Government and Fiscal Policy Part 3

Fiscal Policy

- So far we have studied about how ΔG and ΔT (where T is a lump-sum tax) affect the economy.
- These deliberate changes in G and T are called “discretionary fiscal policy”.
- The discretionary fiscal policy is controlled by the government.

Fiscal Policy

- When the Govt raises G or reduces T,

  we call “expansionary” fiscal policy.

  - This is to boost the economy.

- When the Govt reduces G or raises T,

  we call “contractionary” fiscal policy.

  - This is to slow down the economy.

Fiscal Policy

- We also have “Non-Discretionary” Fiscal Policy.
- This refers to **a policy rule**.
- Example: $T = tY$

  where t is Marginal Propensity to Tax (MPT).
- If $t = 0.2$, everyone pays 20% income tax.
- **We cannot find tax multiplier in this case.**

Fiscal Policy

- We can also have a mixed type between a lump-sum tax and an income tax.
- Example: T = 100 + 0.2Y.
- **We CAN find tax multiplier here because the Govt can change the lump-sum tax.**

Different Tax Systems

When taxes are strictly lump sum (T = 100) and do not depend on income, the aggregate expenditure function is steeper than when taxes depend on income.

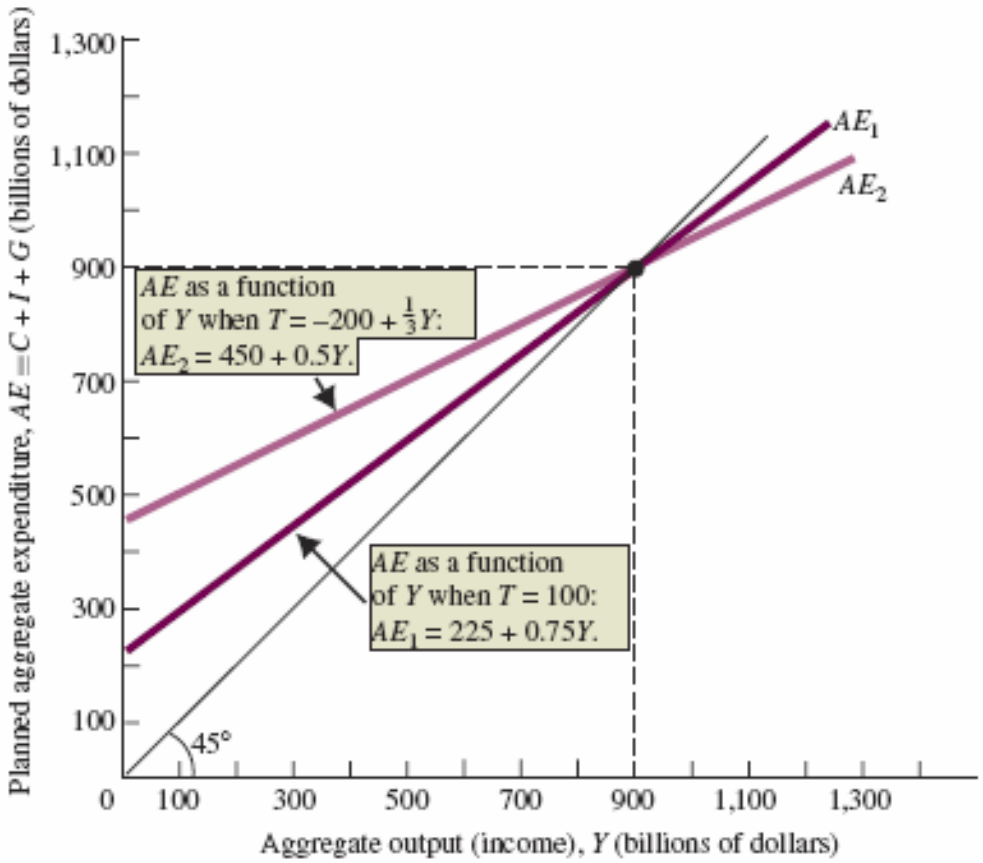
$$Y = C + I + G$$

$$Y = \underbrace{100 + 0.75(Y + 200 - 1/3Y}_{C} + \underbrace{100}_{I} + \underbrace{100}_{G}$$

$$Y = 100 + .75Y + 150 - 25Y + 100 + 100$$

$$Y = 450 + .5Y$$

$$.5Y = 450$$



Example – Income Tax

Example Find the equilibrium.

$C = 300 + 0.5(Yd)$

$I = 50$

$G = 50$

$T = 0.2Y$ (i.e. 20% tax rate)

$X = 50$

$M = 100 + 0.1Y$

Example – Income Tax

We start with the equilibrium condition:

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

$$Y = 300 + 0.5(Y - 0.2Y) + I + G + X - (100 + 0.1Y)$$

$$Y = 300 + 0.5(0.8Y) + 150 - (100 + 0.1Y)$$

$$Y - 0.4Y + 0.1Y = 450 - 100$$

$$0.7Y = 350$$

$$Y^* = 500$$

Example – Income Tax

- Drawing the Keynesian Cross

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

$AE = 300 + 0.5(Y - 0.2Y) + 150 - (100 + 0.1Y)$

$AE = 350 + 0.3Y$

Intercept = 350

Slope $= 0.3 = 0.5 - (0.5)(0.2) - 0.1$

$= MPC - (MPC)(MPT) - MPM$

***** MPM and MPT reduce the slope of DAE *****

Multiplier

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

Let $C = a + b(Y - T)$, $M = k + j(Y)$, and $T = tY$

$Y = a + b(Y) - \mathbf{bt(Y)} + I + G + X - (k + j(Y))$

$Y = a + b(Y) - \mathbf{bt(Y)} + I + G + X - k - j(Y)$

$Y - b(Y) + \mathbf{bt(Y)} + j(Y) = a + I + G + X - k$

$(1 - b + \mathbf{bt} + j)Y = a + I + G + X - k$

$$Y = \frac{1}{1 - b + bt + j}(a - I + G + X - k)$$

Multiplier

- $Y = \frac{1}{1-b+bt+j}(a - I + G + X - k)$
- $\frac{\Delta Y}{\Delta I} = \frac{1}{1-b+bt+j}$ $\frac{\Delta Y}{\Delta G} = \frac{1}{1-b+bt+j}$

- **As MPT (t) increases, multipliers fall.**
- **As MPM (j) increases, multipliers fall.**

Multiplier

- When the multiplier is large, an **increase** in G or I leads to a **large increase** in Y.
- BUT, a **decrease** in G or I also leads to a **large decrease** in Y.
- e.g. m = 5 and $\Delta G = -10 >>> \Delta Y = -50$
- Therefore, **income tax** and/or **import** can **REDUCE** the size of the multiplier.
- Small multiplier is good when the economy is bad.

Automatic Stabilizers

- **automatic stabilizers** expenditure items that automatically change with the state of the economy in such a way as to stabilize GDP.

- Example, Import and Income Tax are automatic stabilizers.

Automatic Stabilizers

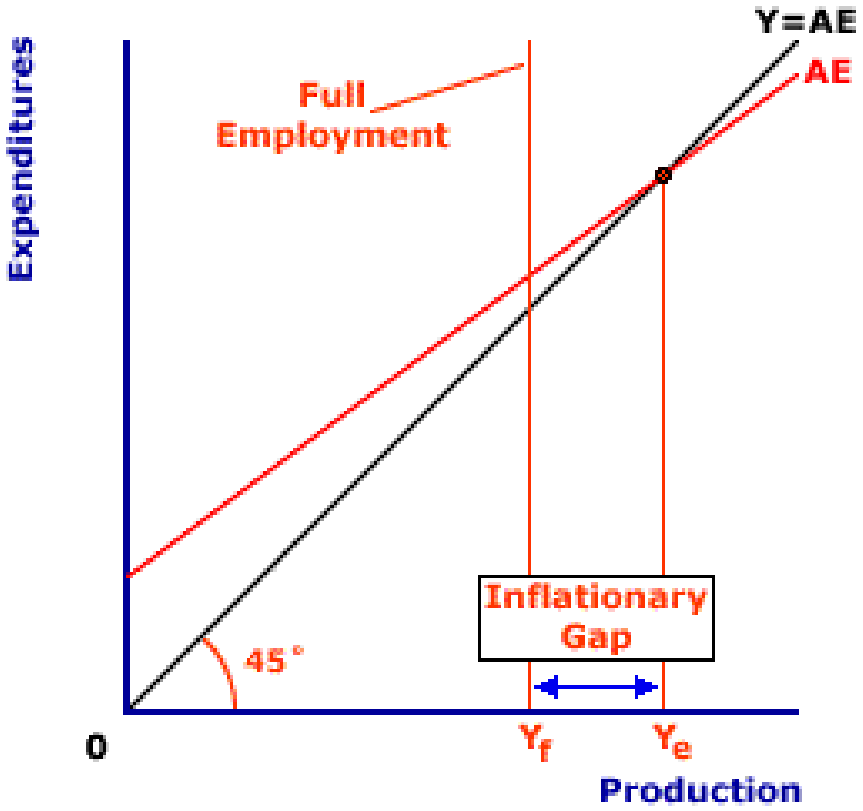
- When economy is bad, Y is low, so T and M are small. Small T and M means that people have more income to spend domestically, which help boost the economy during the bad times.
- When economy is good, Y is high, so T and M are large. Large T and M means that people have less income to spend domestically, which help slow down the economy during the good times.
- **Automatic stabilizers <u>automatically</u> reduce fluctuations in the economy.**

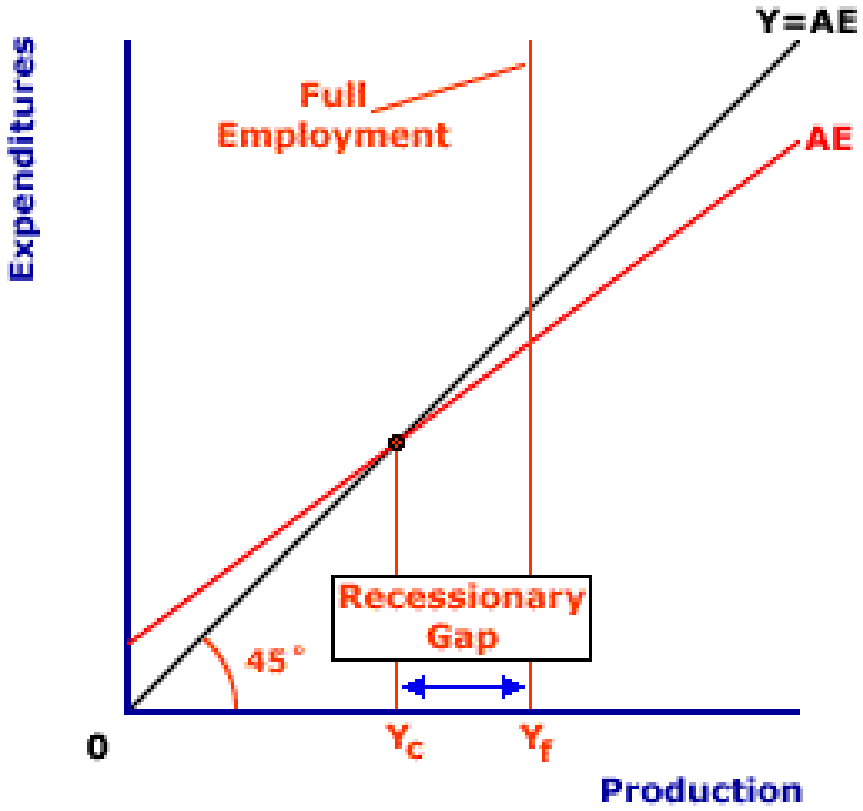
Output Gap

- Yf (full-employment Y) denotes the level of output where the economy is at full employment
- Y* (equilibrium Y) denotes the level of output where Y = AE.

- When Yf > Y*, we have recessionary gap.
- When Yf < Y*, we have inflationary gap.

Output Gap





Fiscal Policy – Recessionary Gap

When Yf > Y*, we have recessionary gap.

The policy solution to a recessionary gap **is to shift the AE up**, using policies like tax cuts or government spending increases.

Then, the new equilibrium Y* occurs at Yf.

Fiscal Policy – Inflationary Gap

When Yf < Y*, we have inflationary gap.

The policy solution to an inflationary gap **is to shift the AE down**, using policies like tax increases or spending cuts.

Then, the new equilibrium Y* occurs at Yf.