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Open Economy

Question 13:

Suppose $C = 40 + 0.8YD$, $T = 50$, $I = 60$, $G = 40$, $X = 90$, $M = 50 + 0.05Y$

- (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?

ANSWER:

$$C = 40 + 0.8YD$$

$$T = 50$$

$$I = 60$$

$$G = 40$$

$$X = 90$$

$$M = 50 + 0.05Y$$

(a) Equilibrium level of income

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

$$Y = \frac{A}{1 - c + m} \text{ Where, } A = C - cT + I + G + X - M$$

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

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

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

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

$$= 560$$

(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,

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

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

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

$$= \frac{150}{0.25} = \frac{150}{25} \times 100 = 600$$

Net export balance at equilibrium income

$$NX = X - (M - mY)$$

$$= 90 - 50 + 0.05 \times 600$$

$$= 40 - 30 = 10$$

Question 14:

In the above example, if exports change to $X = 100$, find the change in equilibrium income and the net export balance.

ANSWER:

$$C = 40 + 0.8 YD$$

$$T = 50$$

$$I = 60$$

$$G = 40$$

$$X = 100$$

$$M = 50 + 0.05Y$$

$$\text{Equilibrium income (Y)} = \frac{A}{1 - c + m}$$

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

$$= \frac{40 - 0.8 \times 50 + 40 + 60 + 100 - 50}{1 - 0.8 + 0.05}$$

$$= \frac{40 - 40 + 40 + 60 + 100 - 50}{0.25}$$

$$= \frac{150}{0.25} = \frac{150 \times 100}{25} = 600$$

$$\text{Net export balance } NX = X - M - 0.05Y$$

$$= 100 - 50 - 0.05 \times 600$$

$$= 50 - 0.05 \times 600$$

$$= 50 - 30 = 20$$

Question 15:

Suppose the exchange rate between the Rupee and the dollar was Rs. 30 = 1\$ in the year 2010. Suppose the prices have doubled in India over 20 years while they have remained fixed in USA. What, according to the purchasing power parity theory will be the exchange rate between dollar and rupee in the year 2030.

ANSWER:

The rupee-dollar exchange rate is given as Rs.30 in the year 2010. This implies that the price of a good (say, book) is \$1 in USA and Rs.30 in India. It is given that prices have doubled in India over 20 years while they have remained fixed in the USA, so the cost of the book will be Rs. 60 in 2030 and the cost of the book remains

the same i.e \$1 in the USA since the prices are not changing. For these two prices to be equivalent, Rs.60 must be worth of \$1. The rupee, therefore, will depreciate.

Question 16:

If inflation is higher in country A than in Country B, and the exchange rate between the two countries is fixed, what is likely to happen to the trade balance between the two countries?

ANSWER:

Country A has a higher inflation than country B. Since, the exchange rate is fixed, it is advantageous for country B to export goods to country A. Similarly, it is advantageous for country A to import goods from country B. On the other hand, it would be expensive for country A to export goods to country B. Thus, country A will have trade deficit as it will import more goods as compared to exports, from country B. Country B will import less goods as compared to exports, from country A. Hence, there is a trade surplus in country B.

Question 17:

Should a current account deficit be a cause for alarm? Explain.

ANSWER:

Current account deficit is the excess of total imports of goods, services and transfers over total exports of goods, services and transfers. This situation makes a country debtor to the rest of the world. But, this cannot be always treated as a cause for alarm because countries might be running in deficits (current account) to increase productivity and exports in future. Also, more investment will help in building capital stock, which in future will lead to rise in output.

Question 18:

Suppose $C = 100 + 0.75YD$, $I = 500$, $G = 750$, taxes are 20 per cent of income, $X = 150$, $M = 100 + 0.2Y$. Calculate equilibrium income, the budget deficit or surplus and the trade deficit or surplus.

ANSWER:

$$C = 100 + 0.75YD$$

$$I = 500$$

$$G = 750$$

$$X = 150$$

$$M = 100 + 0.2Y$$

$$\text{Equilibrium income (Y)} = C + c(Y - T) + I + G + X - M - mY$$

$$\text{Or, } Y = 100 + .75 \left(Y - \frac{20}{100}Y \right) + 500 + 750 + 150 - 100 - 0.2Y$$

$$\text{Or, } Y = 1400 + \frac{75}{100} \times \frac{4Y}{5} - 0.2Y$$

$$\text{Or, } Y = 1400 + \frac{3}{5}Y - 0.2Y$$

$$\text{Or, } \frac{6Y}{10} = 1400$$

$$\text{Or, } Y = \frac{1400 \times 10}{6} = \frac{7000}{3}$$

$$\text{Government expenditure} = 750$$

$$\text{Government receipts (taxes)} = \frac{20}{100} \times \frac{7000}{3} = \frac{1400}{3} = 466.6$$

Since, government expenditure > government receipts

It shows the government is running budget deficit

$$NX = X - M - MY$$

$$= 150 - 100 - \frac{0.2}{10} \times \frac{7000}{3}$$

$$= 150 - 100 - \frac{1400}{3}$$

$$= 150 - 100 - 466.66$$

$$= 150 - 566.66$$

$$= - 416.66$$

Since NX is negative, it implies trade deficit.

Question 19:

Discuss some of the exchange rate arrangements that countries have entered into to bring about stability in their external accounts.

ANSWER:

To combine the two extreme positions, 'fixed' and 'flexible', the following exchange rate arrangements are used by governments to bring stability in external accounts:

1. Wider Bands

A system that allows adjustment in fixed exchange rate is referred to as wider bands. It permits only 10% variation between the currencies of any two countries. For example, a country can improve its balance of payments (BoP) deficit by depreciating its currency, which leads to increase in demand for domestic goods due to increase in purchasing power of other currencies. This further leads to the increase in exports, hence improving the BoP.

2. Crawling Peg

Crawling peg system allows continuous and regular adjustments in the exchange rate. Only 1% of variation is allowed at a time.

3. Managed floating

Managed floating is a scheme under which government can intervene to vary the exchange rate when the situation demands so. There is no specific limit of variation as in crawling peg and wider bands.
