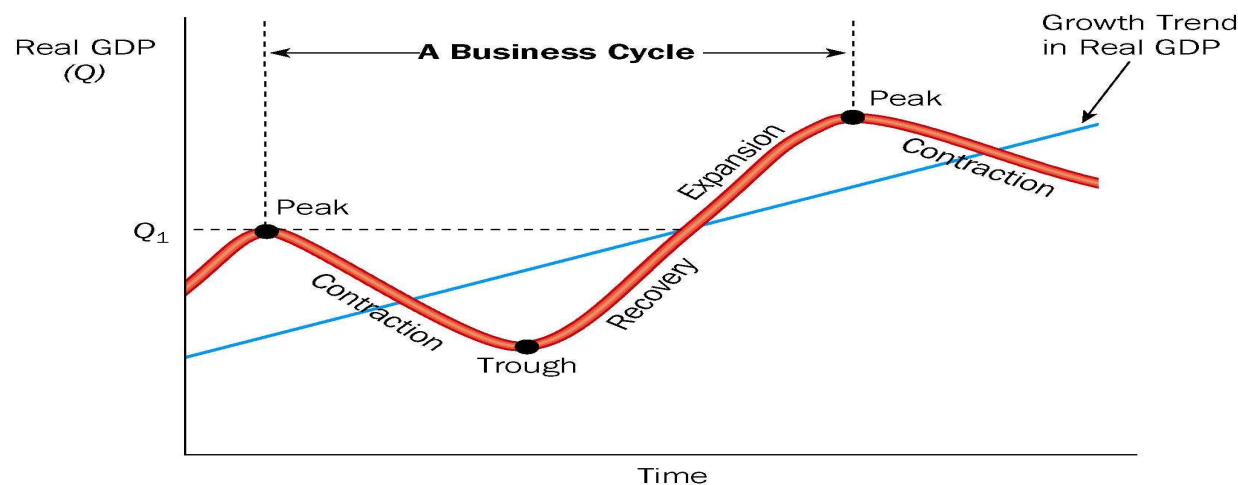




Aggregate Demand and Aggregate Supply

Aggregate Demand and Aggregate Supply

- **Economic fluctuations**, also called **business cycles**, are movements of GDP away from potential output.
- Insufficient demand for goods and services was a key problem of the Great Depression, identified by British economist John Maynard Keynes in the 1930s.





Sticky Prices and Their Macroeconomic Consequences

- Led by Keynes, many economists since his time have focused attention on economic coordination problems.
- The price system does not always work instantaneously. If prices are slow to adjust, then the proper signals are not given quickly enough to producers and consumers.
- In modern economies, some prices (*auctions prices*) are very flexible, while others (*custom prices*) are not. Like other input prices, the price of labor adjusts very slowly.

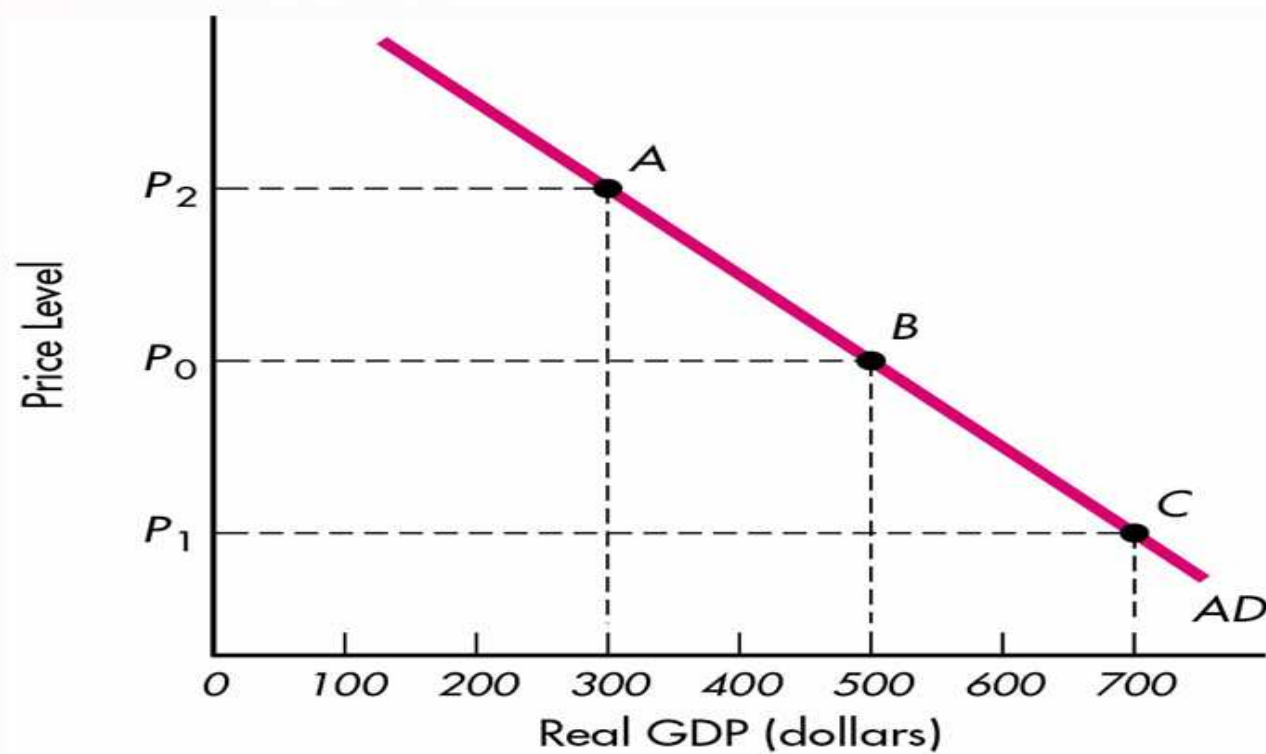


Sticky Prices and Their Macroeconomic

- If wages are sticky, firms' overall costs will be sticky as well. Sticky wages cause sticky prices and hamper the economy's ability to bring demand and supply into balance in the short run.
- The **short run in macroeconomics** is the period in which prices don't change or don't change very much. In the macroeconomic short run, both formal and informal contracts between firms mean that changes in demand will be reflected primarily in changes in output, not prices.

The Aggregate Demand Curve

Note that
changes in prices
result in changes
in the **quantity**
demand.





The Components of Aggregate Demand

- In our study of GDP accounting, we divided GDP into four components:
 - **Consumption spending (C), investment spending (I), government purchases (G), and net exports (NX).**
- These four components are also four parts of aggregate demand because the aggregate demand curve really just describes the demand for total GDP at different price levels.



Why the Aggregate Demand Curve Slopes Downward

- First, we must consider the effects of a change in the overall price level in the economy.
- As the price level or average level of prices in the economy changes, so does the purchasing power of your money. This is an example of the real-nominal principle.

Real-Nominal PRINCIPLE

What matters to people is the real value of money or income—its purchasing power—not the “face” value of money or income.

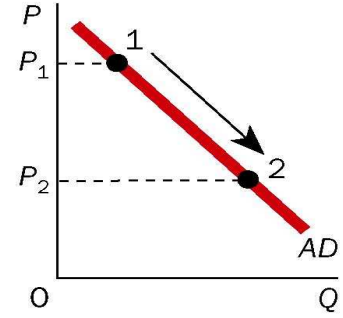
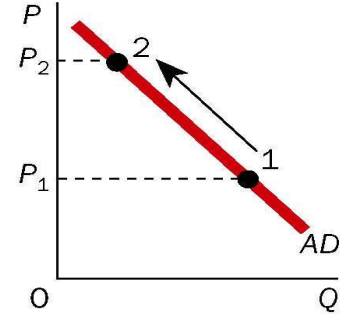
- The change in the purchasing power of money will affect aggregate demand.



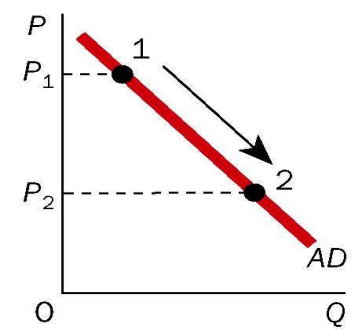
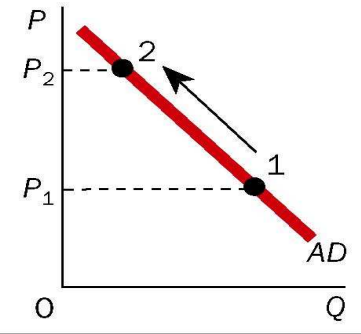
Why the Aggregate Demand Curve Slopes Downward

- The increase in spending that occurs because the real value of money increases when the price level falls is called the **wealth effect**.
- The **interest rate effect**: With a given money supply in the economy, a lower price level will lead to lower interest rates and higher consumption and investment spending.
- The **impact of foreign trade**: A lower price level makes domestic goods cheaper relative to foreign goods.

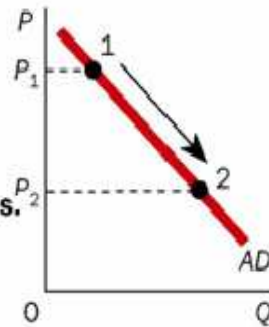
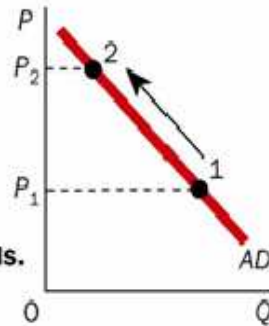
Why the Aggregate Demand Curve is Downward-Sloping?

Type of Effect	How It Works	Graphical Representation of What Happens
Real Balance Effect	<p>Price level falls → purchasing power rises → monetary wealth rises → buy more goods.</p>	
	<p>Price level rises → purchasing power falls → monetary wealth falls → buy fewer goods.</p>	

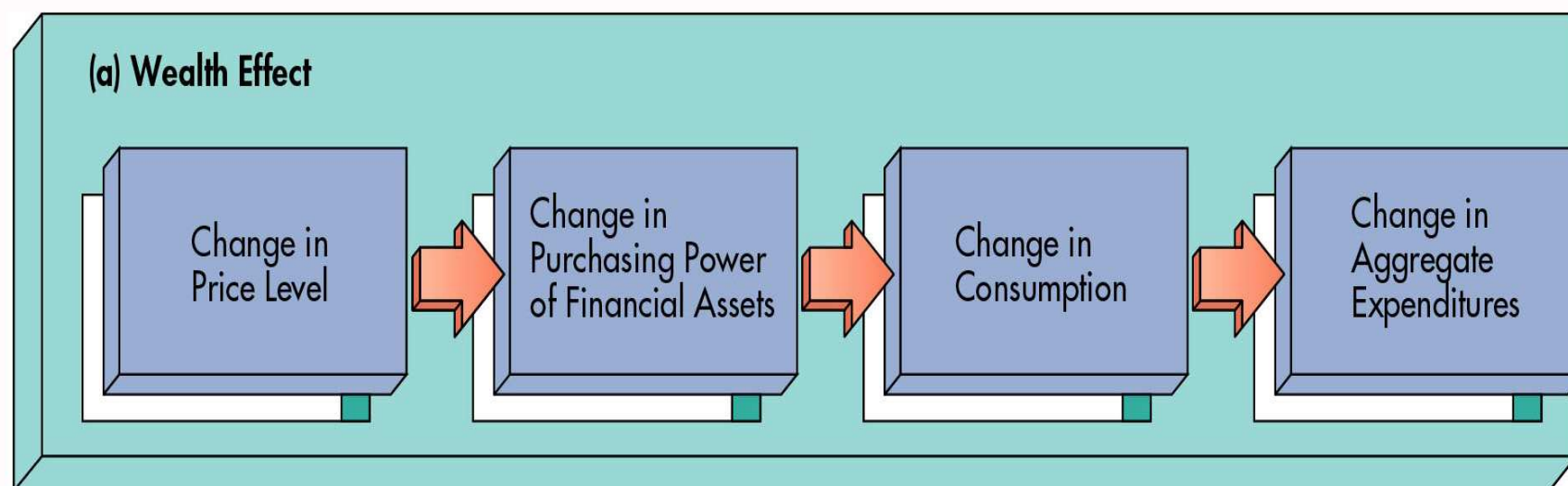
Why the Aggregate Demand Curve is Downward-Sloping?

Type of Effect	How It Works	Graphical Representation of What Happens
Interest Rate Effect	<p>Price level falls → purchasing power rises → less money needed to buy fixed bundle of goods → save more → supply of credit rises → interest rate falls → businesses and households borrow more at lower interest rate → buy more goods.</p>	
	<p>Price level rises → purchasing power falls → borrow money in order to continue to buy fixed bundle of goods → demand for credit rises → interest rate rises → businesses and households borrow less at higher interest rate → buy fewer goods.</p>	

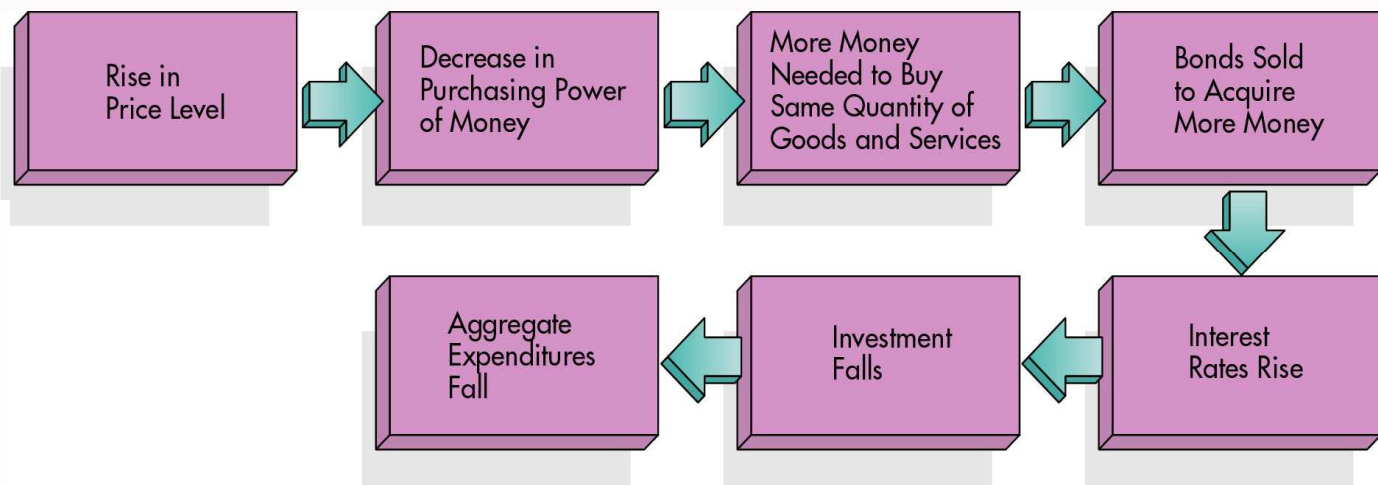
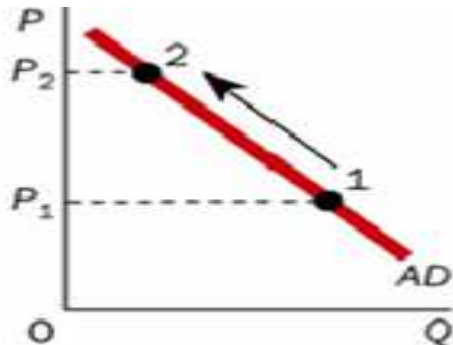
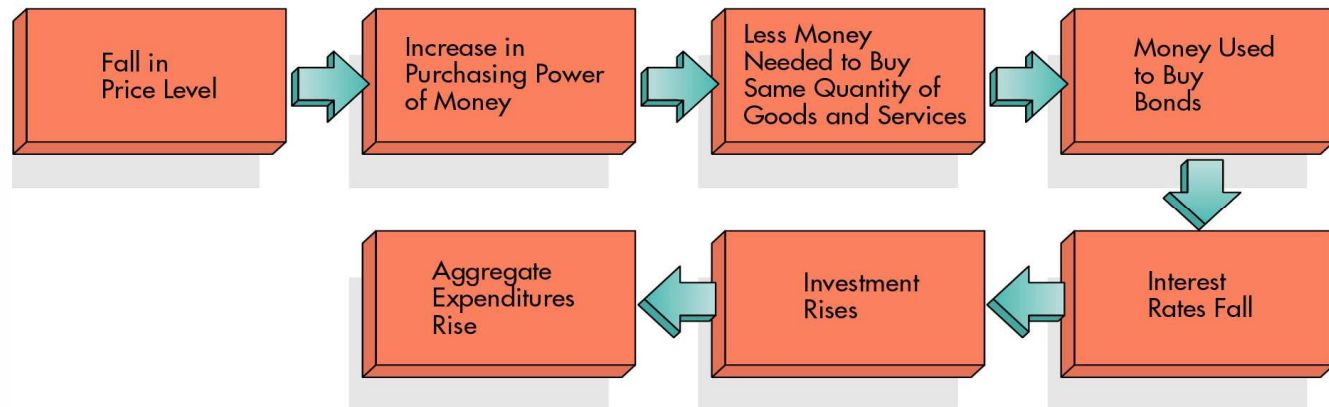
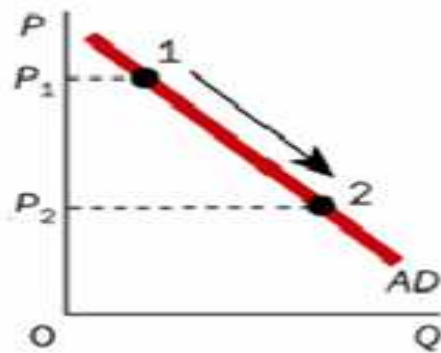
Why the Aggregate Demand Curve is Downward-Sloping?

Type of Effect	How It Works	Graphical Representation of What Happens
International Trade Effect	<p>Price level in Czech falls relative to foreign price levels → czech goods relatively less expensive than foreign goods → both Czechs and foreigners buy more czech goods.</p>	 <p>The graph shows a downward-sloping Aggregate Demand (AD) curve on a coordinate system with Price (P) on the vertical axis and Quantity (Q) on the horizontal axis. Point 1 is at price level P_1 and quantity Q_1. Point 2 is at a lower price level P_2 and a higher quantity Q_2. An arrow points from point 1 down and to the right to point 2, indicating an increase in aggregate demand.</p>
	<p>Price level in Czech rises relative to foreign price levels → czech goods relatively more expensive than foreign goods → both Czechs and foreigners buy fewer czech goods.</p>	 <p>The graph shows a downward-sloping Aggregate Demand (AD) curve on a coordinate system with Price (P) on the vertical axis and Quantity (Q) on the horizontal axis. Point 1 is at price level P_1 and quantity Q_1. Point 2 is at a higher price level P_2 and a lower quantity Q_2. An arrow points from point 1 up and to the left to point 2, indicating a decrease in aggregate demand.</p>

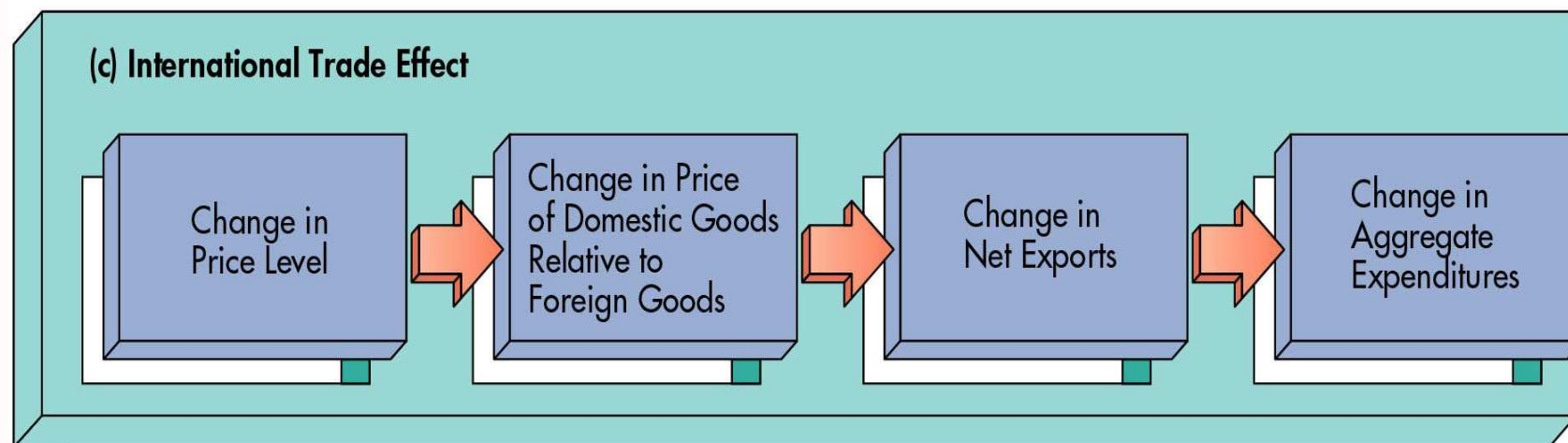
Why the Aggregate Demand Curve Slopes Downward (1)



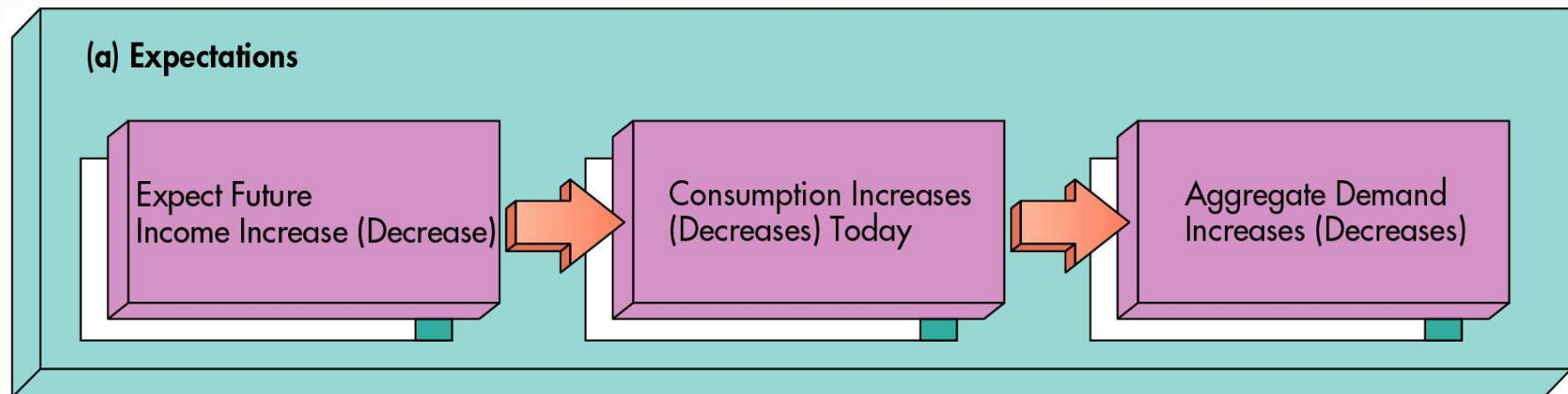
The Interest Rate Effect (2)



International Trade Effect



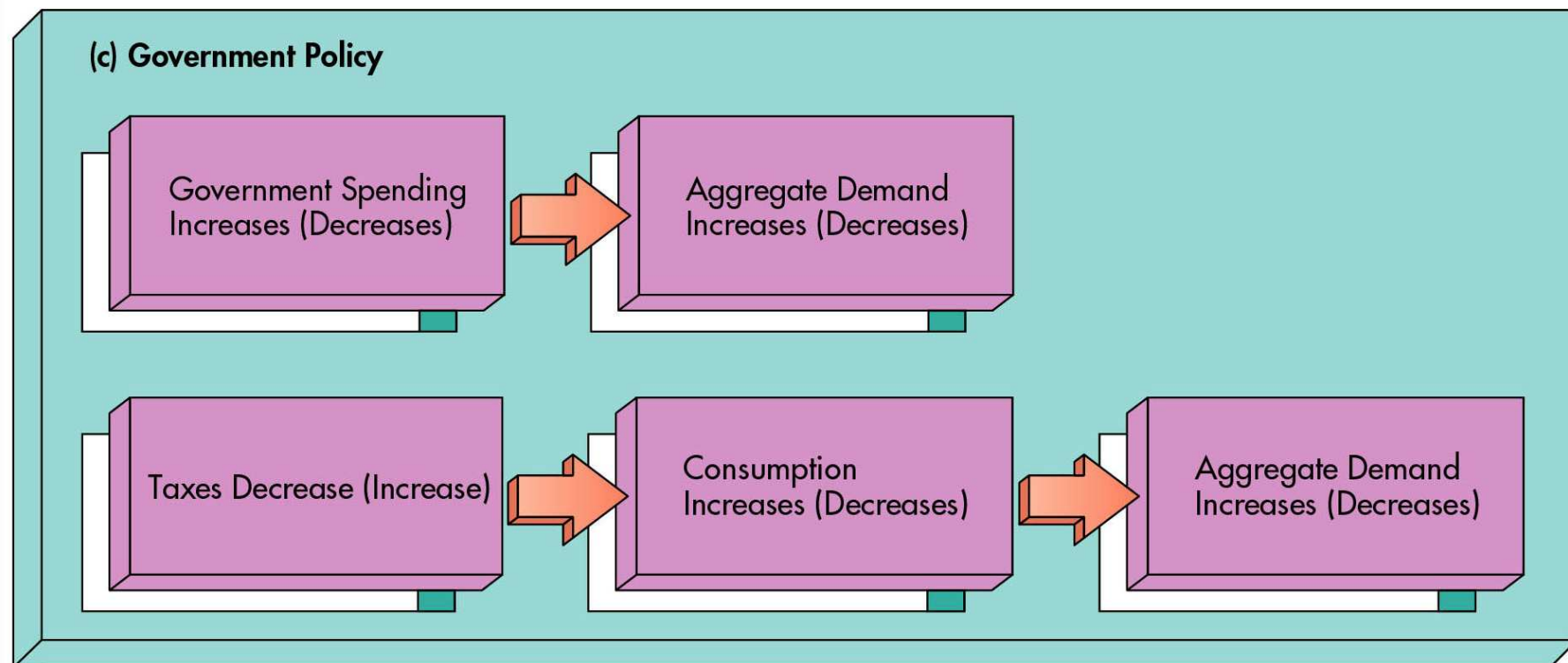
Nonprice Determinants: Changes in Aggregate Demand (1)



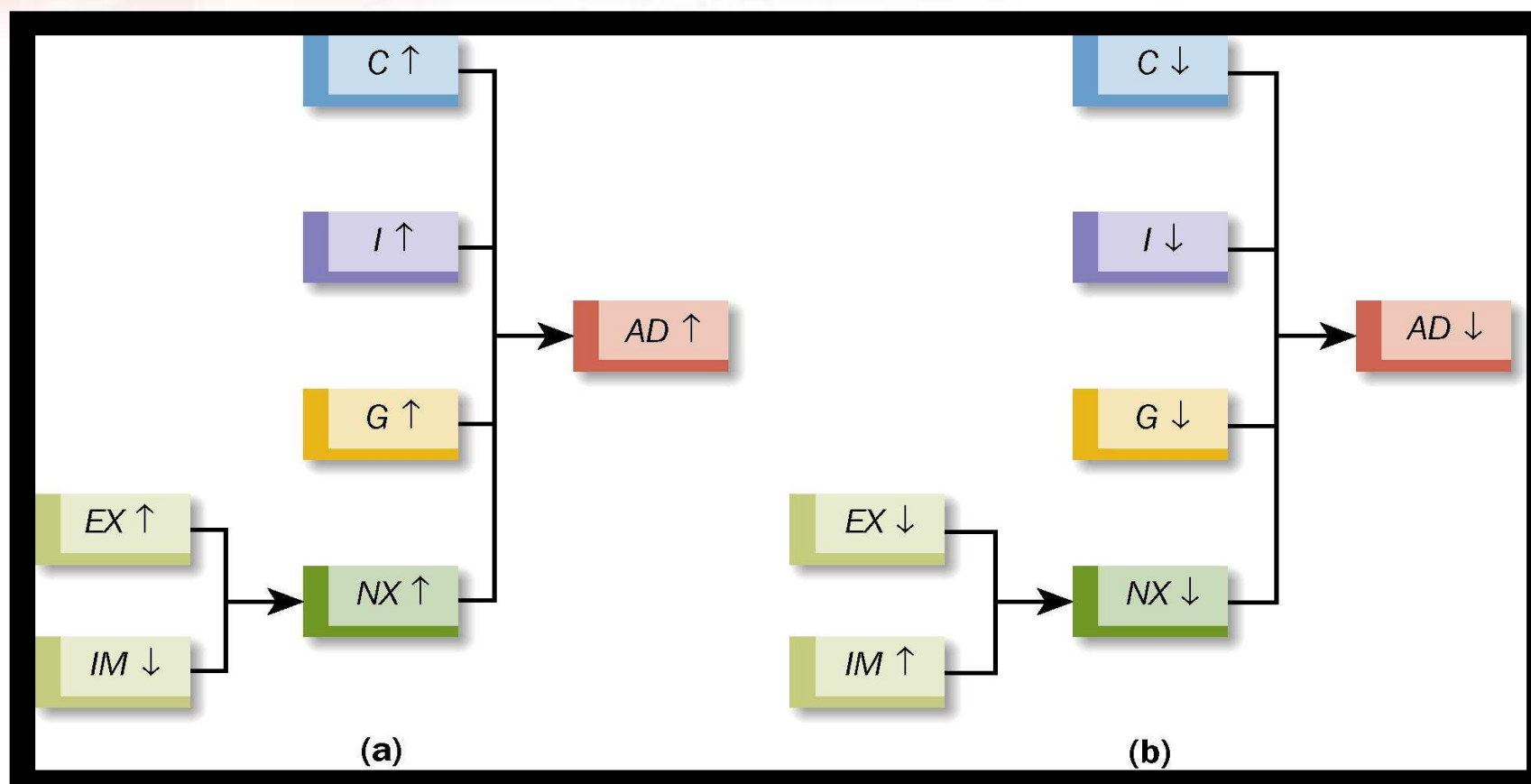
Nonprice Determinants: Changes in Aggregate Demand (2)



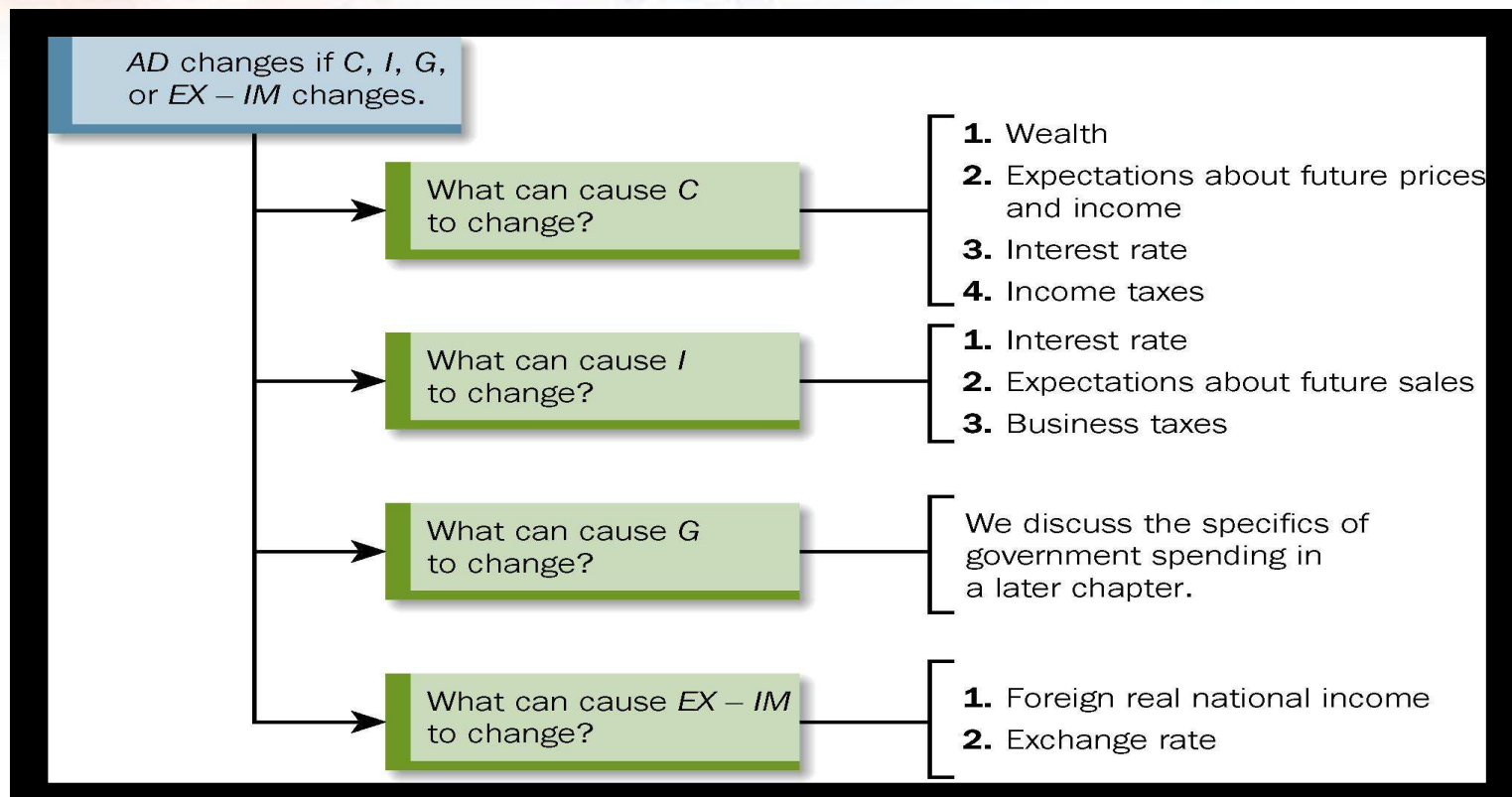
Nonprice Determinants: Changes in Aggregate Demand (3)



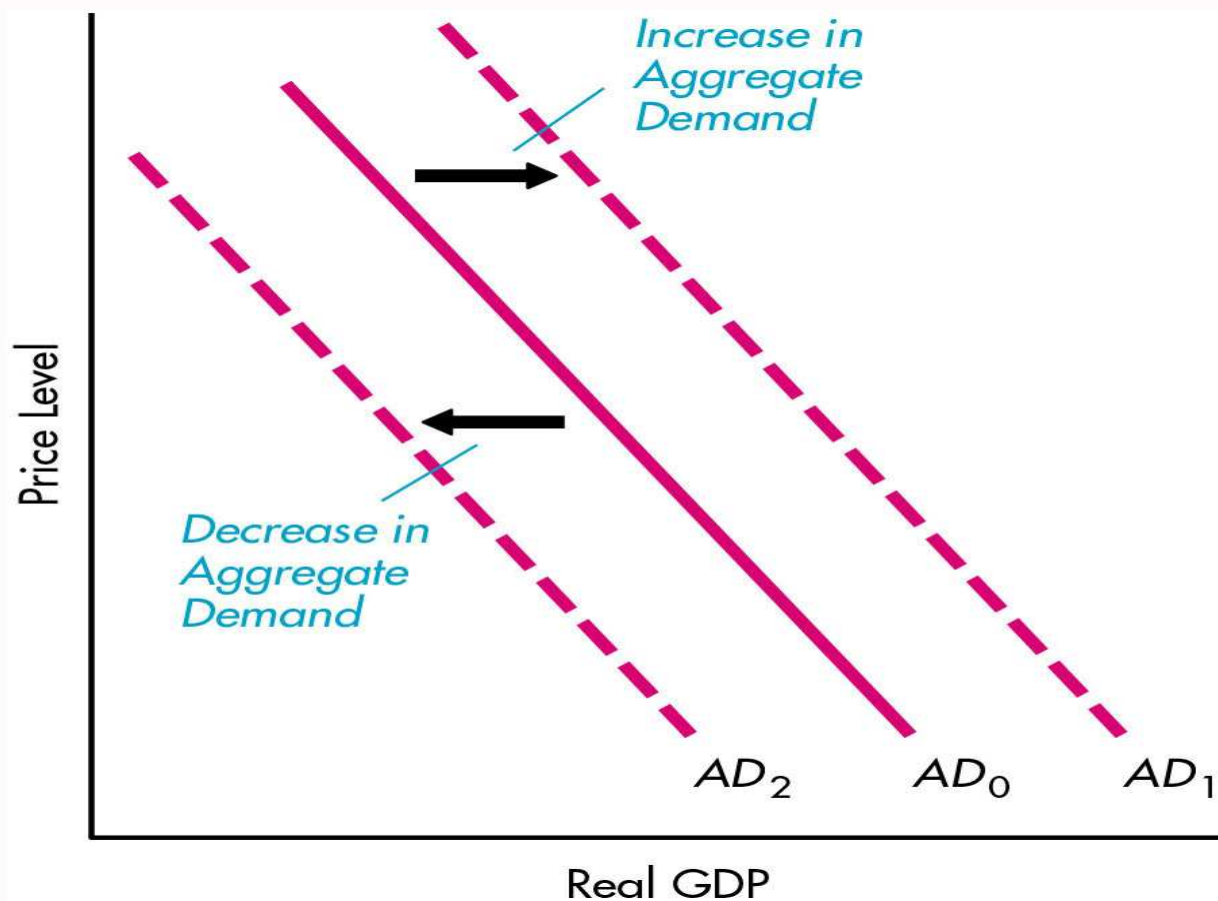
Factors that change aggregate demand



Factors that change aggregate demand

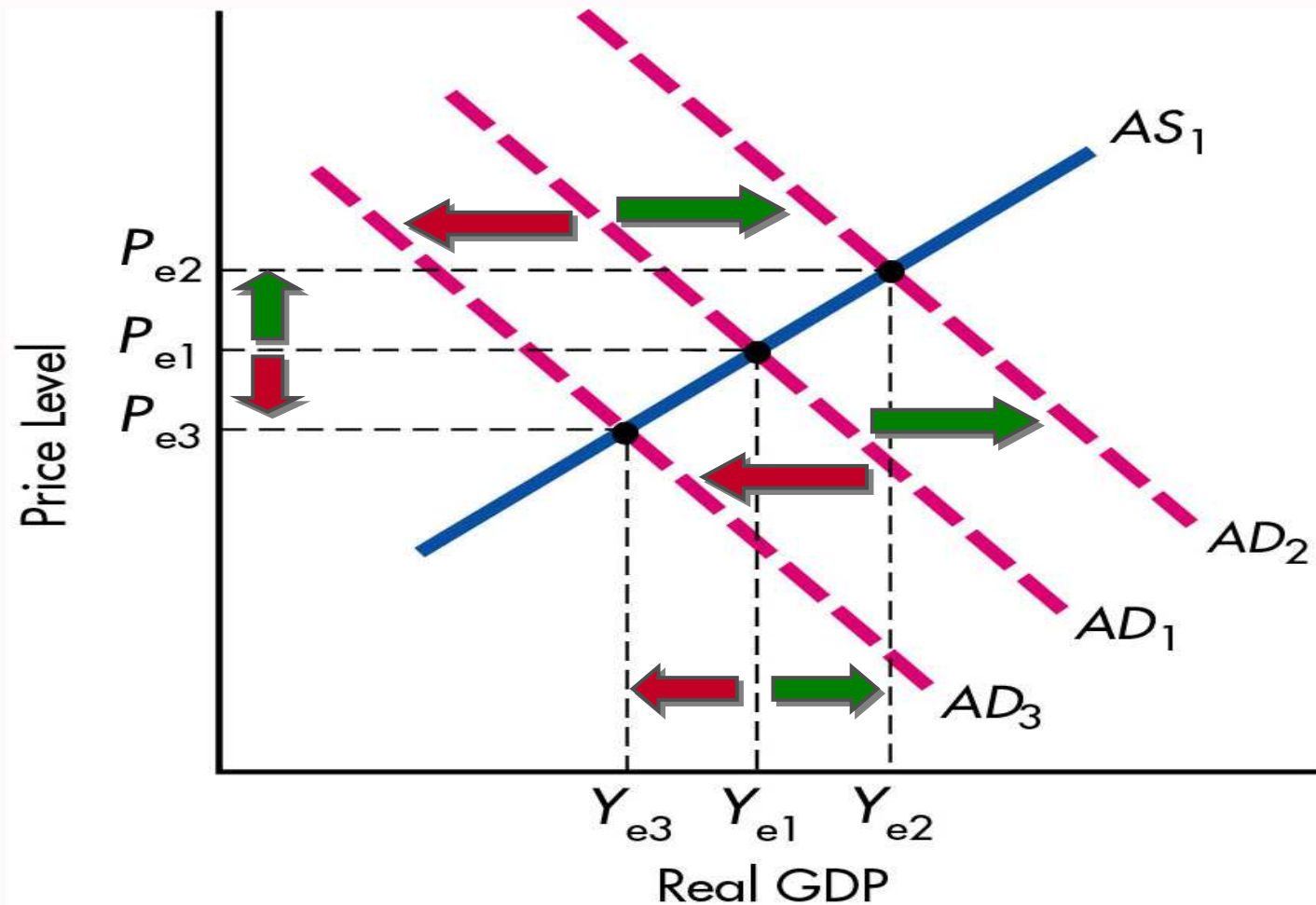


Shifting the Aggregate Demand Curve

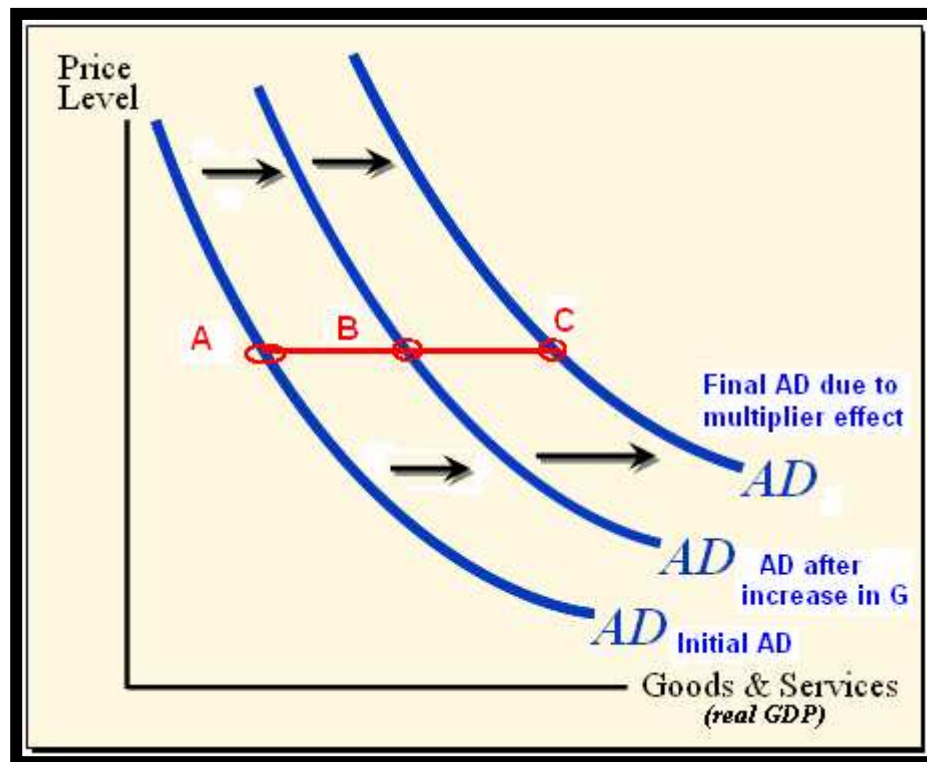


Shifting the Aggregate Demand Curve

Demand-pull inflation: rapid increases in AD outpace the growth of AS, causing price level increases (inflation).



The Multiplier Makes the Shift Bigger



- Initially, the shift from **A** to **B** equals the increase in government spending.
- But after a brief period of time, due to multiplier effect, total aggregate demand will increase by more than the initial increase in government spending – shifts moves to point **C**

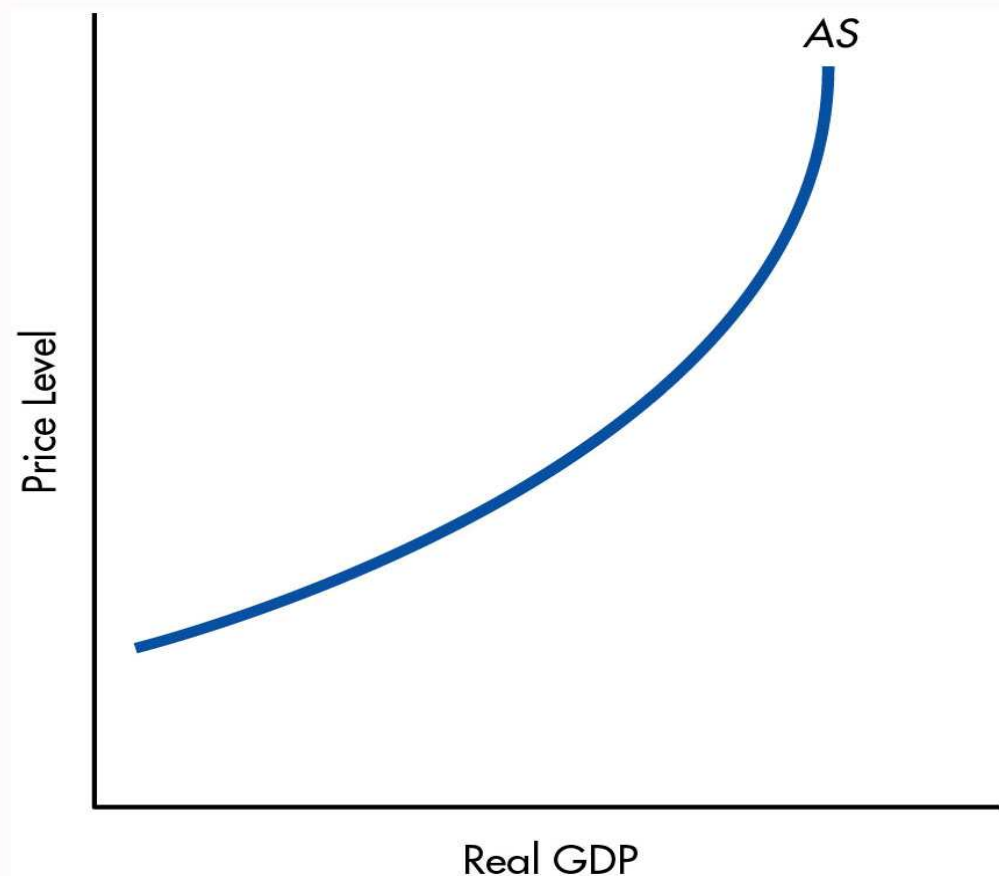


How the Multiplier Makes the Shift Bigger

- The ratio of the final shift in aggregate demand to the initial shift in aggregate demand is known as **the multiplier**.
- The logic of the multiplier goes back to Keynes. He believed that as government spending increases and the aggregate demand curve shifts to the right, output will subsequently increase too. Increased output also means **increased income** for households and higher consumption. *It is this additional consumption spending that causes the further shift in the aggregate demand curve.*

Aggregate Supply

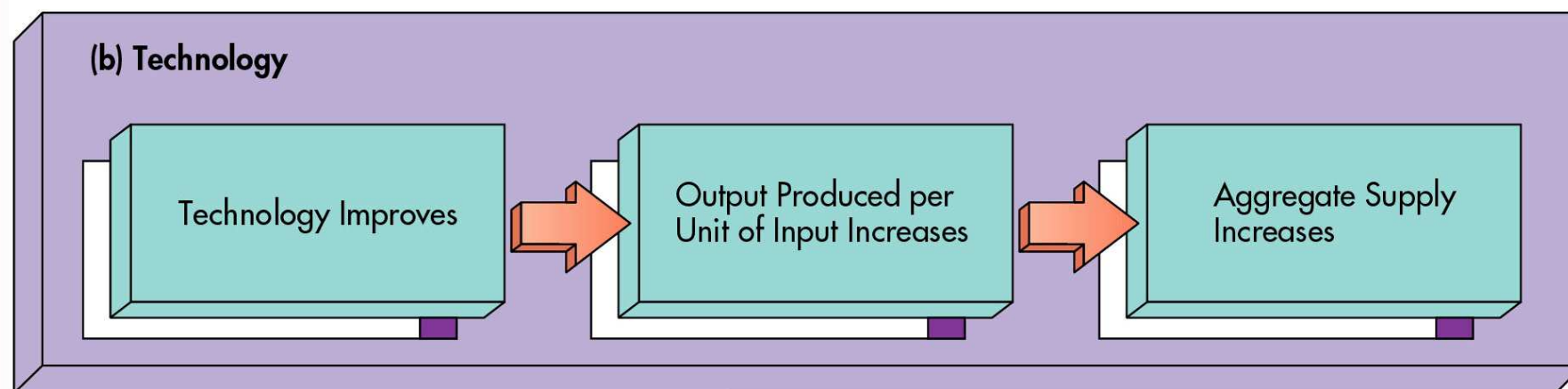
- It shows the quantity of real GDP produced at different price levels.
- **Short-run AS slopes upward** because an increase in the price level (while production costs and capital are held constant on the short-run), means higher profit margins—firms will want to produce more.



Determinants of Aggregate Supply (1)



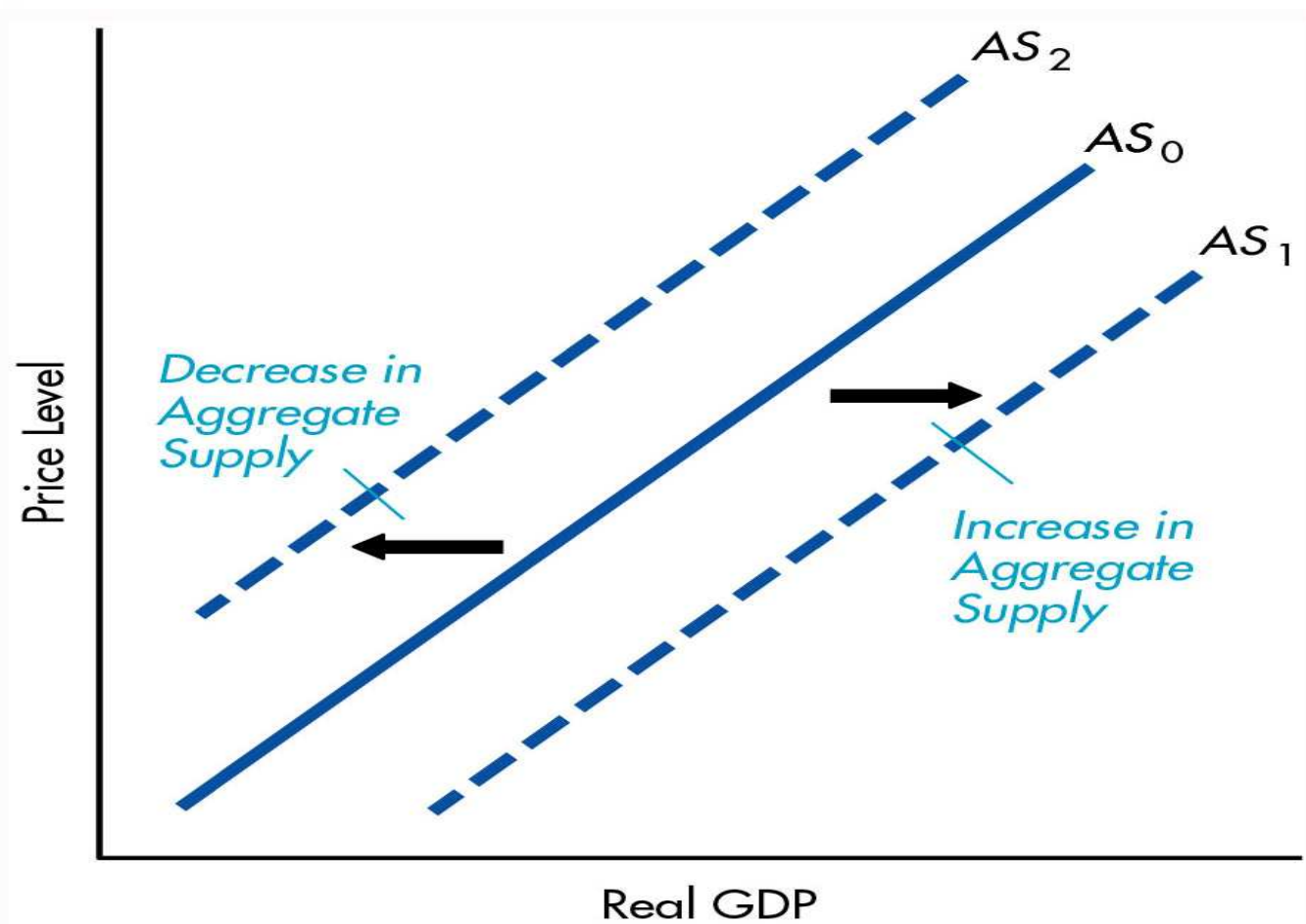
Determinants of Aggregate Supply (2)




Determinants of Aggregate Supply (3)

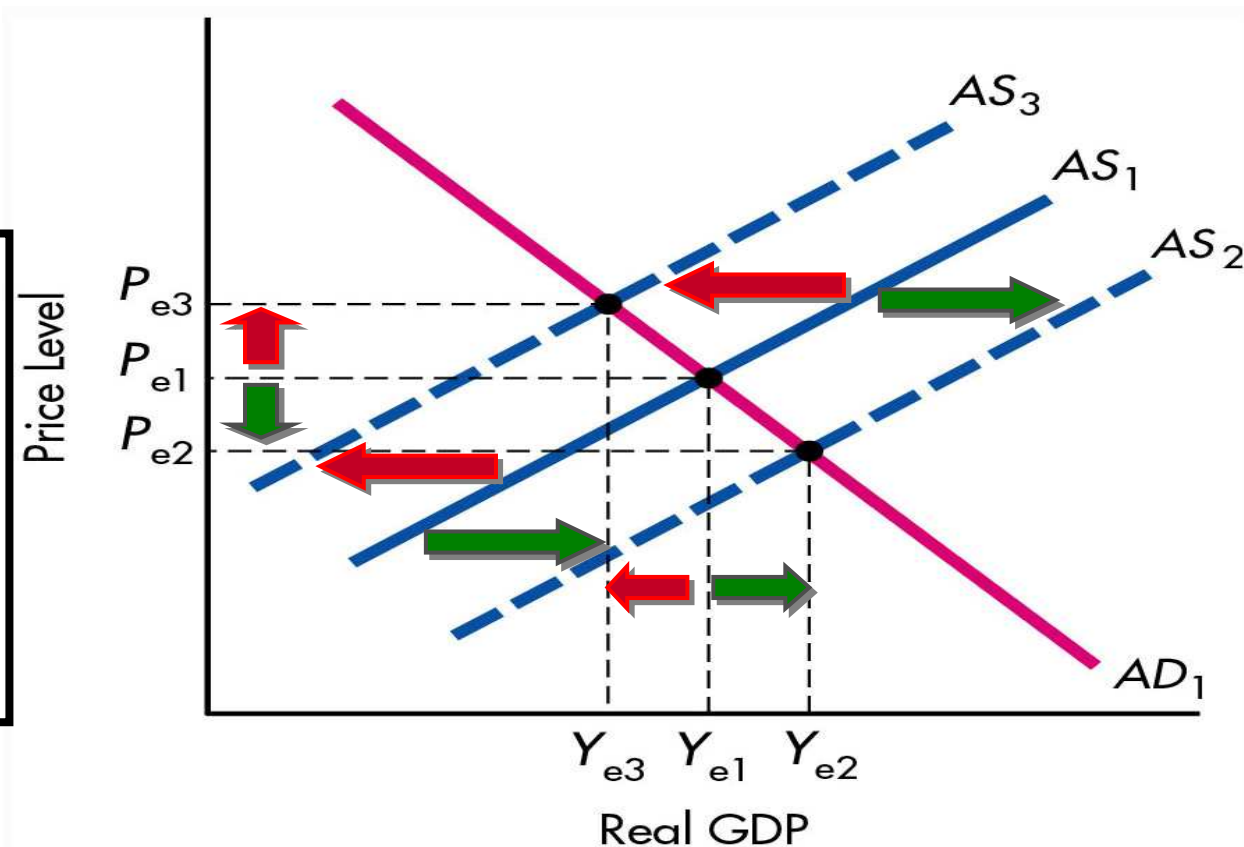


Changes in Aggregate Supply

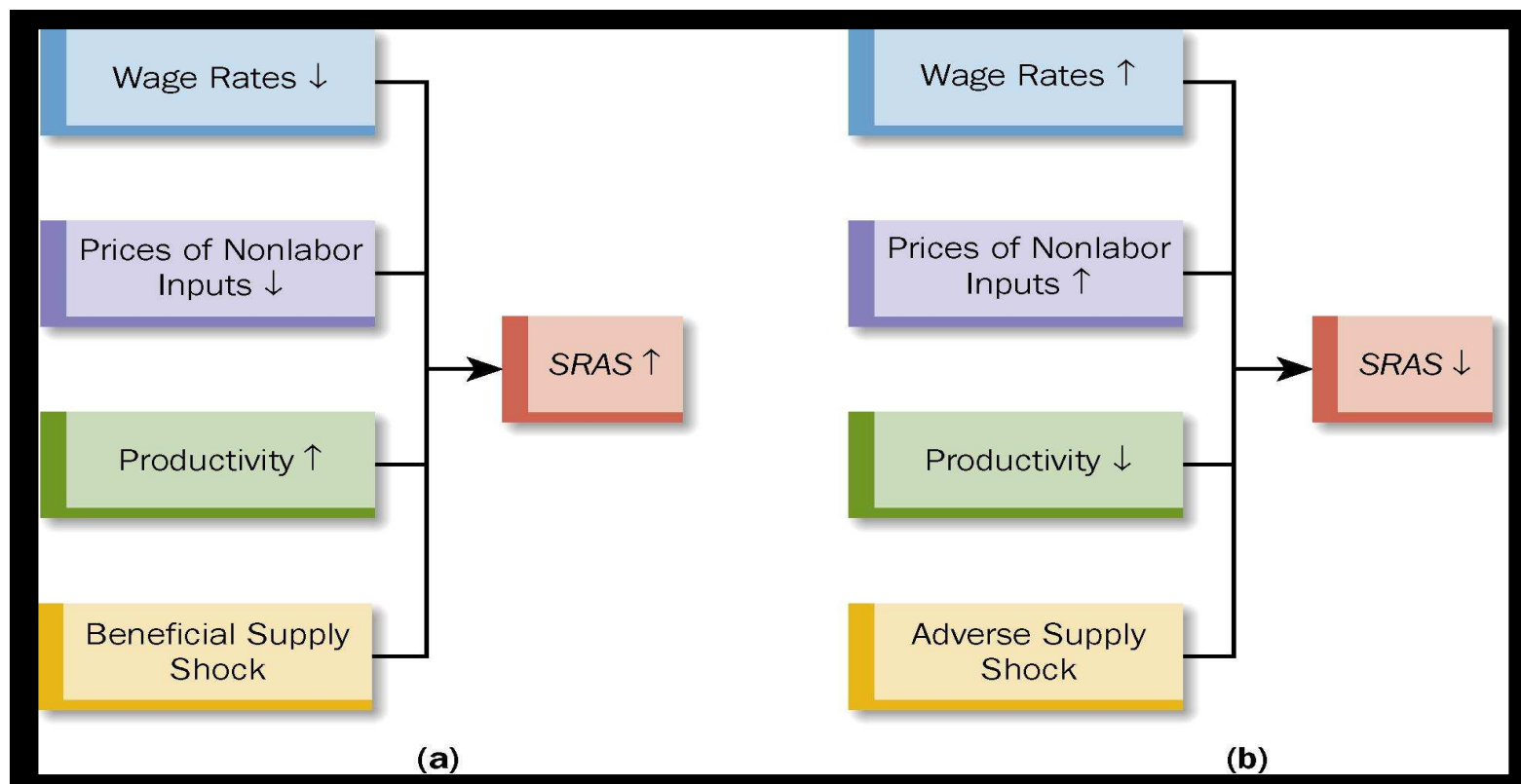


Effects of a Change in Aggregate Supply

 **Cost-push inflation:** cost increases push AS to the left (relative to AD), causing price level increases (**inflation**).



Changes in Short-Run Aggregate Supply

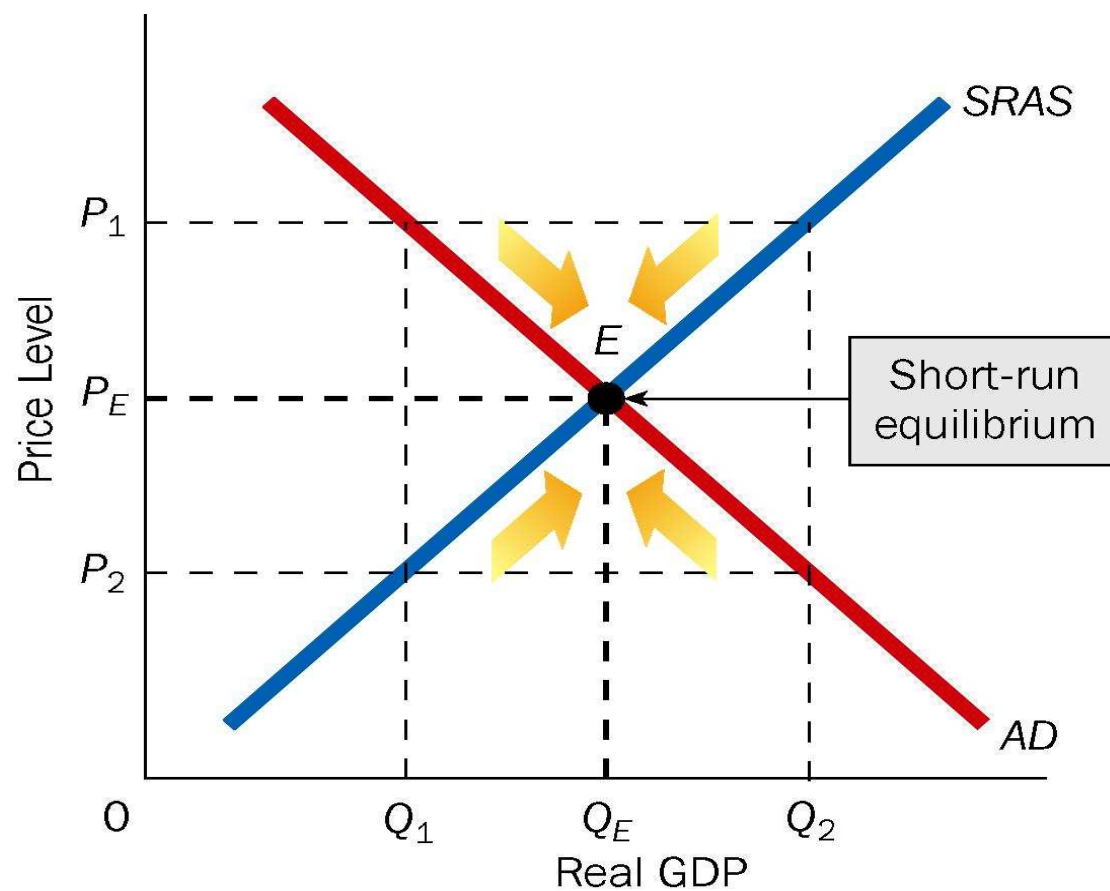




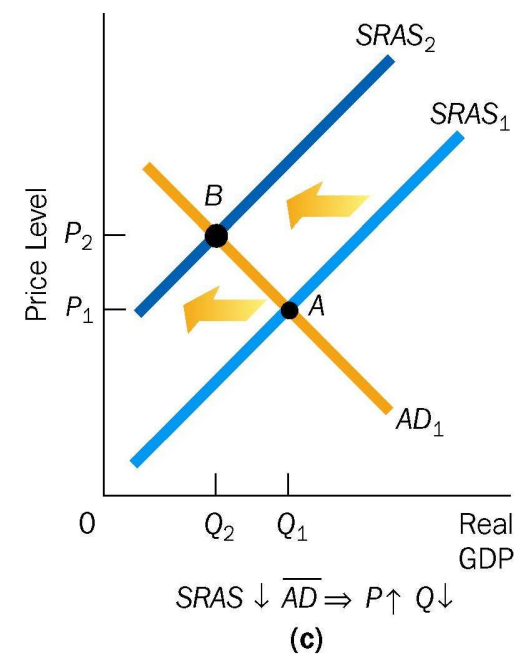
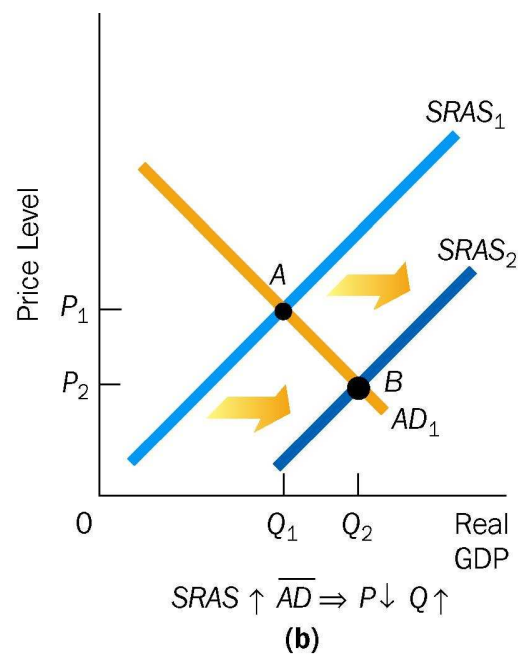
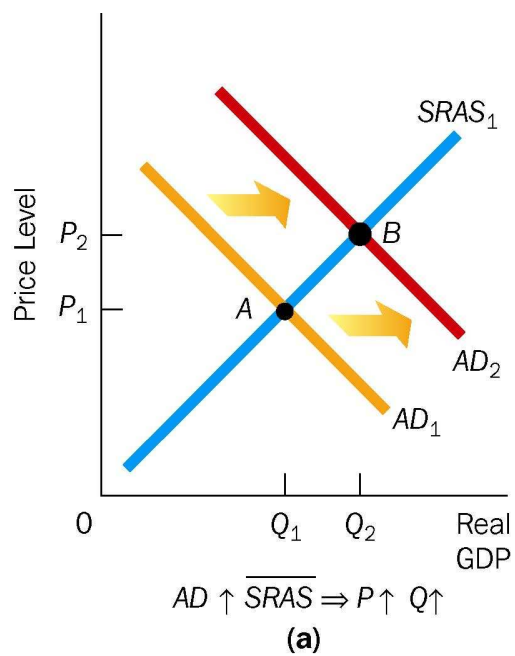
How Short-Run Equilibrium In The Economy Is Achieved

- AD and SRAS determine **the price level**, **real GDP**, and the **unemployment** rate in the short run.
- In instances of both surplus and shortage, economic forces are moving the economy toward the short-run equilibrium point.
- ***Ceteris paribus***, we expect a **higher real GDP level to be associated with a lower unemployment rate** and a **lower real GDP level to be associated with a higher unemployment rate**.

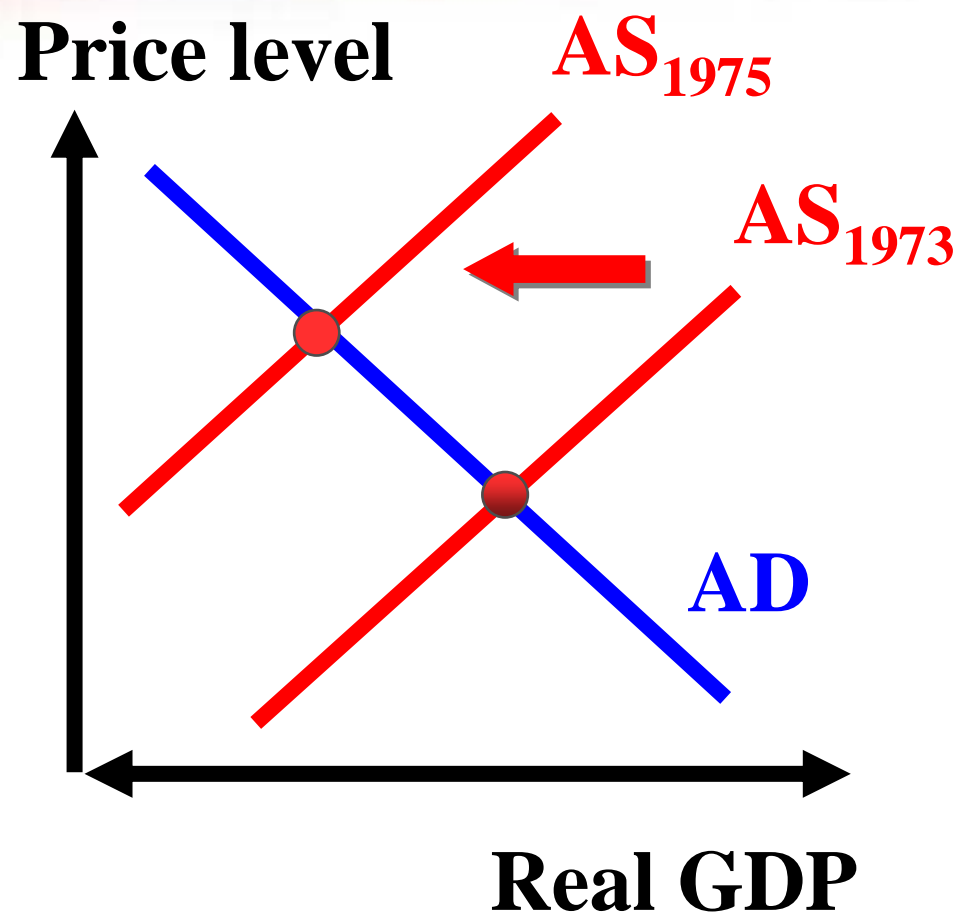
Short-Run Equilibrium



Changes in Short-Run Equilibrium in the economy

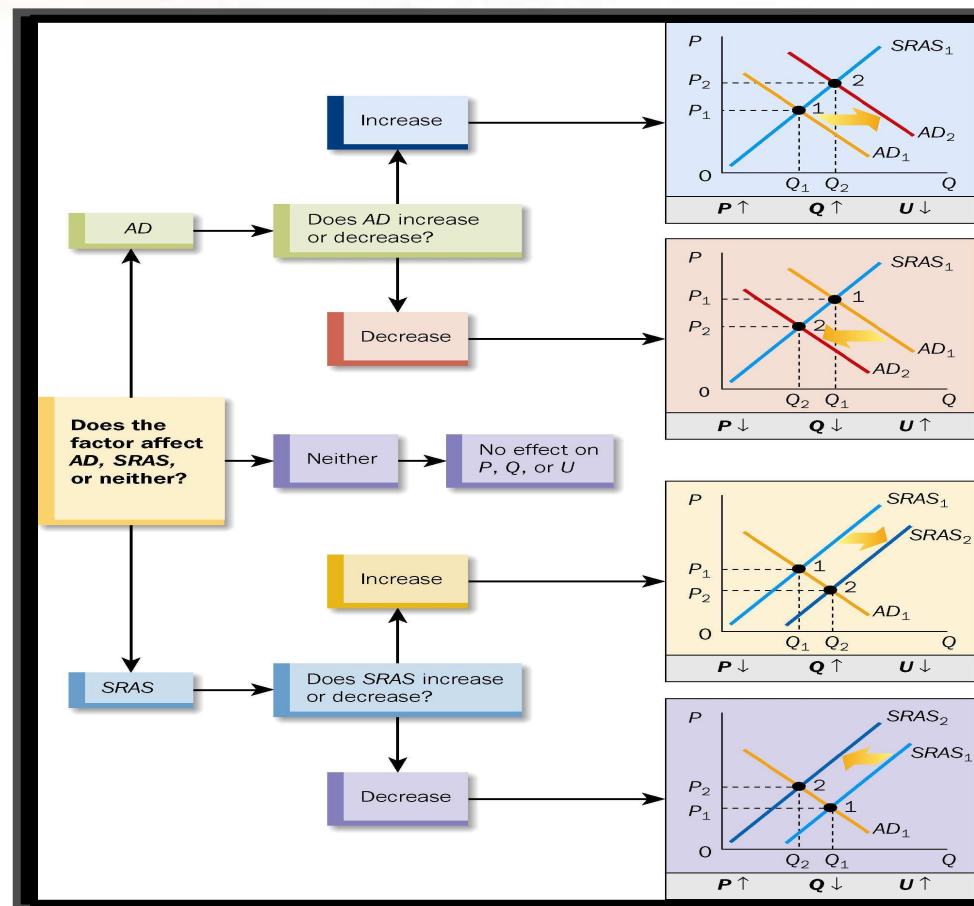


Supply Shocks

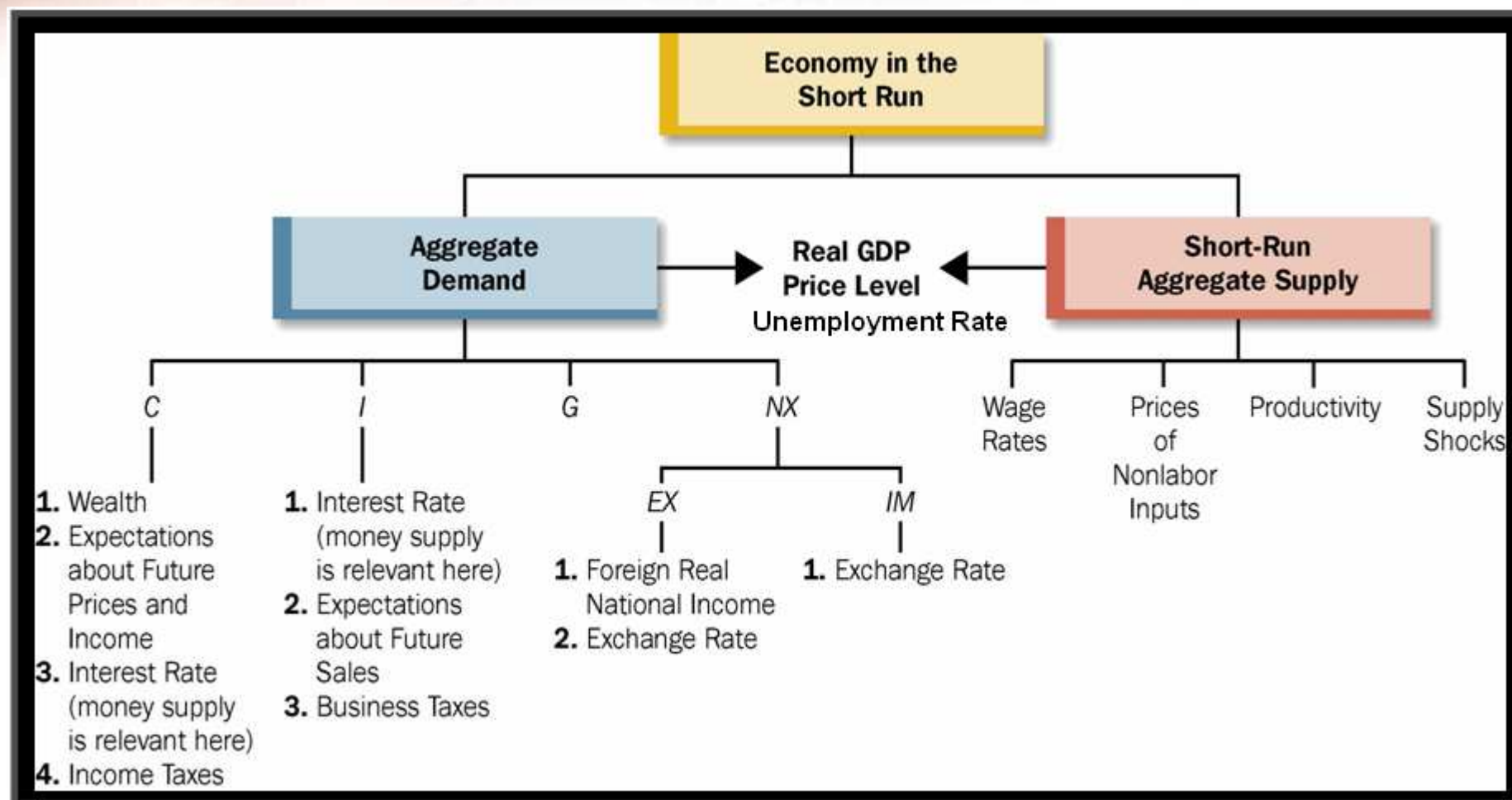


- Adverse supply shocks can cause a recession (a fall in output) with increasing prices. This phenomenon is known as **stagflation**.
- A dramatic increase in oil prices caused the stagflation of the 1970s

How a Factor Affects the Price Level, Real GDP and the Unemployment Rate in the Short Run

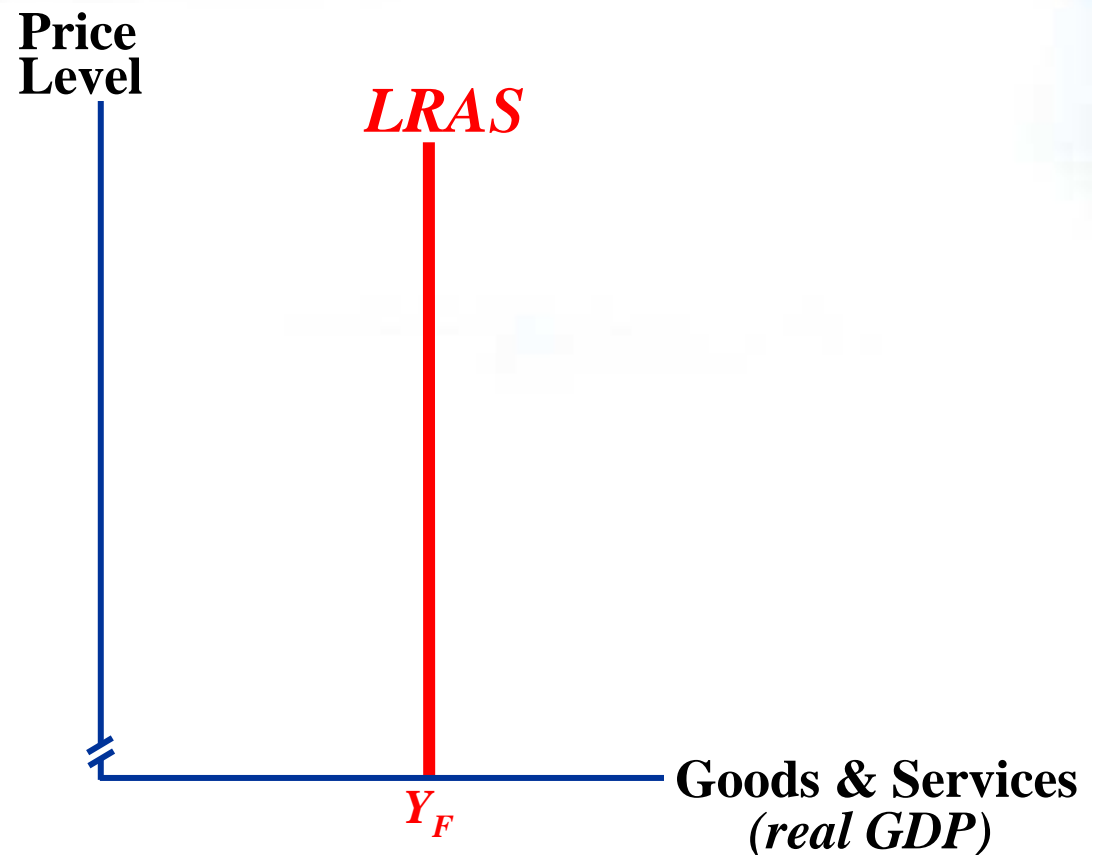


A Summary Exhibit of *AD* and *SRAS*



The Shape of the Long-Run Aggregate Supply Curve

- In the long run, the level of output, **depends solely on the supply factors - capital, labor - and the state of technology.**
- In the long run, the economy operates at **full employment** and changes in the price level do not affect this.





The Shape of Long-run AS (LRAS)

- Resource costs are **NOT fixed**.
 - **As prices rises, workers will want higher wages and will eventually get them.**
- The amount of capital is not fixed—firms can build new plants and buy new equipment over the long-run.
- In the long-run, AS is set by the **production possibilities curve** —the capacity of the economy, and is not affected by prices, hence is vertical.



Long- and Short-Run Aggregate Supply

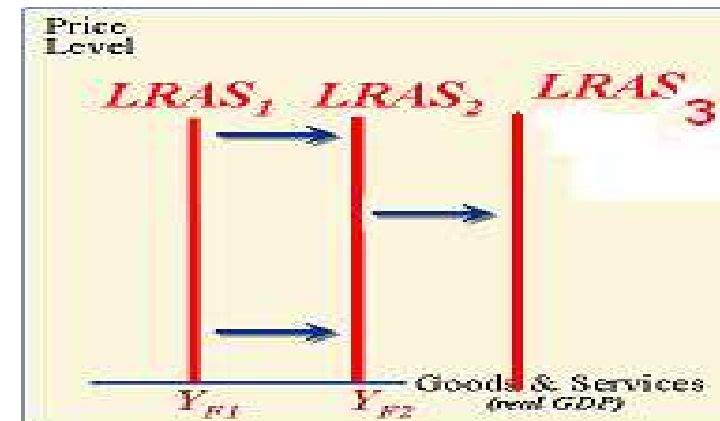
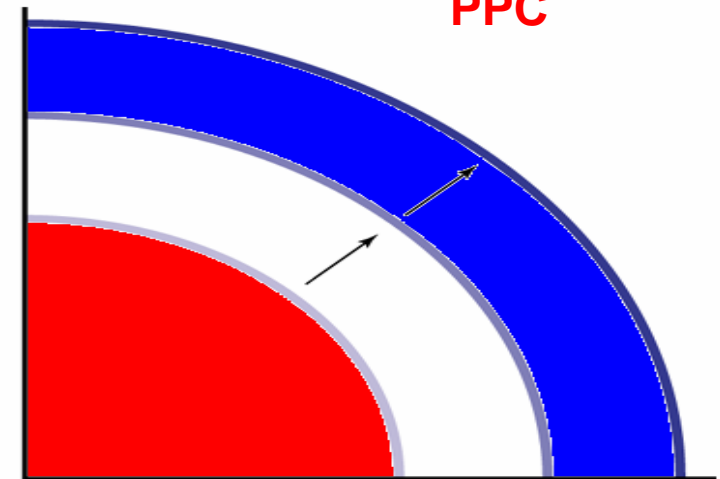
- **Shifts in LRAS:**
A long run change in aggregate supply indicates that it will be possible to achieve and sustain a larger rate of output.
- A shift in the **long run aggregate supply** curve (**LRAS**) will cause the **short run aggregate supply** (**SRAS**) curve to shift in the same direction.
- Shifts in **LRAS** are an alternative way of indicating that there has been a shift in the economy's production possibilities curve.

Shifts in *LRAS* Aggregate Supply

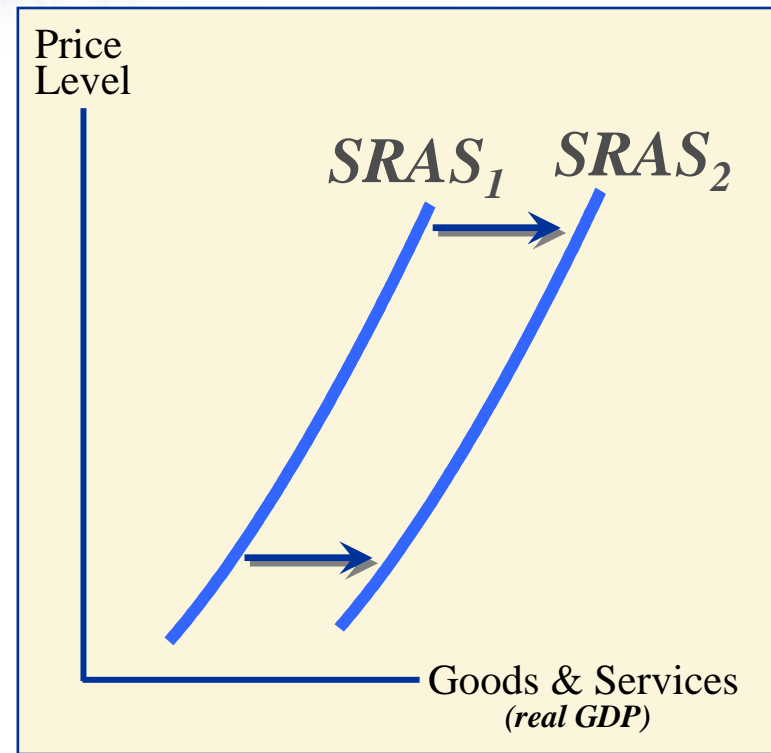
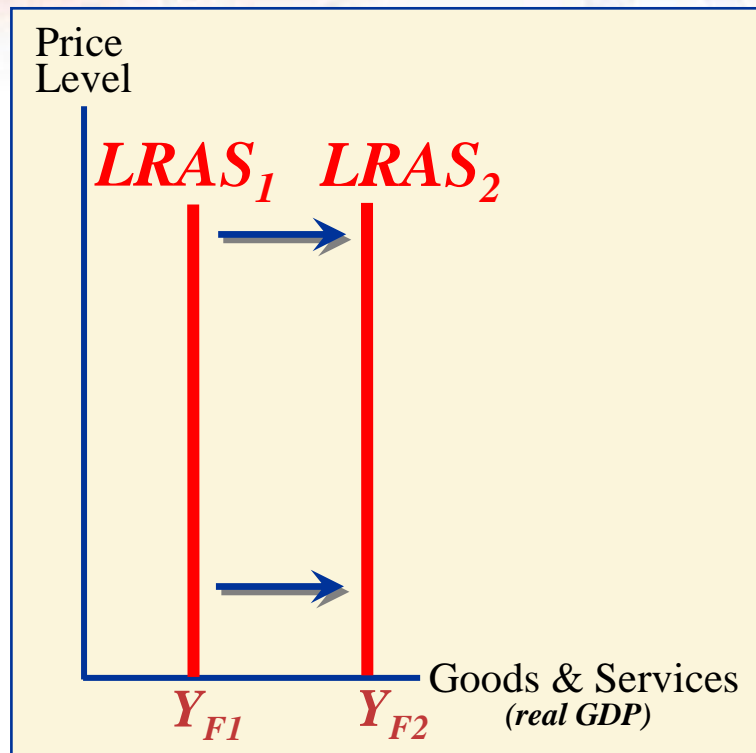
Factors that increase (*decrease*) *LRAS*:

- Increase (*decrease*) in the supply of resources.
- Improvement (*deterioration*) in technology and productivity.
- Institutional changes that increase (*reduce*) the efficiency of resource use.

PPC

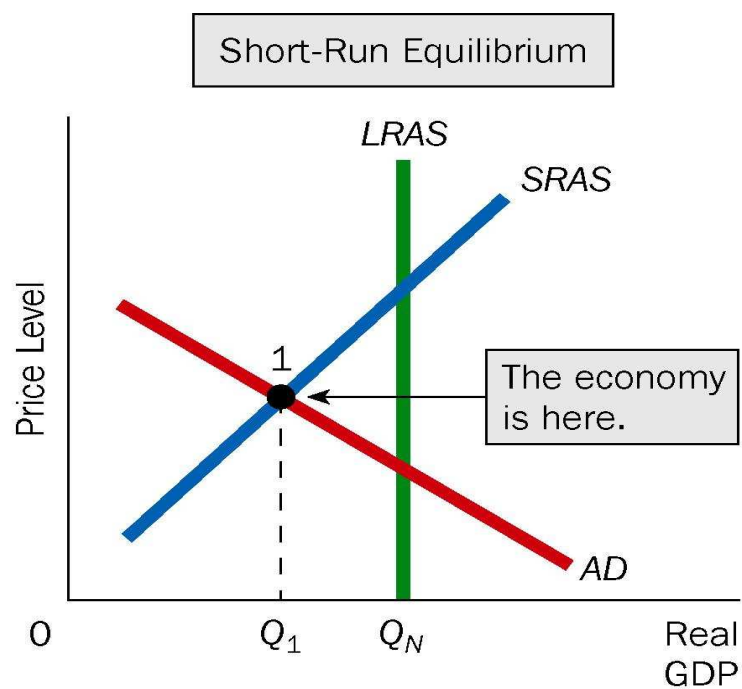


Shifts in Aggregate Supply

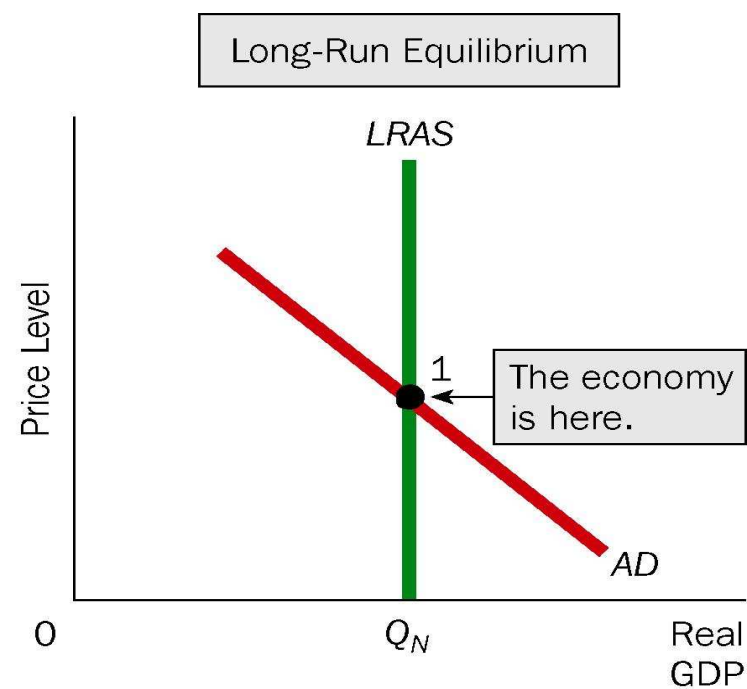


- Such factors as an increase in the stock of capital or an improvement in technology will expand an economy's potential output and shift **LRAS** to the right (note that when the **LRAS** curve shifts, so too does **SRAS**).
- Such factors as a reduction in resource prices or favorable weather would shift **SRAS** to the right (note that here the **LRAS** curve will remain constant).

Equilibrium States of the Economy



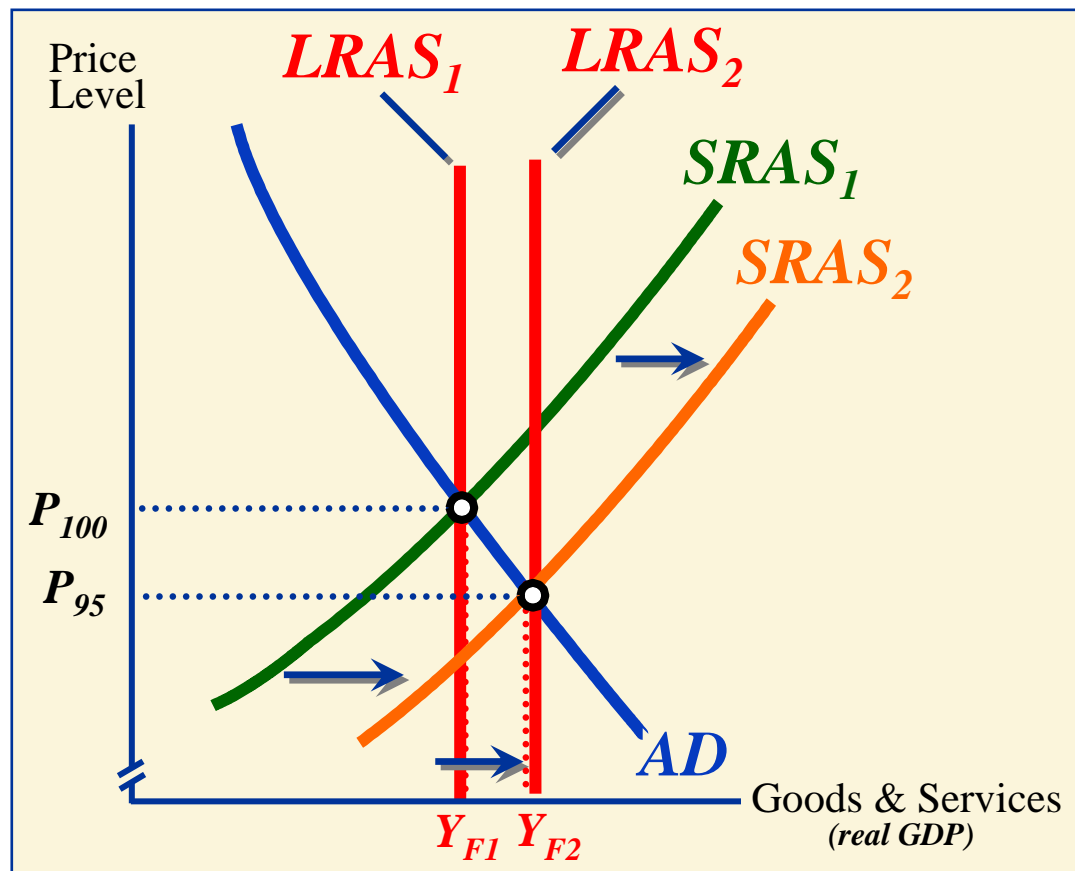
(a)



(b)

Growth in Aggregate Supply

- Consider the impact that capital formation or a technological advancement has on an economy.
- Both **LRAS** and **SRAS** increase (to **LRAS₂** and **SRAS₂**); full employment output expands from **Y_{F1}** to **Y_{F2}** .
- A sustainable, higher level of real output is the result.





Unanticipated Changes in Aggregate Demand

- In the short-run, output will deviate from full employment capacity as prices in the goods and services market deviate from the price level that people expected.
- Unanticipated changes in aggregate demand often lead to such deviations.

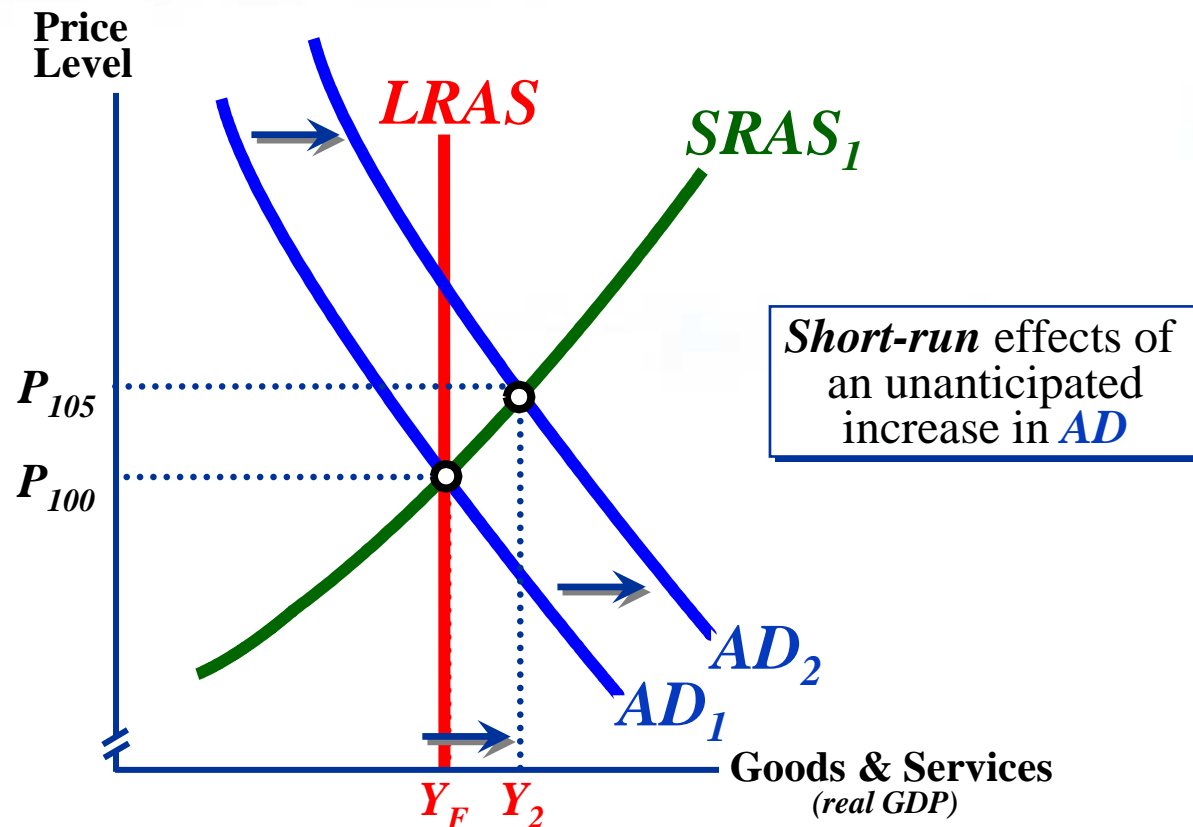


Unanticipated Increase in Aggregate Demand

- **Impact of *unanticipated increase* in *AD*:**
 - Initially, the strong demand and higher price level in the goods & services market will temporarily improve profit margins.
 - Output will increase, the rate of unemployment will drop below the natural rate, and output will temporarily exceed the economy's long-run potential.
 - With time, however, contracts will be modified and resource prices will rise and return to their competitive relation with product prices.
 - Once this happens, output will recede to the economy's long-run potential.

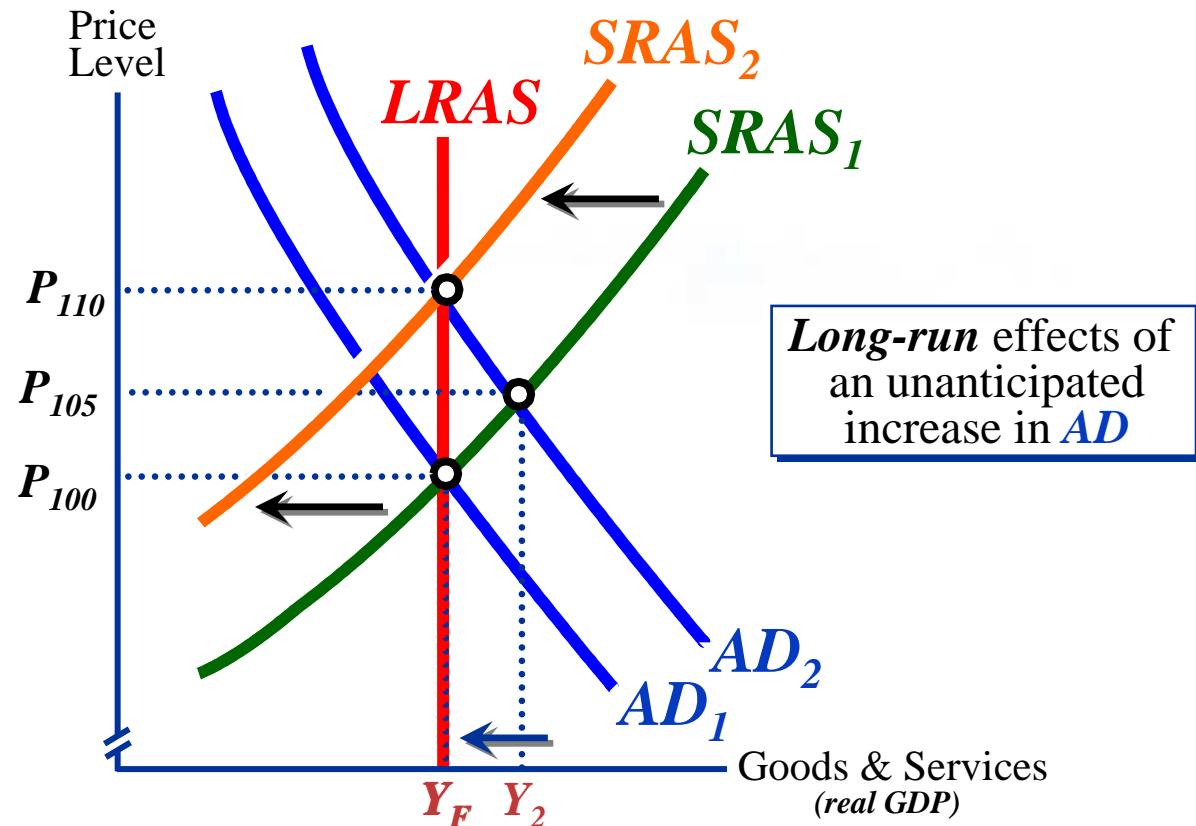
Increase in AD: Short Run

- In response to an unanticipated increase in **AD** for goods & services (shift from **AD₁** to **AD₂**), prices rise to **P₁₀₅** and output will increase to **Y₂**, temporarily exceeding full-employment capacity.



Increase in AD: Long Run

- With time, resource market prices, including labor, rise due to the strong demand. Higher costs reduce **$SRAS_1$** to **$SRAS_2$** .
- In the long-run, a new equilibrium at a higher price level, **P_{110}** , and output consistent with long-run potential will occur.
- So, the increase in demand only **temporarily** expands output.



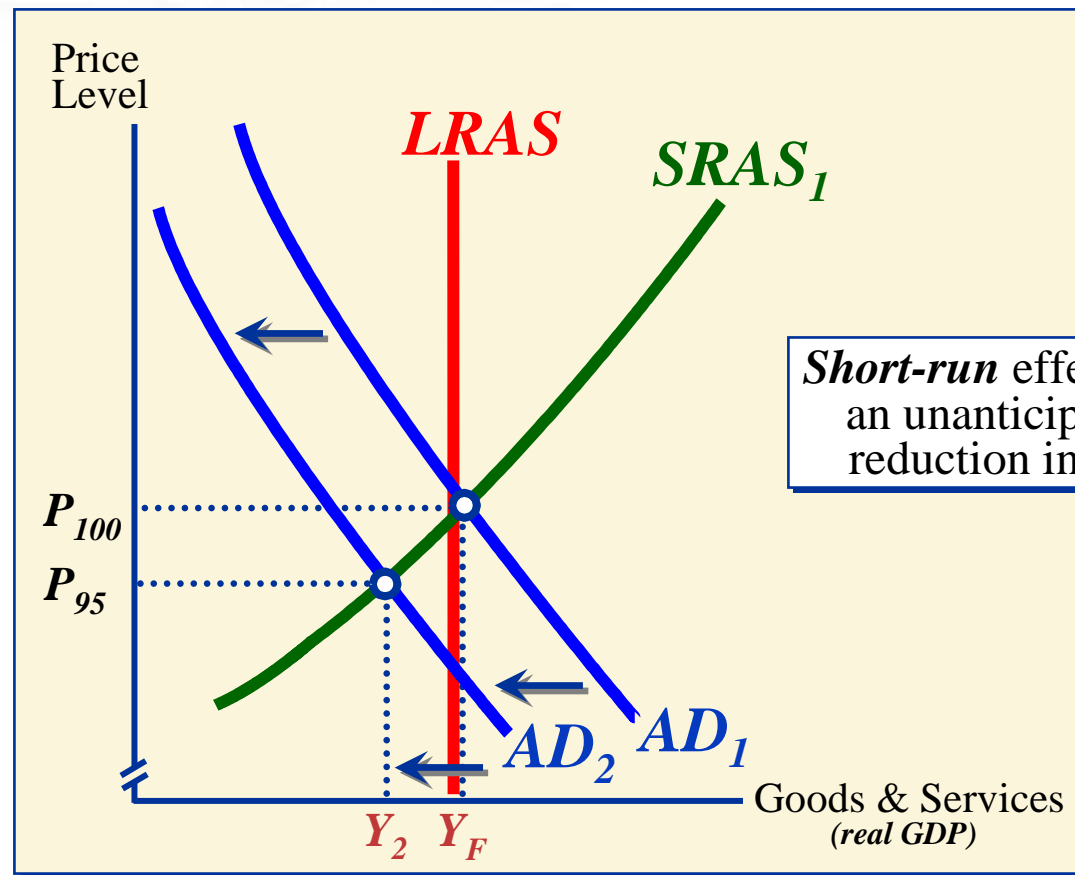


Unanticipated Decrease in Aggregate Demand

- **Impact of *unanticipated reduction in AD*:**
 - Weak demand and lower prices in the goods & services market will reduce profit margins. Many firms will incur losses.
 - Firms will reduce output, the unemployment rate will rise above the natural rate, and output will temporarily fall short of the economy's long-run potential.
 - With time, long-term contracts will be modified.
 - Eventually, lower resource prices and a lower real interest rate will direct the economy back to long-run equilibrium, but this may be a lengthy and painful process.

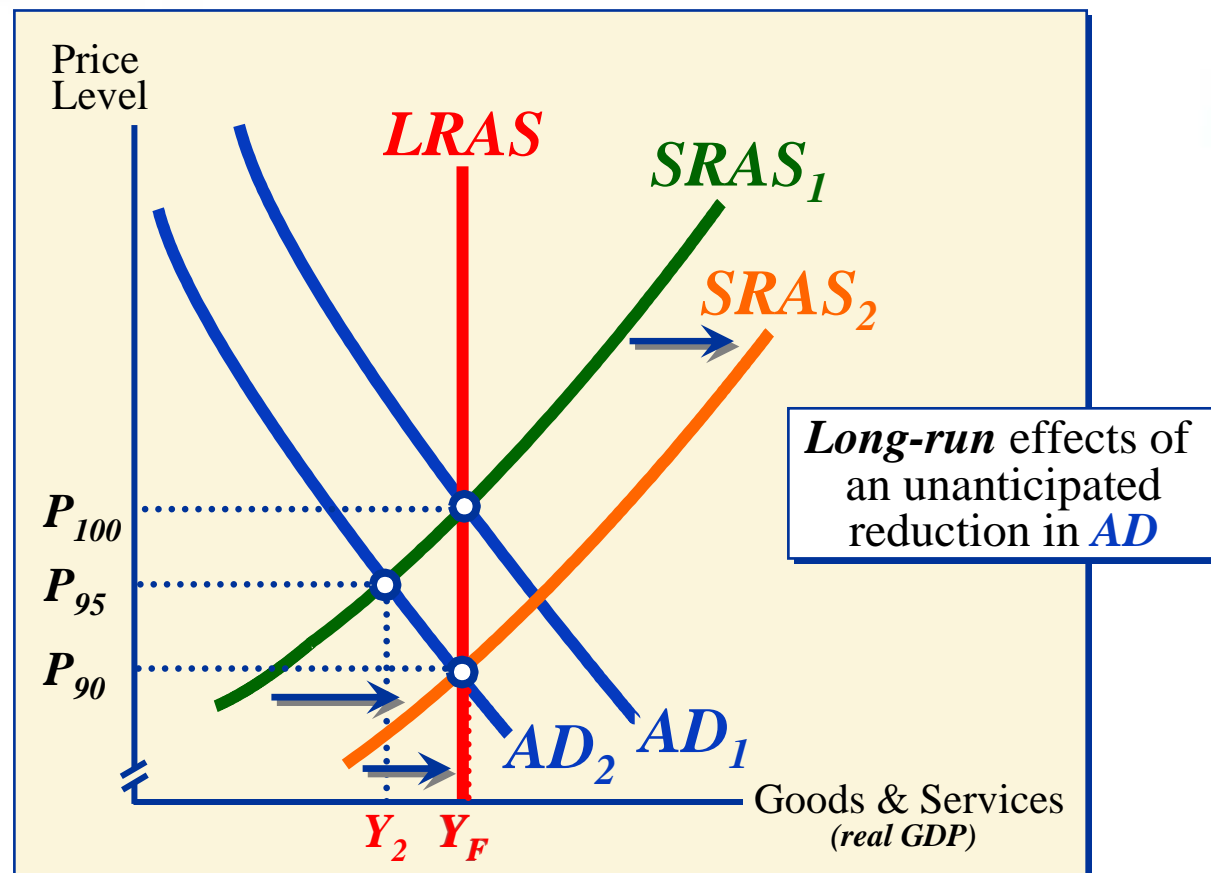
Decrease in AD: Short Run

- The short-run impact of an unanticipated reduction in **AD** (shift from **AD_1** to **AD_2**) will be a decline in output (to **Y_2**), and a lower price level (**P_{95}**).
- Temporarily, profit margins decline, output falls, and unemployment rises above its natural rate.



Decrease in AD: Long Run

- In the long-run, weak demand and excess supply in the resource market leads to lower resource prices (including labor) resulting in an expansion in **SRAS** (**SRAS₁** to **SRAS₂**).
- A new equilibrium at a lower price level, **P₉₀**, and an output consistent with long-run potential will result.





Unanticipated Changes in Short-Run Aggregate Supply

- Unanticipated changes in short-run aggregate supply (**SRAS**) can catch people by surprise.
- Thus, they are often referred to as *supply shocks*.
- A supply shock is an unexpected event that temporarily increases or decreases aggregate supply.

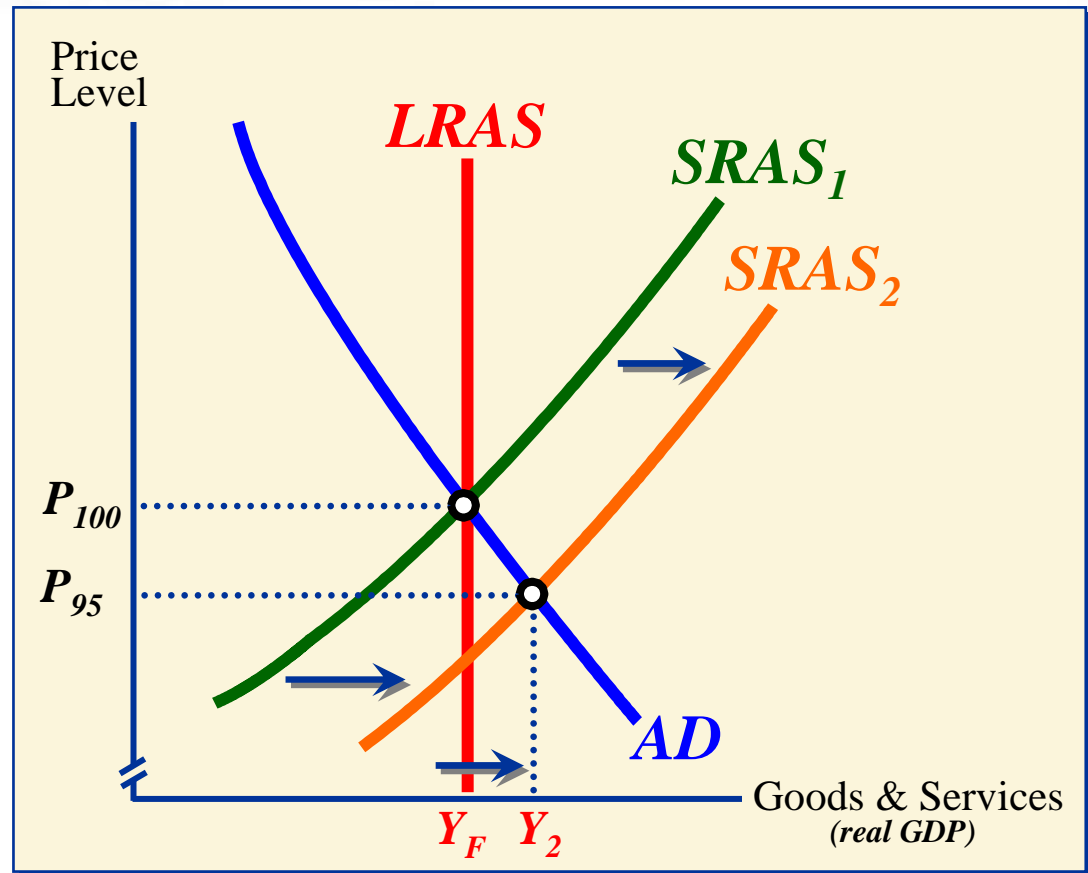


Impact of Increase in *SRAS*

- *SRAS* shifts to the right – output temporarily exceeds the economy's long-run potential.
- Since the temporarily favorable supply conditions cannot be counted on in the future, the economy's long-term production capacity will not be altered.
- If individuals recognize that they will be unable to maintain their current high level of income, they will increase their saving. Lower interest rates, and additional capital formation may result.

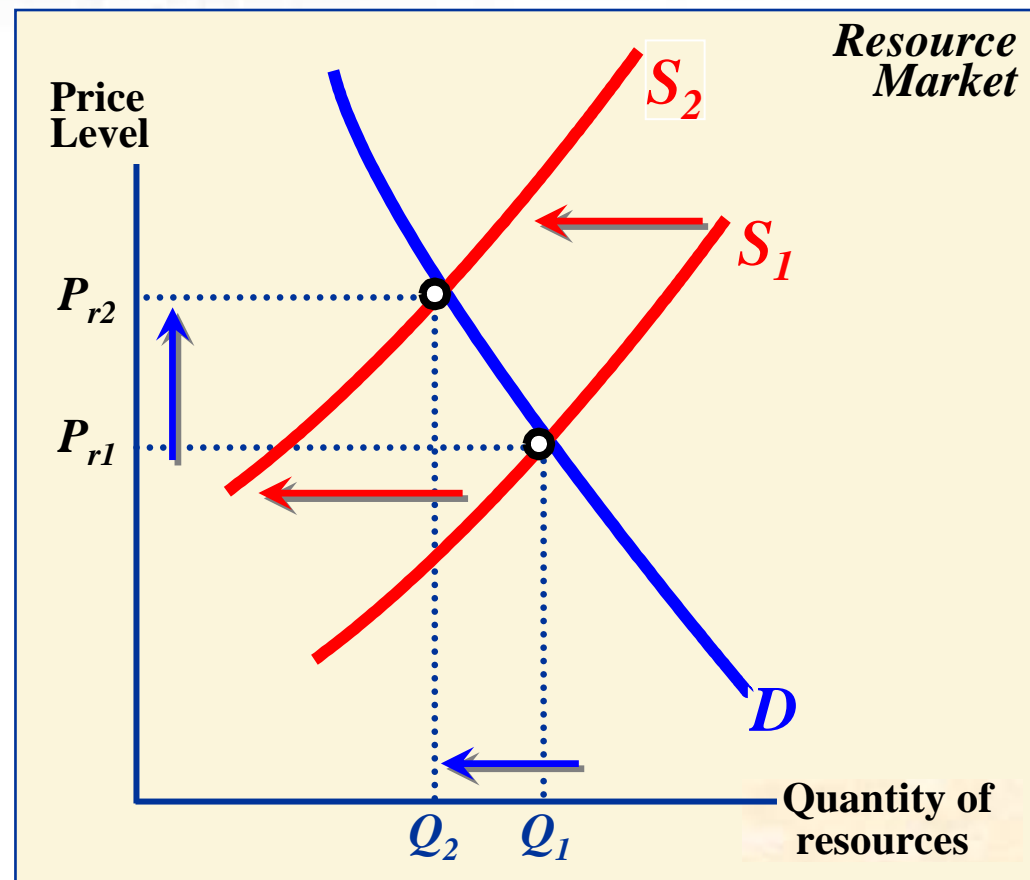
Unanticipated Increase in *SRAS*

- Consider an unanticipated, temporary, increase in *SRAS*, such as may result from a bumper crop from good weather.
- The increase in aggregate supply (to *SRAS*₂) would lead to a lower price level P_{95} and an increase in current GDP to Y_2 .
- As the supply conditions are temporary, *LRAS* persists.



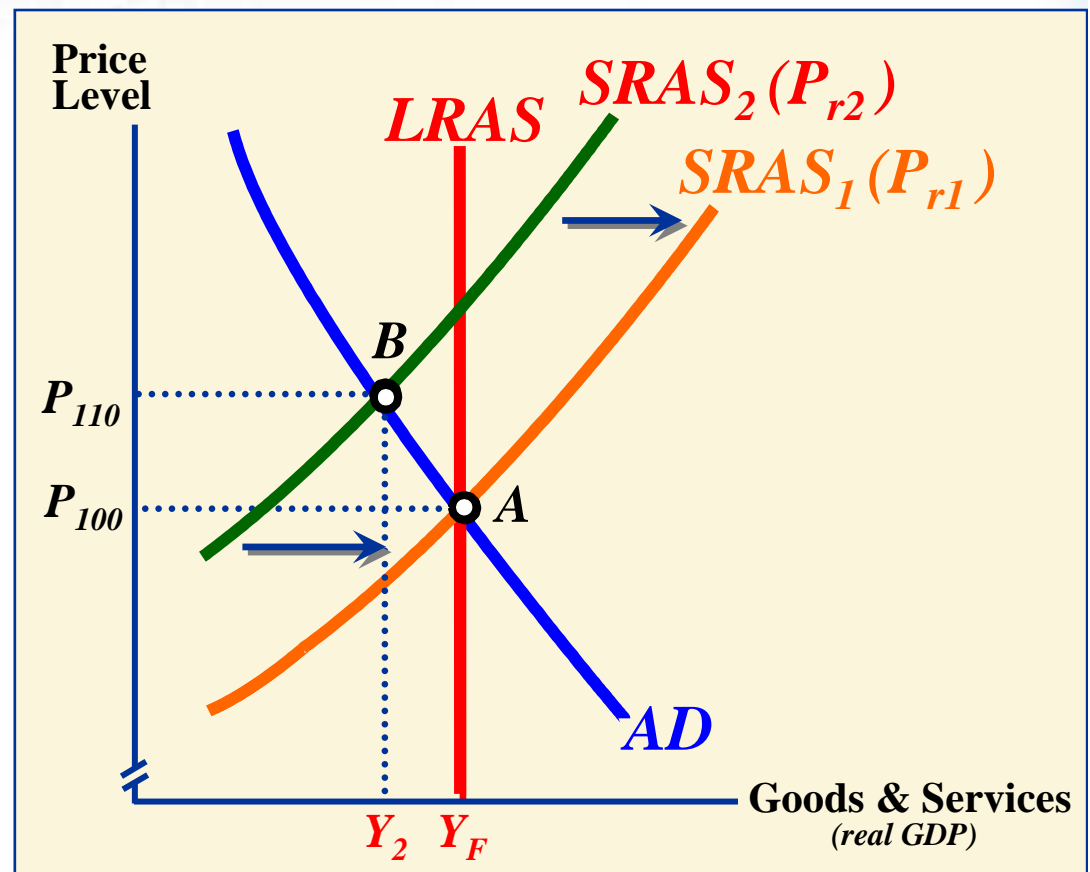
Supply Shock: Resource Market

- Suppose there is an adverse supply shock, perhaps as the result of a crop failure or a sharp increase in the world price of a major resource, such as oil.
- Here we show the impact in the resource market: prices rise from P_{r1} to P_{r2} .



Effects of Adverse Supply Shock

- If the adverse supply shock is *temporary*, resource prices will eventually fall in the future, shifting $SRAS_2$ back to $SRAS_1$, returning equilibrium to (A).
- If the adverse supply factor is *permanent*, the productive potential of the economy will shrink ($LRAS$ shifts left and Y_2 becomes Y_{F2}) and (B) will become the long-run equilibrium

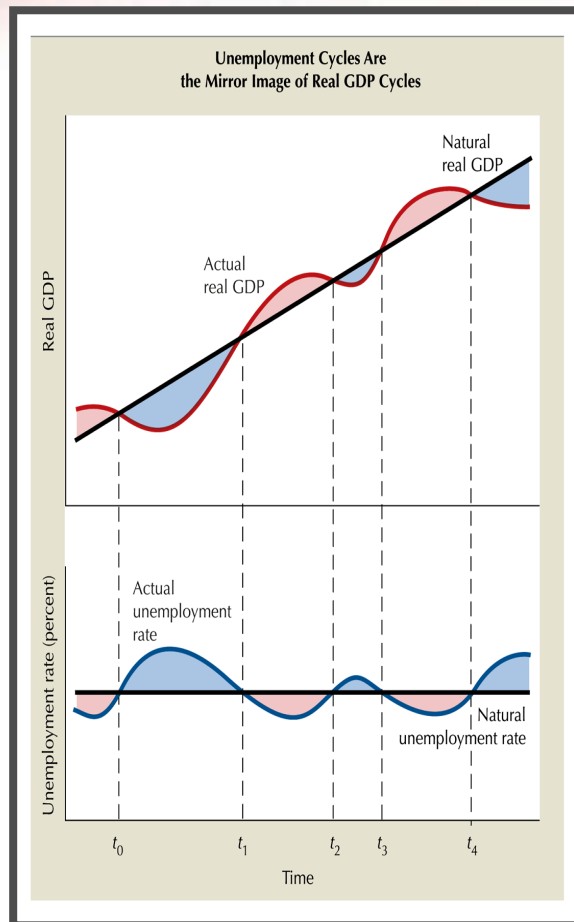




Price Level, Inflation, and the *AD-AS* Model

- The basic ***AD-AS model*** focuses on how the general level of prices influence the choices of business decision makers.
 - Disequilibrium occurs when the actual price level is either greater than or less than the anticipated level.
 - The actual price level will also differ from the level people anticipated when the rate of inflation differs from what is expected.
 - *When the inflation rate is greater than anticipated*, this implies a higher than anticipated price level. As a result, profit margins will be attractive and business firms will respond with an expansion in output.
 - *When the inflation rate is less than anticipated*, this implies a lower than anticipated price level. As a result, profit margins will be unattractive and businesses will reduce their output.

The Business Cycle -- Revisited



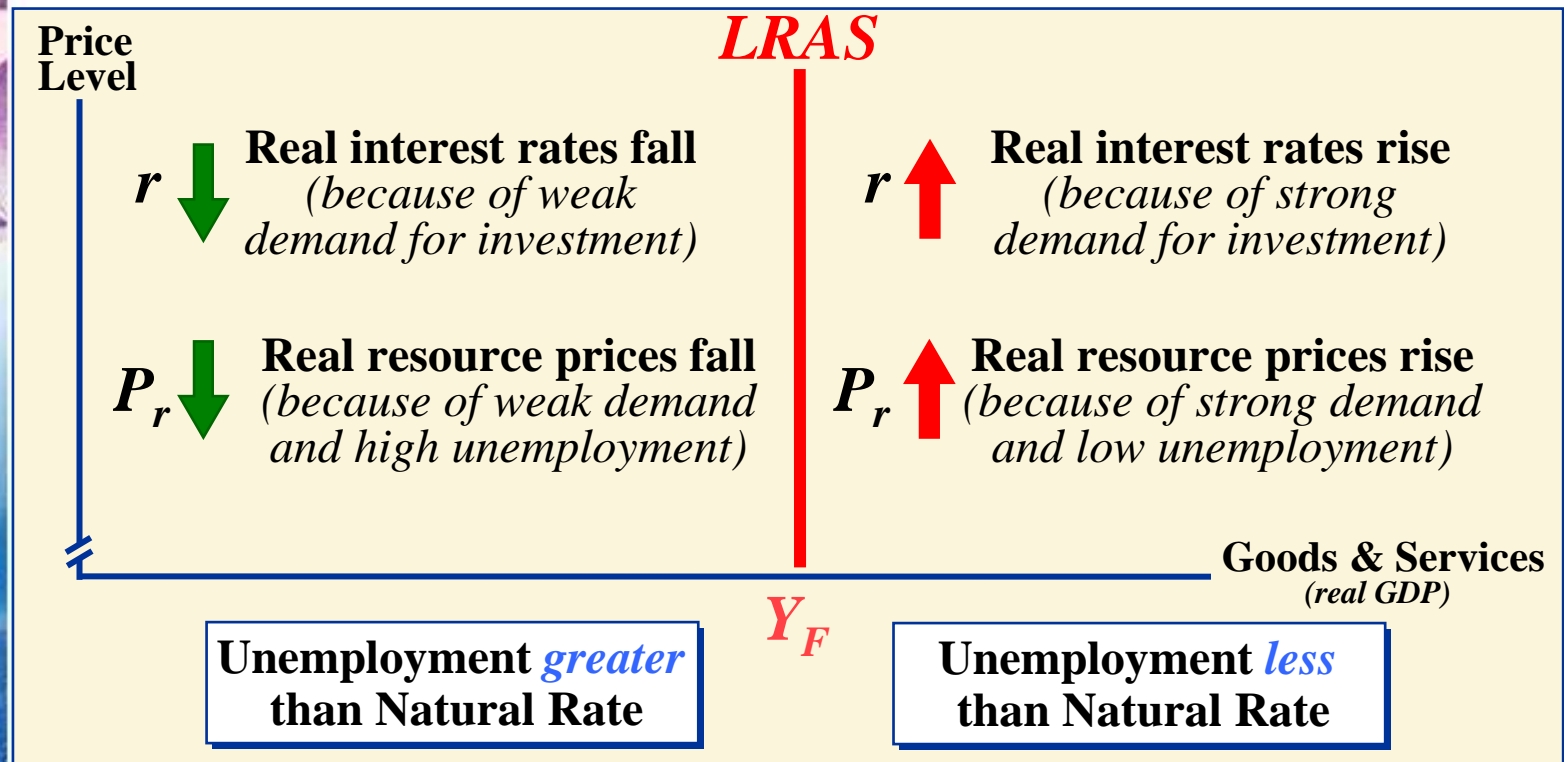
- **Recessions** occur because prices in the goods and services market are low relative to the costs of production and resource prices.
 - **The two causes of recessions:**
 - unanticipated reductions in **AD**, and,
 - unfavorable supply shocks.
- An **unsustainable economic boom** occurs when prices in the goods and services market are high relative to resource prices and other costs.
 - The two causes of **booms** are:
 - unanticipated increases in **AD**, and,
 - favorable supply shocks.



Does the Market Have a Self-Corrective Mechanism?

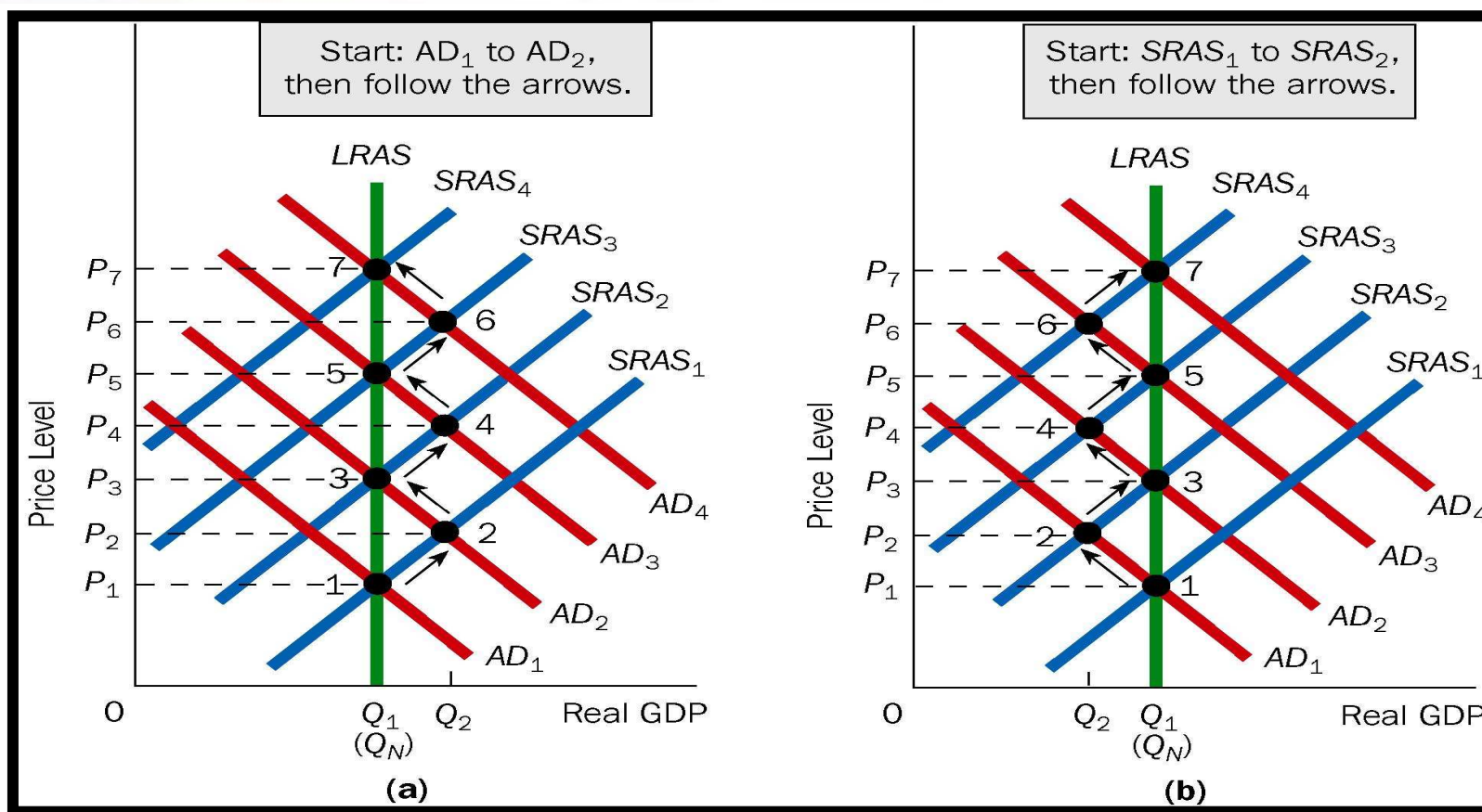
- There are three means by which the economy seems to have a **self-corrective mechanism** keeping it 'on-track':
 - **Consumption demand is relatively stable over the business cycle.**
 - **Changes in real interest rates will help to stabilize aggregate demand and redirect economic fluctuations.**
 - Interest rates tend to fall during a recession and rise during an economic boom.
 - **Changes in real resource prices will redirect economic fluctuations.**
 - Real resource prices tend to fall during a recession and rise during an expansion.

Changes in Real Interest Rates and Resource Prices Over the Business Cycle



- If aggregate output is less than full employment potential Y_F :
 - weak demand for investment lowers real interest rates.
 - slack employment in resource markets places downward pressure on wages and other resource prices (P_r).
- Conversely, when output exceeds Y_F :
 - strong demand for capital goods and tight labor market conditions will result in both rising real interest rates and resource prices (P_r).

Changing One Shot Inflation Into Continued Inflation





Thank You for your Attention





Literature

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