The business cycle is the fluctuations in the production of goods and services in an economy.

The business cycle is the fluctuations of gross domestic product about its long term growth trend.

A boom is a business cycle expansion which leads to a general growth in economic activity.

A recession is a business cycle contraction which leads to a general slowdown in economic activity.
Economic Fluctuations

- Peak
- Recession
- Expansion
- Trough
Economic Fluctuations

Long-term real growth in US GDP
GDP adjusted for inflation (2005 dollars) 1871–2009

Trendline (exponential growth rate)

Data from MeasuringWorth.com
Long-term real growth in US GDP per capita 1871–2009

GDP per capita adjusted for inflation using 2005 dollars

Data from MeasuringWorth.com

VisualizingEconomics.com
FACT 1: Economic fluctuations are irregular and unpredictable.

U.S. real GDP, billions of 2000 dollars

The shaded bars are recessions
Real GDP Growth in the United States  Growth in real GDP averages about 3 percent per year, but there are substantial fluctuations around this average. The shaded areas represent periods of recession.

Source: U.S. Department of Commerce.
**Unemployment** The unemployment rate rises significantly during periods of recession, shown here by the shaded areas.

*Source: U.S. Department of Labor.*
Aggregate Demand/Aggregate Supply is the model that explains short run economic fluctuations about the long run trend.

Aggregate demand shows the quantity of goods and services that households, firms, government, and foreigners demand at each price level.

Aggregate supply shows the quantity of goods and services that firms choose to produce, supply and sell at each price level.

The price level and the quantity of output adjust to bring aggregate demand and aggregate supply into balance or equilibrium.
Definition

Aggregate demand is the relationship between the quantity of output demanded and the aggregate price level.

Definition

The aggregate demand curve tells us the quantity demanded of goods and service people want to buy at any given level of prices.
If the overall level of prices increase, each transaction requires more dollars.

The number of transactions and the quantity of goods and services purchased fall.
$Y = C + I + G + NX$

- National income reflects aggregate demand by households, firms, the government and foreigners.
- Changes in prices affect the components of expenditure and accordingly aggregate demand.
- The channels are through the wealth effect, the interest rate effect, and the exchange rate effect.
Wealth Effect

- A decrease in the price level increases the value of money and makes consumers wealthier.
- This encourages them to spend more and demand a larger quantity of goods and services.
- An increase in the price level decreases the value of money, and makes consumers less wealthy.
- This discourages them from spending and demand smaller quantity of goods and services.
Interest Rate Effect

- The lower the price level, the less money households need to hold to buy goods and services.
- Households transfer some excess money into interest bearing assets, which decreases interest rates.
- The decrease in interest rate increases investment and the quantity of goods and services demanded.
- The higher the price level, the more money households need to hold to buy goods and services.
- Households withdraw some of their money in interest bearing assets, which increases interest rates.
- The increase in interest rate decreases investment and the quantity of goods and services demanded.
Exchange Rate Effect

- When a decrease in the U.S. price level causes interest rates to decrease, the value of the dollar decreases.
- This depreciation increases American net exports and the quantity of goods and services demanded.
- When an increase in the U.S. price level causes U.S. interest rates to increase, the value of the dollar increases.
- This appreciation decreases American net exports and the quantity of goods and services demanded.
Economic Fluctuations

Aggregate Demand

\[ AD \]

\[ Y_2 \]

\[ Y \]

\[ P \]

\[ P_2 \]

\[ P_1 \]

\[ Y_1 \]

\[ Y_2 \]
Any event that changes how much people want to consume at a given price level shifts the aggregate demand curve.

Examples
change in consumer confidence, change in credit access, change in consumer wealth, change in taxes.

Any event that changes how much firms want to invest at a given price level shifts the aggregate demand curve.

Examples
change in investment taxes, change in the cost of borrowing, uncertainty and risk.
The most direct way that policymakers shift the aggregate demand curve is through government spending.

**Examples**
change in budget deficit, change in fiscal policy.

Any event that changes net exports for a given price level shifts the aggregate demand curve.

**Examples**
change in trade policy, change in the exchange rate.
Economic Fluctuations
Aggregate Demand

The graph illustrates the concept of aggregate demand (AD) and its relationship with income (Y) and price (P). The downward sloping line represents the aggregate demand function, showing how changes in income affect the demand for goods and services. The points Y_1 and Y_2 represent different levels of income, while P_1 is a point on the price axis.

- **AD_1** and **AD_2** denote different levels of aggregate demand, reflecting changes in economic conditions.
Aggregate supply is the relationship between the quantity of output supplied and the price level.

- The aggregate supply relationship depends on the time horizon.
- Firms have flexible prices in the long run, but have sticky prices in the short run.
- There is a long run aggregate supply curve and a short run aggregate supply curve.
Natural rate of output is the production of goods and services in the long run when unemployment is at its natural rate.

Natural rate of output depends on the economy’s stock of labor, capital, natural endowments, and technology.

An increase in the price level does not affect any of these factors, so it does not affect the natural rate of output.

Any event that changes any of the factors of production will shift the Long Run Aggregate Supply curve.
Economic Fluctuations
Aggregate Supply

![Graph showing aggregate supply with LRAS, P1, P2, YN.](image)
If no firm wants to adjust prices in the short run, the Short Run Aggregate Supply curve is flat.
The quantity of output supplied deviates from the natural rate when the actual price level in the economy deviates from the price level that people expected to prevail.
Sticky wages are wages that are predetermined by long term contracts.

- Nominal wages are slow to adjust due to long term legal contracts between workers and firms.
- A firm expects the price level to be high, and signs a contract with its workers to pay them a high wage.
- The price level turns out to be lower than expected, but the cost of labor is stuck at the contracted level.
- Production is less profitable, so firms hire fewer workers and decreases the quantity of output supplied.
Sticky prices are prices that adjust sluggishly not to incur costs of changing prices.

- Firms announce their prices in advance based on economic conditions it expects to prevail.
- The economy experiences an unexpected contraction of money supply, which decreases the price level.
- Some firms can decrease their prices immediately, but others may not want to incur menu costs.
- These firms with high prices, their sales decline, and thus cut back on production and employment.
All the variables that shift the LRAS causes a shift in the SRAS plus the price level that people expect to prevail.

An increase in the expected price level decreases the quantity of goods and services supplied and shifts the SRAS to the left.

A decrease in the expected price level increases the quantity of goods and services supplied and shifts the SRAS to the right.
Example

A wave of pessimism, which diminishes confidence in future economic prospects, overtakes the economy.
Economic Fluctuations

The diagram illustrates the relationship between the short-run aggregate supply (SRAS) and the aggregate demand (AD) curves. The long-run aggregate supply (LRAS) curve is depicted as a vertical line at the full employment output level (Y^N). The diagram shows two points of intersection: A and B, which correspond to different price levels (P_1 and P_2) and output levels (Y_2). The movement from point A to point B indicates a shift in the AD curve from AD_1 to AD_2, reflecting changes in aggregate demand.
Pessimism affects spending plans as households and firms cut their consumption and investment spending.

This shifts the aggregate demand curve to the left causing a recession and a decline in prices.

Pessimism about the future is self-fulfilling and leads to falling incomes and increasing unemployment.

The price level is below the level that people had come to expect before the sudden fall in aggregate demand.

Expectations catch up with the new reality, and the fall in the expected price alters wages, prices and perceptions.

Workers and firms bargain for lower wages, which encourages hiring and expands production, which shifts the SRAS to the right.
Economic Fluctuations

The diagram illustrates the relationship between price (P), real output (Y), and aggregate demand (AD) and supply (SRAS, LRAS) in an economy.

- **LRAS** (Long-Run Aggregate Supply): The long-run equilibrium where the economy is at its potential output (YN).
- **SRAS** (Short-Run Aggregate Supply): The short-run aggregate supply curve shifts due to changes in the economy's price level (P).
- **AD** (Aggregate Demand): The aggregate demand curve shifts in response to changes in demand conditions.

The diagram shows a shift from SRAS1 to SRAS2, leading to a new equilibrium at (P2, Y2), indicating a change in the price level and real output due to changes in aggregate demand or supply.
Example

An increase in investment tax credits is a decrease in taxes on investment spending.
Economic Fluctuations

Diagram showing the relationship between price (P), real national income (Y), short-run aggregate supply (SRAS₁), long-run aggregate supply (LRAS₁), and aggregate demand (AD₁, AD₂) in an economy. The diagram illustrates how changes in aggregate demand can shift the AD curve, impacting both the price level and real national income.

Key points:
- LRAS₁: Long-run aggregate supply curve.
- SRAS₁: Short-run aggregate supply curve.
- AD₁, AD₂: Aggregate demand curves.
- P₁: Price level at point A.
- YN: Potential real national income.
- Y₂: Real national income at point B.
An increase in investment tax credits encourages firms to increase their investment spending.

This shifts the aggregate demand curve to the right causing a boom and an increase in prices.

The price level is above the level that people had come to expect before the sudden increase in aggregate demand.

Expectations catch up with the new reality, and the increase in the expected price alters wages, prices and perceptions.

Workers and firms bargain for higher wages, which discourages hiring and contracts production, which shifts the SRAS to the left.
Example

An oil price shock is an increase in oil prices due to an interruption in oil supply.
Higher production costs make selling goods and services less profitable.

Firms supply a smaller quantity of output for any given price level.

This causes stagflation, which is a combination of stagnation and inflation.

The low level of output and employment puts downward pressure on wages.

Because workers have less bargaining power when unemployment is high.

As wages fall, production become profitable and the SRAS shifts to the right.
Economic Fluctuations

![Graph showing Economic Fluctuations]

- SRAS \(_1\)
- AD \(_1\)
- SRAS \(_2\)
- AD \(_2\)
- LRAS \(_1\)

Points:
- A
- B
- Y\(_N\)
- Y\(_2\)
- P\(_1\)
- P\(_2\)
Economic Fluctuations

The diagram illustrates the relationship between the aggregate demand (AD) and aggregate supply (AS) in an economy. The short-run aggregate supply (SRAS) curve is shown as a negatively sloped line, which shifts to the right with increases in aggregate demand (AD). The long-run aggregate supply (LRAS) is represented by a vertical line at the full employment output (Y^N).

Key points include:
- **LRAS** (Long-Run Aggregate Supply) - A vertical line at Y^N.
- **SRAS** (Short-Run Aggregate Supply) - A negatively sloped line that shifts right with increases in AD.
- **AD** (Aggregate Demand) - A positively sloped line that intersects SRAS at different price levels (P).
- **Y^N** - Full employment output level.
- **P** - Price levels at different intersections with SRAS.
- **B** - Point representing a different price level and output level due to a shift in SRAS.

The diagram shows how changes in aggregate demand affect the price level and output in the short run, leading to fluctuations in economic conditions.