

NATIONAL OPEN UNIVERSITY OF NIGERIA

PUBLIC SECTOR ECONOMICS

ECO 447

DEPARTMENT OF ECONOMICS

FACULTY OF SOCIAL SCIENCES

COURSE GUIDE

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Introduction

The course International Trade and Finance I (ECO 447) is a first semester core course which carries two credit units for fourth year level Economics students in the Faculty of Social Sciences, department of Economics. This course material will be useful in your academic pursuit and help to gain in-depth insight into Public Sector Economics.

This course guide is built partially on prerequisite knowledge, however, its simplicity will make the student assimilate faster and practice questions at the end of each unit will also prepare the student for the examination purposes. It suggests some general

guidelines for the amount of time required of users on each unit in order to achieve the course aims and objectives successfully. It also provides users with some guidance on their tutor marked assignments (TMAs) as contained herein.

Course Content

The course is made up of Fourteen units (four modules) spread across fourteen lecture hours and covering areas such as Understanding Public Sector Analysis, Theories of Public Goods, Public Debts, Budgeting and lastly, Public Expenditure, Externalities.

Course Aims and Objectives

The course attempt to explain the concepts and conceptual framework of Public Sector Economics, define and understand the meaning of Public sector Economics, understand the Advantages and disadvantages of Public corporations, understand the differences between Private and Public sector and the argument for Public sector and to also understand Government spending discourages Productivity. However, the course is prepared in a way in which the users would easily enhance their previous knowledge. The course aims, is to help users develop critical thinking skills, learn how to evaluate economic arguments, and understand the roles of Public Sector economic thought in guiding current public sector economic policies and debates.

However, the overall aims of the course will be achieved by:

- Define and understand the meaning and scope of public finance
- Define and understand the concept of functional finance
- Define and understand the meaning of principles of public finance
- Know the level of Government Spending and sources of revenue
- Know the importance of a tax System
- Understand the Government of tax requirements
- Define and understand the meaning of Public goods
- Understand the challenges in identifying public goods
- Know the types of public goods
- Understand the meaning of Free Rider, theory of free rider and problem of free rider
- Understand the theories of public goods
- Understand the Voluntary Exchange Model
- Understand the Samuelson Model
- Understanding Public and Private goods
- Know the difference Public and Private goods
- Know the Advantages and Disadvantages of Public goods
- Know the differences between the Public goods and Merit goods

- Define and understand the meaning of Meaning of Allocation of Resources
- Define and understand the Key players: consumers and producers
- Know the Advantages and Disadvantages of Resources in a free market Economy
- Understand the meaning of Classification of Public Debt
- Understand the methods of Redemption of Public Debt
- Understand the reason why the state borrowed
- Understand the limit to Public Debt and how we assess Debt
- Define and understand the meaning of Public Budget
- Understand the reasons why the account of the budget maybe split up
- Know the kinds and types of Government Budget
- Know the classification and importance of Government budget
- Define and understand the meaning of Public Expenditure
- Know the causes of increase in Public Expenditure
- Know the principles of Governing Public Expenditure and importance of Public Expenditure
- Understand the Wagner's law of increasing state activities and Wiseman-Peacock Hypothesis
- Define and understand the meaning of Externalities
- Know the types of Externalities
- Know the effects of Externalities and Allocative Efficiency
- Understand how to solve the problem of Externality.
- Define and understand the meaning of Market Failure
- Know the types and the nature of Market Failure
- Understand the meaning of externalities and nature of exchange
- Understand the bounded rationality and the Coase Theorem
- Define and understand the meaning of cost benefit analysis
- Understand the steps/cost incurred in cost benefit analysis
- Understand the cost and benefit in controlling pollution
- Understand the total benefit curves and marginal benefit curves.
- Understand the optimum level of environmental quality
- Understand the property price approach

Working through the Course

To successfully complete this course, you are required to read the study units, referenced books and other materials on the course.

Each unit contains self-assessment exercises called Student Assessment Exercises (SAE). At some points in the course, you will be required to submit assignments for assessment purposes. At the end of the course there is a final examination. This course should take about 10 weeks to complete and some components of the course are outlined under the course material subsection.

Course Material

The major component of the course and what you have to do and how you should allocate your time to each unit in order to complete the course successfully on time are listed as follows:

1. Course guide
2. Study unit
3. Textbook
4. Assignment file
5. Presentation schedule

Study Unit

There are 14 units in this course which should be studied carefully and diligently.

MODULE ONE Understanding Public Sector Analysis

Unit One: Public Sector

Unit Two: Public Finance

Unit Three: Principles of public Finance

MODULE TWO Theories of Public Goods

Unit One: Public goods analysis

Unit Two: Theories of Public goods

Unit Three: Differences between Public Goods and Private Goods

Unit Four: Allocation of Resources

MODULE THREE Public Debts, Budgeting and Public Expenditure

Unit One: Public debts

Unit Two: Public Budget

Unit Three: Public Expenditure

Unit Four: Budgeting

MODULE FOUR Externalities

Unit One: Meaning of Externalities

Unit Two: Market Failure

Unit Three: Cost-Benefit Analysis

References and Other Resources

Every unit contains a list of references and further reading. Try to get as many as possible of those textbooks and materials listed. The textbooks and materials are meant to deepen your knowledge of the course.

Assignment File

There are assignments on this course and you are expected to do all of them by following the schedule prescribed for them in terms of when to attempt them and submit same for grading by your tutor. The marks you obtain for these assignments will count toward the final mark you obtain for this course. Further information on assignments will be found in the Assignment File itself and later in this Course Guide in the section on Assessment.

There are four assignments in this course. The four course assignments will cover:

Assignment 1 - All TMAs' question in Units 1 - 3 (in Module 1)

Assignment 2 - All TMAs' question in Units 1 - 4 of Module 2

Assignment 3 - All TMAs' question in Units 1 - 4 of Module 3

Assignment 4 - All TMAs' question in Units 1 - 3 of Module 4

Presentation Schedule

The presentation schedule included in your course materials gives you the important dates for this year for the completion of tutor-marking assignments and attending tutorials. Remember, you are required to submit all your assignments by due date. You should guide against falling behind the schedule.

Assessment

There are two types of assessment of the course. First are the tutor-marked assignments; second, there is a written examination.

In attempting the assignments, you are expected to apply information, knowledge and techniques gathered during the course. The assignments must be submitted to your tutor for formal assessment in accordance with the deadlines stated in the Presentation Schedule and the Assignments File. The work you submit to your tutor for assessment will count for 30 % of your total course mark.

At the end of the course, you will need to sit for a final written examination of three hours duration. This examination will also count for 70% of your total course mark.

Tutor-Marked Assignments (TMAs)

There are four tutor-marked assignments in this course. You will submit all the assignments. You are enjoined to work all the questions thoroughly. The TMAs constitute 30% of the total score.

Assignment questions for the units in this course are contained in the Assignment File. You will be able to complete your assignments from the information and materials contained in your text books, reading and study units. However, it is desirable that you

demonstrate that you have read and researched more widely than the required minimum. You should use other references to have a broad viewpoint of the subject and also to give you a deeper understanding of the subject.

When you have completed each assignment, send it, together with a TMA form, to your tutor. Make sure that each assignment reaches your tutor on or before the deadline given in the Presentation File. If for any reason, you cannot complete your work on time, contact your tutor before the assignment is due to discuss the possibility of an extension. Extensions will not be granted after the due date unless there are exceptional circumstances.

Final Examination and Grading

The final examination will be of three hours' duration and have a value of 70% of the total course grade. The examination will consist of questions which reflect the types of self-assessment practice exercises and tutor-marked problems you have previously encountered. All areas of the course will be assessed

Use the time between finishing the last unit and sitting for the examination to revise the entire course material. You might find it useful to review your self-assessment exercises, tutor-marked assignments and comments on them before the examination. The final examination covers information from all parts of the course.

Course Marking Scheme

The table presented below indicate the total marks (100%) allocation.

Assessment	Marks
Assignment (Best three assignment out of the four marked)	30%
Final Examination	70%
Total	100%

How to Get the Most from This Course

In distance learning the study units replace the university lecturer. This is one of the great advantages of distance learning; you can read and work through specially designed study materials at your own pace and at a time and place that suit you best.

Think of it as reading the lecture instead of listening to a lecturer. In the same way that a lecturer might set you some reading to do, the study units tell you when to read your books or other material, and when to embark on discussion with your colleagues. Just as a lecturer might give you an in-class exercise, your study units provides exercises for you to do at appropriate points.

Each of the study units follows a common format. The first item is an introduction to the subject matter of the unit and how a particular unit is integrated with the other units and the course as a whole. Next is a set of learning objectives. These objectives let you know what you should be able to do by the time you have completed the unit.

You should use these objectives to guide your study. When you have finished the unit you must go back and check whether you have achieved the objectives. If you make a

habit of doing this you will significantly improve your chances of passing the course and getting the best grade.

The main body of the unit guides you through the required reading from other sources. This will usually be either from your text books or from a readings section. Some units require you to undertake practical overview of historical events. You will be directed when you need to embark on discussion and guided through the tasks you must do.

The purpose of the practical overview of some certain historical economic issues are in twofold. First, it will enhance your understanding of the material in the unit. Second, it will give you practical experience and skills to evaluate economic arguments, and understand the roles of history in guiding current economic policies and debates outside your studies. In any event, most of the critical thinking skills you will develop during studying are applicable in normal working practice, so it is important that you encounter them during your studies.

Self-assessments are interspersed throughout the units, and answers are given at the ends of the units. Working through these tests will help you to achieve the objectives of the unit and prepare you for the assignments and the examination. You should do each self-assessment exercises as you come to it in the study unit. Also, ensure to master some major historical dates and events during the course of studying the material.

The following is a practical strategy for working through the course. If you run into any trouble, consult your tutor. Remember that your tutor's job is to help you. When you need help, don't hesitate to call and ask your tutor to provide it.

Read this Course Guide thoroughly.

- ❖ Organize a study schedule. Refer to the 'Course overview' for more details. Note the time you are expected to spend on each unit and how the assignments relate to the units. Important information, e.g. details of your tutorials, and the date of the first day of the semester is available from study centre. You need to gather together all this information in one place, such as your dairy or a wall calendar. Whatever method you choose to use, you should decide on and write in your own dates for working breach unit.
- ❖ Once you have created your own study schedule, do everything you can to stick to it. The major reason that students fail is that they get behind with their course work. If you get into difficulties with your schedule, please let your tutor know before it is too late for help.
- ❖ Turn to Unit 1 and read the introduction and the objectives for the unit.
- ❖ Assemble the study materials. Information about what you need for a unit is given in the 'Overview' at the beginning of each unit. You will also need both the study unit you are working on and one of your text books on your desk at the same time.
- ❖ Work through the unit. The content of the unit itself has been arranged to provide a sequence for you to follow. As you work through the unit you will be instructed

to read sections from your text books or other articles. Use the unit to guide your reading.

- ❖ Up-to-date course information will be continuously delivered to you at the study centre.
- ❖ Work before the relevant due date (about 4 weeks before due dates), get the Assignment File for the next required assignment. Keep in mind that you will learn a lot by doing the assignments carefully. They have been designed to help you meet the objectives of the course and, therefore, will help you pass the exam. Submit all assignments no later than the due date.
- ❖ Review the objectives for each study unit to confirm that you have achieved them. If you feel unsure about any of the objectives, review the study material or consult your tutor.
- ❖ When you are confident that you have achieved a unit's objectives, you can then start on the next unit. Proceed unit by unit through the course and try to pace your study so that you keep yourself on schedule.
- ❖ When you have submitted an assignment to your tutor for marking do not wait for it return `before starting on the next units. Keep to your schedule. When the assignment is returned, pay particular attention to your tutor's comments, both on the tutor-marked assignment form and also written on the assignment. Consult your tutor as soon as possible if you have any questions or problems.
- ❖ After completing the last unit, review the course and prepare yourself for the final examination. Check that you have achieved the unit objectives (listed at the beginning of each unit) and the course objectives (listed in this Course Guide).

Tutors and Tutorials

There are some hours of tutorials (2-hours sessions) provided in support of this course. You will be notified of the dates, times and location of these tutorials. Together with the name and phone number of your tutor, as soon as you are allocated a tutorial group.

Your tutor will mark and comment on your assignments, keep a close watch on your progress and on any difficulties you might encounter, and provide assistance to you during the course. You must mail your tutor-marked assignments to your tutor well before the due date (at least two working days are required). They will be marked by your tutor and returned to you as soon as possible.

Do not hesitate to contact your tutor by telephone, e-mail, or discussion board if you need help. The following might be circumstances in which you would find help necessary. Contact your tutor if.

- You do not understand any part of the study units or the assigned readings
- You have difficulty with the self-assessment exercises
- You have a question or problem with an assignment, with your tutor's comments on an assignment or with the grading of an assignment.

You should try your best to attend the tutorials. This is the only chance to have face to face contact with your tutor and to ask questions which are answered instantly. You can raise any problem encountered in the course of your study. To gain the maximum benefit from course tutorials, prepare a question list before attending them. You will learn a lot from participating in discussions actively.

Summary

This course, Public Sector Economics (ECO 447), exposes the users to the rudiments of public sector economics such as the Understanding Public Sector Analysis; Public Sector, Public Finance, Principles of public Finance, Theories of Public Goods; Public goods analysis, theories of Public goods, differences between Public Goods and Private Goods, Allocation of Resources, Public Debts, Budgeting and Public Expenditure; Public debts, Public Budget, Public Expenditure, Budgeting, Externalities; Meaning of Externalities, Market Failure, Cost-Benefit Analysis.

MODULE ONE

Understanding Public Sector Analysis

Unit One: Public Sector

Unit Two: Public Finance

Unit Three: Principles of public Finance

Unit One: Public Sector

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1.0 INTRODUCTION

Public sector economics is concerned with justifying the existence of governments and explaining how they can affect economic activity. It explains how the ‘invisible hand’ of the market is tempered by the ‘visible hand’ of government in the mixed economy of both private and public sectors adopted by the vast majority of nations.

Traditionally, public-sector economics has been concerned with the study of how governments can deal with the failure of markets to achieve efficient outcomes. Possible

remedies which are considered include using public expenditure and taxation, taking some firms into state ownership and introducing regulation. These are all areas of microeconomic theory, policy and practice.

But the very nature of the ‘public’ sphere has recently changed. In particular, we need to take account of political economy: how alternative economic theories are used to provide intellectual justification for ideological, moral and ethical beliefs.

These have recently been made manifest in ‘rolling back the frontiers of the state’ through privatization, contracting out to the private sector the provision of public services, the use of private finance initiatives and public-private partnerships for school education, hospitals and other public services and reforms of social security benefits.

We are used to thinking about the incentives that firms and individuals face: in considering ‘public choice’ we consider the incentives that governments face. An example of this is the use of emissions permits rather than a carbon tax in the European Union. The explanation for this cannot be economic – a carbon tax is demonstrably preferable. But polluting industries resist the levying of a carbon tax, and so ‘grandfathering’ (giving out permits for free) is a way to limit the emission of carbon without coming up against significant political opposition.

Public sector economics is certainly not confined within the covers of a dry and dusty textbook. It is not heavily theoretical nor an abstract area of intellectual enquiry. It is out there in the real world, influencing the small details that make up our everyday lives.

2.0. Objectives

At the end of this unit, you should be able to:

- Define and understand the meaning of Public sector Economics
- Understand the Advantages and disadvantages of Public corporations
- Understand the differences between Private and Public sector and the argument for Public sector
- Understand Government spending discourages Productivity

3.0. Main Content

3.1 Definition of Public Sector Economics

Public sector economics is a branch of Economics and an area of study that is directly relevant to our everyday lives. It affects the taxes we pay, the buses and trains on which we travel, the workers who empty our bins, the gas and electricity delivered to our

homes, and even the water coming out of our taps. Public sector economics is concerned with justifying the existence of governments and explaining how they can affect economic activity. It explains how the ‘invisible hand’ of the market is tempered by the ‘visible hand’ of government in the mixed economy of both private and public sectors adopted by the vast majority of nations.

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More so, Government choices about which services to provide and how to pay for them can have profound effects on the economy and on each of us, individually. We enjoy parks, roads, and other publicly provided facilities, and services such as health and safety warnings, public education, and police and fire protection. We pay taxes and fees to government, and most of us will receive government payments in the form of social security, unemployment, welfare, disability, or other benefits.

3.2. Definition of Public Corporation

Is a company whose shares are publicly traded and are usually held by a large number (hundreds or thousands) of shareholders. The usual British term is public limited company. It is also government owned company such as an airline or public transit company.

However, state-owned enterprise (SOE) is a business enterprise where the state has significant control through full, majority, or significant minority ownership. Defining characteristics of SOEs are their distinct legal form and operation in commercial affairs and activities. While they may also have public policy objectives (e.g., a state railway company may aim to make transportation more accessible), SOEs should be differentiated from government agencies or state entities established to pursue purely nonfinancial objectives.

3.3. Advantages of Public Corporations

The following are some of the advantages or merits of public corporation.

1. **Autonomy:** Public corporation is an autonomous set up. Therefore it enjoys considerable independence and flexibility in its operations. Initiatives can be taken to tap opportunities and to improve efficiency.
2. **Protection of public interest:** Public corporations can formulate and implement policies which promote public welfare. Policies of the corporation are subject to ministerial review and parliamentary scrutiny. Therefore it would be ensured that public interest is protected and promoted.
3. **Red tapism minimized:** In a public corporation red-tapism and bureaucratic delays are minimized to a great extent. A file need not pass through different levels of bureaucracy as in a departmental undertaking.
4. **Speedier decisions:** Since bureaucracy and red-tapism are reduced to a considerable extent in public corporations, quick decisions can be taken. Delays in decision making is avoided and therefore problems can be solved faster, opportunities can be tapped in a better manner and overall functioning of the organization is improved.

5. **Erase of raising funds:** Since public corporations are government owned statutory bodies, they can raise the required funds by issuing bonds. They need not entirely depend on the government for their financial requirements.

6. **Comparative prices:** Profit is not the primary motive of public corporations. So it does not strive to charge high prices to maximize profits. Since it is basically formed to serve the public interest, it charges lower prices. Such lower prices benefit the general public and more number of people are able to consume the services of public corporations.

7. **Economies of scale:** Since they operate on a large scale, public corporation can reap the benefits of economies of scale. The benefits derived from economies of scale can be passed on to the general public in the form of cheaper prices, stable prices, better quality of service etc.

8. **Employee welfare:** A public corporation follows its own recruitment policy. It can recruit the best talent and provide them appropriate training. Better perks and amenities can be provided to the employees which improves their motivation level. Through these measures it is able to maintain a healthy employer-employee relationship, attract and retain talent and improve productivity levels.

3.3. Disadvantages or Demerits of Public Corporations

The following are some of the disadvantages or demerits of public corporations.

1. **Political interference:** Public corporations are a State enterprise. Though autonomy in functioning is said to be one of the strong points of public corporations, the reality is otherwise. They suffer from continued political interference and have to act according to the wishes of the political masters. For e.g. even after the steep increase in oil prices in global markets, ONGC is not able to increase its prices in the domestic markets, because of political interference.

2. **Misuse of power:** It enjoys immunity from parliamentary inquiry into its day-to-day functioning. Such immunity might induce some officials to misuse their power and indulge in corrupt practices. It takes considerable amount of time and effort to unearth corrupt acts and the corporation loses valuable resources.

3. **Financial burden:** When a public corporation incurs losses, the government provides subsidies to make good the loss. Such provision of subsidies on a regular basis places a great strain on government finances, more-so in the case of a developing economy like India.

4. Consumer interests ignored: Many public corporations operate as monopolies. Absence of competition leads to lethargic functioning, reduced focus on efficiency improvements and innovation and poor customer service with the result that consumer interests are ignored.

Self-Assessment Exercise

Discuss the advantages and disadvantages of public sector economics.

3.4. Arguments for Public Sector

The private sector is very unlikely to provide public goods because of the free rider problem. Therefore, the government needs to provide nearly all goods with the characteristics of public goods. This includes street cleaning, military, police and the judicial system.

However, goods with positive externalities will be under-consumed in a free market. For example, education and training could be provided in the free market, but generally there is under-consumption of the socially optimal level because private firms ignore positive externalities. Therefore, the government needs to intervene in public services such as health and education. By providing good quality training schemes, the government can help increase labour productivity and provide private firms with educated workers.

The same argument applies to investment in infrastructure. e.g. New train links, and roads. More so, private sector jobs are more volatile with regard to the economic cycle. In a recession, we can see a sharp fall in private sector employment as firms cut back on labour. In a recession, public sector jobs act as a stabilizer – limiting the rise in unemployment. J.M. Keynes argued that in a severe recession, the government should intervene and create more employment. For example, public works scheme such as the New Deal of the 1930s.

Finally, if the economy is at full employment and growing strongly, higher government borrowing and spending will cause crowding out. However, in a recession, there may be a sharp rise in consumer saving. This leads to a fall in spending and spare capacity. In this situation, an increase in government spending financed by government borrowing doesn't cause crowding out because the government is using private sector savings that would otherwise remain idle.

Self-Assessment Exercise

Discuss the advantages and disadvantages of public sector economics.

3.5. Private Sector vs Public Sector

Let us start this discussion by asking ourselves: Does job creation come from public or private sector? Looking at this critical question, we can say that public sector is government both at the national and local level and public sector jobs include doctors, police, teachers, civil servants while the private sector is private enterprises which they are retail, manufacturing and local services.

However, we can then ask another question that which sector is best for job creation? Free market economists argue that the private sector is more suited to job creation because firms respond to consumer preferences and market trends and provide employment in areas of high demand.

3.5.1. Strengths of the private sector

Profit Incentive. Private firms have a profit incentive to cut costs and develop products demanded by consumers. In the government sector, this profit motive is often absent. Therefore government bodies have a greater tendency to be overstaffed and inefficient.

Bureaucracy. For political reasons, it is sometimes more difficult to get rid of surplus workers in the public sector than the private sector. Private businessmen don't have to worry about political popularity and so are more willing to make people redundant if it helps efficiency. The public sector, on the other hand, is more likely to employ surplus workers in unproductive jobs.

Crowding out. If the public sector increases, then this is reducing resources for the private sector. For example, if we raise taxes to increase government spending then this means the private sector has lower resources for private sector investment. Therefore, if government spending can be reduced it will free up resources for more efficient private sector growth and job creation. Though there may be temporary problems from public sector spending cuts, in the long term, it will enable lower taxes and higher private sector investment.

3.5.2. Government spending that discourages productivity.

Some government spending can discourage productivity. For example, welfare benefits can reduce the incentive to work and encourage economic inactivity. Reducing welfare benefits (e.g. making it more difficult to claim sickness/unemployment benefits may

encourage people to get a work and become economically active. (Though it may conflict with goals of equity).

3.6. History of Public Sector

Public sector economics is concerned with justifying the existence of governments and explaining how they can affect economic activity. It explains how the ‘invisible hand’ of the market is tempered by the ‘visible hand’ of government in the mixed economy of both private and public sectors adopted by the vast majority of nations.

Traditionally, public-sector economics has been concerned with the study of how governments can deal with the failure of markets to achieve efficient outcomes. Possible remedies which are considered include using public expenditure and taxation, taking some firms into state ownership and introducing regulation. These are all areas of microeconomic theory, policy and practice.

But the very nature of the ‘public’ sphere has recently changed. In particular, we need to take account of political economy: how alternative economic theories are used to provide intellectual justification for ideological, moral and ethical beliefs.

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Self-Assessment Exercise

Discuss the history of public sector economics.

4.0 Conclusion

In this unit, we can conclude that Public sector economics is concerned with justifying the existence of governments and explaining how they can affect economic activity. It explains how the 'invisible hand' of the market is tempered by the visible hand of government in the mixed economy of both private and public sectors adopted by the vast majority of nations..

5.0 Summary

In this unit, we have learnt and discuss on public sector economics, the advantages and disadvantages of public corporations. We also try to make clear differences between private sector and public sector, the strength of the private sector, Government spending that discourages productivity and the arguments for public sector.

6.0. Tutor-Marked Assignment

1. Differentiate between public and private sector
2. Government spending normally sometimes discourage productivity. Discuss.
3. Discuss the arguments for public sector

7.0. REFERENCES/FURTHER READING

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UNIT TWO: Public Finance

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 - 3.2. Meaning and Scope of Public Finance

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1.0. INTRODUCTION

In public finance we study the finances of the Government. Thus, public finance deals with the question how the Government raises its resources to meet its ever-rising expenditure. As Dalton puts it, "public finance is "concerned with the income and expenditure of public authorities and with the adjustment of one to the other."

Accordingly, effects of taxation, Government expenditure, public borrowing and deficit financing on the economy constitutes the subject matter of public finance. Thus, Prof. Otto Eckstein writes "Public Finance is the study of the effects of budgets on the economy, particularly the effect on the achievement of the major economic objects—growth, stability, equity and efficiency."

Further, it also deals with fiscal policies which ought to be adopted to achieve certain objectives such as price stability, economic growth, more equal distribution of income.

Economic thinking about the role that public finance is expected to play has changed from time to time according to the changes in economic situation.

Before the Great Depression that gripped the Western industrialized countries during the thirties, the role of public finance was considered to be raising sufficient resources for carrying out the Government functions of civil administration and defense from foreign countries. During this period, the classical economists considered it prudent to keep expenditure to the minimum so that taxing of the people is avoided as far as possible.

Further, it was thought that Government budget must be balanced. Public borrowing was recommended mainly for production purposes. During a war, of course, public borrowing was considered legitimate but it was thought that the Government should repay or reduce the debt as soon as possible

2.0. Objectives

At the end of this unit, you should be able to:

- Define and understand the meaning and scope of public finance
- Define and understand the concept of functional finance

3.0. Main Content

3.1. Meaning and Scope of Public Finance

The distinctions between public and private goods and the concept of the public sector lead us to look into the subject matter of public finance.

Public finance is related to the financing of state activities, and can be narrowly discussed as a subject, which discusses financial operations of the fiscal (public treasury). Earlier writers on the subject needed to define public finance in such a narrow manner, though this is no longer the case now.

Boundaries of the subject of public finance have undergone repeated revisions in line with developments in state activities and corresponding economic philosophy.

According, with the passage of time, the definition of public finance has expanded to cover ever-widening areas. In early days of capitalism, it was widely believed that private sector was always more efficient than the public one. By implication almost all-economic decision were to be guided by the invisible hand of the market forces but to limit its own activities to the barest minimum necessary.

Firstly, it was to protect the society against internal disruption, and to ensure that effective law and order situation prevailed. With this, the state was to maintain itself and was to create the needed administrative, judicial and policy set-ups.

Secondly, the society was to be protected against any foreign aggression that might take place. The state was to maintain armed forces to meet this objectives.

Thirdly, where private sector found itself unable to create and run social overheads or infrastructural facilities for reasons of their commercial non-viability but they were otherwise essential for efficient working of the economy, the state was to step forth and assume the responsibility of creation and maintenance of such social overheads. The argument for stepping in of the state was not that the public sector was more efficient than the private one.

The basic argument was that in the absence of public sector, essential social overheads would not come into existence. However, the social marginal benefit usually far exceeds its social marginal cost. It therefore, pays the society to expand social overheads. The private marginal benefit, however, is much less compared with the private marginal cost, and as a result the private sector is not ready to develop them. The state is accordingly expected to finance social overheads out of public funds and run them, if need be, at a commercial loss.

It must be noted that the state, according to the laissez-faire philosophy, was considered as something extraneous to the economy, which was more or less equated with its private sector only. It was, therefore, considered best that the public sector should help and supplement private sector but never replace it. It was not thought desirable to have a planned economy even for taking the problems of capital formation and economic growth.

Since activities of the state were to be tolerated only as a necessary evil and were to be reduced to the minimum possible scale, the real question was not to decide the basic allocation of economic activities between public and private sectors and to deal with the associated financial and allied problems, but rather to analyze the way the state should operate. With this philosophy in background the theory of public finance was obviously assigned a united field.

It was a mainly considered a deception of the way in which operations of the treasury therefore with the working of the private sector of the economy and the way in which it could keep such an interference to the minimum.

It deals only with the finances of the government. The finances of the government include the raising and disbursement of government funds. Public finance is concerned with the operations of the fiscal or public treasury. Hence, to the degree that it is a science, it is the fiscal science, policies and, its problems are fiscal problems.

Self-Assessment Exercise

Define Public revenue

3.2 The Concept of Functional Finance

But under the impact of the Great Depression of thirties and the Keynesian explanation of it, the thinking about and role of public finance underwent a sea change. The classical view of public finance could not meet the requirements of the then prevailing situation.

In order to increase aggregate effective demand and thereby raise the level of income and employment in the country, public finance was called upon to play an active role. During the Second World War and after, the Western economies suffered from serious inflationary pressures which were attributed to the excessive aggregate demand.

So, in such inflationary conditions, the public finance was expected to check prices through reducing aggregate demand. Thus the budget which was previously meant to raise resources for limited activities of the Government assumed a functional role to serve as an instrument of economic regulation.

It came to be realized that government's taxing and spending policies could go a long way in mitigating economic fluctuations. Balanced budgets are no longer considered sacrosanct and the governments can spend beyond their resources without offending canons of sound finance to restore the health of the economy.

Public borrowing and consequent increase in public debt at the time of depression raises aggregate demand and thereby helps in raising the level of income and employment. Therefore, deficit budget and increase in public debt at such times is a thing to be welcomed.

It was further demonstrated by Keynes that deficit financing by the Government could activate a depressed economy by creating income and employment much more than the original amount of deficit financing through the process of multiplier

Thus, after Keynesian revolution public finance assumed a functional role of maintaining economic stability at full employment level. Therefore, the present view of public finance is not one of mere resource-raising for the Government but one of serving as an instrument for maintaining stability through management of demand. Therefore, this

present view of public finance has been described by A.P. Lerner as one of “Functional Finance”.

In developing countries, public finance has to fulfill another important role. Whereas in the developed industrialized countries, the basic problem in the short run is to ensure stability at full employment level and in the long run to ensure steady rate of economic growth, that is, growth without fluctuations, the developing countries confront a more difficult problem of how to generate a higher rate of economic growth so as to tackle the problems of poverty and unemployment.

Therefore, public finance has to play a special role of promoting economic growth in the developing countries besides maintaining price stability. Further, for developing countries mere economic growth is not enough; the composition of growing output and distribution of additional incomes ought to be such as will ensure removal of poverty and unemployment in the developing countries.

Therefore, public finance has not only to augment resources for development and to achieve optimum allocation of resources, but also to promote fair distribution of income and expansion in employment opportunities. This is the functional view of public finance in the context of the developing countries.

Self-Assessment Exercise

What are the concept of functional finance?

3.3. Component of Public Finance

1. Economic Efficiency

Economic efficiency is the standard that economists use to evaluate a variety of resources. Typically, efficiency can be determined by a general formula of ratios and their generated outcomes. The difference between technical efficiency and economic efficiency is the relationship of values people place on things. Values in technical efficiency may be subjective from one person to another. Economic efficiency focuses on eliminating waste to provide as much value as possible. Technical efficiency looks to maximize value, while sacrificing as much as is needed to create the best initiative.

2. Distribution of Income

Distribution of income is the calculation of the wealth and income of a nation once it is divided by its total population. The overall distribution can be evaluated through a series of statistical studies. Wealth and income are two separate entities. Wealth is the overall value of a population’s physical possessions and financial assets. Income is the exact monetary value of a population’s net intake over a selected period of time. The information gathered from a country’s

wealth and income can be a valuable resource to help answer a variety of political, social and economic questions.

3. Macroeconomic Stabilization

Macroeconomic stabilization is a process by which the stabilization and growth of the economy is monitored through the development of fiscal and monetary policies, laws and regulations. Stabilization of the economy acts as the foundation to economic growth. Without stabilization, the economy is doomed to collapse. To achieve a stabilized macroeconomic environment, a balance is required between the government budgeting, domestic commerce, banking operations, international trade and governing institutions. In order to maintain ongoing macroeconomic stabilization and an optimal level of economic efficiency, the market must be managed to ensure interest rates, business cycles and demand within the economy remains steady.

Self-Assessment Exercise

Discuss the component of Public revenue

3.4. Importance of Public Finance

1. Steady state economic growth:

Government finance is important to achieve sustainable high economic growth rate. The government uses the fiscal tools in order to bring increase in both aggregate demand and aggregate supply. The tools are taxes, public debt, and public expenditure and so on.

2. Price stability:

The government uses the public finance in order to overcome from inflation and deflation. During inflation it reduces the indirect taxes and general expenditures but increases direct taxes and capital expenditure. It collects internal public debt and mobilizes for investment. In case of deflation, the policy is just reversed.

3. Economic stability:

The government uses the fiscal tools to stabilize the economy. During prosperity, the government imposes more tax and raises the internal public debt. The amount is used to repay foreign debt and investment. The internal expenditures are reduced. During recession, the case is just reversed.

4. Equitable distribution:

The government uses the revenues and expenditures of itself in order to reduce inequality. If there is high disparity it imposes more taxes on income, profit and properties of rich people and

on the goods they consume. The money collected is used for the benefit of poor people through subsidies, allowance, and other types of direct and indirect benefits to them.

5. Proper allocation of resources:

The government finance is important for proper utilization of natural, manmade and human resources. For it, on the production and sales of less desirable goods, the government imposes more taxes and provides subsidies or imposes taxes lightly on more desirable goods.

6. Balanced development:

The government uses the revenues and expenditures in order to erase the gap between urban and rural and agricultural and industrial sectors. For it, the government allocates the budget for infrastructural development in rural areas and direct economic benefits to the rural people.

7. Promotion of export:

The government promotes the export imposing less tax or exempting from the taxes or providing subsidies to the export oriented goods. It may supply the inputs at the subsidized prices. It imposes more taxes on imports and so on.

8. Infrastructural development:

The government collects revenues and spends for the construction of infrastructures. It has to keep peace, justice and security too. It has to bring socio-economic reformation too. For all these things it uses the revenues and expenditures as fiscal tools.

Self-Assessment Exercise

Discuss the importance of Public revenue

4.0 Conclusion

In this unit we concludes that public finance is the study of the role of the government in the economy. It is the branch of economics which assesses the government revenue and government expenditure of the public authorities and the adjustment of one or the other to achieve desirable effects and avoid undesirable ones.

5.0 Summary

In this unit, we have discussed and learnt the meaning and scope of public finance and the concept of functional finance. However, public finance provides a good structure for thinking about and solving public finance issues. Efficiency and equity are the main

criteria for determining deciding that services and products are or should be provided by government.

6.0. Tutor-Marked Assignment

1. Discuss the concept functional finance
2. define the term Public Finance.

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UNIT THREE: Basic Principles of Public Finance

CONTENTS

- 1.0 Introduction
- 2.0 Objectives
- 3.0 Main content
 - 3.1 Principles of Public Finance
 - 3.1.1 Level of Government Spending
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 - 3.2 Government tax requirements
- 4.0 Conclusion
- 5.0 Summary
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1.0. INTRODUCTION

Public finance is a study of income and expenditure or receipt and payment of government. It deals the income raised through revenue and expenditure spend on the activities of the community and the terms 'finance' is money resource i.e. coins. But public is collected name for individual within an administrative territory and finance. On the other hand, it refers to income and expenditure. Thus public finance in this manner

can be said the science of the income and expenditure of the government, however, the basic principles of public finance are the taxes and revenue

2.0. Objectives

At the end of this unit, you should be able to:

- Define and understand the meaning of principles of public finance
- Know the level of Government Spending and sources of revenue
- Know the importance of a tax System
- Understand the Government of tax requirements

3.0. Main Content

3.1 Principles of Public Finance

Two questions basic to the study of public finance at a level of government are:

1. What should the level of government spending be?
2. How should the government obtain its revenue?

These two questions can be answered only within the framework of the broad economic and social objectives of society. The objectives in turn are the result of psychological factors and physical environment which will vary both from one community to another and from one generation to another.

Each new generation must make itself aware of the requirements of the society and the economy and build upon and change the objectives of the past generation. Because our society is dynamic, there is a need for continual re-evaluation of objectives and the means of attaining those objectives.

Attitudes toward government spending in the United State today differ widely. One extreme attitude, derived from European feudalism before 1800, is expressed by: One state may be good because of great expenditures and another bad because of small expenditure. On the other extreme, derived from 19th Century industrialism and the private enterprise creed, is: The very best of all plans of public finance is to spend very little. Out of this latter era have come three beliefs with regard to government finance.

The first is that government pending is a necessary evil and that the lowest level of spending is the best possible objective. The problem presented by this belief is in determining what the lowest level should be. Different group in society have varying opinions of what the minimum services of government should be. The balanced budget

concept is the second major belief. The problems of applying this concept to government services which are not primarily concerned with dollars and cents profit are many. Even business has revised its approach to the balanced budget in modern time by borrowing large sums for expansion during inflationary periods and accumulating savings during tight money periods.

To stabilize the economy, some public finance experts propose that government attempt to offset this business practice by spending during depressions to put money into the economy and accumulating reserves or repaying debts during inflation to decrease the amount of money in the economy. Or, they say, the government should cut taxes during depression to leave more money for consumer spending and investment and raise taxes during an inflationary period. With permissive legislation, changing the tax rates would be easier than changing the level of government spending for short periods of time. The third belief, which started in the period of early capitalism, is that of economic neutrality, which means that government should tax in such a manner as to affect existing economic relationships as little as possible. This concept would discourage any attempt by the government to curb the effects of the business cycle or to control consumption of certain items by means of a high tax (cigarettes, liquor, drugs, imports, etc.).

Although it is difficult to define the ethical values of a society at a particular time, three basic objectives of our society are generally accepted.

These are:

- I. Maximum individual freedom of choice.
2. Best possible standards of living, in terms of available resource, and consumer and resource owner preferences.
3. Distribution of income in conformity with currently accepted standards of fairness.

These goals are quite general, but they provide a framework for use in considering government activities.

Generally, the major conflicts occur over methods of reaching these goals rather than over the goal themselves.

3.1.1. Level of Government Spending

The level of government spending should be related closely to the basic economic rule that best possible levels of production are achieved only when social costs equal social benefits. The measures used by government to determine these conditions are often quite different from those used by private business. While businesses estimate their costs and benefits in terms of profit and capital gains, government must evaluate many of its activities in term of community benefits, which may be difficult to measure or predict. Often government is concerned with benefits derived over a much longer period of time than private business can afford. Government activities are part of the national economy and provide goods and services, as does private business. We have a wide variety of

needs such as food, clothing, shelter, and entertainment that we satisfy on an individual basis through the market mechanism or the family.

Some of us also buy our education, health, and old-age security through private enterprise, family, or church; but most of us buy at least part of these services collectively through government. We buy most of our fire and police protection and all of our national security through government. Since we buy security and education through government, we have to tell our want in these areas to our elected representatives, be they school board members, county commissioners, city councilmen, state senators or the Governor. We do this by talking to our elected representatives and by forming lobbies with other individuals of similar interests to inform the responsible officials and legislator. Our views for or against any government expenditures can be brought out at public hearings. At the state level, public hearings are held on matters that affect state pending. These hearings include such proposals as new high-ways, expansion or addition of parks and recreation area, sale or purchase of land, and addition or reduction of taxes. These public hearings are extremely important. Here is where the legitimate interests of the people are threshed out. The general long-range plans for the subject under discussion should be clearly defined at these hearings.

Some of the expenditures will be for buildings and roads which may be used 30 years or more. The more detailed, short-range plans that fit into the long-range plans should also be clearly defined. The political responsibility for spending should be clearly established at these hearings. Procedures should be established for effectively evaluating the expenditures as they are being made. These procedures are especially important because the government does not have the profit gauge of private business for checking performance. Some of the safeguards necessary to protect society against political graft, favoritism, and uneconomic or unjustified expenditures include: auditing and special supervising methods, regulations on bidding, specification buying, and centralized purchasing, in addition to legislation and scrutiny by citizens. As government activities widen, these safeguards become more important.

Our elected representatives, in determining the level of pending, must gather and evaluate information, weigh conflicting view, and determine whether or not the expenditures will do the job intended. It is easy to see that an expenditure is economic if it is self-liquidating, like a dormitory that pays for itself out of student room rent. Building a needed road may also be economic and increase the gasoline tax revenue. It is not so easy to determine whether an expenditure is economic when the service cannot be directly measured in terms of money.

Government expenditures are economic if they directly or indirectly increase the productivity of the economy more than the same expenditures in the private sector. This is hard to judge. Government expenditures for flood control, education, vocational training and roads can be classified as economic by this definition. Besides the economic

limit to government spending, upper limits are determined by the reactions of the individual, the market, and society. The individual usually thinks more about the taxes he has to pay than the benefits he receives from public services. There are some psychological limits, depending on the tax system and the rate, which produce strong reactions.

Each market also provides a limitation on government spending. For example, relief payments greater than the current wage rate would disrupt the labor market. There are, however, no set rules for these limits, which means again that subjective judgment must be made by our legislators. From the viewpoint of society, the level of government expenditures is limited in the long-run if they are greater than taxes. This will either result in rationing and price-fixing, as occurred during World War II or inflation.

3.1.2. Source of Revenue

Once the level of government spending has been determined, government activities have to be financed. Part of the finance come from non-tax sources, including license and permit, fees and fines. Licenses and permits are used both for revenue and for regulation and control. They include business and occupation licenses and permit, hunting and fishing license, motor vehicle registrations, and drivers' license. Individuals and firms obtaining a license or permit acquire certain rights and privileges or the right to participate in a public service. Fees are charge for services performed by public agencies. Examples are student fees at the University and the Teachers' College, and fee for bonding, title transfers and recording deeds.

Fines are the penalties for not conforming to law. The difference between this non-tax revenue and what the government spends must be made up by taxation, borrowing or spending of reserves. Thus the principle purpose of taxation is to obtain revenue to fulfill the policy objectives of government. Taxation sometimes is used to achieve economic and social reforms. Trying to achieve these reforms by discouraging certain activities or consumption through high tax rates may increase the tax revenue (e.g. cigarette and liquor taxes) if the high rates are not effective in reducing consumption. Encouraging or promoting certain activities or consumption through low tax rates or exemptions usually lowers the amount of tax revenue. Exemptions and special low rates on certain items or tax categories will narrow the tax base and, consequently, increase the tax rate for those who do not fall within those special brackets.

Taxation should be used for social reform only after careful consideration of its effects on the overall revenue system. Taxes can be levied on property, expenditures, and income. Wealth (property) generally is a result of either the accumulation of production or

deferred consumption. It may be bank savings, real estate, stocks and bonds or any other property which is a reserve of purchasing power.

Property taxes and income taxes on dividends and interest are examples of taxes on wealth. Death, estate, inheritance, and gift taxes are taxes on the transfer of wealth. Taxes on consumption include the general retail sales tax, specific sales taxes on gasoline, liquor tobacco and luxuries, use taxes, taxes on gross receipts, and tariff on imports. Taxes on production include the income tax, grain and seed tax, and the severance tax on oil and gas. The head and poll taxes do not fit in any of these categories.

3.1.3. Evaluating a Tax System

Any tax system should be evaluated from the viewpoint of the individual, the government, and society in general. These viewpoints occasionally will conflict and require careful study by the policy making bodies to determine whose interests should take precedence.

1. Individual Taxpayer

Most discussions of the principles of taxation include the famous tax canons stated in 1776 by Adam Smith in his book, *The Wealth of Nations*. These laws have withstood the changes of time quite well, particularly as they apply to the requirements of the individual. According to Smith, a tax should be:

- (a) equitable,
- (b) economy,
- (c) convenient,
- (d) Certainty

a. Equity

Equity or fairness is probably the most important quality of a tax from the viewpoint of the individual. This means that taxes should be levied according to the common notions of justice on the basis of either ability to pay or benefits received. In the word of Smith, "The subject of every state ought to contribute toward the support of the government as nearly as possible in proportion to their respective abilities; that is, in proportion to the revenue they respectfully enjoy under the protection of the State." Ownership of property is one index of ability-to-pay, but is not a perfect one because the productive (farm or business) or consumptive (home) use and the amount of indebtedness must be considered and because there are many sources of income other than property in modern society. People with high incomes obviously have the ability to pay higher taxes than people with low incomes. In addition they can be considered able to pay a higher proportion of their income in taxes. This leads us to the need to define a progressive tax and a regressive tax. A progressive tax takes a larger proportion of income from people with high incomes than from those with low incomes and hence follows the ability-to-pay principle. The federal income tax is an example.

A regressive tax takes a larger proportion of income from low income people and consequently does not meet the test of equity or justice. The general retail sales tax is regressive in effect. The second concept of equity in taxation is based upon the idea that those who use government services should pay the cost of providing them.

As government service have been extended into the fields of welfare, health, education and other social services, this concept becomes much more difficult to apply. When government was primarily concerned with keeping the peace, enforcing contract, and maintaining internal and external security, property owner could be considered as the group benefiting most from government services and therefore paying most of the cost of government. In modern society government has expanded into the social welfare fields where people receiving large amounts of the benefits cannot pay for them. The burden then fall on society as a whole, which benefits indirectly from these programs. Several taxes are now used which are very rough measures of benefits received. Among these are the gasoline tax for high-way construction, postal charges for mail service, student fee for part of public education costs, and specific property tax levies for irrigation, fire protection, drainage, and other similar functions.

b. Economy in Taxation

Adam Smith had this to say about economy: "Every tax ought to be so contrived as both to take out and keep out of the pockets of the people as little as possible, over and above what it brings into the public treasury of the state." In other words, administering the tax should use up the smallest possible part of the total proceeds of the tax. Public finance economists generally agree that a tax which costs less than 3% for administration is an economical tax and meet this test.

c. Convenience

Again Adam Smith writes: "Every tax should be levied at a time, or in a manner in which it is most likely to be convenient for the taxpayer to pay it." The federal withholding tax on wages and salaries and the timing of property tax due dates in Nebraska are examples of attempts to make tax paying convenient.

d. Certainty

This criterion includes the requirement that the taxpayer should clearly understand the amount of tax required and how and when it should be paid. Simplicity is an important virtue when dealing with the masses of people involved in taxation but it is not easily realized. Each new law that provides special requirements and exemptions adds confusion and complexity to the problem. Special treatment of dividends, capital gains, retirement income, etc., tends to complicate the income tax. Exempting food, clothing and other items from the sales tax is intended to remove inequities, but causes serious problems of definition. To quote Smith again: "The tax which each individual is bound to pay ought to be certain and not arbitrary. The time of payment, the manner of payment,

the quantity to be paid, ought all to be clear and plain to the contributor and to every person."

3.2. Pre-requisites for Effective Tax System

Governmental tax requirements are the pre-requisites for effective tax system. However, the tax requirements of governmental units coincide in some respects with those of the individual but conflict in other way. The executive and legislative branches of government are most concerned that a tax system should be:

- (1) adequate,
- (2) flexible,
- (3) stable, and
- (4) easy to administer.

1. Adequacy

An adequate tax system provides enough money during a fiscal period to enable administrative officials to carry out their responsibilities. If the tax revenues are not large enough to finance the quantity and quality of services desired, the appropriate legislative and administrative authorities have two alternative courses of action:

1. Raising rates of existing taxes or imposing new ones.
2. Restricting the scope and; or reducing the quality of services offered.

2. Flexibility

A flexible source of revenue

is one that can be changed easily to meet changing governmental needs. A non-flexible tax system would result in surpluses at times and deficits at other times (if deficits are permitted). The property tax is flexible because a governmental unit can meet change in revenue needs by raising or lowering the mill levy. The sales tax is relatively inflexible because the rate is usually set by law and can be changed only by changing the law.

3. Stability

The stability of taxes refers to the effect changes in economic condition have upon revenue yield. The Great Plains State, with wide fluctuation in annual rainfall and other weather and price hazards, may experience substantial year-to-year variations in economic conditions. Progressive income taxes are much more sensitive to change in economic conditions than are sales taxes, and sales tax yields respond to changing economic yield more readily than property tax yield. This criterion for a tax system conflicts with the needs of the individual, since a stable tax such as the property tax in times of low income burdens the individual with a fixed cost at a time when other economic pressures are also great.

4. Ease of Administration

The less complicated the administration of a tax system the lower the administrative cost. Effective administration also is important from the standpoint of equity. No matter how

equitable a tax structure appears in form, it is not actually equitable if there is substantial evasion or avoidance of the tax. Generally, the cost of enforcement should not exceed the additional revenue it obtains. This is not a hard and fast rule, however, because strict enforcement not only obtains more revenue from persons trying to evade or avoid the tax but also insures more complete compliance and respect from the rest of the taxpayers. Most people pay their taxes more willingly if they feel they are being enforced equally upon everyone. Ease of administration varies with the level of government involved in a particular tax. The property tax is comparatively easy to administer at the local level, while sales and income taxes are generally difficult to administer at that level. Administration of the income tax is difficult and expensive even at the state level unless it can be tied to the federal income tax. Ease of administration, however desirable, should not override the other criteria.

Self-Assessment Exercise

Discuss in details the principles of public finance

3.3 The Tax System

1. Progressive Tax System

In a progressive tax rate system, higher income individuals pay a higher proportion of tax with a rise in income. In this case, the marginal tax rate would be higher than the average tax rate. A progressive tax is cited as a method to reduce inequality in society. Most economies around the world use a progressive tax to assess taxes for individual income.

2. Proportional Tax System

In a proportional tax rate system, everyone pays the same proportion of his or her income as tax. The tax rate does not change with an increase or decrease in income. Here, the average tax rate is equal to the marginal tax rate. This system exists in Latvia and Russia, and is considered to be more 'fair' and easier to manage for everyone. Some states in the U.S. like Colorado, Utah and Michigan impose a proportional income tax for individuals.

3. Regressive Tax System

A regressive tax is a tax which results in a decrease in the tax rate as the amount subject to taxation increases. In a regressive tax rate system, the individuals with lower income pay a higher proportion of his or her income as tax. Here, the marginal tax rate is lower than the average tax rate. Any tax with a cap above which no taxes are paid are regressive taxes.

Self-Assessment Exercise

Discuss in details the analysis of tax system

4.0 Conclusion

In this unit we conclude that Public finance is to regulate the important sectors of the country such as industry, agriculture, foreign trade and transport and to facilitate the economic activities of government and the private sector.

5.0 Summary

In this unit, we have learnt and discuss on principles of public finance, level of Government spending, sources of revenue, Evaluating a tax system and Government tax requirement.

6.0. Tutor-Marked Assignment

1. Discuss the term ‘principles of public finance’
2. List and explain types of tax
2. Discuss the Government tax requirement?

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MODULE TWO

Theories of Public Goods

Unit One: Public goods analysis

Unit Two: Theories of Public goods

Unit Three: Differences between Public Goods and Private Goods

Unit Four: Allocation of Resources

Unit One: Public Goods

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1.0 INTRODUCTION

Whether you believe or not, we receive free goods and services every day and every time. We are used or accustomed to them that we don't often notice. For example, when you relax in a cool cafe on a hot summer day, you are receiving the benefit of air conditioning that you are not paying for. This is an example of a public good. Public goods are products or services we all use. Because we all use them, each of us cannot be charged individually for them. The cafe you enjoy could not really put a number on how much air conditioning you enjoyed during your visit, so the owners cannot fairly charge you for it.

Public goods are typically financed by business owners or the government through tax revenues. When a public good is consumed, the amount left for others to consume is not reduced, and it cannot be withheld from those who are unable to pay for it. For example, when you enjoy the air conditioning in a café, there is not less air conditioning for others to enjoy. There is no competition to provide public goods because they are supplied to everyone. The police force is a good example of this. When we feel unsafe because we have heard strange noises late at night, we do not select which company to call. We simply call the police. Because there is no competition among producers and providers for public goods, they are referred to as non-rivalries and non-excludable. Non-excludable means that no one can be denied the service. For example, anyone who feels unsafe can call the police.

2.0. Objectives

At the end of this unit, you should be able to:

- Define and understand the meaning of Public goods
- Understand the challenges in identifying public goods
- Know the types of public goods
- Understand the meaning of Free Rider, theory of free rider and problem of free rider

3.0. Main Content

3.1 Meaning of Public goods

In economics, a public good is a good that is both non-excludable and non-rivalrous in that individuals cannot be effectively excluded from use and where use by one individual does not reduce availability to others.

According to Gravelle and Rees, The defining characteristic of a public good is that consumption of it by one individual does not actually or potentially reduce the amount available to be consumed by another individual. In a non-economic sense, the term is often used to describe something that is useful for the public generally, such as education and infrastructure, although these are not "public goods in the economic sense. This is in contrast to a common good which is non-excludable but is rivalrous to a certain degree.

Public goods include fresh air, knowledge, official statistics, national security, common language(s), flood control systems, lighthouses, and street lighting. Public goods that are available everywhere are sometimes referred to as global public goods. There is an important conceptual difference between the sense of 'a' public good, or public 'goods' in economics, and the more generalized idea of 'the public good' or common good, or public interest, the public good is a shorthand signal for shared benefit at a societal level this philosophical/political sense should not be reduced to the established specific economic sense of 'a' public good.

Many public goods may at times be subject to excessive use resulting in negative externalities affecting all users; for example air pollution and traffic congestion. Public goods problems are often closely related to the free rider problem, in which people not paying for the good may continue to access it. Thus, the good may be under-produced, overused or degraded. Public goods may also become subject to restrictions on access and may then be considered to be club goods or private goods; exclusion mechanisms include copyright, patents, congestion pricing, and pay television.

3.2. Public Goods and Common Property Resources

This two above analysis is based on two broad sources of market failure that stem from the inability to exclude individuals from consuming a good or service.

1. Public Goods
2. Common Property Resources

The easiest way of defining these two types of goods is to consider two key characteristics of goods:

1. Excludable: A good is excludable if the supplier of that good can prevent people who do not pay from consuming it. There are many goods that are non-excludable, including clean air and many fisheries.
2. Rival in Consumption: A good is rival in consumption if the same good cannot be consumed by more than one person at the same time. There are many goods that are non-rival in consumption, including national defense and public television.

3.2.1. Four Types of Goods

The two characteristics above subdivide the space of goods and services into four types of goods:

1. Private Goods: Goods that are excludable and rival in consumption
 - a. Apples
 - b. Jackets
2. Artificially Scarce Goods: Goods that are excludable, but nonrival in consumption
 - a. Computer Software
 - b. Pay-per view movies
3. Common Property Resources: Goods that are non-excludable and rival in consumption
 - a. Fish
 - b. Biodiversity
 - c. Clean Air and Water
4. Public Goods: Goods that are non-excludable and nonrival in consumption
 - a. National Defense
 - b. Public Television

3.2.2. Public Goods

A Public Good, again, are goods that are both non-excludable and non-rival.

There are many examples of these types of goods, including: national defense, law enforcement, lighthouses, disease prevention, public sanitation, scientific research, broadcast television

These types of goods are often provided via government, but not necessarily.

In the case of broadcast television, we have both: Commercial television and Public television

3.2.3. The Efficient Level of Production

Consider the simple example of public television. It satisfies both the characteristics of a public good:

- It is non-excludable in consumption
- once the signal is broadcast, anyone can pick up the television signal.
- It is non-rival in consumption
- my watching a PBS show does not prevent another from doing so as well.

3.2.4. Common Property Resources

A Common Property Resource is one that is non-excludable, but is rival in consumption. The classic example is the fishery industry, but others include

- water (especially groundwater)
- forests
- clean air

The fundamental problem is an individual's use of these resources are often faced with a "use-it-or-lose-it" proposition, leading to overuse. Moreover, when individuals use the resource, they often impose costs on the resource not born solely by the current user.

3.2.5. Regulating Common Property Resources

Managing Common Property Resources have taken several forms historically:

1. Local community management of the commons.
2. Regulation of the commons through restrictions on total "use" (e.g., total annual catch)
3. Privatization of the commons through tradeable quotas on use

However, we can then ask the question is policing – is policing a public good?

The general protection that the police services provide in deterring crime and investigating criminal acts serves as a public good. But resources used up in providing policing means that fewer resources are available elsewhere. Private protection services such as private security guards, privately bought security systems and detectives are private goods because the service is excludable and rival in consumption and people and businesses are often prepared to pay a high price.

Let us now ask why are public goods an example of market failure?

- Pure public goods are not normally provided by the private sector because they would be unable to supply them for a profit.

- It is up to the government to decide what output of public goods is appropriate for society.
- To do this, it must estimate the social benefits from making public goods available.

Another question that can be asked is what is meant by the Free Rider Problem?

- Because public goods are non-excludable it is difficult to charge people for benefitting from a good or service once it is provided
- The free rider problem leads to under-provision of a good and thus causes market failure

Furthermore, we can also ask the question on what are Quasi-Public Goods?

A quasi-public good is a near-public good i.e. it has many but not all the characteristics of a public good. Quasi public goods are:

1. Semi-non-rival: up to a point, extra consumers using a park, beach or road do not reduce the space available for others. Eventually beaches become crowded as do parks and other leisure facilities. Open access Wi-Fi networks become crowded
2. Semi-non-excludable: it is possible but often difficult or expensive to exclude non-paying consumers. E.g. fencing a park or beach and charging an entrance fee; building toll booths to charge for road usage on congested routes

Finally let us ask ourselves whether the air waves is a public good or quasi public good?

- The airwaves used by mobile phone companies, radio stations and television companies are owned by the government.
- Do they count as a pure public good? One person's use of the airwaves rarely limits how other people can benefit from utilising them.
- At peak times, the airwaves become crowded

3.3. Challenges in identifying public goods

The definition of non-excludability states that it is impossible to exclude individuals from consumption. Technology now allows radio or TV broadcasts to be encrypted such that persons without a special decoder are excluded from the broadcast. Many forms of information goods have characteristics of public goods. For example, a poem can be read by many people without reducing the consumption of that good by others; in this sense, it is non-rivalries. Similarly, the information in most patents can be used by any party without reducing consumption of that good by others. Official statistics provide a clear example of information goods that are public goods, since they are created to be non-excludable. Creative works may be excludable in some circumstances, however: the

individual who wrote the poem may decline to share it with others by not publishing it. Copyrights and patents both encourage the creation of such non-rival goods by providing temporary monopolies, or, in the terminology of public goods, providing a legal mechanism to enforce excludability for a limited period of time. For public goods, the "lost revenue" of the producer of the good is not part of the definition: a public good is a good whose consumption does not reduce any other's consumption of that good.

Debate has been generated among economists whether such a category of public goods exists. Mendy (2003) has suggested the following:

when professional economists talk about public goods they do not mean that there are a general category of goods that share the same economic characteristics, manifest the same dysfunctions, and that may thus benefit from pretty similar corrective solutions...there is merely an infinite series of particular problems (some of overproduction, some of underproduction, and so on), each with a particular solution that cannot be deduced from the theory, but that instead would depend on local empirical factors.

Common confusion is that public goods are goods provided by the public sector. Although it is often the case that government is involved in producing public goods, this is not necessarily the case. Public goods may be naturally available. They may be produced by private individuals and firms, by non-state collective action, or they may not be produced at all

The theoretical concept of public goods does not distinguish with regard to the geographical region in which a good may be produced or consumed. However, some theorists use the term global public good for public goods which is non-rival and non-excludable throughout the whole world, as opposed to a public good which exists in just one national area. Knowledge has been held to be an example of a global public good, but also as a commons, the knowledge commons.

3.3.1. Social goods

Social goods are defined as public goods that could be delivered as private goods, but are usually delivered by the government for various reasons, including social policy, and funded via public funds like taxes. Note that some writers have used the term public good to refer only to non-excludable pure public goods and refer to excludable public goods as club goods.

3.4. Free Rider

In economics, the free-rider problem occurs when those who benefit from resources, goods, or services do not pay for them, which results in an under provision of those goods

or services. For example, a free-rider may frequently ask for available parking lots (public goods) from the ones who have already paid for them, in order to benefit from free parking. At the end of the day, one may see that the free-rider have used the parking even more than the others without paying a single penny. The free-rider problem is the question of how to limit free riding and its negative effects in these situations. The free-rider problem may occur when property rights are not clearly defined and imposed.

The free-rider problem is common with goods which are non-excludable, including public goods and situations of the Tragedy of the Commons.

However, free rider also occurs:

(a) When people can enjoy a good service without paying anything (or making a small contribution less than their benefit.)

(b). If enough people can enjoy a good without paying for the cost then there is a danger that, in a free market, the good will be under-provided or not provided at all.

Another way to explain the free-rider problem is a slogan like “Let George do it” – where George stands for the rest of the world.

3.4.1. Examples of free rider problem

It is good to reduce our production of landfill rubbish. However, if one person in a city of five million produces less rubbish, it makes little difference. There is an incentive to free-ride on efforts of other people to recycle and make less effort yourself. In other words, we free ride on the efforts of others to recycle.

Clean a common kitchen area. It would be good if we all contributed to cleaning the kitchen but there is a temptation to leave for one person who will do it all for us.

3.4.2. Public Goods and a Free Rider Problem

A public good has a classic free rider problem because public goods have two characteristics:

1. Non-excludability – can’t stop anyone from consuming good
2. Non-rivalry – benefiting from good or service does not reduce the amount available to others.

Therefore, public goods like national defense, street lighting, and beautiful gardens may not be provided in a free market.

A free rider problem is also said to occur when there is overconsumption of shared resources: This is also known as the tragedy of the commons. For example, a fisherman may take a high catch and free ride on other fishermen who are more concerned to preserve sustainable fish stocks.

3.4.3. Solutions to Free Rider Problem

1. Tax and government provision

One solution is to treat the many beneficiaries as one consumer and then divide the cost equally. For example, UK national defense costs £31bn. This results in higher taxes for UK taxpayers. Therefore the cost of national defense is paid indirectly by UK taxpayers. This ensures everyone who benefits from the service pays towards the cost. Some may dislike this approach e.g. some anti-war protesters have tried to withhold a certain % of their tax arguing they don't want to make contributions to illegal wars. But, most people accept paying taxes.

Austrian economists may criticize this approach arguing there is no guarantee the government knows consumer preferences and coercive action to make everyone pay and provide the good could lead to goods society does not really need.

2. Appealing to people's altruism

For some goods like visiting a garden, the garden may be able to raise funds by asking for donations if you enjoy your visit. There will probably be many 'free riders' who don't make a donation. But, enough people may be willing to make a donation to fund the cost of the garden/museum. This solution is only effective for services which have relatively low cost. People do not mind paying N400 if other's free ride. But, if there was a voluntary donation of N1,000 for national defense, would anyone pay it?

3. Make a public good private

A beautiful garden could be seen as a public good. However, if you erect a high barrier and limit entrance to those willing to pay, it loses its feature as a public good and becomes a private good.

4. Legislation

To deal with the free rider problem associated with overconsumption of common resources. The government have tried various options such as:

- Quotas – difficult to implement and difficult to monitor
- Legislation – on size of net size, number of fishing vessels
- Compensation to move away from fishing.

3.4.4. Free-rider problem theory

1. Welfare Economics and the Theory of the State (1952) William Baumol – makes case for government provision of public goods in areas where there is free-rider problem.
2. Logic of Collective Action (1965) Mancur Olson. Olson noted the mismatch between individual incentives and the collective interest of society.
3. Theory of public goods (1954) Paul Samuelson. Samuelson noted how once public goods were provided they can be consumed at zero marginal cost.
4. An Economic Theory of Democracy (1957) Anthony Downs

“Provision of national defense is a boon to every citizen; even if one citizen paid for it solely out of his own pocket, all the others would gain from it. Where citizens are numerous, each man finds it advantageous to refuse to pay for such indivisible benefits. Instead he assumes that other men will bear the cost and he will benefit... This situation means that voluntary action cannot produce a Pareto optimum in a large society when collective goods exist.

Self-Assessment Exercise

Discuss the term “Free Rider”.

4.0 Conclusion

A public good is often (though not always) under-provided in a free market because its characteristics of non-rivalry and non-excludability mean there is an incentive not to pay. In a free market, firms may not provide the good as they have difficulty charging people for their use.

5.0 Summary

In this unit, we have learnt and discuss on public goods, types of public goods, challenges in identifying public goods, social goods, free rider, and examples of free rider problem. However, public good and a free rider problem, solution to free rider problem and free rider problem theory.

6.0. Tutor-Marked Assignment

1. Differentiate between free rider and social goods.

2. Define public goods

3. Explain the term 'Free Rider'

Define the term 'public goods'

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Unit Two: Theories of Public Goods

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1.0 INTRODUCTION

Public goods theory has been a cornerstone of the economic theory of the public sector since the 1950s. Inspired by a pair of path-breaking articles by Paul Samuelson, published in 1954 and 1955, the economics profession has accepted a rigorous definition of the term public good and has used the concept of a public good to outline a role for government production in the economy. Public goods theory purports to show why goods with the rigorously defined characteristics of publicness cannot be produced efficiently by the private sector of the economy, creating a market failure which implies a role for government in the production of those goods for which the market fails.

2.0. Objectives

At the end of this unit, you should be able to:

- Understand the theories of public goods
- Understand the Voluntary Exchange Model
- Understand the Samuelson Model

3.0. Main Content

3.1 Understanding the Theories of Public goods

The theory of public goods was postulated by Paul Samuelson (1954). It states that goods that are collectively consumed are non-rival and non-excludable. He also referred to the theory as The Pure Theory of Public Expenditure. The theory highlights what Samuelson referred to as free riders--those who pretend to have less than they do in order to participate in the collective consumption without contributing to its maintenance? An example of the free rider aspect of the theory would be the entrepreneur who is charging N1000 for customers to watch the football match. Rather than pay, many free riders allow others to pay, while they enjoy the show from their windows or yards or from a nearby public area.

3.2 The Theories of Public Goods

The first clear formulation of a theory of public expenditure which can give a positive interpretation was presented by poter krut Wicksell and Esik Lindahl. In this formulation,

individuals bargain over the level of public goods supply, simultaneously with the distribution of the cost between them. The bargaining equilibrium is Pareto optimal. In addition, each individual pays a price in terms of private goods—which is equal to his marginal willingness to pay.

3.2.1. Voluntary Exchange Model

It is an approach to the analysis of the provision of public goods which seeks to establish conditions under which these goods can be provided on the basis of unanimous agreement that is without coercion. This may be contrasted with the generally observed arrangement that the provision of public goods is financed by compulsory taxation and not by voluntary agreement.

The voluntary approach was first advanced by Knut Wicksell who argued that:

- (i) Each public good should be financed by a separate, identifiable tax.
- (ii) The unanimous agreement of all members of the society would be required to decide on the amount of the good to be supplied.

At the outset individuals would be aware of their allotted share of any tax to be levied. The problem would then be to decide the level of provision. The analysis was extended by Lindahl, who presented a model in which both the share of taxes and the amount of good were open to debate.

In Lindahl's model, equilibrium requires each individual to pay a tax rate just equal to the individual's marginal utility from the good. This can be shown for a two-person community (consisting of A and B) in Fig. 1 which has quantity of public good along horizontal axis and the share of tax paid by A and B along vertical axis.

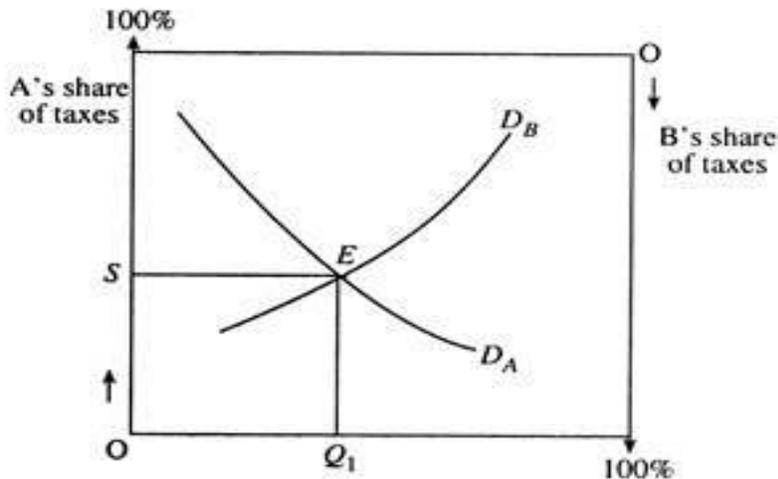


Fig. 1: Lindahl Equilibrium

Source: Olu, (2014). Impact of public goods on Economic growth in Nigeria

A's share of taxes increases from the bottom to up and S's share of taxes increases from top to down. The schedule D_A indicates the amount of the good A will wish to demand at different levels of his tax share. As his share of the cost goes down, his desired level of provision increases. D_B indicates B's preferences again, as his share of the cost falls, his preferred quantity of the good increases. The Lindahl equilibrium involves producing Q_1 of the good with tax shares as indicated at point S.

In the Lindahl model, public goods are provided in a manner which ensures everyone gains from their provision i.e. the provision of goods is always a Pareto improvement. Lindahl's analysis adds the condition that each individual consumes his most-preferred or 'optimal' amount of the public good given his tax share.

Despite the appeal of the model, difficulties arise in its application. In particular, the problems of reaching unanimous agreement and the possibility that individuals will not indicate true preferences (i.e. they may seek to be free riders) undermine the usefulness of the model.

Let π_{j+k}^i be the price which individual 'i' pays for public good K and let P_{j+k} be the producer price or marginal cost. Then the Lindahl equilibrium would be characterised by the condition:

$$\sum_i \pi_k^i = p_k, (k = J + 1 \dots, J + K)$$

Source: Olu, (2014). Impact of public goods on Economic growth in Nigeria

Olu, O. O., (2014). Impact of public goods on Economic growth in Nigeria

Thus, at first glance, the concept of a Lindahl equilibrium seems to establish an analogue to the competitive markets for private goods with the interesting difference. That the prices should differ from one individual to the other, depending on his marginal willingness to pay.

This also ties in with older notions of the benefit theory of taxation, according to which taxes were seen as payments for public goods to be levied in accordance with the benefits which each individual derived from them.

There is an interesting duality between the definitions of private and public goods on one hand and properties of equilibrium prices on the other. In terms of quantities, for private goods the sum of individual quantities consumed add up to the quantity produced, while, for public goods, individual consumption equals aggregate production. In terms of prices, on the other hand, for private goods each consumer price equals producer price, while for public goods individual consumer prices add up to producer price.

There is, however, one crucial difference between a Lindahl equilibrium and a competitive equilibrium for private goods. With private goods, individuals facing given prices have clear incentives to reveal their true preferences by equating their marginal rates of substitution to relative prices, at least if the economy is sufficiently large relative to the individual. Without paying, the individual is excluded from enjoying the benefits of consumption.

With public goods this no longer holds. Because an individual has the same quantity of public goods available to him whether he pays or not, he has an incentive to misrepresent his preferences and to be a free rider on the supply paid for by others. Moreover, this problem is likely to be particularly severe when the number of individuals is large, since his own contribution will then make little difference to the total supply.

The equilibrium of Lindahl model is not compatible with individual incentives to reveal preferences truthfully; for this reason Samuelson (1969) has referred to the individual Lindahl prices as pseudo-prices and to the equilibrium as pseudo-equilibrium.

In this case, one would conjecture that because all individuals have the same incentives to understate their true marginal willingness to pay, the Lindahl mechanism would result in equilibrium levels of public goods supply which would be too low relative to the optimum.

But there is really no need to associate the problem of preference revelation with this procedure alone; as another extreme, one might think of the case where individuals are asked to state their preferences on the assumption that the cost to them is completely independent of their stated willingness to pay, but there is a positive association between this and the quantity supplied.

Then there will be incentives to exaggerate the willingness to pay and a consequent tendency towards over-supply. Thus, the general problem which arises is how to design a mechanism that will allow the decision-maker to implement the efficiency condition. The development (1954-55) by Paul Samuelson of the modern theory of public goods must be counted as one of the major breakthroughs in the theory of public finance.

In these two very short papers Samuelson posed and partly solved the central problems in the normative theory of public expenditure:

- (i) How one can define goods analytically that are consumed collectively, that is for which there is no meaningful distinction between individual and total consumption?
- (ii) How one can characterize an optimal allocation of resources to the production of such goods?
- (iii) What can be said about the design of an efficient and just tax system which will finance the expenditures of the public sector?

What is required is a satisfactory theory of market failure. Criteria for just taxation had developed independently of any analysis of the expenditure side of the public budget. Still, Samuelson's formulation was a great leap forward, presenting an integrated solution to all three problems.

3.2.2. The Samuelson Model

The aim of the model is to derive conditions for optimal resource allocation in an economy in which there are two types of goods that is private and public. It is worth emphasizing that these terms do not prejudice the respective tasks of the private and public sectors; the analysis at this stage is institution-free and can best be considered as representing the problems of a planner who knows the production possibilities of the economy, the preferences of the consumers and his own ethical values.

The nature of the two types of goods are defined by the equations which give the relationship between individual and aggregate consumption. For private goods, the total quantity consumed is equal to the sum of the quantities consumed by the individuals, so that

$$x_j = \sum_{i=1}^I x_j^i, (j = 0, 1, \dots, J) \quad \dots (1)$$

Sources: Dapton, (2017). Understanding the theories of Public goods

where the superscript refers to individuals and subscript to commodities.

For public goods the corresponding relationship is one of equality between individual and total consumption:

$$x_k = x_k^i, (i = 1, 2, \dots, I; k = J + 1, \dots, J + K) \quad \dots (2)$$

Sources: Dapton, (2017). Understanding the theories of Public goods

Individual preferences, represented by utility functions, are then defined over the quantities consumed of private and public goods, so that we can write the utility of individual i as

$$\begin{aligned} U^i &= U^i(x_0^i, \dots, x_J^i, x_{J+1}^i, \dots, x_{J+K}^i) \\ &= U^i(x_0^i, \dots, x_J^i, x_{J+1}^i, \dots, x_{J+K}^i) \quad (i = 1, \dots, I) \quad \dots (3) \end{aligned}$$

Sources: Dapton, (2017). Understanding the theories of Public goods

The definition (2) has given rise to some confusion and controversy. Are there actually any goods which can be described by this definition? The usual answer is that there are some cases pure Public good, national defense, which can indeed be so described in such cases consumer benefits are directly related to the total availability of the good in question and the consumption benefits of any one individual do not depend on the benefits enjoyed by' the others.

This property of public goods is usually referred to as non-rivalry in consumption given the supply of the good in question, the consumption possibilities of one individual do not depend on the quantities consumed by others as they do in case of private goods However many goods which it is natural to think of as public, turn out on closer inspection to have elements of rivalry.

A road may satisfy the definition of a public good as long as the traffic is low, but with higher density and consequent congestion this will no longer be the case. Accordingly, several studies have been devoted to the analysis of 'impure' public goods, combining in same way the properties of private and public goods in the original Samuelson definition

The Samuelson formulation does not assume that the benefits derived from the supply of the public goods are the same for all, even though availabilities are the same. Neither does it assume that the benefits from public goods are independent of the quantities consumed of private goods.

And the elements of rivalry in the road congestion example may be captured by introducing externalities in the consumption of a private good-car use-whose benefits depend on the supply of a public good-the road. Thus, the original Samuelson formulation

offers great flexibility of interpretation, and we have been provided with an answer to the first or the main problems.

We now turn to the problem of optimality of resource allocation and begin by characterizing a Pareto optimum for this kind of economy. Since the interesting special features of the model are on the consumption side only, we assume that the conditions for efficient production are satisfied, so that the production possibilities for the economy can be summarized in transformation or production possibility equation

$$F(x_0, \dots, x_J, x_{J+1}, \dots, x_{J+K}) = 0 \dots (4)$$

Sources: Dapton, (2017). Understanding the theories of Public goods

The problems of Pareto optimality may now be formulated as follows: of all allocations satisfying equation (4), find the allocation which maximizes utility for consumer 1, given arbitrary but feasible utility levels for all other consumers.

As shown (1955) by Samuelson, the solution can be given an instructive graphical solution in two-dimensional case. We, therefore, begin with the case where there are two consumers and one private and one public good.

In good the upper panel of the figure we have drawn the production possibility curve as well as an indifference curve corresponding to the fixed level of utility for consumer 2; since the two curves intersect, there are obviously a number of allocations which satisfy these two constraints. In the lower panel, the curve ab shows the consumption possibilities for consumer 1, the points a and b corresponding to the points of intersection in the upper panel.

For any point on U^2 between a and b, it must be the case that two individuals consume the same amount of public good, while consumer 1's private good consumption is equal to the vertical difference between the production possibility curve and consumer 2's indifference curve.

The best allocation from 1's point of view is then given by the tangency between his highest attainable indifference curve and consumption possibility curve in the lower panel. This determines the optimum supply of the public good ($a, *$) and consumer 1's consumption of the private good (x^1_{0*}) as well as consumption of consumer 2 (X^2_{0*}).

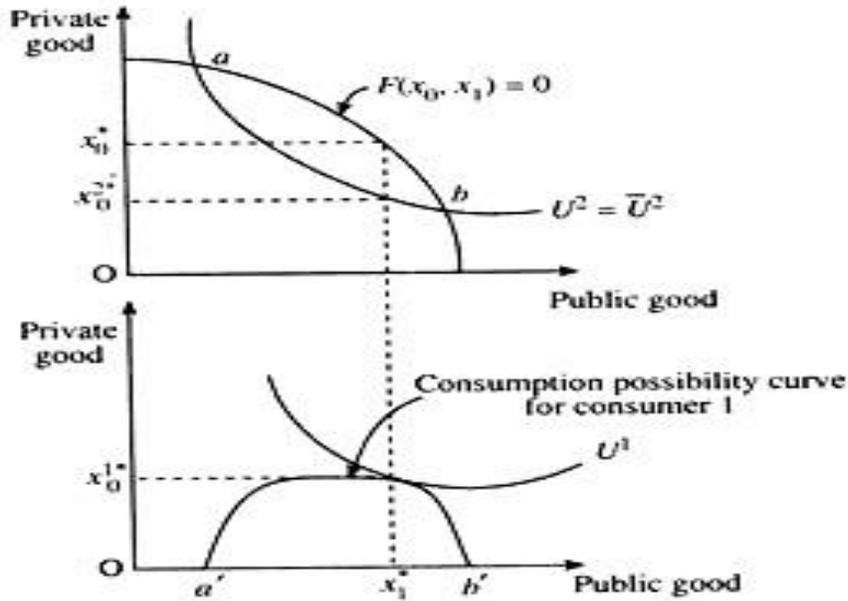


Fig. 2: Pareto optimality with one private and public good

Sources: Dapton, (2017). Understanding the theories of Public goods

The slope of consumption possibility curve must, of course, be equal to the difference of the slopes of the two curves from which it is derived. The tangency point can, therefore, be characterized in terms of marginal rates of substitution and transformation as

$$MRS_1 = MRT - MRS_2$$

$$\text{or } MRS_1 + MRS_2 = MRT$$

This condition can be rewritten as

$$\frac{\partial U_1 / \partial x_1}{\partial U_1 / \partial x_0} + \frac{\partial U_2 / \partial x_1}{\partial U_2 / \partial x_0} = \frac{\partial F / \partial x_1}{\partial F / \partial x_0}$$

$$\text{or } \frac{U_1^1}{U_0^1} + \frac{U_1^2}{U_0^2} = \frac{F_1}{F_0} \quad \dots (5)$$

In words, the sum of the marginal rates of substitution should be equal to the marginal rate of transformation between the public and private good. Or, since the private good may be taken as a numeraire commodity, the sum of the marginal willingness to pay for the public good should be equal to the marginal cost of production.

The intuition should be clear: an extra unit of supply benefits both consumers simultaneously; to find the total marginal benefit we have to take the sum of the marginal benefits accruing to all consumers. Problem (ii) has been solved.

The Samuelson theory of public goods has been of decisive influence for the theory of public expenditure. One of the results of this is that the normative theory of public goods has become much more satisfactory from a theoretical point of view than the positive theory. This state of affairs may, in-fact, be unavoidable.

The normative theory has little need to model institutional details and can thus be given a more unified appearance. A positive theory, on the other hand, must model institutions, and there is no single institution corresponding to the competitive market in the private goods case which can serve as a unifying benchmark.

Moreover, development of the positive theory of public goods must necessarily be closely tied to the progress of the positive theory of public sector behaviour in general; it will be interesting to see whether this theory can be developed to provide models both realistic and reasonably simple.

Self-Assessment Exercise

Discuss in detail the theories of public goods

4.0 Conclusion

In economics, a public good is a good that is both non-excludable and non-rivalrous in that individuals cannot be effectively excluded from use and where use by one individual does not reduce availability to others. However, the theory of voluntary exchange model and Samuelson model were also elaborated vigorously.

5.0 Summary

In this unit, we have learnt and discuss the understanding the theories of public goods, the theories of the public goods, voluntary exchange model and the Samuelson model.

6.0. Tutor-Marked Assignment

1. Discuss the theories of public goods in detail
2. With the aid of diagram discuss the theory of Voluntary exchange model and Samuelson model.

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Unit three: Public Goods Vs Private Goods

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1.0. INTRODUCTION

Public goods include fresh air, knowledge, official statistics, national security, common language(s), flood control systems, lighthouses, street lighting, and Wikipedia itself. Public goods that are available everywhere are sometimes referred to as global public goods. There is an important conceptual difference between the sense of 'a' public good, or public 'goods' in economics, and the more generalized idea of 'the public good' (or common good, or public interest), the public good is a shorthand signal for shared benefit at a societal level [this] (philosophical/political) sense should not be reduced to the established specific (economic) sense of a public good.

Many public goods may at times be subject to excessive use resulting in negative externalities affecting all users; for example air pollution and traffic congestion. Public goods problems are often closely related to the free rider problem, in which people not paying for the good may continue to access it. Thus, the good may be under-produced, overused or degraded. Public goods may also become subject to restrictions on access and may then be considered to be club goods or private goods; exclusion mechanisms include copyright, patents, congestion pricing, and pay television.

However, a private good is defined in economics as an item that yields positive benefits to people that is excludable, i.e. its owners can exercise private property rights, preventing those who have not paid for it from using the good or consuming its benefits; and rivalries, that is consumption by one necessarily prevents that of another. A private good, as an economic resource is scarce, which can cause competition for it. The market demand curve for a private good is a horizontal summation of individual demand curves.

Unlike public goods, private goods are less likely to have the free rider problem. Assuming a private good is valued positively by everyone, the efficiency of obtaining the good is obstructed by its rivalry, that is simultaneous consumption of a rivalries good is theoretically impossible; the feasibility of obtaining the good is made difficult by its excludability, that is people have to pay for it to enjoy its benefits.

One of the most common ways of looking at goods in the economy is by examining the level of competition in obtaining a given good, and the possibility of excluding its consumption; one cannot, for example, prevent another from enjoying a beautiful view, or clean air.

2.0. Objectives

At the end of this unit, you should be able to:

- Understanding Public and Private goods
- Know the difference Public and Private goods
- Know the Advantages and Disadvantages of Public goods
- Know the differences between the Public goods and Merit goods

3.0. Main Content

3.1. Understanding Public and Private Goods

A pure public good is a good or service that can be consumed simultaneously by everyone and from which no one can be excluded. A pure public good is one for which consumption is non-rival and from which it is impossible to exclude a consumer. Pure public goods pose a free-rider problem. A pure private good is one for which consumption is rival and from which consumers can be excluded.

Some goods are non-excludable but are rival and some goods are non-rival but are excludable.

The first feature of a public good is called non-rivalry. A good is non-rival if consumption of one unit by one person does not decrease available units for consumption by another person. An example of non-rival consumption is watching a television show.

A private good, by contrast, is rival. A good is rival if consumption of one unit by one person does decrease available units for consumption by another person. An example of rival consumption is eating a burger.

The second feature of a public good is that it is non-excludable. A good is non-excludable if it is impossible, or extremely costly, to prevent someone from benefitting from a good who has not paid for it. An example of a non-excludable good is national defense. It would be difficult to exclude a foreign visitor from being defended.

A private good, by contrast, is also excludable. A good is excludable if it is possible to prevent a person from enjoying the benefits of a good if they have not paid. An example of an excludable good is cable television. Cable companies can ensure that only those people who have paid the fee receive programmes.

The table below classifies goods by these two criteria and gives some examples of goods in each category. Goods like Lighthouse, National defense are known as pure public goods. One person's consumption of the security provided by our national defense system does not decrease the amount available for someone else that is defense is non-rival. The army cannot select those whom it will protect and those whom it will leave exposed to threats that is defense is non-excludable.

Table showing the Private Vs Public goods

Private Vs. Public Goods		
	Pure Private goods	Excludable and non-rival
Excludable	Food Car House	Cable television Bridge Motorway
	Non-excludable and rival	Pure Public goods
Non-excludable	Fish in the ocean Air	Lighthouse National defense
	Rival	Non-rival

Many goods have a public element but are not pure public goods. An example is a motorway. A motorway is non-rival until it becomes congested. One more car on the Delhi Ring Road with plenty of space does not reduce the consumption of road services of anyone else.

But once the motorway becomes congested, one extra vehicle lowers the quality of the service available for everyone else — it becomes rival like a private good. Also, users can be excluded from a motorway by toll gates. Another example is fish in the ocean.

Ocean fish are rival because a fish taken by one person is not available for anyone else. But ocean fish are non-excludable because it is difficult to stop other countries taking them if they are outside a country's territorial limits.

Public goods create a free-rider problem. A free rider is a person who consumes a good without paying for it. Public goods create a free rider problem because the quantity of the good that they person is able to consume is not influenced by the amount the person pays for the good. Markets fail to supply a public good because no one has an incentive to pay for it.

3.2. Difference between Public and Private Goods

Goods are something which we all use in our daily lives and the moment we wake up till we sleep we are using one or another product. However goods can public or private, to understand them better let's look at the difference between the two –

1. Public goods are those which are free to use and therefore there is no cost involved in usage of such products whereas for private product one has to pay in order to use them.
2. Examples of public goods are air, roads, street lights and so on whereas examples of private goods are cars, cloths, furniture and so on.
3. While usage of public products does not reduce its availability for other people so it is not like if one person is breathing fresh air the other individuals won't get fresh air. This is not the case with private products because its usage leads to reduction in quantity or quality for others, so if one person has bought particular cloth it is not necessary that others will also be able to get same color, quality and texture of that cloth.
4. Public goods are same for everybody so individual who is rich will also breathe same air which a poor person is breathing whereas in case of private products if one is rich one can buy better quality so if there are two televisions one is 3d which is expensive and other is normal which is cheap than a person who is rich will go for 3d television while person who is not that rich will buy normal television.
5. Public goods are either provided by nature or government whereas private goods are provided or manufactured by entrepreneurs who make them in order to earn profit.

3.3. Advantages and Disadvantages of Public goods

The main advantage is that these goods are actually provided if the government pays for them. Public goods have two characteristics. Non-excludability-goods cannot be excluded from anyone, even if they have not paid. Non-rivalry consumption by one person does not limit consumption for another (the marginal cost of providing the good to an extra person is zero), examples of these are street lighting, national defense and flood systems.

The main disadvantage of them is the free rider problem, which states that people will choose not to pay as it is much easier and perhaps rational to just let someone else pay and gain a free ride goods are non-excludable remember. However, if enough people have this mindset, the good will be not provided by a private firm as no economic profit can be made, hence a big advantage in the government providing them.

3.4. Public goods and Merit goods.

Public goods are defined as products where, for any given output, consumption by additional consumers does not reduce the quantity consumed by existing consumers. There are very few absolutely public goods, but common examples include law, parks, and street-lighting, defence etc. As there is no marginal cost in producing the public goods, it is generally argued that they must be provided free of charge, because otherwise the people who benefit less than the cost of using the public good, will not use it. That will lead to a loss of welfare. Also the goods are mostly non-excludable, that means that if once provided everybody can use them, which when charged will lead to "free-riding". So these goods will not be provided by free markets as there is no way to charge for the usage, the solution is, that state must provide these goods and finance them from taxes collected from everybody.

Merit goods on the other hand are products generally not distributed by means of the price system, but based on merit or need, because people although having perfect knowledge would buy the wrong amount of them. These goods can be supplied by free market, but not on the right quantity. Merit goods are, for example, education and to some extent the health-care. They are provided by state as good for you.

Self-Assessment Exercise

Make a distinction between Public and Private Goods.

4.0 Conclusion

Public goods are those which are free to use and therefore there is no cost involved in usage of such products whereas for private product one has to pay in order to use them.

5.0 Summary

In this unit, we have learnt and discussed extensively on differences between Public and Private goods, understanding the meaning of public and private goods, the advantages and disadvantages of public goods and the differences between public goods and merit goods.

6.0. Tutor-Marked Assignment

1. Differentiate between Public and Private Goods.
2. List and explain the advantages and disadvantages of public goods
3. Define the term Merit goods.

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Unit Four: Allocation of Resources

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1.0. INTRODUCTION

Allocation of resources, apportionment of productive assets among different uses. Resource allocation arises as an issue because the resources of a society are in limited supply, whereas human wants are usually unlimited, and because any given resource can have many alternative uses.

In free-enterprise systems, the price system is the primary mechanism through which resources are distributed among the uses most desired by consumers. In planned economies and in the public sectors of mixed economies, the decisions regarding resource distribution are political. Within the limits of existing technology, the aim of any

economizing agency is to allocate resources in a manner that obtains the maximum possible output from a given combination of resources.

2.0. Objectives

At the end of this unit, you should be able to:

- Define and understand the meaning of Meaning of Allocation of Resources
- Define and understand the Key players: consumers and producers
- Know the Advantages and Disadvantages of Resources in a free market Economy

3.0. Main Content

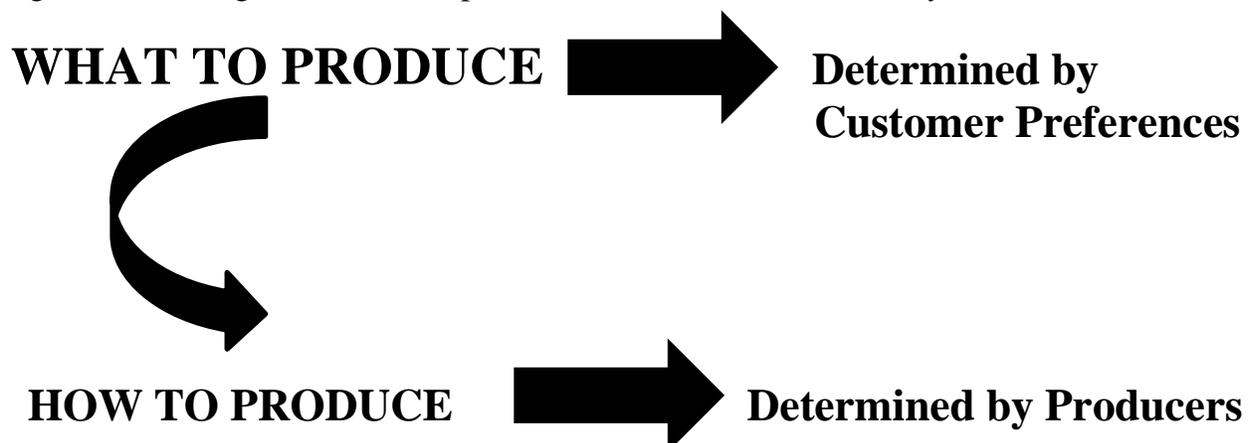
3.1. Meaning of Allocation of Resources

Allocation of resources refers to the way in which resources are distributed to produce various goods and services. One of the key characteristics of a free market economy is that all resources are privately owned. The use or allocation of these resources are influence by two decisions – what to produce and how to produce. In a free market, these decisions are also determined by private players. Let’s have a look at how these decisions include resource allocation.

3.2. Key Players: Consumers and Producers

In a free market economy, there is free interaction of market forces that work to maximize their own interest. The decision of “what to produce” is influenced by consumers, while the decision regarding “how to produce” is made by producers.

Figure 1: showing consumer and producer in a free market economy



(for profits)

3.2.1. Backdrop of Freedom

Both consumers and producers act in their self-interest, in an environment where there is freedom of choice. This means that consumers are free to purchase only those products that fulfil some goals – necessity, luxury, satisfaction, etc. Moreover, producers are free to allocate the resources in manufacturing any product in which they can earn a profit. Those producers that can best satisfy the needs or align with the preferences of consumers will earn enough money to stay in business.

3.2.2. Interaction Between the Key Players

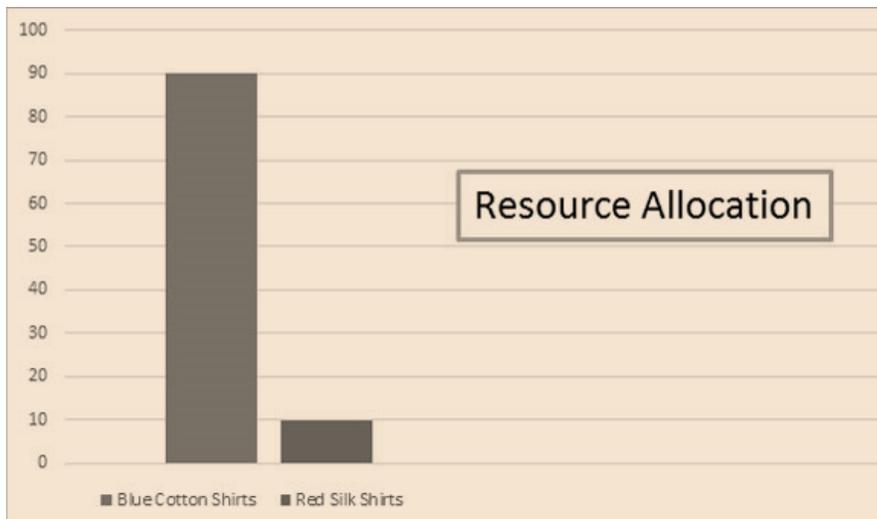
How do producers get an idea of consumer needs or preferences?

In this analysis, let us say there are two manufacturers of garments. One makes blue cotton shirts and the other makes red silk shirts. Consumers may prefer blue cotton shirts and very few may purchase the red silk ones. Since more blue cotton shirts would be sold, the manufacturer would allocate more resources to make these, while the manufacturer of red silk shirts would reduce resources.

Thus, in making purchases of blue cotton shirts, consumers communicate their preference to the manufacturers. And resource allocation is done according to this preference.

Thus, more resources are allocated to the production of blue cotton shirts and less resources are allocated to the production of red silk shirts.

Figure 2: showing the Resource Allocation between blue cotton shirts and Red silk shirts



There is another aspect to the interaction between consumers and producers – price mechanism. Price is the ultimate indicator that is used by consumers and producers to communicate with each other. This determines the demand for a particular product, which in turn determines the quantity. Taking these inputs, the producers make decisions regarding the allocation of resources.

However, assuming a manufacturer of blue cotton shirts prices them at N2,000. While customers may like blue cotton shirts, a majority of them may not wish to pay 2,000 bucks for them. So, there will be low demand and the manufacturer would not be able to sell all the shirts. He will then reduce the price of these shirts to say N1,000. There may be too many customers for the shirts at this price, much more than the shirts. The manufacturer will then raise the price to N1, 800. At this price, the demand for the shirts may be the same as the supply.

So, whenever supply exceeds demand, the price changes to take the market to harmony, so that there is accord between producers and consumers. Similarly, when demand overshoots supply, prices rise till the market reaches a point of balance.

Figure 3: showing the demand by the consumers and the price of the product and the profit to the producers.



Therefore, prices generate signals that act as communication points between producers and consumers. Producers, who have a profit motive, determine resource allocation in such a way that their cost does not exceed the revenues that would be generated from shirt sales.

3.2.3. Free Market Economy

A free market economy is driven by individual innovation and the notion that hard work and ingenuity will be rewarded by success. All businesses exist to make a profit. Therefore, in the free market system, a successful business makes a consistent profit in a field of competitors. The concept of competition is an important component of a free market system.

Competition in the marketplace provides the best possible product to the customer at the best price. When a new product is invented, it usually starts out at a high price, once it is in the market for a period of time, and other companies begin to copy it, the price goes down as new, similar products emerge. In a competitive market, the poor versions of the product or the overpriced will be pushed out of the market because consumers will reject them.

The free market system determines the winners and losers in each industry based on the demands of the customer, whether industrial, business customers, or consumers, people who buy for personal use.

In a free market system, the entrepreneur takes a great risk to launch a business, putting up capital, with the hope that the product or service will succeed. If the risk is considered a disadvantage, when the business succeeds, the profit and control of the businesses future is determined by the owner, not the government.

3.3. Advantages of Resources in a free Market Economy

1. Consumer Sovereignty

In a free market, producers produce what consumers want at a reasonable price. It gives the consumer more choice for their purchases.

2. Absence of Bureaucracy

Free markets reduce cost, lead to more innovation and research & development through the absence of red tape. Entrepreneurs don't have to wait for the government to tell them what to make. They study demand, research trends and meet the customer's needs through innovation. This also encourages competition amongst firms to improve their product and service.

3. Motivational Influence of Free Enterprise

Guided by the invisible hand, entrepreneurs take a risk to fulfill consumer demand. Those entrepreneurs who succeed are rewarded with profits. (The invisible hand is an economic concept where market demand act as signals for producers, i.e., because consumers want and are willing to pay for bread, a baker has the incentive to produce bread).

4. Optimum Allocation of Resources

Resources in the market are better distributed and allocated. Since consumers are willing to pay for a certain quantity of a product, producers are willing to pay to acquire raw materials. Otherwise, producers produce too much of a good that no one wants. It also encourages firms to be more efficient as they seek to produce at the lowest price possible to maximize their profit.

3.4. Disadvantages of Resources in a free Market Economy

These are four disadvantages of a free market economy.

1. Poor Quality

Since profit maximization is the biggest motivation for firms, they may try to reduce their costs unethically by polluting the environment or by exploiting workers.

2. Merit Goods

Goods and services that are not profitable will not be produced/run. Rural communities will suffer as a result, e.g., regarding transport and post. For example, rural hospitals may not be profitable to run but are necessary.

3. Firm Power

Large firms can still dominate certain markets, even where there is competition, and exploit suppliers (by squeezing their prices down) and consumers (by charging higher selling prices) to maximize profits. Amazon has done this in the book industry by dictating unfair terms to publishers.

4. Unemployment

Certain members of society will not be able to work with the elderly or the unemployed because their skills are not marketable. They will be left and will fall into poverty unless there is no government, they cannot be helped.

Self-Assessment Exercise

Discuss the term 'free market economy'.

4.0 Conclusion

In economics, resource allocation is the assignment of available resources to various uses. In the context of an entire economy, resources can be allocated by various means, such as markets or central planning. In project management, resource allocation or resource management is the scheduling of activities and the resources required by those activities while taking into consideration both the resource availability and the project time

5.0 Summary

In this unit, we have learnt and discuss on meaning of allocation of resources, key players; consumers and producers, backdrop of freedom, interaction between the key players. However, we also discuss on free market Economy, advantages and disadvantages of resources in a free market economy.

6.0. Tutor-Marked Assignment

1. List and explain the advantages and disadvantages of resources in a free market economy.
2. Discuss on the key players in resources allocation
3. Discuss the term ‘Allocation of resources

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MODULE THREE

Public Debts, Budgeting and Public Expenditure

Unit One: Public debts

Unit Two: Public Budget

Unit Three: Public Expenditure

Unit Four: Budgeting

Unit One: Public Debts

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3.2	Methods of Redemption of Public Debt
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3.4	The Burden of Public Debt
3.4.1	Problems of Burden of Public Debt
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1.0. INTRODUCTION

Modern governments need to borrow from different sources when current revenue falls short of public expenditures. Thus, public debt refers to loans incurred by the government to finance its activities when other sources of public income fail to meet the requirements. In this wider sense, the proceeds of such public borrowing constitute public income.

However, since debt has to be repaid along with interest from whom it is borrowed, it does not constitute income. Rather, it constitutes public expenditure. Public debt is incurred when the government floats loans and borrows either internally or externally from banks, individuals or countries or international loan-giving institutions.

What is true about public borrowing is that, like taxes, public borrowing is not a compulsory source of public income. The word ‘compulsion’ is not applied to public borrowing except in certain exceptional cases of borrowing.

2.0. Objectives

At the end of this unit, you should be able to:

- Understand the meaning and Definition of Public Debt
- Understand the meaning and Classification of Public Debt
- Understand the methods of Redemption of Public Debt
- Understand the reason why the state borrowed
- Understand the limit to Public Debt and how we assess Debt

3.0 Main Content

3.1. Meaning of Public Debt

Public debt refers to a part of the total borrowings by the Government which includes such items as market loans, special bearer bonds, treasury bills and special loans and securities issued by the Reserve Bank. It also includes the outstanding external debt.

However, it does not include the following items of borrowings:

- (i) small savings,
- (ii) provident funds,
- (iii) other accounts, reserve funds and deposits.

The aggregate borrowings by the Government comprising the public debt and these other borrowings are generally known as 'net liabilities of the Government'.

3.1.1. The Objectives:

Most government debt is held in long-term interest bearing securities such as national savings certificates, rural development bonds, capital development bonds, etc. In industrially advanced countries like the U.S.A., the term government or public debt refers to the accumulated amount of what government has borrowed to finance past deficits.

In such countries the government debt has a very simple relationship to the government deficit the increase in debt over a period (say one year) is equal to its current budgetary deficit.

3.1.2. The State generally borrows from the people to meet three kinds of expenditure:

- (a) to meet budget deficit,
- (b) to meet the expenses of war and other extraordinary situations and
- (c) to finance development activity.

(a) Public Debt to Meet Budget Deficit:

It is not always proper to effect a change in the tax system whenever the public expenditure exceeds the public revenue. It is to be seen whether the transaction is casual or regular. If the budget deficit is casual, then it is proper to raise loans to meet the deficit. But if the deficit happens to be a regular feature every year, then the proper course for the State would be to raise further revenue by taxation or reduce its expenditure.

(b) Public Debt to Meet Emergencies like War:

In many countries, the existing public debt is, to a great extent, on account of war expenses. Especially after World War II, this type of public debt had considerably increased.

(c) Public Debt for Development Purposes:

The Government borrow for development purposes in other to construct railways, irrigation projects and road construction and other works. In most developing countries of the world, the government borrows from the banks to meet the costs of development project and infrastructural facilities.

3.1.3. The Burden of Public Debt

When a country borrows money from other countries (or foreigners) an external debt is created. It owes its all to others. When a country borrows money from others it has to pay interest on such debt along with the principal. This payment is to be made in foreign exchange (or in gold). If the debtor nation does not have sufficient stock of foreign exchange (accumulated in the past) it will be forced to export its goods to the creditor nation. To be able to export goods a debtor nation has to generate sufficient exportable surplus by curtailing its domestic consumption.

Thus an external debt reduces society's consumption possibilities since it involves a net subtraction from the resources available to people in the debtor nation to meet their current consumption needs. In the 1990s, many developing countries such as Poland, Brazil, and Mexico faced severe economic hardships after incurring large external debt. They were forced to curtail domestic consumption to be able to generate export surplus (i.e., export more than they imported) in order to service their external debts, i.e., to pay the interest and principal on their past borrowings.

The burden of external debt is measured by the debt-service ratio which returns to a country's repayment obligations of principal and interest for a particular year on its external debt as a percentage of its exports of goods and services (i.e., its current receipt)

in that year. An external debt imposes a burden on society because it represents a reduction in the consumption possibilities of a nation. It causes an inward shift of the society's production possibilities curve.

3.1.4. Three Problems

When we shift attention from external to internal debt we observe that the story is different.

It creates three problems:

- (1) Distorting effects on incentives due to extra tax burden,
- (2) Diversion of society's limited capital from the productive private sector to unproductive capital sector, and
- (3) Showing the rate of growth of the economy.

These three problems are discussed as follows:

1. Efficiency and Welfare Losses from Taxation:

When the government borrows money from its own citizens, it has to pay interest on such debt. Interest is paid by imposing tax on people. If people are required to pay more taxes simply because the government has to pay interest on debt, there is likely to be adverse effects on incentives to work and to save. It may be a happy coincidence if the same individual were tax-payer and a bond-holder at the same time.

But even in this case one cannot avoid the distorting effects on incentives that are inescapably present in the case of any taxes. If the government imposes additional tax on Mr. X to pay him interest, he might work less and save less. Either of the outcome or both — must be reckoned a distortion from efficiency and well-being. Moreover, if most bond-holders are rich people and most tax-payers are people of modest means repaying the debt money redistributes income (welfare) from the poor to the rich.

2. Capital Displacement (Crowding-Out) Effect:

Secondly, if the government borrows money from the people by selling bonds, there is diversion of society's limited capital from the productive private to unproductive public sector. The shortage of capital in the private sector will push up the rate of interest.

In fact, while selling bonds, the government competes for borrowed funds in financial markets, driving up interest rates for all borrowers. With the large deficits of recent years, many economists have been concerned in the competition for funds; also higher interest

rates have discouraged borrowing for private investment, an effect known as crowding out.

This, in its turn, will lead to fall in the rate of growth of the economy. So, decline in living standards is inevitable. This seems to be the most serious consequence of a large public debt. As Paul Samuelson has put it: “Perhaps the most serious consequence of a large public debt is that it displaces capital from the nation’s Stock of wealth. As a result, the pace of economic growth slows and future living standards will decline.”

3. Public Debt and Growth:

By diverting society’s limited capital from productive private to unproductive public sector public debt acts as a growth-retarding factor. Thus an economy grows much faster without public debt than with debt.

When we consider all the effects of government debt on the economy, we observe that a large public debt can be detrimental to long-run economic growth.

In conclusion, there is no doubt a feeling among some people that interest payment on the national debt repayment is a drain on the nation’s limited economic resources. It is pure waste of our resources to use them to pay interest on the debt.

This argument is wrong because interest payment on the debt if domestically held do not prevent a use of economic resources at all. It is, of course, true that if our debt is held by foreigners, we will suffer a loss of resources.

In the case of domestically held (internal) debt, internal payment on the debt involves a transfer of income from Nigerian taxpayers to Nigerian bondholders of the same generation. Since, in most cases, taxpayers and bondholders are different entities, a large national debt inevitably involves income redistribution effects. But internal debt does not involve any using up of the nation’s real economic resources.

3.1.5. Limit to Public Debt:

Though there is no clear end limit to internal debt there should be a definite limit to external debt. Moreover the upper limit to internal debt should be set by the annual rate of growth of per capita GNP.

Points to remember	For quick revision
The costs of the public debt include :	
1. The private sector output given up at the time the debt was incurred.	
2. Lack of constraint on growth of the public sector.	
3. Higher interest rates, discouraging private investment.	
4. Externally held debt that must be repaid.	
5. Problems of income redistribution when the debt is repaid.	

3.1.6. Assessing the Debt:

What kind of burden does the national debt impose on taxpayers and on future generations?

One of the most obvious and significant burdens of the national debt is the interest that must be paid to borrow and maintain a debt of this magnitude. The interest burden of the national debt cumulates as additional debt is incurred each year. Because the debt is not being retired, interest must be paid year after year.

The rising burden of the debt service or interest cost of maintaining the debt will be passed on to future generations who will have to pay the interest on the current debt. At the same time, however, many of those to whom interest will be paid will be Nigerian citizens who own government securities.

Should we pay off the debt? First of all, it would be a huge, probably impossible, burden, even over several years, to raise, through taxes and other revenues, the amount needed to pay off the debt. Second, with repayment of the debt, a significant income redistribution would occur as the average taxpayer became poorer due to the increased tax burden and the holders of government securities became richer with their newly redeemed funds.

Also, some portion of the debt is external, or foreign-owned. While, under normal conditions, this is not a serious concern, in a period of accelerated repayment it would mean a sizable outflow of funds. Finally, in order to pay off the public debt, a series of surplus budgets would be needed.

However, as Keynes pointed out, a surplus budget has a contractionary impact on the economy. While the debt was being paid off, economic activity would decline. In short, the opportunity cost of lowering the national debt would be a slowing down of the economic activities.

3.2 Classification of Public Debt:

The structure of public debt is not uniform in any country on account of factors such as categories of markets in which loans are floated, the conditions for repayment, the rate of interest offered on bonds, purposes of borrowing, etc.

In view of these differences in criteria, public debt is classified into various categories:

- i. Internal and external debt
- ii. Short term and long term loans
- iii. Funded and unfunded debt
- iv. Voluntary and compulsory loans
- v. Redeemable and irredeemable debt
- vi. Productive or reproductive and unproductive debt/deadweight debt

i. Internal and External Debt:

Sums owed to the citizens and institutions are called internal debt and sums owed to foreigners comprise the external debt. Internal debt refers to the government loans floated in the capital markets within the country. Such debt is subscribed by individuals and institutions of the country.

On the other hand, if a public loan is floated in the foreign capital markets, i.e., outside the country, by the government from foreign nationals, foreign governments, international financial institutions, it is called external debt.

ii. Short term and Long Term Loans:

Loans are classified according to the duration of loans taken. Most government debt is held in short term interest-bearing securities, such as Treasury Bills or Ways and Means Advances (WMA). Maturity period of Treasury bill is usually 90 days.

Government borrows money for such period from the central bank of the country to cover temporary deficits in the budget. Only for long term loans, government comes to the

public. For development purposes, long period loans are raised by the government usually for a period exceeding five years or more.

iii. Funded and Unfunded or Floating Debt:

Funded debt is the loan repayable after a long period of time, usually more than a year. Thus, funded debt is long term debt. Further, since for the repayment of such debt government maintains a separate fund, the debt is called funded debt. Floating or unfunded loans are those which are repayable within a short period, usually less than a year.

It is unfunded because no separate fund is maintained by the government for the debt repayment. Since repayment of unfunded debt is made out of public revenue, it is referred to as a floating debt. Thus, unfunded debt is a short term debt.

iv. Voluntary and Compulsory Loans:

A democratic government raises loans for the nationals on a voluntary basis. Thus, loans given to the government by the people on their own will and ability are called voluntary loans. Normally, public debt, by nature, is voluntary. But during emergencies (e.g., war, natural calamities, etc.) government may force the nationals to lend it. Such loans are called forced or compulsory loans.

v. Redeemable and Irredeemable Debt:

Redeemable public debt refers to that debt which the government promises to pay off at some future date. After the maturity period, the government pays the amount to the lenders. Thus, redeemable loans are called terminable loans.

In the case of irredeemable debt, government does not make any promise about the payment of the principal amount, although interest is paid regularly to the lenders. For the most obvious reasons, redeemable public debt is preferred. If irredeemable loans are taken by the government, the society will have to face the consequence of burden of perpetual debt.

vi. Productive (or Reproductive) and Unproductive (or Deadweight) Debt:

On the criteria of purposes of loans, public debt may be classified as productive or reproductive and unproductive or deadweight debt. Public debt is productive when it is used in income-earning enterprises. Or productive debt refers to that loan which is raised by the government for increasing the productive power of the economy.

A productive debt creates sufficient assets by which it is eventually repaid. If loans taken by the government are spent on the building of railways, development of mines and industries, irrigation works, education, etc., income of the government will increase ultimately. Productive loans thus add to the total productive capacity of the country.

Public debt is unproductive when it is spent on purposes which do not yield any income to the government, e.g., refugee rehabilitation or famine relief work. Loans for financing war may be regarded as unproductive loans. Instead of creating any productive assets in the economy, unproductive loans do not add to the productive capacity of the economy. That is why unproductive debts are called deadweight debts.

3.3. Methods of Redemption of Public Debt

Redemption of debt refers to the repayment of a public loan. Although public debt should be paid, debt redemption is desirable too. In order to save the government from bankruptcy and to raise the confidence of lenders, the government has to redeem its debts from time to time.

Sometimes, the government may resort to an extreme step, such as repudiation of debt. This extreme step is, of course, violation of the contract. Use of repudiation of debt by the government is economically unsound.

Here, instead of concentrating on the repudiation of debt, we discuss below other important methods for the retirement or redemption of public debt

i. Refunding:

Refunding of debt implies issue of new bonds and securities for raising new loans in order to pay off the matured loans (i.e., old debts).

When the government uses this method of refunding, there is no liquidation of the money burden of public debt. Instead, the debt servicing (i.e., repayment of the interest along with the principal) burden gets accumulated on account of postponement of the debt-repayment to save future debt.

ii. Conversion:

By debt conversion we mean reduction of interest burden by converting old but high interest-bearing loans into new but low interest-bearing loans. This method tends to reduce the burden of interest on the taxpayers. As the government is enabled to reduce the burden of debt which falls, it is not required to raise huge revenue through taxes to service the debt.

Instead, the government can cut down the tax liability and provide relief to the taxpayers in the event of a reduction in the rate of interest payable on public debt. It is assumed that since most taxpayers are poor people while lenders are rich people, such conversion of public debt results in a less unequal distribution of income.

iii. Sinking Fund:

One of the best methods of redemption of public debt is sinking fund. It is the fund into which certain portion of revenue is put every year in such a way that it would be sufficient to pay off the debt from the fund at the time of maturity. In general, there are, in fact, two ways of crediting a portion of revenue to this fund.

The usual procedure is to deposit a certain (fixed) percentage of its annual income to the fund. Another procedure is to raise a new loan and credit the proceeds to the sinking fund. However, there are some reservations against the second method.

Dalton has opined that it is in the Tightness of things to accumulate sinking fund out of the current revenue of the government, not out of new loans. Although convenient, it is one of the slowest methods of redemption of debt. That is why capital levy as a form of debt repudiation is often recommended by economists.

iv. Capital Levy:

In times of war or emergencies, most governments follow the practice of raising money necessary for the redemption of the public debt by imposing a special tax on capital.

A capital levy is just like a wealth tax in as much as it is imposed on capital assets. This method has certain decisive advantages. Firstly, it enables a government to repay its (emergency) debt by collecting additional tax revenues from the rich people (i.e., people who have huge properties).

This then reduces consumption spending of these people and the severity of inflation is weakened. Secondly, progressive levy on capital helps to reduce inequalities in income and wealth. But it has certain clear-cut disadvantages too. Firstly, it hampers capital formation. Secondly, during normal time this method is not suggested.

v. Terminal Annuity:

It is something similar to sinking fund. Under this method, the government pays off its debt on the basis of terminal annuity. By using this method, the government pays off the debt in equal annual instalments.

This method enables government to reduce the burden of debt annually and at the time of maturity it is fully paid off. It is the method of redeeming debts in instalments since the government is not required to make one huge lump sum payment.

vi. Budget Surplus:

By making a surplus budget, the government can pay off its debt to the people. As a general rule, the government makes use of the budgetary surplus to buy back from the market its own bonds and securities. This method is of little use since modern governments resort to deficit budget. A surplus budget is usually not made.

vii. Additional Taxation:

Sometimes, the government imposes additional taxes on people to pay interest on public debt. By levying new taxes—both direct and indirect—the government can collect the necessary revenue so as to be able to pay off its old debt. Although an easier means of repudiation, this method has certain advantages since taxes have large distortionary effects.

viii. Compulsory Reduction in the Rate of Interest:

The government may pass an ordinance to reduce the rate of interest payable on its debt. This happens when the government suffers from financial crisis and when there is a huge deficit in its budget.

There are so many instances of such statutory reductions in the rate of interest. However, such practice is not followed under normal situations. Instead, the government is forced to adopt this method of debt repayment when situation so demands.

Self-Assessment Exercise

Define the term 'Public Debt'.

4.0 Conclusion

We have discuss in this unit that public debt is how much a country owes to lenders outside of itself. These can include individuals, businesses, and even other governments. The term public debt is used interchangeably with the term sovereign debt. However, public debt usually only refers to national debt, but some countries also include the debt owed by states, provinces, and municipalities. Therefore, be careful when comparing public debt between countries to make sure the definitions are the same.

5.0 Summary

In this unit, we have learnt and discuss on the classification of public debt, methods of redemption of public debt, why do state borrowed. However, we also discuss on the burden of public debt, problems of burden of public debt and limit of public debt.

6.0. Tutor-Marked Assignment

1. Define ‘Public Debt’
2. Discuss the methods of redemption of public debt
3. What do you understand by ‘Burden of Public Debt’
4. Why do you think state borrowed?

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Unit Two: Public Budget

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1.0. INTRODUCTION

Each government wants to undertake several economic and non-economic activities and pursue certain policies, which have their financial counterparts in the form of revenues, borrowings, and expenditure. Accordingly, the government describes its intentions and policies, which it would like to pursue during the forthcoming period usually a year and draws up a financial plan corresponding to this scheme of things. Such a financial plan contains the details of estimated receipts as also proposed expenditures and other disbursements under various heads. Therefore, a budget enables the authorities to decide about each individual item of revenue and expenditure in the over-all context of its policies.

No government can afford to take taxation, borrowings, expenditure and other fiscal decisions at random. On account of their connection, all decisions and policies must form a part of its over-all set of objectives. The whole approach has to be quite systematic if chaos and wastage are to be avoided. In general, a budget shows financial accounts of the previous year, the budget and revised estimates of the current year, and the budget estimates for the forthcoming year. In addition, the estimates for the forthcoming year are split up into two parts- those based upon the assumption that existing taxes and their rates would continue, and those based upon the proposed changes therein. A budget, in this sense, becomes both a description of the fiscal policies of the government and the financial plans corresponding to them.

2.0. Objectives

At the end of this unit, you should be able to:

- Define and understand the meaning of Public Budget
- Understand the reasons why the account of the budget maybe split up
- Know the kinds and types of Government Budget
- Know the classification and importance of Government budget

3.0. Main Content

3.1 Meaning of Public Budget

In a budget, it is quite possible that some revenue happen to be earmarked for certain specific expenditures. For example, certain projects for poorer sections of the community. In an underdeveloped country to whose poor people this argument could be directed, this argument does not apply because there is not enough to significantly improve the lot of everyone.

Through income redistribution the poor masses can only feel a marginal relief. Even if there were a lot of income to redistribute, the desirability of reducing inequalities would not be disproved. It would only point towards the need for going slow in this direction, so that the poorer sections also get accustomed to higher standards of living.

The second consideration is that of the effect of qualities on production through the will and capacity to work, save and invest. This is a controversial field and clear cut widely acceptable generalizations are difficult to make. In a poor country, where the need to reduce inequalities is the greatest, saving potential is only with the higher income groups. With a big shift towards equalities, such a saving potential is much reduce especially because the poorer sections of the community are bound to consume away a major portion of their newly acquired incomes. The Objective of economic equality, therefore, comes into conflict with that of economic growth. In other words, both will and capacity to save on the part of the members of the society are likely to suffer when a shift towards income and wealth equalities is made. An underdeveloped country, therefore is faced with a difficult choice.

Thirdly, the distributive effects of public expenditure must be viewed in the context of its method of financing, for example, if the tax system of the country were regressive, it would militate against the distributive effects of public expenditure. Similarly, if public expenditure were financed through deficit financing, or through such borrowings as are inflationary in character, inequalities would widen. However, deficit financing to a limited extent need not generate inflationary pressures. Similarly, public borrowings out

of genuine savings of the economy are expected to only mildly inflationary, while the long term solution of its economic difficulties cannot be had without economic growth, the problems of income distribution also cannot be postponed indefinitely.

A budget may be presented in parts. In Nigeria, for example, railway financed form a part of the central Government finances, but the railway budget is presented separately from the main budget of the central Government. However, the totals of the receipts and expenditure of the railways are incorporated in the budget statement of the Government of Nigeria. Similarly, the budget may be divided on the basis of different layers of the government. In a big country, such Nigeria, it is mostly that in addition to the central Government, there will be various states and local government. Each layer of the government prepares, passes and implements its own budget. More so, some intergovernmental transactions also take place and depending upon the legal and accounting procedure such transactions may form a part of the budget of one layer or the other. The net effect of the fiscal policy of the government depends upon the collective budgeting of all the layers of the government.

3.2 Reasons why the account of the Budget maybe split up

There are two reasons why the account of the budget maybe split up.

1. The Political Cause: When technically, the existing executive government may or continue for the full year on account of the fact that elections are due, then a 'lame duck budget' is presented a budget which covers only a part of the year. Such a budget enables the next executive to

Formulate its own budget for the rest of the year.

2. Supplementary Budget: it is not always possible to foresee and provide for all emergencies such as war or natural calamities, which will necessitate an extra expenditure. Similarly, for some reason or other, the revenue receipts may fall short of the expected ones. In these circumstances, the authorities may find it fit to have a supplementary budget.

It has been stated above that in many countries, including Nigeria, the preparation and passage of the public budget are part of an annual exercise. However, the sanctity of this practice has been questioned by many. In that vein, let us briefly discuss this situation referred above in the context of Nigeria budgetary procedure.

There are three issues that it raised in this situation, they are:

1. In Nigeria, fiscal year runs from 1st January to December of the same year, until recently (2015-2017) where it has not been followed.

2. It is argued that the annual practice of preparation, presentation and passage of the budget is a wasteful one. Expenditure against amounts sanctioned starts soon after. Secrecy surrounding budget proposals is also a debatable issue. It is asserted that budgetary proposals are unnecessarily kept secret till their actual presentation to the legislature. This practice causes a lot of uncertainty and speculation and is damaging to a proper planning of economic activities by everyone. In Nigeria, this uncertainty affects even the state budget because of large scale transfer of resources from the center to the state. Till the passage of the central budget, the state cannot assess the size of these transfers. The state budgets are also indirectly affected by the inflationary impact of the central budget.

A good budget is one, which is able to satisfy certain conditions, and is formulated according to certain well-drawn principles. One of such principles is that, the budget should be accompanied by an account of the performance of the fiscal policies and programmes of the government during the previous year. This provides a necessary basis for deciding as to what was to be done, what has been accomplished and what more should be aimed at and what directions.

The budget proposals should also be accompanied by an analytical description of the current economic situation of the country as also the position of the treasury. The budget proposals become far more meaningful in the light of the above mentioned accounts and descriptions. However, they enable the legislature and the public to see the relevance or otherwise of the budget proposals and also help the legislature in taking a more objective and rational stand in this connection. Furthermore, the proposals themselves should be as clear as possible. They should be clearly comprehensible so that correct judgement can be formed as to the way in which the budget is expected to function in the coming year. Accordingly, detailed budget proposals must accompany the proposal under major heads of receipts and expenditure. There should also be various statements, which highlight the particular aspects of the budget.

An economic and functional classification of the budget depicts its role in the working of the economy in a much clearer way than can be the case with only financial proposals under various departments, and so on. Similarly, though complete accuracy cannot be expected, financial estimates of a good budget should not be wide off the mark. They should be fairly close to the actual under normal circumstances. A budget should reflect the overall policy and purpose of the government and should be so designed as to help the society move nearer to the chosen goals.

The Government accounts both the center and the state are kept in three parts; namely:

(a) Consolidated Fund: All sums of revenues, which the Government realizes, the loans raised by it, or the receipts by way of repayment of loans, etc, go to this fund. Similarly, all expenditure is also incurred out of this fund. No amount can be spent from the consolidated fund of Nigeria without the sanction of parliament, barring certain expenses

specified in the constitution and charged to the fund (such as the salaries of the judges of the supreme court and auditor and comptroller general of Nigeria). These expenses are included in the budget but are not put to vote in parliament.

(b) Contingency Fund: This consists of those money, which are put in disposal of the government to meet those expenses, which cannot be delayed. A prior sanction of the parliament (for spending an amount out of the contingency fund of Nigeria) or of a state legislature for spending an amount out of the state contingency fund is not needed. However, any such expenditure has to be approved later by the parliament or the state legislature as the case may be and the contingency fund is to be replenished.

(c) Public account: Sums of money in the public account fund are those, which do not belong to the Government. This account includes sums collected on account of provident funds, small savings, deposits and advances etc. To make payments out of the public account, the sanction of parliament or the state legislature is not needed. In Nigeria, both the central and state budget statements shows the receipts and payments under the above mentioned three accounts separately.

3.3 Kinds of Budget

In olden days, a budget was more or less only a statement of the financial plans of the government. But now the importance of the government activities is fully recognized. Government's financial activities contribute a major portion to the flow of funds in the economy and the government's fiscal policy together with the financial flows a wide impact on the working of the economy.

Accordingly, now various facets of budget estimates are presented to indicate the manner in which the budget would be affecting the economy. The actual role of the government transactions in the life and working of the economy cannot be underestimated because of the immense impact, which may have. According to Pigou, though money is practically always the medium of public finance, it is not the thing in which it really deals with. The money is merely a ticket embodying commend over services and goods. It is those, not the money that represents them, which constitute the object of all transaction. Therefore, it is through them that the budget affects economic activities of the society. Before, however, we move on the kinds of budgets from the economic standpoints, let us first distinguish between the executive and legislative budgets:

1. A legislative Budget

This is the one, which is prepared and adopted by the legislature directly or through its committees. An executive budget on the other hand is the one which is prepared by the executive branch of the government. Such a budget is also normally passed and adopted by the legislature but by the hands of the executive. It is generally believed that an executive budget is preferable to the legislative one. The executive is better equipped to

estimate probable receipts and required expenditures. Legislature is not likely to be able to do this efficiently. However, the final responsibility for the executive of the budget always lies with the executive. It is not desirable to just thrust certain estimates and figures upon the executive and ask it to realize the targets especially if these estimates are highly unrealistic. Finally, when the executive prepares the budget, it can be more directly held responsible for any shortcomings and lapses.

2. Multiple and Unified Budgets

In United States of America, there was a tradition to divide the budget into parts and present each part in a way as would make it possible to evaluate the specialized functions of the government. But it is now felt that what is needed is a unified budget because it is total effect of a budget which is more relevant and that can be seen only in a unified budget. This is basically so at times of emergencies. Then true results of the fiscal operations of the government budget get scattered in the case of multiple budgets and have to trace out through various documents.

3. Conventional and Cash Budgets

In United State of America, another distinction is made between the conventional or administrative budget and the cash budget. Apart from the minor differences, the main differences between the two is that in conventional budget, revenue and expenditure are shown on accrual basis and those flows of funds are excluded which do not belong to the government. In this way, the conventional budget is stated to harbor two deficiencies as far as its role in the flows of funds in the economy and, therefore, its effects on the economy, are concerned.

Firstly, as noted above, it runs on accrual basis and as receipts and payments falling due in a period generally differ from the ones actually made, there is a distortion of the actual picture of the flow of funds caused by the government activities.

Secondly, the actual handing of various cash receipts and payments, though not belonging to the government, also have their profound role in the flow of the funds the effects thereof. Thus, the conventional budget always presents an inadequate picture of the government activities.

In the cash budget, on the other hand, all the flows of funds to and from the government of actual payment basis are shown, inclusive of funds, which are not owned by the government. Cash budget, therefore, is invariably larger than the conventional budget and a better representative of reality.

(4). Zero Base Budgeting

Zero base budgeting is an innovative technique to guard against wastage in public expenditure. The technique works out not through auditing, which is a post-operative check but an examination of the very rationale of an expenditure item under consideration. It is a method which is sought to be transplanted from the commercial world. The management of a commercial enterprise, in an effort to maximize its profitability, should be interested in detailed investigation of each item of expenditure and see whether it is really needed, or whether it should be revised or even totally deleted. More so, each section of the enterprise is to start with an assumed position of its own non-existence (and, therefore, no provision for it in the budget) and compare it with alternative levels of its operation with corresponding budgetary provisions. If a section is not able to justify its own existence, it would be closed down and if its existence is justified the optimum level of its operations and the corresponding budgetary provisions have also to be defended. In other words, in zero based budgeting, no section of business is supposed to be essential. It has to prove its worthwhileness.

3.4. Types of Government Budget

Government budgets are of the following types:

- Union Budget : The union budget is the budget prepared by the central government for the country as a whole.
- State Budget : In countries like India, there is a federal system of government thus every state prepares its own budget.
- Plan Budget: It is a document showing the budgetary provisions for important projects, programmes and schemes included in the central plan of the country. It also shows the central assistance to states and union territories.
- Performance Budget: The central ministries and departments dealing with development activities prepare performance budgets, which are circulated to members of parliament. These performance budgets present the main projects, programmes and activities of the government in the light of specific objectives and previous years' budgets and achievements.
- Supplementary Budget: This budget forecasts the budget of the coming year with regards revenue and expenditure.
- Zero-Based Budget: This is defined as the budgetary process which requires each ministry/department to justify its entire budget in detail. It is a system of budget in which all government expenditures must be justified for each new period.

3.5. Classification of Budget

A budget can be of 3 types:

- **Balanced Budget:** When government expected receipts are equal to the government proposed expenditure, it is called a balanced budget.
- **Deficit Budget:** When government expected expenditure exceeds government proposed receipts, the budget is said to be deficit. A deficit can be of 3 types, Revenue, Fiscal and Primary deficit.
- **Surplus:** When government expected receipts are more than proposed expenditure.

A budget can be classified in 3 categories which are:

- according to Function
- according to Flexibility
- according to Time

3.6. Need and importance of a government budget

Government Budget is a subject of immense importance for a variety of reasons

1. Planned approach to Government's activities
2. Integrated Approach to fiscal operations
3. Affecting economic Activities
4. Instrument of Economics policy
5. Index of Government's functioning
6. Public Accountability
7. Allocation of Resources

Self-Assessment Exercise

List and explain the type of Government Budget.

4.0 Conclusion

A budget is a political instrument that: weighs policy priorities against available public resources; specifies the ways and means of providing public programs and services; establishes the cost of programs and the criteria by which these programs will be evaluated for efficiency and effectiveness; ensures that the programs will be evaluated at least once each budget cycle; redistributes income; provides the government with a spending limitation; and provides transparency by which the government may be held accountable at the end of each budget cycle or political term.

5.0 Summary

In this unit, we have learnt and discussed extensively on the meaning of Public budget, reasons why the account of the budget maybe split up, kinds of budget, types of Government budget, classification of budget and finally we discuss the need and importance of a Government Budget.

6.0. Tutor-Marked Assignment

1. Define the term 'Public Budget'
2. Discuss the reasons why the account of the budget maybe split up
3. List and explain kinds of budget
4. List and explain types of Government budget
5. Discuss the importance of a government budget

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1.0. INTRODUCTION

Expenses incurred by the public authorities, such as central, state and local self-governments are called public expenditure. Such expenditures are made for the maintenance of the governments as well as for the benefit of the society as whole.

There was a misbelief in the academic circles in the nineteenth century that public expenditures were wasteful. Public expenditures must be kept low as far as practicable. This conservative thinking died down in the twentieth century, especially after the Second World War

As a modern state is termed a 'welfare state', the horizon of activities of the government has expanded in length and breadth. Now we can point out the reasons for enormous increase in public expenditure throughout the world even in the capitalist countries where laissez-faire principle operates.

2.0. Objectives

At the end of this unit, you should be able to:

- Define and understand the meaning of Public Expenditure
- Know the causes of increase in Public Expenditure
- Know the principles of Governing Public Expenditure and importance of Public Expenditure
- Understand the Wagner's law of increasing state activities and Wiseman-Peacock Hypothesis

3.0. Main Content

3.1 Meaning of Public Expenditure

Public expenditure refers to the expenses which a government incurs for (i) its own maintenance, (ii) the society and the economy, and (iii) helping other countries. In practice, however, with expanding state activities, it is becoming increasingly difficult to separate the portion of public expenditure meant for the maintenance of the government itself from the total.

Historically, public expenditure has recorded a continuous increase over time in almost every country. However, traditional thinking and philosophy did not favour this trend because it rated market mechanism as a better guide for the working of the economy and allocation of its resources. It was argued that each economic unit was the best judge of its own economic interests guided a private economic unit, the public sector had no such motivation.

Accordingly, its efficiency was bound to be very low. Has this philosophy been practiced in its entirety, public expenditure would not have grown as rapidly as it did? In reality, however, the state could not ignore problems of economic growth and social injustice. It could not remain a silent spectator of the miseries of the people. This resulted in the acceptance of several versions of socialist and welfare philosophy.

However, in spite of the fact that public expenditure has increased rapidly during the last two centuries or so in almost every state, and in spite of its growing role and importance in national economies, the area of public expenditure remains relatively unexplored. According to Lowell Harris says, 'the economists have generally concentrated their attention on the theory of taxation. The theory of public expenditure has been more or less confined to that of generalities in terms of the public expenditure on employment and prices'. Of course, it may be pointed out, that lately this deficiency is being removed by various studies in the field of public expenditure.

3.2. Causes of Increase in Public Expenditure

(a) Size of the Country and Population:

We see an expansion of geographical area of almost all countries. Even in no-man's land one finds the activities of the modern government.

Assuming a fixed size of a country, developing world has seen an enormous increase in population growth. Consequently, the expansion in administrative activities of the government (like defence, police, and judiciary) has resulted in a growth of public expenditures in these areas.

(b) Defence Expenditure:

The tremendous growth of public expenditure can be attributed to threats of war. No great war has been conducted in the second half of the twentieth century. But the threats of war have not vanished; rather it looms large. Thus, mere sovereignty, demands a larger allocation of financial sources for defence preparedness.

(c) Welfare State:

The 19th century state was a 'police state' while, in 20th and 21st centuries modern state is a 'welfare state'. Even in a capitalist framework, socialistic principles are not altogether discarded. Since socialistic principles are respected here, modern governments have come out openly for socio-economic uplift of the masses.

Various socio-economic programmes are undertaken to promote people's welfare. Modern governments spend huge money for the purpose of economic development. It plays an active role in the production of goods and services. Such investment is financed by the government.

Besides development activities, welfare activities have grown tremendously. It spends money for providing various social security benefits. Social sectors like health, education, etc., receive a special treatment under the government patronage. It builds up not only social infrastructure but also economic infrastructure in the form of transport, electricity, etc.

Provision of all these require huge finance. Since a hefty sum is required for financing these activities, modern governments are the only providers of money. However, various welfare activities of the government are largely shaped and influenced by the political leaders.

(d) Economic Development:

Modern government has a great role to play in shaping an economy. Private capitalists are utterly incapable of financing economic development of a country. This incapacity of the private sector has prompted modern governments to invest in various sectors so that economic development occurs.

Economic development is largely conditioned by the availability of economic infrastructure. Only by building up economic infrastructure, road, transport, electricity, etc., the structure of an economy can be made to improve. Obviously, for financing these activities, government spends money.

(e) Price Rise:

Increase in government expenditure is often ascribed to inflationary price rise.

3.3. Types of Public Expenditure

Public expenditure may be classified into developmental and non-developmental expenditures. Former includes the expenditure incurred on social and community services, economic services, etc. Non-developmental expenditure includes expenditures made for administrative service, defence service, debt servicing, subsidies, etc.

Public expenditure is classified into recurrent expenditure and capital expenditure. Revenue expenditure includes civil expenditure (e.g., general services, social and community services and economic services), defence expenditure, etc. On the other hand, capital expenditure comprises expenditures incurred on social and community development, economic development, defence, general services, etc.

Public expenditure may also be classified as plan expenditure and non-plan expenditure.

Non-plan expenditure falls under two broad heads, viz., revenue expenditure and capital expenditure. The former comprises interest payments, defence expenditures, subsidies, pensions, other general services (like health, education), economic services (like agriculture, energy, industry, transport and communication, science, technology and environment, etc.)

Expenditures on agriculture, rural development, irrigation and flood control, energy, industry and mineral resources, etc., are included in plan expenditure.

3.4. Principles Governing Public Expenditure or Canons of Public Expenditure

Rules or principles that govern the expenditure policy of the government are called canons of public expenditure. Fundamental principles of public spending determine the efficiency and propriety of the expenditure itself. While making its spending programme, government must follow these principles. These principles, in short, are called canons of public expenditure.

The following are the four canons of public expenditure:

- (i) Canon of benefit
- (ii) Canon of economy
- (iii) Canon of sanction
- (iv) Canon of surplus

(i) Canon of Benefit:

According to this canon, public spending has to be made in such a way that it confers greatest social benefits. In other words, public expenditure must not be geared in such a way that it provides benefits to a particular group of the community. Thus, public expenditure is to be made in those directions where general benefits rather than specific benefits flow in.

However, often public expenditure is incurred for the benefit of a particular group (say, dalits, tribals). This sort of public expenditure does not violate canon of benefit. Any public expenditure for the development of a backward area does promote social interest.

(ii) Canon of Economy:

Economy does not mean miserliness. It refers to the avoidance of wasteful and extravagant expenditure. Public expenditure must be made in such a way that it becomes productive and efficient. Efficiency in public expenditure requires economy of expenditures. To enjoy the maximum aggregate benefit from any public spending programme, it is necessary that the canon of economy is observed.

An uneconomic expansion in public expenditure will result in scarcity of funds, the much-needed growth of the productive sectors will be hampered. This means lower social benefit. It is thus obvious that the canon of economy is not independent of the canon of benefit.

(iii) Canon of Sanction:

The canon of section, as suggested by Shirras, requires that public spending should not be made without any concurrence or sanction of an appropriate authority. Arbitrariness in public spending can be avoided only if spending is approved. Further, economy in public spending can never be ensured if it is not sanctioned.

(iv) Canon of Surplus:

This canon suggests the avoidance of deficit in public spending. Like individuals, saving is a virtue for the government. So the government must prepare its budget in such a way that government revenue exceeds government expenditure so as to create a surplus. It must not run deficit to cover its expenditure.

However, modern economists do not like to attach any importance to Shirras' which is the fourth canon called the canon of surplus. To them, deficit financing is the most effective means of financing economic programmes of the government.

3.5. Importance of Public Expenditure:

An old-fashioned dictum says that "The very best of all plans of finance is to spend little, and the best of all taxes is that which is least in amount." No one today believes this philosophy. In the 1930s, J. M. Keynes emphasized the importance of public expenditure.

The modern state is described as the 'welfare state'. As a result, the activities of the modern government have widened enormously. Modern governments are undertaking various social and economic activities, particularly in less developed countries (LDCs).

i. Economic Development:

Without government support and backing, a poor country cannot make huge investments to bring about a favorable change in the economic base of a country. That is why massive investments are made by the government in the development of basic and key industries, agriculture, consumable goods, etc.

Public expenditure has the expansionary effect on the growth of national income, employment opportunities, etc. Economic development also requires development of economic infrastructures. A developing country like India must undertake various projects, like road-bridge-dam construction, power plants, transport and communications, etc.

These social overhead capital or economic infrastructures are of crucial importance for accelerating the pace of economic development. It is to be remembered here that private investors are incapable of making such massive investments on the various infrastructural

projects. It is imperative that the government undertakes such projects. Greater the public expenditure, higher is the level of economic development.

ii. Fiscal Policy Instrument:

Public expenditure is considered as an important tool of fiscal policy. Public expenditure creates and increases the scope of employment opportunities during depression. Thus, public expenditure can prevent periodic cyclical fluctuations. During depression, it is recommended that there should be more and more governmental expenditures on the ground that it creates jobs and incomes.

On the contrary, a cut-back in government's expenditure is necessary when the economy faces the problem of inflation. That is why it is said that by manipulating public expenditure, cyclical fluctuations can be lessened greatly. In other words, variation of public expenditure is a part of the anti- cyclical fiscal policy.

It is to be kept in mind that it is not just the amount of public expenditure that is incurred which is of importance to the economy. What is equally, if not more, important is the purpose of such expenditure or the quality of expenditure. The quality of expenditure determines the adequacy and effectiveness of such expenditure. Excessive expenditures may cause inflation.

Moreover, if the government has to impose taxes at high rates there will be loss of incentives. So, it is necessary to avoid unnecessary expenditure as far as practicable, otherwise benefits of better economic development may not be reaped. As a fiscal policy instrument, it may be counter-productive.

iii. Redistribution of Income:

Public expenditure is used as a powerful fiscal instrument to bring about an equitable distribution of income and wealth. There are good much public expenditure that benefit poor income groups. By providing subsidies, free education and health care facilities to the poor people, government can improve the economic position of these people.

iv. Balanced Regional Growth:

Public expenditure can correct regional disparities. By diverting resources in backward regions, government can bring about all-round development there so as to compete with the advanced regions of the country.

This is what is required to maintain integration and unity among people of all the regions. Unbalanced regional growth encourages disintegrating forces to rise. Public expenditure is an antidote for these reactionary elements.

Thus, public expenditure has both economic and social objectives. It is necessary to ensure that the government's expenditure is made solely in the public interest and does not serve any individual's interest or that of any political party or a group of persons.

3.6. Wagner's Law of Increasing State Activities

Adolph Wagner (1835-1917) was a German economist who based his law of increasing state activities on historical facts, primarily of Germany. According to Wagner, there are inherent tendencies for the activities of different layers of a government (such as central and state governments) to increase both intensively and extensively. There is a functional relationship between the growth of an economy and government activities with the result that the governmental sector grows faster than the economy.

From the original version of this theory it is not clear that whether Wagner was referring to an increase in (a) absolute level of public expenditure, (b) the ratio of government expenditure to GNP, or (c) proportion of public sector in the total economy. A number of reasons can be enumerated for his inherent long term tendency recorded in history:

Firstly, we can mention an expansion in the traditional functions of the state. Defence became increasingly more expensive over time. Within the country, administrative set kept increasing both in coverage and intensity. The government machinery had to be manned by experts in their fields. With the progress of society, administration of the government, and its services had to become increasingly more extensive, cumbersome and expensive so as to retain efficiency.

Secondly, the state activities were increasing in their coverage. Traditionally they were limited to only defence, justice, law and order, maintenance of the state and social overheads. But with growing awareness of its responsibilities to the society, the government started expanding its activities in hitherto unexplored field of socio-economic welfare. These measures included efforts to enrich cultural life of the society and provision of social security to the people (such as old age pensions and so on). Subsidies for and direct provision of various merit goods also registered an increase. Most governments also took active steps to ensure distributive justice by reducing income and wealth inequalities.

Thirdly, the need to provide and expand the sphere of public goods received an increasing attention. The state tried to shift the composition of national produce in favour of public goods and this, in turn, necessitated an expansion of the government.

Wagner's Law was based upon historical facts. It did not reveal the inner compulsions under which a government has to increase its activities and public expenditure as time passes. It was applicable only to modern progressive governments, which were interested, in expanding public sector of the economy for its overall benefit. This general tendency

of expanding state activities had a definite long term trend, though in the short run, financial difficulties could come in its way. But in the long run the desire for development of a progressive people will always overcome these financial difficulties.

Thus, Wagner was emphasizing long term trend rather than short term changes in public expenditure. Moreover, he was not concerned with the mechanism of increase in public expenditure. Since his study is based on the historical experience, the precise quantitative relationship between the extent of increase in public expenditure and time taken by it was not fixed in any logical or functional manner. His contention that public expenditure had been increasing over time could not be used to predict its rate of increasing in future. Actually, it is consistent with Wagner's law to state that in future the state expenditure would increase at a rate slower than the national income though, factually speaking, it had increased at a faster rate in the past. Thus, in the initial stages of economic growth, the state finds that it has to expand its activities quite fast in several fields like education, health civic amenities quite fast in several fields like education, health, civic amenities, transport, communications, and so on. But when the initial deficiency is removed, then the increase in state activities may be slowed down.

Additional factors, which contribute to the tendency of increasing public expenditure, relate to growing role of the state in ever-increasing socio-economic complexities of modern society.

(i) Many societies are experiencing a growing population, which becomes a major contributory factor in the growth of public expenditure. The sheer scale of state services has to increase to keep pace with population growth, including schools, hospitals and police etc.

(ii) Most countries have registered increasing urbanization. Existing cities grow and new ones come up. Urbanization implies a much larger per capital expenditure on civic amenities. It necessitates a much larger supply of incidental services like those connected with traffic, roads and so.

(iii) Prices have a secular tendency to go up. This also adds to public expenditure even if the scale of state services remains unchanged.

(iv) The size and nature of public services necessitates an ever-increasing specialization. The quality of the services improves, both as a historical fact as also due to circumstantial compulsions. Better quality services and higher qualified administrators, technicians etc., imply a higher cost of providing public services. Also the government has to purchase a number of goods and services for its own maintenance. With rising prices, expenditure on them also goes up.

(v) A modern government considers it a part of its duty to protect the economy from the failures of market mechanism. Accordingly, anti-cyclical and other regulatory measures are adopted. Efforts are made to reduce the income and wealth inequalities and bring about social and economic justice, which, in turn add to public expenditure.

3.7. Limitation of Wagner's Model

Wagner's model has an important analytical limitation, which can be removed in an expanded version. A government is not a monolithic entity. It comprises a number of organs and associated institutions. Households and business units in the private sector also do not observe government activities passively. Instead, they respond to them more actively. Thus, the government decision making has become a complex phenomenon and has multifarious tendencies to increase public expenditure.

Buchanan and Tullock, in the context of United States of America experience, have viewed Wagner's theory in terms of increasing discrepancy between growth of government expenditure and government output and termed the phenomenon as 'Wagner Squared' hypothesis. They base their argument on two facts;

Firstly, in terms of the situation prevailing in the private sector, expenditure on civil servants grows faster than the corresponding increase in their output.

Secondly, with increasing social security and other measures, the proportion of population receiving transfer payments from authorities keeps increasing. This way, public expenditure increases both in absolute terms and as a proportion of national income. It may be noted that even if the expenditure on employees in the private sector does not increase, and even if the proportion of population receiving payments remains stable, the Wagner squared hypothesis would hold. The major limitation of this hypothesis would hold. The major limitation of this hypothesis is that output of public servant cannot be measured with any degree of accuracy.

However, we may also say that modern governments have found new weapons whereby to increase their expenditure even without collecting more taxes. They now own public undertakings, which can be a source of revenue to them. But more important than that is their capacity and willingness to resort to deficit financing. Even in advanced countries deficit financing has become a common occurrence. The public opinion is not strong enough to check this sort of policy even though it has disastrous inflationary effects.

3.8. Wiseman-Peacock Hypothesis

The second thesis dealing with the growth of public expenditure was put forth by Wiseman and Peacock in their study of public expenditure in UK for the period 1890-

1955. The main thesis of the authors is that public expenditure does not increase in a smooth and continuous manner, but in jerks or step like fashion. At times, some social or other disturbance take place, creating a need for increased public expenditure, which the existing public revenue cannot meet. While earlier, due to an insufficient pressure for public expenditure, the revenue constraint was dominating and restraining an expansion in public expenditure, now under changed requirements such a restraint gives way. The public expenditure increases and makes the inadequacy of the present revenue quite clear to everyone. The movement from the older level of expenditure and taxation to a new and higher level is the displacement effect. The inadequacy of the revenue as compared with the required public expenditure creates an inspection effect.

Furthermore, the government and the people review the revenue position and the need to find a solution of the important problems that have come up and agree to the required adjustments to finance the increased expenditure. They attain a new level of tax tolerance. They are now ready to tolerate a greater burden of taxation and as a result the general level of expenditure and revenue goes up. In this way, the public expenditure and revenue get stabilized at a new level till another disturbance occurs to cause a displacement effect. Thus each major disturbance leads to the government assuming a larger proportion of the total national economic activity. In other words, there is a concentration effect. The concentration effect also refers to the apparent tendency for central government economic activity to grow faster than that of the state and local level governments. British data are consistent with this hypothesis, but its application to other countries needs verification. Moreover, this aspect of concentration effect is also closely connected with the political set of the country.

On the face of it, Wiseman Peacock hypothesis looks quite convincing. But, we must remember that they are emphasizing the recurrence of abnormal situations, which cause sizeable jumps in public expenditure and revenue. In all fairness to the historical facts, we must not forget that on account of advancement of the economy and the structural changes therein, there are constant and regular increments in public activities as also an increase in their intensity and quality. Increasing population, urbanization and an ever-increasing awareness of the civic rights on the part of the public, coupled with an increasing awareness of its duties on the part of the state, leads to an upward movement of public expenditure. To an extent, public expenditure gets financed by ever-increasing revenue, which is made possible through the expansion and structural changes in the economy. These days, in underdeveloped countries like Nigeria, the state is deliberately trying to increase its activities and makes an effort to finance those activities through various tax efforts to finance those activities through various tax efforts. Even in developed countries, the state finds that it has to perform an increasing regulatory duty to protect the economy against instability and excessive inequalities of income and wealth. Thus, Wiseman Peacock hypothesis is still a description of a particular tendency and does not isolate all the relevant causes at work.

Self-Assessment Exercise

Discuss the differences between the Wagner's law of increasing state activities and Wiseman Peacock Hypothesis.

4.0 Conclusion

Public Expenditure refers to Government expenditure that is Government spending. It is incurred by Central, State and Local governments of a country. Public expenditure can be defined as, "The expenditure incurred by public authorities like central, state and local governments to satisfy the collective social wants of the people is known as public expenditure

5.0 Summary

In this unit, we have learnt and discussed on the meaning of public expenditure, causes of increase in public expenditure, types of public expenditure, principles Governing public expenditure or canons of public expenditure. However, in this unit we also discuss on importance of public expenditure, Wagner's law of increasing state activities, Limitation of Wagner's model and Wiseman-Peacock hypothesis.

6.0. Tutor-Marked Assignment

1. Define the term 'Public Expenditure'
2. Discuss the causes of increasing in public expenditure
3. List and explain types of public expenditure
4. Discuss the importance of public Expenditure
5. Discuss the differences between Wagner's law of increasing state activities and Wiseman-Peacock hypothesis
6. Discuss the limitations of Wagner's model

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MODULE FOUR Externalities

Unit One: Meaning of Externalities

Unit Two: Market Failure

Unit Three: Cost-Benefit Analysis

Unit One: Externalities

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1.0 Introduction

2.0 Objectives

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6.0 Tutor-Marked Assignment

7.0 References/Further Readings

1.0. INTRODUCTION

An externality is a consequence of an economic activity experienced by unrelated third parties; it can be either positive or negative. Pollution emitted by a factory that spoils the surrounding environment and affects the health of nearby residents is an example of a negative externality. The effect of a well-educated labor force on the productivity of a company is an example of a positive externality. Externalities occur in an economy when

the production or consumption of a specific good impacts a third party that is not directly related to the production or consumption. Externalities, such as pollution, are one of the main reasons why governments step in with increased regulations.

Almost all externalities are considered to be technical externalities. These types of externalities have an impact on the consumption and production opportunities of unrelated third parties, but the price of consumption does not include the externalities. This makes it so there is a difference between the gain or loss of private individuals and the aggregate gain or loss of the society as a whole. Oftentimes the action of an individual or organization results in positive private gains but detracts from the overall economy. Many economists consider technical externalities to be market deficiencies. This is why people advocate for government intervention to curb negative externalities through taxation and regulation.

Most externalities are negative. Pollution, for example, is a well-known negative externality. A corporation may decide to cut costs and increase profits by implementing new operations that are more harmful for the environment. The corporation realizes costs in the form of expanding its operations but also generate returns that are higher than the costs. However, the externality also increases the aggregate cost to the economy and society, making it a negative externality. Externalities are negative when the social costs outweigh the private costs.

Some externalities are positive. Positive externalities occur when there is a positive gain on both the private level and social level. Research and development (R&D) conducted by a company can be a positive externality. R&D increases the private profits of a company but also has the added benefit of increasing the general level of knowledge within a society. So, while a company such as Google profits off of its Maps application, society as a whole greatly benefits in the form of a useful GPS tool. Positive externalities have public, or social, returns that are higher than the private returns.

2.0. Objectives

At the end of this unit, you should be able to:

- Define and understand the meaning of Externalities
- Know the types of Externalities
- Know the effects of Externalities and Allocative Efficiency
- Understand how to solve the problem of Externality.

3.0. Main Content

3.1 Meaning and Definition of Externalities

Externalities occur because economic agents have effects on third parties that are not parts of market transactions. Examples are: factories emitting smoke and dust, jet planes waking up people, or loudspeakers generating noise. These activities are all having a direct effect on the well-being of others that is outside direct market channels.

In these cases market prices (of soaps, air travel and entertainment) may not accurately reflect social cost because they take no account of the damage being done to third parties. Information being conveyed by the prices is fundamentally inaccurate, leading to a misallocation of resources.

An externality occurs whenever the activities of one economic agent affect the activities of another agent in ways that do not get reflected in market transactions. This is why externalities are taken as examples of market failure.

3.2. Types of Externalities

Externalities are of different types. Here we consider four main types of externality

(I) Inter Firm (Production) Externalities:

Suppose there are two firms in the economy — firm I is producing X and firm II is producing Y. Each uses only single input, labour. The production of good Y is said to have an external effect on the production of X if the output of X depends not only on the amount of labour chosen by firm I but also on the level at which the production of Y is carried on. In this case the production function for good X can be expressed as

$$X = f(L_x, Y) \dots (1)$$

where L_x denotes the amount of labour used to produce and Y indicates an effect on production over which firm I has no control. Negative inter-firm (or firm-firm) externality exists if $\partial X / \partial Y < 0$, i.e., increase in output of Y causes less of X to be produced.

(II) Beneficial Externalities:

The activity of one firm may also have beneficial effect on others. For example, if a power plant is set up near a coal mine, hopefully, more coal can be extracted due to an

abundant supply of power. In this case, $\partial X / \partial Y > 0$. However, in the usual perfectly competitive case, the productive activities of one firm have no direct effect on those of other firms: $\partial X / \partial Y = 0$.

(III) Externalities in Utility (Consumption Externalities):

Externalities also can occur if the activities of an economic agent directly affect an individual's utility. Most obvious examples are environmental externalities (such as noise from a loud radio). Such externalities may sometimes be beneficial.

(Mr. John may actually enjoy the song being played on Mr. Sen's radio) this type of externality arises when one individual's utility depends directly on the utility of someone else. If, for example, Mr. A cares about Mr. B's welfare, we can express A's utility

$$U_A = f(X_1, X_2, \dots, X_n; U_B) \dots \dots (2)$$

where X_1, X_2, \dots, X_n are the goods which A consumes and U_B is B's utility.

If A wants B to be better-off (if A were a close relative of B, $\partial U_A / \partial U_B$ would be positive. If, on the other hand, A were envious of B, $\partial U_A / \partial U_B$ would be negative; that is improvements in B's utility make A worse off. If A were indifferent to B's welfare, $\partial U_A / \partial U_B = 0$.

(IV) Public Goods Externalities:

Public goods or collective consumption goods (such as national defence, roads, bridges, public parks, public school, hospitals, etc.) create externality problems because such goods can be allocated through the market and those who enjoy such goods do not pay prices directly.

The cost of providing such goods is covered through taxes. Once such goods are produced (either by the government or by some private agency) they provide benefits to all the members of society. This is because such goods are to be consumed jointly. It is not possible to restrict these benefits to the specific group of individuals who pay for them.

So the benefits are available to all. For example, once a national defence system is established, all individuals in society are protected by it whether they wish to be or not and whether they pay for it or not. Choosing the right level of output for such a good is a complex task, since market signals are not quite accurate.

3.3 Effects of Externalities

Externalities create divergence between social benefit and private benefit and between social cost and private cost. In the presence of positive externality, marginal social benefit (of any activity such as education or health/medical care) = marginal private benefit + marginal external benefit.

This is why, in the presence of positive externality, a commodity or service is under produced its actual output is less than the socially desirable level. And there is need to subsidies all activities which generate positive externalities and cause departure from Pareto optimality.

Likewise, in the presence of negative externalities, marginal social cost = marginal private cost + marginal external cost. As result a commodity or service is overproduced. Actual output exceeds the socially desirable level, the activity generating negative externality has to be taxed in order to ensure Pareto optimality.

3.4 Externalities and Allocative Efficiency

The presence of externalities can cause a market to operate inefficiently. This point may now be illustrated. Let us assume that two firms are located near each other and that one of these (II) has negative effect on the production of the other (I). Suppose the production function of the firm II which generates pollution is expressed as

$$Y = g(L_Y) \dots\dots\dots (3)$$

where L_Y = the quantity of labour devoted to the production of Y. The production function for good X (which exhibits an externality) was given by equation (1). The Pareto conditions for an optimal allocation of labour require that the social marginal revenue product of labour ($SMRP_L$) be equal for both firms. If P_x and P_Y are the prices of good X and good Y, respectively, the $SMRP_L$ in the production of good X is given by

$$SMRP_L^X = P_x \frac{\partial f}{\partial L_x} \dots (4)$$

Due to the presence of production externality, the statement of the $SMRP_L$ in the production of Y is more complex. An extra unit of labour employed by firm II will produce some extra Y.

But it will also generate some extra pollution, and will reduce the output of AT, produced by Firm I, Consequently,

$$SMRP_L^Y = P_Y \frac{\partial g}{\partial L_Y} + P_x \cdot \frac{\partial f}{\partial Y} \cdot \frac{\partial Y}{\partial L_Y} \dots (5)$$

where the second term on the right hand side represents the effect of hiring additional workers in the production of K on the value of production of X. This effect will be negative if $\partial f/\partial Y < 0$. Efficiency then requires that

$$SMRP_L^X = SMRP_L^Y \quad \dots \quad (6)$$

Independent decision-making by the two firms will normally not ensure the fulfillment of this condition. Firm 1 (producing X) will hire labour up to the point at which its private MRP, is equal to the prevailing wage rate

$$w = MRP_L^X = P_X \frac{\partial f}{\partial L_X} \quad \dots \quad (7)$$

Firm II will follow a similar course of action :

$$w = MRP_L^Y = P_Y \frac{\partial g}{\partial L_Y} \quad \dots \quad (8)$$

The market will, therefore, equate private marginal revenue products, but this market equilibrium will ensure Pareto efficiency only if $\partial f/\partial Y = 0$ in equation (5). In other words in the presence of externalities, the decisions of the two firms or their managers will not bring about an optimal allocation.

Since we have assumed that $\partial f/\partial Y < 0$, labour will be over allocated to the production of good Y. The $SMRP_L$ in the production of Y will fall short of that in the production of X. If, on the other hand, we assume that $\partial f/\partial Y > 0$, then labour will be under-allocated to the production of Y.

3.5 Solving the Externality Problem

There are certain solutions to the allocation problems posed by externality.

Two such solutions are taxation and merger:

1. Taxation:

The government can impose a suitable excise duty on the firm generating the external diseconomy. This tax is likely to cause the output of Y to be cut back and would cause labour to be shifted out of the production of Y. This standard remedy was first suggested A. C. Pigou in the 1920s and is known as the Pigouvian tax.

The taxation solution is illustrated in Fig. 1. The demand for Y is given by D_Y and the private marginal cost curve for Y by MC. The curve MC' shows the social marginal cost of production of Y. Thus the socially optimal level of output is Y_2 . However, in the

presence of negative externalities, the normal functioning of the market will cause output level of Y_1 to be produced.

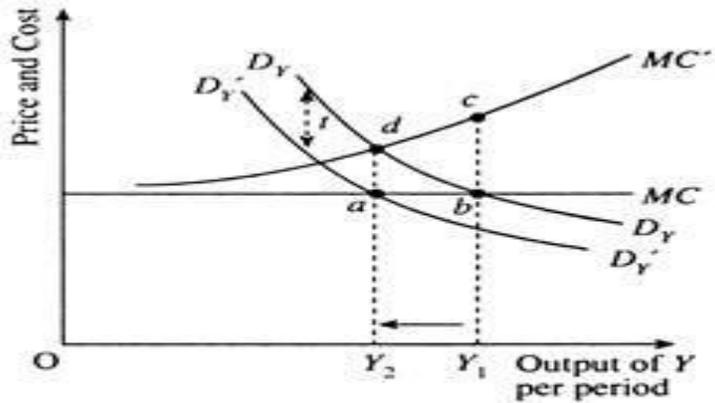


Fig. 1: The Tax Solution to Externality Problem

One way to force the market to allocate goods correctly would be to impose an excise duty of t per unit of Y produced. The effect of this indirect tax is to shift the demand curve facing the firm from $D_Y D_Y$ to $D'_Y D'_Y$ and this will cause the profit maximizing the level of output of Y to fall from Y_1 , to Y_2 . This is a government solution to the externality problem.

2. Merger and Internalization:

A private solution for the allocation of distortions caused by the externality between X and Y would be for the two firms to merge. If a single firm operates both plants X and Y , it will recognise the harmful effect that production of Y has on the production function for good X .

In effect, the new (merged) firm would now bear the full social marginal costs of Y production because it also produces X now. In other words, the firm would now take the marginal cost curve for Y production to be MC' in Fig. 1 and would produce at the point where

$$P_y = MC' \dots\dots\dots (9)$$

which is exactly what is required for allocative efficiency.

The externality in the production of Y has been internalized as a result of the merger. The reason is that what was marginal external cost before the merger has now become a part of the marginal private cost of the merged firm.

Self-Assessment Exercise

Discuss the term 'Externalities'.

4.0 Conclusion

In this unit, we conclude that an externality is a consequence of an economic activity experienced by unrelated third parties; it can be either positive or negative. Pollution emitted by a factory that spoils the surrounding environment and affects the health of nearby residents is an example of a negative externality. The effect of a well-educated labor force on the productivity of a company is an example of a positive externality.

5.0 Summary

In this unit, we have learnt and discussed on meaning and definition of externalities, types of externality, effects of externalities, externalities and allocative efficiency and how to solve the externality problem.

6.0. Tutor-Marked Assignment

1. Define the term 'Externalities'
2. Discuss the causes of Externalities
3. List and explain types of Externality
4. Discuss the effects of externalities
5. How do we solve Externalities problems?

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Unit two: Market Failure

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1.0. INTRODUCTION

In economics, market failure is a situation in which the allocation of goods and services is not efficient. That is, there exists another conceivable outcome where at least one individual may be made better-off without making someone else worse-off. Market failures can be viewed as scenarios where individuals' pursuit of pure self-interest leads to results that are not efficient that can be improved upon from the societal point of view. The first known use of the term by economists was in 1958, but the concept has been traced back to the Victorian philosopher Henry Sidgwick.

Market failures are often associated with time-inconsistent preferences, information asymmetries, non-competitive markets, principal–agent problems, externalities, or public

goods, thus existence of a market failure is often the reason that self-regulatory organizations, governments or supra-national institutions intervene in a particular market. Economists, especially macroeconomists, are often concerned with the causes of market failure and possible means of correction. Such analysis plays an important role in many types of public policy decisions and studies. However, government policy interventions, such as taxes, subsidies, bailouts, wage and price controls, and regulations (including poorly implemented attempts to correct market failure), may also lead to an inefficient allocation of resources, sometimes called government failure.

Given the tension between, on the one hand, the undeniable costs to society caused by market failure, and on the other hand, the potential that attempts to mitigate these costs could lead to even greater costs from "government failure", there is sometimes a choice between imperfect outcomes, i.e. imperfect market outcomes with or without government interventions. But either way, if a market failure exists the outcome is not Pareto efficient. Most mainstream economists believe that there are circumstances (like building codes or endangered species) in which it is possible for government or other organizations to improve the inefficient market outcome.

2.0. Objectives

At the end of this unit, you should be able to:

- Define and understand the meaning of Market Failure
- Know the types and the nature of Market Failure
- Understand the meaning of externalities and nature of exchange
- Understand the bounded rationality and the Coase Theorem

3.0. Main Content

3.1 Definition of Market Failure

This occurs when there is an inefficient allocation of resources in a free market. Market failure can occur due to a variety of reasons, such as monopoly (higher prices and less output), negative externalities (over-consumed) and public goods (usually not provided in a free market).

In economics, market failure is a situation in which the allocation of goods and services is not efficient. That is, there exists another conceivable outcome where at least one individual may be made better-off without making someone else worse-off. Market failures can be viewed as scenarios where individuals' pursuit of pure self-interest leads to results that are not efficient – that can be improved upon from the societal point of

view. The first known use of the term by economists was in 1958, but the concept has been traced back to the Victorian philosopher Henry Sidgwick.

Market failures are often associated with time-inconsistent preferences, information asymmetries, non-competitive markets, principal–agent problems, externalities, or public goods, thus existence of a market failure is often the reason that self-regulatory organizations, governments or supra-national institutions intervene in a particular market. Economists, especially micro economists, are often concerned with the causes of market failure and possible means of correction. Such analysis plays an important role in many types of public policy decisions and studies. However, government policy interventions, such as taxes, subsidies, bailouts, wage and price controls, and regulations including poorly implemented attempts to correct market failure, may also lead to an inefficient allocation of resources, sometimes called government failure.

Given the tension between, on the one hand, the undeniable costs to society caused by market failure, and on the other hand, the potential that attempts to mitigate these costs could lead to even greater costs from government failure, there is sometimes a choice between imperfect outcomes, i.e. imperfect market outcomes with or without government interventions. But either way, if a market failure exists the outcome is not Pareto efficient. Most mainstream economists believe that there are circumstances like building codes or endangered species in which it is possible for government or other organizations to improve the inefficient market outcome. Several heterodox schools of thought disagree with this as a matter of principle.

3.2. Types of market failure

1. Positive externalities – Goods/services which give benefit to a third party, e.g. less congestion from cycling
2. Negative externalities – Goods/services which impose cost on a third party, e.g. cancer from passive smoking
3. Merit goods – People underestimate the benefit of good, e.g. education
4. Demerit goods – People underestimate the costs of good, e.g. smoking
5. Public Goods – Goods which are non-rival and non-excludable – e.g. police, national defence.
6. Monopoly Power – when a firm controls the market and can set higher prices.
7. Inequality – unfair distribution of resources in free market
8. Factor Immobility – E.g. geographical / occupational immobility
9. Agriculture – Agriculture is often subject to market failure – due to volatile prices and externalities.
10. Information failure – where there is a lack of information to make an informed choice.
11. Principal-agent problem – Two agents with different objectives and information asymmetries

3.3. Nature of the Market

Agents in a market can gain market power, allowing them to block other mutually beneficial gains from trade from occurring. This can lead to inefficiency due to imperfect competition, which can take many different forms, such as monopolies, monopsony's, or monopolistic competition, if the agent does not implement perfect price discrimination.

It is then a further question about what circumstances allow a monopoly to arise. In some cases, monopolies can maintain themselves where there are barriers to entry that prevent other companies from effectively entering and competing in an industry or market. Or there could exist significant first-mover advantages in the market that make it difficult for other firms to compete. In another way, a natural monopoly is an extreme case of the failure of competition as a restraint on producers. A natural monopoly is a firm whose per-unit cost decreases as it increases output; in this situation it is most efficient (from a cost perspective) to have only a single producer of a good.

3.3.1 Non-excludability

Some markets can fail due to the nature of the goods being exchanged. For instance, goods can display the attributes of public goods or common goods, wherein sellers are unable to exclude non-buyers from using a product, as in the development of inventions that may spread freely once revealed. This can cause underinvestment because developers cannot capture enough of the benefits from success to make the development effort worthwhile. This can also lead to resource depletion in the case of common-pool resources, where, because use of the resource is rival but non-excludable, there is no incentive for users to conserve the resource. An example of this is a lake with a natural supply of fish: if people catch the fish faster than they can reproduce, then the fish population will dwindle until there are no fish left for future generations.

3.3.2 Externalities

A good or service could also have significant externalities, where gains or losses associated with the product, production or consumption of a product because it differs from the private cost. These externalities can be innate to the methods of production or other conditions important to the market.

Traffic congestion is an example of market failure that incorporates both non-excludability and externality. Public roads are common resources that are available for the entire population's use (non-excludable), and act as a complement to cars (the more roads there are, the more useful cars become). Because there is very low cost but high benefit to individual drivers in using the roads, the roads become congested, decreasing

their usefulness to society. Furthermore, driving can impose hidden costs on society through pollution (externality). Solutions for this include public transportation, congestion pricing, tolls, and other ways of making the driver include the social cost in the decision to drive.

Perhaps the best example of the inefficiency associated with common/public goods and externalities is the environmental harm caused by pollution and overexploitation of natural resources.

3.3.3. The Nature of Exchange

Some markets can fail due to the nature of their exchange. Markets may have significant transaction costs, agency problems, or informational asymmetry. Such incomplete markets may result in economic inefficiency but also a possibility of improving efficiency through market, legal, and regulatory remedies. From contract theory, decisions in transactions where one party has more or better information than the other is an asymmetry. This creates an imbalance of power in transactions which can sometimes cause the transactions to go awry. Examples of this problem are adverse selection and moral hazard. Most commonly, information asymmetries are studied in the context of principal-agent problems. George Akerlof, Michael Spence, and Joseph E. Stiglitz developed the idea and shared the 2001 Nobel Prize in Economics.

3.3.4 Bounded rationality

According to Herbert A. Simon points out that most people are only partly rational, and are emotional/irrational in the remaining part of their actions. In another work, he states bounded rational agents experience limits in formulating and solving complex problems and in processing (receiving, storing, retrieving, transmitting) information. Simon describes a number of dimensions along which classical models of rationality can be made somewhat more realistic, while sticking within the vein of fairly rigorous formalization. These include:

- limiting what sorts of utility functions there might be.
- recognizing the costs of gathering and processing information.
- the possibility of having a vector or multi-valued utility function.

Simon suggests that economic agents employ the use of heuristics to make decisions rather than a strict rigid rule of optimization. They do this because of the complexity of the situation, and their inability to process and compute the expected utility of every alternative action. Deliberation costs might be high and there are often other, concurrent economic activities also requiring decisions.

3.4. Coase theorem

The Coase theorem, developed by Ronald Coase and labeled as such by George Stigler, states that private transactions are efficient as long as property rights exist, only a small number of parties are involved, and transactions costs are low. Additionally, this efficiency will take place regardless of who owns the property rights. This theory comes from a section of Coase's Nobel prize-winning work *The Problem of Social Cost*. While the assumptions of low transactions costs and a small number of parties involved may not always be applicable in real-world markets, Coase's work changed the long-held belief that the owner of property rights was a major determining factor in whether or not a market would fail. However, a market is an institution in which individuals or firms exchange not just commodities, but the rights to use them in particular ways for particular amounts of time. Markets are institutions which organize the exchange of control of commodities, where the nature of the control is defined by the property rights attached to the commodities.

As a result, agents' control over the uses of their commodities can be imperfect, because the system of rights which defines that control is incomplete. Typically, this falls into two generalized rights that is excludability and transferability. Excludability deals with the ability of agents to control who uses their commodity, and for how long and the related costs associated with doing so. Transferability reflects the right of agents to transfer the rights of use from one agent to another, for instance by selling or leasing a commodity, and the costs associated with doing so. If a given system of rights does not fully guarantee these at minimal (or no) cost, then the resulting distribution can be inefficient. Considerations such as these form an important part of the work of institutional economics. Nonetheless, views still differ on whether something displaying these attributes is meaningful without the information provided by the market price system.

3.4.1. Explanation of the Coase Theorem

The Coase Theorem, developed by economist Ronald Coase, states that when conflicting property rights occur, bargaining between the parties involved will lead to an efficient outcome regardless of which party is ultimately awarded the property rights, as long as the transaction costs associated with bargaining are negligible. Specifically, the Coase Theorem states that "if trade in an externality is possible and there are no transaction costs, bargaining will lead to an efficient outcome regardless of the initial allocation of property rights."

3.4.2. How Can the Coase Theorem be Explained?

The Coase Theorem is most easily explained via an example. It is pretty clear that noise pollution fits the typical definition of an externality, since noise pollution from a factory, a loud garage band, or, say, a wind turbine potentially imposes a cost on people who are neither consumers nor producers of these items. (Technically, this externality comes about because it is not well-defined who owns the noise spectrum.) In the case of the wind turbine, for example, it's efficient to let the turbine make noise if the value of operating the turbine is greater than the noise cost imposed on those who live near the turbine. On the other hand, it is efficient to shut the turbine down if the value of operating the turbine is less than the noise cost imposed on nearby residents.

Since the potential rights and desires of the turbine company and the households are clearly in conflict, it is entirely possible that the two parties will end up in court to figure out whose rights take precedence.

In this instance, the court could either decide that the turbine company has the right to operate at the expense of the nearby households, or it could decide that the households have the right to quiet at the expense of the turbine company's operations. Coase's main thesis is that the decision that is reached regarding the assignment of property rights has no bearing on whether the turbines continue to operate in the area as long as the parties can bargain without cost.

Why is this? Let us say for the sake of argument that it is efficient to have the turbines operating in the area that is the value to the company of operating the turbines is greater than the cost imposed on the households. Put another way, this means that the turbine company would be willing to pay the households more to stay in business than the households would be willing to pay the turbine company to shut down. If the court decides that the households have a right to quiet, the turbine company will probably turn around and compensate the households in exchange for letting the turbines operate. Because the turbines are worth more to the company than quiet is worth to the households, there is some offer that will be acceptable to both parties, and the turbines will keep running. On the other hand, if the court decides that the company has the right to operate the turbines, the turbines will stay in business and no money will change hands. This is simply because the households are not willing to pay enough to convince the turbine company to cease operation.

In conclusion, the assignment of rights in our example above did not affect the ultimate outcome once the opportunity to bargain was introduced, but the property rights did affect the transfers of money between the two parties.

3.4.3. Why Would the Coase Theorem Not Work?

In practice, there are a number of reasons why the Coase Theorem may not hold (or apply, depending on context). In some cases, the endowment effect could cause the valuations elicited in negotiation to depend on the initial allocation of property rights.

In other cases, negotiation may not be feasible either due to the number of parties involved or social conventions.

Self-Assessment Exercise

What do you understand by the term Market Failure?

4.0 Conclusion

A market failure occurs when the supply of a good or service is insufficient to meet demand. This results in an inefficient distribution of resources among market participants. Economic and social policymakers try to consider the market failures that will result from specific legislation, and, in most cases, they ultimately attempt to minimize market failure by finding a balance between protecting social (or political) interests and maintaining efficient markets.

5.0 Summary

In this unit, we have learnt discuss on the definition of market failure, types of market failure, nature of the market, non-excludability. However, we also discuss on the nature of the exchange, bounded rationality and coase theorem.

6.0. Tutor-Marked Assignment

1. Define the term 'Market Failure'
2. Discuss the nature of the Market
3. List and explain types of Market Failure
4. Discuss the nature of exchange
5. Discuss the Coase Theorem

7.0. REFERENCES/FURTHER READING

Xanio, A. E., (2013). Introduction to Public Sector Economics, a textbook 2nd edition,
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Unit Three: Cost-Benefit Analysis

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1.0. INTRODUCTION

Cost benefit analysis (CBA), sometimes called benefit costs analysis (BCA), is a systematic approach to estimating the strengths and weaknesses of alternatives (for example in transactions, activities, functional business requirements or projects investments); it is used to determine options that provide the best approach to achieve benefits while preserving savings. The CBA is also defined as a systematic process for calculating and comparing benefits and costs of a decision, policy (with particular regard to government policy) or (in general) project.

Broadly, CBA has two main purposes; to determine if an investment/decision is sound (justification/feasibility) – verifying whether its benefits outweigh the costs, and by how

much; to provide a basis for comparing projects – which involves comparing the total expected cost of each option against its total expected benefits.

CBA is related to (but distinct from) cost-effectiveness analysis. In CBA, benefits and costs are expressed in monetary terms, and are adjusted for the time value of money, so that all flows of benefits and flows of project costs over time (which tend to occur at different points in time) are expressed on a common basis in terms of their net present.

2.0. Objectives

At the end of this unit, you should be able to:

- Define and understand the meaning of cost benefit analysis
- Understand the steps/cost incurred in cost benefit analysis
- Understand the cost and benefit in controlling pollution
- Understand the total benefit curves and marginal benefit curves.
- Understand the optimum level of environmental quality
- Understand the property price approach

3.0. Main Content

3.1 Meaning of Cost Benefit Analysis

The foundation of the method of cost benefit analysis arose from the Hicks – Kaldor criterion of efficiency maximization in 1939. The criterion of Hicks-Kaldor states that a project or activity merits consideration or remains desirable when the total benefits exceed total cost.

The cost benefit analysis states that if the benefit arrived from the pollution elimination programme is greater than the benefit received from it, it is called ‘positive benefit’. On the other hand if the cost incurred in that programme is greater than the benefit received from it, it is termed as ‘negative benefit’.

The cost benefit analysis is the tool generally undertaken by the government for the welfare of the entire society. So it is also referred as social benefits. Cost benefit analysis may be summed as ‘the cost benefit analysis which involves measuring, adding up and comparing all the benefits and all the cost of a particular public project or a programme.’

3.2 History of Cost-Benefit Analysis

Cost Benefit analysis (CBA) has its origins in the water development projects of the U.S. Army Corps of Engineers. The Corps of Engineers had its origins in the French engineers hired by George Washington in the American Revolution. For years the only school of engineering in the United States was the Military Academy at West Point, New York.

In 1879, Congress created the Mississippi River Commission to prevent destructive floods. The Commission included civilians but the president had to be an Army engineer and the Corps of Engineers always had veto power over any decision by the Commission.

In 1936 Congress passed the Flood Control Act which contained the wording, the Federal Government should improve or participate in the improvement of navigable waters or their tributaries, including watersheds thereof, for flood-control purposes if the benefits to whomsoever they may accrue are in excess of the estimated costs. The phrase if the benefits to whomsoever they may accrue are in excess of the estimated costs established cost-benefit analysis. Initially the Corps of Engineers developed ad hoc methods for estimating benefits and costs. It was not until the 1950s that academic economists discovered that the Corps had developed a system for the economic analysis of public investments. Economists have influenced and improved the Corps' methods since then and cost-benefit analysis has been adapted to most areas of public decision-making.

3.3. Steps in Cost Benefit Analysis

The different Steps in Cost Benefit Analysis are:

Before entering into the cost benefit analysis we shall see the various steps taken in this analysis.

- (i) Specify clearly the project or programme.
- (ii) Describe quantitatively the inputs and outputs of the programme.
- (iii) Estimate the social cost and benefits of these inputs and outputs.
- (iv) Compare these benefits and costs.

(i) Specify Clearly the Project or Programme:

The first step is to decide on the perspective from which the study is to be done. Cost benefits are actually concerned with the public. When we have decided on the perspective, the main elements of the projects such as, the study of the location, timing, and groups involved, the connection with other programmes etc.

Should be considered. Again the pollution control phenomenon is a worldwide concept. So the regional planning agencies should give particular stress on the area of the study.

When the project is fixed the following two programmes are involved:

(a) Physical project:

This implies the projects like the public waste treatment plants, beach restoration projects, hazardous waste removal, habitat improvement projects, land purchase for preservation etc. These projects are physical in nature, which is done when an area is polluted.

(b) Regulatory projects:

This implies the enforcement of environmental laws and regulations, such as pollution standards, technical choices, waste disposal practice, restrictions of land for certain activities etc. This project regulates the amount of pollution in the society.

(ii) Describe Quantitatively the Inputs and Outputs of the Programme:

The second step in cost benefit analysis is to determine the relevant force of input and output. For some projects it is easy to identify the input and output, For e.g., if we are planning a waste water treatment project, the staffs of that program will be able to provide a full physical specification of the plant, together with the inputs required to build it and keep it running.

However, it is harder to predict the externalities caused by the disposition of nuclear waste. A tolerable accuracy should be predicted with these projects. Because a restriction on development in a particular area can be expected to detect development elsewhere into the surrounding areas, since environmental projects or programmes don't usually last for a single year but are spread over for a long period of time.

(iii) Estimate the Social Cost and Benefit of these Inputs and Outputs:

The next step is to put values on input and output flows i.e., to measure costs and benefits. We could do this in any units we wish but normally we take into account the monetary terms.

This does not mean in market value terms because in many cases we will be dealing with effects, especially on the benefit side that are not directly registered on market not it imply that only monetary values count in some fundamental manner.

This means that, we try to translate all the impact: of the project or the programme in order to make them comparable among themselves as well as with other types of public activities. Sometimes the projects or the programmes are immeasurable because we don't know how much value these projects or programme have in the economy.

(iv) Compare these Benefits and Costs:

Next step is to make comparison between cost incurred and benefit derived from the project. One of them is to subtract the total cost from the total benefit to get net benefit. If the net benefit is positive then the cost benefit is positive and if the net benefit is negative then the cost benefit is negative.

Again there is the other criteria called the cost benefit ratio. It is calculated by taking the ratio of benefit and cost. If the value is positive the cost benefit is positive and vice versa. These are certain steps to be taken into consideration before entering into the cost benefit project or programme.

3.4. Cost incurred in Cost Benefit Analysis

(a) Pollution prevention cost:

It implies that the cost which is spent by the government or individuals or local bodies or firms in order to prevent pollution fully or partially. These types of costs are spent before the pollution is created in the society.

For e.g., if in a particular area an industry is to be started then making arrangements so that the smoke or the waste water is disposed in an efficient way so that the waste product need not hit the society. Pollution prevention cost may be incurred whether in public or private sector. These costs are also called as Abatement Costs. The benefits arising out of these costs are called abatement benefit costs.

(b) Pollution damage cost:

These are the costs incurred in the elimination of pollution that has already occurred for e.g., due to the industrial waste if a river nearby is affected then the government or private sector spend some money to clear that river. The amount is termed as the pollution damage cost.

(c) Welfare damage cost:

If for e.g., an area is being polluted and the government or the private sector did not take any step to eradicate that pollution then it will lead to a damage in the welfare of the society. Therefore, pollution that is not prevented results in damaging the welfare of the society. So pollution that is not prevented results in welfare damage which may be pecuniary or real.

Summing all these costs the waste disposal cost is the sum of pollution prevention cost and pollution cost.

Pollution cost = pollution avoidance cost + welfare damage cost.

3.5 Costs and Benefits in Controlling Pollution

Pollution costs are mainly opportunity costs or real costs. Because if the pollution has not occurred this amount could be spent for alternative activity which gives welfare to the society. Actually these costs are resources utilized by reducing production of some other goods.

Figure 1. Illustrates the cost to the society due to the pollution. In the X axis we have the level of pollution and in the T axis are the cost involved for the elimination of pollution. If we go rightwards in the 'X axis it means the pollution increases and towards left means less pollution. At the origin 'O' the pollution is nil. Similarly in the T axis if we go up, the cost incurred is high and lower the cost is less.

Figure 1: showing the cost to the society due to Pollution

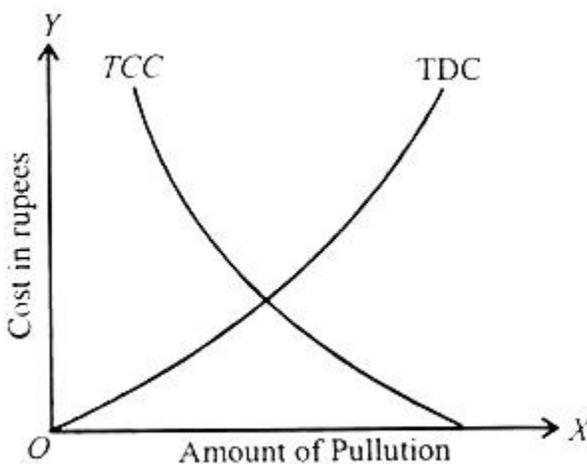


Fig. 1.

Source: Adewole, (2016). Introduction to Public Sector Economics

Keeping this we are drawing the total damage cost curve (TDC) which refers to the total external cost. This curve increases in an increasing rate stating that with the increase in

the pollution the cost increases. The other curve is the total cost of pollution (T.C.C.). This curve slopes upward from right to left. This implies that for acquiring less pollution we have to spend more money.

Having drawn the two curves the good approach is to minimize the sum of TDC and TCC. In other words by minimizing the sum of TDC and TCC we can acquire the optimum pollution and the social benefit will be high. This can be explained by the following method.

Let T be the output secured in the society with pollution control and Y_i be the flow without pollution control. The difference will be pollution cost, as pollution control incurs some cost which otherwise will be utilized for some production.

So we say: $Y = Y_1 - TCC$

In the same way we can value the environmental quality service. This will be S_i without any pollution and S with such damages. The difference will be damage due to pollution.

So we say: $S = S_i - TDC$

Keeping this in mind the total social benefits are made up of the product produced in the country and the country's environmental quality service. So,

Total social benefit = $Y + S$

= $(Y_i - TCC) + (S_i - TDC)$

= $(Y_i + S_i) - (TCC + TDC)$

Therefore, $TSB = (Y_i + S_i) - (TCC + TDC)$

In the above expression pollution affects TCC and TDC. Hence minimize the $TDC + TCC$. The figure coming below Fig. 2. shows the optimum level of pollution by summing up the two cost curves and locating its minimum.

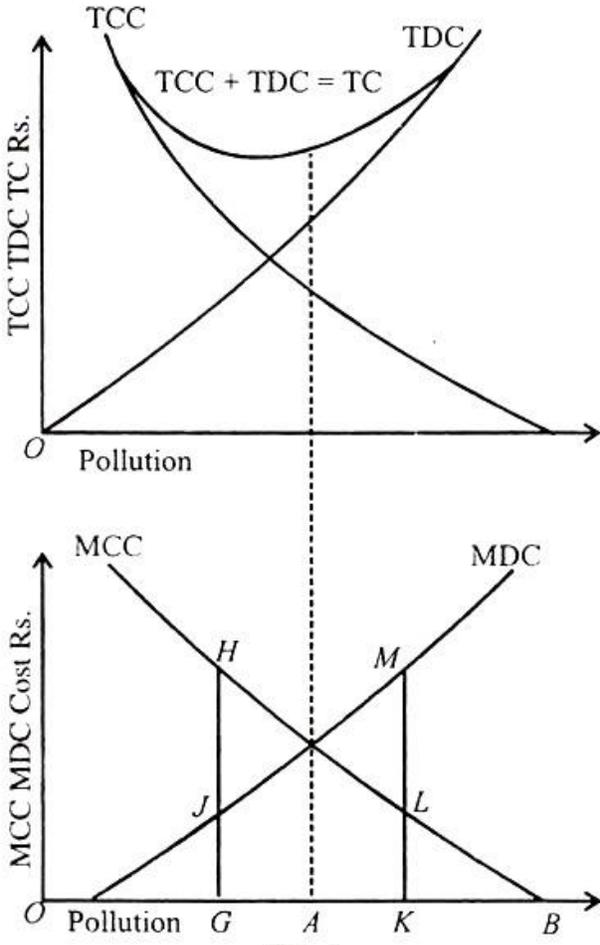


Fig. 2.

Source: Source: Adewole, (2016). Introduction to Public Sector Economics

Figure 2: showing the optimum level of pollution by summing up the two cost curves and locating its minimum.

In the figure the minimum point of TC curve is not the intersecting of total damage curve and total control curve. But it is at the point where marginal control cost curve and the marginal cost are in absolute magnitude. The optimum pollution is at A. Further reduction in pollution will cost more than its worth, when the pollution level exceeds A, extra cost to society of additional pollution is greater than the cost of preventing it.

The cost of allowing pollution to increase from A to B is much greater than the cost of preventing it. For instance if pollution level is ok, managerial cost of controlling it is KL and marginal damage to society is KM and the KM is greater than KL.

To the other side cost of pollution control is greater than the cost to society of pollution. At G marginal cost of controlling pollution is GH and marginal damage cost of pollution to society is GJ and GH is greater than GJ. So only at A the total costs are minimum and A is the optimal level of pollution.

3.6 Total benefit curves and marginal benefit curves

When the environment is polluted highly the cost incurred in correcting is very high, so the TBC increases sharply. As the time passes the total benefit increases slowly as the marginal benefit arrived from it declines.

At last it reaches the minimum point and then shows a dropping tendency. So the MBC is a descending curve, where TBC is maximum the MBC cuts the X-axis. The total benefit increases at a decreasing rate. This can be seen in the diagram Fig. 3.

Figure 3: showing the total benefit curves and marginal benefit curves

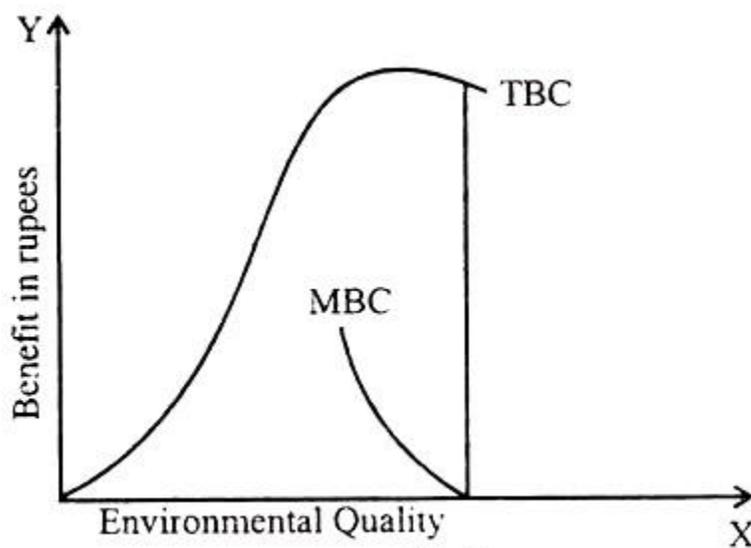


Fig. 3.

Source: Wash, (2017). Principles and Practice of Public Sector

3.7 Optimum Level of Environmental Quality

The optimum level of environmental quality can be obtained when the two conditions are satisfied, they are:

- (a) The total benefit must be greater than the total cost.
- (b) The marginal benefit curve must be equal to the marginal control cost curve.

Keeping these conditions in mind we can draw a figure to explain the efficient level of environmental quality. In the figure 4. X-axis denotes the environmental quality and Y-axis represent the cost/benefit. The marginal control cost is rising.

The MCC and TCC indicate the opportunity cost of controlling pollution and the increase in the environmental quality. For the first condition, i.e., the total benefit must be greater than total control implies that the environmental quality is between E and E_1 .

Another condition is that the $MBC = MCC$. This occurs where both the curves intersect each other at the point OE_1 . Again at any other point whether MBC will be greater than Environmental Quality MCC or MCC will be greater than MBC. So only at OE_1 the difference between TBC and TCC are maximum and the $MCC = MBC$. This occurs because at 'ab' the difference between TCC and TBC is maximum.

Figure 4: showing the optimum level of environmental quality

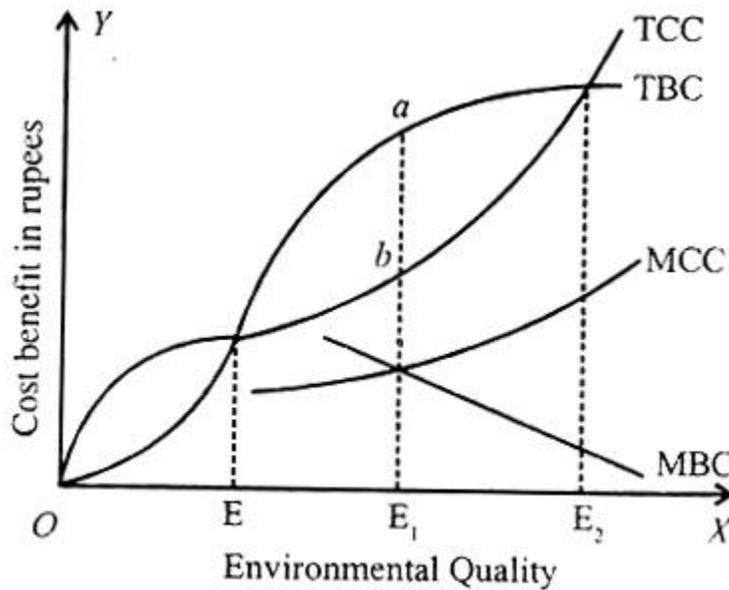


Fig. 4.

Source: Wash, (2017). Principles and Practice of Public Sector

3.8. Cost Benefit Analysis—The Frame Work:

Knowing the cost benefit in theoretical form it is important to know it in terms of monetary terms. This can be studied under the property price approach. The property price approach is studied on the basis of noise pollution, this noise pollution is applicable to waste water, air pollution, etc.

3.8.1 Property price approach:

The property price approach states that the people can buy peace and quite by choosing their house at a quite place.

According to property price approach there are three types of movers, they are:

- (i) Natural movers.
- (ii) Movers due to noise.
- (iii) Bearer whatever the noise may be.

Natural movers are people those who move due to other factors, may be the job, education etc. They keep on moving their house from one place to the other. The next is the people who move due to the nuisance created by the noise.

These type of people move in search of calm and quietness. Another type of people are those who bear the noise and never shift their place. This may be due to poverty or due to their love in ancestral property. However, keeping this in mind we can make some assumptions on this approach:

- (i) Individuals are free to choose the house according to their will.
- (ii) Noise is not common but is present in some areas.
- (iii) Peaceful area is available in plenty for the people to choose their dwelling.
- (iv) Noise or calmness is measurable and quantifiable as the commodities.

With these assumptions we can see the illustration with the help of a diagram.

In the diagram (Fig. 5.) X-axis denotes the number of housing units and the Y-axis the price paid for it. DH is the demand curve for houses and the stock of houses is assumed to be fixed at ON. So the NH is the supply curve and the DH is the demand curve which intersects at H. the market price with the demand and supply curve is OP. Now consider that MN houses are affected by noise so the demand curve falls to the position D_1H_1 . This leads to the fall in price of P_1 for a noisy house.

Figure 5: showing housing unit to the Price paid by households

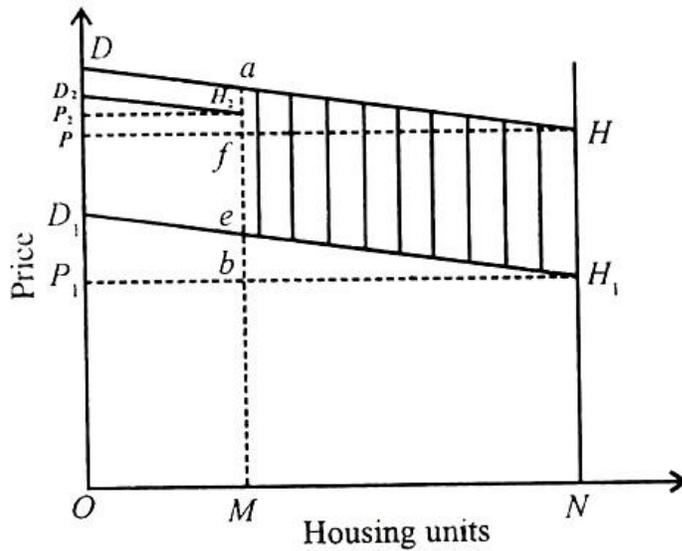


Fig. 5.

Source: Wash, (2017). Principles and Practice of Public Sector

Now OM quite houses are more valuable so the demand curve shifts to D_2H_2 . This position is fixed higher because people are willing to pay more for the quite houses. This is given by the distance $ae=D$. the distance between the demand curves DH and D_1H_1 for marginal consumer of quite houses.

If this marginal willing to pay is not altered, the marginal consumer must be willing to pay $P_1 + D$ for quite houses. Hence adding D to P_1 gives point H_2 as the demand by the marginal consumer and similar analysis for other consumers gives the demand curve D_2H_2 as the demand curve for quite houses setting a price of P_2 .

According to the figure the observed house price differential after the introduction of noise concept is P_2-P_1 But the actual change in welfare is measured as the change in consumer surplus is given by the shaded area. This shaded area can be analyzed as

$$aHH_1b = afH + feH_1H - ebH_1$$

Giving the symbol 'S' for consumers' surplus, for the surplus at the original price P and S_i for the surplus at the new price of the noisy house P_1 this becomes.

$$\Delta S = S_o + (P-P_1) MA' - S_i \text{ (or) } (P-P_1) MN + (S_o-S_i)$$

This reveals that the measure of welfare loss to the house price is the differential between the initial 'no noise' situation and the new price of noisy houses plus the change in

surplus between the initial 'no noise' situations. But the formula we derived earlier stated the difference between the new price for quiet houses and the new price for noisy prices. From the figure we can observe the following inequality.

$$(P - P_i) MN < S < (P_2 - P_1) MN$$

This means, the approach using only the difference between the no-noise and noise situation will understate noise cost and an approach using the differential between the new price of noisy houses will overstate noise costs.

3.9. Merits and Demerits of Cost Benefit Analysis:

Merits:

- (i) The cost benefit analysis may be applicable for both the new as well as old projects.
- (ii) The cost benefit analysis is based of accepted social principle that is on individual preference.
- (iii) This method encourages development for new techniques for the evaluation of social benefits.

Demerits:

- (i) The government is not completely aware of all the costs and benefits associated with the programme.
- (ii) This approach does not clearly state that who should bear the pollution control costs.
- (iii) The method of collecting data for this analysis is generally biased.
- (iv) The people will have different value system and there will always be loser in the process.

Self-Assessment Exercise

Discuss the principles of benefit and cost.

4.0 Conclusion

A cost-benefit analysis is a process by which business decisions are analyzed. The benefits of a given situation or business-related action are summed, and then the costs associated with taking that action are subtracted. Some consultants or analysts also build the model to put a dollar value on intangible items, such as the benefits and costs

associated with living in a certain town, and most analysts will also factor opportunity cost into such equations.

5.0 Summary

In this unit, we have learnt that reducing the positive and negative impacts of a project to their equivalent money value Cost-Benefit Analysis determines whether on balance the project is worthwhile. The equivalent money value are based upon information derived from consumer and producer market choices; that is, the demand and supply schedules for the goods and services affected by the project. Care must be taken to properly allow for such things as inflation. When all this has been considered a worthwhile project is one for which the discounted value of the benefits exceeds the discounted value of the costs; i.e., the net benefits are positive. This is equivalent to the benefit/cost ratio being greater than one and the internal rate of return being greater than the cost of capital.

6.0. Tutor-Marked Assignment

1. Define the term ‘Cost Benefit Analysis’
2. Discuss the steps in cost benefit analysis
3. Explain the differences between total benefit curves and marginal benefit curves analysis
4. List and explain the merits and demerits of cost benefit analysis
5. Discuss the analysis of the property price approach

7.0. REFERENCES/FURTHER READING

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