# UNIT 2

# AGGREGATE DEMAND AND AGGREGATE SUPPLY ANALYSIS

## Introduction to Aggregate Demand and Supply

In this unit, you'll explore the fundamental concepts of aggregate demand (AD) and aggregate supply (AS), two key components that determine the overall economic activity in a country. These concepts help us understand the total demand for goods and services within an economy and how that demand is met by producers. By the end of this unit, you'll gain insights into how fluctuations in AD and AS can lead to economic growth, recessions, or inflation.

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## 2.1 Aggregate Demand

### 2.1.1 Concept of Aggregate Demand

**Aggregate demand (AD)** represents the total spending on goods and services in an economy over a specific period. This total spending comes from different sectors, including households, businesses, and the government. It's an important concept because it helps us understand the overall economic activity within a country.

AD can be broken down into four main components:

1. **Household Consumption (C):** This is the total spending by households on goods and services. It's primarily influenced by disposable income (income after taxes), household wealth, and the overall price level.
2. **Private Investment (I):** This includes spending by businesses on capital goods like machinery and buildings. Investment decisions are influenced by factors like the cost of capital, expected future profits, and interest rates.
3. **Government Purchases (G):** This is the spending by the government on goods and services, which directly affects AD based on the government's fiscal decisions.

4. **Net Exports (X-M):** This is the difference between a country's exports and imports. It is influenced by factors like exchange rates and economic conditions in other countries.

Thus, Aggregate Demand can be expressed as: $AD=C+I+G+(X-M)$

### 2.1.2 The Aggregate Demand Curve

The **Aggregate Demand Curve** shows the relationship between the overall price level and the quantity of goods and services demanded in an economy. It is downward sloping, indicating that as the price level falls, the quantity of goods and services demanded increases, and vice versa.

This inverse relationship is explained by three key effects:

- **Real Balance Effect:** As the price level rises, the real value of money decreases, reducing purchasing power and thereby reducing demand.
- **Interest Rate Effect:** Higher prices increase the demand for money, leading to higher interest rates, which in turn reduce investment and consumption spending.
- **International Trade Effect:** When the domestic price level rises, domestic goods become more expensive relative to foreign goods, leading to a decrease in exports and an increase in imports, which reduces aggregate demand.

### 2.1.3 Shifts in the Aggregate Demand Curve

A shift in the AD curve occurs when there is a change in any of the components of AD (C, I, G, or X-M) that is not related to the price level. For instance:

- An increase in consumer confidence or government spending can shift the AD curve to the right, indicating higher demand at all price levels.
- Conversely, a decrease in investment or a rise in taxes can shift the AD curve to the left, indicating lower demand.

Factors affecting the components of AD include:

- **Consumption:** Influenced by wealth, expectations about future prices and income, interest rates, and taxes.
- **Investment:** Affected by interest rates, business expectations, and taxes.
- **Government Spending:** Directly determined by government fiscal policy.
- **Net Exports:** Influenced by exchange rates, foreign income levels, and trade policies.

## 2.2 Aggregate Supply

### 2.2.1 Concept of Aggregate Supply

**Aggregate Supply (AS)** represents the total output of goods and services that producers in an economy are willing and able to supply at different price levels. There is typically a direct relationship between the price level and the quantity of output supplied: as prices rise, producers are generally willing to supply more.

AS can be analyzed in two distinct time frames:

- **Short-Run Aggregate Supply (SRAS):** In the short run, some input prices (like wages) are sticky or fixed, leading to an upward-sloping SRAS curve.
- **Long-Run Aggregate Supply (LRAS):** In the long run, input prices are flexible, and the economy is assumed to be at full employment. The LRAS curve is vertical, indicating that in the long run, the total output is determined by factors like technology and resources, not by the price level.

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This introduction gives you a solid foundation to delve deeper into how these concepts interact to influence economic outcomes, like inflation, unemployment, and economic growth. Understanding these dynamics is crucial for analyzing and predicting economic fluctuations and making informed decisions in business and policy.

## The Upward Sloping Aggregate Supply Curve: The Short Run (SRAS)

### Understanding the Short Run vs. the Long Run

- **Short Run:** A period during which at least one of a firm's inputs (like labor or capital) cannot be varied. For example, a company might not be able to immediately hire more workers or buy new machinery.
- **Long Run:** A period long enough that a firm can vary all its inputs, meaning it can adjust all factors of production.

**Aggregate Supply (AS):** Refers to the total quantity of goods and services (real GDP) that firms in an economy are willing to produce at different price levels. The AS curve represents the relationship between the price level and the quantity of output supplied.

**Short-Run Aggregate Supply Curve (SRAS):**

- The SRAS curve is **upward sloping**, meaning that as the price level increases, firms are willing to supply more goods and services. Conversely, as the price level decreases, firms supply less.

**Why is the SRAS Curve Upward Sloping?**

1. **Sticky Wages:**
    - Wages (the price of labor) are often "sticky" or inflexible in the short run. This could be due to labor contracts that lock in wages for a certain period or social norms that prevent wage reductions.
    - Example: If a firm agrees to pay workers $30 an hour, but the general price level in the economy falls, the firm's real cost of labor increases. If prices of goods fall but wages don't, firms might cut back on production because labor is now more expensive in real terms.

    **Real Wage Calculation:**

    $$\text{Real Wage} = \frac{Nominal\ Wage}{Price\ Level}$$

    - If the nominal wage is $30 and the price level falls from 1.50 to 1.25, the real wage increases from $20 to $24. This higher real wage could lead to reduced employment and output.
2. **Worker Misperceptions:**
    - Workers might misinterpret changes in their wages due to changes in the price level. For example, if their nominal wage decreases from $30 to $25 but the price level also decreases proportionately, their real wage stays the same. However, if workers mistakenly believe their real wage has decreased, they might reduce the amount of labor they supply, leading to lower output.

**Changes in Short-Run Aggregate Supply (SRAS):**

- Movements along the SRAS curve occur when the price level changes.
- **Shifts in the SRAS curve** can occur due to:
    - Changes in input prices (e.g., wages, raw materials).
    - Availability of resources (e.g., labor, capital).
    - Changes in productivity or technology.
    - Government policies (e.g., taxes, subsidies).
    - Weather conditions, especially in agriculture.

**Impact of Wage Rates on SRAS:**

- Wage rates are a major cost factor for firms. If wages increase, the cost of production rises, leading to reduced profitability and lower output, causing the SRAS curve to shift leftward. Conversely, if wages decrease, the SRAS curve shifts rightward as production becomes more profitable.

## The Vertical Aggregate Supply Curve: The Long Run (LRAS)

- **Long-Run Aggregate Supply Curve (LRAS):** Unlike the SRAS curve, the LRAS curve is vertical. This means that in the long run, the quantity of output produced in the economy is not affected by the price level.
- In the long run, all prices and wages are flexible, and the economy produces at its full-employment output level, also known as **natural real GDP**.

## Equilibrium of Aggregate Demand and Aggregate Supply

- **Market Equilibrium:** Occurs where the Aggregate Demand (AD) curve intersects with the SRAS curve. This determines the economy's price level and output in the short run.
- **Short-Run Equilibrium:** Determined by the intersection of AD and SRAS, where the quantity of real GDP demanded equals the quantity supplied.
- **Long-Run Equilibrium:** Achieved when the AD curve intersects the LRAS curve. In this situation, the economy operates at its natural real GDP, with full employment and stable prices.

## Shocks to Aggregate Demand and Supply

- **Demand Shocks:** Sudden changes in AD, which can shift the AD curve. For example, an increase in government spending can shift the AD curve to the right, increasing both the price level and output.
- **Supply Shocks:** Unexpected events that affect the SRAS curve. For example, a technological advancement can shift the SRAS curve to the right, leading to higher output and lower prices. Conversely, a natural disaster might shift the SRAS curve leftward, reducing output and increasing prices.

**Unit Summary:**

- Aggregate Demand (AD) is the total amount of spending in the economy, including consumption, investment, government spending, and net exports.
- Aggregate Supply (AS) is the total output of goods and services that firms in the economy are willing to produce at different price levels.
- The interaction of AD and AS determines the equilibrium level of output and prices in the economy. In the short run, wages and prices might be sticky, leading to an upward-sloping SRAS curve. In the long run, the economy reaches a natural level of output with a vertical LRAS curve.