AGGREGATE SUPPLY AND AGGREGATE DEMAND

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1. Aggregate Supply

A. Definition:

The aggregate supply curve shows the relationship between the aggregate quantity of output (\(Y\)) supplied by all firms in an economy and the overall price level (\(P\)).

B. Aggregate Supply Vs. Firm Supply

- The aggregate supply (AS) curve is not obtained by adding individual firm supply curves together because the underlying assumption of fixed input prices along an individual firm supply curve does not hold for an aggregate supply curve.

- For an individual firm which is small compared to the whole economy it is reasonable to assume that an increase in output by a single firm will not cause input prices to change.

- However, if the output of an entire economy increases the overall demand for inputs will also increase causing input prices to rise. Thus, the assumption of constant input prices along the supply curve is not a reasonable assumption to make regarding the AS curve.

- Furthermore, in the case of aggregate supply, the outputs of some firms are inputs for other firms. For example, the Flour produced by a flour mill is an input for a baker. A rise in \(P\) (the overall price level) suggests that the prices of most products in the economy must be rising, including those outputs which in turn are inputs for other firms.

- Some firms are price setters and choose to set their own prices or own quantities (but not both!!). Such firms do not have well defined supply curves. The monopolist may set a different price for the same quantity depending on the market demand for the product. On the other hand for a competitive firm each price corresponds to a specific quantity supplied. No such relationship exists for a monopolist.
C. Short Run Vs. Long Run

- The short run (SR) is a period of time when the firm's decisions are constrained by some fixed factors of production.

- For an economy the SR is a period of time during which current GDP has fallen below or risen above potential GDP.

- Potential GDP is the amount an economy would produce if all its factors of production land, labor capital etc. were employed at capacity.

D. Short Run Aggregate Supply Curve (SRAS)

1. Definition:

   The SRAS shows the relationship between aggregate output supplied by all firms in an economy and the overall price level in the short run.
2. Shape of the SRAS

- Horizontal or Keynesian Zone:

This part of the SRAS corresponds to a situation in which firms maintain excess capacity of the factors of production. In other words, firms employ more capital and labor than their immediate needs. They may do this because there are costs to disposing of excess capital and labor and then re-acquiring them when the need arises.

In such a situation an increase in output (Y) can be achieved without even approaching the limits of available land and capital. Thus an increase in output will not result in an increase in factor costs. Consequently, the SRAS is flat because increases in aggregate output can be achieved without large increases in the overall price level. (Point A to B)

- Intermediate Zone:

In this region the economy is thought to be using inputs close to their available capacity. So an increase in output at this stage makes firms compete for available inputs (such as labor) causing a rise in input prices (such as higher wages) which is reflected by the rise in P. (Point C to D)

- Vertical or Classical Zone:

In this region all available factors of production are considered employed. An increase in output by a single firm must come at the expense of taking some inputs away from another firm by paying them more. As a result aggregate output in the economy remains unchanged but the overall price level P increases due to increases in factor costs. (Point E to F)
3. SRAS Shifters

a) Cost changes:

- Changes in cost that occur at the same time as the rise in the price level \( P \) are built into the shape of the SRAS.
  
  EX: A rise in wages due to a pre-negotiated cost of living increase will occur at the same time as a rise in \( P \).

- Cost changes that are not the result of changes in \( P \) cause the SRAS to shift.
  
  EX: An deliberate increase in the price of oil by OPEC.

b) Economic Growth:

- This covers growth in aggregate output due to increases in the labor force, the capital stock (both physical & human) and due to changes in technology. Growth in the availability of inputs will lower their costs causing the SRAS to shift down & to the right. A decline in inputs will prompt a decrease in SRAS.

c) Public Policy

Public Policy that is aimed at stimulating a supply side response will cause a south-easterly shift of the SRAS curve.

EX: Lower income & business taxes so that people will have the incentives to work more & to open more businesses.

d) Natural calamities & world events

Floods & wars can affect the availability of inputs causing a shift of the SRAS curve.
E. Long Run Aggregate Supply Curve (LRAS)

1. Definition:

The LRAS curve is the relationship between the aggregate price level $P$ and the level of aggregate supply when the economy is functioning at its potential $Y_o$.

$Y_o$ represents the level of aggregate output that can be sustained in the long run without inflation.
II AGGREGATE DEMAND

A. Definition

It is the total demand for goods & services in the economy. It gives us the relationship between total output demanded and the overall price level $P$.

B. Assumptions behind AD:

Along AD, government spending $G$, taxes $T$ and the money supply $M^*$ are assumed to be constant.

C. AD Vs. Individual Demand

- AD is not obtained by adding up the individual demand curves of households in the economy because the underlying assumptions behind the two curves are different.

- Along an individual demand curve income & the prices of other goods & services are assumed to be fixed. Along the AD curve income is not fixed.

- Along an individual demand curve as the price of good X increases, the prices of substitute goods are assumed to stay the same. As a result, the quantity demanded of good X decreases as people switch away to substitutes.

- Along AD the overall price level $P$ increases. In other words the prices of "other goods" is not constant along AD.
P↑ from P₁ to P₂
⇒ Transactions demand for money ↑
⇒ Md ↑ ⇒ RT from R₁ to R₂
⇒ I falls from I₁ to I₂
⇒ AE falls from AE₁ to AE₂
⇒ Y falls from Y₁ to Y₂
E. Reasons for the downward slope of the AD curve:

\[ AE = C + I + G + NX \]

AE = Planned Aggregate Expenditure
C = Planned Consumption Expenditure
I = Planned Investment Expenditure
NX = Net Exports (Exports - Imports)
1. Investment Demand & interest rates

As overall prices rise, people hold more money balances for transactions purposes. This causes money demand to rise. Given a fixed money supply, this leads to a rise in interest rates (R ↑).

\[ P \uparrow \Rightarrow \text{Money Demand} \uparrow \Rightarrow R \uparrow \Rightarrow I \downarrow \Rightarrow AE \downarrow \Rightarrow \text{Actual Inventories} > \text{Planned Inventories} \Rightarrow \text{Firms scale production back} \Rightarrow Y \downarrow \]

2. Consumption Demand & interest rates

Interest R is the opportunity cost of consumption. The higher the interest rate, the greater the incentive to lower consumption.

\[ P \uparrow \Rightarrow \text{Money Demand} \uparrow \Rightarrow R \uparrow \Rightarrow C \downarrow \Rightarrow AE \downarrow \Rightarrow \text{Actual Inventories} > \text{Planned Inventories} \Rightarrow \text{Firms scale production back} \Rightarrow Y \downarrow \]

3. The Real Wealth Effect.

As P increases the value of real wealth (W/P) decreases. Since consumption demand is said to depend on real wealth, it too decreases.

\[ P \uparrow \Rightarrow (W/P) \downarrow \Rightarrow C \downarrow \Rightarrow AE \downarrow \Rightarrow \text{Actual Inventories} > \text{Planned Inventories} \Rightarrow \text{Firms scale production back} \Rightarrow Y \downarrow \]

4. The International Substitution Effect:

As domestic prices increase (P ↑), less goods will be exported and more goods will be imported because foreign goods are cheaper. As a result Net Exports (NX) will fall causing AE to fall.

\[ P \uparrow \Rightarrow NX \downarrow \Rightarrow AE \downarrow \Rightarrow \text{Actual Inventories} > \text{Planned Inventories} \Rightarrow \text{Firms scale production back} \Rightarrow Y \downarrow \]
F. AD Shifters

Any factor other than P which causes the AE function to shift will cause a shift in AD.

Example: Policy Tools

1. Monetary Policy

Money Supply $M \uparrow \Rightarrow R \downarrow \Rightarrow I \uparrow \& C \uparrow \Rightarrow AE \uparrow \Rightarrow$ Actual Inventories $< \text{Planned Inventories} \Rightarrow \text{Firms increase production} \Rightarrow Y \uparrow$

2. Fiscal Policy

$G \uparrow \Rightarrow AE \uparrow \Rightarrow$ Actual Inventories $< \text{Planned Inventories} \Rightarrow \text{Firms increase production} \Rightarrow Y \uparrow$

$T \downarrow \Rightarrow \text{Disposable Income (Y- T)} \uparrow \Rightarrow C \uparrow \Rightarrow AE \uparrow \Rightarrow$ Actual Inventories $< \text{Planned Inventories} \Rightarrow \text{Firms increase production} \Rightarrow Y \uparrow$
III. MACROECONOMIC EQUILIBRIUM

- It occurs when the quantity of GDP demanded equals the quantity of GDP supplied in the short run.

- At the intersection of AD & AS:

  Goods & Money markets are in equilibrium

  The aggregate quantity demanded equals the aggregate quantity supplied.

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**Diagram:**

- **Firms cut production and prices:**
- **Short-run macroeconomic equilibrium:**
- **Firms increase production and prices:**

**Axes:**
- **Price level (GDP deflator, 1992 = 100)**
- **Real GDP (trillions of 1992 dollars)**