Finding Equilibrium Income ($Y^*$)

Using the Income-Expenditures Approach

Stage I: Consumption

\[ C = 100 + .67Y \]

\[ Y = AE \]

\[ AE = 100 + .67Y \]

\[ Y = 100 + .67Y \]

\[ .33Y = 100 \]

\[ Y^* = 300 \]

Stage II: Investment

\[ I = 200 \]

\[ Y = AE \]

\[ AE = 100 + .67Y + 200 \]

\[ Y = 300 + .67Y + 200 \]

\[ .33Y = 300 \]

\[ Y^* = 900 \]

Stage III: Government Spending

\[ G = 300 \]

\[ Y = AE \]

\[ AE = 100 + .67Y + 200 + 300 \]

\[ Y = 600 + .67Y + 200 + 300 \]

\[ .33Y = 400 \]

\[ Y^* = 1,800 \]

Stage IV: Taxes

\[ T = 300 \]

\[ C = 100 + .67(Y - T) \]

\[ Y = AE \]

\[ AE = 100 + .67(Y - 300) + 200 + 300 \]

\[ Y = 1,000 + .67(Y - 300) \]

\[ Y = 1,000 + .67Y - 200 \]

\[ .33Y = 800 \]

\[ Y^* = 2,400 \]

Stage V: Net Exports

\[ (X-M) = 400 \]

\[ Y = AE \]

\[ AE = 100 + .67(Y - 300) + 200 + 300 + 400 \]

\[ Y = 1,000 + .67(Y - 300) \]

\[ Y = 1,000 + .67Y - 200 \]

\[ .33Y = 800 \]

\[ Y^* = 2,400 \]

MULTIPLIERS

For Government Spending:

\[ \Delta Y = \Delta G \times \frac{1}{1 - MPC} \]

Finding Equilibrium Income ($Y^*$)

Using the Leakages-Injections Approach

Stage I: Saving

\[ \text{S} = -100 + .33Y \]

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

\[ \text{S} = -100 + .33Y \]

\[ I = 200 \]

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

\[ -100 + .33Y = 200 \]

\[ .33Y = 300 \]

\[ Y^* = 900 \]

Stage III: \( \text{S} = \text{I} + \text{Gov't Spending} \)

\[ \text{S} = -100 + .33Y \]

\[ I = 200 \]

\[ G = 300 \]

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: \( \text{S} + \text{Taxes} = \text{I} + \text{G} \)

\[ T = 300 \]

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

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

\[ -100 + .33Y - 100 + 300 = 200 + 300 \]

\[ .33Y + 100 = 500 \]

\[ .33Y = 400 \]

\[ Y^* = 1,600 \]

Stage V: \( \text{S} + \text{Taxes} + \text{Imports} = \text{I} + \text{G} + \text{Exports} \)

\[ (X-M) = 400 \]

\[ \text{Let} \quad X = 400 \quad \text{;} \quad M = 0 \]

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

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

\[ -100 + .33(Y - 300) + 300 + 0 = 200 + 300 + 400 \]

\[ -100 + .33Y - 100 + 300 = 900 \]

\[ .33Y + 100 = 900 \]

\[ .33Y = 800 \]

\[ Y^* = 2,400 \]