The GAPS & The Multiplier

Chapter 12

The Multiplier and Its Applications

- **Any change in spending (C, I, or G) will set off a chain reaction, leading to a multiplied change in GDP**

$$\uparrow GDP = C\uparrow + I + G + Xn$$

How much the multiplied change is depends on the MPC and MPS

Calculating the Multiplier

- **Remember**

  MPC + MPS = 1, therefore, MPS = 1 - MPC

$$\text{Multiplier} = \frac{1}{1 - MPC}$$

$$\text{Multiplier} = \frac{1}{MPS}$$

Because the multiplier (like C) deals with spending, 1/(1-MPC) is a more appropriate formula)

Calculating the Multiplier

- **The MPC is .5. Find the multiplier**

Calculating the Multiplier (Continued)

- **The MPC is .5. Find the multiplier**

$$\text{Multiplier} = \frac{1}{1 - \text{MPC}} = \frac{1}{1 - .5} = \frac{1}{.5} = 2$$

Calculating the Multiplier

Step-by-Step Working of the Multiplier When MPC is .5

$1,000.00
$ 500.00
$ 250.00
$ 125.00
$ 62.50
$ 31.25
$ 15.625
$ 7.813
$ 3.906
$ etc.
$ etc.
$2,000.00

It is surely much easier to use the multiplier of 2 (2 X $1,000 = $2000) than to go through this process and add up all the figures

Calculating the Multiplier (Continued)

- **The MPC is .75. Find the multiplier**

Calculating the Multiplier (Continued)

- **The MPC is .75. Find the multiplier**

$$\text{Multiplier} = \frac{1}{1 - \text{MPC}} = \frac{1}{1 - .75} = \frac{1}{.25} = 4$$

Applications of the Multiplier

- **The Multiplier is used to calculate the effect of changes in C, I, or G on GDP**

GDP = 2,500; Multiplier = 3; C rises by 10

What is the new level of GDP?

GDP_{New} = $GDP_{Initial}$ + (Change in spending X Multiplier)

GDP_{New} = 2500 + (10 x 3)
GDP_{New} = 2500 + (30)
GDP_{New} = 2530

Applications of the Multiplier

- **The Multiplier is used to calculate the effect of changes in C, I, or G on GDP**

GDP = X; Multiplier = 3; C rises by 10

What happens to GDP?

GDP_{New} = $GDP_{Initial}$ + (Change in spending X Multiplier)

GDP_{New} = X + (10 x 3)
GDP_{New} = X + (30)
GDP increases by 30

Applications of the Multiplier

- **The Multiplier is used to calculate the effect of changes in C, I, or G on GDP**

GDP = X; Multiplier = 7; G falls by 5

What happens to GDP?

GDP_{New} = $GDP_{Initial}$ + (Change in spending X Multiplier)

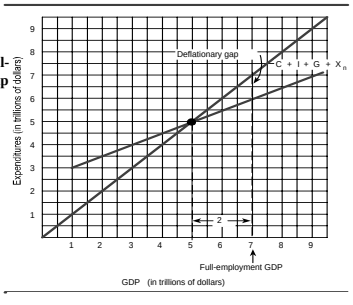
GDP_{New} = X + (-5 x 7)
GDP_{New} = X + (-35)
GDP decreases by 35

Applications of the Multiplier

- **How big is the multiplier (M)?**

M = distance between the equilibrium GDP and the full-employment GDP / by the gap

M = 2 / 2 = 1

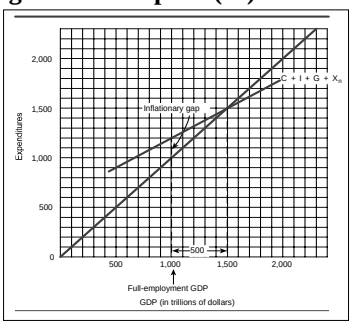


Applications of the Multiplier

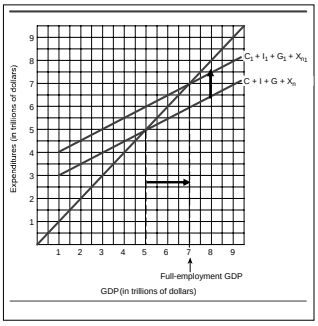
- **How big is the multiplier (M)?**

M = distance between the equilibrium GDP and the full-employment GDP / by the gap

M = 500 / 200 = 2.5



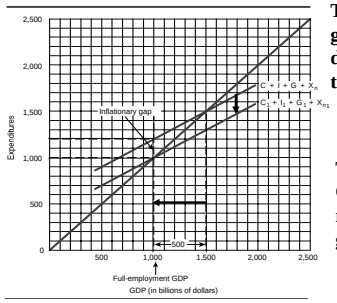
Removing the Deflationary Gap



To remove the deflationary gap we raise aggregate demand from C+I+G+Xn to $C_1+I_1+G_1+Xn_1$

This pushes equilibrium GDP to $7 trillion and removes the deflationary gap

Removing the Inflationary Gap



To remove the inflationary gap we lower aggregate demand from C+I+G+Xn to $C_1+I_1+G_1+Xn_1$

This pushes equilibrium GDP down to 1,000 and removes the inflationary gap