Chapter 9

MACROECONOMIC EQUILIBRIUM: AGGREGATE DEMAND AND SUPPLY

FUNDAMENTAL QUESTIONS

1. What factors affect aggregate demand?

   The nonprice determinants of aggregate demand are consumption, investment, government spending, and net exports. The downward slope of the aggregate demand curve is due to the wealth effect, the interest rate effect, and the international trade effect.

2. What causes the aggregate demand curve to shift?

   Anything that affects consumption, investment, government spending, or net exports will cause the aggregate demand curve to shift: changes in income, wealth, demographics, expectations, taxes, the interest rate, technology, the cost of capital goods, capacity utilization, foreign income and price levels, exchange rates, and government policies.

3. What factors affect aggregate supply?

   The **aggregate supply curve** shows the quantity of national output (or income) produced at different price levels. It has an upward slope because higher prices, *ceteris paribus*, mean higher profits, which induce producers to offer more output for sale.

4. Why does the short-run aggregate supply curve become steeper as real GDP increases?

   As the level of real GDP increases, more and more sectors of the economy approach capacity. In order to lure resources from other uses, firms must offer higher and higher resource payments. Prices must rise higher and higher to induce increases in output. Finally, no more output can be produced and existing output must be "rationed" to those who are willing to pay the highest prices.

5. Why is the long-run aggregate supply curve vertical?

   The **long-run aggregate supply curve** is vertical because in the long run there is no relationship between changes in the price level and changes in output. The economy has made all of its adjustments, and no further output can be produced with existing resources and technology. In particular, higher prices cannot induce more output.

6. What causes the aggregate supply curve to shift?

   The aggregate supply curve shifts if resource prices, technology, or expectations change.

7. What determines the equilibrium price level and real GDP?

   The equilibrium price level and real GDP are determined by the intersection of aggregate demand and aggregate supply.

Key Terms

demand-pull inflation
cost-push inflation
wealth effect
interest rate effect
international trade effect
aggregate demand curve
aggregate supply curve
long-run aggregate supply curve (LRAS)

Quick-Check Quiz

Section 1: Aggregate Demand, Aggregate Supply, and Business Cycles

1. If aggregate demand increases,
   a. the equilibrium price and the level of real GDP will increase.
   b. the equilibrium price will increase, but the level of real GDP will decrease.
   c. the equilibrium price and the level of real GDP will decrease.
   d. the equilibrium price will decrease, but the level of real GDP will increase.
   e. unemployment will increase.

2. If aggregate supply increases,
   a. the equilibrium price and the level of real GDP will increase.
   b. the equilibrium price will increase, but the level of real GDP will decrease.
   c. the equilibrium price and the level of real GDP will decrease.
   d. the equilibrium price will decrease, but the level of real GDP will increase.
   e. demand-pull inflation will result.

3. Demand-pull inflation results from
   a. an increase in aggregate demand.
   b. a decrease in aggregate demand.
   c. an increase in aggregate supply.
   d. a decrease in aggregate supply.
   e. the price level rising because of higher production costs.

4. Cost-push inflation results from
   a. an increase in aggregate demand.
   b. a decrease in aggregate demand.
   c. an increase in aggregate supply.
   d. a decrease in aggregate supply.
   e. the price level rising because of increasing demand for output.

5. Other things being equal, a decrease in aggregate supply will cause
   a. an increase in equilibrium real GDP and an increase in the equilibrium price level.
   b. an economic expansion.
   c. an increase in unemployment and an increase in inflation.
   d. a decrease in equilibrium real GDP and a decrease in the equilibrium price level.
   e. deflation.

Section 2: Factors That Influence Aggregate Demand

1. Which of the following does *not* affect consumption?
   a. income
   b. wealth
   c. expectations
   d. the cost of capital goods
   e. taxation

2. Which of the following is *not* a determinant of investment?
   a. the interest rate
   b. technology
   c. disposable income
   d. the cost of capital goods
   e. capacity utilization

3. Which of the following will increase investment?
   a. an increase in the rate of capacity utilization
   b. an increase in interest rates
   c. an increase in disposable income
   d. an increase in the cost of capital goods
   e. a decrease in expected profits

4. Which of the following will *not* decrease investment?
   a. an increase in the cost of capital goods
   b. an improvement in technology
   c. an increase in interest rates
   d. unfavorable changes in tax policy
   e. rumors that the government will nationalize firms

5. Which of the following will increase consumption?
   a. a decrease in disposable income
   b. an increase in wealth
   c. gloomy expectations about the economy
   d. a decrease in population
   e. an increase in expected profits

6. Which of the following does the text cite as a determinant of government spending?
   a. population
   b. disposable income
   c. interest rates
   d. taxes
   e. The text does not cite any of these as determinants of government policy; it assumes that government authorities set government spending at whatever level they choose.

7. Which of the following is *not* a determinant of exports?
   a. foreign income
   b. domestic disposable income
   c. tastes
   d. government trade restrictions
   e. exchange rates

8. Which of the following will *not* cause an increase in exports?
   a. an increase in foreign incomes
   b. domestic currency depreciation
   c. a favorable change in tastes
   d. domestic currency appreciation
   e. a lowering of trade restrictions

9. Which of the following does *not* affect aggregate demand?
   a. consumption
   b. costs of production
   c. investment
   d. government spending
   e. net exports

10. Other things being equal, a strong U.S. dollar will result in
   a. a decrease in foreign aggregate expenditures.
   b. a decrease in foreign demand for U.S. goods.
   c. an increase in U.S. aggregate expenditures.
   d. an increase in U.S. domestic investment spending.
   e. a decrease in U.S. demand for foreign goods.

Section 3: The Aggregate Demand Curve

1. Which of the following will increase aggregate demand?
   a. a decrease in wealth
   b. an increase in interest rates
   c. a decrease in foreign incomes
   d. appreciation of the domestic currency
   e. an increase in foreign price levels

2. Which of the following will *not* decrease aggregate demand?
   a. expectations that the economy is heading toward a recession
   b. depreciation of the domestic currency
   c. a fall in foreign incomes
   d. an increase in the cost of capital goods
   e. excess capacity in manufacturing

3. Which of the following will increase aggregate demand?
   a. an increase in taxes
   b. an increase in the proportion of middle-age households
   c. an increase in government spending
   d. a decrease in taxes
   e. items c and d above

4. Which of the following is a reason for the aggregate demand curve to slope downward?
   a. the substitution effect
   b. the income effect
   c. the interest rate effect
   d. the expectations effect
   e. the foreign price level effect

5. When prices increase, people and businesses need ___________ money. They ___________ bonds, causing interest rates to ___________ and aggregate expenditures to ___________ .
   a. more; buy; fall; rise
   b. more; sell; fall; rise
   c. more; buy; rise; fall
   d. more; sell; rise; fall
   e. less; buy; fall; rise

6. When the price level falls, domestic goods become ___________ for foreigners. Net exports ___________ , and aggregate expenditures ___________ . This is called the ___________ effect.
   a. cheaper; rise; rise; international trade
   b. cheaper; fall; fall; international trade
   c. cheaper; rise; fall; international trade
   d more expensive; fall; fall; international trade
   e. cheaper; rise; rise; wealth

7. Which of the following does *not* cause aggregate demand to have a negative slope?
   a. wealth effect
   b. substitution effect
   c. income and substitution effects
   d. international trade effect
   e. interest rate effect

8. When the price level falls, the value of household and business assets __________ . Households and firms spend __________ , and aggregate expenditures __________ . This is called the __________ effect.
   a. increases; more; rise; income
   b. increases; more; rise; wealth
   c. decreases; less; fall; income
   d. decreases; less; fall; wealth
   e. decreases; more; rise; wealth

9. Which of the following do *not* cause aggregate demand to shift?
   a. changes in expectations
   b. changes in the price level
   c. changes in foreign incomes
   d. changes in foreign prices
   e. changes in government policy

Section 4: Aggregate Supply

1. The aggregate supply curve illustrates a __________ relationship between the quantity of national output and different price levels. This relationship is explained by the effect of __________ .
   a. negative; changing prices on profits
   b. positive; changing prices on profits
   c. negative; relative price changes
   d. positive; negative price changes
   e. positive; changes in interest rates

2. Which of the following will cause aggregate supply to shift?
   a. changes in the domestic price level
   b. changes in real GDP
   c. changes in foreign incomes
   d. changes in resource prices
   e. changes in national output

Practice Questions and Problems

Section 1: Aggregate Demand, Aggregate Supply, and Business Cycles

1. ____________ represents the total spending in the economy at alternative price levels.
2. ____________ represents the total output of the economy at alternative price levels.
3. ____________ inflation is inflation caused by increasing demand for output.
4. If aggregate demand falls, the equilibrium level of income ____________ .
5. A(n) ____________ in aggregate supply leads to an increase in the equilibrium level of national income.
6. An increase in the price level caused by increased costs of production is called ____________ inflation.
7. The slope of the aggregate demand curve is ____________ .
8. The slope of the aggregate supply curve is ____________ (in the short run).

Section 2: Factors That Influence Aggregate Demand

1. If wealth decreases, consumption ____________ .
2. ____________ is spending by households.
3. If households expect an economic expansion, ____________ increases.
4. If demographics change so that a greater percentage of the population consists of older households, consumption ____________ .
5. As foreign income rises, net exports ____________ .
6. If a new trade agreement with Japan succeeds in opening Japanese markets to U.S. goods, net exports will ____________ .
7. ____________ (Price effects, Nonprice effects) are reflected in movements along the aggregate demand curve; ____________ (price effects, nonprice effects) are shifts in aggregate demand.
8. ____________ equal exports minus imports.
9. When consumers expect future income to increase, consumption ____________ (increases, decreases, does not change).
10. *Ceteris paribus*, economists expect consumption to ____________ (rise, fall, not change) as the population increases.
11. As taxation increases, consumption ____________ (rises, falls, does not change).
12. ____________ is business spending on capital goods and inventories.

13. As household wealth increases, consumption __________ (increases, decreases).
14. List the five determinants of consumption.

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15. As the interest rate falls, the rate of return from an investment __________ (rises, falls).
16. As the cost of capital goods rises, the amount of investment __________ (rises, falls).
17. When capacity utilization is high, investment tends to __________ (rise, fall).
18. List the four determinants of investment.

____

____

____

____

19. When the domestic currency depreciates, imports __________ (rise, fall).
20. The higher the domestic income, the __________ (higher, lower) the net exports.
21. List the four determinants of net exports.

____

____

____

____

22. When domestic income increases, imports __________ (increase, decrease).

Section 3: The Aggregate Demand Curve

1. As the level of prices increases, the purchasing power of money __________ (increases, decreases) and the real value of assets __________ (increases, decreases). The __________ effect, or real-balance effect, predicts that the real value of aggregate expenditures will then __________ (rise, fall).
2. When prices increase, people __________ (buy, sell) bonds to get money. Bond prices __________ (increase, decrease), and interest rates __________ (rise, fall). The __________ effect suggests that aggregate expenditures will then __________ (rise, fall).
3. If domestic prices rise while foreign prices and foreign exchange rates remain constant, domestic goods will become __________ (less expensive, more expensive) for foreigners. Net exports will __________ (rise, fall), causing aggregate expenditures to __________ (rise, fall).
4. When the price level falls, aggregate expenditures __________ (rise, fall).

5. The __________ shows how the equilibrium level of expenditures changes as the price level changes.
6. If foreign prices fall, foreign goods become __________ (less expensive, more expensive), which causes __________ (a movement along the aggregate demand curve, a shift to the left of the aggregate demand curve).
7. A fall in the domestic price level causes __________ (a movement along the aggregate demand curve, a shift in aggregate demand to the left).
8. List the three types of price-level effects on total spending.

    ____

    ____

    ____

9. Positive expectations about the economy increase __________ and __________, which in turn __________ (increases, decreases) aggregate demand.
10. Higher foreign incomes cause __________ to rise, causing __________ (a movement along the aggregate demand curve, a shift in aggregate demand to the right).

Section 4: Aggregate Supply

1. The __________ shows the quantity of national output (or income) produced at different price levels.
2. The slope of the short-run aggregate supply curve is __________ because of the effect of changing prices on __________.
3. If the prices of output increase while all other prices remain unchanged, business profits will __________ (increase, decrease) and producers will produce __________ (more, less) output.
4. The __________ is the period of time when costs are variable.
5. The __________ is the period of time when all production costs remain constant.
6. List the three nonprice determinants of short-run aggregate supply.

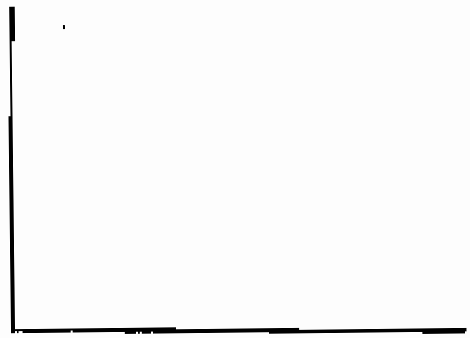
    ____

    ____

    ____

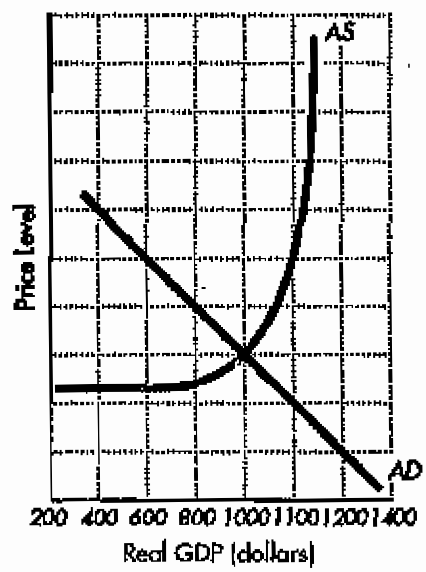
7. When the prices of resources fall, the short-run aggregate supply curve shifts to the __________ (right, left).
8. The __________ of the short-run aggregate supply curve reflects the fact that some sectors of the economy are approaching capacity.
9. Where the capacity output is reached, the short-run aggregate supply curve is a __________ line.

10. The ____________ curve is a vertical line at the potential level of national income.
11. Draw a short-run aggregate supply curve on the graph below. Label your axes.



Section 5: Aggregate Demand and Supply Equilibrium

1. The equilibrium level of income is at the point where ____________ equals ____________.
2. The short-run equilibrium level of income on the graph below is ____________.



3. In the long run, there ____________ (is, is not) a relationship between the level of prices and the level of output.
4. In the short run, changes in aggregate demand determine the level of prices and income. In the long run, changes in aggregate demand determine only the ____________.

Thinking About and Applying Macroeconomic Equilibrium: Aggregate Demand and Supply

I. Aggregate Demand and Its Determinants

Now that you have finished this chapter, you should be able to predict the effect on aggregate demand when one of its determinants changes. In the exercise below, decide which of the spending components each event affects, whether it increased or decreased the component, and whether it increased or decreased aggregate demand. Remember the determinants of each component of aggregate demand:

Consumption: income, wealth, expectations, demographics, taxes
Investment: interest rate, cost of capital goods, technology, capacity utilization
Government spending: set by government authorities
Net exports: foreign and domestic income, foreign and domestic prices, exchange rates, government policy

Events

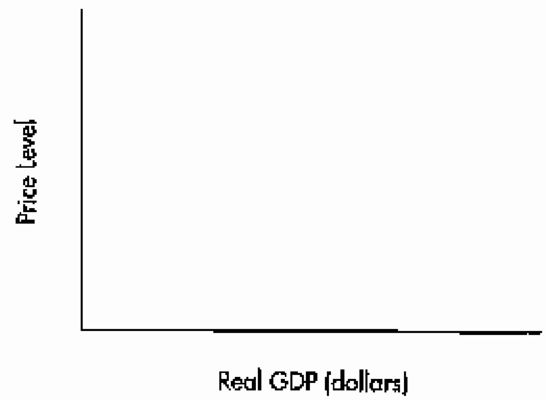
1. Interest rates increase.
2. The dollar depreciates against foreign currencies.
3. The government increases its spending.
4. Foreign incomes rise.
5. The population increases more quickly.
6. Factories note a decline in the rate of capacity utilization.
7. The government imposes a nationwide sales tax on retail goods and services.
8. The cost of capital goods decreases.

	Component	Effect on Component	Effect on Aggregate Demand
1.	Investment	Decrease	Decrease
2.			
3.			
4.			
5.			
6.			
7.			
8.			

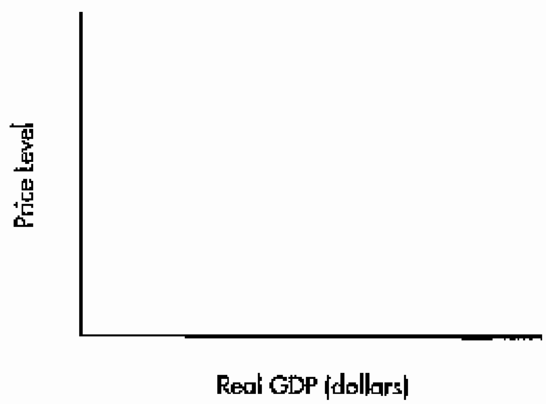
II. Aggregate Demand and Supply Equilibrium

Assume that the following are short-run situations.

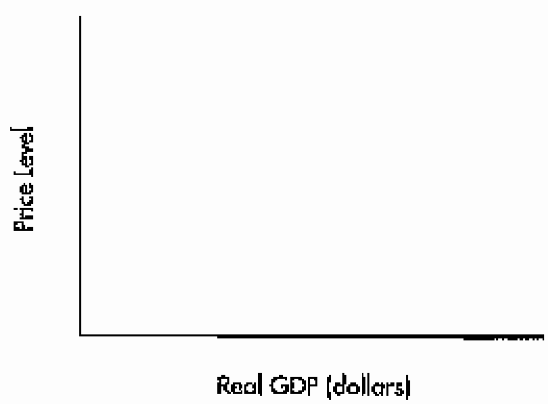
1. On the graph below, show how an increase in aggregate demand could produce a higher output with no change in prices.



2. On the graph below, show a decrease in aggregate demand that produces a lower price level and lower real GDP.



3. On the graph below, show how an increase in aggregate demand could result in higher prices at the same level of real GDP.



III. A Long-Run Analysis of the Effects of a Slump in Productivity

Many people have been concerned about the slower growth of productivity in recent years. Suppose that the growth of productivity in the United States not only slows, but actually decreases. This could result from declines in basic skills that some educators believe are surfacing in the nation's high schools. What will happen to the equilibrium price level and real GDP in the long run? Use the graph below to analyze this problem. Be sure to label your axes.

IV. Sorting Out the Determinants of Aggregate Demand and Aggregate Supply

Place each of the items under the proper category. Some items can be placed in more than one category.

Wealth effect	Wealth	Domestic income
Resource prices	Expectations	Foreign income
Income	Interest rate effect	Domestic prices
Taxes	Price level	Foreign prices
Interest rates	Demographics	Exchange rate
International trade effect	Cost of capital goods	Government policies
Changes in technology	Capacity utilization	Government spending

Shifts in Aggregate Demand	**Shifts in Aggregate Supply**
____________ ____________	____________ ____________
____________ ____________	____________
____________ ____________	
____________ ____________	
____________ ____________	
____________ ____________	
____________ ____________	
____________	
Movement Along *AD*	**Movement Along *AS***
____________ ____________	____________
____________ ____________	

Chapter 9 Homework Problems

Name ______________________________

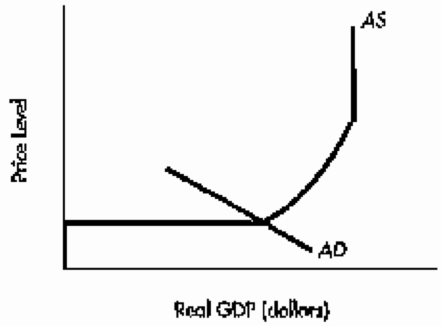
1. List the three effects that cause the aggregate demand curve to slope downward.

2. List the four components (the nonprice determinants) that make up aggregate demand.

3. List the three nonprice determinants of the short-run aggregate supply curve.

4. Sketch the short-run aggregate supply curve and explain why it has three regions (horizontal, rising, vertical).

5. a. The economy is currently in the equilibrium position shown on the graph below. For each event listed, predict the effect (increase, decrease, or remain the same) on the price level and real GDP.



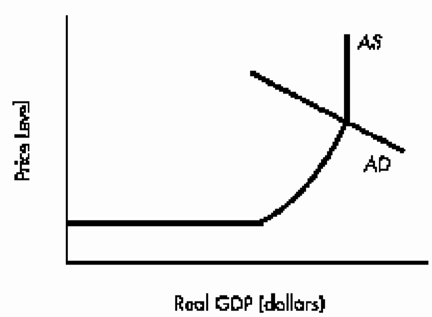
i. Government spending increases:
price level ___________ real GDP ___________

ii. Taxes increase:
price level ___________ real GDP ___________

iii. The interest rate decreases:
price level ___________ real GDP ___________

iv. Net exports decrease:
price level ___________ real GDP ___________

b. Now suppose the economy is currently in the equilibrium position shown on the graph below. For each event listed, predict the effect (increase, decrease, or remain the same) on the price level and real GDP.



i. Government spending increases:
price level ___________ real GDP ___________

ii. Taxes increase:
price level ___________ real GDP ___________

iii. The interest rate decreases:
price level ___________ real GDP ___________

iv. Net exports decrease:
price level ___________ real GDP ___________

If your instructor assigns these problems, write your answers above, then tear out this page and hand it in.

Answers

Quick-Check Quiz

Section 1: Aggregate Demand, Aggregate Supply, and Business Cycles

1. a; 2. d; 3. a; 4. d; 5. c
If you missed any of these questions, you should go back and review Section 1 of Chapter 9.

Section 2: Factors That Influence Aggregate Demand

1. d; 2. c; 3. a; 4. b; 5. b; 6. e; 7. b; 8. d; 9. b; 10. b
If you missed any of these questions, you should go back and review Section 2 of Chapter 9.

Section 3: The Aggregate Demand Curve

1. e; 2. b; 3. c; 4. c; 5. d; 6. a; 7. c; 8. b; 9. b
If you missed any of these questions, you should go back and review Section 3 of Chapter 9.

Section 4: Aggregate Supply

1. b; 2. d; 3. c; 4. e; 5. c; 6. b; 7. b; 8. b
If you missed any of these questions, you should go back and review Section 4 of Chapter 9.

Section 5: Aggregate Demand and Supply Equilibrium

1. a; 2. c; 3. c
If you missed any of these questions, you should go back and review Section 5 of Chapter 9.

Practice Questions and Problems

Section 1: Aggregate Demand, Aggregate Supply, and Business Cycles

1. Aggregate demand
2. Aggregate supply
3. Demand-pull
4. falls
5. increase
6. cost-push
7. negative (downward-sloping)
8. positive (upward-sloping)

Section 2: Factors That Influence Aggregate Demand

1. decreases
2. Consumption
3. consumption
4. increases
5. increase
6. increase
7. Price effects; nonprice effects

8. Net exports
9. increases
10. rise
11. falls
12. Investment
13. increases
14. income
    wealth
    expectations
    demographics
    taxes
15. rises
16. falls
17. rise
18. interest rate
    technology
    cost of capital goods
    capacity utilization
19. fall
20. lower
21. foreign and domestic income
    foreign and domestic prices
    exchange rates
    government policy
22. increase

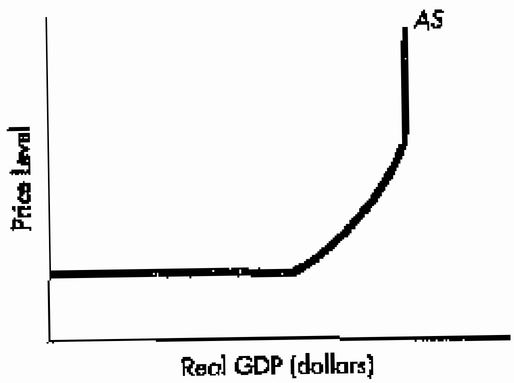
Section 3: The Aggregate Demand Curve

1. decreases; decreases; wealth; fall
2. sell; decrease; rise; interest rate; fall
3. more expensive; fall; fall
4. rise
5. aggregate demand curve
6. less expensive; a shift to the left of the aggregate demand curve
7. a movement along the aggregate demand curve
8. wealth effect
   interest rate effect
   international trade effect
9. consumption; investment; increases
10. exports; a shift in aggregate demand to the right

Section 4: Aggregate Supply

1. aggregate supply curve
2. positive; expected profits
3. increase; more
4. long run
5. short run

6. resource prices
   technology
   expectations
7. right
8. upward slope
9. vertical
10. long-run aggregate supply curve
11.



Section 5: Aggregate Demand and Supply Equilibrium

1. aggregate demand; aggregate supply
2. 1,000
3. is not
4. level of prices

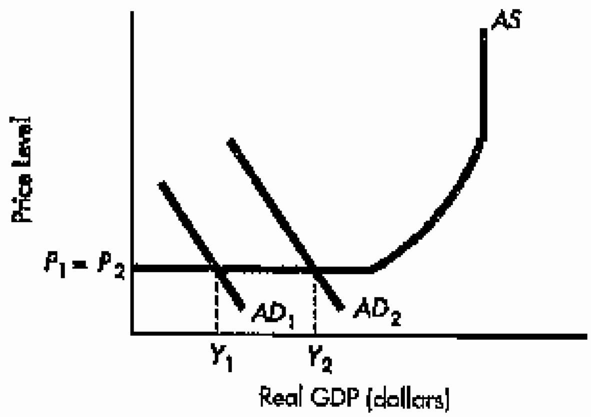
Thinking About and Applying Macroeconomic Equilibrium: Aggregate Demand and Supply

I. Aggregate Demand and Its Determinants

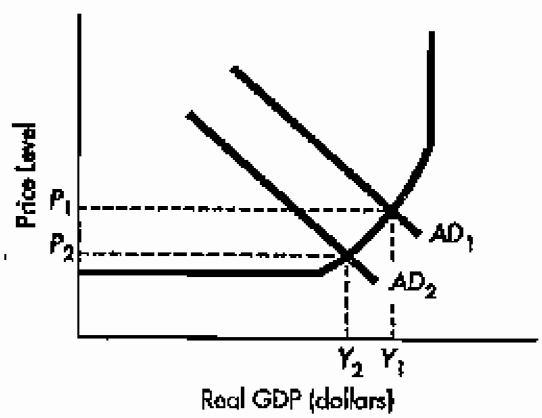
	Component	Effect on Component	Effect on Aggregate Demand
1.	Investment	Decrease	Decrease
2.	Net exports	Increase	Increase
3.	Government spending	Increase	Increase
4.	Net exports	Increase	Increase
5.	Consumption	Increase	Increase
6.	Investment	Decrease	Decrease
7.	Consumption	Decrease	Decrease
8.	Investment	Increase	Increase

II. Aggregate Demand and Supply Equilibrium

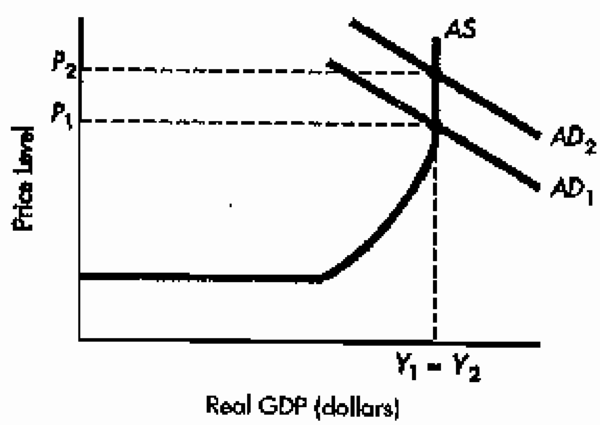
1. You need to draw your aggregate demand curves so that the shifts are confined to the horizontal region of the short-run aggregate supply curve.



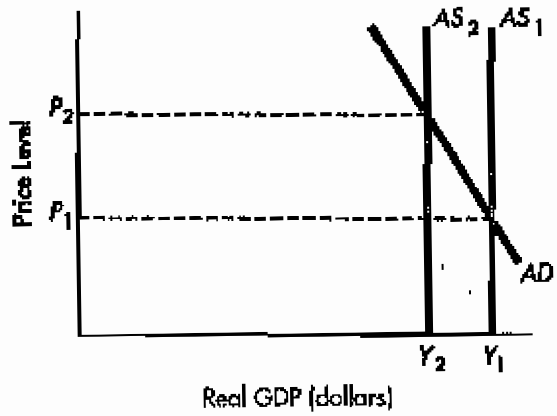
2. You need to draw your aggregate demand curves so that the shifts are confined to the upward-sloping region of the short-run aggregate supply curve.



3. You need to draw your aggregate demand curves so that the shifts are confined to the vertical region of the short-run aggregate supply curve.



III. A Long-Run Analysis of the Effects of a Slump in Productivity



A decrease in productivity causes the long-run aggregate supply curve to shift to the left. If aggregate demand does not change, equilibrium real GDP will be lower and the price level will be higher—a very sorry prospect indeed.

IV. Sorting Out the Determinants of Aggregate Demand and Aggregate Supply

Shifts in Aggregate Demand		**Shifts in Aggregate Supply**	
Income	Domestic income	Resource prices	Expectations
Taxes	Foreign income	Changes in technology	
Interest rates	Domestic prices		
Wealth	Foreign prices		
Expectations	Exchange rate		
Demographics	Government policies		
Cost of capital goods	Government spending		
Capacity utilization			
Movement Along *AD*		**Movement Along *AS***	
Wealth effect	Interest rate effect	Price level	
International trade effect	Price level		