

NCERT Macroeconomics Solutions Class 12 Chapter 5

1. Explain why public goods must be provided by the government.

Public goods are those goods where there is no competition and the use of good is not restricted to only one individual. These goods are for use by all individuals of the society. Such goods are used for welfare of the society.

Therefore, government should provide public goods for the following reasons:

1. So that benefits of the public goods can be enjoyed by all members of the society.
2. So that the consumption of these goods will not impact consumption of any other individual.

2. Distinguish between revenue expenditure and capital expenditure.

Basis of Comparison	Capital Expenditure	Revenue Expenditure
Definition	Expenditure incurred for acquiring assets, to enhance the capacity of an existing asset that results in increasing its lifespan	The expense incurred for maintaining the day to day activities of a business
Term	Long Term	Short Term
Value addition	Enhances the value of an existing asset	Does not enhance the value of an existing asset
Physical Existence	Have a physical presence except for intangible assets	Do not have a physical presence
Occurrence	Non-recurring in nature	Recurring in nature
Capitalisation	Yes	No
Impact on Revenue	Do not reduce business revenue	Reduces business revenue
Benefits	Long-term benefits for business	Short-term benefits for business
Examples	Highway, tunnel, metro projects	Pension, Salary etc.

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

Fiscal deficit is referred to as the shortfall in government's income as compared to its spending. A high fiscal deficit means that the government is borrowing more money than that it is earning. A higher fiscal deficit creates a burden of loan and interest payment for future generation.

Fiscal deficit is determined by

Total Expenditure - Total Receipts excluding borrowings

4. Give the relationship between the revenue deficit and the fiscal deficit.

Revenue deficit is referred to as an excess of revenue expenditure as compared to earnings by revenue receipts of the government. Fiscal deficit is a bigger phenomenon where the difference is between the total expenditure and total receipts obtained by government. When revenue deficit increases correspondingly the fiscal deficit also increases.

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.

According to the question

Investment (I) = 200

Government Purchases (G) = 150

Net Taxes (T) = 100

Consumption (C) = $100 + 0.75Y$

Now, C (Autonomous consumption) = 100

And, MPC (c) = 0.75

(a) Equilibrium level of income

$$\begin{aligned}Y &= \frac{1}{1-c}(\bar{C} - cT + I + G) \\&= \frac{1}{1-0.75}(100 - 0.75 \times 100 + 200 + 150) \\&= \frac{1}{0.25} \times 375 \\&= \frac{375}{0.25} \times 100 = \text{Rs } 1500\end{aligned}$$

Therefore Equilibrium level of income is 1500.

(b) Government expenditure multiplier

$$\begin{aligned}\frac{\Delta Y}{\Delta G} &= \frac{1}{1-c} = \frac{1}{1-0.75} = \frac{1}{0.25} \\&= \frac{1}{0.25} \times 100 \\&= 4\end{aligned}$$

Government expenditure multiplier is 4

$$\begin{aligned}\text{Tax multiplier} &= \frac{\Delta Y}{\Delta T} = \frac{-c}{1-c} \\&= \frac{-0.75}{1-0.75} = \frac{-0.75}{0.25} \\&= -3\end{aligned}$$

Tax multiplier is 3

(c) $\Delta G = 200$

New equilibrium income

$$\begin{aligned}
 &= \frac{1}{1-c} [\bar{C} - cT + I + G + \Delta G] \\
 &= \frac{1}{1-0.75} [100 - 0.75 \times 100 + 200 + 150 + 200] \\
 &= \frac{1}{0.25} \times 575 \\
 &= \frac{100 \times 575}{25} = \text{Rs } 2300
 \end{aligned}$$

Therefore, change in equilibrium income comes to be $= 2300 - 1500 = \text{Rs } 800$

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?

According to question

(a)

$$C = 20 + 0.80Y \quad [\bar{C} = 20]$$

$$I = 30$$

$$c = 0.80$$

$$G = 50$$

$$T = 100$$

Equilibrium level of income

$$\begin{aligned}
 Y &= \frac{1}{1-c} [\bar{C} + cT + I + G] \\
 &= \frac{1}{1-0.80} [20 + 0.80 \times 100 + 30 + 50]
 \end{aligned}$$

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

Therefore the equilibrium level of income is 900

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

$$= \frac{1}{1-0.80} = \frac{1}{0.20} = \frac{100}{20} = 5$$

Expenditure multiplier is 5

(b) Increase in government expenditure

$$\Delta G = 30$$

New equilibrium expenditure

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

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

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

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

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

We see that equilibrium level of income increases by 150 (1050 - 900)

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

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

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

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

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

$$= -120$$

$$\text{New Equilibrium level of income} = Y + \Delta Y$$

$$= 900 + (-120)$$

$$= \text{Rs } 780$$

Therefore, the equilibrium income changes by 120.

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.

According to the question

$$\text{MPC} = 0.80$$

$$\bar{C} = 20$$

$$I = 30$$

$$G = 50$$

$$TR = 100$$

$$\Delta TR = 10$$

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

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

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

$$= \text{Rs } 940$$

Therefore, equilibrium level of income is Rs 940

$$\text{Change in income} = 940 - 900 = \text{Rs } 40$$

$$\text{Increase in lump-sum tax } \Delta T = 10$$

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

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

$$= -10 \times 4$$

$$= -40$$

From the above numbers it can be concluded that increase of 10 percent in transfers will raise the income by 40%. And, an increase of 10% in tax will lead to a fall in the income by 40%.

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?

According to the question

$$(a) C = 70 + 0.70 Y_D$$

$$I = 90$$

$$G = 100$$

$$T = 0.10Y$$

We know

$$Y = C + I + G \quad (\text{eq.1})$$

Now, putting the values in the equation 1

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

$$Y = 70 + 0.70Y_D + 190$$

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

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

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

$$Y = 70 + 0.63Y + 190$$

$$Y = 260 + 0.63Y$$

$$Y - 0.63Y = 260$$

$$0.37Y = 260$$

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

$$Y = 702.7$$

$$(b) T = 0.10Y$$

$$= 0.10 \times 702.7$$

$$= 70.27$$

Given the Government expenditure (G) = 100

$$\text{Tax revenue} = 70.27$$

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

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.

According to question

(a) In case of proportional taxes

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

$$\text{MPC} = 0.75 \text{ and } \Delta G = 20$$

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

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

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

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

$$= 50$$

Therefore change in equilibrium income is 50.

(b) When Transfer decreases by 20

$$\begin{aligned}\Delta Y &= \frac{c}{1-c} \times \Delta T \\&= \frac{0.75}{1-0.75} \times 20 \\&= \frac{0.75}{0.25} \times 20 \\&= 60\end{aligned}$$

Therefore the change in equilibrium income is 20.

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

The tax multiplier is always having negative value and therefore is smaller in absolute value than the government expenditure multiplier. The government expenditure creates an impact on the total expenditure and the taxes through the multiplier. It also influences disposable income which impacts overall consumption level.

The following example will help in understanding

Assume MPC be to 0.50.

Now, the government expenditure multiplier = $1 / 1 - c$

$$= 1 / 1 - 0.50$$

$$= 1 / 0.50$$

$$= 2$$

Tax multiplier = $-c / 1 - c$

$$= -0.50 / 1 - 0.50$$

$$= -1$$

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

11. Explain the relation between government deficit and government debt.

A government in order to adjust the government deficit which is created due to borrowings by the government seeks more borrowings, these borrowings create further debt for the government in the form of interest payment. Therefore increase in deficit will lead to increase in debt.

12. Does public debt impose a burden? Explain.

Public debt is referred to the amount of money that a government owes to banks, financial institutions and other sources of finance. It is known to impose a burden on the economy in the following ways:

1. Government may impose taxes or print new money to repay the existing debts. Such a situation will hamper the productivity of the nation.
2. A high level of debt creates burden on future generations in form of interests and taxes being levied on the younger generation, it will result in lower consumption and savings.
3. More investments are attracted by the government by raising the interest rates on bonds and securities, therefore citizens money is utilized by the government and hence less private investment.
4. Wealth of the nation is depleted when loans are repaid to foreign institutions and countries.

13. Are fiscal deficits inflationary?

Fiscal deficit will not always result in inflation. If a situation arises when the government expenditure increases and tax reduction is seen, it will cause deficit in the government which leads to increase in aggregate demand. Firms will not be able to meet the demand thus generated which will result in price increase. Therefore fiscal deficits can become inflationary, but it will not be inflationary in the case when resources are less utilized due to insufficient demand and less output, then if the government is spending more also, more resources will be employed in order to meet the growing demand and there will be no pressure on price rise. In such a situation a high fiscal deficit along with high demand and greater output will not create an inflationary situation.

14. Discuss the issue of deficit reduction.

Government can reduce budget deficit by the following methods

1. Decreasing expenditure
2. Increasing Revenue

Decreasing Expenditure can be achieved by:

- a. More planned activities should be undertaken by government to reduce expenditure.
- b. Encouraging private sector to contribute to some major capital projects will help reduce expenditure.

Increase in revenue can be obtained by:

- a. Raising taxes or introducing new taxes can contribute to increase in revenue.
- b. By selling stakes in PSU by a process called divestment can bring in more revenue.

