

Aggregate Supply and Aggregate Demand Analysis Continued

Introduction and Description

Manipulation of the aggregate demand and aggregate supply model continues in this lesson. In particular, the students will practice shifting each curve and explaining why the curve shifted. The lesson then explores how the economy moves from the short run to the long run. In order for the students to explain the move from the short run to the long run, it is essential that they understand the framework of aggregate demand and aggregate supply.

Activity 27 provides the students with practice interpreting scenarios and determining the effects on aggregate demand, aggregate supply, the price level and the level of output. The students work through the transition of the economy from the short run to the long run and explain the process in the economy in Activity 28.

Objectives

1. Explain the shifts in aggregate demand.
2. Explain the shifts in aggregate supply.
3. Explain the price and output effects of shifts in aggregate demand and aggregate supply.
4. Explain the effects on price and output as the economy moves from the short run to the long run.
5. Explain the effects on nominal wage, real wage and employment of the movement from the short run to the long run.

Time Required

Four class periods or 180 minutes

Materials

1. Activities 27 and 28
2. Visual 3.13

Procedure

1. Review the factors that shift the aggregate demand curve. These factors include changes in autonomous consumption, changes in autonomous investment, changes in government spending, changes in taxes and changes in the money supply. Have the students complete Part A of Activity 27. Review the answers with the students.
2. Review the factors that shift the short-run aggregate supply curve. These factors include changes in resource prices, changes in technology, changes in capital stock and changes in expectations. Have the students complete Part B of Activity 27 in class and discuss the answers.
3. Now have the students put short-run aggregate supply and demand together to illustrate the effects of shifts of AD and AS on the price level and real GDP. Have the students complete Part C of Activity 27. Review the answers.
4. Throughout this unit, the discussion has focused on short-run changes in the economy. We now turn to the long run. What happens after the initial effects in the aggregate demand and aggregate supply model? Project Visual 3.13.
 - (A) The economy is initially at full employment output: Y^* .
 - (B) There is an increase in aggregate demand: $AD \rightarrow AD_1$.
 - (C) Output increases to Y_1 , and the price level increases to P_1 .

The increase in the price level means that real wages have fallen. Labor will push for higher nominal wages to compensate for the higher price level. The increase in nominal wages will shift the aggregate supply curve to the left. Eventually, the economy will return to the potential output level, Y^* , but at a higher price

level, P_2 . This is the process of adjustment over the long run.

5. Go back to some of the supply shocks discussed in Activity 27 and have the students work through the changes that would occur in the long run. Note that over time the economy will
6. Have the students complete Activity 28 for homework.
7. Review Activity 28.

end up at the full-employment level of output along the LRAS curve.

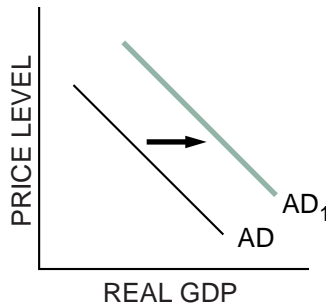
Manipulating the AD and AS Model: Exogenous Demand and Supply Shocks

Part A

Exogenous Demand Shocks

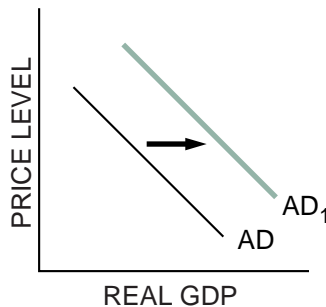
An *exogenous demand shock* is a change in an exogenous variable — a variable determined outside the model — that affects aggregate demand. Read the description of each exogenous demand shock, and then draw a new AD curve that will represent the change the demand shock caused. Label the new curve AD_1 . Then briefly explain the reason for the change in the graph.

1. **Exogenous Demand Shock:** Economic booms in both Japan and Europe result in massive increases in orders for exported goods from the United States.



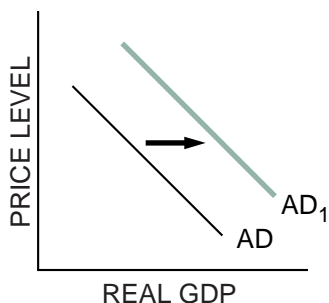
EXPLANATION: *Increased orders for exports will cause more people to be hired and their increased income will result in increased consumer spending. AD will increase.*

2. **Exogenous Demand Shock:** As part of its countercyclical policy, the government both reduces taxes and increases transfer payments.



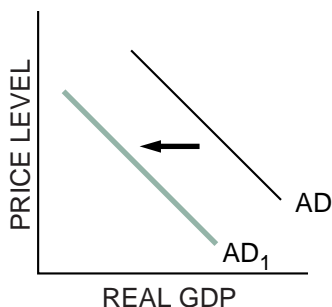
EXPLANATION: *With increased discretionary incomes, taxpayers will increase consumption. AD will increase.*

3. **Exogenous Demand Shock:** While the United States was in the midst of the Great Depression, a foreign power attacked. Congress declared war and more than 1,000,000 soldiers were drafted in the first year, while defense spending was increased several times over.



EXPLANATION: *Now consumers who had been unemployed or reluctant to spend their savings will respond by purchasing many goods they had postponed buying. The government is also increasing spending and its demand for goods and services. AD will increase.*

4. **Exogenous Demand Shock:** To balance the budget, the federal government cuts Social Security payments by 10 percent and federal aid to education by 20 percent.



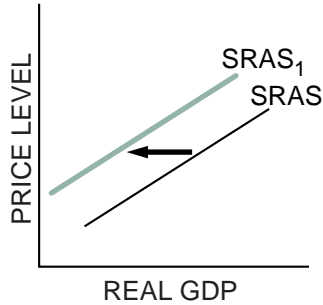
EXPLANATION: *Recipients of Social Security will have less income to spend. Local school districts will cut back by laying off teachers or will raise taxes. Either action will reduce discretionary income, and, thus consumption decreases. In turn, AD will decrease.*

Part B

Exogenous Supply Shocks

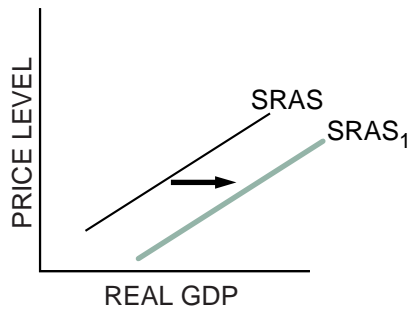
The cause of an *exogenous supply shock* is the change in an exogenous variable — a variable determined outside the model — that affects aggregate supply. Read the description of each exogenous shock to short-run aggregate supply, and then draw a new SRAS curve that will represent the change caused by the shock. Label the new curve SRAS₁. Then briefly explain the reason for the change in the graph.

5. **Exogenous Supply Shock:** New environmental standards raise the average cost of autos and trucks 5 percent.



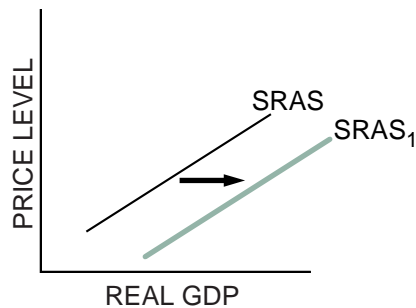
EXPLANATION: *The new standards result in increases in the costs of producing automobiles and trucks. This decreases AS.*

6. **Exogenous Supply Shock:** Fine weather results in the highest corn and wheat yields in 40 years.



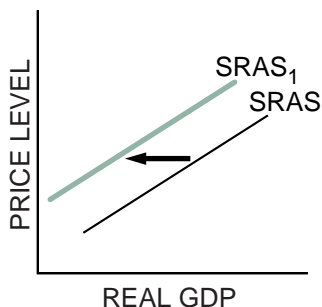
EXPLANATION: *The fine weather will increase the supply of corn and wheat, and if demand remains constant, the price will decrease. This in turn will decrease the price of inputs for many food-related industries. The SRAS curve will shift to the right.*

7. **Exogenous Supply Shock:** Because of decreased international tension, the government sells off thousands of army surplus Jeeps and trucks at prices that are far less than the market price for their commercial counterparts.



EXPLANATION: *The reduction in transportation costs will mean lower operating costs for industries using the Jeeps and trucks. The SRAS curve will shift to the right.*

8. **Exogenous Supply Shock:** An enemy power sets up a blockade of the sea lanes leading to a country, and most ships refuse to deliver cargo through the blockade.



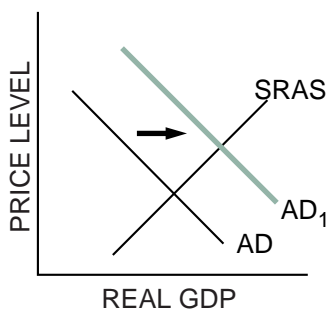
EXPLANATION: A *significant decrease in foreign goods, including inputs to American industries, will increase the cost of production. The SRAS curve will shift to the left.*

Part C

Manipulating the Aggregate Supply and Demand Model

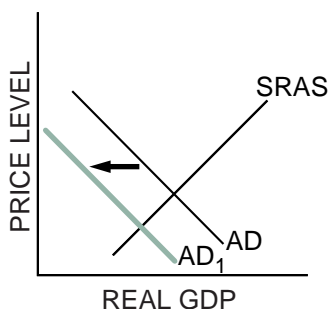
Read each of the scenarios below, and explain the impact the exogenous shocks will have on short-run aggregate supply and aggregate demand. Then draw a correctly labeled aggregate demand and aggregate supply graph to illustrate each short-run impact.

9. During a long, slow recovery from a recession, consumers postponed major purchases. Suddenly they begin to buy cars, refrigerators, televisions and furnaces to replace their failing models.



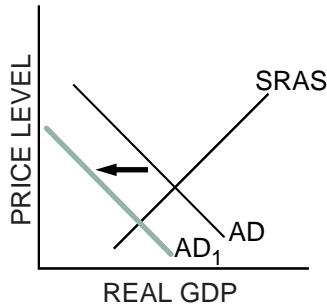
EXPLANATION: *AD will increase as a result of increased autonomous consumer spending.*

10. With no other dramatic changes, the government raises taxes and reduces transfer payments in the hope of balancing the federal budget.



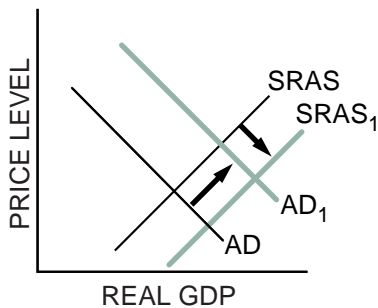
EXPLANATION: *Higher taxes and a reduction in transfer payments reduce disposable income, which reduces consumption spending.*

11. News of possible future layoffs frightens the public into reducing spending and increasing saving for the feared “rainy day.”



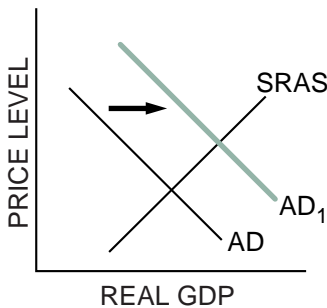
EXPLANATION: *A decrease in consumer confidence decreases consumption spending.*

12. Because of rising tensions in many developing countries, firms begin to build new factories in Econoland and to purchase sophisticated machinery from Econoland businesses that will enable them to produce in Econoland at prices that are competitive.



EXPLANATION: *The increase in investment spending will increase AD. The increase in machinery increases SRAS.*

13. Brazil solves its foreign debt and inflation problems. It then orders \$10 billion worth of capital machinery from Econoland. Draw the AD and short-run AS graph for Econoland.



EXPLANATION: *Econoland's exports increase. AD increases.*

The Macroeconomic Model: Short Run to Long Run

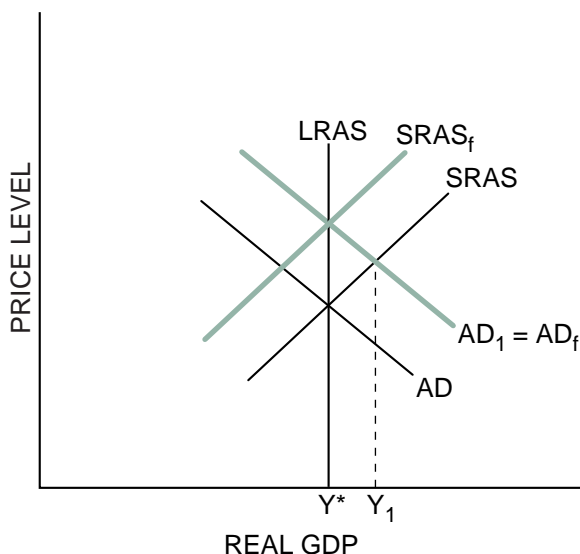
Part A

- In the following graph, suppose the aggregate demand shifts from AD to AD₁. How will the economy react over time? Assume that no monetary or fiscal policy is undertaken.



Figure 28.1

Increase in Aggregate Demand Starting at Full Employment



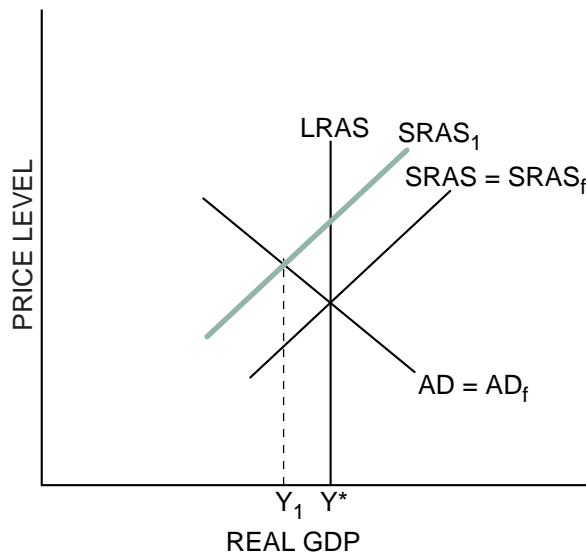
- What will happen to output in the short run? Explain. *Output initially increases to Y_1 in response to the increase in aggregate demand.*
- What will happen to output as the economy moves to the long-run equilibrium? Explain. *Over time, labor realizes that the real wage has decreased and demands a higher nominal wage. The increase in the nominal wage causes the short-run aggregate supply curve to decrease, and output returns to Y^* .*
- What will happen to the price level? Explain. *The price level increases initially because firms are paying overtime and are using less-productive resources to produce beyond full-employment output. The price level will continue to rise to cover increased labor costs.*

(D) What will happen to wages? Explain. *With the increase in AD, the price level rises and the real wage decreases. Once labor realizes that the real wage has decreased, it demands higher nominal wages, forcing the real wage to return to the original level. In response to the increase in nominal wages, firms increase price and the SRAS shifts leftward.*

(E) In the graph, draw the shifts in AD and SRAS that you think will occur. Indicate the final aggregate demand and short-run aggregate supply curves by labeling them as AD_f and $SRAS_f$. *There are many shifts in the short-run aggregate supply curve between the original and $SRAS_f$ depending on how long it takes the economy to adjust. The economy will return to full employment.*

2. In the following graph, suppose the aggregate supply shifts from SRAS to $SRAS_1$. How will the economy react over time? Assume that no monetary or fiscal policy is undertaken.

* Figure 28.2
Change in Short-Run Aggregate Supply



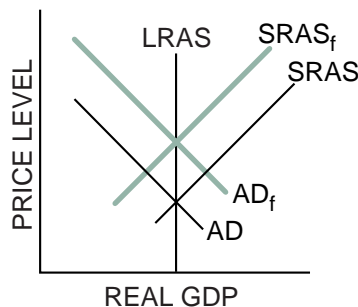
(A) What will happen to output in the short run? Explain. *Output will decrease to Y_1 because of the decrease in short-run aggregate supply.*

- (B) What will happen to output as the economy moves to the long-run equilibrium? Explain. *Output will increase back to Y^* because the level of unemployment has driven the nominal wage down, and the short-run aggregate supply curve will shift back to the original SRAS.*
- (C) What will happen to the price level? Explain. *The price level initially increases because of the forces that caused the aggregate supply curve to shift to the left. Then the price level will fall as nominal wages decrease.*
- (D) What will happen to wages? Explain. *Initially, nominal wages do not change and real wages decrease. But as the level of unemployment eventually increases, nominal wages will decrease.*
- (E) In the graph, draw the shifts in AD and SRAS that you think will occur. Indicate the final aggregate demand and short-run aggregate supply curves by labeling them as AD_f and $SRAS_f$. *There are many shifts in the short-run aggregate supply curve between the original and $SRAS_f$ depending on how long it takes the economy to adjust. The economy will return to full employment.*

Part B

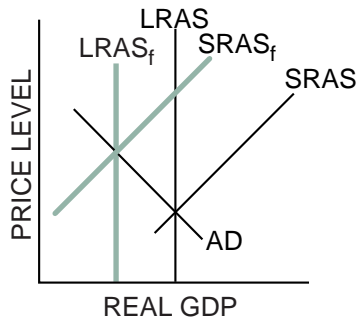
Read the description of each exogenous shock to aggregate supply and aggregate demand. Draw a new SRAS or AD curve that represents the change caused by the shock in the short run. Explain the reasons for the change in the graph, and then explain what happens in the long run if no stabilization policy is implemented. Identify the final AD curve as AD_f and the final SRAS curve as $SRAS_f$. If there is a change in LRAS, show the change and label the new curve $LRAS_f$.

3. The government increases defense spending by 10 percent a year over a five-year period.



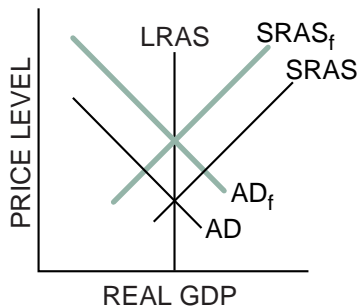
EXPLANATION: *Higher government spending increases the AD in the short run. Over the medium run, nominal wages increase to maintain real wages, and the SRAS decreases. The final result is on the LRAS at $SRAS_f$ and AD_f .*

4. OPEC cuts oil production by 30 percent, and the world price of oil rises by 40 percent.



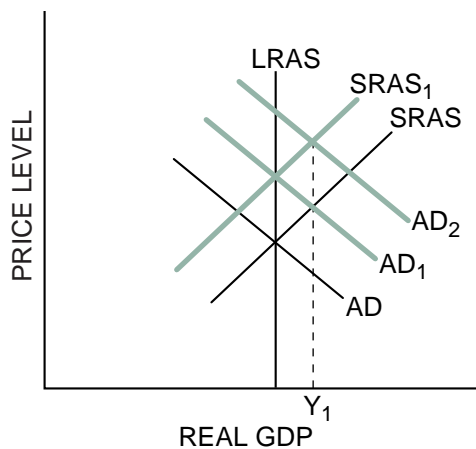
EXPLANATION: *Higher production costs decrease SRAS to SRAS_f. If the increase is permanent, the LRAS will also decrease to LRAS_f, if the capital stock can't be modified to use an alternative fuel.*

5. The government increases spending on education, health care, housing and basic services for low-income people. No increase in taxes accompanies the program.



EXPLANATION: *Higher government spending increases the AD in the short run. Over the longer run, nominal wages increase to maintain real wages, and the SRAS decreases. The final result is on the LRAS at SRAS_f and AD_f.*

6. Can the government maintain output above the natural level of output with aggregate demand policy? If the government attempts to, what will be the result?



If the government wants to move the economy to Y₁, a level of output above the natural level of output, then it must increase aggregate demand to AD₁. There will be a tendency for the SRAS to shift to the left as labor demands higher nominal wages. The SRAS will shift to SRAS₁. The expansionary policy has resulted in increases in the price level. If the government wants to maintain a level of Y₁, then it must continue to implement additional expansionary policy as shown in AD₂. There will continue to be a tendency for the SRAS to shift left; the government must continue to implement expansionary policy to keep the economy at Y₁. This is shown in the graph.