Q11. Why is the open economy autonomous expenditure multiplier smaller than the closed economy one?

Ans : In case of a closed economy, equilibrium level of income is given by

$Y = C + cY + I + G$

Or, $Y - cY = C + I + G$

Or, $Y(1 - c) = C + I + G$

Or, $Y = \frac{C + I + G}{1 - c}$

Let, $(C + I + G) = A_1$

Or, $Y = \frac{A_1}{1 - c}$ ..... (I)

Or, $\frac{\Delta Y}{\Delta A_1} = \frac{1}{1 - c}$

In the case of an open economy, equilibrium level of income is given by

$Y = C + cY + I + G + X - M - mY$

Or, $Y - cY - mY = C + I + G + X$

Or, $Y(1 - c - m) = C + I + G + X$

Or, $Y = \frac{C + I + G + X}{1 - c - m}$

Let autonomous expenditure $(A_2) = C + I + G + X$

Or, $Y = \frac{A_2}{1 - c - m}$

$\frac{\Delta Y}{\Delta A_2} = \frac{1}{1 - c - m}$ .....(ii)

Comparing equations (1) and (2) and the denominators of the two multipliers, we can conclude that multiplier in an open economy is smaller than that in a closed economy, as the denominator in an open economy is greater than denominator in a closed economy.

Q12. Calculate the open economy multiplier with proportional taxes, T = tY, instead of lump-sum taxes as assumed in the text.

Ans: In the case of proportional tax, the equilibrium income would be

$Y = C + c(1 - t)Y + I + G + X - M - mY$

$Y - c(1 - t)Y + mY = C + I + G + X - M$

$Y[1 - c(1 - t) + m] = C + I + G + X - M$

$$Y = \frac{C + I + G + X - M}{1 - c(1 - Y) + m}$$

Autonomous expenditure (A) = C + I + G + X – M Therefore, open economy multiplier with proportional taxes

$$\frac{\Delta Y}{\Delta A} = \frac{1}{1 - c(1 - t) + m}$$

Q13. Suppose C = 40 + 0.8Y D.T = 50, I = 60, G = 40, X = 90, M = 50 + 0.05Y

(a) Find equilibrium income

(b) Find the net export balance at equilibrium income

(c) What happens to equilibrium income and the net export balance when the government purchases increase from 40 to 50?

Ans: C = 40 + 0.8YD

T = 50

I = 60

G = 40

X = 90

M = 50 + 0.05Y

(a) Equilibrium level of income

$Y = C + c(Y - T) + I + G + X - M - mY$

$$Y = \frac{A}{1 - c + m}$$

Where, $A = C - CT + I + G + X - M$

$$= \frac{C - cT + I + G + X - M}{1 - c + m}$$

$$= \frac{40 - 0.8 \times 50 + 60 + 40 + 90 - 50}{1 - 0.8 + 0.05}$$

$$= \frac{40 - 40 + 60 + 40 - 90 - 50}{1 - 0.75}$$

$$= \frac{140}{0.25} = \frac{140}{25} \times 100$$

= 560

(b) Net exports at equilibrium income

NX = X – M – mY

$= 90-50-0.05\times 560$

= 40 – 28 = 12

(c) When *G* increase from 40 to 50,

Equilibrium income (Y) $= \frac{C-cT+I+G+X-M}{1-c+m}$

$= \frac{40-0.8\times 50+60+50+90}{1-0.8+0.05}$

$= \frac{40-40+60+50+90}{0.25}$

$= \frac{150}{0.25} = \frac{150}{25}\times 100$

=600

Net export balance at equilibrium income

NX = X – (M – mY)

$= 90-50+0.05\times 600$

= 40 – 30 = 10

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