National Income Determination

Example 1

Given that

G=20

I=35

C=0.9Yd + 70

T=0.2Y + 25

Calculate the equilibrium level of national income

- $Y=C+I+G$
- $Yd=Y-T$

Solution

$Y=C+I+G$

$G=20 \quad I=35 \quad C=0.9Yd + 70 \quad T=0.2Y + 25$

$Y=C+35+20=C+55$

$Yd=Y-T = Y – 0.2Y -25=0.8Y-25 \quad C =0.9 * (0.8Y -25) +70$

So,

$Y=C+55=0.9*(0.8Y-25)+70+55$

$0.9*(0.8Y-25)+70+55=Y \quad 0.72Y-22.5+125=Y$

$Y=102.5/0.28=366$

Example 2

- Consider an economy described by the following equations: $Y = C + I + G$; $Y = 5{,}000$; $G = 1{,}000$; $T = 1{,}000$; $C = 250 + 0.75(Y - T)$; $I = 1{,}000 - 50r$.
- In this economy, compute private saving, public saving, and national saving.
- Find the equilibrium interest rate.
- Now suppose that G rises to 1,250. Compute private saving, public saving, and national saving.
- Find the new equilibrium interest rate.

private saving $= (Y - T) - C$

public saving $= T - G$

national saving, S

= private saving + public saving

$= (Y - T) - C + T - G$

$= Y - C - G$

Example 3

- Assume that a technology of production is shown by the production function $Q=\sqrt{(KL)}$. The firm's cost is 36 cur.units in wage rate w=4cur.units and rent rate r=6 cur.units. Find optimum production volume.

Solution

- C=w*L + r*K

36=4L+6K K=6-2/3*L

Q^2=6L-2/3*L^2

6-4/3*L=0 L=4.5 K=3

Q= √(KL)=3.65