VIDYA BHAWAN BALIKA VIDYA PITH

शक्ति उत्थान आश्रम लखीसराय बिहार

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Teacher name – Ajay Kumar Sharma

Government Budget and the Economy

Question 1:

Explain why public goods must be provided by the government.
ANSWER:

A good that is non-rival and non-excludable is referred to as public good. Non-rival means that consumption by one individual does not affect the consumption of another individual. Whereas, non-excludable implies that no individual can be excluded from using the good. For example, parks, roads, national defence, etc.

These goods must be provided by the government because of the following reasons:

1. The benefits of public goods can be easily enjoyed by anyone without affecting the consumption of other individuals. There arises market failure.

2. No individual can be excluded from using public goods as it is available to all. The link between the producer and the consumer becomes non-functional, necessitating government interference through public provisions.

Question 2:

Distinguish between revenue expenditure and capital expenditure.
ANSWER:

Basis	Revenue expenditure	Capital expenditure
Creation of Assets	It does not create assets for the government.	It results in the creation of assets.
Reduction of Liability	These expenditures do not result in the reduction of liability.	These expenditures cause a reduction of the liability of the government.
Items	(a) Aids given to states and others (b) Interest payments	(a) Purchase of shares (b) Expenditure on land, building, etc.

	(c) Expenditure on defence	(c) Grants by the central government to the state government

Question 3:

'The fiscal deficit gives the borrowing requirement of the government'. Elucidate.
ANSWER:

Fiscal deficit is the excess of total expenditure over total receipts.

That is, when total government expenditure is greater that total government receipts, the government faces fiscal deficit.

Fiscal deficit is estimated as:

Total Expenditure (revenue + capital) − Total Receipts (excluding borrowings).

Fiscal deficit gives an indication to the government about the total borrowing requirements from all sources. Fiscal deficit can be financed through domestic borrowings and/or borrowings from abroad. Greater fiscal deficit implies greater borrowings by the government.

Question 4:

Give the relationship between the revenue deficit and the fiscal deficit.
ANSWER:

The relationship between the revenue deficit and the fiscal deficit can be explained through the following points:

1. Revenue deficit is the difference between government's revenue expenditures and government's receipts.

Revenue deficit = Revenue expenditures − Revenue receipts

On the other hand, fiscal deficit is the difference between the total expenditure and the total receipt of the government.

Fiscal deficit = Total Expenditure − Total Receipts (excluding borrowings)

2. The term 'fiscal deficit' is used in a broader sense than the term 'revenue deficit'.

3. As revenue deficit increases, the proportion of fiscal deficit also increases.

Question 5:

Suppose that for a particular economy, investment is equal to 200, government purchases are 150, net taxes (that is lump-sum taxes minus transfers) is 100 and consumption is given by $C = 100 + 0.75Y$ (a) What is the level of equilibrium income? (b) Calculate the value of the government expenditure multiplier and the tax multiplier. (c) If government expenditure increases by 200, find the change in equilibrium income.

ANSWER:

$I = 200$

$G = 150$

$T = 100$

$C = 100 + 0.75\ Y$

So, C (Autonomous consumption) = 100

And, MPC (c) = 0.75

(a) Equilibrium level of income

$$Y = \frac{1}{1-c}\left(\bar{C} - cT + I + G\right)$$

$$= \frac{1}{1-0.75}\left(100 - 0.75 \times 100 + 200 + 150\right)$$

$$= \frac{1}{0.25} \times 375$$

$$= \frac{375}{0.25} \times 100 = \text{Rs } 1500$$

(b) Government expenditure multiplier

$$\frac{\Delta Y}{\Delta G} = \frac{1}{1-c} = \frac{1}{1-0.75} = \frac{1}{0.25}$$

$$= \frac{1}{25} \times 100$$

= 4

Tax multiplier $= \frac{\Delta Y}{\Delta T} = \frac{-c}{1-c}$

$= \frac{-0.75}{1-0.75} = \frac{-0.75}{0.25}$

= −3

(c) Δ*G* = 200

New equilibrium income

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

$= \frac{1}{1-0.75}[100 - 0.75 \times 100 + 200 + 150 + 200]$

$= \frac{1}{0.25} \times 575$

$= \frac{100 \times 575}{25} = \text{Rs } 2300$

Therefore, change in equilibrium income = 2300 − 1500 = Rs 800

Question 6:

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?
ANSWER:

(a) *C* = 20 + 0.80 *Y* $[\bar{C} = 20]$

I = 30

c = 0.80

$G = 50$

$T = 100$

Equilibrium level of income

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

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

$$= \frac{1}{0.20} \times 180 = \frac{180}{20} \times 100 = 900$$

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

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

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

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

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

$$= \frac{210}{20} \times 100 = 1050$$

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

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

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

So, $\Delta Y = \frac{-c}{1-c} \times \Delta T$

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

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

= −120

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

= 900 + (−120)

= Rs 780

Question 7:

In the above question, calculate the effect on output of a 10 per cent increase in transfers, and a 10 per cent increase in lump-sum taxes. Compare the effects of the two.

ANSWER:

MPC = 0.80

$\bar{C}$ = 20

I = 30

G = 50

TR = 100

ΔTR = 10

Equilibrium level of income $= \frac{1}{1-c}[\bar{C} + cTR + I + G + \Delta TR]$

$$= \frac{1}{1-0.80}\,[20 + 0.80 \times 100 + 30 + 50 + 0.80 \times 10]$$

$$= \frac{188}{0.20} \times 100$$

= Rs 940

Change in income = 940 − 900 = Rs 40

Increase in lump-sum tax ΔT =10

Change in Income $= \Delta T \ \frac{-c}{1-c}$

$$= -10 \times \frac{0.80}{0.20}$$

= −10 × 4

= −40

From the above results, we can conclude that increase of 10 percent in transfers will raise the income by 40%.

And, increase of 10% in tax will lead to a fall in the income by 40%.

Question 8:

We suppose that C = 70 + 0.70Y D, I = 90, G = 100, T = 0.10Y (a) Find the equilibrium income. (b) What are tax revenues at equilibrium Income? Does the government have a balanced budget?

ANSWER:

(a) C = 70 + 0.70 YD

I = 90

G = 100

T = 0.10Y

$Y = C + I + G$

$Y = 70 + 0.70Y + 90 + 100$

$Y = 70 + 0.70YD + 190$

$Y = 70 + 0.70\ (Y - T) + 190$

$Y = 70 + 0.70Y - 0.70 \times 0.10\ Y + 190$

$Y = 70 + 0.70Y - 0.07Y + 190$

$Y = 70 + 0.63Y + 190$

$Y = 260 + 0.63Y$

$Y - 0.634 = 260$

$0.37Y = 260$

$$Y = \frac{260}{0.37}$$

$Y = 702.7$

(b) $T = 0.10Y$

$= 0.10 \times 702.7$

$= 70.27$

Government expenditure = 100

Tax revenue = 70.27

As, $G > T$, Government has a deficit budget, not a balanced budget.

Question 9:

Suppose marginal propensity to consume is 0.75 and there is a 20 per cent proportional income tax. Find the change in equilibrium income for the following (a) Government purchases increase by 20 (b) Transfers decrease by 20.
ANSWER:

In case of proportional taxes

(a) $$\Delta Y = \frac{1}{1-c\,(1-t)} \times \Delta G$$

MPC = 0.75 and $\Delta G = 20$

$$\frac{1}{1-0.75\,(1-0.2)} \times 20$$

$$= \frac{1}{1-0.75 \times 0.8} \times 20$$

$$= \frac{20}{1-0.60}$$

$$= \frac{20}{0.4}$$

= 50

(b) Transfer decreases by 20

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

$$= \frac{0.75}{1-0.75} \times 20$$

$$= \frac{0.75}{0.25} \times 20$$

=

Question 10:

Explain why the tax multiplier is smaller in absolute value than the government expenditure multiplier.

ANSWER:

The tax multiplier is smaller in absolute value than the government expenditure multiplier, as the government expenditure affects the total expenditure and taxes through the multiplier. Tax multiplier also influences disposable income that affects the overall consumption level.

The reason is explained through the following example.

Let’s assume MPC be to 0.80.

Then, the government expenditure multiplier $= \frac{1}{1-c}$

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

$= \frac{100}{0.20} = 5$

Tax multiplier $= \frac{-c}{1-c} = \frac{-0.80}{1-0.80}$

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

= −4

This shows that government expenditure multiplier is more than tax multiplier.