
UNIT 21 PUBLIC ECONOMICS

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21.0 OBJECTIVES

In this unit of the course on the fundamentals of economics, we consider some situations where the market process may not allocate scarce resources in an optimal manner. You will also be introduced to some concepts and processes of the government's economic functioning. After going through the unit you will be able to:

- 1 list the situations of market failure;
- 1 state the two basic laws of welfare;
- 1 identify and describe situations of externalities;
- 1 define a public good, and discuss its properties;
- 1 explain the concepts and components of government revenue and expenditure;
- 1 describe the various measures of deficit and discuss their impact; and
- 1 explain what is market borrowing and list the other methods of deficit financing.

21.1 INTRODUCTION

As we discuss through this unit, we shall be concerned with two broad themes. The first, which we discuss in the latter half of the unit, comprises concepts from what is called Public Finance. These concepts include government revenue, government expenditure, budget deficit and the ways of financing these. In other words, these are about how governments raise funds, how they spend these and on what, and how the deficit or shortfall is met. The earlier portions of the unit are an extension of standard microeconomics—the concepts that you studied in the first few blocks of this course.

21.2 MARKET FAILURE

For much of the initial section of this course, you were told about the functioning of the various market forms— perfect competition, monopoly and so on. In this section of this unit, we will look at some situation where the market is not necessarily the best allocator of resources. The idea is that under certain conditions (which we

shall come to in a moment, and which some consider being too stringent), the market mechanism happens to be the most efficient way to allocate resources, to carry out production, consumption and investment. When these conditions are fulfilled, the market should be left alone.

What are these conditions? The basic requirement is that perfect competition should prevail. In other words, no buyer or seller should be in a position to influence prices and there should be perfect and complete information, which is virtually costless to acquire. Another requirement is that there are no externalities. In a later section we will discuss externalities in detail but for now it is enough to know that it means the action of an economic agent confers unintended costs or benefits on some other economic agent(s). Thirdly, there should not be increasing returns to scale in production. Although an earlier unit on production functions has explained this concept, it is worth repeating here. Returns to scale deals with a situation where all inputs are increased by the same amount and we look at what happens to output. If output increases by more than the proportion in which the inputs are increased, we have increasing returns to scale. Suppose we double the amount of all inputs. If output more than doubles, we have increasing returns to scale. What happens if there are increasing returns to scale? The basic answer is that in such a case, even after all inputs have been paid their remuneration equal to their marginal product, the total product is not exhausted, and this means the presence of extra-normal or super-normal profits. This goes against the basic idea of perfect competition.

The important thing to understand here is that perfect competition satisfies an important criterion of welfare that is put forward in the literature. This is known as Pareto-optimality. Let us see what this means. Any change that makes someone better off while not making someone else worse off is known as Pareto superior or is called a Pareto improvement. When we get to a situation where it is impossible to make someone better off without making someone else worse off it is called a Pareto optimal condition. There are two statements made in welfare economics, which are known as the two theorems of welfare economics. The first theorem states that any perfectly competitive situation is a Pareto-optimal situation. The second theorem states that any situation which is Pareto-optimal can be seen to be equivalent to a perfectly competitive situation. There is, thus, a close relationship between Pareto-optimality and equilibrium in a (perfectly competitive) market. Pareto-optimality also automatically ensures that resource allocation is most efficient and wastes are avoided.

Check Your Progress 1

- 1) What are the conditions under which the market economy performs as the best allocator of resources?

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- 2) Explain the concept of Pareto optimality. When do we say that a situation is Pareto-superior as compared to another situation?

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- 3) State the two laws of welfare economics.

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21.3 PUBLIC GOODS

When we hear the words ‘public’ and ‘goods’ together, we may be led to think that these goods are provided by the public sector. This is not necessarily the case. While it is true that the government largely provides public goods-and later we will discuss the reasons-this type of goods may also be provided by the private sector. There are two characteristics that a public good possesses, regardless of whether it is provided by the government, or not. These two characteristics are **non-rival consumption and non-exclusion**. Let us see what these concepts mean

Non-rival Consumption

This concept means that for a given level of production, consumption by one person does not diminish the quantity left for someone else to consume. In other words, a good is said to be characterised by non-rivalry in consumption if, once it is produced, several people can simultaneously consume it. We can give some examples. Suppose it is a chilly winter evening and you are keeping yourself warm by sitting by a fire. If I come along and sit beside you to get some warmth by the fire, the warmth that you get from the fire does not diminish. Another classic example is national defence. National defence ‘consumed’ by one citizen of a country does not reduce the amount left over for others. Yes, it is true that people living in border areas may feel threatened more by an external attack; nevertheless, military defence *per se* as a good is characterised by non-rivalry in consumption. Other examples are pollution control measures, and many public health programmes.

In much of economics, we deal with goods, which are rival consumption goods. For a given level of production of shirts in an economy, the amount consumed by one person reduces the amount left over for others to consume. The basic implication for rival consumption is that a way has to be found to allocate or ration the good among the consumers. With non-rival goods, there is no such problem because consumption by one person does not reduce the consumption by another person. But this is not the case with rival goods and the usual mechanism applied or suggested by economic theory to allocate the goods is the price system or, in other words, through demand and supply.

Non-exclusion

This is the second characteristic of a public good. To understand non-exclusion we can look at private goods which are characterised by the exclusion principle, and see what this means. Then we can grasp the meaning of non-exclusion. Take a private good like an apple. If you eat an apple you can exclude me from eating the apple. So for a private good, it is possible to confine the consumption. On the other hand, for public goods, it may be impossible or extremely expensive to confine the benefits of the good to a few persons. A person will derive benefit from the production of the good, regardless of whether *or not he or she pays for the good*. A classic example of a public good, much cited in the literature, is a lighthouse. When the light of the lighthouse is on, it is difficult to prevent any nearby ship from seeing it and being guided by it (non-excludability). Moreover, one ship’s use does not reduce the light left for other ships, or, in other words, one ship’s use does not affect the ability of other ships to use the light (non-rivalry).

It is important to carefully distinguish between non-rivalry in consumption and non-exclusion. The former concept captures the idea that the amount consumed by one person does not reduce the amount left over for consumption by others. A good may be non-rival and yet it may be possible to *exclude* some people from using that good. A classic example is cable television broadcast. If a programme is being broadcast, then its viewing by one person does not diminish the amount left for others. However, it is possible to exclude some people from viewing the programmes.

Those who do not have access to a TV set, or those who do not subscribe to some channels may not be able to view certain programmes. Remember, there is no diminishing of the *quantity* available for consumption. Another example is cinema in a theatre. For the people inside the hall, no one gets to watch more of the movie than anyone else does. It is, however, possible to exclude people who do not pay for the ticket from watching the movie. So the movie is a good which is non-rival but excludable. Goods that are both non-rivals in consumption and having the non-exclusion property are called *pure* public goods. To qualify as a public good, a good has to have at least non-rival consumption. In the examples given above, although there is non-rival consumption, the goods are excludable.

Club Goods, Congestion and Impure Public Goods

We mentioned above that *pure* public goods are characterised by both non-rival consumption as well as exclusion. There are, however, some goods for which consumption is non-rival but where exclusion can be applied as in the cable television or movie theatre examples above. These goods are sometimes called club goods. This is actually what happens in the case of members of a club, who have joint and hence non-rival consumption, but where nonmembers are excluded. Because of this kind of nature of an actual club, goods which possess the characteristic of non-rival consumption coupled with exclusion possibilities are sometimes called club goods.

There is another class of impure public goods. This class of goods have rival consumption but in their case it is very difficult or extremely costly to carry out exclusion in consumption. A congested road is a prominent example. One person driving a vehicle does not mean others can be excluded from driving their vehicles but clearly, the space taken up by one person on the road reduces the space available for others - hence use of road space is a rival good. A similar example is that of a beach. People cannot exclude others from enjoying a beach, but it is possible that the beach gets crowded and hence the space available for each person on the beach gets reduced. Thus a beach has rival consumption. From these examples we see that cases of congestion are yet another type of impure public good in a sense opposite of club goods - which exhibit rival consumption but no or negligible exclusion.

Before we discuss more about public goods, especially regarding their provision, let us pause to look at the various types of goods. At one extreme are private goods that have both rival consumption and exclusion. At the other extreme are pure public goods that have non-rival consumption as well as non-exclusion. In between the two extremes are impure types of public goods: the first type characterised by non-rival consumption and exclusion (club goods) and the other type which has rival consumption but non exclusion (goods in situations of congestion).

The various possibilities regarding the presence or absence of exclusivity and rivalries are shown, with examples, in the following table.

Rivalry and Exclusion	Non-rivalry and Exclusion
Rivalry and Non-Exclusion	Non-rivalry and Non-Exclusion

Provision of Public Goods

The private sector often does not do a good job at providing public goods. The main reason is that since it is difficult to exclude people from consuming the good, it becomes difficult to price the good. This in turn robs private entrepreneurs of the incentive to produce the good.

Even if some people could be excluded from consuming the good, the non-rivalry in consumption would mean that it is costly and inefficient to exclude anyone. Once the good is produced, the marginal cost of providing the good to an additional person

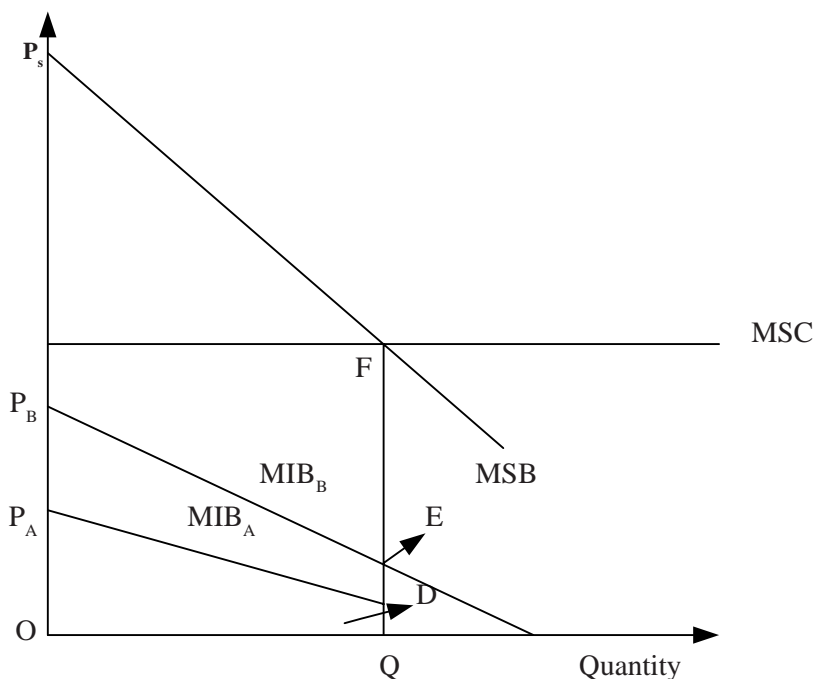
is zero. The basic issue is that due to the presence of non-exclusion in the case of public or social goods, the market mechanism, that is, the principle of demand and supply regulated by the price system may not be an efficient method for the provision of public goods. This is quite unlike the case of private goods, which are characterised by exclusion, so that only the person who pays for a good gets to enjoy it. A related and equally serious problem arises in the case of public goods, specially when that good is to be financed by the consumers or users themselves, like security in a residential colony in an entry. This is the so-called **free rider problem**. In essence this means that since for a public good it is difficult to carry out exclusion, even those who do not pay for the good, or do not put forward their share of finance can avail themselves of or enjoy the good. This provides an incentive for an individual consumer to get a 'free ride' or be 'free-rider' at the expense of others, anticipating, often correctly in the case of public goods, that others will in any case pay for the good. The problem arises when a large number of customers begin to think on these lines. As is evident, in those situations, where projects (public goods) are to be financed by the consumers themselves, there is every possibility that such projects will not get financed. For public goods in general, the free rider problem leads to situations where individuals have incentives as well as the opportunity to enjoy the goods without paying for them. Hence the good may be under-supplied.

We know that a perfectly competitive market will provide the optimal quantity of a private good because production will be expanded to the point where demand equals supply. In perfectly competitive markets, the demand curve represents the marginal social benefit, that is, the full social benefits of additional units (let us denote it by MSB) whereas the supply curve reflects the marginal social cost of production (denote it by MSC).

In the above paragraph we assumed that there were no externalities. Let us now suppose the good is a public good. Even now, output should be expanded to the point where $MSB = MSC$. But the important point is that with public goods the market demand curve is no longer obtained from individual demand curves by horizontal summing of the individual curves. The reason is that *all* individuals *simultaneously* consume *each* unit of the public good (non-rival consumption).

The following Fig.21.1 depicts the derivation of MSB curve for a public good from individual curves.

Fig. 21.1



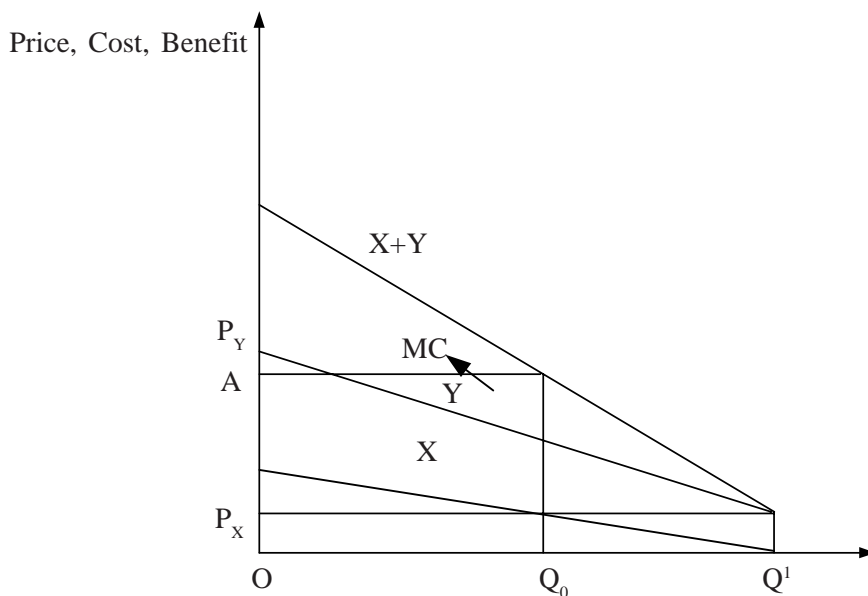
We have considered only two individuals for simplicity. Let the two persons be A and B. MIB^A represents the marginal individual benefit curve for A and likewise MIB^B for B. We also assume a horizontal marginal cost curve for simplicity. At any given quantity the demand price reflects the marginal benefit for the consumer. To get marginal social benefit, we have to add the marginal benefits to all the individual consumers. Thus in this case we add the price for consumer (P_A) with the price for consumer B (P_B) to arrive at social benefit (P_Q). For the Qth unit of the good A receives MIB equal to QD and B receives MIB equal to QE. But, since it is a pure public good and hence non-divisible, both A and B consume Q units of the good and both receive the benefits. Thus the MSB curve, shown by the thick line is derived by vertically summing the MIBs of A and B because of non-rivalry. At the point Q, MSB equals $QD + QE = QF$. The optimal output now turns out to be OQ units of the public good because at the corresponding point on the MSB curve MSB intersects the MSC curve. To the left of Q society gets social benefit is more than costs, that is, MSB is greater than MSC and hence it is beneficial to increase production. Thus Q is the most efficient point because only at this point is the sum of A's marginal benefit and B's marginal benefit equal to the marginal social cost.

Of course, our analysis is quite simplified and we could make it more complex. For instance, in many situations, the MSC curve need not be horizontal but may be upward sloping. Also, the good need not be a *pure* public good so that the consumers need not all consume the same amount of the good. An example of this is education.

In actual practice, obtaining marginal individual benefit curves of individuals is very difficult, especially if the number of individuals is large. Frequently, in many societies, bureaucrats and government officials decide on behalf of society the quantity of public goods to be produced and distributed. The danger is that an underestimation of social costs and/or an overestimation of social benefits can result in overproduction of the public good. Consequently, there can be a net social loss.

There is another problem with regard to the supply of public goods that we consider now. This arises out of a uniform pricing of public goods. Suppose there is a non-rival but excludable public good. Suppose the government follows an optimal social policy and provides an amount for which $MSB = MSC$. Suppose that all users of the public good are to be charged a uniform price and let the price be one at which the users are willing to buy the full amount provided. In such a case, most users will be willing to buy more units than they can, while no one wishes to buy fewer units. This is shown in the following diagram (see Fig. 21. 2).

Fig. 21.2



We have, for simplicity, taken only two individuals, X and Y. Curves X and Y show the marginal value for the two individuals. Since each unit of the good can be consumed by both X and Y, the total social value of a unit of the good is given by the curve X+Y, which is obtained by vertically summing X and Y. Suppose OA is the (constant) marginal cost. Then the MSB should be equated to the MSC (which in this case is equal to the marginal cost). To induce X to consume the quantity OQ_0 , the price must be OP_X . But with price P_X , individual Y would want to consume the quantity OQ_1 , which is larger than OQ_0 . Thus with the same price being charged for all consumers, some individuals will want to consume more than is provided. The solution lies in being somehow able to charge OP_X for individual X and charge price OP_Y for individual Y. In such a case, both individuals consume quantity OQ_0 which is the quantity at which $MSB = MSC$. Also, for this quantity, production costs are totally covered as $MC = OA = \text{Average costs}$ (because the MC curve is horizontal) and this is equal to $OP_X + OP_Y$ which is the entire average revenue. Such an equilibrium or situation where $MSB = MSC$, where each individual is charged a price equal to his marginal individual benefit (MIB) curve and where prices cover production costs is called a *Lindahl equilibrium*. A basic problem relates to the elicitation of actual responses and preference of all individuals. This is the problem of designing a so-called *demand revelation mechanism*. Some economists have suggested ways of designing *incentive-compatible mechanism* whereby even self-interested individuals are induced to reveal their true preferences.

Merit Goods

In all the types of goods— private goods, impure public goods and pure public goods we have encountered till now there has been a common feature that can be found: It is the consumer who decides whether she wants to consume the good or not. Even for a free rider the decisions is hers alone. However, remember few exceptions like military defence- a public good where the decision to ‘consume’ does not rest with the consumer.

So we see there are goods which seem worthy of consumption and it is decided by an external agency, frequently the government. This type of goods is called merit goods. An example is the case of the government deciding that rider of motorised two-wheeler vehicles must wear helmets, for their own good and safety. Helmets would be private goods, but since it is an external agency, the government which decided that people have to wear helmets, helmets become a merit good as well.

Merit goods are goods, which are consumed on the social interest. These are reflected in community wants, and individual wants are made subservient to the common good in such cases. The assumption made tacitly here is that long association among members of a society leads to the development of some common goals, interests and values of that society. In modern democratic societies, the State is supposed to represent social preferences. There is also a sense of paternalism inherent in the concept of merit goods. Merit goods are not only those which are provided by the State. If certain individuals or groups in society act as donors or display altruism but at the same time determine the form that the charitable item is to be provided, say, in kind rather than cash, it becomes an example of merit good.

21.4 EXTERNALITIES

‘Externalities’ means ‘of or from outside’. An externality is a situation where a consumer or producer is affected, either positively or negatively, by the consumption or production by another agent. Simply put, externalities are situations where the behaviour of some economic agent(s) affects the welfare of others.

Externalities are side effects. Examples of externalities are abound. Immunisation against a contagious infection confers the benefits directly to the person getting inoculated. But it also indirectly benefits others because the chances of their contracting the disease from the affected person are reduced when he gets inoculated. This indirect benefit is an externality.

There are externalities in the production side also. Suppose firm A spends a lot of money in imparting skills and high level techniques to its workers. If subsequently many of these workers join firm B, then firm B (which is a consumer of the services of these workers) reaps the benefits of the services of trained and skilled workers. Another example, which is frequently cited, goes as follows: There is a beekeeper, and next to his plot is the plot of an owner of an orchard. But the nectar from the flowers helps the bees to produce honey. This is an external benefit for the beekeeper.

There are external costs as well. Pollution is an example. If a firm's smoke increases the risk to the people living around the factory of catching respiratory diseases, or if its effluents ejected in a river flowing nearby poison a lot of fish and again increases the danger to the people eating the fish, it is an external cost imposed on the people. Sometimes psychic effects are put in the category of externalities. Suppose you maintain a beautiful garden and I as your neighbour derive pleasure from looking at the flowers, I get external benefits. If I play music very loudly at night, and it disturbs you, then it is an external cost for you.

What is the relation between public goods and externalities? At one level, the two are very similar, specially with regard to the characteristic of non-rival consumption. The inoculation example given above for an externality, can also be seen as non-rival consumption in the sense that the inoculation of a person does not decrease the amount of 'reduction of risk of disease' that is 'consumed' by other people. Thus, public goods and external benefits seem to be related. The basic relation is that all public goods are characterised by externalities but all examples of externalities are not at the same time examples of public goods. Public goods, as we saw above, mean that there are externalities of consumption. Hence externalities are a necessary condition for a good being a public good. Being a public good is not a necessary condition for a situation of externalities.

Ways of Coping with Externalities

There are two broad ways of dealing with the problems posed by externalities. One way consists of methods which do not require abandoning the working of the market and can be accommodated by the normal functioning of the market. The other way is using "traditional" solutions and consists of taxation and internalisation of costs. Let us take up the traditional methods first. These include taxes and subsidies. The British economist A.C. Pigou was a great proponent of this view.

To understand Pigou's solutions for externalities, let us study how he understood the phenomenon. First, let us talk of the various kinds of externalities: (1) *positive externalities in consumption*. An example is vaccination; (2) *negative externalities in consumption*. A noisy motorcycle disturbing neighbours is an example; (3) *negative externalities in production*. An example of this is a paper mill that dumps its waste into a river. The waste adversely affects the riverside residents and fishers; (4) *positive externalities in production*. The case of the beekeeper and the farmer cited above is an example.

Now let us come to Pigou's argument. His basic point is that in the presence of externalities, *even if perfect competition prevails*, a Pareto optimum is not attained. To see why, we must distinguish between private and social costs on the one hand and private and social benefits on the other. In the presence of externalities, there

is a divergence between social and private costs on the one hand and private and social benefits on the other. With externalities present, social benefit or cost is a combination of private and *external* benefit or cost.

We denote the relationships in the following way:

Let

MPC = marginal private cost

MEC = marginal external cost

MSC = marginal social cost

Then $MSC = MPC + MEC$

Also let

MPB = marginal private benefit

MEB = marginal external benefit

MSB = marginal social benefit

Then $MSB = MPB + MEB$

For overall efficiency, MSC should be equal to MSB for each product. As long as $MSB > MSC$ production should be expanded and vice versa.

Now let us consider a method of dealing with externalities, which does not require abandoning the working of the market. This method was suggested by Ronald Coase. The essence of Coase's method is that private individuals can solve the problem of externalities through voluntary bargaining and the government is not needed to deal with externalities. However, for this the required conditions are perfect competition and absence of transaction costs. The Pigovian approach is to tax the agent who is creating the external costs. The person who has the cost imposed on him or her would be provided a subsidy.

By contrast, Coase suggests that the person who is imposing the costs can compensate (monetarily) the person who is adversely affected. Coase even suggests that in some cases the person who is likely to be adversely affected could pay the person who is about to create negative externalities for him by way of incentive to not to undertake the activity that would create such externalities. Thus the basic point Coase makes is that voluntary bargaining can lead to efficient allocation even in the presence of externalities. Coase suggests not only that voluntary bargaining leads to efficient outcomes but that there is a close relationship between external effects and property rights. Coase's proposition that with perfect competition and absence of transaction costs, voluntary bargaining can solve the problem of externalities is sometimes called the Coase Theorem. For his ingenious theory, Coase got a Nobel Prize in Economics.

Check Your Progress 2

- 1) Distinguish between non-rivalry and non-exclusion in the consumption of goods.

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- 2) What is an impure public good?
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- 3) What is a merit good? Is every merit good a public good?
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- 4) What are externalities? Briefly compare the Pigovian method with the Coase method for dealing with externalities.
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21.5 PUBLIC EXPENDITURE

The Government has to undertake certain expenditures both for its own maintenance and the maintenance of society. All these expenditures are together called public expenditure. In almost all societies, public expenditure has shown a tendency to rise over time. While many economists have advocated a policy of laissez faire, in reality governments have had to incur certain necessary expenditures. In addition, over time ideas of social welfare have gained currency and almost all governments undertake social welfare measures. There are also necessary administrative costs and expenditure on defence.

21.5.1 Theories about the Rise in Public Expenditure

There are two broad theories about public expenditure. The first is by the German economist Adolph Wagner (1875-1917). He did a study of historical facts about the German economy and propounded what is called, *The Law of Increasing State Activities*. He suggested that activities of various levels of government have an inherent tendency to increase over time. The government sector in the economy rises faster than the economy as a whole. There is consequently a rise in government expenditure. Now, this rise in government expenditure can be expressed in many ways: (a) a rise in absolute levels of government expenditure, (b) a rise in the ratio of government expenditure to GNP, (c) a rise in the proportion of the public sector in the economy. Even in the case of (a), the absolute rise may be in nominal or real terms. One should also adjust for a secular increase in population and see the rise in per capita terms. It is not clear in which of the above senses Wagner was talking about the rise in government expenditure, though Musgrave suggests that the correct measure should be (c). Also, for (b) above one should as well look at the GNP *elasticity* of government expenditure.

Wagner's law is mainly applicable to modern progressive governments. According to Wagner, it is applicable mainly in the initial stages of modern government activities. He felt that as modern industrial society develops, there would be increasing pressure for social progress and there would be attempts to make business and industry more socially conscious. The public sector and government activities would therefore rise.

The second main theory about rise in government expenditure is by Jack Wiseman and Alan Peacock and is called the Wiseman-Peacock hypothesis. They studied

public expenditure in Britain for the period 1890-1955 and on this basis suggested that public expenditure does not increase in a smooth and continuous manner but in discrete jumps or in a step like manner. This is mainly because unexpected social disturbances and events take place and government expenditure has to rise to meet the requirements. Of course, they suggested that the existing revenue is in most cases not adequate to meet the expenditure requirements, and revenues, particularly taxes, rise to a new level. This hypothesis is about occurrence of unusual and abnormal events, but it is largely true that government expenditures rise over time in almost all modern societies. Buchanan and Tullock based on U.S. experience, have argued that there is an increasing discrepancy between government expenditure and government output, with the former tending to run ahead of the latter. They give two reasons for this. First, unlike the private sector, the expenditure on government officials increases faster than the corresponding rise in their output. Secondly, with the growth of welfare activities and social security, the proportion of people receiving transfer payments from the government increases.

What are the main reasons for the secular rise in government activities and expenditures over time? First, the traditional functions of the State were expanding. Defence was receiving greater emphasis and expenditure on it was increasing. Wages of government officials was going up. Second, state activities around welfare measures were increasing in their coverage. Third, investment activities of the State have been expanding. Fourth, population itself has been going up necessitating a higher level of committed expenditure on the part of the State. Fifth, related to the previous point on population is increasing urbanisation, which requires a much larger per capita expenditure on civic amenities. Sixth, modern governments need to borrow and thus public expenditure in the form of repayment of loans and increasing costs of debt servicing go up. Finally, increasing use of planning and consequently capital accumulation by the government tends to increase public expenditure.

21.5.2 Kinds of Public Expenditure

Not only are there several types of government expenditure but there are also a number of ways in which public expenditure can be classified. But before discussing the different types of public expenditure, let us bring out the essential difference between private and public expenditure. Are there any similarity between the two? The basic similarity is that *given the objectives* both would like to see a good return on the expenditure. This is particularly true for investment expenditure. Both private units as well as government would like to maximise some objective function.

The primary difference stems from the different objective functions that private and public units have. Private units and the government raise resources for expenditure. Following contrasting methods. While the government decides the amount of expenditure to be made and proceeds to raise the resources thereafter, private individuals keep the income at their disposal as a constraint before deciding the amount of expenditure. Public expenditure also has a greater degree of flexibility. Moreover, the state has a much longer time horizon to plan the expenditure.

Let us now discuss the various types of public expenditure. There have even been different ways of classifying public expenditure. The traditional way, existing for several centuries, is to use an accounting classification. This has been useful for the state in keeping track of expenditure and it affords some control and checks over public expenditure. It provided information about leakage, misappropriation and wastage of resources. This way of classifying public expenditure way was useful for auditing purposes and to control misappropriation but it was not useful in providing information about the effects of expenditure. Therefore, for policy making, a better way to classify expenditure was sought. An economic basis of classification was brought in, which could provide better information about the economic effects of expenditure.

There are many ways to classify expenditure on an economic basis. Two of the most useful are the classification into productive and unproductive expenditure and transfer and non-transfer expenditure. Let us first deal with the former. The basic sense of 'productive' here is investment. Broadly, investment expenditure is, according to this classification scheme, considered productive because it is seen to raise the economy's productive capacity, while consumption is considered unproductive. This view is expressed strongly under the laissez-faire philosophy. In fact, this distinction used to be strictly made during Adam Smith's time. In this view, expenditure on defence, administration, law and order were considered unproductive. The government sector was considered alien to the rest of the economy. Today we need not strictly adhere to this kind of view and hence, classification of government expenditure, for several reasons. First, the government is an integral part of the economy and has to undertake many kinds of expenditure that would have the effects on the rest of the economy. Second, there are many assets, which are not directly productive in the sense of yielding returns but are necessary for economic development. Expenditure on social items is of this kind. Some of these expenditures, such as public works, can yield future returns. Moreover, they increase the national product. Third, assets need not only be in tangible form to be called productive. Investment in human capital, for instance, can significantly raise the productive capacity of the economy. These expenditures also yield utility directly. Fourth, the economy and society cannot sustain themselves without certain necessary expenditures. National defence is one such item. There are also certain expenditures, which indirectly raise the productivity of the economy such as expenditure on research and development.

Another way of classifying government expenditures is as transfer and non-transfer expenditure. Pigou favoured this approach to classifying expenditure. Any expenditure without a corresponding transfer of real resources is called a transfer payment. Examples include gifts, pension payments etc.

21.6 PUBLIC REVENUE

Any government, to carry out activities for economic development, to run the administration, and to perform other general tasks, needs to raise funds for financing these various activities. All the funds that the government raises are together called public revenue. There are several types of revenue, important among which are taxes, market borrowings, income from currency, income from public undertakings, sale of assets, fees, fines, gifts and donations and so on. Some economists, like Hugh Dalton, have sought to make a distinction between public receipts and public revenue-with the latter being a part of and narrower concept than the former. It also does not include market borrowings, income from sale of public assets and income from printing money. There is no harm, however, in simply considering public revenue as a single concept here.

Classification of Public Revenue Sources

Now let us discuss the revenue side of the government budget and look at the various receipts of the government. Just as there are revenue expenditure and capital expenditure, there are revenue and capital receipts as well.

Let us first discuss receipts which are revenue receipts. In Indian budgets, they are placed under the revenue account. Revenue receipts are classified into tax and non-tax revenue. We will presently discuss the difference between tax and non-tax revenue. For the moment, let us just say that non-tax receipts include currency, coinage and mint; interest receipts, dividends and profits; and other non-tax revenue from various government services like administrative services, public service commissions, and jails and prisons.

Now we move on to capital receipts. The basic difference between revenue receipts and capital receipts is that the former is of a short-term duration (less than a year, usually) while the latter are receipts from activities of a long-term nature. The principal type of capital receipts are market borrowings - loans that have a maturity of 12 months or longer at the time of issue. The second category of capital receipts is external loans. The next category of capital receipts is recoveries of loans made by the government. In India, for the budget of the central government, it consists of loans made by the central government to state governments, union territories, and non-government parties. Provident Funds are another important component of capital receipts. Other capital receipts include the net effect of transactions occurring under a variety of accounts and deposits.

Now we go back to revenue receipts and the difference between tax and non-tax revenue. The main characteristic feature of a tax is that it is a compulsory levy on those who are to pay it irrespective of whether they receive any corresponding return of goods and services from the government. In other words, those who pay taxes do not receive definite and direct *quid pro quo* from the government. Thus a tax is *not* a price paid by the tax-payer and no tax-payer can claim any direct benefit from the government on the ground that he or she is paying a tax. The benefit may go to anyone irrespective of who pays the tax. A tax is a liability imposed upon the tax assesseees who may be individuals, groups, or other legal entities.

Now let us discuss some concepts relating to a tax. First, the **base of a tax** is the **legal** description of the object with reference to which the tax is levied. For example, the base of an income tax is the income of the assessee as defined and estimated. The base of an excise duty is the production or processing of a specific good.

The **incidence of a tax** related to the entity (person or group or other legal entity) that has to bear the final burden of a tax. The assessee on whom the tax is levied, and who is to pay the tax can sometimes shift it further to someone else. For example, sales tax is levied on the seller of a commodity and he pays it, but the burden of payment is passed on to the consumers by the seller in terms of a higher price. So when you buy a good on which there is a 7 per cent sales tax, you pay a price that includes this tax that had actually been levied by the government on the seller (all sellers of this commodity). On the other hand, income tax is a tax, the burden of which cannot be shifted. If you are to pay income tax, you cannot shift it to someone else. The initial entity on which the tax is levied is called the **impact of a tax** while the final burden of a tax is called the **incidence of a tax**.

Those taxes for which the burden of tax cannot be shifted by the assessee are called direct taxes, while those whose burden can be shifted are called indirect taxes. Thus income tax is a direct tax while sales tax and excise duties are indirect taxes. Thus for direct taxes, the impact and incidence of the tax is the same, while for indirect taxes, the two are different.

Check Your Progress 3

- 1) Discuss the Wiseman-Peacock hypothesis about the rise in government expenditure over time.

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- 2) Distinguish between (a) public and private expenditure, (b) productive and unproductive public expenditure, (c) transfer and non-transfer public expenditure.

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- 3) Distinguish between revenue and capital receipts and give two examples of each.

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21.7 MEASURES OF BUDGET DEFICIT

Very generally speaking, a budgetary deficit is simply the excess of public expenditure over public revenue. In practice, however, there are a variety of measures of the budget deficit. There is the added problem that a single measure or a concept may be called by different names by different experts, or a particular name may signify different concepts to different experts. In this section we discuss both the measures used in the theoretical public finance literature as well as the various measures used by the Government of India (GOI) in its annual budget documents.

We must, at the outset, distinguish between the concepts of deficit and debt. The deficit is the excess of government spending over government revenues in a particular year. The government debt, on the other hand, is the sum of all previous outstanding government debt obligations held by the public. So the government deficit is a flow concept which is measured over a *period* of time. In contrast, the government debt is a stock concept, which is measured at a *point* of time. Another general point that needs to be mentioned in this connection is the distinction between real deficit and nominal deficit. The former measures the deficit adjusting for inflation and is measured in terms of some base level prices whereas the latter is ascertained in terms of the current price level.

We now discuss the various measures and concepts of budget deficit as used in the literature and also by the GOI. To proceed, let us write down the items of receipts and expenditures as they appear in the annual budgets of the GOI.

We can begin by looking at the expenditures. Typically, expenditures are classified into those in revenue account and those in capital account. Basically the difference between the two accounts is that the former relates to expenditure incurred in the current financial year while the latter deals with expenditure incurred over longer time periods. There are two items in expenditure on revenue account: interest payments by the government and non-interest expenditure. Expenditure on capital account similarly has two items: loans and advances, and capital outlay.

Now let us discuss the revenue side of the government budget and look at the various receipts of the government. Just as there are revenue expenditure and capital expenditure, there are revenue and capital receipts as well. Revenue receipts consist of two items: tax revenue and non-tax revenue. Non-tax revenue, in turn, has three items-interest, non-interest revenue and grants. Capital receipts are of four kinds: recoveries, borrowings, other than through Treasury Bills, other capital receipts and sale of public assets.

The balance of total expenditure and total revenue is budgetary deficits, which is met by borrowings through Treasury Bills and drawing down cash balances.

Now let us consider revenue and expenditure items in detail.

We can first depict the above mentioned items succinctly as follows:

I) Revenue Receipts

- a) Tax Revenue (net)
- b) Non-tax Revenue
 - i) Interest
 - ii) Non-Interest
 - iii) Grants

II) Capital Receipts

- a) Recoveries
- b) Borrowings, other than through Treasury Bills
- c) Other Capital Receipts
- d) Sale of Public Assets

III) Total Receipts (I + II)

IV) Expenditure on Revenue Accounts

- a) Interest Payments
- b) Non-interest Payments

V) Expenditure on Capital Account

- a) Loans and Advances
- b) Capital Outlay

VI) Total Expenditure

VII) Borrowings through Treasury Bills and Drawing Down of Cash Balances

Several measures of deficits can be constructed from the above items of revenue and expenditure. Let us now consider these.

- 1) **Deficit on Revenue Account or Revenue Deficit:** The excess of expenditure on revenue account over receipts on revenue account, or item IV - item I.
- 2) **Deficit on Capital Account:** The excess of capital disbursements over capital receipts, or item V - item II.
- 3) **Budgetary deficit :** 1 + 2

We now discuss an important aspect related to budget deficit or budgets in general. This is to do with the questions: should the government aim for a balanced budget and avoid deficits altogether? Is it deleterious to the state of the economy? Why is a reduction or even removal of deficits advocated by many agencies and experts?

Classical writers till about the first three decades of the twentieth century were traditionally advocating the balancing of government budget over the relevant period under consideration. In other words, the total revenue of the budget was sought to

be balanced with the total expenditure of the government. Of course, the important question is what should be the relevant considered period? The relevant period was usually taken to be a year. Hence, on the revenue side of the budget, borrowings (short term as well as long term) were not included. Moreover, the budget was considered in an accounting sense. But even in this practice, some modifications have sometimes been suggested. Some have suggested that repayment of loans should not be counted towards the current year's deficit, although interest payments should be considered.

What were and are the main arguments put forward by the advocates of balanced budgets? First, traditionally, the government budget was considered just like the budget of a private unit. Just as it is thought undesirable for a private unit, particularly a household to incur deficits, it was considered unwise on the part of the government to run deficits in its budget. These days, of course, with consumer credit and credit cards, it is not always insisted upon that private individual budgets balance. The argument that government budgets are just like private budgets stems from viewing government as external to the productive economy. The governments, too, had sometimes a tendency to be profligate.

The second argument put forward against budget deficits are that financing of the deficits means that currency and money supply in the economy increases and this puts pressure on prices and leads to inflation.

The third argument is ingenious. It is argued that people do not like increased taxes imposed on them. On the other hand, government expenditures have a tendency to increase, as we have seen in the section on expenditure. So, the government finds it easier to finance the budgets through public borrowing, because the people are happy to lend to the government, especially if the rate of interest on the loans is high. The very fact that the government finds it easy to finance deficits through public borrowing or increasing the money supply, makes the government reckless about expenditures, and spending increases even more. This increases deficits. Inflation resulting from deficit financing also has a tendency to further deficits. Thus, deficits have a tendency to feed on themselves and spiral. Therefore, proponents of this view feel that deficits should be firmly curbed as soon as they arise.

We must keep in mind that those who propose that deficits should be kept at very low levels also argue that government should keep tax rates low. Their argument is not only that lower rates of taxation would lead to higher tax compliance but is also that high rates of taxation would diminish the incentive of economic agents in the private sector to undertake profitable ventures. Consequently, output and productivity would suffer. So, if lower rates of taxation are to go hand in hand with low deficits it only means that governments should keep expenditure levels very low. Moreover, the proponents of this view also suggest that governments should not enter into areas where, there may be potential profits for government, such as hotels and tourism. Hence in summary we can say, the proponents of the view that deficits should be low tend to be conservative and believers in *laissez faire* philosophy.

What can be the arguments in favour of budget deficits? Remember that Keynes was an advocate of deficit financing for curing economic depressions. Moreover, during the post World War II period of growth in the American economy, that economy had, in several years in the 1950s and 1960s, deficits in government budgets. Some of the other arguments in favour of budget deficits, or rather, for tolerating deficits and not developing a phobia of them, are the following:

First, balancing of budgets should not be an end in itself. Both in aims and structure public budgets are different from private ones. Budgets should be used to help the economy. Budgets should not be neutral in their effect on the economy, unlike what the proponents of balanced budgets suggest. Secondly deficits do not always lead

to inflationary pressures, specially if the deficit is small in relation to national income and is not persistent. Also, deficits can sometimes help the economy to recover from a recession.

21.8 MARKET BORROWING

In the previous section, you got some idea of the various measures of deficit. We saw that a deficit, howsoever defined, is an excess of spending over government revenue. In this section, we look at a related concept: market borrowing.

Public Debt

The overall debt and obligation of the government, measured at a point of time, is the public debt. The public debt has been defined in various ways depending on the items that are thought appropriate to be included in the definition. To get an idea of the public debt, let us look at the various obligations of the government. First, the government creates currency. Often, a part of the currency may be issued by the central bank, but usually the central bank in most countries is part of the government so that the total currency issued and obligation may be considered a government liability to the rest of the economy.

The second set of obligations is the short-term debt, normally with a maturity of less than a year at the time of issue and consists of items such as Treasury Bills and short-term loans from the central bank. There are some debts that do not have any specific date of maturity and are called floating, and part of these may be paid of at various times and are subject to various terms and conditions. These include provident funds, small savings, reserve funds etc. In India, the government has issued certain special securities to meet its obligations towards international institutions like the World Bank and the International Monetary Fund (IMF). These special securities are sometimes called special floating debt.

The importance of market borrowings lies in the fact that in some cases, such as Indian public finance, market borrowings are excluded in the estimation of budgetary deficits. Market borrowings are long term borrowings, where the maturity period is over a year. The reason given for excluding market borrowings from budgetary deficits is that it is felt that since these are long term obligations, they merely divert investible funds from the private sector to the government and hence do not raise the purchasing power and the quantum of currency. Consequently, inflationary pressures in the economy do not build up by the market borrowings. This view need not be correct, as the RBI itself takes up a large portion of market borrowings. The effect of both short term and long term loans taken up by the RBI is the same, in increasing the amount of currency.

Check Your Progress 4

- 1) Distinguish between public deficit and public debt.

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- 2) Explain the effect of deficit financing on the capital market

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21.9 LET US SUM UP

This unit has acquainted you with the basic elements of public economics including several basic concepts from traditional public finance. Our point of departure was a description of market failure. We discussed the various types of market failure. Next we explained the concept of Pareto improvement and Pareto optimality. In this connection we mentioned the link between perfect competition and Pareto optimality. Here we also talked about the two fundamental theorems of welfare economics.

We then took up the explanation of the concept of a public good. We saw that non-rivalry and exclusivity characterize a public good. A good like this is actually a pure public good. We took up a brief discussion of impure public goods, two types of which are club goods and goods in the presence of congestion. We also considered some issues in the provision of public goods and saw the central difference in obtaining a social benefit function from individual functions. It was pointed out that the individual curves are added vertically instead of horizontally, as happens in the case of a private good. We saw, too, what Lindahl equilibrium means.

We next went on to a discussion of externalities. We saw that an externality is an example of a market failure. After considering the four basic types of externalities, we discussed ways of coping with externalities. Here we discussed Pigou's suggestion of correction using suitable taxes and subsidies. The other way, as we saw, is granting property rights and letting private parties arrive at mutually beneficial deals. We explained very important Coase as well.

These broad topics of market failure, public goods and externalities constitute elements of what may be called an extension of some of the previous units that you studied in this course. The next three broad topics- public revenue, deficits and market borrowing are central themes in traditional public finance. We began our discussion of public revenue by pointing out a distinction that some have made, between revenue and receipts after broadly classifying revenue into tax and non-tax. We then turned to a discussion of the engaging an important topic of deficits and their financing, briefly touching upon the distinction between debt and deficit. We discussed and compared various measures of the government deficit.

21.10 KEY WORDS

- Balanced Budget** : A government budget in which the total revenues exactly match the total expenditure.
- Capital Expenditure** : Expenditure incurred on items that have a long term basis.
- Capital Receipts** : Receipts accruing from items of a long term character.
- GNP Elasticity of Public Expenditure** : The ratio of the percentage rise in government expenditure to a percentage change in GNP.
- Perfectly Competitive Market** : A Market situation where no buyer or seller is able to influence prices, where the goods sold by all sellers are homogeneous, and where there is full and perfect information and free entry and exit to and from the market.
- Pure Public Good** : A good characterised by both non-rivalry and non-exclusion in consumption.

Revenue Expenditure : Expenditure incurred on short-term activities

Revenue Receipts : Receipts incurred on activities, usually for a period more than a year.

Short-term Debt Instrument : Those instruments with maturity of less than one year.

21.11 SOME USEFUL BOOKS

Bhatia, H.L., *Public Finance* (Latest edition) Vikas: New Delhi

Browning, Edgar K. and Jacqueline Browning (1994), *Public Finance and the Price System* (Fourth Edition) Prentice Hall: Englewood Cliffs New Jersey

Musgrave, Richard A. and Peggy B. Musgrave (1989), *Public Finance in Theory And Practice* (Fifth Edition) McGraw-Hill International Edition: New York

Stiglitz, Joseph E. (1994), *Public Sector Economics*, Third Edition, W.W. Norton & Co.: New York

21.12 HINTS/ANSWERS TO CHECK YOUR PROGRESS EXCERSISES

Check Your Progress 1

- 1) Read Section 21.2 and answer.
- 2) Read Section 21.2 and answer.
- 3) Read Section 21.2 and answer.

Check Your Progress 2

- 1) Read Section 21.3 and answer.
- 2) Read Section 21.3 and answer.
- 3) Read Section 21.3and answer.
- 4) Read Section 21.4 and answer.

Check Your Progress 3

- 1) Read Section 21.5 and answer.
- 2) Read Section 21.5and answer.
- 3) Read Section 21.6 and answer.

Check Your Progress 4

- 1) Read Section 21.7 and answer.
- 2) Read Section 21.8 and answer.