AGGREGATE DEMAND

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AGGREGATE DEMAND (TOTAL AMOUNT WILLING TO SPEND)

- Why real GDP (Economic Growth) fluctuates
- GDP, GNP, NI will be equal (assume) to Y
- Wages and prices are fixed and involuntary unemployment persists

AGGREGATE DEMAND

- Potential and actual output
  - Potential output is the output that the economy would produce if all the factors of production are fully employed (there will be natural unemployment (US/UK 5%, Japan 4 %)
  - Actual output is the real output level at a particular period
- Model of Income determination
  - Demand Determined model (J.M. Keynes, 1936, General theory of Employment, Interest and Money)
  - The actual output is determined by the demand (aggregate)

SOME FUNCTIONS

- There is no government sector and international trade
- $AD = C + I$
  - AD = Aggregate demand, C = Consumption, I = Investment
- $C = c + \alpha Y$
  - C = consumption, c = consumption at zero income, α = Marginal Propensity to Consume (MPC), Y = National Income

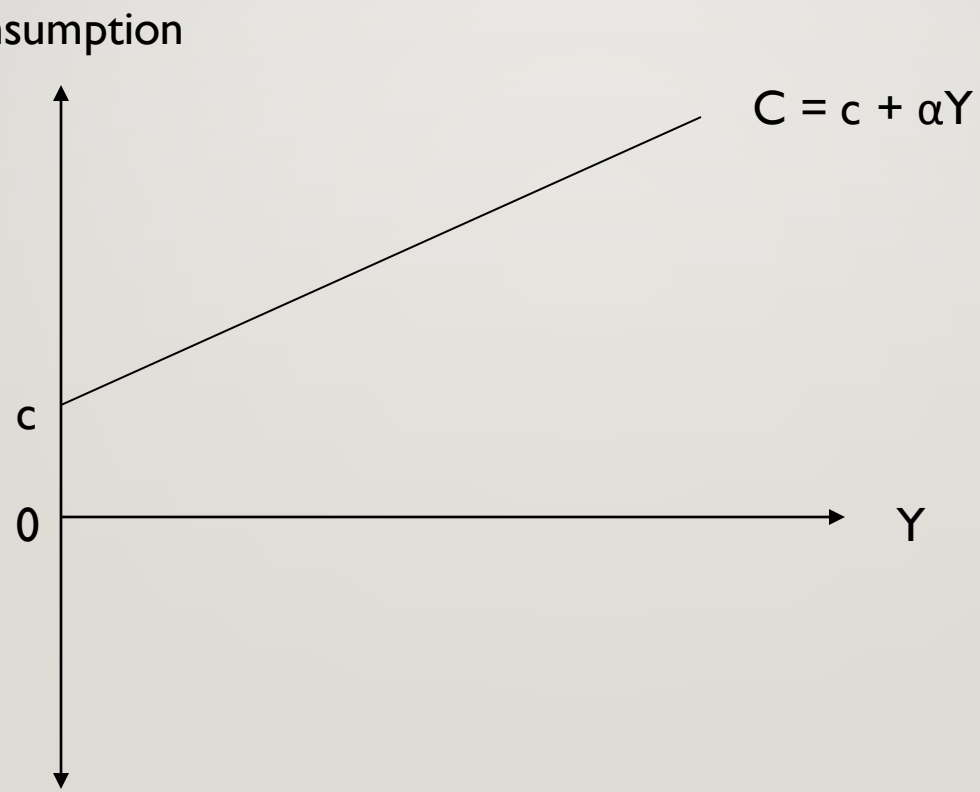
- $S = s + \beta Y$
  - S = Savings, s = Savings at zero income, β = Marginal propensity to save
- $\alpha + \beta = 1$

  hence

  $$S = -c + (1 - \alpha)Y$$
- $Y = C + S$

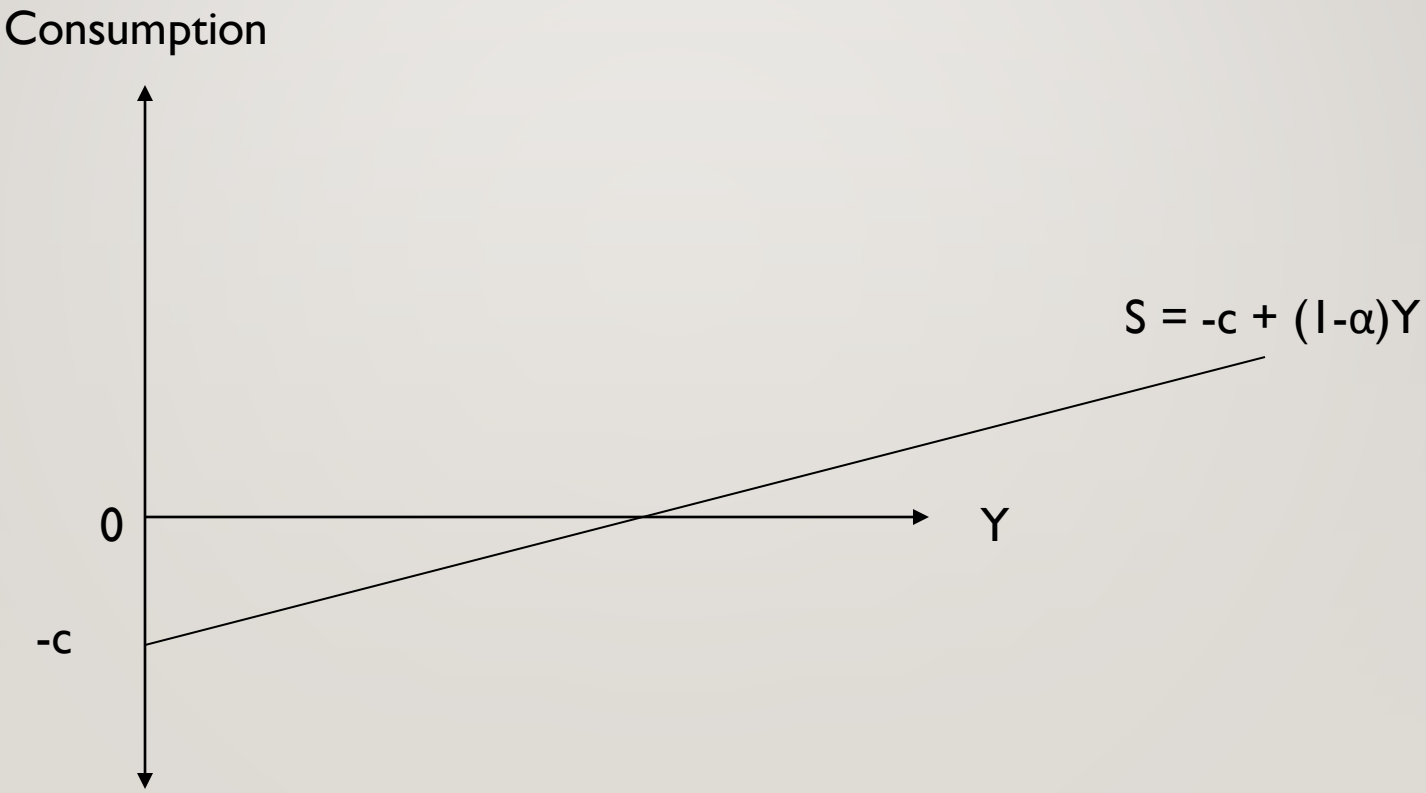
CONSUMPTION FUNCTION

$C = c + \alpha Y$



SAVINGS FUNCTION

$S = -c + (1-\alpha)Y$



AGGREGATE DEMAND

- Assume investment is given (autonomous)

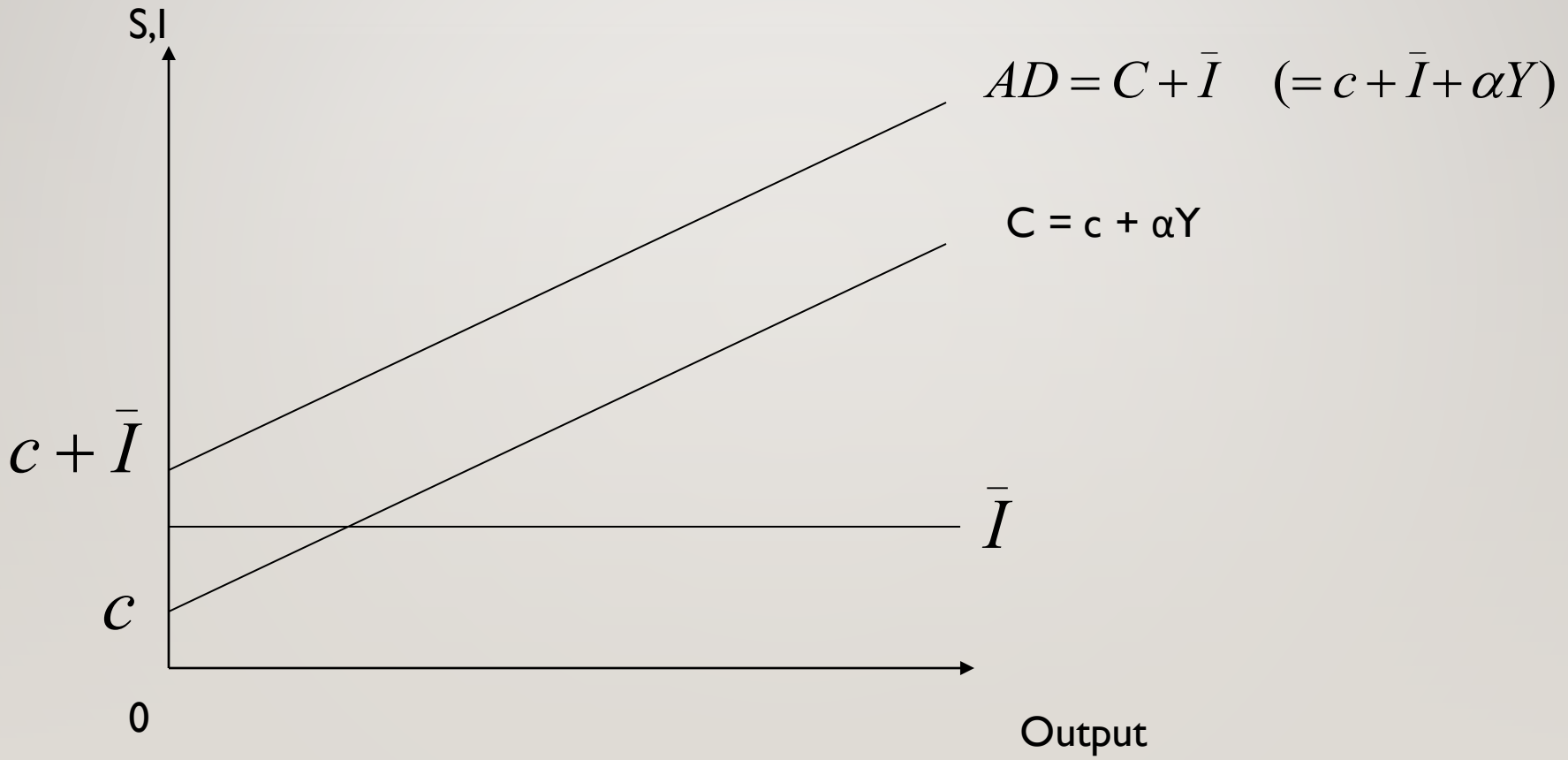
$$I = \bar{I}$$

$$AD = C + \bar{I}$$

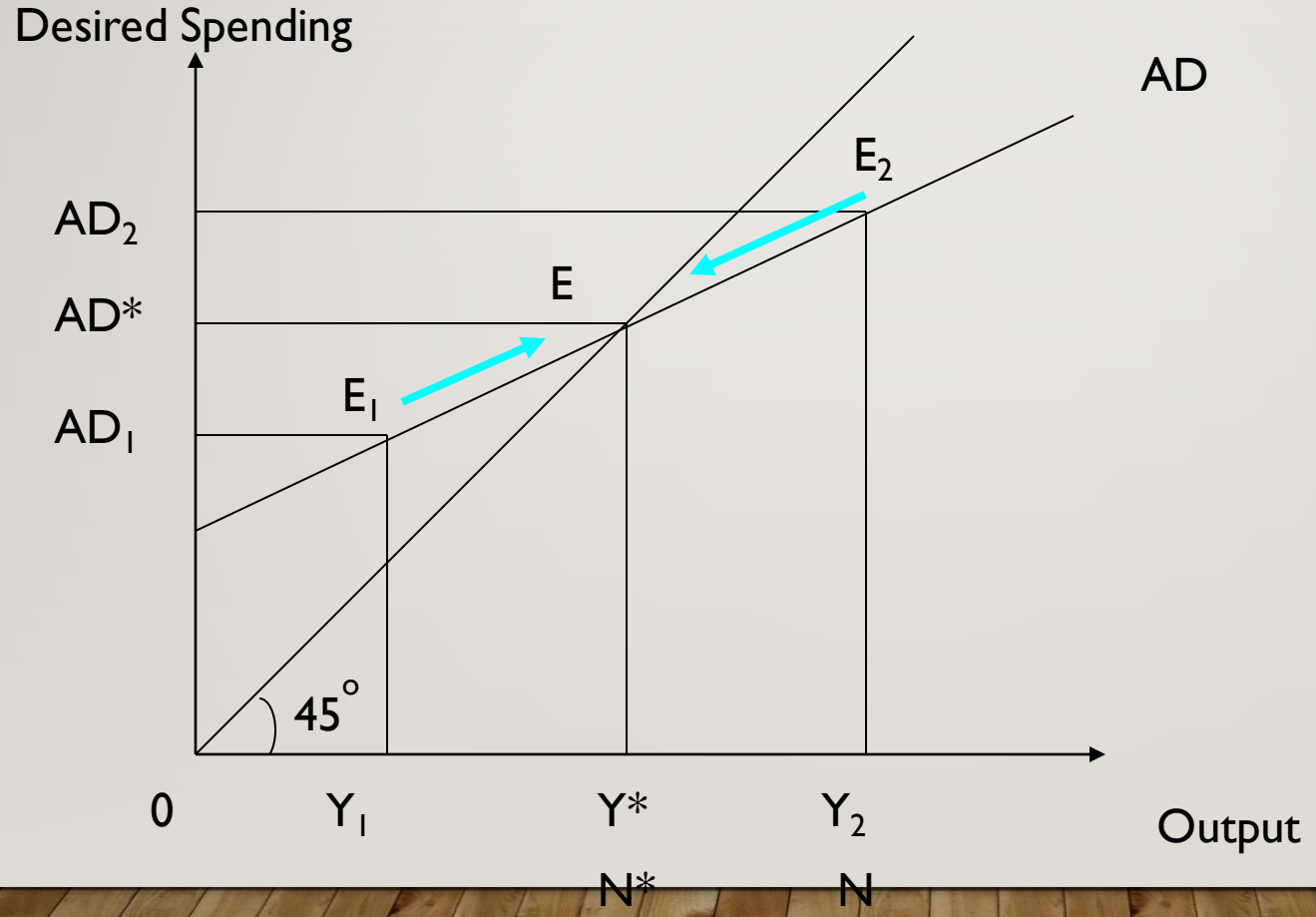
$$AD = c + \alpha Y + \bar{I}$$

$$AD = (c + \bar{I}) + \alpha Y$$

AGGREGATE DEMAND



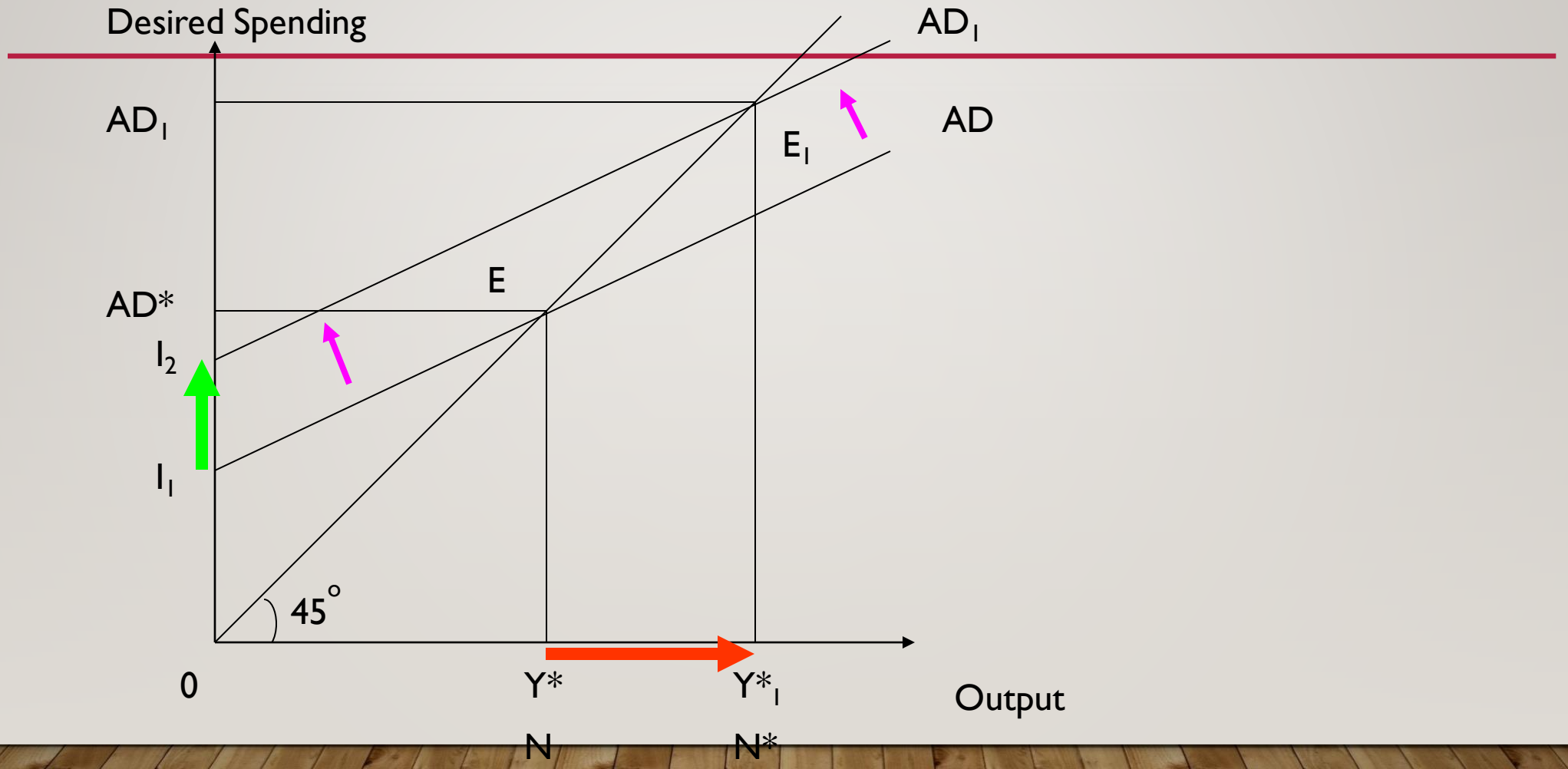
EQUILIBRIUM OUTPUT



CHANGE IN INVESTMENT DEMAND

- Investment demand fluctuates greatly with the "animal spirits" (change of the firms with the optimism or pessimism they hold about future) of firms (J.M. Keynes)
- Change in investment demand will change the output level

CHANGE IN INVESTMENT DEMAND



INCOME MULTIPLIER

$$Y = C + \bar{I}$$

$$Y = c + \alpha Y + \bar{I}$$

$$Y - \alpha Y = c + \bar{I}$$

$$Y(1-\alpha) = c + \bar{I}$$

$$Y = \frac{c}{1-\alpha} + \frac{\bar{I}}{1-\alpha}$$

$$\frac{dY}{d\bar{I}} = \frac{1}{1-\alpha}$$

INCOME MULTIPLIER

$$dY / d\bar{I} = \frac{1}{1-\alpha}$$

$$dY / d\bar{I} = \frac{1}{1-MPC}$$

$$dY / d\bar{I} = \frac{1}{MPS}$$

If MPC = 0.75, what is the change in Y when investment is changed by one unit ?

Income multiplier = 1/1-0.75

Income Multiplier = 4

When investment is changed by one unit, output will be changed by 4 units

"Stone ripple effect"

MULTIPLIER WITH GOVERNMENT SECTOR

- Government sector is an important component of the aggregate demand (more than 15 percent of the economy)
- Government spending (G) is an injection to the circular flow and taxes (T) are leakages from the economy
- Government policy on spending and taxation is known as fiscal policy which is used to keep the economy close to the potential output level

- Government Budget (GB) is the spending and revenue plans of the government for a given period (usually for a year)
- When government expenditure is higher than the income (mainly tax) excess expenditure is known as budget deficit
- Budget deficit is financed from both local and international borrowings which is known as national debt

MULTIPLIER WITH GOVERNMENT SECTOR

- With government sector

$$AD = C + I + G$$

- Assuming I and G are given (autonomous)

$$AD = C + \bar{I} + \bar{G}$$

Disposable income (Y_d) is the income received by individuals after adjusting for taxes and transfers

NT = Tax – Transfers

- $Y_d = Y - NT$
- If we have only income tax

NT = tY t = net tax rate

MULTIPLIER WITH GOVERNMENT SECTOR

$Yd = Y - tY$

$Yd = (1-t)Y$

- Now we have to adjust consumption function for disposable income

$C = c + \alpha Yd$

$C = c + \alpha(1-t)Y$

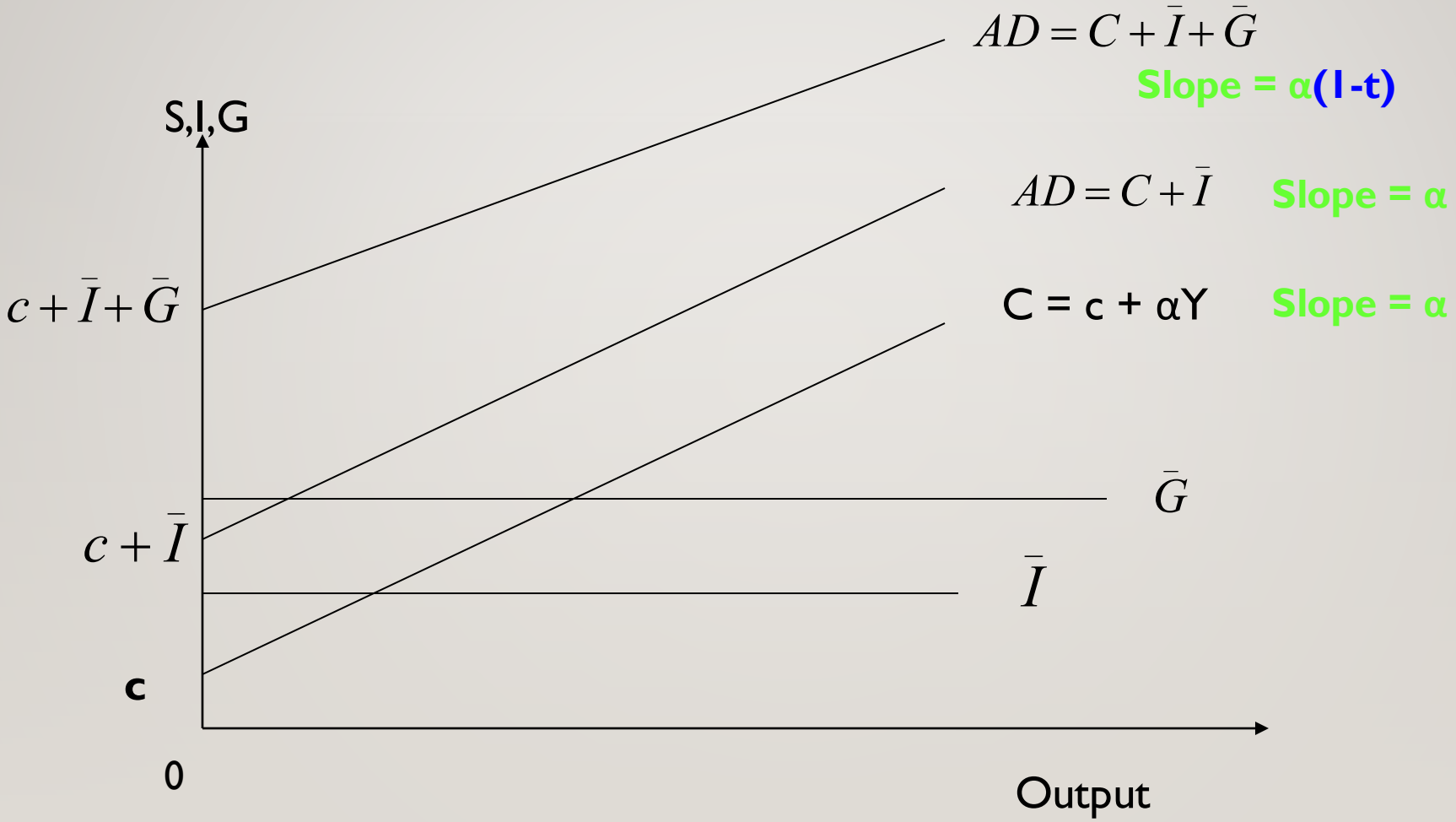
MULTIPLIER WITH GOVERNMENT SECTOR

Since

$$Y = C + \bar{I} + \bar{G}$$

$$Y = c + \alpha(1-t)Y + \bar{I} + \bar{G}$$

MULTIPLIER WITH GOVERNMENT SECTOR



MULTIPLIER WITH GOVERNMENT SECTOR

$$Y = c + \alpha(1-t)Y + \bar{I} + \bar{G}$$

If we solve for Y

$$Y = \frac{c + \bar{I} + \bar{G}}{1 - \alpha(1-t)}$$

$$\frac{dY}{d\bar{G}} = \frac{1}{1 - \alpha(1-t)}$$

MULTIPLIER WITH GOVERNMENT SECTOR

If MPC = 0.75 and t = 0.2, what is the change in Y when autonomous expenditure is changed by one unit ?

Income multiplier = 1/1-0.75(1-0.2)

Income Multiplier = 2.5

When autonomous expenditure is changed by one unit, output will be changed by 2.5 units (why this is less than the earlier?)

MULTIPLIER WITH GOVERNMENT SECTOR

GB = G – NT

If G < NT ------ Budget surplus

If G > NT ------ Budget deficit

If G = NT ------ Balanced budget

Hence

GB is affected by G, t and Y

- A large budget deficit may indicate expansionary fiscal policies
- A large budget surplus may indicate contractionary fiscal policies

- But remember budget deficit is higher during recessions (down turns) and narrow during booms (up turns)
- GB is financed through borrowings (mostly by government bonds)
- Borrowings from domestic sector will be less harmful than borrowings from international markets (inflation and exchange rate)
- But when the inflation is significantly high borrowings may be wise decision but remember debt service (interest payment) burden

MULTIPLIER WITH GOVERNMENT SECTOR

- At equilibrium leakages must be equal to the injections

Therefore

S = I in simple model

And

S+NT = I + G

or

S- I = G – NT

thus

National Savings = S – GB = I

- Finally we have to look at the GB impact on the investment

MULTIPLIER WITH GOVERNMENT AND FOREIGN TRADE

- Foreign trade account for more than 50 percent of the economy
- Export (X) will come in as an injection to the economy while Import (M) will go out as a leakage from the economy
- Trade Balance (TB) is the value of net export

  TB = X-M

X > M = Trade surplus

X < M = Trade deficit

X = M = Balanced Trade

- Assume X is given (autonomous) but import is a function of Y
  - M = mY ……. m = Marginal Propensity to import

MULTIPLIER WITH GOVERNMENT AND FOREIGN TRADE

$$Y = C + \bar{I} + \bar{G} + \bar{X} - M$$

$$Y = c + \alpha(1-t)Y + \bar{I} + \bar{G} + \bar{X} - mY$$

$$Y = \frac{c + \bar{I} + \bar{G} + \bar{X}}{1 - \alpha(1-t) + m}$$

$$\frac{dY}{d\,\bar{X}} = \frac{1}{1 - \alpha(1-t) + m}$$

MULTIPLIER WITH GOVERNMENT AND FOREIGN TRADE

If MPC = 0.75, t = 0.2 and m = 0.2, what is the change in Y when autonomous expenditure is changed by one unit ?

Income multiplier = 1/(1-0.75(1-0.2)+2)

Income Multiplier = 1.66

When autonomous expenditure is changed by one unit, output will be changed by 1.66 units (why this is less than the earlier?)

MULTIPLIER WITH GOVERNMENT AND FOREIGN TRADE

- At equilibrium total leakages must be equals to the total injection
- Hence

- $S + NT + M = I + G + X$

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

MULTIPLIER WITH GOVERNMENT SECTOR