

# Income and Employment Determination

## Definitions

**Aggregate Demand (AD)** = The total level of spending in an economy at each price level.

**Aggregate Supply (AS)** = The total output of goods and services that firms as a whole would like to produce and sell at each general price level.

**National Income (NY)** = The total value of a country's final output of all new goods and services produced during a given period of time.

**Consumption (C)** = The act of using income for the purchase of final goods and services to satisfy current wants.

**Savings (S)** = Income that is not spent.

**Investment (I)** = The act of acquiring new fixed capital assets and the accumulating of inventories held by the producer.

**Marginal propensity to consume (MPC)** = The proportion of extra income spent on consumption.

**Multiplier value (k)** = The change in equilibrium national income with respect to a unit change in autonomous expenditure

**Marginal propensity to withdraw (MPW)** = The proportion of income spent on withdrawals, namely savings, taxes and imports

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

## AD-AS Model

### Factors affecting AD

- C
  - Induced consumption
    - Change in income
  - Autonomous consumption
    - Change in wealth (value of assets that people own)
    - Expectations of changes in prices and income
    - Distribution of income
      - Rich tend to have lower MPC than poor  $\Rightarrow$  Rich less likely to spend the extra income than poor
      - $\uparrow$  redistribution of income from rich to poor  $\Rightarrow \uparrow C$
      - $\uparrow$  income inequality  $\Rightarrow \downarrow C$
  - Change in  $i/r$ 
    - $\uparrow i/r \Rightarrow \uparrow$  cost of borrowing  $\Rightarrow \downarrow C$  for big ticket items/interest-sensitive G&S
  - Change in taste & preferences
  - Change in attitude
    - Become more thrifty (?)
  - Change in personal income tax rates
    - $\downarrow$  Income tax  $\Rightarrow \uparrow$  disposable income  $\Rightarrow \uparrow C$

- I - Use MEI theory (see below)
  - Induced investment
    - Change in income
      - $\uparrow \text{income} \Rightarrow \uparrow \text{AD} \Rightarrow \uparrow \text{I}$  to produce more goods to keep up with  $\uparrow$  in AD (accelerator effect)
  - Autonomous investment
    - Change in  $i/r$
    - Business confidence and expectations
    - (Relative) Cost and availability of capital goods not due to  $\Delta$  in DD
    - Government policies (Taxes/Subsidies)
    - Change in technology
- G
  - Does not usually depend directly on level of income in the economy  $\Rightarrow$  Generally autonomous
- X-M
  - Income levels in other countries (for Exports) assuming normal goods
  - Domestic national income (for Imports) assuming normal goods
  - Exchange rates
    - Marshall Lerner condition
  - Relative inflation rates
  - Relative quality of goods and services
  - Changes in taste and preferences

## Factors affecting AS

- Production Cost (Shift of horizontal region of AS curve)
  - Change in factor prices
  - Change in expected rate of inflation
    - If producers expect prices to rise in the future, they'll be less motivated to sell them now  $\Rightarrow \uparrow P$  to give greater incentive to sell now
    - Inflation  $\Rightarrow$  Trade unions negotiate for  $\uparrow$  wages  $\Rightarrow \uparrow \text{COP}$
  - Government policies (taxes/subsidies)
  - Change in technology
    - $\uparrow$  output for same amount of input  $\Rightarrow \downarrow$  per unit COP
  - Change in quality of labour
    - $\uparrow$  Productivity of each worker  $\Rightarrow \downarrow$  per unit cost assuming wages stay the same
  - Change in quantity of workers
    - $\uparrow$  SS of workers  $\Rightarrow \downarrow$  Wages assuming DD of workers is constant  $\Rightarrow \downarrow \text{COP}$
- Productive Capacity (Shift of vertical region of AS curve)  $\rightarrow$  Determines potential growth
  - Change in quality of labour
    - $\uparrow$  Education/Training  $\Rightarrow \uparrow$  skills of labour force

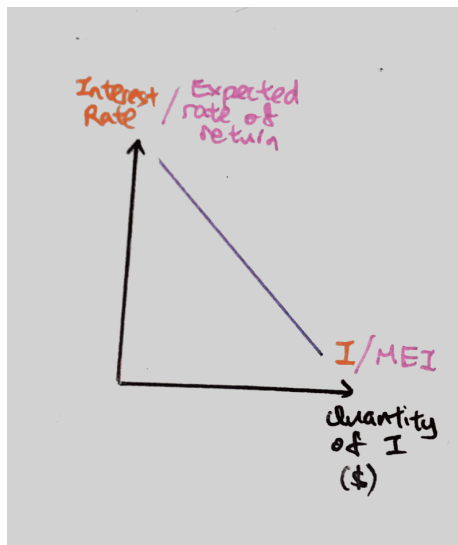
- Change in quantity of resources/workers
  - e.g. land reclamation or discovery of new oil wells/mineral mines
- $\uparrow I \Rightarrow \uparrow$  Formation of capital goods  $\Rightarrow \uparrow$  Productive capacity
- Government policies
  - Subsidies for upgrading workers' skills  $\Rightarrow \uparrow$  Quality of labour
- Change in technology
  - $\uparrow$  output for the same amount of input
  - May lead to structural unemployment if new technology replaces workers

## Marginal Efficiency of Investment (MEI) Theory

**MEI** = Expected rate of return of an additional unit of investment

**Interest rates** = Cost of borrowing

**MEI theory** states that there is an inverse relationship between investment and interest rates



### How to explain movement along MEI curve

1. Downward sloping MEI curve as investment opportunities are ranked from highest to lowest MEI
2. Firm will only invest if it makes a profit, i.e. Expected rate of return =  $MEI \geq i/r$  (Cost of borrowing/Opportunity cost incurred compared to if money deposited in the bank)
3.  $\downarrow i/r$  from  $r_0$  to  $r_1 \Rightarrow \uparrow$  number of investment projects that generate an expected rate of return  $\geq$  lowered interest rate  $\Rightarrow \uparrow I$  from  $I_0$  to  $I_1$
4. Change in  $i/r$  leads to movement along MEI curve

### How to explain shifts in MEI curve

1.  $\uparrow$  Expected/actual profitability of investment

2. Shift in MEI curve from MEI0 to MEI1 as shown in Fig. 1
3. At current  $i/r$ ,  $I$  increases from  $I_0$  to  $I_1$
4.  $\uparrow I$

Factors affecting MEI curve:

1. Business confidence and expectations
2. (Relative) Cost and availability of capital goods not due to  $\Delta$  in DD
  - If  $\uparrow$  wages and constant price of capital goods, capital goods become relatively cheaper
3. Government policies
  - $\uparrow$  Direct taxes  $\Rightarrow \downarrow$  After-tax profits
  - $\uparrow$  Government subsidies  $\Rightarrow \downarrow$  COP  $\Rightarrow \uparrow$  Profits assuming revenue remains constant  $\Rightarrow \uparrow$  No. of profitable investment projects
4. Change in technology
5. Rate of change of income
  - $\uparrow$  income  $\Rightarrow \uparrow$  AD  $\Rightarrow \uparrow I$  to produce more goods to keep up with  $\uparrow$  in AD (accelerator effect)