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Aggregate Demand and Aggregate Supply

Anderson, Survey of Economics 1e

LEARNING OBJECTIVES

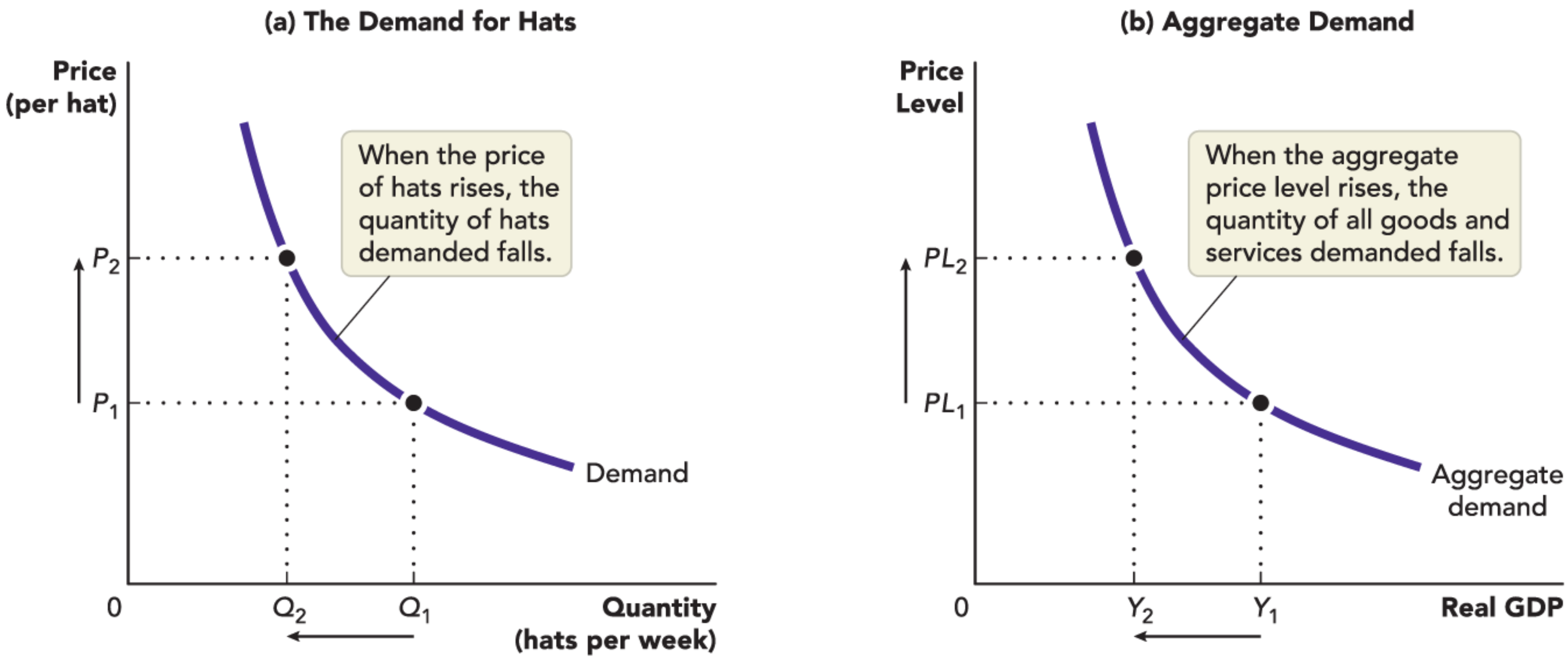
1. Explain the shape and shifters of the aggregate demand curve
2. Describe how the multiplier effect increases aggregate demand
3. Explain the shape and shifters of the short-run aggregate supply curve
4. Discuss how changes in the macroeconomic equilibrium affect the price level and real GDP
5. Illustrate economic growth using a long-run aggregate supply curve

AGGREGATE DEMAND

- **Aggregate**—something that is formed by combining many parts.

- **Aggregate demand curve**—a curve that shows the quantity of all final goods and services demanded in an economy at various price levels.

AGGREGATE DEMAND CURVE



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Notice that the axes on the graphs are different.

- The demand graph measures the price (P) and quantity (Q) of one good.
- The aggregate demand graph measures the price level (PL) in the economy and real gross domestic product (Y).

SLOPE OF THE AGGREGATE DEMAND CURVE

- The negative slope of the aggregate demand curve is due to the fact that when the overall price level in an economy changes, the price of goods and services change by roughly the same proportion.

- Three effects that cause the aggregate demand curve to slope downward are:
  - real wealth effect
  - interest rate effect
  - foreign trade effect

THE REAL WEALTH EFFECT

- The **real wealth effect** is the decrease in the quantity of goods and services demanded as a result of a decrease in consumers' real wealth that is caused by inflation.

To summarize using an increase in price level:

Price level ↑ → The value of wealth ↓ →
Consumers feel poorer →
Consumption ↓ → Real GDP demanded ↓

THE INTEREST RATE EFFECT

- The **interest rate effect** is the decrease in investment that occurs when a rise in the price level causes an increase in the interest rate.

To summarize using an increase in price level:

Price level $\uparrow$ $\rightarrow$ Money demand $\uparrow$ $\rightarrow$ Interest rate $\uparrow$ $\rightarrow$ Investment $\downarrow$ $\rightarrow$ Real GDP demanded $\downarrow$

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THE FOREIGN TRADE EFFECT

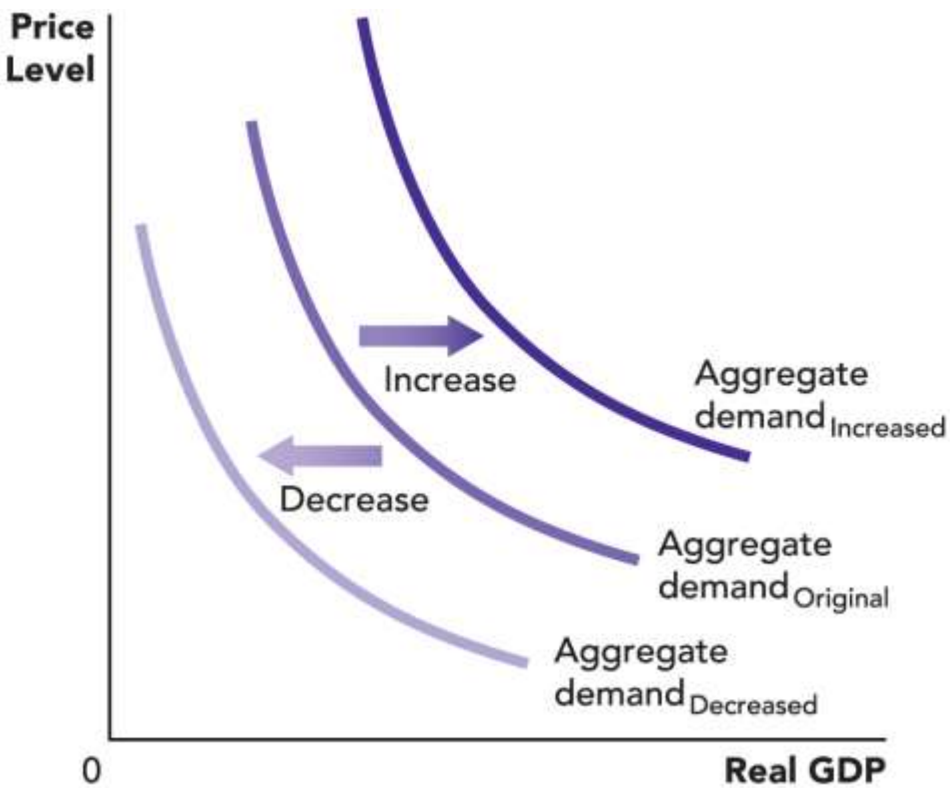
- The **foreign trade effect** is the substitution away from domestic goods and services and toward foreign goods and services that occurs when the domestic price level increases.

To summarize using an increase in price level:

Domestic price level ↑ →
Imports become relatively inexpensive,
exports become relatively expensive →
Imports ↑ and Exports ↓ →
Real GDP demanded ↓

FACTORS THAT SHIFT THE AGGREGATE DEMAND CURVE

- Recall: GDP = C + I + G + (X − M)
- Almost anything that increases or decreases one of these elements will shift the aggregate demand curve to the left or right.



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Note: A change in price level will cause a movement along the aggregate demand curve rather than a shift.

FACTORS THAT SHIFT THE AGGREGATE DEMAND CURVE PART I

Changes That Increase Aggregate Demand

Consumption increases, which occurs when:
• income or wealth increases
• income taxes, sales taxes, or property taxes decrease
• optimism increases about consumers' future income or job security
• the money supply increases
Investment increases, which occurs when:
• the interest rate decreases
• firms become more optimistic about future profits
• taxes on firms decrease
• the money supply increases

FACTORS THAT SHIFT THE AGGREGATE DEMAND CURVE PART II

Changes That Increase Aggregate Demand

Government spending on goods and services increases, which occurs when:
• policy changes require an increase in discretionary spending
• mandatory spending on goods and services increases
Net exports increase, which occurs when:
• foreign countries increase their imports (which are our exports)
• domestic consumers decrease their imports

CATEGORIES OF GOVERNMENT SPENDING

- **Discretionary spending**—government spending authorized by annual appropriation acts.
  - examples: public schools, highways
- **Mandatory spending**—government spending required by laws other than annual appropriation acts.
  - examples: Social Security, unemployment insurance
- **Net interest spending**—a government’s interest payments on its debts minus interest income the government receives.

MULTIPLIER EFFECT AND AGGREGATE DEMAND

- **Marginal propensity to consume (MPC)**—the fraction of new income that is spent.
- **Marginal propensity to save (MPS)**—the fraction of new income that is saved.
- **Spending multiplier**—the total amount of spending that results from each $1 injected into the economy by new spending.

MULTIPLIER EFFECT AND AGGREGATE DEMAND

$$\text{spending multiplier} = \frac{1}{1 - MPC} = \frac{1}{MPS}$$

- **Leakages**—in the context of the spending multiplier, this is something that takes money out of the cycle of spending and respending within the economy, such as savings, taxes, or imports.

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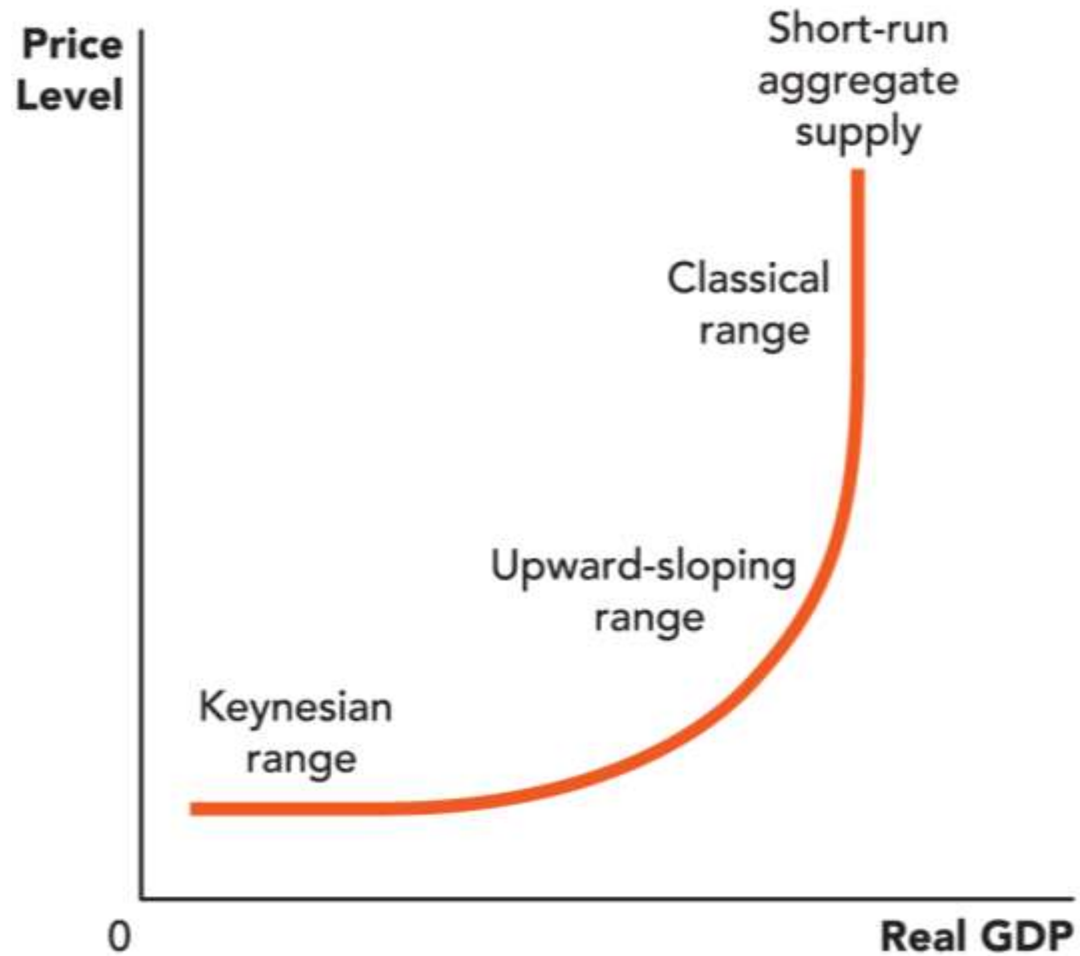
SHORT-RUN AGGREGATE SUPPLY

- **Short-run aggregate supply curve**—a curve that shows the quantity of all final goods and services supplied in the short run at various price levels.



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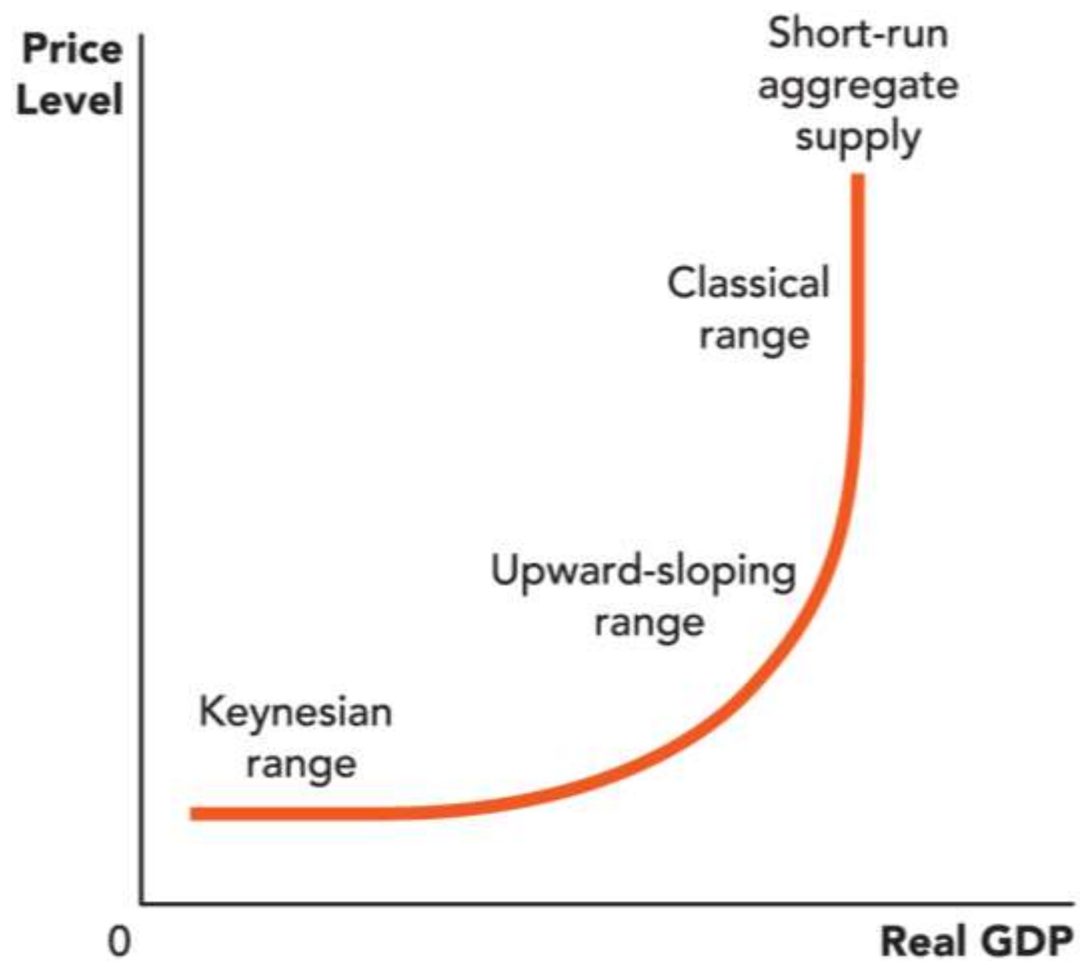
SHAPE OF THE SHORT-RUN AGGREGATE SUPPLY

- **Keynesian range**—with no increase in price level, firms are willing to supply more output in response to an increase in aggregate demand.

- **Upward-sloping range**—caused by long term for workers and other factors of production.

- **Classical range**—when the economy can't produce any more output regardless of the price level.



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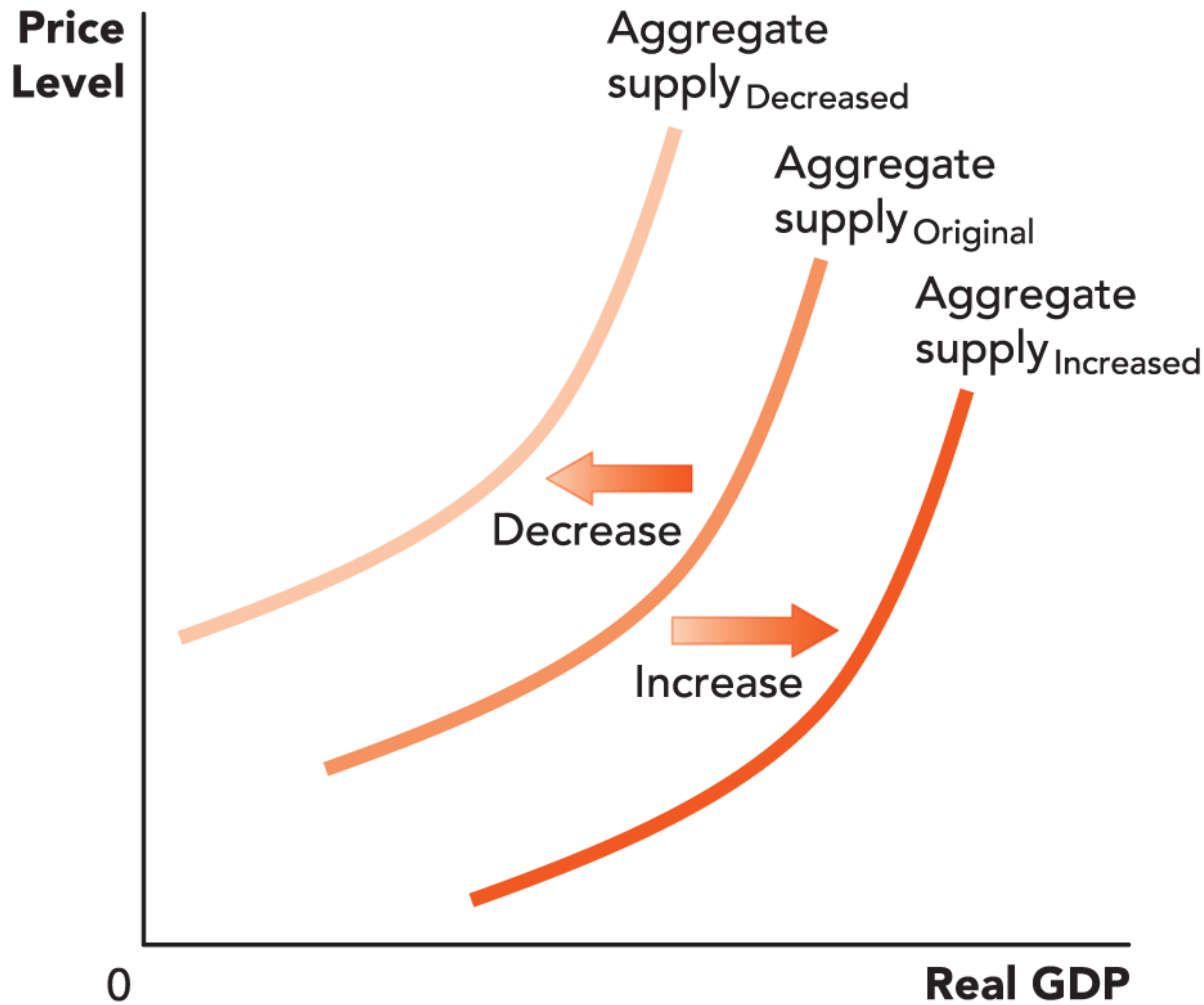
ELEMENTS OF THE UPWARD-SLOPING RANGE

- The positive slope of the short-run aggregate supply curve is due to long-term contracts for workers and other factors of production.
- To understand this, one must familiarize themselves with these key terms:
- **Nominal wages**—the actual number of dollars workers receive as compensation.
- **Real wages**—wages adjusted for inflation to indicate their purchasing power.
- **Sticky nominal wages**—nominal wages that change only when contracts are renegotiated, not every time the price level changes.

FACTORS THAT SHIFT THE SHORT-RUN AGGREGATE SUPPLY CURVE PART I

- Input prices
- Business taxes and regulations
- Productivity



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FACTORS THAT SHIFT THE SHORT-RUN AGGREGATE SUPPLY CURVE PART II

Changes That Increase Aggregate Supply

Input prices decrease, which occurs when:
• the demand for inputs decreases
• the supply of inputs increases
Changes in government policy reduce production costs, which occurs when:
• business taxes decrease
• regulations that add to the cost of production are removed
Productivity increases, which occurs when:
• technology improves
• education improves
• transportation systems improve

- **Supply shock**—a sudden and unexpected change in aggregate supply.

LEARN BY DOING: PRACTICE QUESTION 1

A forest fire makes it impossible for truck drivers to deliver their shipments of gasoline. What DIRECT effect will this have in the market for gas?

a) increase in demand

b) decrease in supply

c) increase in supply

d) decrease in demand

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LEARN BY DOING: PRACTICE QUESTION 1 (Answer)

A forest fire makes it impossible for truck drivers to deliver their shipments of gasoline. What DIRECT effect will this have in the market for gas?

a) increase in demand

b) decrease in supply (correct answer)

c) increase in supply

d) decrease in demand

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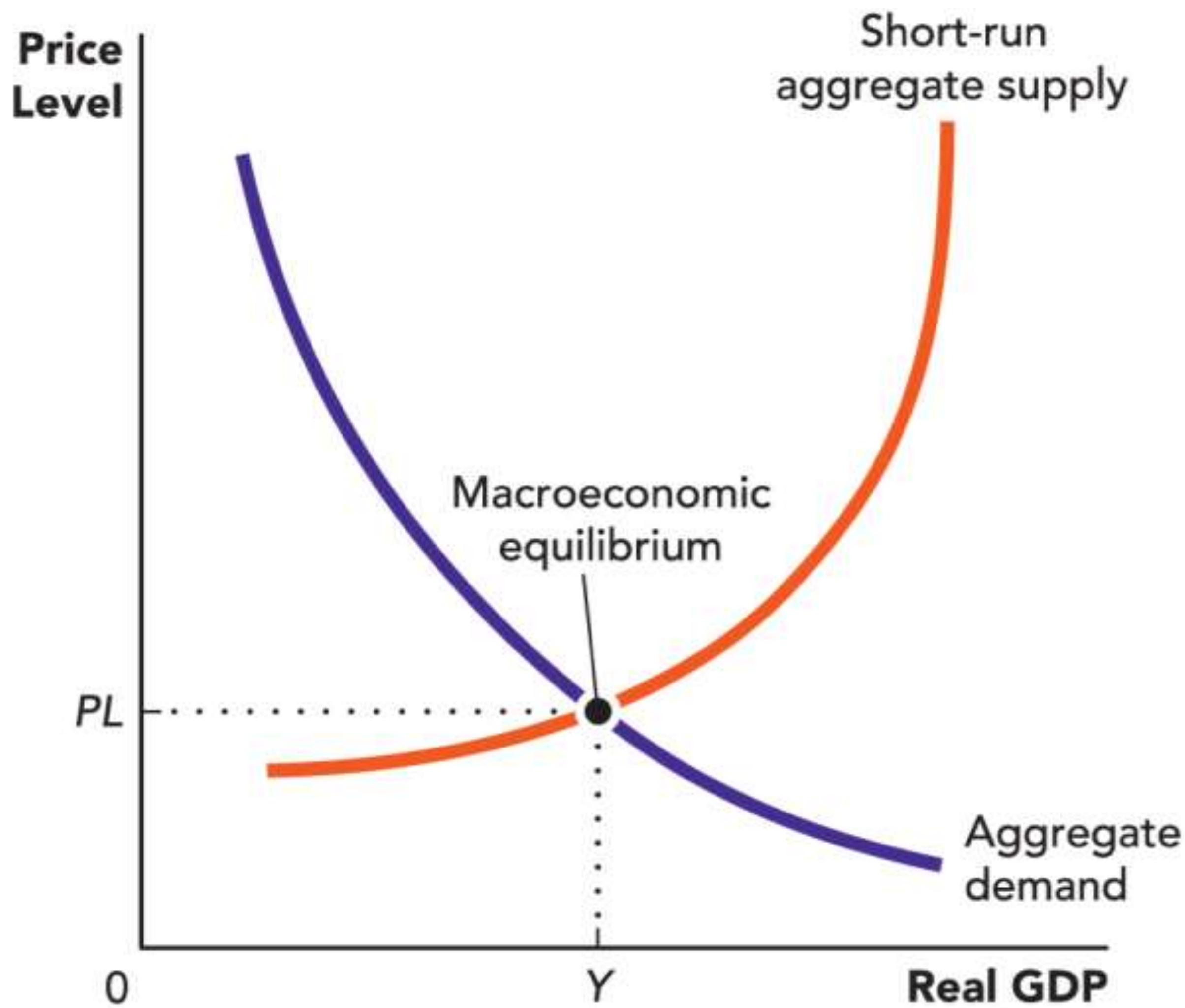
MACROECONOMIC EQUILIBRIUM

- **Macroeconomic equilibrium**—the state of the economy in which aggregate demand equals aggregate supply**.**



MACROECONOMIC EQUILIBRIUM

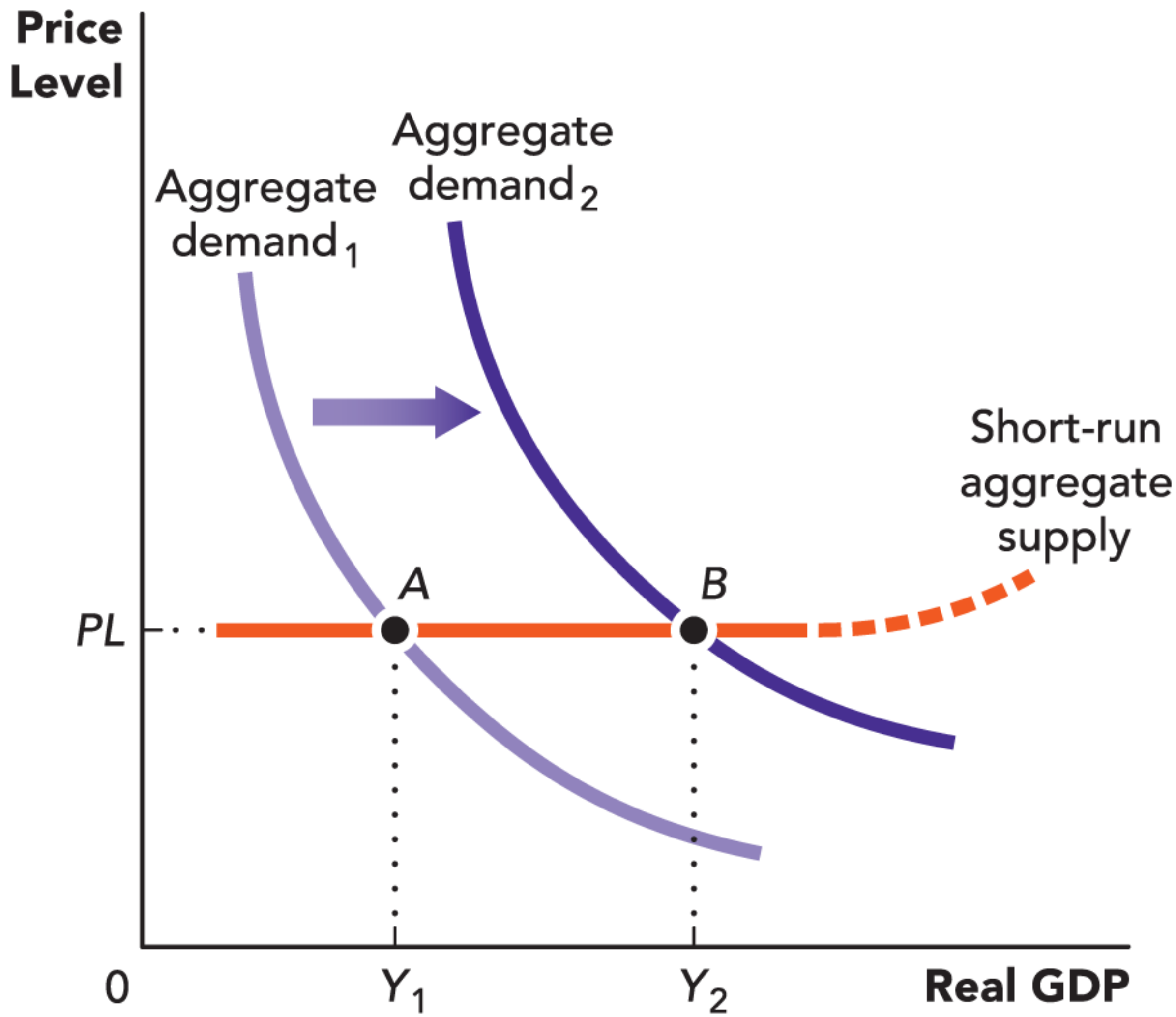
- Just as shifts in supply and demand can change the equilibrium price and quantity of a good, shifts in aggregate supply and aggregate demand can change the price level and real GDP in the economy.

- We say “can change” rather than “do change” because what changes depends on the shape of the curves.

EFFECT OF A SHIFT IN THE KEYNESIAN RANGE OF SRAS

EXAMPLE:

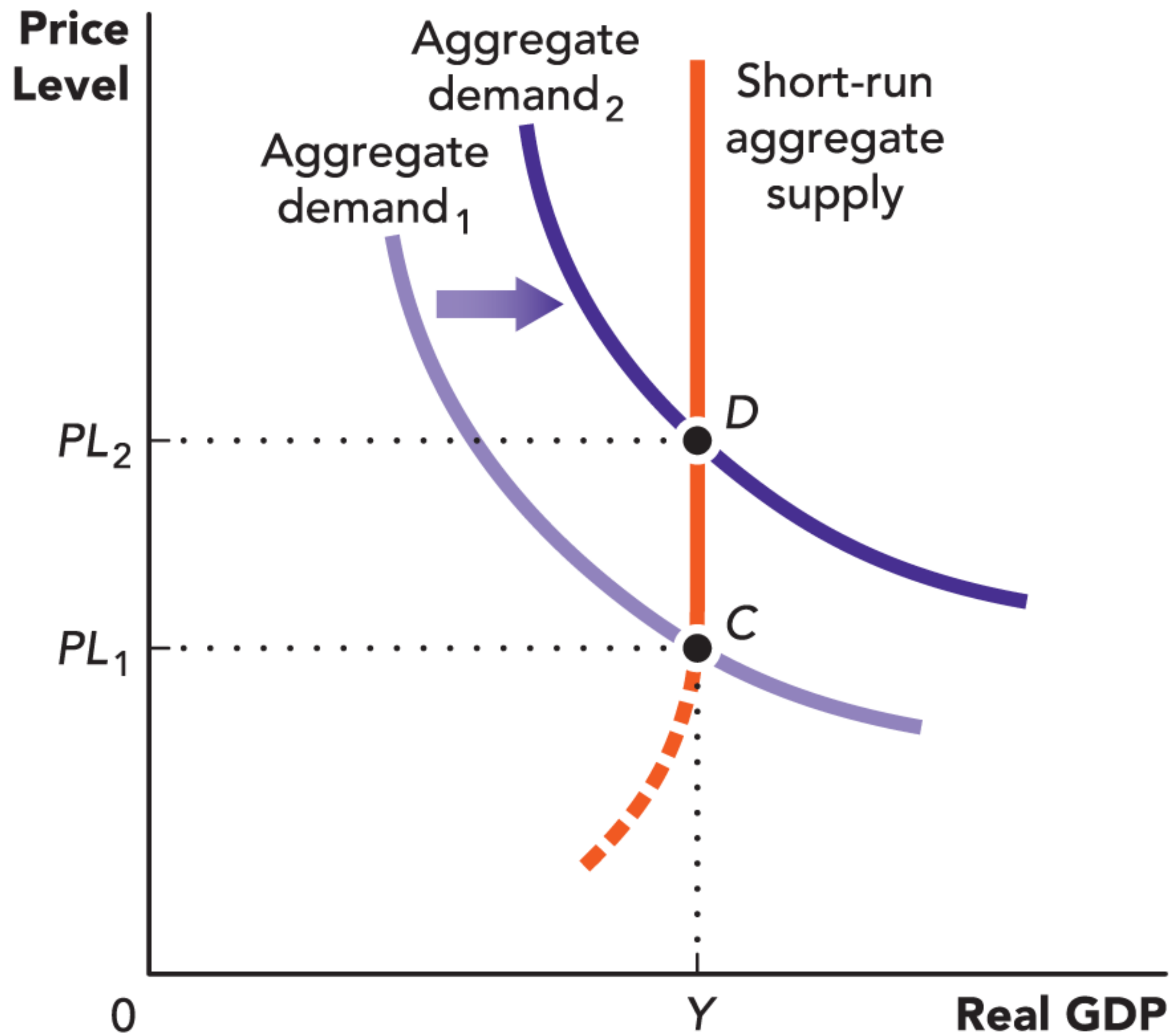
- Increase in aggregate demand in Keynesian range of the SRAS curve.
- Increases real GDP but does not affect price level.



EFFECT OF A SHIFT IN THE CLASSICAL RANGE OF SRAS

EXAMPLE:

- Increase in aggregate demand in the classical range of the SRAS curve.
- Increases the price level with no change in real GDP.



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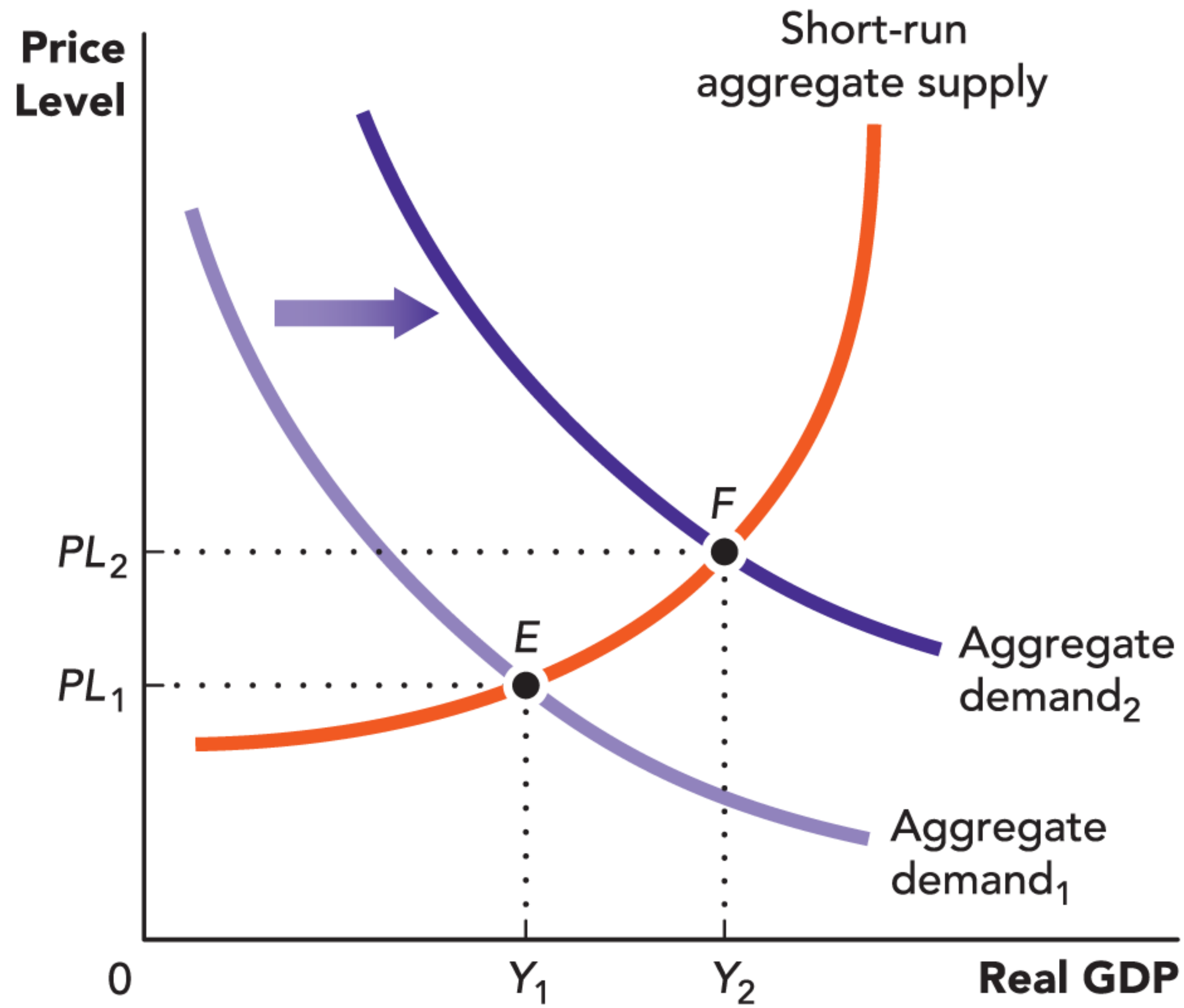
EFFECT OF A SHIFT IN THE UPWARD-SLOPING RANGE OF SRAS

EXAMPLE:

- Increase in aggregate demand in the upward-sloping range of the SRAS curve.
- Increases the equilibrium price level from PL_1 to PL_2 and increases the real GDP from Y_1 to Y_2.



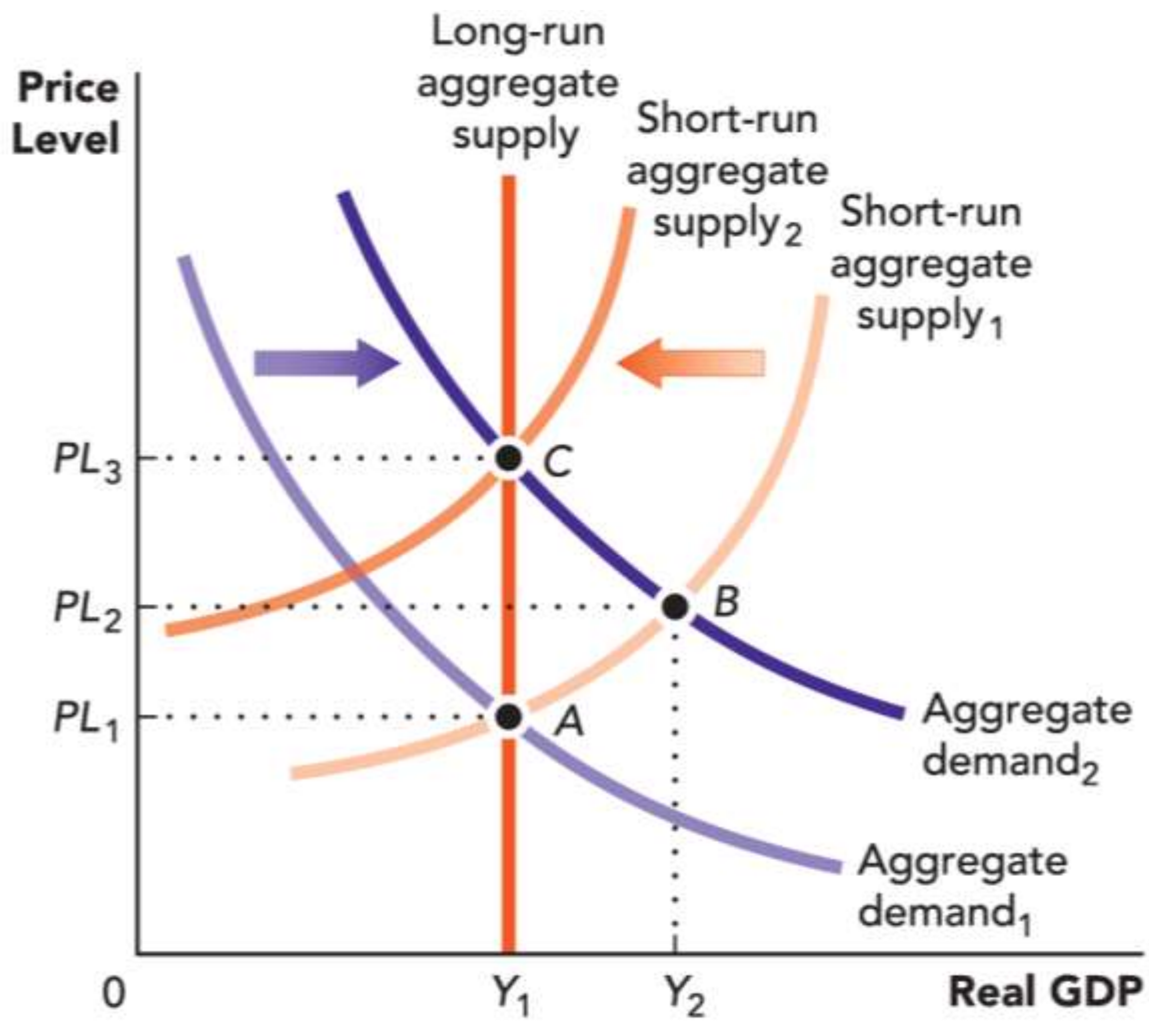
LONG-RUN AGGREGATE SUPPLY CURVE

- **Long-run aggregate supply curve**—a curve that shows the relationship between real GDP and the price level in the long run.
- **Full-employment (or potential) output**—the level of real GDP that can be produced with full employment.

LONG-RUN AGGREGATE SUPPLY CURVE

EXAMPLE:

- An increase in aggregate demand initially increases both price level and output, moving equilibrium from point *A* to point *B*.
- This puts upward pressure on input prices and decreases SRAS.
- Continues until AD and AS intersect at point *C* on the LRAS curve.



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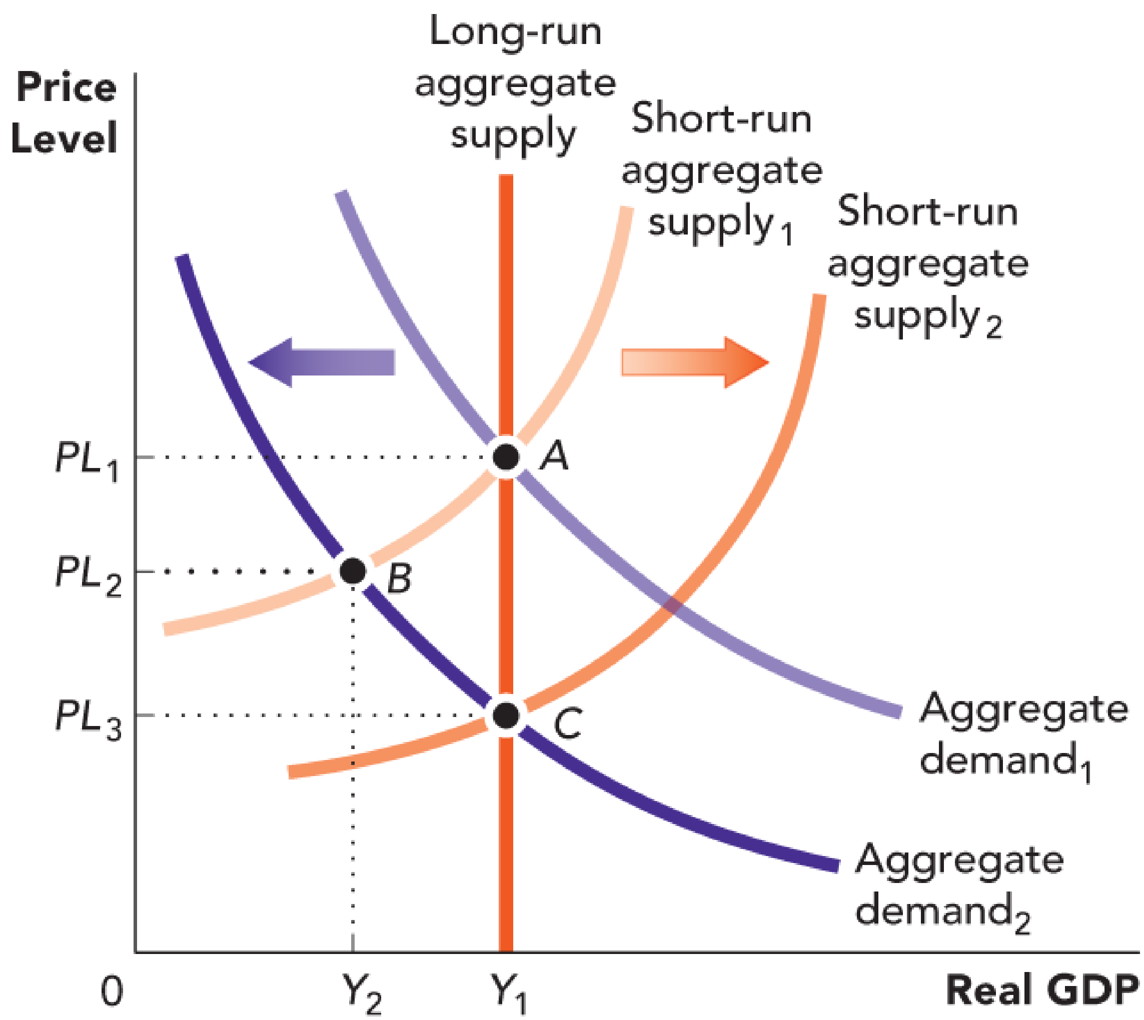
LONG-RUN AGGREGATE SUPPLY CURVE

EXAMPLE:

- A decrease in aggregate demand initially decreases both price level and output, moving equilibrium from point *A* to point *B*.
- This puts downward pressure on input prices and increases SRAS.
- Continues until AD and AS intersect at point *C* on the LRAS curve.



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LRAS AND ECONOMIC GROWTH

EXAMPLE:

- LRAS shifts to the right when economic growth increases the level of real GDP the economy can sustain.
- Sources of economic growth include increases in the factors of production and increases in the productivity of those factors.

LRAS AND ECONOMIC GROWTH

Changes That Increase Long-Run Aggregate Supply

The availability of factors of production increases, which occurs when:
• investments in capital increase
• the population increases, making more labor available
• more land is made available for productive uses
Productivity increases, which occurs when:
• technology improves
• education improves
• transportation systems improve

LEARN BY DOING: PRACTICE QUESTION 2

What would happen to LRAS if a disease wiped out 30,000 people in the United States? Why?

a) LRAS would shift to the right because of an increase in the availability of a factor of production.

b) LRAS would shift to the right because of an increase in productivity.

c) LRAS would remain unchanged because the population has no effect on LRAS.

d) LRAS would shift to the left because of a decrease in population, making less labor available.

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LEARN BY DOING: PRACTICE QUESTION 2 (Answer)

What would happen to LRAS if a disease wiped out 30,000 people in the United States? Why?

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b) LRAS would shift to the right because of an increase in productivity.

c) LRAS would remain unchanged because the population has no effect on LRAS.

d) LRAS would shift to the left because of a decrease in population, making less labor available. (correct answer)