curve from AS_1 to AS_2 represents (an increase, a decrease) _____ in aggregate supply. If the price level is flexible downward and upward, this change in aggregate supply in each of the three ranges along the aggregate supply curve will (raise, lower) _____ the price level and (expand, contract) _____ the real domestic output.

b. The movement of aggregate supply from AS_2 to AS_1 portrays _____ in aggregate supply and in each of the three ranges will _____ the price level and _____ the real domestic output.

■ SHORT ANSWER AND ESSAY QUESTIONS

1. What is the aggregate demand curve? Draw a graph of one and explain its features.

2. Explain
(a) the interest-rate effect;
(b) the real-balances effect; and
(c) the foreign purchases effect of a change in the price level on the quantity of goods and services demanded in an economy.

3. What roles do the expectations of consumers and businesses play in influencing aggregate demand?

4. Explain the real-balances effect and its impact on purchasing power. Give an example.

5. What is the effect of an increase in aggregate expenditures on the aggregate demand curve? Explain in words and with a graph.

6. The aggregate supply curve is divided into three distinct ranges. Describe the slope of this curve in each of the three ranges. What conditions prevail in the economy in each of the ranges?

7. Why does the aggregate supply curve slope upward in the intermediate range?

8. How does an increase or decrease in per-unit production costs change aggregate supply? Give examples.

9. How does the legal and institutional environment affect aggregate supply? Give examples.

10. Explain how a change in business taxes affects aggregate demand and aggregate supply.

11. Describe how changes in the international economy influence aggregate demand or aggregate supply.

12. What is the relationship between the production possibilities curve and aggregate supply?

13. What real domestic output is the equilibrium real domestic output? What will happen to real output if the price level is below equilibrium?

14. What are the effects on the real domestic output and the price level when aggregate demand increases in each of the three ranges along the aggregate supply curve?

15. How are the three ranges of the aggregate supply curve, the price level, and the multiplier related? What is the relationship between the effect of an increase in aggregate demand on real GDP and the rise in the price level that accompanies it?

16. If prices were as flexible downward as they are upward, what would be the effects on real domestic output and the price level of a decrease in aggregate demand in each of the three ranges along the aggregate supply curve?

17. Give reasons for why prices in the economy tend to be "sticky" or inflexible in a downward direction in the horizontal range of aggregate supply.

18. What are the effects on the real domestic output and the price level of a decrease in aggregate supply?

19. How does an increase in aggregate supply affect the price level and real output?

20. Using the aggregate demand and aggregate supply concepts, explain the difference between demand-pull and cost-push inflation.