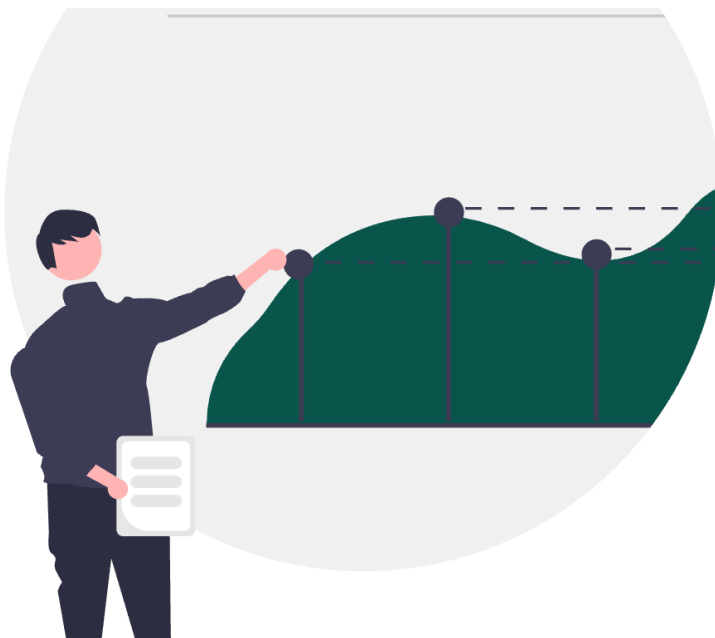


Assignment of Introduction to Macroeconomics

Assignment - 03



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Answer to the Question no 1

Determinants of National Income

In the Keynesian framework, national income (Y) is determined by aggregate demand:

$$Y = C + I + G + (X - M)$$

So the main determinants are:

1. **Consumption (C)**: Depends on disposable income, habits, expectations.
2. **Investment (I)**: Depends on interest rate, expectations, technology, business confidence.
3. **Government expenditure (G)**: Policy-determined and autonomous.
4. **Net exports (X – M)**: Depend on income, exchange rate, and global conditions.

Brief explanation of Investment

- Investment (I) refers to spending on:
- capital goods (machines, factories),
- residential construction,
- changes in inventories.

Determinants of investment:

- Interest rate (r) → lower r makes borrowing cheaper
- Expected profitability
- Business confidence
- Technology
- Government policy

Investment is treated as autonomous in the simple Keynesian model.

Answer to the Question no 2

Saving is the part of income not spent on consumption.

$$S = Y - C - T$$

Types of Saving

A. Private saving (households)

$$S_p = Y - C - T$$

B. Public saving (government)

$$S_g = Y - C - T$$

- If $T > G$: surplus
- If $T < G$: deficit

C. National saving

$$S = S_g + S_p$$

Derivation: From income identity to investment identity

Start with the national income identity:

$$Y = C + I + G + (X - M)$$

Also income can be written as:

$$Y = C + S + T$$

Equate both expressions:

$$C + S + T = C + I + G + (X - M)$$

Cancel C from both sides:

$$S + T = I + G + (X - M)$$

Rearrange:

$$S = I + (G - T) + (X - M)$$

Multiply both sides by -1 inside brackets:

$$I = S + (T - G) + (M - X)$$

Final identity (required):

$$I = S + (T - G) + (M - X)$$

Answer to the Question no 3

Demand for loanable funds comes from:

- Firms (for investment)
- Government (when running a deficit)
- Foreign borrowers

Price and quantity in this market:

- **Price:** real interest rate (r)
- **Quantity:** loanable funds

Case 1: Decrease in real interest rate

This causes a **movement along the demand curve**, not a shift.

Causation:

- The interest rate itself changes.
- Lower $r \rightarrow$ firms want to borrow more.

Movement **downward along** the demand curve.

Case 2: Decrease in real GDP

This causes a **shift of the demand curve**.

Causation:

- Lower GDP \rightarrow lower expected profits
- Firms reduce investment at every interest rate.

Demand for loanable funds **shifts left**

Government and foreign sector in loanable funds market

Government:

- Budget deficit \rightarrow government borrows \rightarrow increases demand for loanable funds
- Budget surplus \rightarrow supplies loanable funds

Foreign sector:

- Capital inflow \rightarrow adds to supply
- Capital outflow \rightarrow adds to demand

Answer to the Question no 4

Fiscal Policy:

Government use of:

- Spending (G)
- Taxes (T)

to influence economic activity.

Fiscal stimulus

Expansionary fiscal policy meant to raise GDP, usually during recessions.

Two opposite effects of a decrease in government spending ($G \downarrow$)

1. Mechanism 1: Keynesian demand effect (negative effect)

- a. $G \downarrow$
- b. Aggregate demand \downarrow
- c. Income \downarrow
- d. Consumption \downarrow
- e. GDP falls

This is the multiplier effect.

2. Mechanism 2: Loanable funds (crowding-in effect)

- a. $G \downarrow$
- b. Government borrowing \downarrow
- c. Demand for loanable funds \downarrow
- d. Interest rate \downarrow
- e. Investment \uparrow
- f. GDP \uparrow

Net effect on GDP

Depends on magnitudes:

- If demand effect $>$ investment response \rightarrow GDP falls
- If investment response $>$ demand loss \rightarrow GDP rises

Example:

- -10 from spending effect
 - $+6$ from investment response
- \rightarrow Net effect = -4

Answer to the Question no 5

Money market setup

- **Quantity of money (M)** on horizontal axis
- **Price of money = interest rate (r)** on vertical axis

Short-run equilibrium in money market

Occurs when:

$$M^s = M^d$$

- Money supply fixed by central bank
- Money demand depends on income and interest rate

Adjustment process:

- If r is too high \rightarrow excess supply of money \rightarrow people buy bonds $\rightarrow r$ falls
- If r is too low \rightarrow excess demand \rightarrow people sell bonds $\rightarrow r$ rises

Long-run effect of increase in money supply

Short run:

- M increases
- r falls
- investment rises
- output increases

Long run:

- Prices rise
- Real money supply returns to original level
- Interest rate returns to natural level
- Output returns to potential level

Money is **neutral in the long run**

Answer to the Question no 6

Equation:

$$MV = PY$$

Where:

- **M** = money supply
- **V** = velocity
- **P** = price level
- **Y** = real GDP

Growth-rate form:

$$\% \Delta M + \% \Delta V = \pi + \% \Delta Y$$

Where:

- π = inflation rate

Case: Money increases by 15%

Short run:

- Prices sticky
- Output increases
- Inflation rises partially

So:

- Nominal GDP \uparrow
- Real GDP \uparrow

Long run:

- Output fixed at potential level
- Velocity stable

So:

$$\pi = 15\%$$

- Real GDP unchanged.
- Nominal GDP rises by 15%.