Q6. Consider an economy described by the following functions: C = 20 + 0.80Y, I = 30, G = 50, TR = 100 (a) Find the equilibrium level of income and the autonomous expenditure multiplier in the model. (b) If government expenditure increases by 30, what is the impact on equilibrium income? (c) If a lump-sum tax of 30 is added to pay for the increase in government purchases, how will equilibrium income change?

Ans: (a) $C = 20 + 0.80\ Y\ \left[\overline{C}=20\right]$

I = 30

c = 0.80

G = 50

T = 100

Equilibrium level of income

$$Y=\frac{1}{1-c}\left[\overline{C}+cT+I+G\right]$$

$$=\frac{1}{1-0.80}\left[20+0.80\times100+30+50\right]$$

$$=\frac{1}{0.20}\times180$$

$$=\frac{180}{20}\times100$$

=900

Expenditure multiplier $=\frac{1}{1-c}$

$$=\frac{1}{1-0.80}=\frac{1}{0.20}$$

$$=\frac{100}{20}=5$$

(b) Increase in government expenditure

$\Delta G = 30$

New equilibrium expenditure

$$= \frac{1}{1-c}\left[\overline{C} + cT + I + G + \Delta G\right]$$

$$= \frac{1}{1-0.80}\left[20 + 0.80 \times 100 + 30 + 50 + 30\right]$$

$$= \frac{1}{1-0.80}\left[20 + 80 + 30 + 50 + 30\right]$$

$$= \frac{1}{0.20} \times 210$$

$$= \frac{210}{20} \times 100$$

$$= 1050$$

Equilibrium level of income increases by 150
(1050 – 900)

(c) Tax multiplier $= \dfrac{-c}{1-c}$

$$\dfrac{\Delta Y}{\Delta T} = \dfrac{-c}{1-c}$$

So,

$$\Delta Y = \dfrac{-c}{1-c} \times \Delta T$$

$$= \dfrac{-0.80}{1-0.80} \times 30$$

$$= \dfrac{-0.80}{0.20} \times 30$$

$$= -120$$

New Equilibrium level of income $= Y + \Delta Y$

$= 900 + (-120)$

$= $ Rs 780

********** END *********