

Finding Equilibrium Income (Y*)

Using the Income-Expenditures Approach

Stage I: Consumption

$$C = 100 + .67Y$$

$$Y = AE \quad (\text{Formula for the 45 degree-line})$$

$$AE = 100 + .67Y \quad (\text{Formula for Expenditures})$$

$$Y = 100 + .67Y$$

$$.33Y = 100$$

$$Y^* = 300$$

Stage II: Investment

$$I = 200$$

$$Y = AE \quad (\text{Formula for the 45 degree-line})$$

$$AE = 100 + .67Y + 200 \quad (\text{Formula for Expenditures})$$

$$Y = 300 + .67Y$$

$$.33Y = 300$$

$$Y^* = 900$$

Stage III: Government Spending

$$G = 300$$

$$Y = AE \quad (\text{Formula for the 45 degree-line})$$

$$AE = 100 + .67Y + 200 + 300$$

$$Y = 600 + .67Y$$

$$.33Y = 600$$

$$Y^* = 1,800$$

Stage IV: Taxes

$$T = 300 \quad \text{NOTE: } C = 100 + .67(Y - T)$$

$$Y = AE \quad (\text{Formula for the 45 degree-line})$$

$$AE = 100 + .67(Y - 300) + 200 + 300$$

$$Y = 600 + .67(Y - 300)$$

$$Y = 600 + .67Y - 200$$

$$.33Y = 400$$

$$Y^* = 1,600$$

Stage V: Net Exports

$$(X-M) = 400$$

$$Y = AE \quad (\text{Formula for the 45 degree-line})$$

$$AE = 100 + .67(Y - 300) + 200 + 300 + 400$$

$$Y = 1,000 + .67(Y - 300)$$

$$Y = 1,000 + .67Y - 200$$

$$.33Y = 800$$

$$Y^* = 2,400$$

MULTIPLIERS

For Government Spending:

$$\Delta Y = \frac{1}{1 - MPC}$$

$$\Delta G \quad (1 - MPC)$$

$$\Delta Y = \Delta G * \frac{1}{1 - MPC}$$

Finding Equilibrium Income (Y*)

Using the Leakages-Injections Approach

Stage I: Saving

$$S = -100 + .33Y$$

Let $S = 0$ (Graphically, this is where the savings function crosses the horizontal axis.)

$$0 = -100 + .33Y$$

$$100 = .33Y$$

$$Y^* = 300$$

Stage II: Saving = Investment

$$S = -100 + .33Y \quad I = 200$$

Let $S = I$ (Graphically, this is where the savings function crosses the investment function)

$$-100 + .33Y = 200$$

$$.33Y = 300$$

$$Y^* = 900$$

Stage III: S = I + Gov't Spending

$$S = -100 + .33Y \quad I = 200 \quad G = 300$$

Let $S = I$ (Graphically, this is where the savings function crosses the investment + gov't spending function)

$$-100 + .33Y = 200 + 300$$

$$.33Y = 600$$

$$Y^* = 1,800$$

Stage IV: S + Taxes = I + G

$$T = 300 \quad \text{NOTE: } S = -100 + .33(Y - T)$$

$$[-100 + .33(Y - T)] + T = I + G$$

$$-100 + .33(Y - 300) + 300 = 200 + 300$$

$$-100 + .33Y - 100 + 300 = 500$$

$$.33Y + 100 = 500$$

$$.33Y = 400$$

$$Y^* = 1,600$$

Stage V: S + T + Imports = I + G + Exports

$$(X-M) = 400 \quad \text{Let } X=400 ; M=0$$

$$\text{NOTE: } S = -100 + .33(Y - T)$$

$$[-100 + .33(Y - T)] + T + M = I + G + X$$

$$-100 + .33(Y - 300) + 300 + 0 = 200 + 300 + 400$$

$$-100 + .33Y - 100 + 300 = 900$$

$$.33Y + 100 = 900$$

$$.33Y = 800$$

$$Y^* = 2,400$$

For Taxes:

$$\Delta Y = \frac{-MPC}{1 - MPC}$$

$$\Delta T \quad (1 - MPC)$$

$$\Delta Y = \Delta T * \frac{-MPC}{1 - MPC}$$