COURSE GUIDE

ECO 121
PRINCIPLES OF ECONOMICS

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INTRODUCTION

ECO 121: Principle of Economics is a three-credit and one-semester undergraduate course for Economics student. The course is made up of 21 units spread across fifteen lectures weeks. This course guide tells you what economic problems are and how are they use to solve households and firm's economic needs. It tells you about the course materials and how you can work your way through these materials. It suggests some general guidelines for the amount of time required of you on each unit in order to achieve the course aims and objectives successfully. Answers to your tutor marked assignments (TMAs) are therein already.

COURSE CONTENT

This course is basically an introductory course on the Micro-economics aspect of economics theory. The topics covered includes the subject matter of economics and basic economics problems; the methodology of economics science; and the general principles of resource allocation; market mechanism-demand and supply; price determination and elasticity, theory of consumer behaviour; theory of production; market structure price and output under perfect competition; monopoly; monopolistic competition and oligopoly. It takes you through meaning of economics and its various definitions. Since economics is defined based on the two assumptions, the assumptions were elaborated on in relation with some other concepts that are interwoven. Thereby interdependency and complexity of economics become obvious through real life scenario given in the units.

COURSE AIMS

The aim of this course is to give you in-depth understanding of the economics as regards:

- fundamental concept and practices of economics
- to familiarise students with scarce economics resources which form the basis for rational decision by households and firms
- to stimulate student's knowledge of decision making within the households and firm
- to show the circular relationship between households and firm, input and output and flow of resources within the economy system
- to expose the students to economic history and behaviours of households and firms in allocation of resource and in manipulation of factors of production for profit maximisation

COURSE OBJECTIVES

To achieve the aims of this course, there are overall objectives which the course is out to achieve though, there are set out objectives for each unit. The unit objectives are included at the beginning of a unit; you should read them before you start working through the unit. You may want to refer to them during your study of the unit to check on your progress. You should always look at the unit objectives after completing a unit. This is to assist the students in accomplishing the tasks entailed in this course. In this way, you can be sure you have done what was required of you by the unit. The objectives serves as study guides, such that student could know if he is able to grab the knowledge of each unit through the sets of objectives in each one.

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

- define economics, state its important and enunciate on assumptions upon which the definitions are based
- state why and how available choices leads to decision making and Relate basic economic concept and problems
- enumerate the importance of basic economics question and know how to apply rationality to answering the questions in the decision making process
- list and explain different methods of solving economic problem which lead to different types of economies. Differentiate between different types of economies and know the weaknesses and strength of each method of economy
- explain how firms transforms resources allocated (input) into product (output) and understand the circular flow of supply and demand between households and firm
- discuss price mechanism, explain demand for a commodity in relation to changes in price and elucidate on factors that determines quantity demanded and supplied. Define elasticity in relation to demand and supply
- explain why government interfere in the market price determination and how government interfere in the market
- explain the concept of utility, marginal and tot utility
- describe how input are employed in satisfying human wants, consumer's preference and indifferent curve and consumer equilibrium point on the budget line
- discuss factors of productions and their specific contribute to process of production
- explain Cost concepts and their definitions, different market structures and behaviour of firms.

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. 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 15weeks to complete and some components of the course are outlined under the course material subsection.

COURSE MATERIALS

The major component of the course, 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 follows:

1. Course Guide
2. Study Unit
3. Textbook
4. Assignment File
5. Presentation Schedule

STUDY UNITS

There are six modules in this course broken into 21 units which should be carefully and diligently studied.

Module 1 Basic Concept in Economics

Unit 1 What is Economics?
Unit 2 Fundamental Principles of Economics Contents
Unit 3 Economics and Basic Economics Problems
Unit 4 The Economics System

Module 2 Demand and Supply

Unit 1 The Basis of Decision-Making Units
Unit 2 Demand
Unit 3 Supply

Module 3 Price Determination

Unit 1 Market Equilibrium
Unit 2 Price Ceiling and Price Floor
Unit 3 Elasticity of Demand

Unit 4 Elasticity of Supply

Module 4 Theory of Consumer Behaviour

Unit 1 Basis of Choice: Utility
Unit 2 Budget Constraint
Unit 3 Equilibrium, Price and Income Changes

Module 5 Theory of Production

Unit 1 Factors of Production
Unit 2 Production Process and Cost Concepts
Unit 3 Law of Production

Module 6 Theory of Firm

Unit 1 Perfect Competition
Unit 2 Monopoly
Unit 3 Monopolistic Competition and Oligopoly
Unit 4 Market Structures Comparison

Each study unit will take at least two hours, and it include the introduction, objectives, main content, conclusion, summary and references. Other areas border on the Tutor-Marked Assessment (TMA) questions. Some of the self-assessment exercises will necessitate discussion, brainstorming and argument with some of your colleagues. You are advised to do so in order to understand and get acquainted with historical economic event as well as notable periods.

There are also textbooks under the references and other (on-line and off-line) resources for further reading. They are meant to give you additional information if only you can lay your hands on any of them. You are required to study the materials; practise the self-assessment exercise and tutor-marked assignment (TMA) questions for greater and in-depth understanding of the course. By doing so, the stated learning objectives of the course would have been achieved.

TEXTBOOKS AND REFERENCES

For further reading and more detailed information about the course, the following materials are recommended:

Friedman, D. D. (1990). *Price Theory: An Intermediate Text*. South-Western Publishing Co.

Foley, D. K. (2003). *Rationality and Ideology in Economics*. November 30th, 2011, *http://homepage.newschool.edu/~foleyd/ratid.pdf*.

Marshall, A. (1920). Principles *of Economics. Library of Economics and Liberty*. Assessed November 29, 2011 *http://www.econlib.org/library/Marshall/marP4.html*.

Reynolds, L. R. (2005). *Alternative Microeconomics.* November 25, 2011, from http://www.boisestate.edu/econ/Ireynol/web/Micro.htm.

Smith, A. (1776). *An Inquiry into the Nature and Causes of the Wealth of Nations.*

Foley, D. K. (2003). *Rationality and Ideology in Economics.* Accessed November 30, 2011 from http://homepage.newschool.edu/~foleyd/ratid.pdf.

North, D. C. (1990). *Institutions, Institutional Change and Economic Performance*. Cambridge: Cambridge University Press.

Welch, P. J. & Welch, G. F. (2010). *Economics: Theory and Practice.* (pp.1-560). United State of America: John Wiley & Sons Inc.

Mahadi, S. Z. (2006). *Understanding Economics*. Kuala Lumpur: Cosmopoint Sdn. Bhd.

Samuelson, P. A. & Nordhaus, W. D. (2010). *Economics.* (9th ed.). New York: McGraw Hill Companies.

O'Sullivian, A. & Sheffrin, S. M. (2003). *Microeconomics Principles and Tools.* (3rd ed.). New Jersey: Pearson Education Inc.

Ojo, O. (2002). *'A' Level Economics Textbook for West Africa.* (5th ed.). Ibadan: Onibonoje Publishers.

Case, K. E. & Fair, R. C. (1999). *Principles of Economics*. New Jersey: Prentice Hall.

Hal, R. V. (2002). *Intermediate Microeconomics: A Modern Approach*. (6th ed.). New York: Norton.

ASSIGNMENT FILE

This file presents you with details of the work you must submit to your tutor for marking. The marks you obtain from these assignments shall form part of your final mark for this course. Additional information on assignments will be found in the assignment file 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 questions in Module 1 Units 1 –4, Module 2 Units 1-3
Assignment 2 - All questions in Module 3 Units 1 –4, Module 4 Units 1-3
Assignment 3 - All questions in Module 5 Units 1-3
Assignment 4 - All questions in Module 6 Units 1-4

PRESENTATION SCHEDULE

The presentation schedule included in your course materials gives you the important dates for the submission of Tutor-Marked Assignments and attending tutorials. Remember, you are required to submit all your assignments by due date. You should guide against falling behind in your work.

ASSESSMENT

There are two types of assessment in this 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 ASSIGNMENT

There are four Tutor-Marked Assignments in this course. You will submit all the assignments. You are encouraged 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 set 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

Revise the entire course material using the time between finishing the last unit in the Module and that of sitting for the final examination too. 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 indicates the total marks (100%) allocation.

Assignment	**Marks**
Assignments (Best three assignments out of four that is marked)	30%
Final Examination	70%
Total	**100%**

COURSE OVERVIEW

The table presented below indicates the units, number of weeks and assignments to be taken by you to successfully complete the course, Principle of Economics (ECO 121).

Units	Title of Work	Weeks Activities	Assessment (End of Unit)
	Course Guide		
	Module 1 Basic Concepts in Economics		
1	What is Economics?	Week 1	Assignment 1
2	Fundamental Principle of Economics	Week 1	Assignment 1
3	Economics and Basic Economics Problems	Week 2	Assignment 1
4	The Economics System	Week 2	Assignment 1
	Module 2 Demand and Supply		
1	The Basis Decision-making Units	Week 3	Assignment 1
2	Demand	Week 3	Assignment 1
3	Supply	Week 3	Assignment 1
	Module 3 Price Determination		
1	Market Equilibrium	Week 4	Assignment 2
3	Price Ceiling and Price Floor	Week 4	
5	Elasticity of Demand	Week 5	Assignment 2
4	Elasticity of supply	Week 5	Assignment 2
	Module 4 Theory of Consumer Behavior		
1	Basis of Choice: Utility	Week 6	Assignment 2
2	Budget Constraint	Week 7	Assignment 2
3	Equilibrium, price and income changes	Week 8	Assignment 2
	Module 5 Theory of Production		
1	Factors of Production	Week 9	Assignment 3
2	Production Process and Cost Concepts	Week 10	Assignment 3
3	Law of Production	Week 11	Assignment 3
	Module 6 Theory of Firm		
1	Perfect Competition	Week 12	Assignment 4
2	Monopoly	Week 13	Assignment 4
3	Monopolistic competition and oligopoly	Week 14	Assignment 4
4	Market Structure Comparison	Week 15	Assignment 4
	Total	**15 Weeks**	

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 set books or from a reading 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. 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

Organise 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 each 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 set 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 set 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 its 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).

FACILITATORS/TUTORS AND TUTORIALS

There are some hours of tutorials (2-hour 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 reading
- have difficulty with the Self-Assessment Exercises
- 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

The course, Principle of Economics (ECO 121), expose you to basic concepts in economics and production, production process; utility derivable by consumers through consumption of output to satisfy their wants. This course also gives you insight into price determination by invisible hand of the market through demand and supply for output. Thereafter it shall enlighten you about decision making by households and firms theory of consumer behaviour and theory of firm. Conclusively it explicates on how different behaviours of firms lead to different market structures and also make comparison between these different structures.

On successful completion of the course, you would have developed critical thinking skills with the material necessary for efficient and effective discussion of economic issues, factors of production and behaviour of firms and households. However, to gain a lot from the course please try to apply anything you learn in the course to term papers writing in other economic development courses. We wish you success with the course and hope that you will find it fascinating and handy.

MAIN COURSE

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MODULE 1 BASIC CONCEPT IN ECONOMICS

UNIT 1 WHAT IS ECONOMICS?

CONTENTS

1.0 INTRODUCTION

This unit starts with difficulty of having a single and acceptable definition of economics as a result of the puzzling nature of economics. This is followed by the meaning of economics and its various definitions has propounded by some famous Economists. Since economics is defined based on the two assumptions, the assumptions were elaborated on in relation with some other concepts that are interwoven. Thereby interdependency and complexity of economics become obvious through real life scenario given in this unit. The benefit of studying economics and understanding its principles are also part of what we shall find out from this unit.

2.0 OBJECTIVES

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

- define economics in various forms
- list some benefits of studying economics
- enunciate on assumptions upon which the definitions are based.

3.0 MAIN CONTENT

3.1 Definitions of Economics

Economics is a science which deals with wealth creation through production of goods and services, their distributions as well as consumption. The process plays a huge task in the society because it influences the majority of our decisions in our day-to-day activities. However, defining economics has pose difficulties because there is no single acceptable definition. Therefore different economists have given economics different types of definitions. Famous among these economists were: Adam Smith, David Ricardo, Thomas Malthus, J.S. Mill, John Stuart Mill., Karl Marx, Alfred Marshall, J. B. Say, James Henderson, John Keynes, Irving Fisher, Lionel Robbins and host of others. Each of these famous economists either gave a definition which others think it is either too narrow or too broad to describe economics. Brooks (2012) is of the view that economics can be confusing therefore it is difficult to find a single or clear definition of it. However, the definition given by Lionel Robbins in his book, *An Essay on Nature and Significance of Economic Science* received several criticisms but remains a mainly acceptable definition of economics. Robbins defined economics "as a science which studies human behaviour as a relationship between given ends and scarce means which have alternative uses". This definition touched on major aspect of economics such as human behaviour (rationality), human needs and scarce resources, choices as a result of scarce resources and alternative uses of resources.

The decisions made by individuals, corporations and governments are vital to their survival. Therefore, studying economics and understanding its principles is imperative. Studying economics provides many helpful benefits. For instance, an individual is assisted in understanding the decisions on household issues; it assists business outfit in understanding the financial sector, the impact of government decision making on their business and latest development in business society and the global economy. It also teaches the concept of relative scarcity as a result of limited resources, supply and demand, choices, opportunities, opportunity cost and benefits and how all these can impact the decision making of individuals, businesses and government. It also teaches how these decision making processes affect the society.

Economics can also be defined as the approach to understanding behaviour that starts from the assumption that people have objectives and tend to choose the correct ways of achieving them. The first half of the assumption is that people have objectives (it is assumed that the objectives are reasonable and by extension, simple) and the second half of the assumption, that people tend to find the correct way to achieve their objectives, is called *rationality*. The term *rationality* is somewhat deceptive according to Friedman (1990). He posited that the fact that

this term suggests that the way in which people find the correct way to achieve their objectives is by rational analysis does not translate to the fact that the decision is rational. Sometimes somewhat complicated objective can lead to apparently irrational behaviour and decision.

There are main questions which economic science has to directly deal with, and with reference to which its main work of collecting facts, of analysing them and of reasoning about them should be arranged. The greater part of the practical issues may be lying outside the range of economic science, yet it supplies principal objectives in the milieu to an economist work. This varies not only from time to time but also from place to place. For instance, questions like: what are the causes, in the contemporary world, that affect the production, the distribution, consumption and exchange of wealth? What effects are these having on the group of industry and trade; on the money and capital markets; wholesale and retail businesses; foreign trade and exchange, and the relations between employers and employed? How do all these movements act and react upon one another? How do their ultimate differ from their immediate tendencies? Marshall (1920).

Technically, economics is the study of how diverse alternatives or choices are appraised in order to best achieve a certain objective. The sphere of economics is the study of processes by which scarce resources are allocated to satisfy unlimited wants. Ideally, the resources are allocated to their highest valued uses. Supply, demand, preferences, costs, benefits, production relationships and exchange are tools that are used to describe and evaluate the market processes by which individuals allocate scarce resources to satisfy as many wants as possible (Reynolds, 2005). For example, let consider Mr. A who is stuck in making two decisions: 1. What type of car to buy? 2. Which area to live taking into consideration his place of work? (Note that an individual decision will affect two businesses, one is the car business and two is the estate management business). In either case, Mr. A can perk up his decision by devoting time and effort in studying the alternatives available in each case. In the case of the car, if he considered fuel-efficiency of the cars in his list of choices, then his decision determines with certainty which car he gets and this is considered a *rational* decision. In the case of which area to live, in his decision (on the choice of house), he may be considering closeness to his office, the traffic in the route from the area to his office, road linkages and networks etc. If the area is far from his office and the road is always with traffic problems, but he choose the area because the house is beautiful; then he has wasted his time and efforts on considering better alternatives and maximising them; if he choose a house nearer to his office with less traffic problem, then his time is not wasted and the decision may be considered rational. Though

we can predict his correct decision but his mistake in this situation which he may consider rational is not easily predictable.

Meanwhile, introspection or rather self-examination does not enable Mr. A to measure what is going on in B's mind, nor Mr. B to measure what is going on in Mr. A's mind. Therefore, comparing the satisfactions of different people is somehow complex. More so, we continually assume that the comparison can be made in daily life. However the very multiplicity of the assumptions actually made at different times and in different places is a confirmation of their conventional nature. Conventionally, we usually assume for certain purposes that people in comparable circumstances are proficient to have equal satisfactions. Just as for purposes of justice we assume equality of responsibility in similar situations as between legal subjects. Subsequently for purposes of public finance, we agree to assume equality of capacity for experiencing satisfaction from equal incomes in similar circumstances as between economic subjects. But, although it may be suitable to assume this, there is no way of proving that the assumption rests on establish-able reality.

SELF-ASSESSMENT EXERCISE

Give various definitions of economics you know.

3.2 Importance of Economics

According to Adam Smith (1776), economics is concerned with inquiring into *the nature and causes of the wealth of nations*. This is because the study of economics assists individuals in the society to understand the decisions of households, businesses and governments based on beliefs, human behaviour, structure, needs and constraints as a result of scarcity. Consequently, economics is a study of man and how he thinks, lives, and moves in the ordinary course of business of life. It deals with the ever dynamic and delicate forces of human nature. Economics as a social science gives larger opportunities for precise methods than any other social science subject. For example, the pleasures which two people derive from drinking yoghurt cannot be unswervingly compared neither can we compare what the same person derives from it at different point in time. Utility and satisfaction derived at each point in time varies even for the same person. But if a person is in doubt on whether to spend his small naira on a pack of yoghurt or a cup of coffee, or on pack of chocolate, then we state by regular custom that he expects from each of these actions an equal satisfaction.

Therefore, economy as a complicated interdependent system thus **what to produce** is more important in developing economies, as a result of

scarcity of skilled manpower. **How to produce** is another problem, due to differences in availability of resources in differing economy. **For whom to produce** is another problem of economics and it depends on the socioeconomic ideology while **how much to produce** is a problem which depends on the production, Potential and size of the market. The problem of **by whom to produce** is also very big. For example, in a capitalist economy there is usually an occupational freedom while the aim of a socialist economy is social control over productive activities. However, in a mixed economy there is the permutation of both capitalist and socialist economies. Therefore, a big concern is on how the available resources would be allocated, to get maximum total output. Basically, economics is important in order to study how people react to and allocate limited resources. However, in the process of taking full advantage of one's own benefit there is the broader benefit of efficient allocation of resources across society.

SELF-ASSESSMENT EXERCISE

It is unimportant to study economics. True or False? Substantiate your answer.

4.0 CONCLUSION

Economics is a social science that studies the relationship between scarce resources and the process of allocating them in order to satisfy unlimited wants. It studies how individuals, businesses and government goes through process of decision making in order to get most benefit from their choice having compare the cost and benefit before taken a decision. This decision is deemed rational in as much the act is influential to achieving some well-defined end. It is aimed at maximising resources which hitherto have been allocated efficiently.

5.0 SUMMARY

Summarily, economists are concerned with choosing the correct way to achieving an objective which may allows us to be able to predict human behaviour while their mistake may not be easily predictable. Consequently, not all decisions are rational though it is expected that individual goes through the decision making process for the purpose of maximising the scarce resource. Hence, studying economics is important to assist individual, government and businesses in their day-to-day decision making for overall benefit of the economy.

6.0 TUTOR-MARKED ASSIGNMENT

1. Explicate on the relationship between the basic economic problems.
2. In economics, the nature and wealth of a nation is inquired into. Expatiate.
3. Give example of a rational decision you have ever made while you are stuck between two choices.
4. Enunciate on the meaning of economics and its relationship between objectives and rationality.

7.0 REFERENCES/FURTHER READING

Friedman, D. D. (1990). *Price Theory: An Intermediate Text.* South-Western Publishing Co.

Foley, D. K. (2003). *Rationality and Ideology in Economics.* Accessed November 30, 2011 from *http://homepage.newschool.edu/~foleyd/ratid.pdf*.

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UNIT 2 FUNDAMENTAL PRINCIPLES OF ECONOMICS

CONTENTS

1.0 INTRODUCTION

This unit explains some basic economics principles that are interrelated. These principles form the basis for decision making and consideration for a particular choice by individual, businesses and firms. The interrelationship between these concepts as well as the interdependency of individual, businesses and government in an economy are better understood when the effects of their decisions are examined in relation to the economy. The decision making process affect the allocation of the scarce resource. It should be noted that the resources must be well allocated if most benefit is expected from the chosen alternative. Consequently, finding correct ways to achieve an objective determine whether the choice of such person is rational or irrational. In finding correct ways to achieve an objective, human interactions with business and government plays a roll. So also are forces of demand and supply, preference etc. as a result of sets of social values and objectives shared by individuals in a society.

2.0 OBJECTIVES

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

- explain why and how available choices leads to decision making
- state that not only the explicit or out-of-pocket cost form the cost of a particular choice but the implicit or opportunity cost of the best alternative forgone is also part of the total cost
- identify that correct ways of achieving an objective leads to rationality especially when the objectives are simply based on assumption.

3.0 MAIN CONTENT

3.1 Overview of Principle of Economics

The field and discipline of economics is divided into two main areas, leveled to individuals and the society. The study of individuals, their economic decisions making, and how those decisions intermingle is called microeconomics. Microeconomics could also be defined as the study of the decisions of individuals, households, and businesses in specific markets. In contrast, macroeconomics is the study of the overall functioning of an economy such as basic economic growth, unemployment, or inflation, whereas Scarcity in microeconomics is not the same as poverty. Macroeconomics is concerned more with the up-and-down trends in the larger economy. Both of these disciplines are based on some key fundamental principles.

3.2 Choices

In our day-to-day life, we are usually faced with one objective or the other that requires decision making. Every decision involves choices and by extension having more of one good means having less of another good. Therefore there is usually a trade-off between the two choices. This is applicable not only to individuals but also to families, corporations, government and societies. Take for instance, if Ade has N20 and is stuck between buying an ice-cream or chocolate candy. He must take a decision whether to buy chocolate candy or go for the ice-cream. His decision might be influenced by some other factors. For example if it is a sunny day and Ade is thirsty, he might prefer ice-cream to chocolate candy. If he has discovered that taking chocolates stimulate him to a good sleep, he might go for chocolate because he need a good sleep thereafter or leave that choice because he must study thereafter. He will thus go for one of the choices which he believes is the correct one to maximise his satisfaction.

SELF-ASSESSMENT EXERCISE

Why do you think that individual, corporation and government make choices?

3.3 Opportunity Cost

In making a decision, we implicitly compare the costs and benefits of our choices over the other one. Opportunity cost is whatever must be given up to obtain something. Let us refer back to the case of Ade above, assuming he chooses chocolate candy because he needs it to stimulate him to a deep sleep. The ice-cream becomes the opportunity cost of buying chocolate candy. An out-of-pocket expense is the price of the chocolate i.e. N20 which is an obvious cost. Opportunity cost is an implicit cost and other less obvious costs given up to have the best alternative. So implicit costs are cost that includes next best opportunity given up, this must be included in aggregate opportunity cost.

SELF-ASSESSMENT EXERCISE

Opportunity cost is an implicit cost and other less obvious costs given up to have the best alternative. Explicate on this statement.

3.4 Rationality

As far as basic economics is concern, it assumes that people act rationally so as to gain the most benefit for themselves especially when benefit is compared with the associated costs. Behaviour, decision, expectation etc. can be rational or irrational. Foley (2003) defined the word "rational" to mean an act that is consistent and influential to achieving some well-defined end. He went further to define the word "irrational" as behaviour that appears to be intrinsically self-defeating or insane. For instance it is rational to pile up stones to make a wall, if you want to build a wall, but irrational to pile stones up in one place simply in order to move them to another place, and then move them back again. The concept of "rationality" also connotes a reasonable orientation toward the real world, and an ability to explain one's actions to others in terms that they can understand. Rational people usually think at the margin by comparing costs and benefits such that changes in either the benefit or cost may change their decisions. People respond to incentive for instance changes in prices. Broadly speaking, people are more likely to buy a particular good if it is cheaper to other substitutes that are changes in cost determine their decision to buy. That is if an action becomes more costly, then there is an incentive to swap to other choices since there are substitutes for all actions.

SELF-ASSESSMENT EXERCISE

Expound on how changes in cost and benefit usually affect the decision making.

4.0 CONCLUSION

The objectives of each individual differ so also are the alternatives available to them. In satisfying these objectives, there is the need for efficient allocation of scarce resources. This is paramount in order to satisfy as many wants as possible. Therefore categorising the choices to see the best that can maximise each objective is supreme in cost analysis of the choice made. The rationale behind a choice may be influenced by social institutions that arise from human behaviours. All these have their effects on economic growth of individual, businesses and government. Economic problems are another tool in resolving the conflict of objectives and choices and it assist in making rational decision. This shall be fully discourse in the next unit.

5.0 SUMMARY

It is established that economics studies how decisions are made by individual, businesses and government on wealth creation through production of goods and services. The decisions on distributions of such goods as well as their consumption affect our day-to-day activities and the overall economy. In consequence, careful review of objectives and choices, the opportunity cost of the best alternative forgone and rational decision are vital economic concept that are imperative in the study of economics.

6.0 TUTOR-MARKED ASSIGNMENT

1. Explain ‘implicit or opportunity cost’. Give real life example (your example must be different from what was given under this unit).
2. Give an example of a rational decision you have ever made while you’re stuck between two or more choices.
3. Enunciate on the meaning of economics and its relationship between objectives and rationality.
4. Discuss ‘choices’, ‘opportunity cost’ and ‘rationality’ in relation to economics.

7.0 REFERENCES/FURTHER READING

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UNIT 3 ECONOMICS AND BASIC ECONOMIC PROBLEMS

CONTENTS

1.0 INTRODUCTION

All economies are usually faced with basic economic problems that have to do with production, distribution and consumption in the economy. The basic economic problems arise as a result of resources that are relatively scarce when compared with the objectives for which they should be used. Human wants are infinite and the resources are limited. Basically, the resources can be categorised into two: 1. Human resources 2. Natural (physical) resources. As said earlier, there arises the need to make choices as a result of the limited resources (scarcity) which individual intends to maximise. There is the need to strike a balance between scarce resources and unlimited and insatiable human wants. Consequently, decision making on choices assist individual, businesses and government to allocate scarce resources efficiently. These problems led to the basic economics problems which must be answered.

2.0 OBJECTIVES

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

- relate basic economic concepts and problems
- understand the importance of basic economic question
- state how to apply rationality to answering the questions in the decision making process
- explain the effects of the problem on production, distribution and consumption in an economy.

3.0 MAIN CONTENT

3.1 Overview of Basic Economic Problems

Human wants are unlimited and ever dynamic due to ever changing demands and needs for resources which are limited. Therefore, in resolving the economic problems, the method of solving it spin round prioritisation of choices in order to know most pressing of the objectives and which ones to be solved first. Knowing which want can be accomplished and why and how it should be accomplished, when it should be accomplished and where it should be accomplished leads us to correct way of fulfilling the wants with the relatively scarce resources. This is because, human wants drives the economy through the demand and supply of goods and services to be used in realisation of differing objectives of individual, businesses and the government. For instance, house is a necessity not a luxury; having access to good shelter is of utmost important. House and other needs are fulfilled by patronising the product markets. Product markets obtain the needed factors of production from the factor markets after decision on basic economic problems had been answered. In Nigeria, most people are conversant with buying a land and then developing it into a house by themselves. Meanwhile, in the United State of America (U.S.A), it is a common practice to buy a house. Figure 1.1 shows a graph of real income (money available for consumption) and the price of getting a house in the U.S.A. The resources (real incomes) to satisfy human want (house) have been falling according to the graph since 1970. In contrast, home prices have been sky rocketing since 2002 such that the real wages is far below the house prices. This is an example of the most basic economic problem.

Fig. 1.1: Real Income and House Prices

Source:
http://www.democraticunderground.com/discuss/duboard.php?az=view_all&address=389x5213572

The problems such as stated in Figure 1.2 on basic economic problems and product market are discussed in the following section.

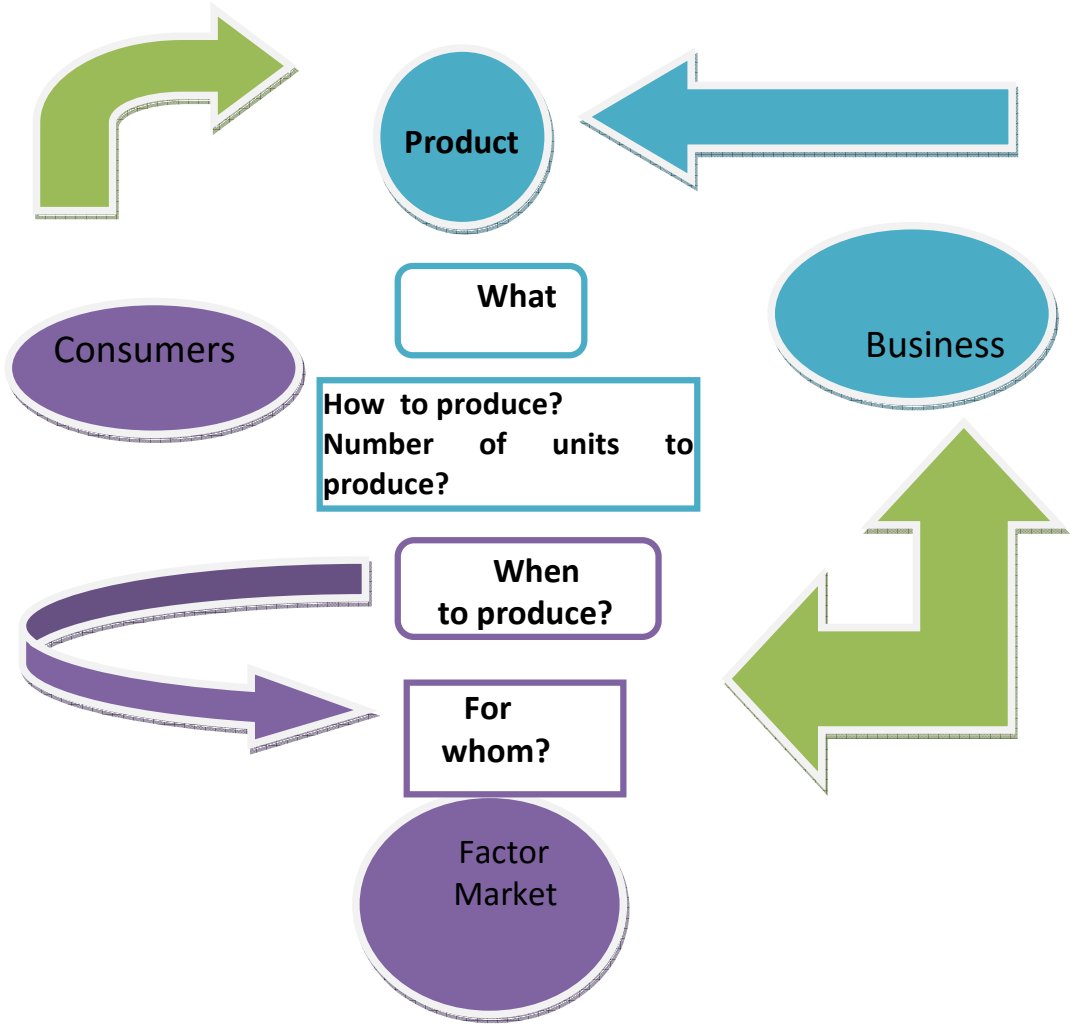

Fig.1.2: Product Market and Basic Economic Problems

- What to produce?
- How much to produce?
- How to produce?
- For whom to produce?
- When to produce?

3.2 What to Produce?

What to produce - thorough evaluation and rating of goods and services from most valued to least valued is a required step in arriving at a decision of what to produce. This is a vital stride to support the assumption that there is usually a trade-off between the choices and because of the comparability of different things that we valued.

3.3 How much to Produce?

How much to produce- since there are different goods and services in the marketplace competing, there is the need to determine how much of the goods or services of our choice we should produce. Demand for comparable goods or services may affect the decision making process on how much to produce. If the decision on how much to produce shows that large quantity should be produced then cost and benefit of large scale production may as well influence the decision on how to produce?

3.4 How to Produce?

How to produce-there are different methodologies for production of goods, if the decision on how much to produce shows a large quantity it may influence the method of production to be adopted. There are other factors that may affect the decision on how to produce such as availability of raw material.

3.5 For whom to Produce?

For whom to produce- this is shaped by the principles governing how goods are distributed among the members of a society. The distribution method may modify incentives that influence the behaviour of individuals.

3.6 When to Produce?

When to produce- The timing of production and the time that the final output of a good (or service) is available in the market may affect its value. By and large, goods to be consumed at some future date are perceived to have relatively lower value than those available currently for consumption. More so, producers of seasonal goods must have their new equipment and input materials ready for the next season.

SELF-ASSESSMENT EXERCISE

Elucidate on the basic economic problems with relevant examples.

4.0 CONCLUSION

Economics is a social science that studies the relationship between scarce resources and the process of allocating them in order to satisfy unlimited wants. It studies how individuals, businesses and government goes through process of decision making in order to get most benefit from their choice having compare the cost and benefit before taken a decision. This decision is deemed rational in as much as it the act is influential to achieving some well-defined end. It also studies how decisions of individual, businesses and government on wealth creation

through production of goods and services, their distributions as well as consumption affect our day-to-day activities and the overall economy.

5.0 SUMMARY

Fundamentally in economics, there are concept such as choices, opportunity cost, rationality and reaction of people to incentives. Given that all actions has an alternative, for each objective that people have, they must go through decision making process to select the best or correct way to maximise the benefit from their choice. Aside the out-of-pocket expense which is the cost price for a particular choice, other cost that are implicit which is chiefly the best alternative that was forgone must be included in the cost of the choice made. Changes in cost or benefit somehow affect the decision making. Choosing the correct way to achieving an objective allows us to be able to predict human behaviour while their mistake may not be easily predictable. Consequently not all decisions are rational.

6.0 TUTOR-MARKED ASSIGNMENT

1. Explicate on the relationship between the basic economic problems
2. Economics inquiries into the nature and the causes of wealth of a nation. Discuss
3. Enunciate on the meaning of economics and its relationship with basic economic problems

7.0 REFERENCES/FURTHER READING

Foley, D. K. (2003). *Rationality and Ideology in Economics.* Accessed November 30, 2011 from *http://homepage.newschool.edu/~foleyd/ratid.pdf* .

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UNIT 4 THE ECONOMICS SYSTEM

CONTENTS

1.0 INTRODUCTION

In understanding economics science and its methodologies, there is the need to thoughtfully consider the intricacies of people, resources, agents, institutions and their mechanism. Economics studies the relationship between the people and the institutions in a society with the limited scarce resources in that society. Consequently, there is the need to answer basic economic problems. These questions are answered in different methods, these methods determines the type of economic system that a country is operating. As mentioned earlier, the concern of each economic determines its methodology. *Capitalist Economy is usually concerned with an occupational freedom, while the aim of a Socialist Economy is social control* over major but selected productive activities. In the same vein, Communist economy system takes control of all major sources of production. In socialist and communist economies, basic economic decision are made by the government while in Market economy, these decisions are made by the invisible hand of market forces. Another methodology of economics science is Market economy where the mechanism is based on free market and free prices. However, in a Mixed Economy there is the permutation of both capitalist and socialist economies. Therefore, a big concern is on how the available resources would be allocated, to get maximum total output.

2.0 OBJECTIVES

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

- state different methods of solving economic problems which lead to different types of economies
- differentiate between different types of economies

- explain the weaknesses and strengths of each method of economy.

3.0 MAIN CONTENT

3.1 Overview of Economics System

Different individuals live together in a community with a set of objectives and shared values. A community is a place where these individuals with set of objectives and shared values interact. In a group of people in a community or society, each individual possibly may have different and competing objectives. As a result, social institutions emerge to resolve the conflict between individual objectives. People of similar objectives usually meet together as a result of demand and supply of goods and services. Their meeting place is referred to as the market. Market is a social institution where people of similar objectives meets to exchanges values and meet their demands. In doing this, different types of economic decision making processes are adopted by the individual and social institutions. Social institutions have its influence on human behaviour which determines their decisions in answering basic economic problem.

SELF-ASSESSMENT EXERCISE

Where do people of similar demand and supply usually meet?

3.2 What is Economic System?

An economic system consists of individual, institutions and their interaction in the process of answering basic economic problems. Individual and institutions work together to answer basic economic problems in relation to the resources in the society, its scarcity and how these scarce resources can be allocated to meet conflicting and diverse objectives. The mechanism of production, distribution and consumptions varies in our society. This is because each society answers the basic economic problems in different ways. How each society answered the basic economic problems; that is the economic decisions they make; determines the type of economic system they will operate. In the economic decision making, we have the households as the major actor followed by the institutions and then the government. North (1990) posited that institutions are the rules of the game in a society. Formally, they are the humanly devised constraints that shape human interaction which means they influence human behaviour. In consequence they structure incentives in human exchange, whether political, social, or economic. Institutional change shapes the way societies evolve through time and hence it is the key to thoughtful historical change. An

economic system must be able to answer basically three of the economic problems such as what to produce? That is what types of goods and services to produce. How to produce? That is what the resources available that can be employ for production of goods and services. For whom to produce? That is; who is the receiver of the final products from production. Hence an economic system encompasses various processes of organising and motivating labor, producing, distributing, and circulating of the fruits of human labor. Fruit of labor refers to products and services, consumer goods, machines, tools, and other technology used as inputs to future production, and the infrastructure within and in the course of which production, distribution, and circulation arises.

SELF-ASSESSMENT EXERCISE

What determines the type of economic system a society operates?

3.3 Types of Economic Systems

Economic decision made by a society shapes the economic system of that Country. The Figure 1.3 shows the basic economic systems:

- Traditional economy
- Controlled economy
- Free market Economy
- Mixed economy

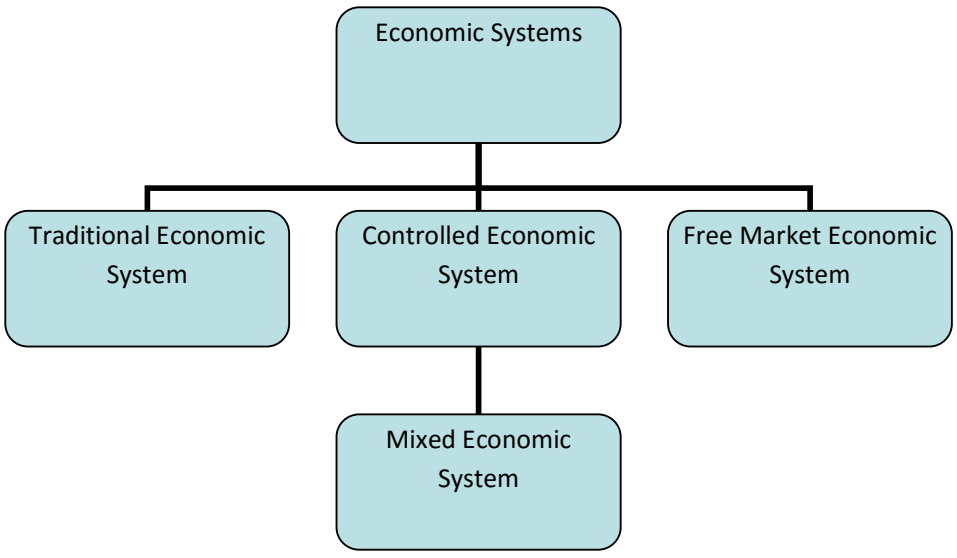

Fig.1.3: The Economic System

Traditional Economy

In a traditional economy, the economic decisions are made based on believes, norms religion and customs of that society. Specifically the economic decision on economic questions of what to produce, how to produce, for whom to produce, where to produce etc. are made based on believes, religion, customs, habit and norms of that society. For instance, the economies of some countries are believed to be traditional. Arab and African Countries such as Saudi Arabia, Nigeria, Iran, Pakistan, Kenya, Ghana, Qatar etc where people produce what they learnt their forefathers produced, following their custom of producing it; sell products that are produced the same way their forefathers produced it are traditional economies. For instance in Nigeria, people of Abeokuta is known for the 'adire' cloth business while the Oke-ogun people continue to produce the 'ofi' traditional attires as worn in the pictures below.

Barter-direct exchange of goods and services with other goods and services are part of the norms. For instance in Yoruba land, an exchange of food for services called 'agbaro' is still in operation in some part of the land. 'Agbaro' means that a group of friend will assist a member of the group to clear a portion of land while they receive in turn, food for their services instead of money. This is done based on custom of friendship.

Strengths

There is usually a strong family or societal relationship between the individuals in the traditional economy. Hence, there may be economic securities and safety for members of the society. This in turn may promote economic stabilities in the traditional economy.

Weaknesses

Lack of innovation or resistance to innovations. Such technical know-how may be monopolised by the family that specialised in a certain profession. Modern ideals may not be welcome because they usually want to do things the same way it was done before they were born.

Controlled Economy

In a controlled economy, it is the government that makes the economic decision and it is solely done meaning that there are no private sector initiatives. Government planners decide on what to produce, how many shoe industry will produce the number of shoes the government decided should be produced. How to allocate resources to the producer is the business of the government planners. Controlled or Planned economies are usually associated with Socialism and Communism where government determines the wages of workers, the prices of goods and services and level of output. Former Soviet Union, Cuba, Germany, Russia, North Korea etc are close examples of Controlled or Planned economies. Albeit, Germany and Russia seems to have move to mixed economy as it is the case with countries under other economic system.

Strengths

Ability to accomplish social goals quickly. Planning for more labor in production in a control economy can reduce unemployment. There is plausible provision of more economic securities to the participant in this economy. This type of economy may be able to provide an equal distribution of income and goods and services.

Weaknesses

It is difficult for Controlled economy to match consumer's wants and needs with the productions. Complexity of production may lead to production problems. The economic participants may have to depend on a small number of economic choices as provided by the government planners. There may be overproduction of some products and underproduction of other products.

Free Market Economy

Free market economy or market economy is an economic system where the basic economic decisions are made by the buyers and sellers, individual households and businesses in the economy through the price mechanism. Unlike the controlled economy where private sectors are non existence; free market economy allow individuals to operate their own businesses and answer economic problems using their owned resources, make profits and determine the prices of goods and services. Companies and businesses can choose cost effective method of production to maximise profit and minimise cost of production. For example, adire cloth can be made using the traditional hand methods, the modern machine and combination of the two methods. If the combination of the two methods is the cheapest method of production, then the company will go for it. It should be noted that Government interventions in free market economy is not allowed.

Strengths

There may be a good opportunity for innovation and incentive to produce. There is usually economic freedom in a free market economy. There may be a direct link between the buyer and the seller through price mechanism.

Weaknesses

There may be few incentives to protect the environment. Market power may be concentrated in the hand of few. People without marketable skill may lack adequate protection.

Mixed Economy

The economic decision on what to produce; how and where to produce; for whom to produce; is made jointly by the government and the private sectors in the economy. This is achieved through the demand and supply mechanism (price and profit) based on free market enterprise. Mixed economy is a combination of controlled economy and market economy.

Most economies of the world show evidence pointing to characteristics of mixed economy. Therefore, we may conclude that there is no pure controlled; traditional or free market economy. Countries like Nigeria, United State of America, United Kingdom, Malaysia, China and all modern economies are mixed economies. It should be noted that in a mixed economy, government intervention is limited somehow to market regulation in the business and household sector as well as input and output market. This is because businesses own resources, they also determines how the resources are put into use. That is what to produce, to whom to produce and how to produce. There should not be government intervention in a truly free-market economy. But as a result of the mixed economy, government serves as regulators to some sectors or industries in the economy.

Strength

There is effectiveness in achieving social goal. There is likelihood or providing economic security

Weaknesses

There may be lack of incentives to create quality goods and services. There may be lack of environmental protection.

SELF-ASSESSMENT EXERCISE

List and discuss briefly the basic economic system.

4.0 CONCLUSION

Each market has its own strengths and weaknesses as stated above, market economy seems to be a better option. Its ability to promote efficiency and growth, to protect environment and economic freedom to own resources and to employ it in efficient ways is outstanding. Especially when compare to traditional economy and command economy. Nevertheless, most economies are moving towards mixed economy where command or traditional economies ideas are combined with market economic values.

5.0 SUMMARY

This unit discussed four basic economic systems in the world which were determined by how a country answered the basic economic question especially questions on what to produce and how to produce. Traditional economy is based on answering economic problem of what to produce by producing what their forefathers produced employing also

the way they produced it. In command economy, government answer the basic economic problems and determines how and what to produce without private sector initiative. Market economy allows forces of demand and supply to determine what and how to produce, with protection of economic freedom. While mixed economy combines market and controlled economies ideas. Most modern economies tend to adopt mixed economy system.

6.0 TUTOR-MARKED ASSIGNMENT

1. What determines the type of economic system a country will adopt?
2. Is there pure traditional or controlled economy? If No, what is the most popular of the economic system?
3. Explain basic economic systems and mention at least two strengths and weaknesses.
4. List the weaknesses of market and mixed economies.

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MODULE 2 DEMAND AND SUPPLY

UNIT 1 THE BASIS OF DECISION-MAKING UNITS

CONTENTS

1.0 INTRODUCTION

Goods and services usually referred to as 'commodities' are produced by firms while household individuals are the consumers of the commodities. Firms are the 'sellers' while households are the 'buyers'. Sellers and buyers exchanges goods and services for money in a place called 'market'. There are different types of market, we have the physical market where sellers and buyers interact, we have the market through intermediaries such as the banks and finance institutions and we also have market over telephone, internet, and emails orders. Basically the sellers (supply) and the buyers (demand) interaction in the market form the 'market force'. Market force is the forces of demand and supply which determines the quantity of goods and services as well as their prices. Their prices in turn determine the quantity that we be bought and sold. Meanwhile price is defined as the rate at which a commodity is exchanged for money or other units of exchange. Price tends to rise when there is little supply of goods and services. We refer to this situation as 'scarcity'. When there is plentiful supply (by competing firms-supply) then we have 'excess' of goods in the market. This usually brings the price down. Therefore, "Price determination" is one of the core focuses of microeconomics.

2.0 OBJECTIVES

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

- apply market operation in answering the what, how and for whom goods and services are produced
- explain how firms transforms resources allocated (input) into product (output)
- highlight the circular flow of supply and demand between households and firm.

3.0 MAIN CONTENT

3.1 Firm as Primary Producing Unit

Firms and households are made up of people in the society who are performing different functions with different **human behaviour**. The role of firm is primarily to produce. For this to be achievable, some individuals must decide to produce a particular product(s). In doing this, resources must be allocated (land, labour, capital, building etc); allocated resources are transformed into what we call ***output*** while the resources allocated are the **input** to generate the product. For example, factors such as land on which National Open University of Nigeria is built; the buildings; the academic and non-academic staffs (**labour**); federal government funds to the university (**capital**) are all combined together as input to assist in producing education and graduate (**output**) for this economy in different sector. Firms engage in production for the purpose of maximising profits for those people who come together to established it. They engage in production so as to *sell their products at a price higher than the cost price at production*. **The difference between the selling price and the cost price is known as the 'profit'**. However, those who manage; organise and coordinate and take decision in a firm are called **entrepreneur**.

SELF-ASSESSMENT EXERCISE

Who is an entrepreneur?

3.2 Households as the Consuming Unit

Individuals, group of people and or family or unrelated people sharing a house are known as **household.** These set of people form entrepreneurs that take risk of producing products by employing employees (labour) and funding the process of transforming resources (input) into a particular product (output). There are different decisions made at household level based on their taste; preferences and what they can

afford to do with their limited incomes. Therefore households are the primary consumer of the firms' output. Households' income, taste and what they prefer has effects on what they consume. In essence their income, taste and preference determine the units of output of the firm that they will buy. They go through decision-making to determine what they like and how to prioritise before choices are made. Different preferences and limited resources (income) are common factors to every household. Households' income determines what they consume from the ***product market***. **Product or output market is a market where goods and services are exchange.** In the output market, **firms supply** goods and services that the **households demand**. In the same vein, at **the input market**, **households supply** labour that the **firms demands. Input market or factor market is a market where resources used to produce products are exchange**.

SELF-ASSESSMENT EXERCISE

Household is a decision-making unit in the economy. Explain

3.3 Demand and Supply Circular Flow

From the above definition of input or factor market and output or product market, it can be infer that demand and supply flow from firm to households and in turn from household to firm in a circular form. The decision on how much to produce which is taken after deciding on what to produce determines their supply to the output or product market. If the supply is determine, there is the need to take a decision on what is the required input needed to achieve the supply target. For example, if Nasmalt Company decides that a million units of Nasmalt drink is to be produced and supply to the households who demands to buy; assuming the question of ***land*** and building as factors of production might have been taken care of. **Land market is a factor market where land and other tangible assets are supply to firms and in return households obtain rent as rewards**. The question of labour and capital will also be raised. These two are sourced from ***Labour*** and ***capital market***s which are types of factor markets where households supply land resources to the firm. **Labour market is a type of input markets; it can be defined as a market where the factors of production or input are exchanged**. Household supplies work to the firm in exchange for wage payment. Wage payment or income to the household also flow back again to the firm in form of ***capital***. **Capital market is a market where the households supplies their savings from income that flow to them from firm back to the firm for future profit claim or for interest**. Therefore, services flow from household to firms through the ***labour market***. In contrast, products produced by labour for the firm flows to household through the *product or output market*.

SELF-ASSESSMENT EXERCISE

Define the following:

a. Labour market
b. Land market
c. Capital market

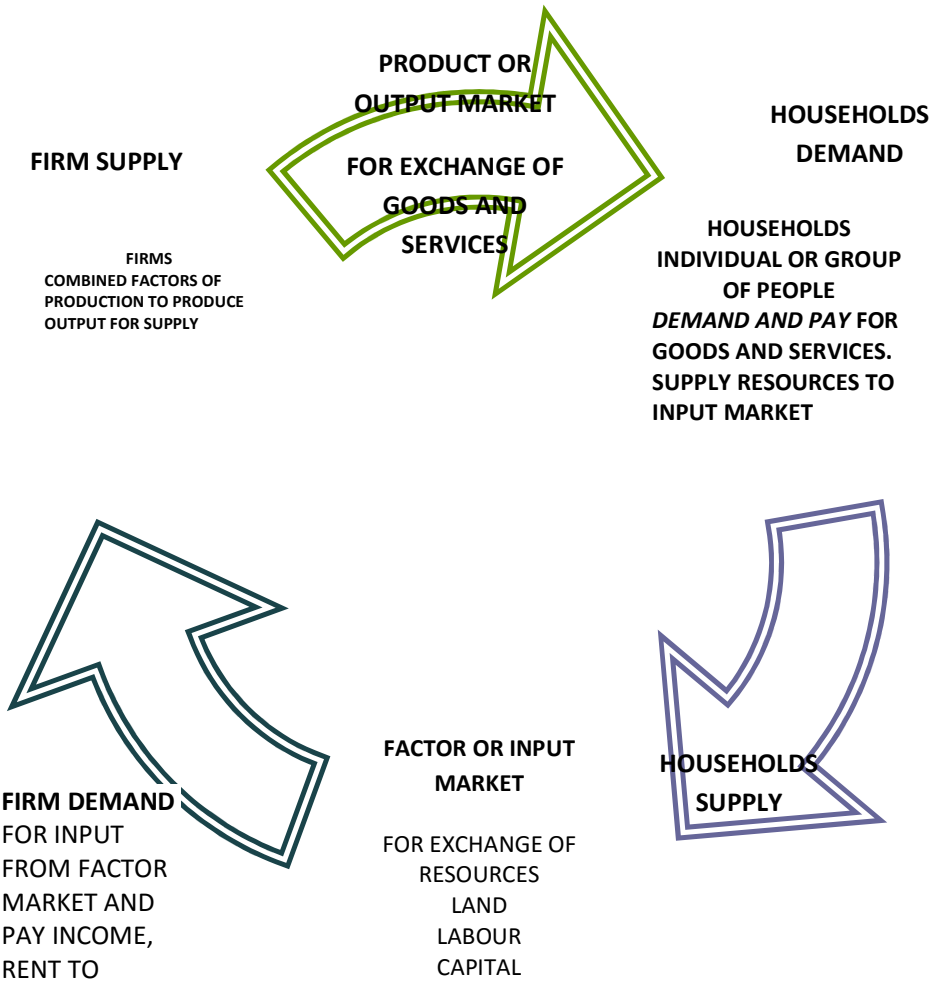

Fig. 2.0: Demand and Supply Circular Flow

4.0 CONCLUSION

There are two basic decision-making units in an economy namely the households and the firms. The households demand for goods and services (products) and they supply the factors of production. While the firm supply goods and services and demand for factors of productions – land, labour and capital- from the households. Each of them gets rewards for the exchange. Wages and rents are the rewards for

households while money paid for goods and services and skill of labour are rewards to the firms. Land, labour and capital are the three key factors of production. Each of them is available at the factor or input market. Goods and services are available at the output market. Supplies and demands from household and firms form the economics activities in the economy and it moves in a circular flow.

5.0 SUMMARY

Firms are the primary producing unit in an economy; they produce products after answering the question what to produce? How to produce? For whom to produce? They employ the factors of production (input) to produce product(s) to be sold in the market to the buyers at a price higher than the cost price in order to make profit. Economic activities within the economy between the firms and the households moves in a cycle with each party been rewarded in exchange of goods and services as well as wages and rent. Many markets are involved; the firm demand for labour from labour market, land from land market, capital from capital market. These three are the main factor markets also known as the input market. Supply of goods and services by the firm is made available to the households in the output market.

6.0 TUTOR-MARKED ASSIGNMENT

1. Mention and define the two major markets for economic activities.
2. What flows from the firm to the household and what flows from the households to the firms?
3. Explain what is meant by commodities, input and output market and their relationship.

7.0 REFERENCES/FURTHER READING

Case, K. E. & Fair, R. C. (1999). *Principles of Economics*. New Jersey: Prentice Hall.

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UNIT 2 DEMAND

CONTENTS

1.0 INTRODUCTION

Quantity of a commodity purchased by an individual or family or group of people at different prices at a given time and place is known as **the demand for such commodity**. With this definition, there is a link between the various commodities and households' purchase. Households in various places are the consumer of firms' commodity; they therefore behave in a predictable habitual pattern such that increases in prices of commodity are responded to by the consumer. Usually consumer tends to buy less when there is an increase in the price of a commodity but buy more when there is a decrease in the commodity price. It can be inferred that price and quantities are inversely related. In other words, **quantity demanded** will decrease when there is a rise in price and it increases when there is a fall in price. In essence, price affects quantity demand for a commodity. It should be recall that in the last unit, we understand that income of households also determines what they consume. Whatever quantity they wish to demand for is regulated by their limited resources to purchase. However, price and income are not the only factor that can affect quantity demanded. One other factor earlier mentioned is the preference of households. Therefore some factors affecting demand for a commodity which are considered constant are listed as follows:

- households' income
- households' preference and taste
- prices of a related commodities
- number of consumers
- expectation of future price change.

2.0 OBJECTIVES

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

- discuss price mechanism
- explain demand for a commodity in relation to changes in price
- elucidate on factors that determines quantity demanded
- explainthe movement and shift on the demand curve.

3.0 MAIN CONTENT

3.1 Demand and Price: A Link

Determination of prices of commodity is known as "***price theory***" in economics. This theory is the backbone of microeconomics and it is basically connected to the theory of demand and supply. Income and substitution effects are better use in explaining the link between demand and price. A sudden increase in price of a commodity means a reduction in the consumption power of the consumer; as a result of fall in their real income. This situation is referred to as ***income effect***. ***Income effect*** *is the effect of a change in price on quantity demanded as a result of price changes which made them worse off.* Meanwhile, **Quantity demanded** can be define as the amount of goods or commodities that consumers are willing and able to buy at a given price over a given period of time. In a situation like this people will feel poorer because they will not be able to buy so many goods that the same money was buying before the increase in price. Household therefore may have to cut down the amount of items they always consume. For instance, sudden increase in the petrol price on January 1st, 2012 in Nigeria has affected prices. Cost of transportation had not only gone up by almost 50 per cent but prices of other items has sky rocket too. Household that consumes may be 10 liters of petrol that use to cost 650 naira on their generator will now have to pay 970 naira to get the same liters of petrol. This household has three options:

1. It is either they reduce the use of the generating set so as to continue to buy 650 naira petrol. That means cutting down the numbers of liters they use to buy.
2. They may have to spend 970 naira to buy 10 liters but cut down on may be the food items, drinks, beverages or whatever they think they can afford to cut down so as to spend same real income wisely.
3. The last option is to switch to alternative products or substitutes. Since the substitutes will be cheaper in price. This option is referred to as **substitution effects**.

Substitution effect *is the effect of a change in price on quantity demanded as a result of switching by consumers to alternative or from alternative products*. By implication, quantity demanded of some items the household is consuming must be cut back as a result of price increase. This shows a general relationship between price and consumption. **A rise in prices of goods and services will mean a fall in quantity demanded**. Consequently, **a fall in prices of goods and services will mean a rise in quantity demanded ceteris paribus (all things being equal).** This relationship is referred to as **Law of Demand**.

SELF-ASSESSMENT EXERCISE

What is income effect and substitution effect? Explain the link between price and demand.

3.2 The Demand Curve

Referring back to law of Demand above, a rise in price of goods will translate to a fall in quantity demanded. In contrast, a fall in price means a rise in quantity demanded. However when definite quantities are demanded at particular prices for a particular commodity especially when the lower and higher prices are considered, then we have what we call **demand schedule**. For example, if Ade, Joke, Ola and others have the following hypothetical demand schedule for beans as shown in the Table 2.1; then how many kilograms of beans is demanded monthly? The total **quantity demanded** at each price by Ade, Joke, Ola and others is the **market demand schedule** for the month.

Table 2.1: Demand Schedule

Quantity Demanded for Bean Monthly					
Price	**Ade**	**Joke**	**Ola**	**Others**	**Total Market Demand (naira per kg)**
300	25	10	5	360	40	0
280		35	20	15	440	500
250		45	30	25	500	600
200		60	35	30	545	670
150		75	45	35	645	790
130		90	60	40		1000

Demand schedule *therefore is table showing the different quantities of a good and services a person is willing and able to buy at various prices over a given period of time*. However, relationship between quantity

demanded and prices shown in a demand schedule can be graphically presented with price on the vertical axis and quantity demanded on the horizontal axis. That is quantity demanded by Ade, Joke, Ola; others as well as market total demand can be represented in a graph known as **demand curve**. In short demand curve is a graphical representation of **demand schedule**. A graphical representation showing the relationship between price and quantity demanded of a good at a particular point in time is called **demand curve**.

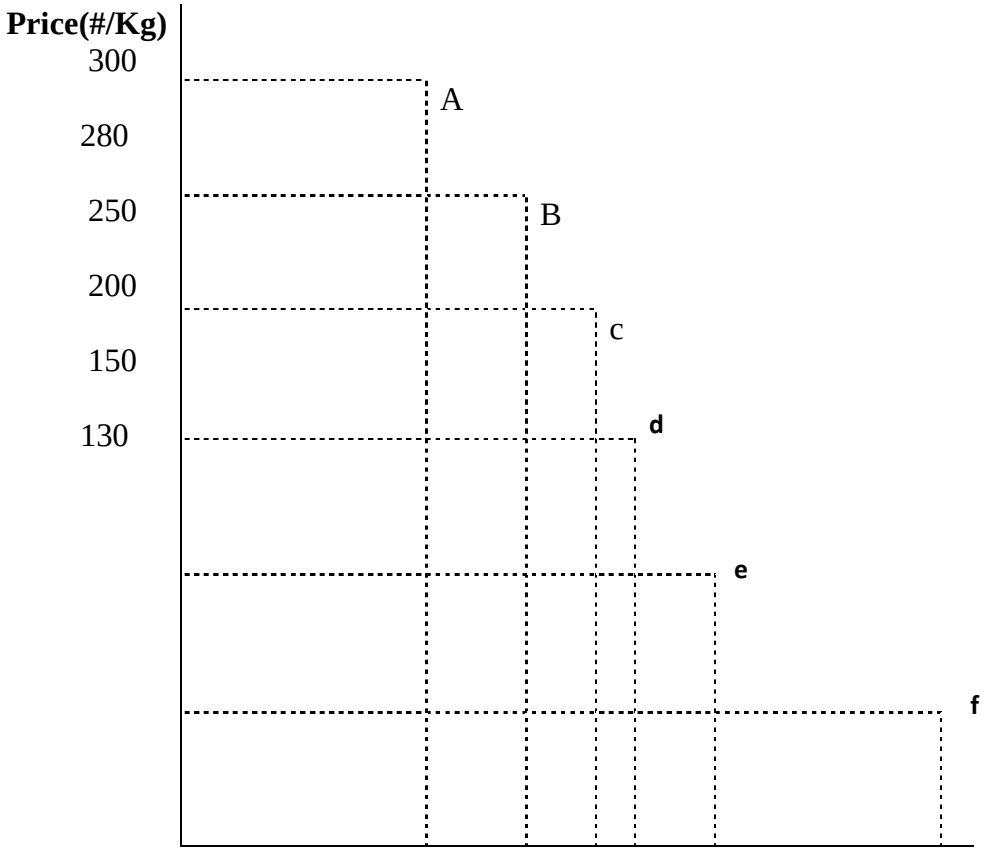

Fig. 2.1: Beans Market Demand Curve (Monthly)

Quantity Demanded

Joining together the points a, b, c, d, e, and f will produce a downward sloping demand curve. The curve is downward sloping because when the price is too high, only few consumers that can afford it will buy. Meanwhile, a fall in price make consumption easier and many consumers shall be willing to buy the product.

SELF-ASSESSMENT EXERCISE

Differentiate between demand schedule and demand curve.

3.3 Factors Affecting the Demand Curve

It was mentioned earlier that the demand curve and demand schedule are constructed based on assumption of *ceteris paribus* that is *all things being equal.* This implies that other factors remain (constant) unchanged except price. Unfortunately this assumption that other factors remain constant is itself not constant. Note that price is not the only determinant of quantity demanded. Demand is also affected by many other factors earlier mentioned. They shall be discussed under this section. As a reminder, the factors are: Households' income; Households' preference and taste; Prices of related commodities; Number of consumers; Expectation of future price change.

Households' income

Households are the basic consumption unit in the economy; households' income is the total sum of the earning of such consumption unit. When there is a rise in households' income, it is expected that there households' demand will rise because increase in income means increase in their consumption power. So they tend to buy goods that they can't hitherto afford to buy. They also tend to go for quality and more costly goods instead of inferior goods leading to increase in quantity demanded. This will increase demand for various commodities. In contrast, when households' income decreases, they cut back on quantity demanded leading to a fall in quantity demanded.

Households' preference and taste

Preference and taste of individual consumers in the households is another determinant that can affect quantity demanded. Preference and taste are influenced by some other factors as well. Preference for a commodity for instance may be as a result of religion or customs. While the Yoruba have preference for Ankara, the Hausa have preference for Guinea brocade and Ibo have preference for Judge and special batiks due to their various customs. Taste may be affected by fashion-people tend to demand for commodities that is in vogue or that are considered as fashionable at a particular time. Branding of a good may be an attraction to increase quantity demanded of it. Advertisement, health reasons and level of desirability for a good are other factors which may increase or decrease quantity demanded, and hence the demand curve.

Prices of related commodities

Some commodities are related especially when they are consume together such as bread and butter, bread and cheese, tables and chairs, vehicles and fuel, shoes and polish etc. Such goods are referred to as **complementary goods**. How does this affect demand curve? Take for example, if the new increase on bread prices has led to a fall in demand for bread, it is expected that demand for margarine or butter or cheese will also fall. Another category of related goods are **substitute goods**. **Substitute goods** are goods that can replace one another in consumption. Examples of substitute goods are margarine and butter, Milo and bournvital or ovaltine, coffee and tea, personal car and public transport etc. Take for instance if you decided to go to the Cinema with your personal car you cannot at the same time go through the public transport. You can decide to take tea because coffee is too expensive for you. You may settle down for ovaltine because it is cheaper than Milo and bournvital. These kinds of decisions will bring a fall or a rise to the one you decided not to buy and the one you decided to buy respectively.

Number of consumers and income distribution

The population in a geographical location may affect quantity demand positively or negatively. Nigerian population has increase the demand for cars when compare to another country like Cameroun or Benin Republic where Nigerians usually import cars. Distribution of income among households in the economy is another factor that can affect demand for commodities. As said earlier income of each household determines their consumption power and demand for goods and services. Distribution of income in an economy had created three different income groups namely: The high income group; the low income group and the middle income group. 2012 increase in petrol has affected the consumption power of many households especially households in the lower income group who travel within the country with public buses. Most of them are market women and men who are paying double cost for transportation of their goods and services. Hence, they are forced to increase commodities' prices.

Expectation of future price change

Expectation of a rise in price of goods may force people into what is called 'panic buying'. Such action is to safeguard against scarcity usually generated when price rises. Seller may hoard the goods so that buyers will be force to buy at the new price anywhere they're able to get supply. Hence, 'panic buyers' demands to buy more of the goods before the prices goes up and becomes higher than normal. This action increases the demand for goods.

SELF-ASSESSMENT EXERCISE

You have decided to buy a tooth-paste but need to make a choice between Close-up whose price is slightly high and Dabur Herbal tooth-paste. You discovered that three third of the customers that comes into the shop where you're shopping are visiting Dabur Herbal tooth-paste's shelf and you decided to buy Dabur Herbal.

Is Close-up and Dabur Herbal substitute or complement? How will this customers' decision affect the demand curve?

3.4 Movement and Shift in Demand Curve

In a situation where other factors that can affect quantity demanded changes, then the demand curve at point a, b, c, d, e, and f (in the demand curve above) will have to shift. The points a, b, c, d, e and f are the movement along the demand curve. However, when we talk of shift in the demand curve as a result of changes in other determining factors of demand aside price; then we mean a complete bodily shift of the curve from left to right or right to left. For example, if the price of beans (as stated above) remains unchanged from 300, 280, 250, 200, 150 and 130. Let assume that the quantity demanded changed as a result of a rise in income of the household units- the consumption units in the economy. Then the new total market of the quantity demanded increased as shown in the Table 2.2:

Table 2.2: Quantity Demanded for Bean Monthly

Price Demand(New) (naira per kg)	Total Market Demand(Initial) Kg	Total Market Kg
300	400	500
280	500	600
250	600	700
200	670	800
150	790	900
130	1000	1200

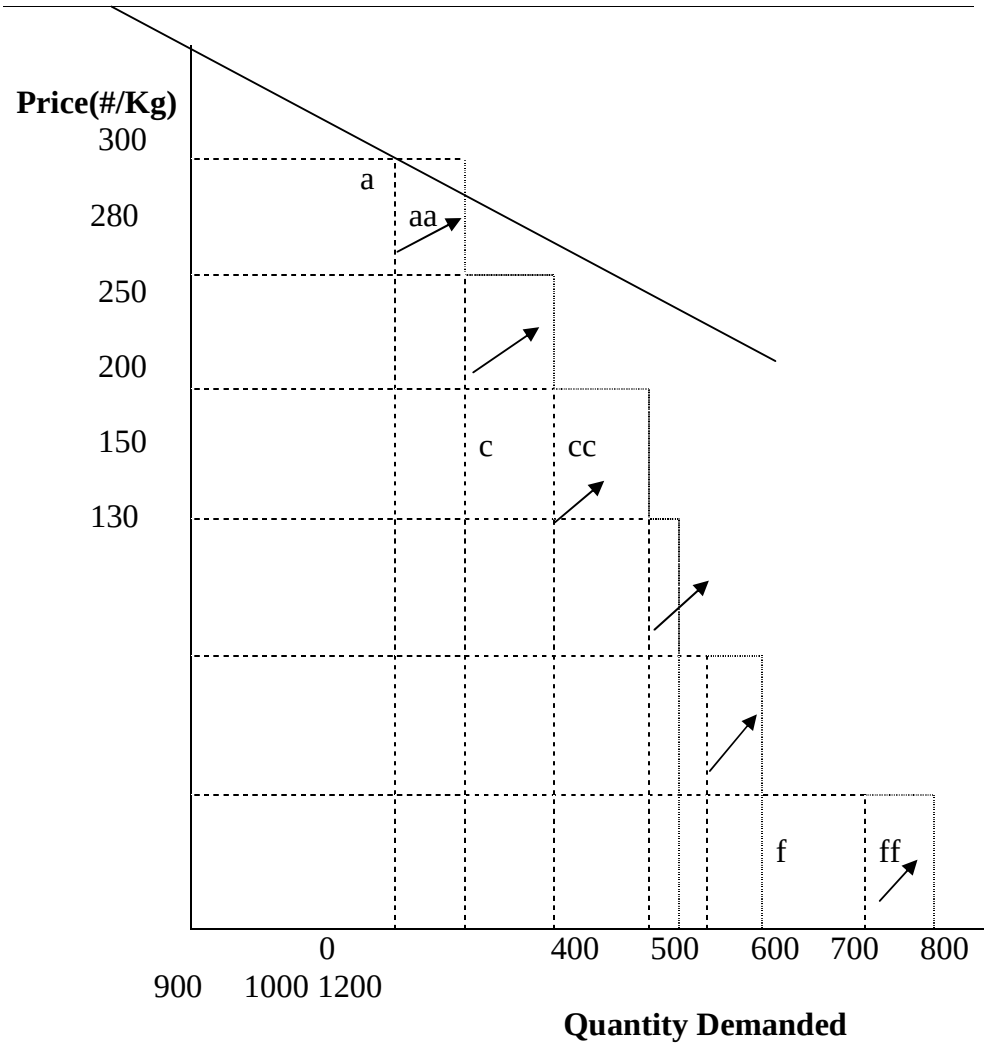

Fig. 2.2: Beans Market Demand Curve (Monthly)

Looking at the above Table 2.2, you will notice a shift in the demand curve due to increase in quantity demanded. The demand curve shifted from a to aa, b to bb; c to cc; d to dd; e to ee and f to ff. Joining together the new points aa, bb, cc, dd, ee and ff shows a complete bodily shift from left to right side of the graph as shown by the arrows. Meanwhile, if the quantity demanded decreases as a result of other determining factors aside price, then the shift will be from right to left as shown in Figure 2.3:

Table 2.3: Quantity Demanded for Bean Monthly

Price Demand(New) (naira per kg)	Total Market Demand(Initial) Kg	Total Market Kg
300	400	350
280	500	300
250	600	400
200	670	500
150	790	600
130	1000	700

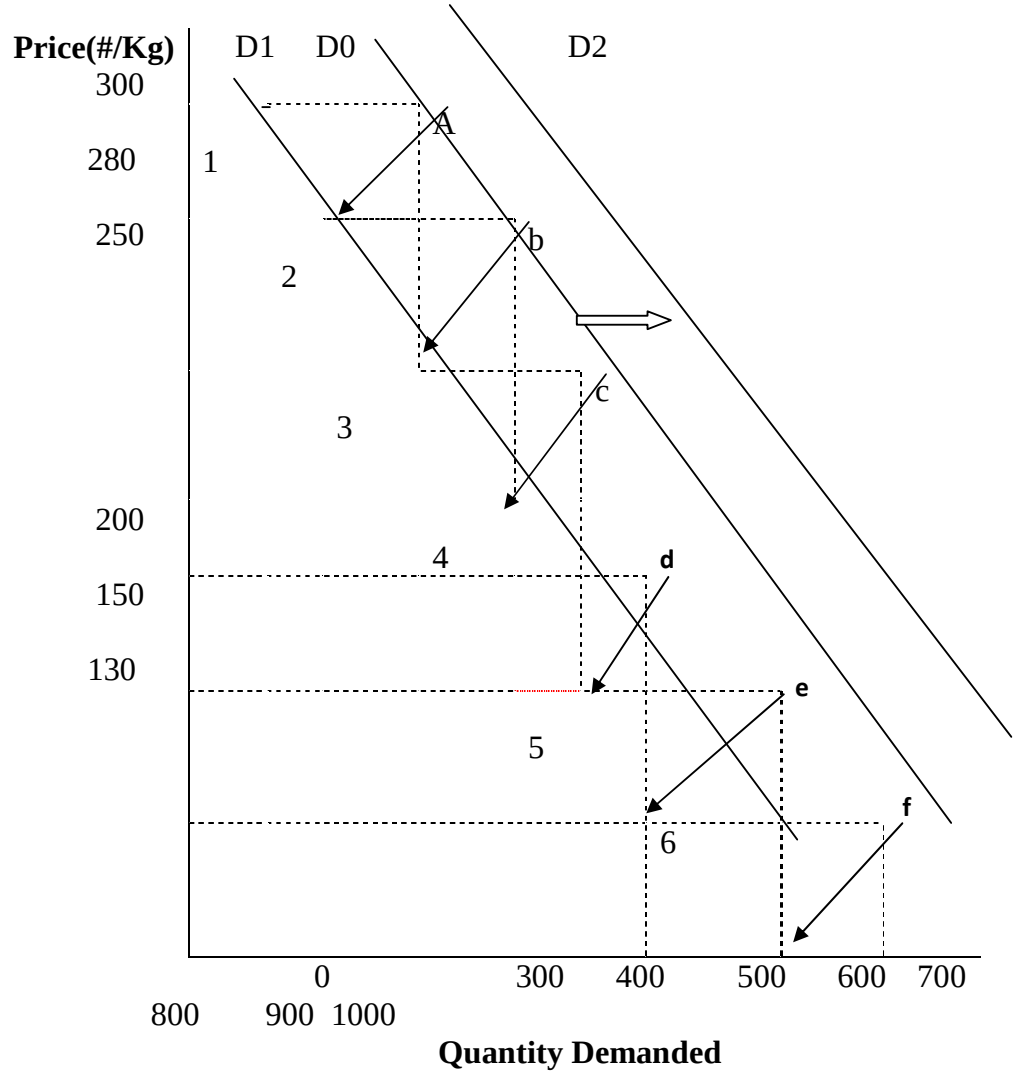

Fig. 2.3: Beans Market Demand Curve (Monthly)

From the above graph, notice a shift from right to left as indicated by the arrows. The demand curves shifted from points a, b, c, d, e and f to 1, 2, 3, 4, 5 and 6 respectively. Joining the new points 1, 2, 3, 4, 5 and 6

together will produce a complete bodily shift of the demand curve from D0 (right) to D1 (left) due to fall in quantity demanded may be as a result of fall in households income; change in taste and preference of consumers; bad effect of income distribution; fall in number of consumers of the product which may occur for instance if the company producing the product was reported in the news of unethical practices or accused of adding a harmful chemical to the product. And vice versa for the shift from left to right that is from D0 to D2 when there is increase in quantity supplied as a result of changes in the above mentioned factors. There is a simple equation of demand function is stated below. This demand equation is often used to relate quantity with just one determinant that is price. Note that if other determinant of price changed this equation will also change. This shall be useful under discussion on market equilibrium in this module.

$$Qd = a - bP$$

Where
Qd is the change quantity demanded
P is the price

The above equation is based on assumption of *ceteris paribus* (all things being equal that is only price changes but other determining factors of demand remain constant). For example if consumer income increases the equation will change to:

$$Qd = a + bY$$

Also, the two factors can be combined to give
$$Qd = a - bP + cY$$

SELF-ASSESSMENT EXERCISE

Discuss other factors that can affect quantity demanded aside price of a product and state simple demand equation.

4.0 CONCLUSION

This unit explicates on the meaning of demand and the assumption of price as the only factor affecting quantity of goods the households will demand for at a particular point in time. Studying the market demand over a period of daily, weekly, monthly or yearly may assist in seeing the movement along the demand curve through the demand schedule. When other factors that can affect demand are also considered it will assist in seeing the shift in the demand curve. In summary, the unit discussed on demand, demand schedule, demand curve.

5.0 SUMMARY

Other factors that affects quantity demanded aside price were explained in detail. Graph representation of demand curve when prices changes and other factors remain constant was shown. This usually shows the movement in the demand curve. So also the shift in the demand curve when other factors changed except price showing a shift from right to left and left to right on the demand curve as a result of changes in quantity demanded.

6.0 TUTOR-MARKED ASSIGNMENT

1. Explain what you understand by commodities and demand for commodities.
2. What other factors can affect quantity demanded in the market?
3. Explain how income effects and substitution effects can affect the quantity demanded. 4. Why will a demand curve shift to the right from left or left from right?

7.0 REFERENCES/FURTHER READING

Sloman, J. (2006). *Economics.* (6^{th} ed.). England: Pearson Education Limited.

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UNIT 3 SUPPLY

CONTENTS

1.0 INTRODUCTION

Relationship between price and quantity demanded is referred to as demand. The opposite of this is what is known as **supply**. The relationship between the price and quantity of a good offered to the market for sale is known as s**upply**. In the last section, discussion on quantity of commodity demanded and factors that can reduce or increase quantity demanded by households are discussed. The effects of price on the demand curve known as 'movement on the demand curve' as well as the effects of other factors which are known as 'the shift on the demand curve' were explored. Similarly under this unit, a link between supply and price; supply curve and factors that can cause a movement on the curve and or a shift on the curve shall be discussed.

2.0 OBJECTIVES

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

- explain supply of a commodity in relation to changes in price
- elucidate on factors that determines quantity supplied
- enumerate the movement and shift on the supply curve.

3.0 MAIN CONTENT

3.1 Supply and Price: A Link

When the price of a commodity is high may be as a result of the demand for it, which informed the firm's decision to produce more. Then the quantity supply to the market will increase. Firm's decision to increase number of output of the product requires that the firm put in additional

input. These additional inputs shall increase the firm's cost of production. For instance, increase in wages to the labour for overtime work to meet the targeted number of output and other cost on factor of productions. Therefore, consumers should be ready to buy at the new price if the firm is to supply outputs that will meet their market demands. The increase in price however indicates that the firm which has incurred additional cost of production should have additional profit. Consequently, firm shall be encouraged to produce more so as to earn more profit. As a matter of fact, firm may have to prioritise such product for production while less profitable product may suffer for it. Supply is defined as quantity of commodity a producer is able to produce and willing to sell at a given price in a given place at a particular point in time. Meanwhile, as prices fall in the market; may be as a result of over-supply by many firms who wants to make more profit while meeting the market demand; then supply will fall. This is known as the 'Law of Supply'. The higher the price the higher the quantity supplied, the lower the price the lower the quantity supplied.

SELF-ASSESSMENT EXERCISE

State the law of supply

3.2 Supply Curve

Table 2.4: Quantity Supplied for Bean Monthly

Price Supply (naira per kg)	Firm A	Firm J	Firm O	Others	Total Market
300	25	10	5	360	400
280	35	20	15	440	500
250	45	30	25	500	600
200	60	35	30	545	670
150	75	45	35	645	790
130	90	60	40	810	1000

Supply schedule *therefore is table showing the different quantities of a good and services a producer is willing and able to produce at different prices over a given period of time*. However, relationship between quantity supplied and prices shown in a demand schedule can be graphically presented with price on the vertical axis and quantity supplied on the horizontal axis. That is quantity supplied by firm A, firm J, firm O, others firms as well as market total supply can be represented in a graph known as **supply curve**. In short supply curve is a graphical representation of **supply schedule**. A graphical representation showing

the relationship between price and quantity supplied of a good at a particular point in time is called ***supply curve***. A supply curve may be individual firm supply curve or a market supply curve

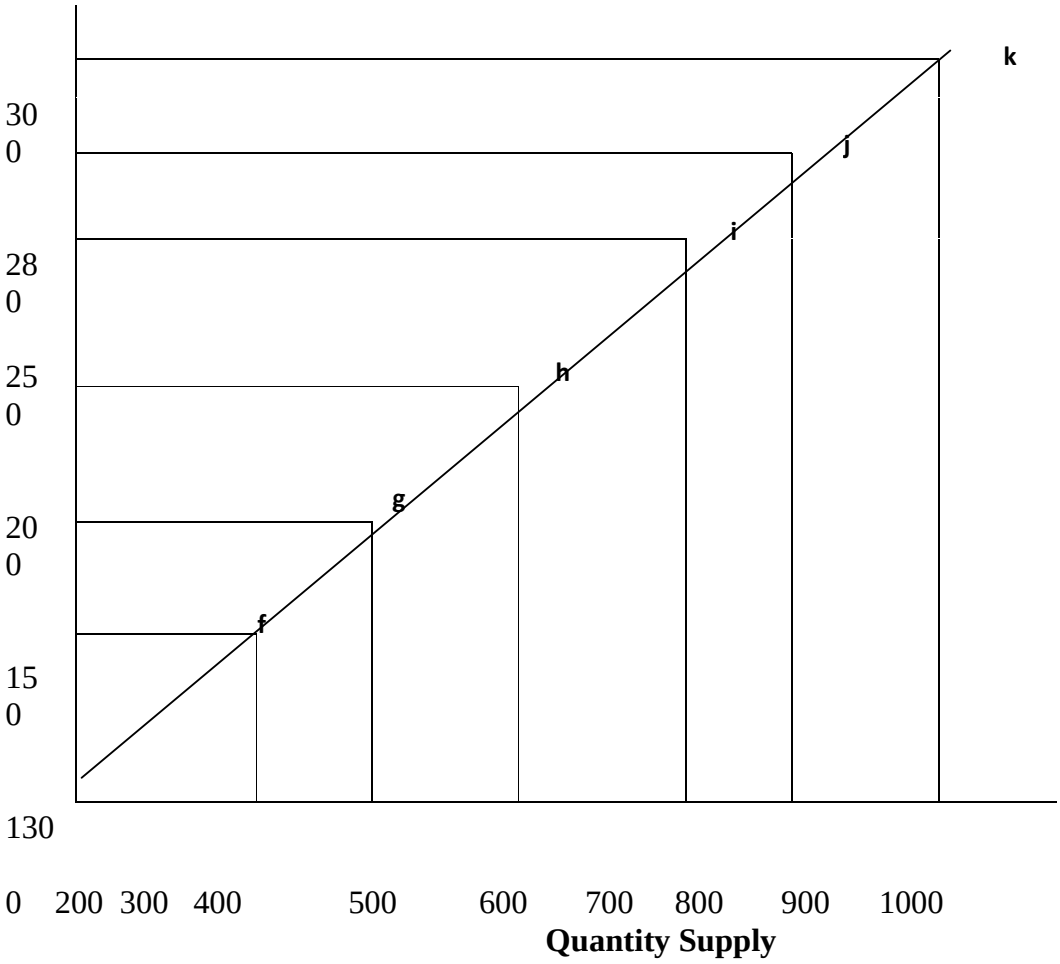

Fig. 2.4: Beans Market Supply Curve (Monthly)

Joining together the points f, g, h, i, j, and k will produce an upward sloping supply curve. The curve is upward sloping because when the price is too high, only then will firms be willing to produce more to make more profit. Meanwhile, a fall in price make consumption easier and many consumers shall be willing to buy the product then the firm will reduce supply and the market supply will fall.

SELF-ASSESSMENT EXERCISE

Explain how price and supply interact.

3.3 Factors Affecting Supply of Commodity

Price is the first factor considered to be a major factor that can affect demand while other factors are held constant. However, we have seen from the discussion on demand and demand curve that these factors do change too. When these occur the focus changed from movement along the demand curve to a bodily shift in the demand curve. This is ditto for supply curve, there are other factors aside price that can affect supply curve such as cost of production, change in production techniques, change in price of factor of production, price of alternative goods, price and future expectation, number of buyers and sellers. How each of these factors affects the supply curve is discussed below:

Cost of production

Change in input price, government policy, organisational change may lead to higher cost of production for a firm. Higher cost of production may bring down the profit of the firm. Hence a cut back on such product due to higher cost of production. This will reduce the quantity the firm can supply to the market and will shift the supply curve to the left.

Change in production techniques

Method of production is essentially affected by technological advancement. Therefore technological advancement changes the technique or method with which products are produced. Efficient technique will readily increase supply of the product. In contrast, inefficient method of production will reduce production capacity and in turn the quantity that can be supply to the market.

Change in price of factors of production

Any increase in cost of factors of production such as wages to labour, rent to land, and high cost of input factor such as raw material will increase the overall cost of production and reduces quantity to be produced thereby supply will fall.

Price of alternative goods

If the price of substitute goods falls as a result of fall in cost of productions, rise in its prices which make it become more profitable or as a result of fall in its raw materials; then the producer will increase the supply of the substitute good because it will be more profitable. Thereby there would be increase in supply of substitute good while the first commodity which it can be substituted for will fall in supply.

Price and future expectation

Speculation about increase in price of a commodity may lead to a fall in supply to the market as the firm stockpile and increase supply after the speculation becomes a reality. Again, the firm may increase production in other to increase quantity supply and take advantage of the new price increase speculated.

Numbers of buyers and sellers

Entrance of new firms into the industry will increase quantity supply to the market. While exit of some firms from the market may be as a result of closing down that line of business by such firms or they foresee cheaper input factors for substitute and a higher profit; will reduce supply to the market.

SELF-ASSESSMENT EXERCISE

The cost of input for a firm's first product has become so high making the production of that product unattractive because of low profit on it. The firm decided to switch to increase in production of substitute whose cost of production is cheaper and hence profit on it is higher.
Classify this scenario under one or two factors that can affect quantity supply. Briefly give reasons for your answers.

3.4 Movement and Shift on the Supply Curve

Bodily shift of the supply curve as a result of one or more of the above mentioned factors aside price is known as change or shift of the supply curve. However, when the price changes and other factors remain constant then we have movement along the supply curve as shown in the above diagram. Figure 2.5 shows a shift from left to right (S0 to S1) indicates increase in supply as a result of changes in other determining factors. In the same vein, a shift from right to left (S0 to S2) indicate a decrease in supply to the market.

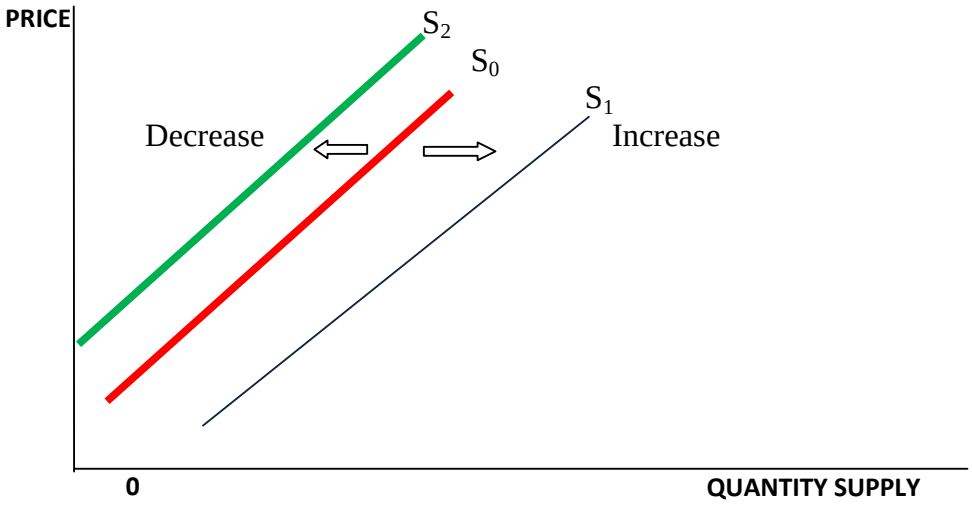

Fig. 2.5: Shift in Supply Curve

Qs = c – dP
Where
Qs is the change quantity supplied
P is the price

The above equation is based on assumption of *ceteris paribus* (all things being equal that is only price changes but other determining factors of supply remain constant).

SELF-ASSESSMENT EXERCISE

When the supply curve shift from right to left or left to right we say there is change in supply curve. Discuss three factors that can affect the supply curve aside price.

4.0 CONCLUSION

In conclusion, whenever there is a rise in prices of commodities, law of supply says the quantity to be supplied to the market will equally rise as firms will increase their supply to the markets causing a total rise in market supply. The firms' decision to increase supply is borne out of the fact that higher prices usually make investment on such product more profitable. Though cost of producing addition units above the normal unit usually produced by the firm is always there and the firm is willing to incur more cost to maximize profits. Consequently in the long run, more firms may want to take advantage of the profit and may be attracted to the market.

5.0 SUMMARY

This unit takes you through the supply and supply curve, other determining factors that can cause a shift in the supply curve when price is constant and movement along the supply curve when other factors remain constant except price. Relationship between quantity supply and price of the commodities was represented in an upward sloping graph. Changes in price will only cause movement along the supply curve. Other determinants of changes in supply and how they cause a shift in the supply curve were also represented in a graph. A shift to the right from the left shows increased supply while a shift from left to the right shows a decreased supply.

6.0 TUTOR-MARKED ASSIGNMENT

1. Define the following:
   a. Supply schedule
   b. Supply curve
2. What do you think will happen to the supply curve for bread if the cost of flour and sugar are very high?
3. Mention two factors that can affect supply curve apart from price. How do you think they can cause a shift?

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MODULE 3 PRICES DETERMINATION

UNIT 1 MARKET EQUILIBRIUM

CONTENTS

1.0 INTRODUCTION

Market operation obviously depends on interaction between demand and supply. Under the previous sections we have discussed some factors that determine each of them. We identified factors that determines or influence the amount or quantity of a commodity that the households as a consumption unit in the economy shall be willing to buy. Also we identified and stated Factors other than price that influences firms' decision on quantity to be supplied to the market. It can be deduced from the discussion that market price play a predominant role in determining quantity demanded and quantity supplied. Carefully, each unit i.e. the households (consumption unit) and the firms (producing units) had been operating separately in our line of discussion. However, this section will focus on how the interaction of the two units in the market as a demanding unit and supplying unit determines the final market price of a commodity. We shall also be discussing how one of the prevailing market conditions can lead to the market equilibrium and the three market conditions shall also be discussed. This interaction leads to price determination in a free perfect competitive market. If the consumers are willing to buy more that is there is increase in demand in the market, it should follows that producers shall be willing to produce and supply more to the market. In the short run, the price may rise as the

demand increase before the producers are able to increase supply. After increased supply to the market and the market is flooded with the goods, price falls and demand rises again as this will encourage buyers to buy more. Consequently, price coordinates the quantity demanded and quantity supplied.

2.0 OBJECTIVES

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

- explain the usual prevailing market conditions
- state what call excess demand is
- explain what is referred to as excess supply
- explain market equilibrium.

3.0 MAIN CONTENT

3.1 Excess Demand

When quantity demanded is greater than quantity supply then we have what is called “shortage” or ‘excess demand’. Excess demand is define as market condition that exists when quantity demanded exceeds quantity supplied at the current market price. This is one of the three market conditions, this condition associated with limited supply can lead to a rise in price as consumers compete with one another to have the limited supply. The rise in price may persist until the demand is equal to supply in the market. Take for instance the supply of baby toy by a toy firms at #100 per unit. The demand at that price was 40,000 units but that industry was able to supply 20,000 units. The excess demand situation led to a rise in price of baby toy per unit from #100 to #175. The rise in price in turn led to a fall in demand because buyers dropped out of the market. Perhaps the consumers are looking for alternatives to baby toys or its substitutes that are likely to be cheaper. This can be represented in a graph as presented in Figure 3.1.

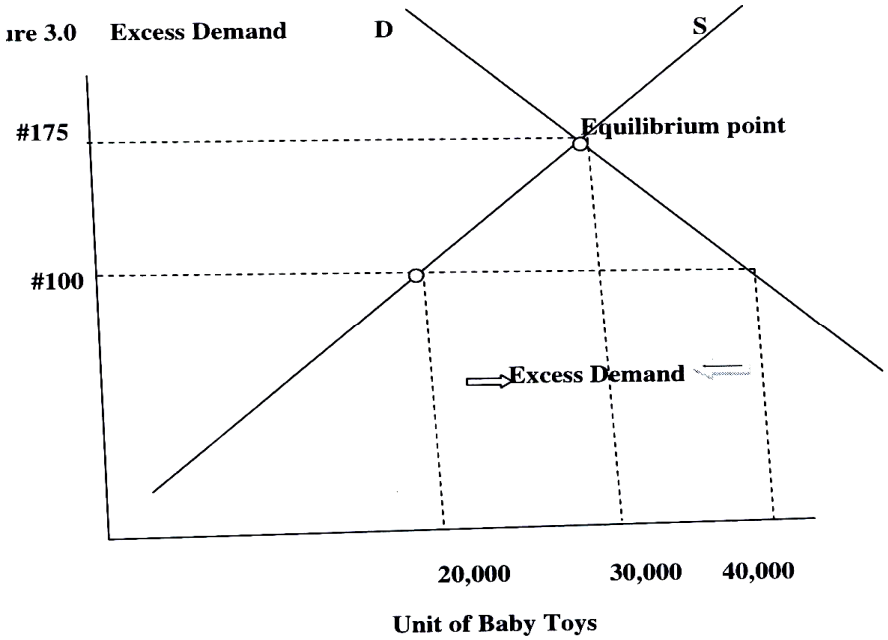

Fig. 3.1: Excess Demand

From the above graph, there was a rise in price of baby toy per unit as a result of excess demand by consumers. The price went up from #100 to #175. The toy firms supplied 20,000 units and the demand for this product is 40,000 units. Note that at 30,000 units, the new price is #175; this is the market determined price. At 30,000 units, demand for the baby toy is equal to its supply. As consumer leave the market due to high price, this situation continues until the shortage is eliminated at the new market price where demand fall from 40,000 to 30,000 at the current market price of #175. In the same vein, supply increased from 20,000 to 30,000 units per year. The point at which the demand and the supply curve intersect each other i.e. at 30,000 units and #175 per unit is known as the **equilibrium point**. *Equilibrium point is the point at which there no more natural tendency for further adjustment*. At this point (from the above graph) demand is equal to 30,000 and supply is also equal to 30,000. Before the equilibrium point, demand was 40,000 and supply was 20,000. However at the equilibrium price and units; there is neither shortage nor surplus. Any time there is shortage or surplus as a result of a shift in the demand or supply curve, a new equilibrium will be form after a while.

SELF-ASSESSMENT EXERCISE

Farmers in a country usually produced 100,000 bushels of soya beans per year at a market price of #50. The demand for this year is 150,000; this shortage led to a rise in price from #50 to #90. At this price, the

demand and supply intersects. The number of unit sold at the new price was 125,000 bushels. What is the equilibrium price and units?

3.2 Excess Supply

When the quantity demanded; for a commodity; by the households is less than the quantity supplied by the firm then we have ***excess supply***. Excess supply is the opposite of *excess demand*. It is the second market condition that usually prevails in the market. **Excess supply is a market condition where quantity supplied exceeds quantity demanded at the current market price**. When this occurs, the price of the goods falls and become cheaper because consumers can get more than they needed of the goods. A fall in price will force firms to reduce their supply to the market. Then quantity demanded will rise until it is equal to quantity supplied and equilibrium price is achieved. For example table water industry in Nigeria usually supplies 500,000 tons of bottled table water at #70 per bottle. This year, there have been excessive rains such that there are few sunny days. Demand for bottled table water fell drastically to 200,000 units. The firms were forced to reduce supply to the market due to a fall in price from #70 to #40. As more firms reduce quantity supplied to the market, supply also fall. Fall in quantity demanded and quantity supply meet at a new price and the figure for quantity supplied and quantity demanded is 300,000 at #40 per bottle. Let see these diagrammatically (Figure 3.2).

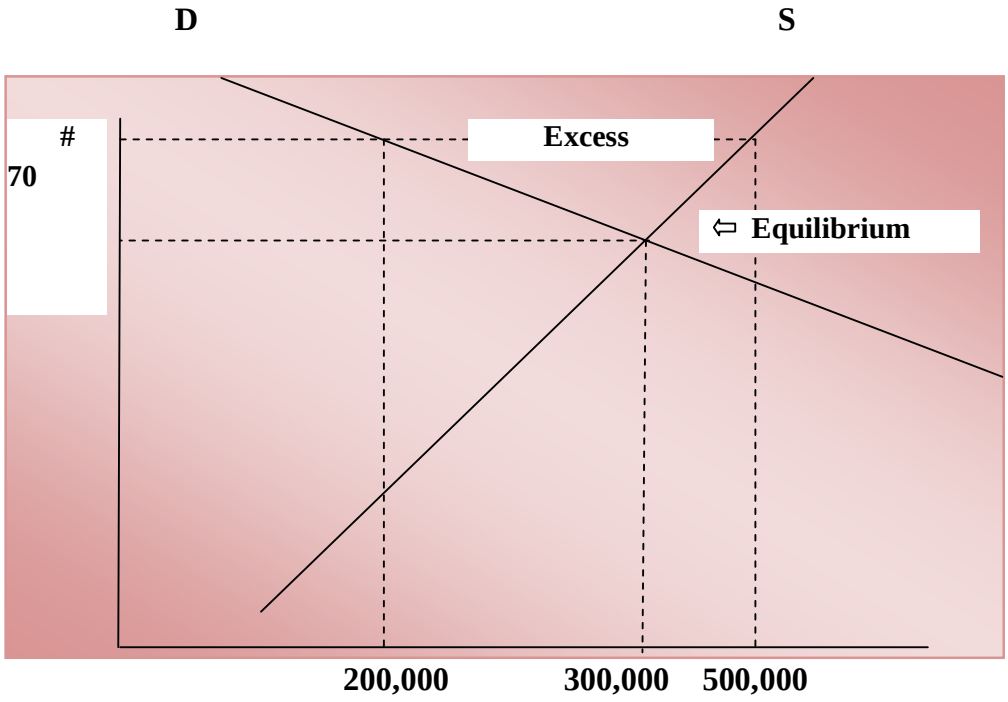

Fig. 3.2: Excess Supply

Tons of Bottled Table Water

The **equilibrium point** reached after a fall in quantity supplied has shown below has 300,000 tons of bottled table water at the current market price of #40. This point is where quantity demanded is equal to quantity supplied at a figure that stood at 300,000 tons of bottled table water. This price was reached after a fall in supply as a result of surplus in the market. This condition changes as soon as there is a movement along the demand or supply curve producing another equilibrium point.

SELF-ASSESSMENT EXERCISE

Bread industry became so attractive as a result of government control price on flour that brought the flour price down drastically. Many firms come into the market to take advantage of the cheaper cost of production by producing bread and hence enjoying the good profit. What do you think will happen to the supply curve of bread if the demands for bread remain the same?

3.3 Market Equilibrium

In the previous section, movement along the demand curve when plotted with the supply curve depicted the excess or shortage in the market when quantity supply is less than quantity demanded. We have seen how this market condition has led to increase in price and exit of some consumer from the market until the quantity supplied equals to quantity demanded. Also, we have seen another market condition where quantity supplied is more than quantity demanded. This has led to a decrease in price of the commodity and a reduction in the supply until the quantity supplied equals to quantity demanded. All these have to do with movement along the demand and the supply curve. Under this section we shall be looking at how quantity supply or quantity demanded cause a shift in their curves and how this will affect the equilibrium point. Remember market will be at equilibrium when quantity supply is equal to quantity demanded. Let look at the case of cocoa supply by Nigeria. Let assume that Nigeria is number one producer of cocoa in the world such that any reduction in Nigeria supply to the world market is enough to affect the equilibrium of cocoa market and the price of cocoa in the world market is affected. The cocoa market was at an equilibrium price of say $5 and equilibrium quantity of 950 billion pounds. Unfortunately something happened in Nigeria that affected cocoa harvest so much that the world price of cocoa was affected due to low supply. The new price now stood at $10 and the supply to the market is 650 billion pounds of cocoa. Shortage in the market shifts the cocoa supply curve from right to left- S0 to S1. When there is shift in the supply curve then there will be a

movement along the demand curve. Also when there is shift in the demand curve then there would be a movement along the supply curve. The above scenario is depicted in Figure 3.3.

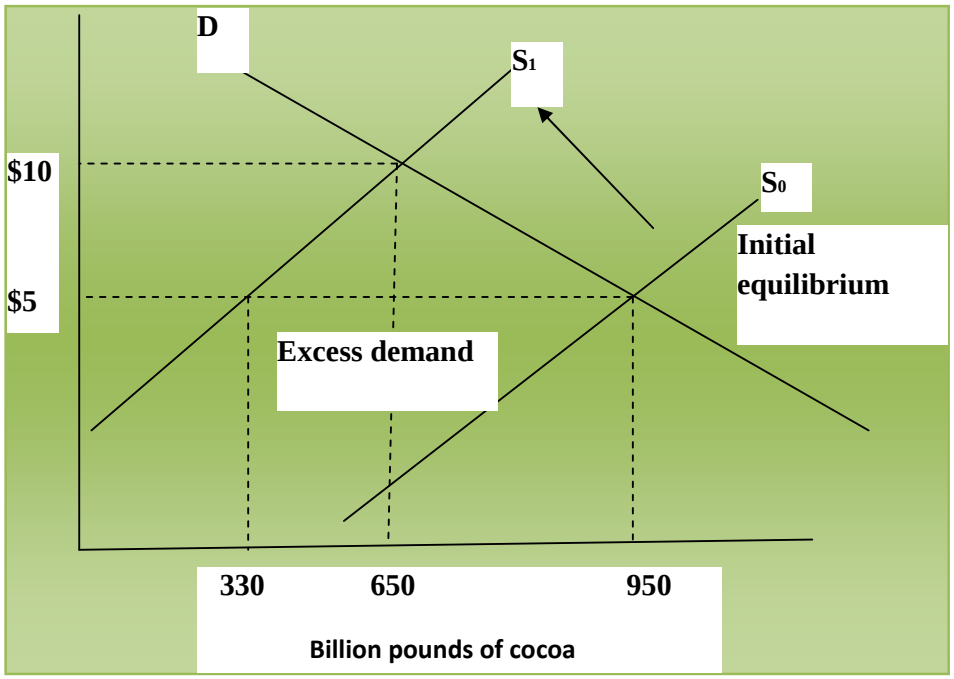

Fig. 3.3: Shift in the Supply Curve

Figure 3.3 Illustrates how Nigerian supply of cocoa to the world market has affected the equilibrium in the market. Initially, the market was at equilibrium price of $5 and the demand was equal to supply at 950 billion pounds. But inability of the highest producer to supply large quantities as usual shifted the supply curve from the right S0 to the left S1. That is the quantity supplied reduced from 950 billion pounds to 650 billion pounds. The shortage or excess demand usually will lead to a rise in price and this happened. The current market price at a new equilibrium is $10. Note that with a rise in price, the quantity demanded fall to 650 may be because consumers switch to consuming alternatives like coffee or black tea causing a movement along the demand curve. Note also that at the new equilibrium, there is still excess demand if cocoa's price remains at $5.

Assuming that it was demand for Nigeria cocoa that rise leading to excess demand, there would be shortage in the market. When this happened, a rise in price would follow as well as a shift in the demand curve. From the graph below, note a movement along the supply curve in response to the increase in the demand for cocoa. The initial equilibrium where demand equals to supply was at a point where demand curve D0 intersect supply curve S. At that point, the current

market price was $5 and quantity demanded and supplied was 330 billion pounds of cocoa. However increase in demand rose to 650 billion pounds and there was additional increase in supply in order to take advantage of the higher price i.e. the new equilibrium price occurs where the demand curve D1 intersect the supply curve S. The new equilibrium price is $10 after a shift in the demand curve from D0 to D1. The area labeled E is the excess demand or shortage which the market supply cannot take care of. The new market demand figure is 950 billion pounds and only 650 billion pounds of cocoa was supplied at the new equilibrium. Therefore there is shortage in supply as the consumer demand for additional 300 billion pounds of cocoa (This figure is obtained by deducting the 650 from the 950 billion pounds after the second equilibrium).

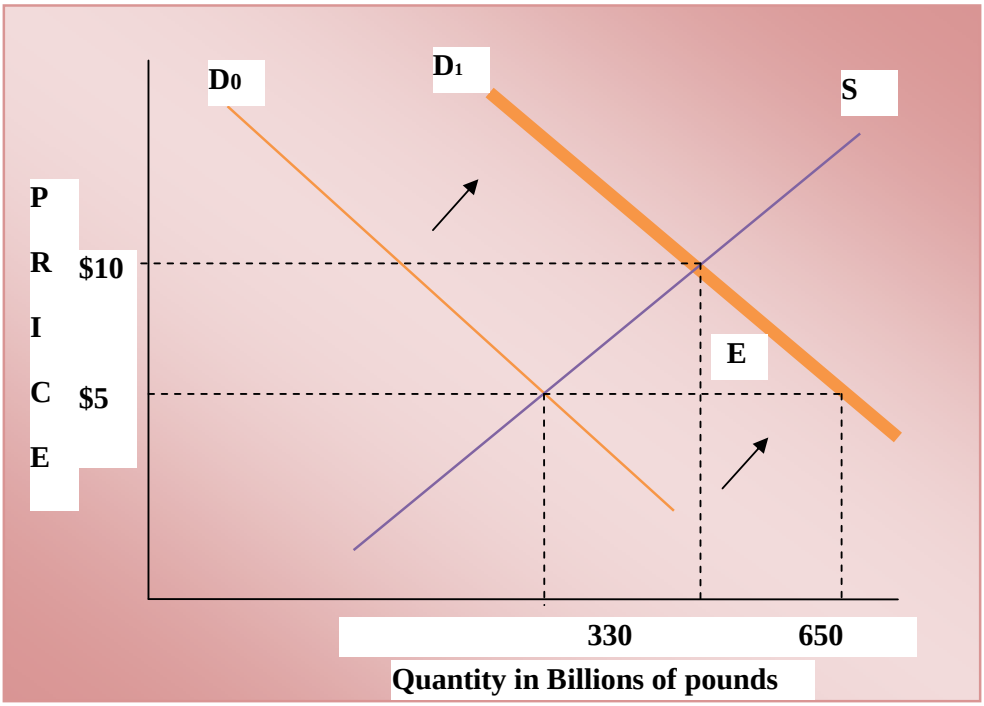

Fig. 3.4: Shift in the Demand Curve

The fundamental way of interaction between the forces of supply and demands is unambiguous. We shall quickly go through how these forces work through various examples diagrammatically. Then one can appreciate the beauty of studying economics through our day-to-day dealings and economic activities. For instance, if we read in the paper that Ogun state government mechanised farm is to increase supply of yam tubers to the market by 40 per cent, one can expect a fall in the price of yam. If Kano state announced that excessive rain this year has affected tomatoes' harvest by 30 per cent, it is expected that tomatoes' price will rise. If association of cow dealers or national association of

road transport workers should go on strike, a hike in cow meat and transport prices are expected to rise. Therefore, carefully go through the graphs and understand each and every one of them.

Increase in income Y:
X is a normal good

Increase in income Y:
X is an inferior good

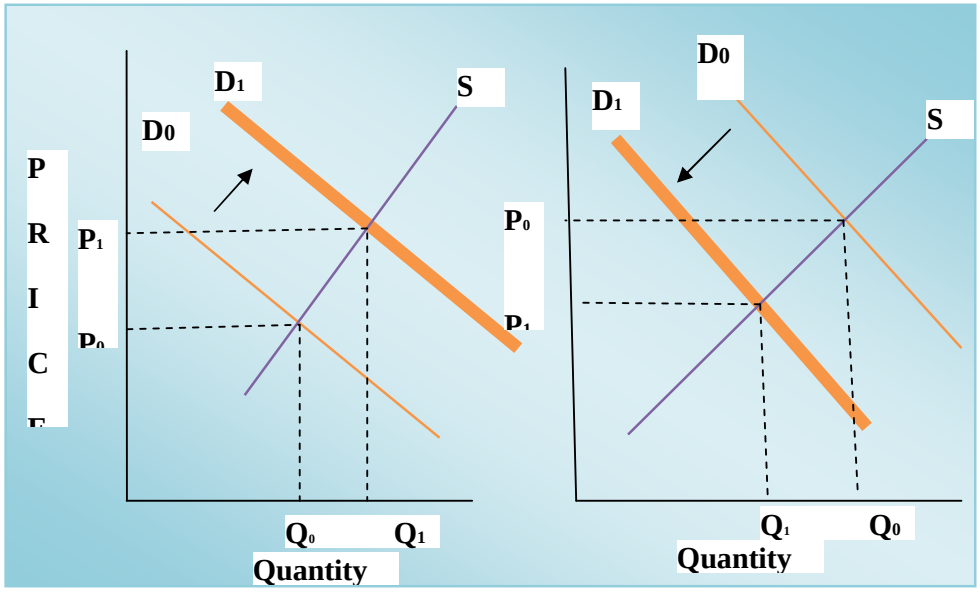

Fig.3.5a: Different Shift in demand Curve

Decrease in income Y:
X is a normal good

Decrease in income Y:
X is an inferior good

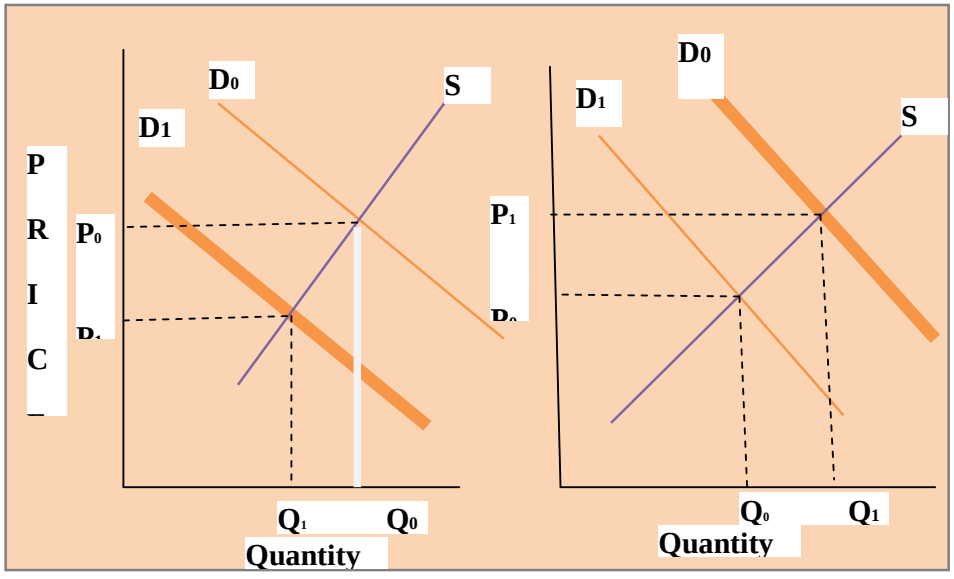

Fig.3.5b: Different Shift in demand Curve

Increase in the price of Substitute for X **Increase in price of complementary for X**

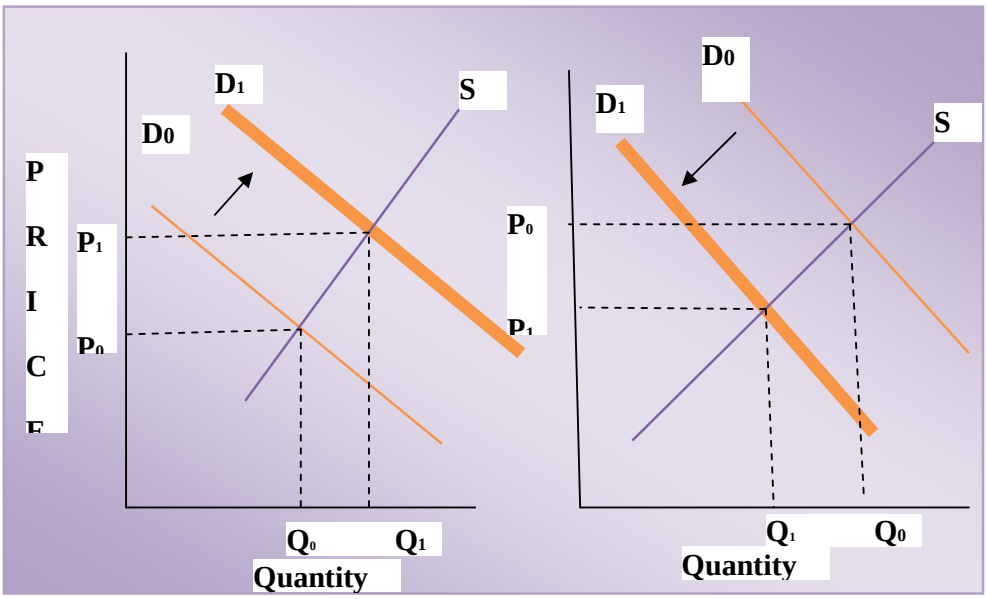

Fig.3.5c: Different Shift in demand Curve

Decrease in price of A substitute for X **Decrease in price of complementary for X**

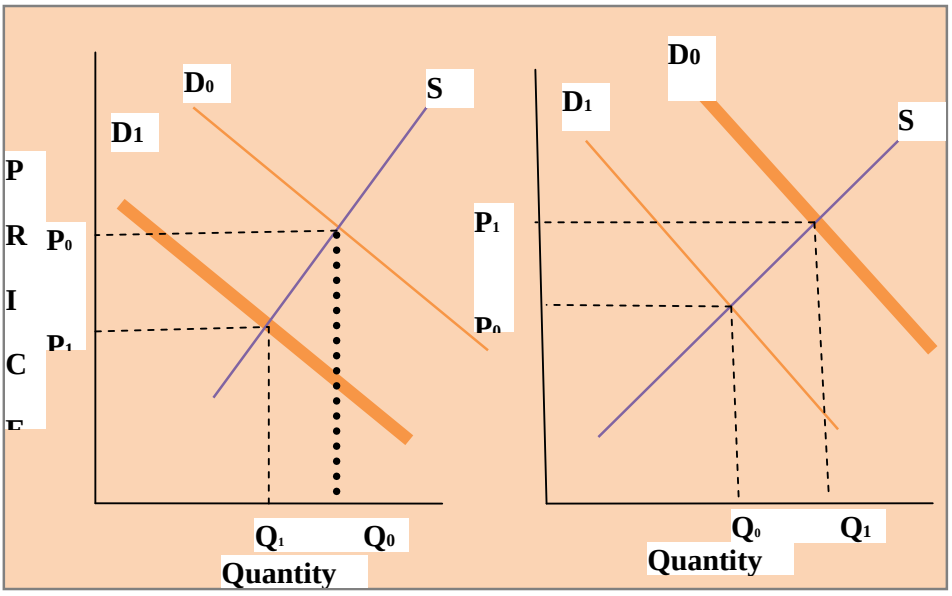

Fig.3.5d: Different Shift in demand Curve

Increase in Cost of Production of X **Decrease in Cost of Production of X**

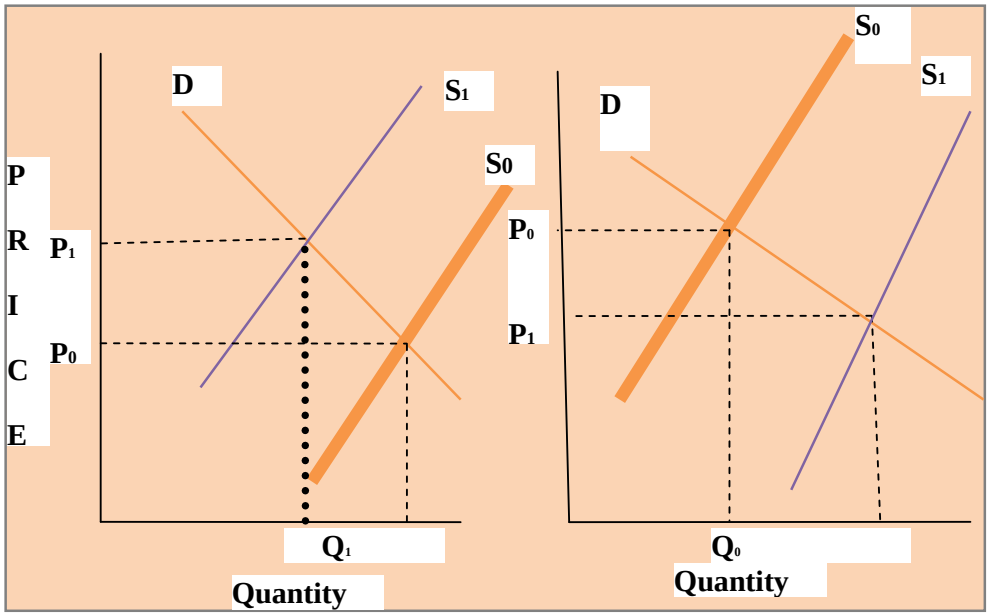

Fig. 3.6: Different Shift in Supply Curve

SELF-ASSESSMENT EXERCISE

What is market equilibrium? Describe the term *movement along the demand curve.*

4.0 CONCLUSION

Demand and supply depends on price, although their interaction determines market price. If one of the determinants of demand or supply changes; there would be a shift in the demand or supply curve. However there would be a **movement along the demand curve if supply curve shift and a movement along the supply curve if there is a shift in demand curve.** Anytime a determinant (s) changed, followed by a shift in demand or supply curve then as new equilibrium is achieved. At the new equilibrium, there would be a new price and the demand must be equal to supply. These are achieved at a point on the curve where the new curve intersects and move from where the old one intersects.

5.0 SUMMARY

The unit examined demand and supply curve; factors that can affect each one of them and how price changes when these factors changes. Three market conditions were discussed – ***the excess demand market condition, excess supply market condition and market equilibrium***

condition. ***A movement along the demand curve*** is when the demand curve remains unchanged but there is a shift in the supply curve. ***A movement along the supply curve*** is when supply curve remain unchanged but there is a shift in the demand curve. Shift in the demand curve to the left means a fall in demand and to the right means a rise in demand. Shift in the supply curve to the left means a decrease in supply and a shift towards the right means increase in supply. **A decrease in demand will lead to a fall in price** while an **increase in demand usually will lead to a rise in price**. A **decrease in supply will lead to a rise in price** (opposite of what happened when there is a decrease in demand). An increase in supply will bring the price down (opposite of what happens when there is increase in demand). Shift in the demand curve or shift in the supply curve will shift the equilibrium price and quantity to a new equilibrium price and quantity.

6.0 TUTOR-MARKED ASSIGNMENT

1. How many market conditions do we have? Mention them.
2. "Book Publishers got a boost from the federal government to increase production" if you read this in the news, what do you think will happen to book prices?
3. "Drought affected livestock in Oyo state" was a headline in the news. In your own opinion what will happen to livestock prices?
4. Describe excess demand and supply and how to achieve equilibrium.

7.0 REFERENCES/FURTHER READING

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UNIT 2 PRICES CEILING AND PRICE FLOOR

CONTENTS

1.0 INTRODUCTION

So far we have seen how price is determined in the equilibrium through the interaction between the force of demand and supply in a free market. These interactions sometimes lead to movement along the demand or supply curve and sometimes it might lead to a complete bodily shift of either the demand or supply curve. However, in a free market economy, there is sometimes government interference in the market especially regarding price determination in certain market. Why do governments interfere in the determining prices in some market and how does the government go about it? These questions are answered by the discussion on price ceiling and price floor under this unit.

2.0 OBJECTIVES

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

- explain why government interfere in the market price determination
- highlight how government interfere in the market
- explain price ceiling and understand price floor.

3.0 MAIN CONTENT

3.1 Price Ceiling

Price ceiling also referred to as **Upper Price Limit** occurs when the government set a maximum price that can be charged for a product in the market. For instance, if 20,000 students wanted to enroll for B.Sc. Economics at the National Open University of Nigeria (NOUN), the university is in the habit of admitting 14,000 per semester and may be

willing to admit the 20, 000 students at a fee of N60, 000 per student. The federal government directive is that NOUN should accommodate 17,000 students. It means there would be a shortage of 3,000 students. Fourteen thousand (14,000) students are below the ceiling of 17,000 students that NOUN will admit. The ceiling in the market has no effect. However, when NOUN admits 17,000 students then the ceiling becomes effective because this figure becomes the new equilibrium figure and it must not go beyond this limit. Let apply this to market price of B.Sc. at NOUN. If the cost of enrolment for B.Sc. Economics is N40, 000, the fees can rise to N60, 000 if NOUN is to admit up to 20,000 students. The federal government therefore places a price ceiling on the school fees at N50, 000 if NOUN is to admit up to 17,000 students. The price ceiling of N50, 000 has no effect if NOUN admits only 14,000 students with N40, 000 school fees. This is because the N40, 000 is less than the ceiling at N50, 000. However if 17,000 students were admitted at school fees of N50, 000 per student, then there will be shortage (3,000 will not be admitted) due to price ceiling. The equilibrium price of NOUN of N60, 000 is above the price ceiling of N50, 000 (Figure 3.7).

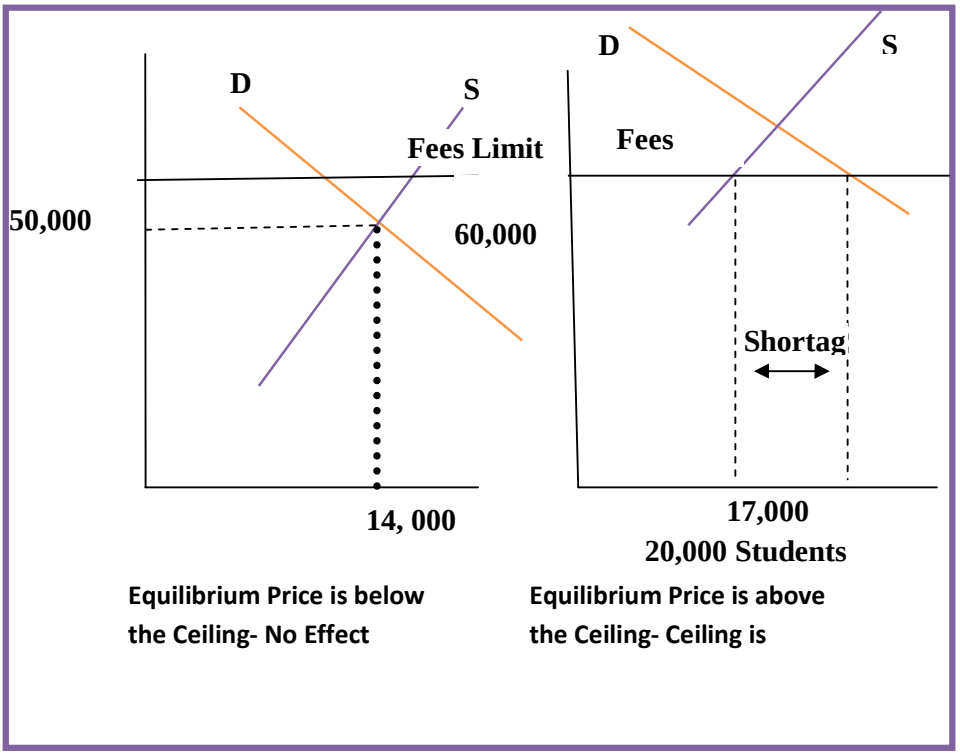

Fig. 3.7: Price Ceiling Graph

3.2 Price Floor

Price floor is the direct opposite of price ceiling. This is when the government interferes in the market by setting a minimum price that can be charged on a particular product or services. Let us take a look at a hypothetical price floor on chicken in Lagos state. The government discovered that demand for chicken per day run up to 2 million chickens at a control price of N5 per chicken. The equilibrium price of chicken is N7 in the chicken market is greater than the minimum price of N5. Hence the effect of price floor or minimum price is not felt. Meanwhile the government has increase the minimum price of chicken to N10. Consequently the demand for chicken decreased to 1.7 million chickens per day. The minimum price has effect in the market because demand for 0.3 million chickens could not be met, thereby creating shortage in the market (Figure 3.8).

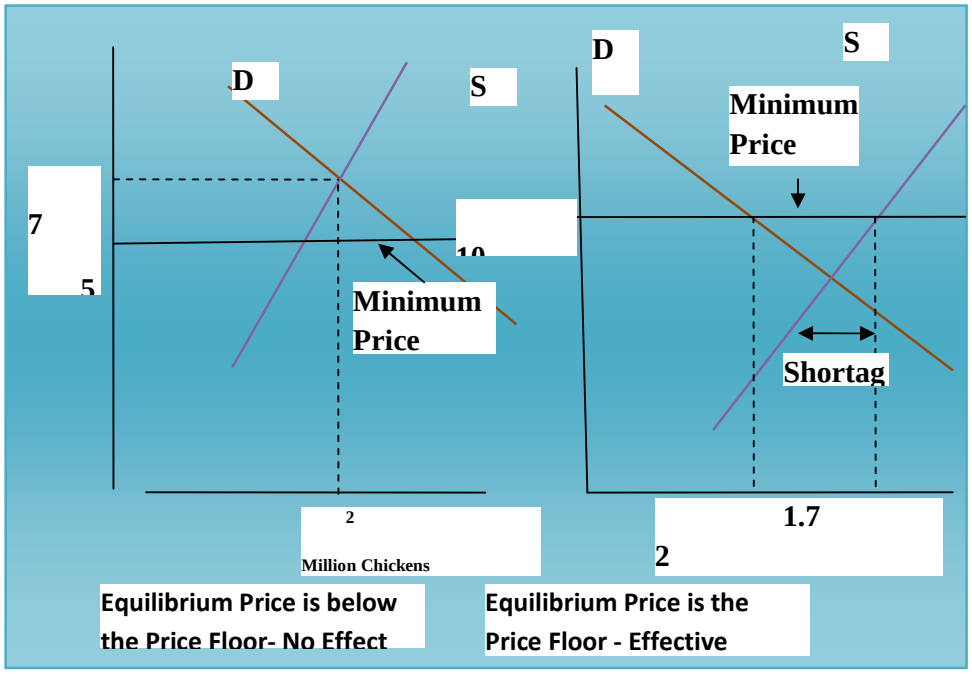

Fig. 3.8: Price Floor Graph

4.0 CONCLUSION

Price ceiling and price floors are two separate government policies of intervention in the price determination mechanism in a free market. Government sometimes intervenes in the market to create surplus or shortage by setting a maximum price or minimum price at which a product should be selling in the market. When there is surplus in the market; the situation will force the price of such product down until the demand is equal to supply and equilibrium is reach. Likewise when

there is shortage of a product, this market condition shall force the price up until demand is equal to supply and equilibrium is also achieved.

5.0 SUMMARY

Price ceiling or upper price limit is when a maximum price at which a product should be selling in the market is set by the government as a control price. The opposite of price ceiling is price floor. Price floor or lower price limit occurs when the government set a minimum price at which a product should be selling in the market. The mechanism of price determination through forces of demand and supply in a free market is interjected by intervention.

6.0 TUTOR-MARKED ASSIGNMENT

Price of Wheat (per Bushel in Naira)	Demand for Wheat (millions Bushel)	Supply of Wheat (millions Bushel)
5	35	15
6	25	17
7	20	20
8	10	25
9	5	27

From the Table above, answer the following questions.

1. What is the equilibrium price?
2. What is the equilibrium quantity demanded and supplied?
3. If the government fixed a price ceiling of wheat per bushel at N8, will there be surplus or shortage in the market? Give the surplus or shortage figure in million bushels.
4. If the price floor is N5, will there be surplus or shortage in the wheat market? Give the surplus or shortage in million bushels.
5. When wheat was selling at N6 per Bushel, the quantity demanded was 25 million bushels and quantity supply was 17 million bushels. What is the market condition? (State whether there is surplus or shortage and the figure).

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UNIT 3 ELASTICITY OF DEMAND

CONTENTS

1.0 INTRODUCTION

In this unit we shall continue our discussion on demand and subsequently on supply and market price. The law of demand states that the higher the price the lower the quantity consumers will purchased. However, the response of the quantity supply or demanded to changes in price is unknown. Therefore, we tend to ask the question of how much will the quantities demanded react to price? This question is answered by ***elasticity***. *Elasticity is a concept that is used to quantify the response in one variable when there is change in another variable.* Knowing the size and magnitude of this reaction is very imperative. Therefore we shall be examining price elasticity of demand, simply put; *elasticity is a ratio of percentage change in demand and price*.

2.0 OBJECTIVES

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

- define elasticity in relation to demand
- state different types of elasticity of demand
- calculate elasticity
- explain the determinants of demand elasticity.

3.0 MAIN CONTENT

3.1 Demand and Price Elasticity

According to law of demand when prices rise, quantity demanded is expected to fall *ceteris paribus* (all things been equal). This shows that there is a *negative relationship* between *price and demand*. The negative relationship is replicated in the downward slope of the demand curve.

Though slope of a demand curve may reflect the responsiveness of quantity demanded to price change but is not a good measure of responsiveness. **Price elasticity of demand can be described as proportional or percentage change in quantity demanded as a result of proportional or percentage change in that commodity's price.** We shall discuss basically three types of demand elasticity vis-à-vis inelastic demand, elastic demand and unitary elastic.

Perfectly Inelastic or Zero Elastic Demand

This is a case where quantity demanded does not respond to increase in price i.e. the percentage change in quantity demanded is zero then the elasticity of such commodity is also zero. For instance if quantity demanded of needle (refer to the figure below) remain the same despite changes in price then the demand curve for needle will be a vertical line. Then we say needle has inelastic demand. Therefore ***perfectly inelastic demand is a demand wherein quantity demanded does not respond at all to price change***. For example if 20 percent increase in price of needle occurred but the quantity demanded remains the same i.e. there is no responsiveness at all to change in price. Then the elasticity of needle will be:

$$0 / 20 = 0$$

Remember that perfectly inelastic demand has absolute value of zero (Figure 3.9).

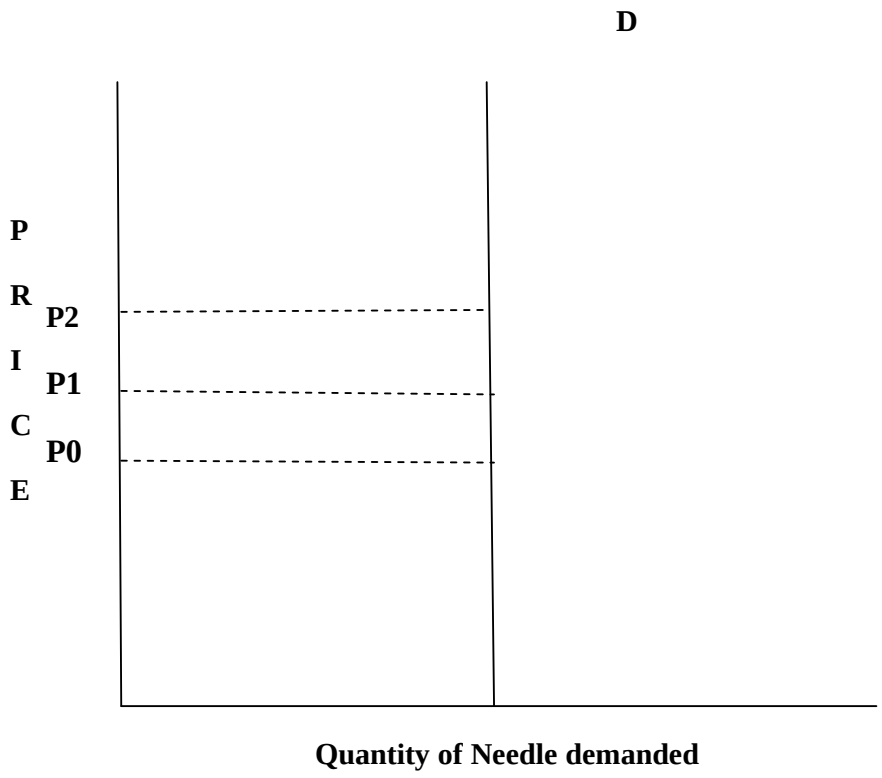

Fig. 3.9: Perfectly Inelastic Demand

Inelastic Demand

Meanwhile a demand may be inelastic but changes in quantity demanded may be proportionately less than changes in the price. The quantity demanded may change but not proportionate to changes in price, a little increase in quantity demanded but a wide change in price as shown below. Note that the percentage change in quantity demanded is smaller compare to percentage change in price. Such commodity will have elasticity value of between 0 and -1. Therefore inelastic demand is a demand with some responsiveness to changes in price. From the graph below (Figure 3.10), note that the distance between Q1 and Q0 is smaller to the distance between P1 and P0. For example, if 20 per cent increase in price of needle drives down quantity demanded by 2 per cent, elasticity for needle is calculated as:

-2 / 20 = -0.1

Remember that inelastic demand has absolute value of between 0 and -1. Hence -0.1 is less than 1 and it falls within the range.

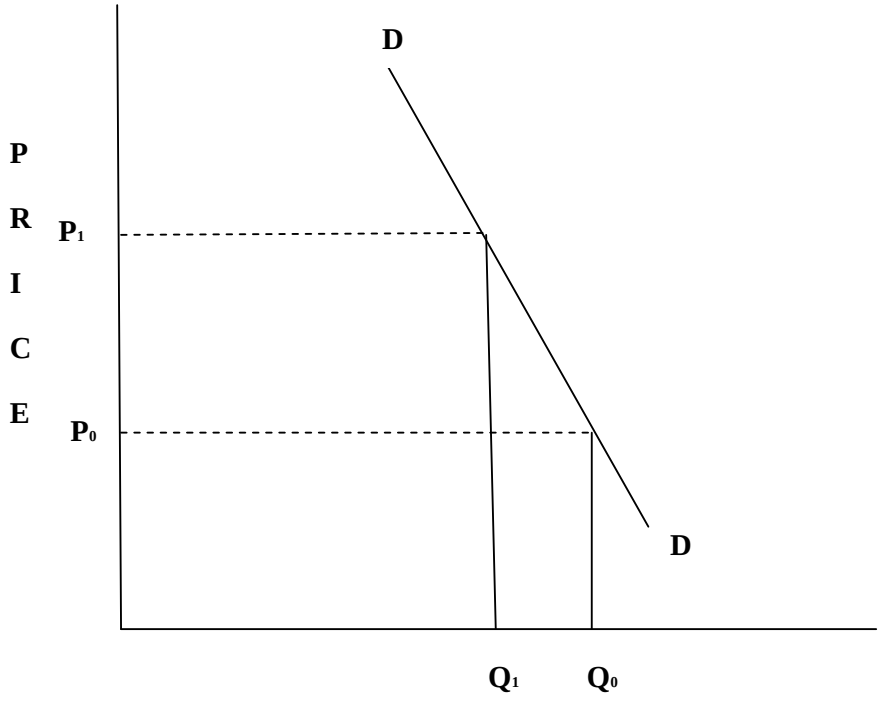

Fig. 3.10: Inelastic Demand

Unitary Elasticity

In addition, **when the percentage change in quantity demanded is the same as the percentage change in price in absolute value then we have unitary elasticity**. The elasticity of demand for a unitary elastic product is always minus one (-1). From the graph below (Figure 3.11), note that the distance between P0 and P1 is equal to the distance between Q0 and Q1.

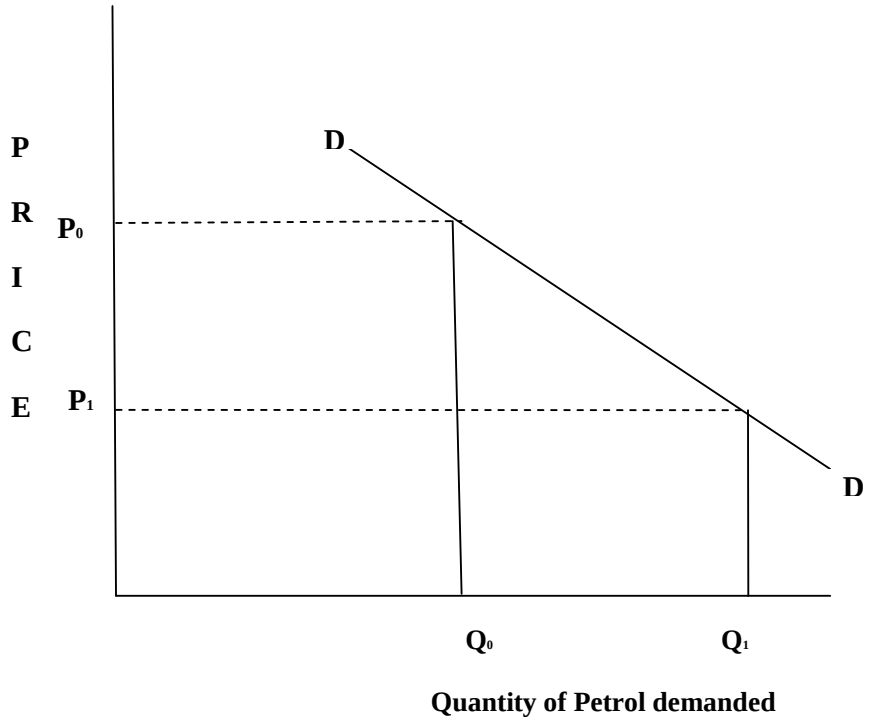

Fig. 3.11: Unitary Elasticity

For instance, if 5 per cent increase in price of petrol drives down the quantity of petrol demanded by 5 per cent. Then elasticity is calculated as follow:

-5 / 5 = -1

Elastic Demand

Elastic demand occurs when the absolute value of percentage change in quantity demanded is larger than percentage change in price. The elasticity of elastic demand product is usually greater than 1. If bread is a normal good consume, given a little drop in price of bread, consumers mostly will demand for more. From the Graph below (Figure 3.12), the distance between P0 and P1 is smaller than the distance between Q0 and Q1.

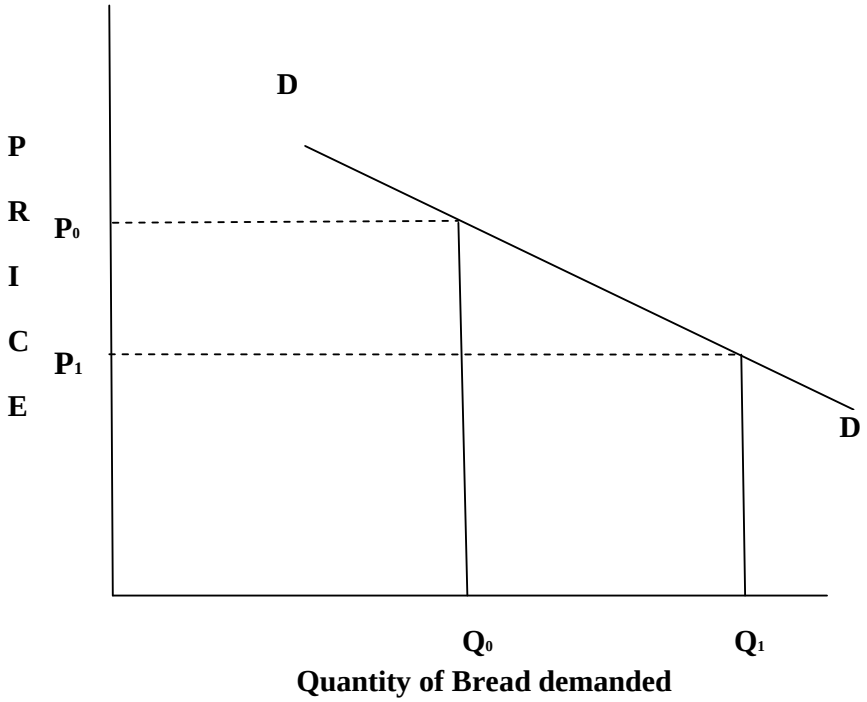

Fig. 3.12: Elastic Demand

Perfectly Elastic Demand

Perfectly elastic demand occurs when the quantity demanded dropped to zero with a little price change. This usually occurs when producers can only sell their product at a market predetermined price. Any attempt to increase the price by a small amount will drive quantity demanded to zero because consumers can easily buy from other producers who complied with the market regulated price. For instance, if the price of a bushel of soya beans is fixed in the world market at $40, any attempt by Nigeria government to raise its own price by $1 may lead to zero demand for soya beans from Nigeria as consumers can get from other suppliers in the world market. Perfect elastic demand curve is a horizontal line (Figure 3.13) because producers can only sell at a fixed price.

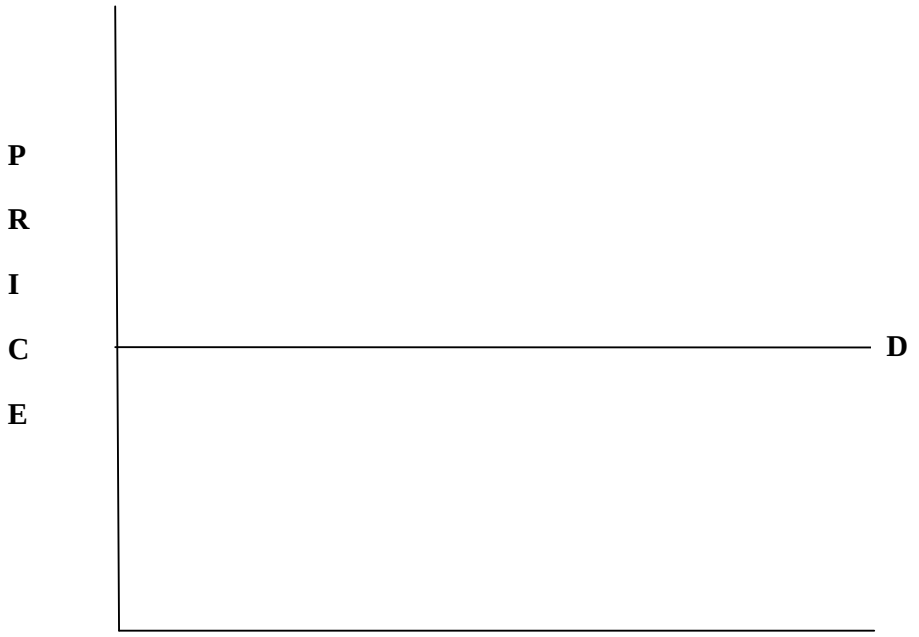

Fig. 3.13: Perfectly Elastic Demand

Elasticity Calculations

Calculation of Percentage change in Quantity Demanded

% change in quantity demanded $= \frac{change\ in\ Quantity\ demanded}{Q_0}$ X 100%

$$= \frac{Q_1 - Q_0}{Q_0} \times 100\%$$

Let assume that quantity demanded of chicken increased from 6kg (Q0) to 12kg (Q1) due to decrease in price from #10 to #7. To calculate the percentage change in quantity demanded using the above formula, we have:

% change in quantity demanded $= \frac{Q_1 - Q_0}{Q_0} \times 100\%$

$$= \frac{12\_6}{6} \times 100\%$$

= 1 X 100%

= 100%

Calculation of Percentage change in Price

Percentage change in price can also be calculate using a similar formula as shown below using the Chicken change in price from #10 (P0) to #7 (P1) as an example.

% change in quantity demanded $= \frac{P_1 - P_0}{P_0}$ X 100%

% change in quantity Price $= \frac{P_1 - P_0}{P_0}$ X 100%

$= \frac{7-10}{7}$ X 100%

$= \frac{-3}{7}$ X 100%

$= \frac{-300}{7}\%$

= -42.86 %

Calculation of Price Elasticity of Demand

Having known the percentage change in quantity demanded and percentage change in price, then we can calculate price elasticity of demand. Elasticity is a ration of the two percentages. Let recall the definition of elasticity: **Price elasticity of demand can be described as proportional or percentage change in quantity demanded as a result of proportional or percentage change in that commodity's price**. Therefore:

$$\text{Price elasticity of demand} = \frac{\%\ change\ in\ quantity\ demanded}{\%\ change\ in\ price}$$

From the above calculation on Chicken:
% change in quantity demanded is 100%
% change in price is 42.89 percent (42.89 will carry a minus sign due to decrease in price)
Hence we have

$= \frac{100}{-42.89}$

= -2.33

Chicken has elastic demand, recall that an elastic demand always has absolute value greater than 1.

Meanwhile, using the ***midpoint formula*** to calculate percentage change has been recommended by Case and Fair (1999). This was based on the fact that changing the direction of calculation in the percentage change calculation above by using the initial base of 10 instead of 7 (with assumption that the reverse was the case). You will discover that the figure for price elasticity of demand will change. This make no sense

since the elasticity calculated is on the same demand curve. ***Midpoint formula*** describes more accurately the percentage change. It can be define as a way of calculating percentage change in demand and price using the halfway values between Q1 and Q2 and P1 and P2. See the formula below:

% change in quantity demanded = $\frac{changes\ in\ quantity\ demanded}{(Q_1+Q_0)/_2}$ X 100%

$= \frac{12-6}{(12+6)/2}$ X 100%

$= \frac{6}{(18)/2}$ X 100%

$= \frac{6}{9}$ X 100%

= 0.6666 X 100%

= 66.7%

Using the same midpoint formula to calculate percentage change in price, we have

% change in price = $\frac{changes\ in\ price}{(P_1+P)/_2}$ X 100%

$= \frac{7-10}{(10+7)/2}$ X 100%

$= \frac{-3}{(17)/2}$ X 100%

$= \frac{-3}{8.5}$ X 100%

= -0.3529 X 100%

= -35.3%

Now that we know that:

% change in quantity demanded = 66.7%

% change in price = -35.3%

What is the price elasticity of demand?

Price elasticity of demand $= \frac{\%\ change\ in\ quantity\ demanded}{\%\ change\ in\ price}$

$= \frac{66.7\ \%}{-35.3\%}$

= -1.9

Note that the demand is still elastic because the absolute value of percentage change in quantity demanded is greater than the absolute

value of the value of percentage change in price; hence absolute value of price elasticity of demand value is greater than 1

SELF-ASSESSMENT EXERCISE

What is elasticity? Mention and define its different types.

3.2 Determinants of Demand Elasticity

Different people react different to changes in price as a result of their differences when their preference is compared. Thus elasticity that measures how people react to changes in price through changes in their demand for such product can be view as measuring human behavior. Though consumers have differing preferences but they are unified sometimes by some common principles which can be seen as determinants of demand elasticity. For instance, income of consumers, habit and uses of a commodity etc. are common factors just like factors that determine demand and supply.

Substitute Availability

Availability of good substitutes for a commodity is one of the most apparent factors that can affect its demand elasticity. The closer the substitute the more elastic will be the commodity. For example if price of close-up tooth paste went up, if the prices of other tooth pastes like Dabur herbal, My My tooth paste, Maclean, oral B, Pepsodent tooth pastes remain the same; then they are cheaper than close-up. Consumer will shift easily to any of the other tooth pastes. Hence the demand elasticity of close-up will be very elastic such that a little increase in price will drive down the quantity demanded for it rapidly.

Consumers' Income

The larger the amount of consumer's income a commodity will consume the more elastic the demand for such commodity. Likewise the smaller the amount of consumer's income a commodity consumes the less elastic its demand. Take for instance if there is increase in the price of chewing gum sweet which people seldom takes up, its price increase may have little response to quantity demanded as people would not mind to buy because its price is small and its takes negligible part of consumers' income compare to buying a car for instance. In essence, consumers are likely to be responsive to a hike in car price such that quantity demanded will fall. By implication demand for car is elastic because buying a car will consume larger part of consumers' income,

thus any increase in price that will increase what it will consume from consumers' income will lead to a fall in demand for car.

Addict or habit

People that are addicted to some product consumed out of their habit which 'die hard' are another factor that can determine demand elasticity. Smokers and drunkards who consume cigarette and alcohols out of habit will not budge from buying their brands despite increase in price. As such, elasticity of demand for these products will be inelastic.

Importance of a commodity

How important a commodity is determines its elasticity; the grater it's uses the more its price elasticity. For example, ginger powder is not only use for soup seasoning, but can be included in jolof rice, fried rice, beans porridge, oat meal, yam porridge and can even be added to black tea, green tea or used to make pure ginger tea. For these alternative uses it can be put to, its demand becomes very elastic. Increase in price of ginger may lead to decrease in quantity demanded.

SELF-ASSESSMENT EXERCISE

List the determinants of elasticity of demand. Explain two of them.

4.0 CONCLUSION

Elasticity is a means of measuring how quantity demanded or supplied of a product react to changes in price and other determinants. There are different types as a result of differing determinants such as price elasticity of demand, cross (price) elasticity, and income elasticity. Elasticity was defined as percentage change in quantity demanded or supplied divided by percentage change in price. The formula for calculating each type of elasticity was also discussed.

5.0 SUMMARY

It is important to know that the nature of elasticity determines its name and hence, it numerical value. When quantity demanded does not respond to changes in price, then there is zero elasticity of demand or we say there is it is perfectly inelastic. When the percentage change in quantity demanded is equal to the percentage change in price, we have unitary elasticity of demand. When the percentage change in quantity demanded is less than the percentage change in price, we have inelastic demand but when the percentage change in quantity demanded is greater

than percentage change in price, it is referred to as elastic demand. This is exactly opposite to inelastic demand.

6.0 TUTOR-MARKED ASSIGNMENT

1. The federal government gave a boost to the housing sector by building 2 million units of low-cost housing estates in each state of the federation for federal workers. There is zero down-payment on acquisition and monthly instalmental payment by buyers. What will happen to demand curves of housing in the country?
2. What do you understand by elasticity of demand?
3. If the price of bread increased by 7 per cent which led to 4 per cent decrease in demand for butter, then calculate the cross-price elasticity of demand.
4. Show diagrammatically the following types of demand elasticity: a). Unitary elastic demand; b). Elastic demand; c). Perfectly inelastic demand.

7.0 REFERENCES/FURTHER READING

Hakes, D. R. (2004). *Study Guide for Principle of Economics.* In Makwin, G. N. (Ed.). United State of America: Thomson Southwester.

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UNIT 4 ELASTICITY OF SUPPLY

CONTENTS

1.0 INTRODUCTION

In the previous unit we discussed on demand and its different elasticities as well as their determinants. In this unit we shall continue our discussion on supply and market price. Recall that the law of demand states that the higher the price the lower the quantity consumers will purchased while law of supply states that the higher the price the higher the quantity the supplier will be willing to supply to the market. However, the response of the quantity supply or demanded to changes in price is unknown. Therefore, the question of how much the quantity demanded will react to price or how much the quantity supplied will react to price is answered by ***elasticity***. Recall again that we defined **Elasticity has a concept that is use to quantify the response in one variable when there is change in another variable**. Consequently knowing the size and magnitude of these reactions is very imperative. Therefore we shall be examining elasticity of supply and other important elasticity.

2.0 OBJECTIVES

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

- explain elasticity in relation to supply
- explain other types of elasticity that are important
- calculate elasticity.

3.0 MAIN CONTENT

3.1 Elasticity of Supply

Habitually we want to know how responsive is the quantity demanded to a change in price. In the same context, we normally want to know how responsive quantity supply also is, to changes in price. **Price elasticity of supply is defined as the responsiveness of quantity supplied to a change in price**. To measure price elasticity of supply, a similar formula for calculating price elasticity of demand is used though not with little amendment. The percentage changes in quantity demand changes to percentage changes in quantity supplied. Hence the measure of price elasticity of supply is **proportionate changes (percentage changes) in quantity supplied is divided by the proportionate changes in price (percentage changes)**.

The graph in Figure 3.14 shows how quantity supplied respond to changes in price shifting the supply curve from S1 to S2 as the price changes from P1 to P2.

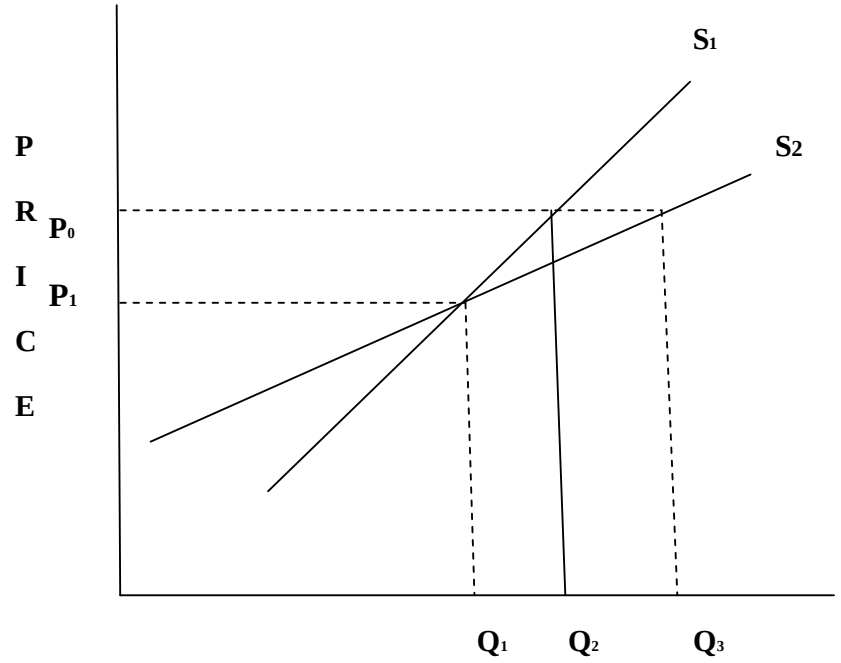

Fig. 3.14: Elasticity of Supply Graph

The two supply curves have different elasticity; as could be seen from the graph, a change in price from P1 to P2 caused quantity supplied to move from Q1 to Q2 on the supply curve S1 but quantity supplied

moved from Q1 to Q3 on the supply curve S2. Recall that under elasticity of demand, we discussed various types of elasticity like zero elasticity of demand, unitary elasticity, elastic and inelastic elasticity and so on. In the same context, we shall be briefly discussing on perfectly inelastic or zero elasticity of supply, inelastic, unitary, elastic and perfectly elastic supply with the aid of diagram.

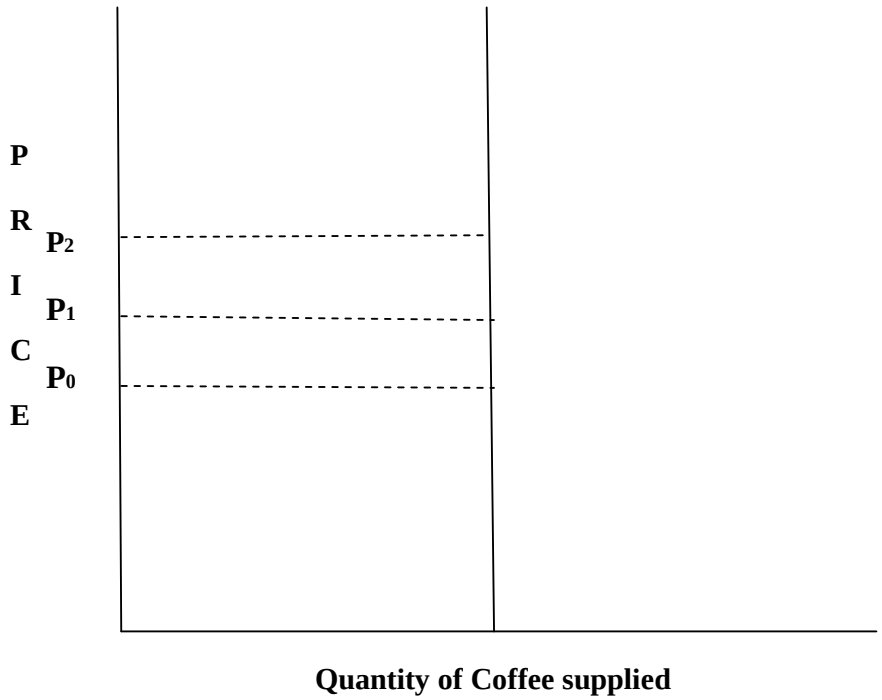

Fig. 3.15: Perfectly Inelastic or Zero Elasticity

From Figure 3.15, it means that no matter the rise in price of coffee, the supply remain the same.

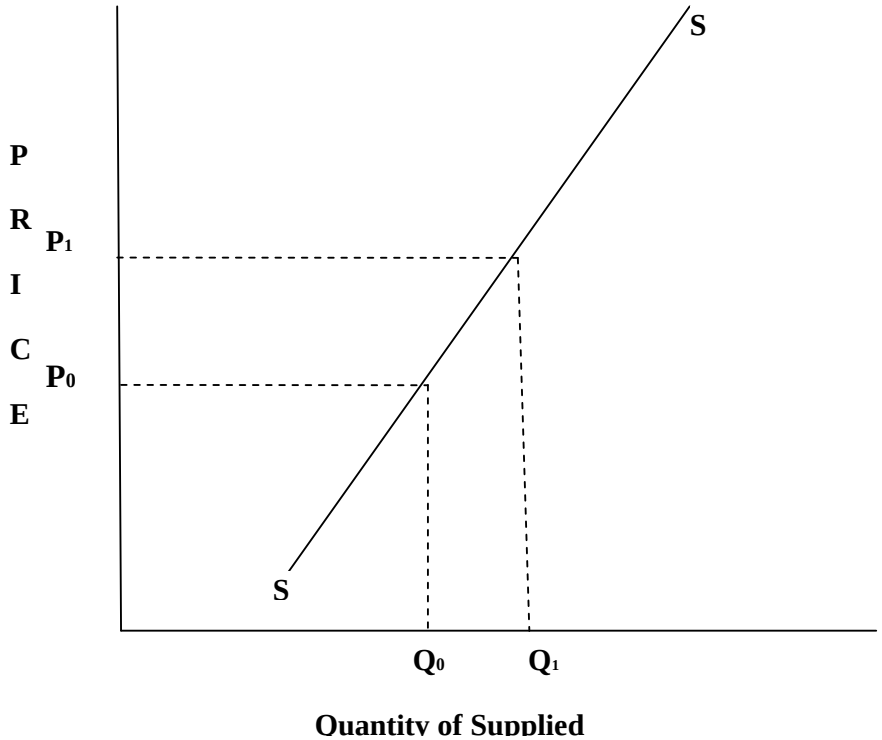

Fig. 3.16: Inelastic Supply

The quantity supplied may change but not proportionate to the percentage changes in price. From the above graph (Figure 4.5), there is a wide change in price but a little increase in quantity supplied.

Unitary elasticity of Supply

The elasticity of supply for a unitary elastic product is always one (1). The distance between the Q1 and Q2 is equal to the distance between the P1 and P2 (Figure 3.17).

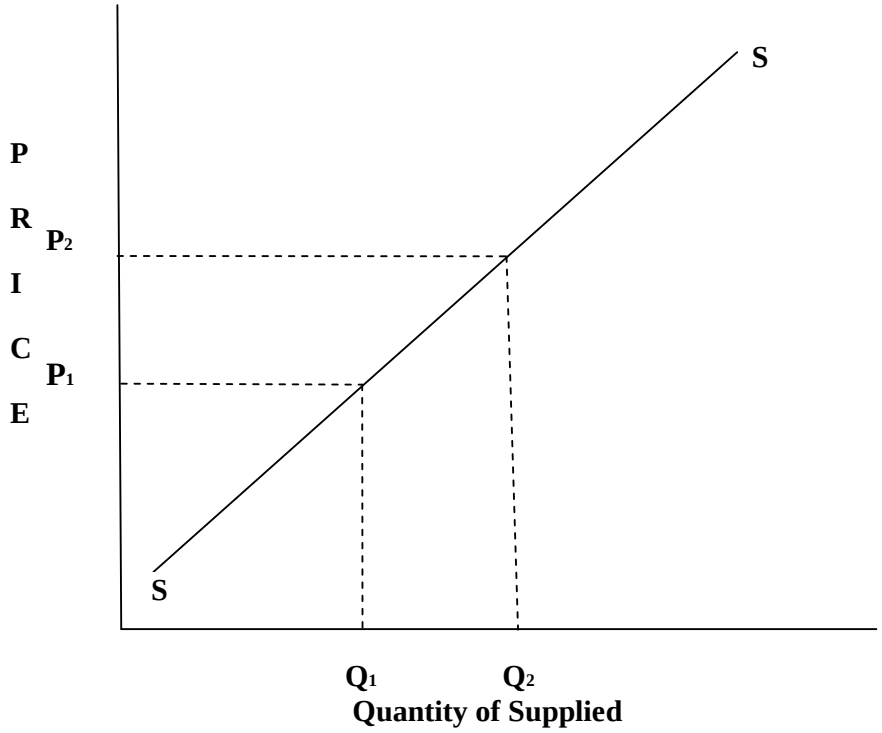

Fig. 3.17: Unitary Elasticity of Supply Graph

Elastic Supply

Elastic supply will occur when the absolute value of percentage change in quantity supplied is larger than percentage change in price. The elasticity of elastic supply product is usually greater than 1 (refer to Figure 3.18).

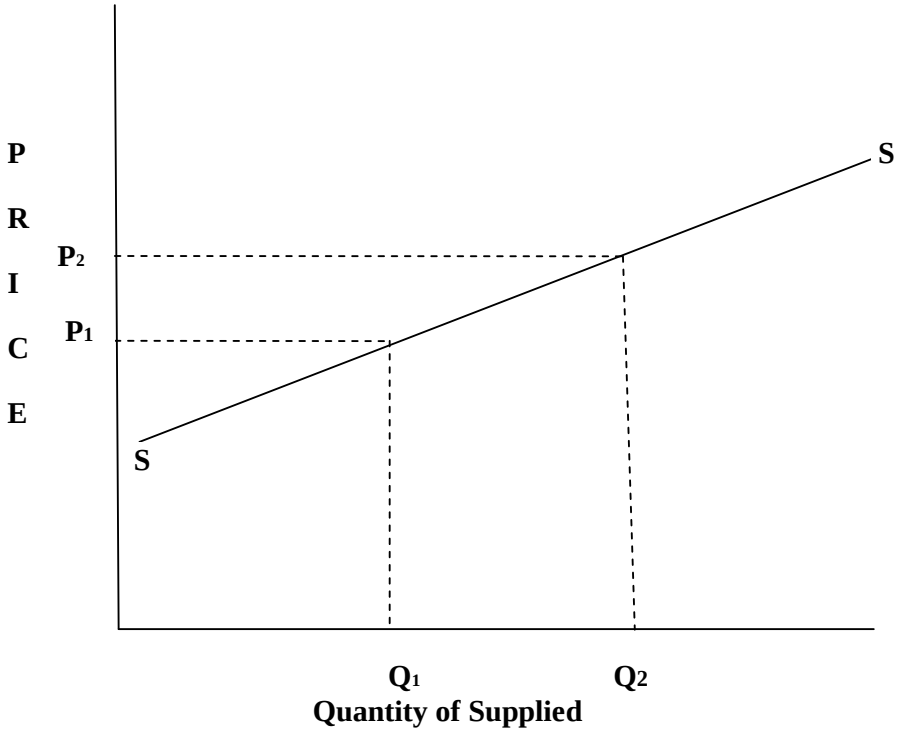

Fig. 3.18: Elastic Supply Graph

Perfectly Elastic Supply

Perfectly Elastic supply will occur when the absolute value of percentage change in quantity supplied change but the price remains the same. The elasticity of elastic supply product is usually greater than 1 (Figure 3.19).

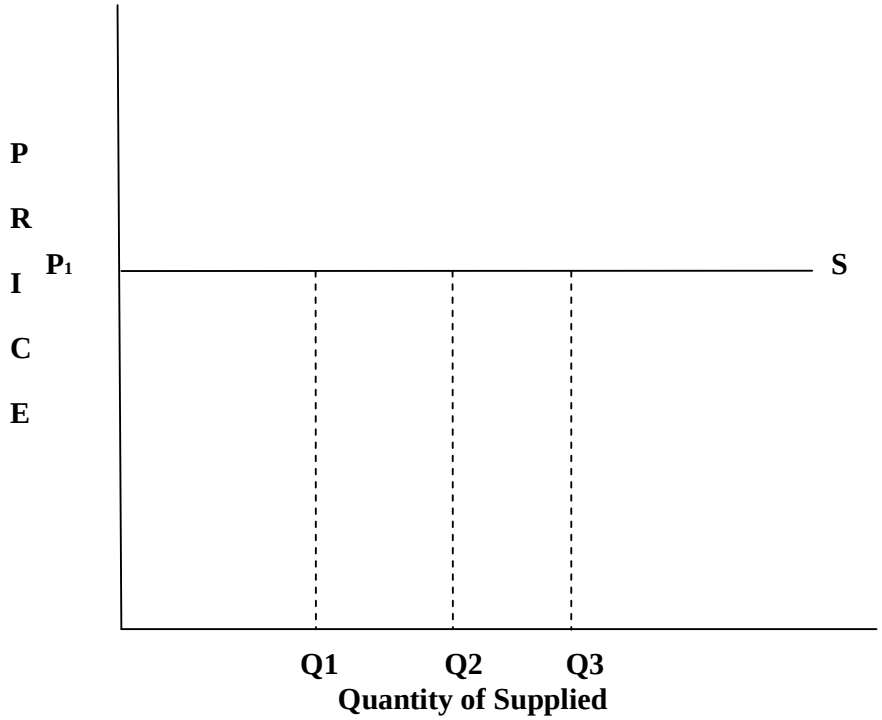

Fig. 3.19: Perfectly Elastic Supply

Calculating Price Elasticity of Supply

The formula for calculating price elasticity of supply stated above could be mathematically represented as:

$$\text{Price elasticity of Supply} = \frac{\textit{Percentage change in Quantity Supplied}}{\textit{Percentage change in Price}}$$

$$P\epsilon S = \frac{\%\Delta Q_s}{\%\Delta P}$$

Take for instance, if there is 15 percent changes in quantity demanded as a result of 5 percent rise in price, then we have

$$P\epsilon S = \frac{\%\Delta Q_s}{\%\Delta P}$$

$$P\epsilon S = \frac{15\,\%\Delta Q_s}{5\,\%\Delta P}$$

$$= \frac{15\,\%}{5\%}$$

$$= 3$$

In the above result, the elasticity of supply is greater than 1, hence the supply is elastic. Note also that the elasticity is positive because the rise in price caused a rise in supply. If it caused a falling supply, then the

elasticity result will be negative. If in another situation, this 15% rise in quantity supplied was as a result of 25% rise in price, then we have:

$$P\epsilon S = \frac{15\ \%\ \Delta Q_s}{25\ \%\ \Delta P}$$
$$= \frac{15\ \%}{25\%}$$
$$= 0.6$$

In this case, the price elasticity of supply is less than 1, hence the supply is inelastic.

SELF-ASSESSMENT EXERCISE

Explain the following:

a. Perfectly inelastic supply
b. Elastic supply
c. Unitary supply

3.2 Determinant of Supply Elasticity

Spare Capacity

If a firm has more than enough capacity to respond to a rise in quantity supplied by increasing supply immediately to the market, then its supply will be elastic. The more their extra capacity to increase supply; the more the firm would be encouraged to produce more anytime there is a rise in price.

Stock Availability

When a firm can get extra raw material and can easily change its line of product from the normal goods to substitutes at affordable costs, then, its supply will be elastic. However, if its raw material and other factors of production cannot be easily converted to producing substitutes, then its supply becomes inelastic.

Time

When a firm is able to increase supply immediately then its supply would be elastic, otherwise, it would be inelastic. The reversed case will occur if the supply is of fixed nature. However, in the short run, if the firm needs sometimes to increase some factors of production while others remain fixed, then it supply can be elastic to some extent. But if the firms need ample time to increase all its factors of production then its supply will be highly elastic in the long run.

SELF-ASSESSMENT EXERCISE

Briefly discuss factors determining elasticity of supply.

3.3 Important Elasticity

Previous sections detailed on responsiveness of demand as well as supply to changes in price. However, you would have noticed that price is not the only determinant having discussed other determinant factors either under demand or supply. We have been able to establish that elasticity is a measure of how responsive a variable is to a change in the other variable. Also, we have seen from different calculations under demand and supply that the more elastic a product is, the more the market will respond to changes in its price, quantity demanded or supplied. Therefore we shall look at two factors that can also affect the demand curve. One is the responsiveness of quantity demanded to income and two, responsiveness of demand for one product when there is a change in price of another product –substitute or complimentary goods.

Income elasticity of demand

Income elasticity of demand is the percentage change in quantity demanded as a result of percentage change in households' income. When the income elasticity of a product is less than one, it is an indication that household consumption of the product does not increase despite the increase in households' income. To measure income elasticity of demand, we divide percentage change in quantity demanded by the percentage change in income. The formula is given below:

Income elasticity of demand = $\frac{percentage\ change\ in\ quantity\ demanded}{percentage\ change\ in\ income}$

$$= \qquad Y\epsilon_D = \frac{\%\Delta Q_D}{\%\Delta Y}$$

Cross elasticity

Cross elasticity of demand is use to measure the percentage change in quantity demanded of one product when there is a change in the price of another close product. For this reason it is sometimes referred to as cross-price elasticity of demand. For example, if the price of X increases and the quantity demanded of Y decreases; it indicates that X and Y are complimentary goods. In this case, cross-price elasticity will be a negative figure. A good example of complimentary goods is bread and butter. If the price of bread increased by 7 percent which led to 4 percent decrease in demand for butter, then cross-price elasticity of demand will be:

Cross elasticity of demand = $\frac{\text{percentage change in quantity demanded of X}}{\text{percentage change in price of Y}}$

Cross elasticity of demand = $\frac{\%\Delta Q_{Dx}}{\%\Delta Q_{Py}}$

Cross elasticity of demand = $\frac{-4}{7}$

= -0.57

In contrast, if the increment in price of X causes the quantity demanded of Y to increase, it indicates that X and Y are substitutes. In this case cross elasticity of demand will be positive. Example of substitute goods is butter and margarine, if the price of margarine increased by 10 percent and the quantity demanded of butter increased by 2 percent then we have:

Cross elasticity of demand = $\frac{\text{percentage change in quantity demanded of X}}{\text{percentage change in price of Y}}$

Cross elasticity of demand = $\frac{\%\Delta Q_{Dx}}{\%\Delta Q_{Py}}$

Cross elasticity of demand = $\frac{2}{10}$

= 0.2

SELF-ASSESSMENT EXERCISE

Give the formula of two other important elasticities.

4.0 CONCLUSION

As said earlier on elasticity is a means of measuring how quantity demanded or supplied of a product react to changes in price and other determinants. There are different types as a result of differing determinants such as price elasticity of demand, price elasticity of supply, cross (price) elasticity, and income elasticity. Elasticity was defined as percentage change in quantity supplied divided by percentage change in price.

5.0 SUMMARY

It is important to know that the nature of elasticity determines its name and hence, it numerical value. When quantity supplied does not respond to changes in price, and then there is zero elasticity of supply i.e. there is perfectly inelastic supply. When the percentage change in quantity supplied is equal to the percentage change in price, we have unitary elasticity of supply. When the percentage change in quantity supplied is less than the percentage change in price, we have inelastic supply but

when the percentage change in quantity supplied is greater than percentage change in price, it is referred to as elastic supply. This is exactly opposite to inelastic supply. Other important elasticity like income elasticity of demand and cross elasticity was also discussed.

6.0 TUTOR-MARKED ASSIGNMENT

1. The federal government gave a boost to the housing sector by building 2 million units of low-cost housing estates in each state of the federation for federal workers. There is zero down-payment on acquisition and monthly installmental payment by buyers. What will happen to demand and supply curves of housing in the country?
2. Your state government approved importation of fruits from two different countries aside the supply of the locally produced fruits. The fruit market supply was at equilibrium of 20 million while the importation will shoot up the supply to 30 million. What do you think will happen to the supply curve, the price and the demand curve?
3. What do you understand by elasticity of demand and supply?
4. If the price of bread increased by 7 per cent which led to 4 per cent decrease in demand for butter, then calculate the cross-price elasticity of demand.

7.0 REFERENCES/FURTHER READING

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MODULE 4 THEORY OF CONSUMER BEHAVIOUR

UNIT 1 BASIS OF CHOICE: UTILITY

CONTENTS

1.0 INTRODUCTION

Underlining economic principle which determines demand and supply of quantity of goods as well as its price determination is based on utility. As mentioned in the earlier units, household decisions are assumed to be consistent according to economist because all households behave in a consistent manner. For instance, households will cut back on consumptions a certain good when the price increases. They shift from normal good whose price increased compare to a substitute good that is relatively cheaper. Increase in prices of goods and services cut down the consumption power of households. Therefore in order to maximise the limited resources to be spent on consumption, households consider the total utility derivable from such consumption. Consequently, the decision of the household to buy or not to buy a product for consumption is contingent on satisfaction he thinks is derivable from buying and consuming the product. It then follows that consumer demand's behaviour is studied with consideration for understanding consumer utility.

2.0 OBJECTIVES

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

- define utility
- understand the concept of marginal utility
- understand the concept of total utility
- explain marginal benefit and marginal cost curve.

3.0 MAIN CONTENT

3.1 Utility as Basis of Choice

There are millions of goods and services in the market places for households' consumptions. Meanwhile households have limited resources to buy these goods for consumptions. Therefore households usually manage to sort out some set of goods and services out of million goods and services available. In choice making, relative worth of different goods and services are considered. This consideration is known as satisfaction, but to economist it is called ***utility***. What inform the choice made is based on the satisfaction derivable from particular goods and that of its alternative. ***Utility*** is defined as the satisfaction or rewards derivable from consumption of a particular good or services relative to its alternatives. This is the basis of choice. For example, a flight to Abuja for weekend stays in Transcorp hotel or trip to Lekki beach in Lagos? Is it a new car or a new flat at Victoria Garden City? Buying an economic textbook or a new jean trouser? There is the need to make choice considering the alternatives, considering the satisfaction or utility derivable from one choice over its alternative (s). The household will go for alternatives that he thinks will give most satisfaction. Hence consideration for utilities derivable from set of goods and services available inform our decision on choices. However, there seem to be an implicit problem about measuring utility accurately. Different people in the households has different tastes and preference, what Mr. A considered as having highest utility may be placed second in the choice of Mr. B. So also it is impossible to declare that Mr. A derived highest utility from consuming ice-cream that Mr. B also consumed. Notwithstanding, the concept of utility assist us in better understanding of choice and consumer behaviour.

SELF-ASSESSMENT EXERCISE

In not more than two lines, explain what an Economist refer to as 'utility'.

Marginal Utility and Total Utility

Having considered satisfaction or reward from consuming a particular good and having made choices on sets of goods and services to be consumed, the households is again concern about extra satisfaction from consumption. The spread of households' income on some goods and services is to avoid consumption of one good over and over again. If you consume ice-cream over and over again, you discovered that later you will not feel you're deriving satisfaction as much as you derived in the earlier consumptions. Buying varieties such as ice-cream, yoghurt, assorted fruit juice may increase utility from consumptions. This extra utility is referred to by economist **as marginal utility**. **Marginal utility** is the additional satisfaction or utility derived from consumption of addition units of a product. Extra satisfaction derived from further consumption of a good especially from the last unit of it that was consumed. There is also total utility-this is the total amount of utility obtained from consuming a product. The *different between* ***marginal*** **utility and total utility is** *that marginal utility comes from the last unit of a product consumed while total utility comes from the summation of satisfaction derived from all the units consumed*. A lady is crazy about hot bread that can melt butter; fortunately she leaves very close to a bread bakery. Though she derived a great deal of satisfaction from consuming hot bread yet she can't spend her entire allowance on hot bread. Consequently, the utility the lady derived from the 5^{th}, 7^{th} and 9^{th} hot bread (that melt butter) she consumed can be referenced and measured using **util.** The util. is what can be used to measure utility. Since the satisfaction gotten by the lady for the 5^{th} consumption or what another lady (Gaga) got in term of satisfaction on consuming the same hot bread (that melt butter) cannot be really ascertained. Therefore util is one unit of satisfaction derived from the consumption of particular goods at a given point in time. However, we can draw marginal and total utility curve for the lady that love hot bread having known her marginal utility and total utility from bread consumption as shown in the table below:

Table 4.1: Marginal and total Utility

Bread Consumption (loaf)	Marginal Utility	Total Utility
1	13	13
2	11	24
3	8	32
4	6	38
5	3	41
6	1	42
7	0	42

The Table above shows that the lady derived total satisfaction of 13 utils from consumption of the first loaf of bread, extra or marginal utility derived from consuming 5th loaf was 3 bringing the total utility derived to 41. The last unit yielded no extra utility that is no satisfaction from consuming the 7th loaf. Hence the total utility remains 42. The figures for marginal and total utility are plotted in the Figures 4.1 and 4.2.

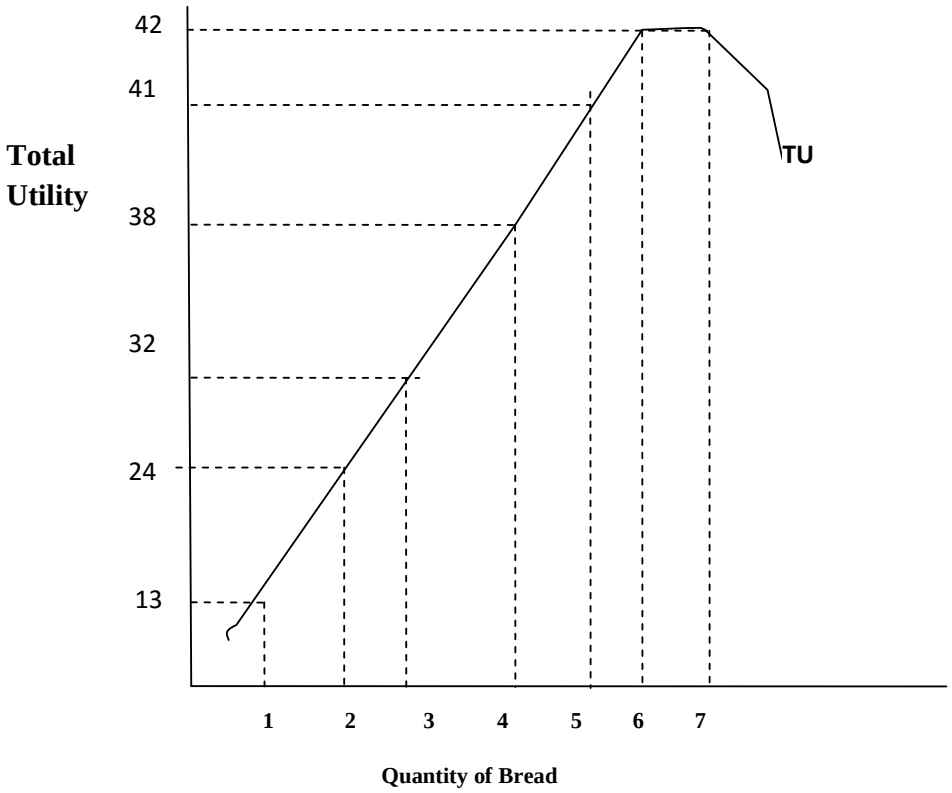

Fig. 4.1: Marginal Utility Graph

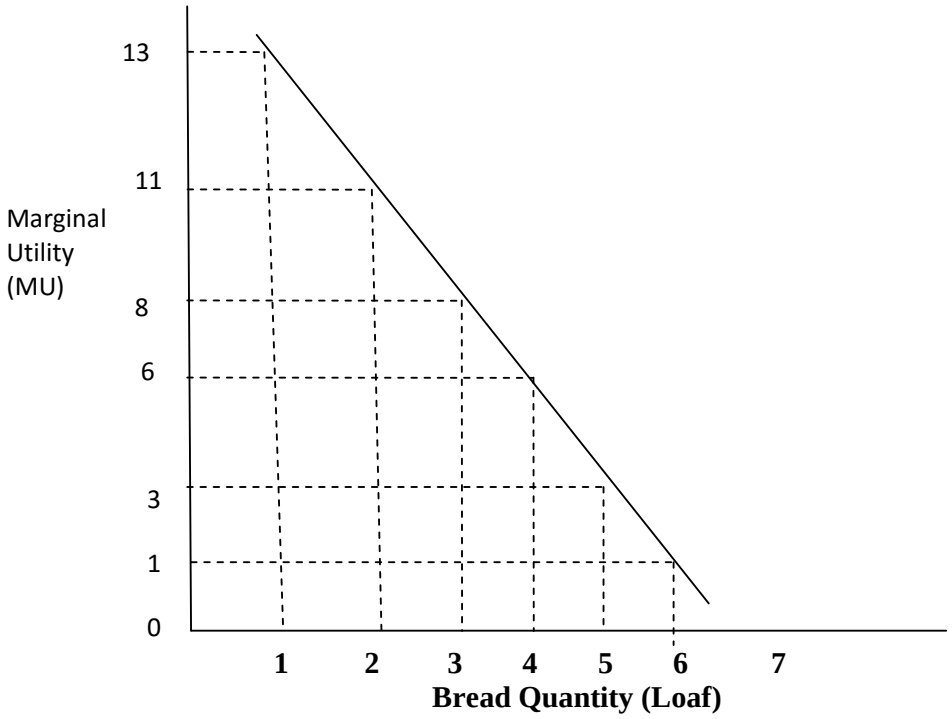

Fig. 4.2: Total Utility Curve

SELF-ASSESSMENT EXERCISE

Differentiate between marginal and total utility.

3.2 Diminishing Utility

Let us continue with the above example of the lady who loves hot bread (that can melt butter); the more she consume hot bread the more the satisfaction or utils she derived from the consumption. Unfortunately, she is likely to be more and more satisfied with extra consumption as a result of extra utils derived. The more satisfied she derived the less the additional or extra utility she will get when compared with the previous units consumed. This is the saturation stage. The more hot bread she consumed the less the extra or additional utility in other words the less the marginal utility. This is referred to as **diminishing marginal utility**. Principle of marginal utility is concerned with the fall in additional utility derived from consuming extra unit of a commodity. That is the more unit of a commodity you consume the less the extra util than the previously consumed units.

SELF-ASSESSMENT EXERCISE

Have you ever experience diminishing marginal utility? If yes what did you consume and at what level of consumption did diminishing utility set in. If no, assume you're given 5 bottles of yoghurts in a very sunny day; describe your diminishing marginal utility.

3.3 Marginal Benefit and Marginal Cost Curve

Everybody has fixed budget he is willing to spend on some items, the fixed budget is usually as a result of limitation imposed on consumers by their income. Lady Bola has an income of #60 for her fixed budget and if she planned to spend her income on crispy rice and French fries for instance. Assuming that crispy rice cost #6 per item while French fries cost #2 per pack, if Lady Bola spend #30 on each item; it means that she can purchase 6 packs (#6 x 5 = #30) of crispy rice and 15 packs (#2 x 15= #30) of French fries. Meanwhile Lady Bola has the following utilities from consumption of crispy rice and French fries as shown in Table 4.2.

Table 4.2: Marginal Utility (Benefits) of Crispy rice and French Fries

Number of Crispy rice	Crispy rice Marginal Utility	Number of French fries	French Fries Marginal Utilities
3	20	2	7
5	18	5	5
7	15	8	3
9	12	12	2
10	10	14	1

The Table of marginal benefit above tells us that lady Bola sacrificed some French fries in other to enjoy more crispy rice. Therefore in order to compute that marginal cost, we need to know the trade-off between crispy rice and French fries. Since a Crispy rice pack cost #6, by implication, the trade-off is three French fries when the French fries' price is #2. Hence when Lady Bola consumed the first 3 Crispy rice packs, she spent #18 on that but decided to spend just #4 on French fries. She derived 20 utils from the Crispy rice consumption and additional 7 utils from French fries consumption. Consequently,

marginal cost of the third crispy rice is obtained by multiplying the number of French fries consumed at that point by 1 util. Let see how the marginal benefit and marginal cost curves look like.

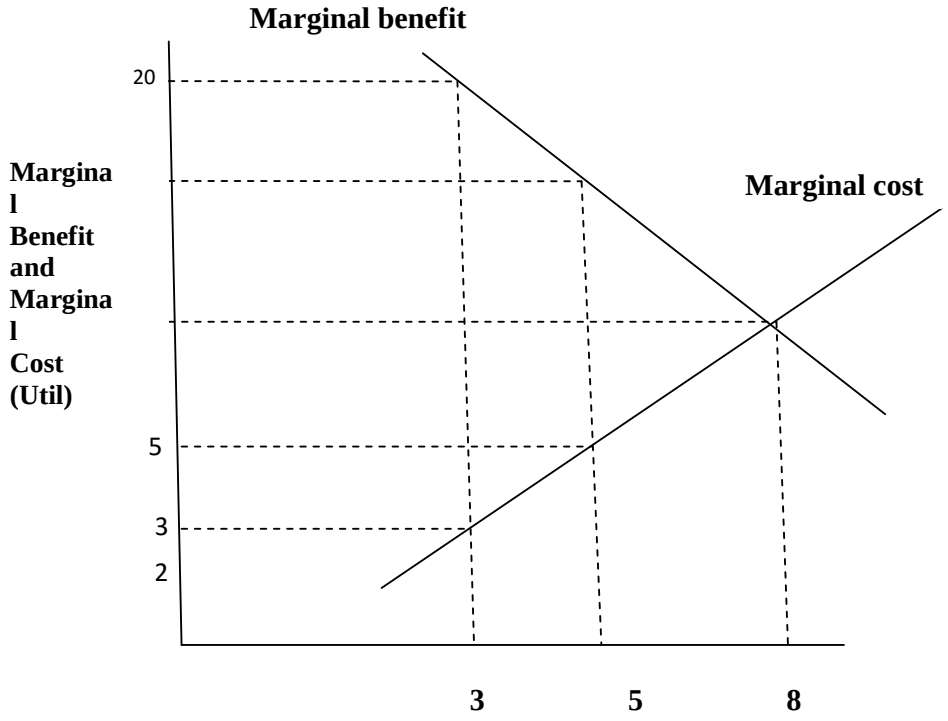

Fig. 4.3: Marginal Benefit and Marginal Cost Curves

SELF-ASSESSMENT EXERCISE

Explain marginal benefit and marginal curve with the aid of a graph.

4.0 CONCLUSION

This unit linked the scarce and limited resources available to households with their decision making in order to allocate their resources to goods and services as well as what inform their decision or choice of a particular good or services. Choices are made with consideration for satisfaction derivable from a particular good or services at a particular time. Satisfaction or utility derivable from consuming more units of such good and services increases but the more the good or services is consumed the less is the extra utility that the consumer derive from taken more units.

5.0 SUMMARY

Marginal utility was described as extra utility derived from consuming extra unit of a commodity at a particular point in time. The more the extra utility a consumer derived the more the total utility derived from such commodity. Principle of diminishing marginal utility state that the less the extra utility derived from a commodity as more of it units is consumed when compared with the previous consumption of such commodity.

6.0 TUTOR-MARKED ASSIGNMENT

1. What is marginal utility?
2. Briefly explain the concept of diminishing marginal utility.
3. What is the basis of choice and in what unit is it measured?
4. What is the difference between marginal utility and total utility?

7.0 REFERENCES/FURTHER READING

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UNIT 2 BUDGET CONSTRAINT

CONTENTS

1.0 INTRODUCTION

In the previous sections, we have seen how utility derivable by consumer can shape the behaviour of consumer especially as regards rational decision of individual consumers. We have also discussed on how consumption decisions are made by consumer using the utility theory. Through consumer behaviour study and utility, it has been shown that the consumer will continue to consume more units of a product as long as he still deriving utility from such good. Though the more he consumes the less the utility becomes. However, this will continue until his marginal benefit for consuming such good is equal to marginal cost of obtaining extra units. As good as the utility theory is in explaining consumer behaviour; a general weakness of the theory is that it cannot be measured in absolute term. Though, util is used to measure utility derivable yet comparing the exact marginal utility of one good over another cannot really be determined. Therefore, we tend to look outside utility measurement to positioning different combination of goods in their order of preference. This is done through the **indifference curve**. Indifference curves present consumers' preference, however their decision is basically dependent on the level of their income and consideration for the prices of their preferred choices. This is what the **budget line** is all about.

2.0 OBJECTIVES

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

- differentiate between consumer's preference and indifference curve
- state the characteristics of indifference curve shared by all consumer
- discuss budget constraint, consumer's income and preference

- explain where customer's utility is maximised on indifference curve and budget line.

3.0 MAIN CONTENT

3.1 Indifference Curve

Utility theory is one of the techniques we can utilise to measure consumer behaviour. However, a major limitation of utility theory is its inability to measure the satisfaction a consumer derived from a particular good. Another technique we can employ which do not require utility measurement is the **indifference curve**. Indifference curve is premised on the fact that though consumers are limited by their income and price of the goods, however their objective is utility maximisation. They can give up one good for the other in order to maximise their utility in the latter. Such number of goods given up to take more of another good is measurable. Therefore indifference curve shows the increase in number of a particular good and decrease in the quantity of another good that was given up in order to take more of the former. This shows the substitution effect of one good for the other; hence it is referred to as **law of substitution**. The more scarce a good is, the more will be its relative substitution rate and its marginal utility will also rise when compare with goods that is not plenty. Indifference curve is convex because the consumer holds his level of satisfaction derivable from the two goods to be the same. As you get more of a good, its substitution rate diminishes to obey law of diminishing **Marginal Rate of Substitution (MRS)**. You can recall that we discussed on the diminishing marginal utility in the previous section. Recall also that diminishing marginal utility states that the more of a good you consume, the less the extra utility derivable from such good. However, indifference curve is not based on the assumption that you're consuming only one good while you hold the other constant. It is based on the fact that the more of a good you trade in, the more you shall be able to consume another one. By implication, you're consuming more of one and less of the other. Therefore negative relationship exists between the two goods. **Marginal Rate of Substitution (MRS) is defined as the rate at which a consumer is willing to substitute one good for the other.** Let examine the practical issue through the curve through Uche's indifference combinations. Note that indifference curves for individual consumers differ because their MRS will not be the same. However, these indifference curves usually share the same characteristics such as downward slope and flat shape as it moves down the slope.

Let assume that Uche has indifference combinations of shoes and gold jewelry, the more of shoes she gives up the more jewelry he's able to

buy. Refer to the Figure 4.4 below to see the movement of Uche's indifference curve for a pair of good that is shoes and gold jewelries.

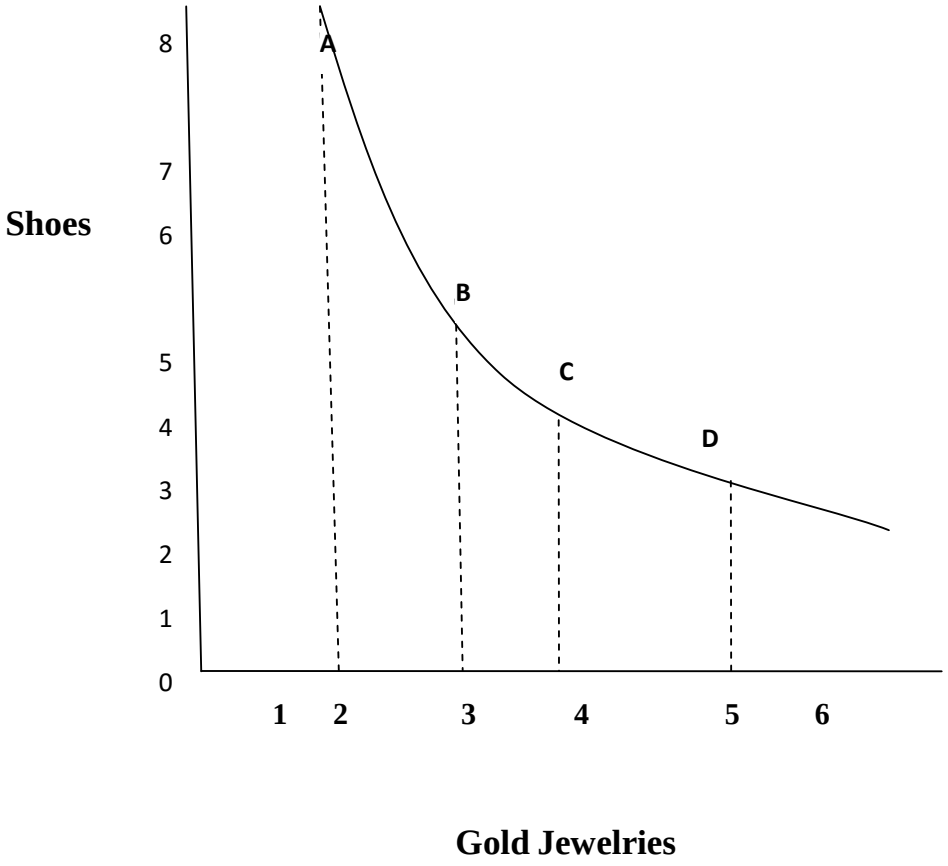


Fig. 4.4: Uche's Indifference Curve for Shoes and Jewelries

Table 4.3: Uche's Indifferent Combination

	Shoes	**Gold Jewelries**
A	**8**	**2**
B	**5**	**3**
C	**4**	**4**
D	**3**	**5**

From the above Table 4.3 of Indifference combination of Uche, he sacrificed 3 pairs of shoes to take an extra unit of gold jewelries at point B. however, at points C, he sacrificed 1 unit of shoes in order to take 1 unit of gold jewelries. Note that this is one-one swap. At point D, he sacrificed again 1 unit in other to take the fifth unit of gold jewelries. Uche likes the combinations of shoes and gold jewelries at point A, B, C and D exactly the same because these are the shoes-gold jewelries combinations that yield same satisfaction for her. Therefore Uche moves along the indifferent curve getting neither increase nor decrease in satisfaction although there are changes in the consumption

combinations. Furthermore, higher level of satisfaction could be obtained in different indifference curves as shown in Figure 4.5 below:

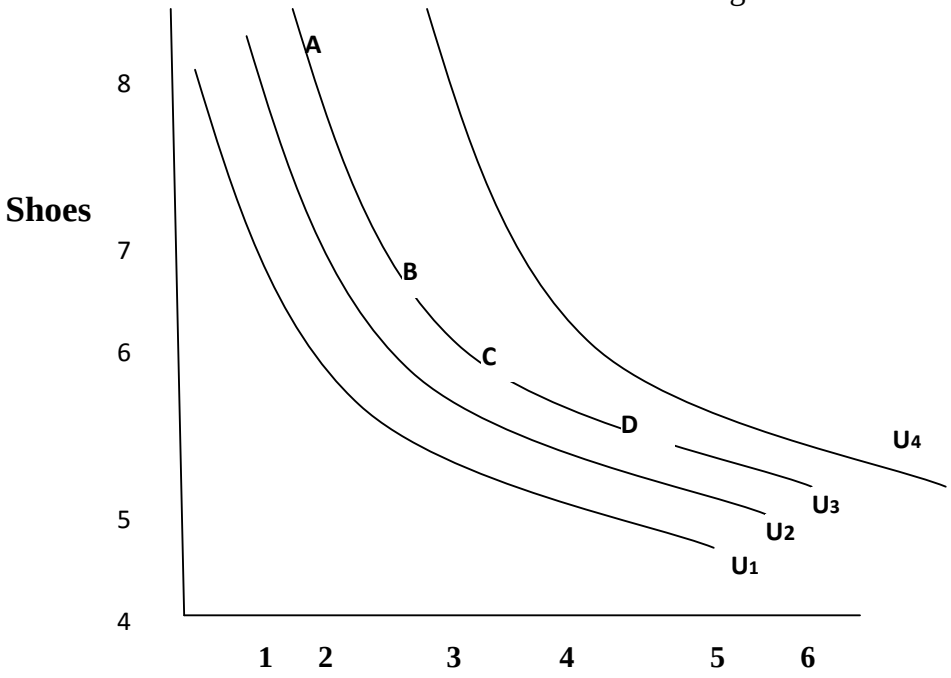


Fig. 4.5: Indifference Curves and Higher Level of Utility

The utility U1, U2, U3 and U4 are four indifference curves respectively. Utility derivable from indifference curve U1 in the above is lower than utility derivable from indifference curve U2. Indifference curve U3 is less than U4 which stands for highest utility. The consumer is most likely to prefer indifference curve U4 which gives the highest utility.

SELF-ASSESSMENT EXERCISE

There is negative relationship between two goods in an indifference combination. True or false? Explain.

3.2 Budget Constraint

In the section above, we discussed how two combinations of goods by consumer give same satisfaction. That is the consumer is indifferent when he consume less of one in order to consume more of the other good in as much as he derived same satisfaction in each combination. We also mentioned earlier on that the consumer income and the price of goods determine the combination they are likely to go for. However, when the prices of the goods are fixed and the consumer has a certain

income to expend on varieties of combination of any two goods; it implies that there is a constraint on the consumer's budget. There are various possible ways to allocate his fixed income on two goods while another option he has is to decide to spend is fixed income on one or the goods and non on the other. Whichever combination a consumer decides upon, the alternatives moves through a line as a result of the constraint. This line is called then **Budget Line or Budget constraint**. Let go back to the example of Uche's consumption under the indifferent curve. Let assume that Uche has #3000 as her fixed income while the price of a pair of shoes is #200 and a unit of gold jewelries is #400. She may decide on the alternative combination as shown in the Table 4.4:

Table 4.4: Uche's Consumption and Alternative Possibilities

	Shoes	Gold Jewelries
K	**0**	**71/2**
	3	**6**
	4	**51/2**
	6	**41/2**
	11	**2**
L	**15**	**0**

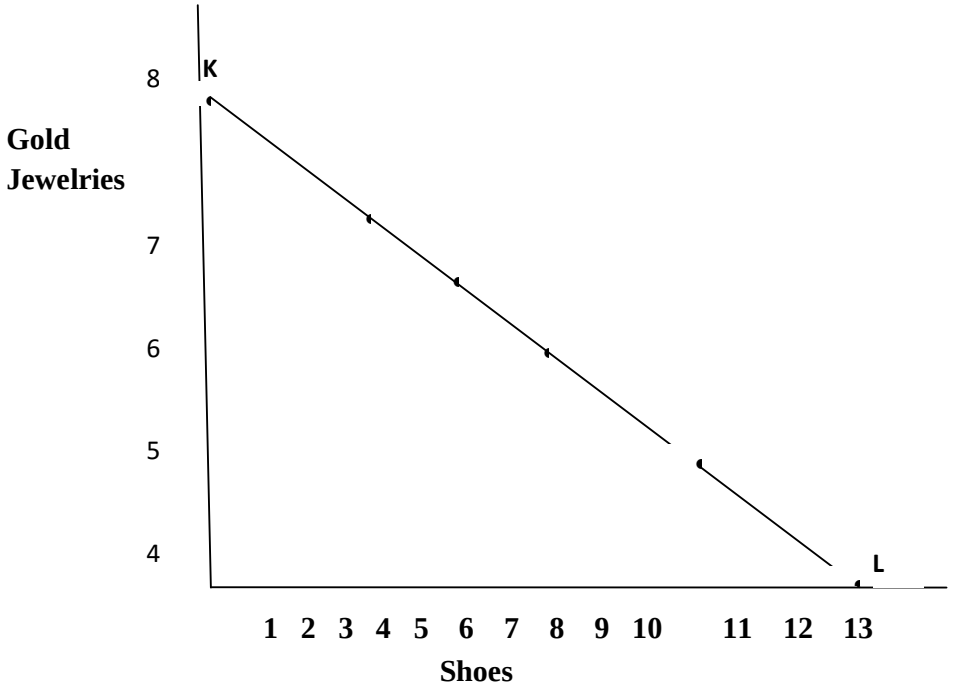


Fig. 4.6 Uche's Budget Line or Budget Constraint

There are six alternative combinations from the budget constrain of Uche. There are also two extremes in her combinations. One extreme is when she bought 71/2 units of gold jewelries and no shoes at all while another extreme was when she bought no unit of gold jewelries but 15 pairs of shoes. The price of shoes must have become relatively cheaper than gold to persuade the consumer to take extra shoes. Consequently, the budget line showed to us some possible ways she could allocate her fixed income of #3000. These possible ways as shown on line KL are all the possible combinations of the two goods that Uche could explore so as to exhaust her daily income on her daily expenditure. Hence, the equation of budget line is a linear equation. For the Budget line KL, we have the following linear equation where #200S stands for total expenditure on shoes and #400G stands for total expenditure on gold jewelries:

$$\#3000 = \#200S + \#400G.$$

SELF-ASSESSMENT EXERCISE

Describe a budget line using your own budget constraint.

4.0 CONCLUSION

Discussions under this unit are focus on measurement of utility but it deviated from the measurement of utility using utility theory. It rather focused on measuring the quantity of a particular good that is a consumer is willing to reduce in order to consume more of the other good. This is not without emphasis on the behaviour of the consumer been the same as he combines two goods that gives satisfaction at the same level. Again, consumer is constrained by his fixed income and fixed prices of two goods he may wish to combine.

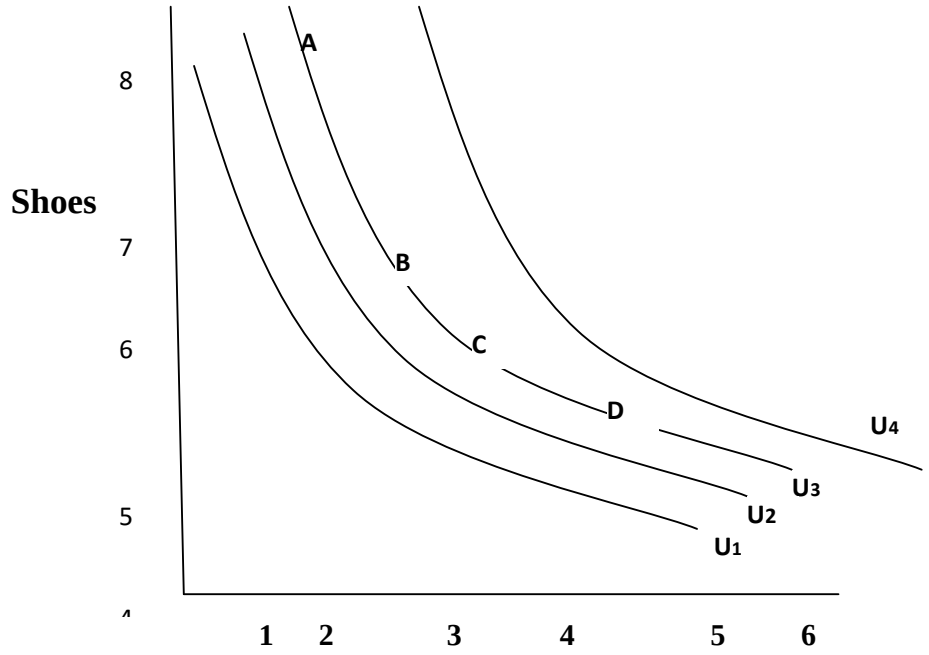
5.0 SUMMARY

Summarily, a consumer remains indifferent to the combinations available to him. The more of product **A** he consumes, the less of product B. Therefore, there is a negative relationship between the two goods. This relationship determines the shape of the indifferent curve, making it convex in nature as it obeys law of substitutions. That is, why the indifferent curve's slope is measured using the substitution ratio. This measured relative marginal utility of the goods. That is the consumer is willing to trade-in a little less of one good in return for a little more of the other good such that the amount of one good goes up and the amount of the other good goes down. However, higher level of satisfaction could be reach with different indifferent curves. Also when there is consideration for the consumer's fixed income and fixed prices of a pair of good on which he wish to expend his income, then we talk of

Budget Constraint or Budget Line. As the consumer moves through the budget line, a linear relationship is established between the alternative combinations he is having.

6.0 TUTOR-MARKED ASSIGNMENT

1. Tani has a fixed income of #1200 and expenditure on clothing and cinema. A cloth will cost him #100 and cinema will cost him #150. Mention 4 indifferent combinations he may consider?
2. From the above, what are the alternative consumptions possible? Mention at least four.
3. State the budget constraint equation from question 1.
4. Describe what you understand by marginal rate of substitution (MRS).
5. From the group of indifferent curves below, which of the curve will a consumer prefer most?



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UNIT 3 EQUILIBRIUM, PRICE AND INCOME CHANGES

CONTENTS

1.0 INTRODUCTION

We have been able to establish that income constraints usually affect consumer's expenditure. We shall briefly look at the effect of changes in prices as well as income and how they affect equilibrium.

2.0 OBJECTIVES

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

- highlight the consumer equilibrium point on the budget line
- state the effect of changes in income on the consumer's equilibrium
- explain the effect of changes in price of goods on the consumer's equilibrium.

3.0 MAIN CONTENT

3.1 Tangency and the Equilibrium Position

We shall incorporate the budget line KL into the indifferent curves that showed different level of utility. Although, the consumer cannot move right or left of the KL line because moving right means that the consumer must increase his income. While moving left means that he will not spend all his fixed income. Meanwhile it is assumed that the consumer must spend his fixed income on the daily expenditures. Let see how the two graphs incorporated into one another will look like (Figure 4.7).

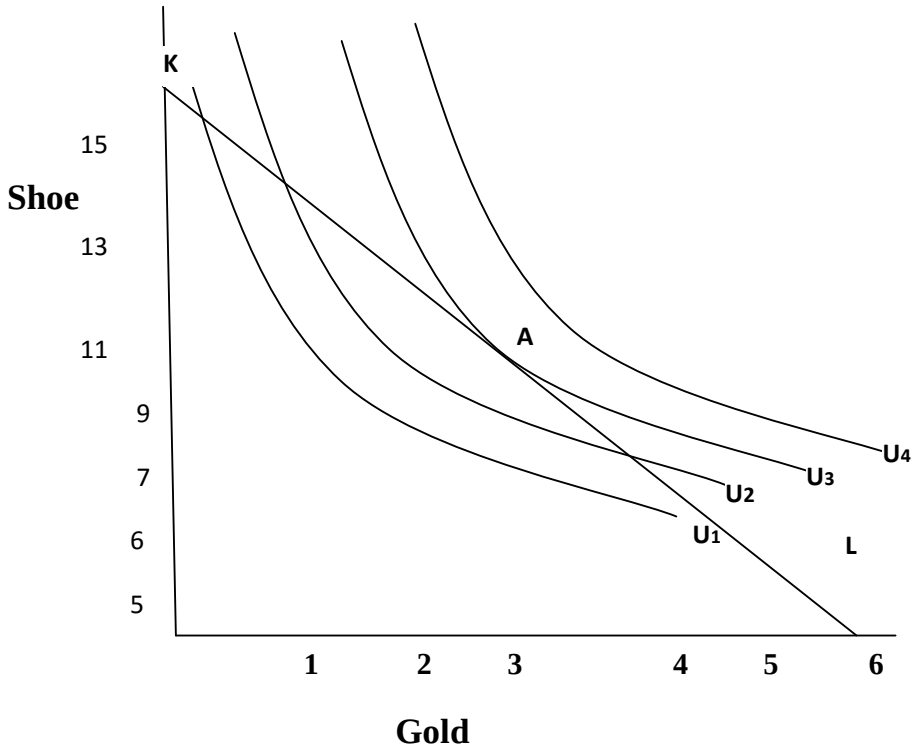

Fig. 4.7: Tangency and Equilibrium Position

The tangency point A on line KL is where the marginal utility of shoes equals marginal utility of gold jewelries. This point of tangency is the equilibrium condition of the consumer because at point A, the budget line touches the indifferent curve U3. At this point, the substitution rate is equal to the price ratio. Consequently, marginal utility derivable from spending #1 on one item is equal to marginal utility of #1 spent on the other item. Again at this point, the substitution ratio is equal to the slope of the budget line and greatest satisfaction is achieved at that point.

SELF-ASSESSMENT EXERCISE

When the indifferent curve and the budget line are combined in a single graph, where is the equilibrium position of a consumer?

3.2 Effects of Income and Price Change on Equilibrium

To know the effects of change in income and change in price of any of the two goods, we shall continue with the previous graph on the combination of the budget line and group of indifferent curves in a single graph. Let recall that income and price as well as their effects on demand and supply; discussed earlier continue to be applicable and relevant in our discussion. Let start with the changes in income:

Effect of Income Change on Consumer's Equilibrium

Let us assume that Uche's income was reduced from #3000 to #1000, while the indifferent curves remain the same. That is the preferred combinations are the same. What do you think will happen to the budget line with the fall in income from #3000 to #1800? Let see:

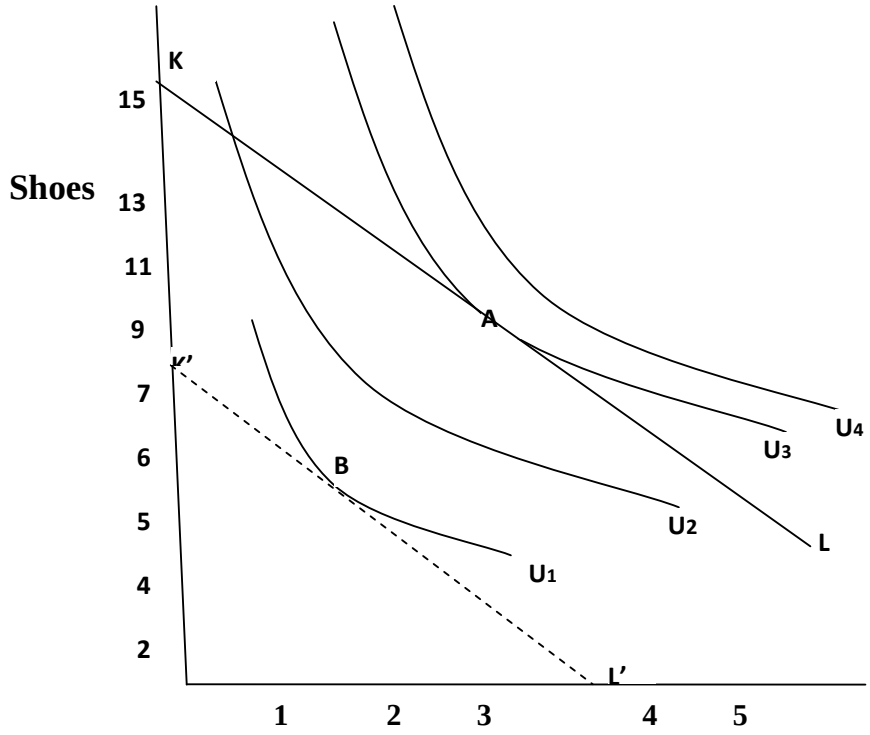

Fig. 4.8: Income Change Effect on Consumer's Equilibrium

Do you remember that we said the consumer was unable to move left or right sides of the budget line? Why not? We said he will only move left when his income decreases and he will move right when there is increase in his income. He will do either of these in other to adjust his combinations of two goods in line with the new development on his fixed income. Note that prices of the two goods remain unchanged. Now, from the above, he had moved to the left side of the budget line KL. As you can see the new budget LINE K'L' touched the indifferent curve U1 at point B. The change in income has shifted the equilibrium from point A on budget line KL to point B (new equilibrium) on the new budget line K'L'.

Effect of Price Change on Consumer's Equilibrium

Again let assume that the consumer's income remained fixed at #3000. However there is a change in price of one of the goods on which her income shall be spent. Let also assume that the price of gold jewelries changed from #400 to $800 while shoes' price remain the same. How will change in price of one of the goods affect the budget line and the indifferent curves? What shall be the new equilibrium? Plotting the graph may assist us in answering the questions. Can you imagine how the movement of the budget line will be? It is a straight forward imagination. Since the price of gold jewelries had gone up by 100%, apparently the consumer has the likelihood to reduce consumption of gold jewelries and spend more on shoes. With the current price of gold, he can buy only 33/4 units of gold jewelries and 0 unit of shoes and 15 units of shoes and 0 unit of jewelries if he wish to go to the two extreme. Consequently, a new equilibrium is attained at a new tangency point where the new budget line touches slightly the indifferent curve U2 (Figure 4.9). In addition, the new budget line is form and as you can see, it took its origin from K (same origin with the first budget line where equilibrium A was achieved). This is so because the income of the consumer could afford me the opportunity to spend more of shoes and less on gold jewelries. Therefore the budget line rotates from KL to KL".

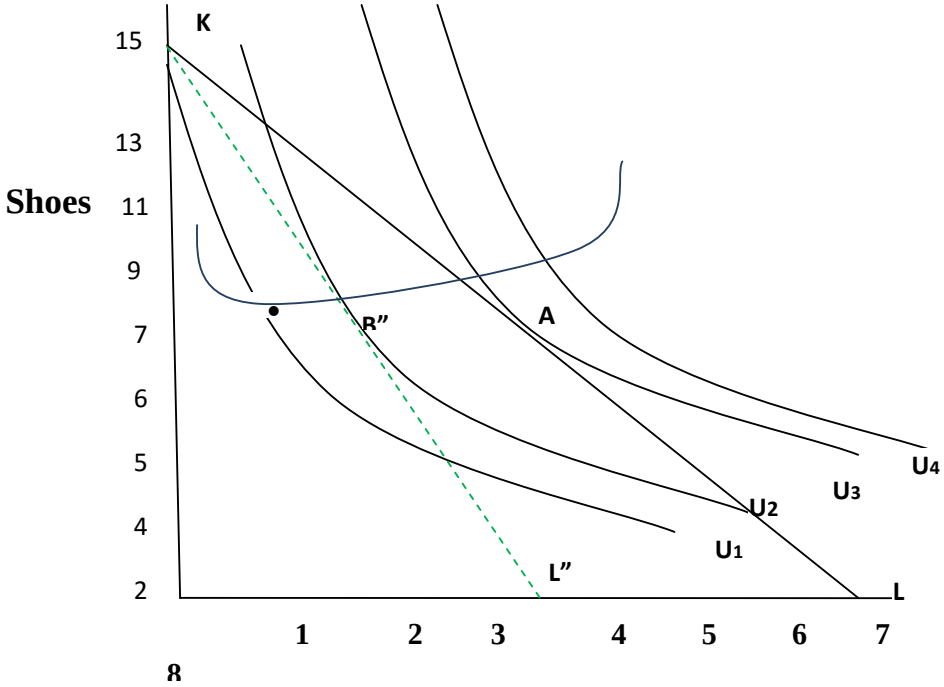

Fig. 4.9: Price Change Effect on Consumer's Equilibrium

SELF-ASSESSMENT EXERCISE

Assuming the price of gold jewelries decreases from #400 to #100, how will the budget line rotate? Work out a new tangency line and a new equilibrium for the consumer.

4.0 CONCLUSION

Consumers are constrained by market condition of price as well as his fixed income. Therefore he is constrained to move along a straight line of budget constraint until he gets to a point where the indifferent combinations will give him the highest satisfaction. The highest satisfaction point is at a point where his indifferent curve touches slightly the budget line. Therefore, his equilibrium is at the point of tangency. However, anytime there is an income or price changes, a new tangency is formed and new equilibrium emerge. A decrease in price will shift the budget line backward and parallel to the first budget line because there would be a reduction in consumption of both goods. An increase in income will shift the budget line to the right in the same fashion because there would be probable increase in consumptions of the two goods. Additionally, a decrease in price of one of the goods

(*ceteri paribus*) will cause the budget line to rotate change from its pivot as a result of decrease in consumption of such good.

5.0 SUMMARY

This unit had shown how changes in income of the consumer and changes in price of the product can affect the equilibrium position of the consumer. Consumer equilibrium position is at the point where he is able to derive highest satisfaction from the indifferent combinations of goods and services.

6.0 TUTOR-MARKED ASSIGNMENT

1. Assuming you're constrained by your fixed income and price of a luxury goods and price of an inferior good, draw group of indifferent curve and budget line. Show the equilibrium point where you achieve highest satisfaction.
2. Describe the equilibrium point and what can affect it

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MODULE 5 THEORY OF PRODUCTION

UNIT 1 FACTORS OF PRODUCTION

CONTENTS

1.0 INTRODUCTION

Consumers aim at maximising his satisfaction given his income and market prices of goods and services. In the same vein, a firm aims at maximising profit given the available economic resources as input and method of converting the inputs into goods and services that will satisfy consumers' want. In the same vein, households usually employ factors of production in many different ways and different transformation. So also is the firm. However it is worth to note that basic economic problems discussed in the first module on "what to produce and how much to produce" was answered through demand (what to produced is determined by what people wants) and supply (how much to supply is determined by how much is produced). Now we want to see how another basic economic problem on how to produce will be solve by production theory.

This firm needs to identify and determine the availability of inputs for the above grocery, soft drinks and other household products in its line of business as well as identify the technology it will require to maximise profit and minimise cost of production. Therefore, theory of production is an analysis of how inputs (factors of production) are combined efficiently by firms and entrepreneurs for the purpose of obtaining output (end product known as goods or services). Consequently we're moving into studying firm's behavior just like we studied consumer's behavior. What inform firm's decision on how to produce are basically available technology and inputs.

2.0 OBJECTIVES

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

- identify factors of productions
- state their specific contribution to process of production
- explain production functions
- discuss the role of firm and entrepreneur in productivity.

3.0 MAIN CONTENT

3.1 Descriptions of Basic Factors in Production Input

Basically, they are resources used in production process; these are factors of production i.e. land; labour, capital and entrepreneur.

Fixed and Variable Factor

Factors of production which cannot be varied in the process of production are referred to as **fixed factors**. While those factors that can be varies in accordance with the availability of raw materials is called **variable factors**. Example of fixed factor includes building, machinery, land etc while that of variable factors includes labour, working capital, raw materials etc.

Output

Transformation of factor of production into goods and services that are used in satisfying consumer's want is referred to as **output**.

Firm

A technical outfit that engages in efficient transformation of input (factors of production) into output (goods and services). For instance, a bread bakery factory will combine land, labour, machines, raw materials like flour, sugar and other factors of production to engage in bread production activities.



Entrepreneur

A person who manage and or own a firm; who also assume risk of operating and organising a business outfit is referred to as **entrepreneur**.

The Short-run

This is a period of time in production process when changes in variable factors of production determines the firm's output while one or more of the firm's input is fixed.

The Long-run

This is a period of time in production process when all factors of production are varied that is no fixed factor. Increase in all factor of production is required to increase the firm's output.

SELF-ASSESSMENT EXERCISE

Who is an entrepreneur? Define input, output, long and short runs as related to a firm.

3.2 List of Factors of Production

1. Land
2. Labour
3. Capital
4. Entrepreneur

1. **Land-** This is regarded by economist as natural resource. Reward for land is called rent.

2. **Labour-** This is the physical and mental human effort that is input into production process whether the production process is computerised or not. This made labour a distinctive factor of production. The reward for labour is wages.
3. **Capital-** It encompasses **money** all and all other tangible assets such as building, machinery, equipments, furniture etc. Capital also has a reward referred to as interest.
4. **Entrepreneur-** Like labour, entrepreneur is another distinctive factor of production because an entrepreneur is usually the initiator of production. He organises, coordinates and controls the production process. Therefore as the decision maker in production and production process, he is the risk-taker rewarded with profit or loss depending partially on the outcome of his decision and the market outlook.

SELF-ASSESSMENT EXERCISE

List all factors of product with very brief explanation on each one.

3.3 Production Function

Production is a process of transforming input (factor of production) into output (goods and services) that satisfy human wants. When the inputs are economically and efficiently combined given the available level of technology, a relationship between input and output is established. This relationship could be described as production function. Therefore production function is the minimum quantity of physical input required to produce efficiently a certain level of output. Production function is a function of available technological level, land, labour, equipment and other factors of production of a firm. New development in technology, training that enhances labour's efficiency and other improvements on other factors of production usually will lead to a new production function. Let consider traditional farming system in Nigeria, 20 labourers may be working on a piece of land for 3 days to clear the land; pack the cut grasses and make heaps for planting cassava. In developed country like America or Britain, a mower or farm tractor will clear the grass and pack it off the piece of land within one hour. Another farm machine will assist in planting the cassava. These two farm machines needs two operators and may be one supervisor. The task which takes three days in Nigeria is taken one day in another country. The two methods are part of production function of cassava. One is labour-intensive and the other is capital-intensive. Given the available inputs and the production function; it is assumed that both farms will produce at maximum level of output.

SELF-ASSESSMENT EXERCISE

What is production function? What do you understand by efficient output?

4.0 CONCLUSION

Basic economic problem of how to produce had been discussed so far under this section. Firm just like households do partake in decision making on what to produce and how to go about such production. Consideration for factors that is available for production and how such factors could be combined and converted to output lies with the entrepreneur. This is done by inputting many factors into the production process and that is why the factors are usually refers to as factors of production.

5.0 SUMMARY

The basic concepts are basically four- the input, output, firm and the entrepreneur. The input refers to all the factors of production such as land, labour, capital and entrepreneur. Each of them has their specific reward for partaking in the production process. Output is the final product that is the goods and services from the production process. Firm engages in efficient transformation of input to output with the decision on how to achieve that resting on the entrepreneur. The decision maker and controller of production process are referred to as entrepreneurs. Process of transforming input to goods and services (output) that can satisfy human's want is known as production function.

6.0 TUTOR-MARKED ASSIGNMENT

1. Define the following:
   a. Fixed factors and Variable factors
   b. Input and output
   c. Entrepreneur and labour
   d. Land and capital
2. What is production function? How will a firm arrive at new production function?
3. Explain what you understand by short-run and long-run in the production process.

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UNIT 2 PRODUCTION PROCESS AND COST CONCEPTS

CONTENTS

1.0 INTRODUCTION

This unit describes basic factors of production and production process. It also explicate on production process and how different inputs are combined under different production method.

2.0 OBJECTIVES

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

- enumerate cost concepts and their definitions
- differentiate between total cost schedule and cost curve schedule
- explain marginal cost and average cost relationship
- discuss short-run and long-run average costs relationship.

3.0 MAIN CONTENT

3.1 Description of Basic Factors in Production

Defining some basic concept in production may lead to better understanding of production process. They are as follows:

Total output (TO): this is the total amount of output produced from combination of certain inputs with a particular production technology.

Total revenue (TR): overall sum of revenue generated from total product sold (Q x P).

Total cost (TC): overall sum of total fixed and variable costs incurred in the production process (TFC +TVC).

Average product (AP): this is the average amount of product produced by one unit of a variable factor of production or total product from the input divided by the amount of input employed to produce that total product.

Marginal Cost: a change in total cost of production that results into one unit change in output.

Marginal product (MP): marginal product is the additional product to total product resulting from additional use of one unit of variable input. For instance if initial total product of wallet was 10, however the firm raised the total product by 3 by incurring more cost on one of the variable input. Then the MP is 3.

Fixed Cost (FC): these are cost that varied not with the firm's total product. For instance, cost of all fixed assets in the ice-cream factory per unit of output of ice-cream. It is usually spread over the unit of output and it's remain constant.

Average Fixed Cost (AFC): total fixed cost (TFC) divided by total output (TO) will give us AFC (TFC/TO).

Average Cost: total cost divided by total output (TC/TO)

Variable Cost (VC): Costs inquire in the production process that varies with the quantity produce.

Total Variable Cost (TVC): costs incurred by the firm that varies with the firm's total product.

Average Variable Cost (AVC): this is obtained by dividing the variable cost at a particular production output by the output at that point (TVC/TO).

Profit: the different between the total revenue minus total cost is known as profit. Profit is the reward to an entrepreneur.

Total Cost Schedule and Cost Curve: A table showing the units produced and the amount of fixed and variable costs input into its production at different output depict the Total cost schedule. While a Table showing average fixed cost, average variable cost, average cost and marginal cost depicts the Cost schedule (see an example of a Total Cost Schedule and Cost Curve Tables 5.1 and 5.2).

Table 5.1: Hypothetical Total Cost Schedule

UNITS	TOTAL FIXED COST (TFC)	TOTAL VARIABLE COST (TVC)	TOTAL COST (TC)=TFC+TVC
0	150	-	150
1	150	7	157
2	150	15	165
4	150	18	168
6	150	52	202
8	150	97	247
10	150	166	316
13	150	201	351
14	150	279	429
20	150	401	551

Table 5.2: Hypothetical Cost Curve

UNITS	AVERAGE FIXED COST (TFC/TO)	AVERAGE VARIABLE COST (TVC/TO)	AVERAGE COST (TC/TO)	MARGINAL COST (TVC of unit 2-TVC of unit 1(next- tvc of unit 3-tvc of unit 2 in that order))
0	∞	-	∞	-
1	150	7	157	7
2	75	7.5	82.5	8
4	37.5	4.75	42	3
6	25	8	34	34
8	18.75	12.13	30.88	49
10	15	16.6	31.6	69
13	11.54	15.46	27	35
14	10.71	19.93	30.64	78
20	7.5	20.05	27.55	122

Note: TO is equal to quantity, ‘q’. Therefore instead of saying that AVC = TVC/TO, it can be rewritten as TVC/Q. Ditto for other formula.

SELF-ASSESSMENT EXERCISE

Differentiate between Total Cost Schedule and Cost Curves.

3.2 Production process

Outputs are produced by certain number of input combined under different methods of production. These input as earlier mentioned are the factors of production. The higher the cost of factors of production to be input into the production function the higher will be the cost of production. If productivity is very high, quantity needed to produce a certain output will be small thereby cost of output shall be reduced. Let examines the relationship between all cost concepts derivable from a typical Cost Curve. We shall begin with a diagrammatical representation of the Total Fixed cost and Total Variable Cost.

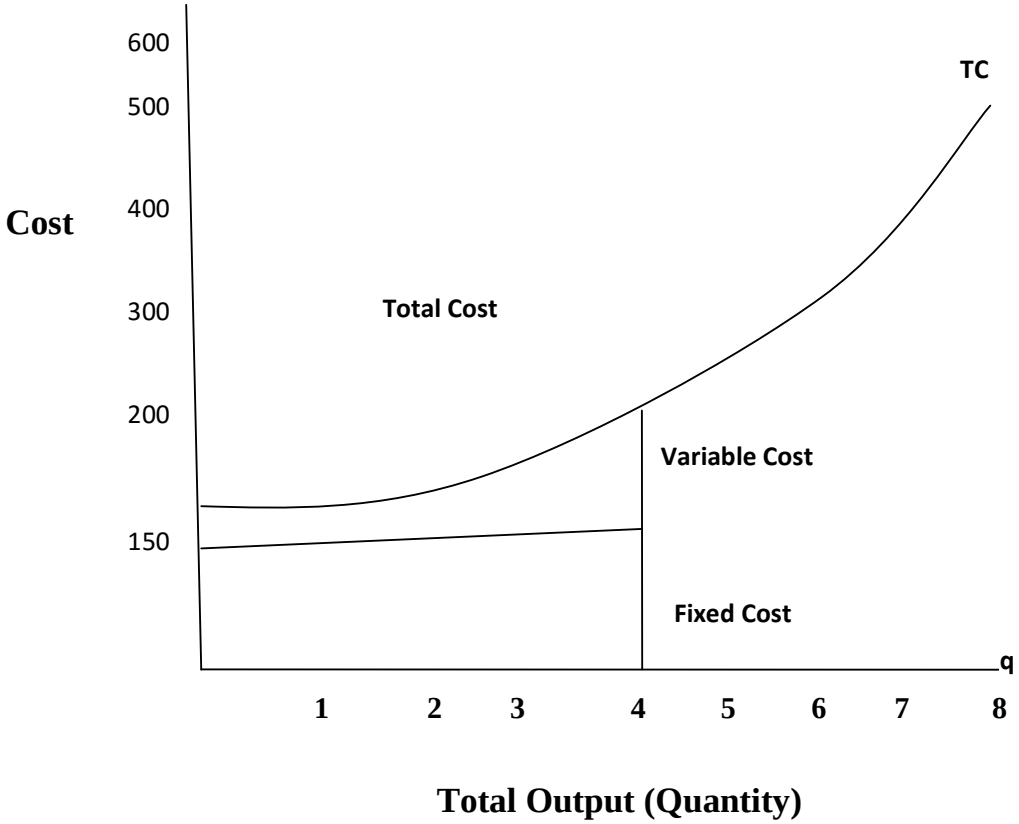

Fig. 5.1: Total Fixed Costs (TFC) and Total Variable Cost (TVC)

Next we shall look at the relationship between Average Cost and Marginal cost. What happens when Average Cost –AC is below, equal to or above Marginal Cost-MC? Three closely related links had been identified in the literature:

1. When MC <AC, it pull AC down
2. When MC>AC, it pull AC up and
3. When MC=AC, AC remains constant.

The third relationship usually occurs at the bottom of the U-shaped AC curve. That is where minimum AC is achieved in the production process (Figure 5.2).

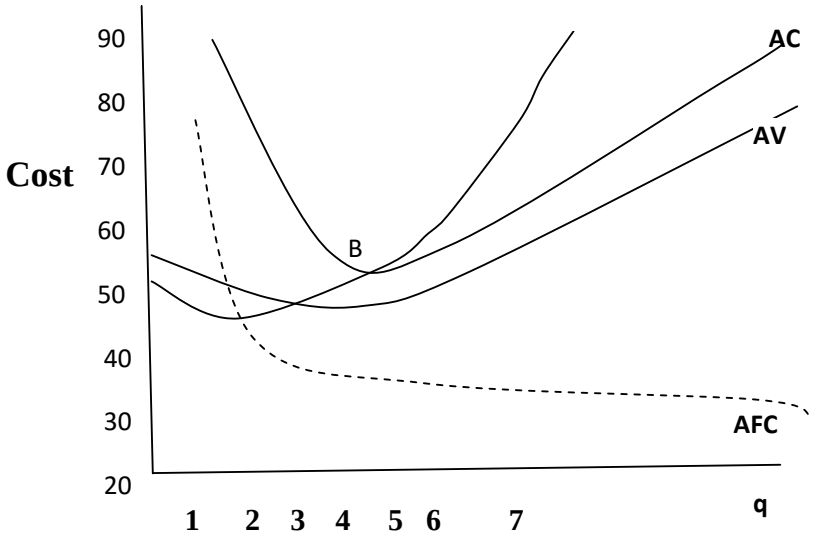

Fig. 5.2: Average Cost and Average Revenue Curves

The above graph show that while AC was declining MC was below AC for the first five units while. That is a falling AC curve will satisfy the first relationship because MC curve will be below AC curve. However at exactly unit six, MC was equal to AC, which is at a point where AC curve has fallen flat before rising. This is the AC minimum point. By implication, rising MC curve is expected to intersect the AC curve at AC's minimum point denoted as point B from the graph above. And above unit six, MC will be above AC therefore pulling AC curve upward. In the long run, the entrepreneur has several plants and can choose any point on the long run average cost to increase his profit. If he thinks that point A as shown in the graph below is the point at which the unit cost could be reduced by increasing the output quantity. However if output at point B becomes profitable and desirable as a result of change

in demand; then entrepreneur could easily reduce unit cost and make more profit.

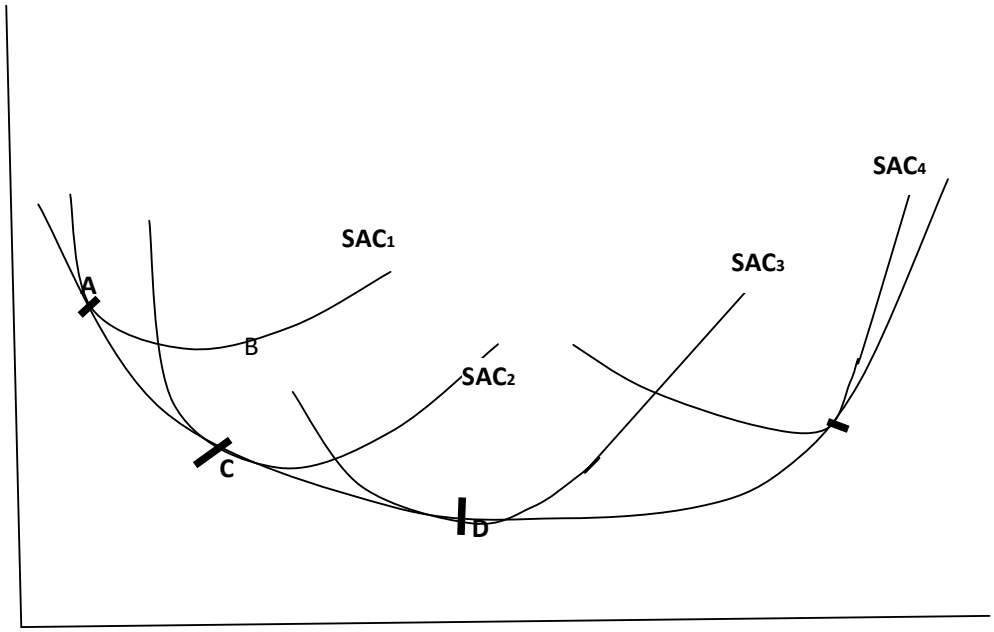

Fig. 5.3: Long Run Average Cost Curve

Note that unit cost of production is reduced at point B, however expanding to produce at point C lowers the unit cost further on plant with Short Run Average Cost-SAC2. Meanwhile, as production scale become larger due to plant expands, cost of producing a unit of output decreases further and the minimum cost of producing a unit is achieved at point D. where SAC3 touched Long Run Cost curve-LAC. Conversely, any further increase in plant's size will push the cost of production upward such that the cost of producing a unit of output increases. Production at the tangent between SAC4 and LAC reveal upward unit cost of production.

SELF-ASSESSMENT EXERCISE

Show graphically the relationship between Total Fixed Cost and Total Variable Cost.

Graphically show where minimum AC is achieved in the production process.

4.0 CONCLUSION

Understanding the variables involve in production process is very important under the theory of production. For instance knowing the total cost of production and total revenue from such production will assist in determining the total profit of the firm from such production. Relationship between all cost concepts assist firm in input combination and decision on whether to increase or decrease production.

5.0 SUMMARY

Under this unit, we have discussed on process of production, some basic concepts in production process; units produced and the amount of fixed and variable costs input into its production at different output was presented under the Total Cost Schedule while the relationship various cost concepts were examined under Cost Curve. Costs related to production incurred on the input which are factors of production are good consideration under production process. Therefore we discussed on total cost schedule that shows unit product given a certain fixed and variable cost. In the same vein we discussed on cost schedule which detailed average fixed cost, average variable cost and marginal cost at each level of production. In addition the relationship between short run average cost and marginal cost were also examined. This shows the effect of additional variable cost in the process of production on the average and marginal costs. Relationship between Average cost and Marginal cost was examined with the implications on the firm's profit. When Marginal cost is less than Average Cost –AC it pull AC up, when MC is above the AC, it pull the AC upward and before the MC rise above AC it will be equal to AC at a point. Different plants available to a producer in the long run were shown under the relationship between short run and long run average cost. In the long run, when all factors are varied the short run average costs cuts the long run cost curve at it minimum.

6.0 TUTOR-MARKED ASSIGNMENT

1. Show with the aid of a diagram the relationship between long-run and short-run average cost.
2. Describe the relationship between Marginal cost and Average cost in the short-run.
3. Below is a hypothetical Total Cost Schedule, calculate and fill in the missing figures.

UNITS	TOTAL FIXED COST (TFC)	TOTAL VARIABLE COST (TVC)	TOTAL COST (TC)=TFC+TVC
0	**150**	**-**	**150**
1	**150**	**7**	**…….**
2	**150**	**…….**	**165**
4	**…….**	**18**	**168**
6	**150**	**52**	**…….**
8	**150**	**…….**	**247**

4. Use a completed Total Cost Schedule above to calculate and fill in the missing figures in the Cost Curve Table below:

UNITS	AVERAGE FIXED COST	AVERAGE VARIABLE COST	AVERAGE COST	MARGINAL COST
0	∞	**-**	∞	**-**
1	**150**	**7**	**157**	**…….**
2	**75**	**…….**	**……..**	**8**
4	**37.5**	**……..**	**42**	**…….**
6	**25**	**…….**	**34**	**34**
8	**18.75**	**12.13**	**……**	**……..**

5. Define the following terms:
   a. Total fixed cost
   b. Total output
   c. Average cost
   d. Marginal cost
   e. Total cost schedule

7.0 REFERENCES/FURTHER READING

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UNIT 3 LAW OF PRODUCTION

CONTENTS

1.0 INTRODUCTION

In the previous section we defined total output as the total amount of output produced from combination of certain inputs with a particular production technology. In this unit, we shall discuss the law of production.

2.0 OBJECTIVES

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

- explain law of diminishing returns
- enumerate how factors of production are combine optimally
- explain what firms stands to gain when a large production is embarked on or when different lines of productions are involved through economy and diseconomies of scale.

3.0 MAIN CONTENT

3.1 Law of Diminishing Returns

In the previous section we defined total output as the total amount of output produced from combination of certain inputs with a particular production technology. Average product (AP) was defined as the average amount of product produced by one unit of a variable factor of production or total product from the input divided by the amount of input employed to produce that total product. While described we Marginal product (MP) as the addition to total product resulting from additional use of one unit of variable input. Remember also the example of initial total product of wallet given. Where we assumed that if the total product of wallet is 10, but the firm raised the total product by 3 by

incurring more cost on one of the variable input. Then the MP is 3. We shall develop a table of product schedule showing maximum amount of output produced from a certain set of inputs at the existing technology. Thereafter we shall plot the product curve for wallet based on the assumptions that labour is a variable input. Total output divided by the amount of variable cost input into production will give us average product. Marginal product will be calculated from the differences in current and previous average product (Refer to Product Schedule and Product Curve Table 5.3).

Table 5.3: Product Schedule for Wallet

Labour	Total output in Unit	Average Product	Marginal Product
1	7	7	-
2	18	9	11
3	33	11	15
4	52	13	19
5	65	13	13
6	72	12	7
7	75	10.7	3
8	77	9.6	2
9	78	8.6	1
10	75	7.5	-3

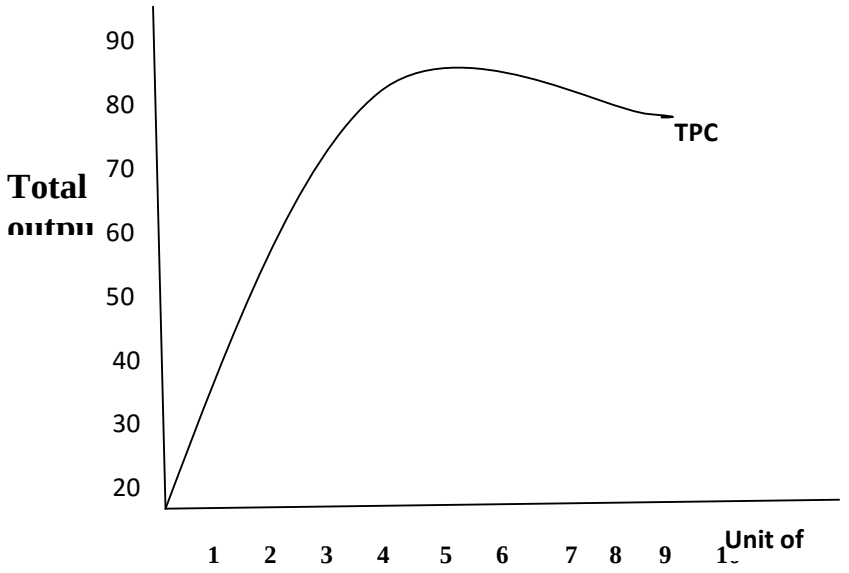

Fig. 5.4: Product Curve

In the production process as mentioned earlier, increase in the variable input while another input is fixed increases the quantity produce. However diminishing returns set in as production increase due to plant expansion. In other words, as one input is varied and one is fixed it will get to a point that total output will start to decline as the marginal product declines. The more the variable input is increase the less the additional increase to production. For example, from the addition of one unit of labour (increase from 4 to 5) in the production of wallet, average product of four labourers and five labourers remain the same while marginal product decrease from 19 to 13. In the same vein, increase of labourers from 6 to 7 leads to decline in average product from 13 to 12 while marginal product at that production level decreased from 13 to 7. Note that average product and marginal product continue to rise as the variable input increases until the average product reached its peak. Also note that marginal product was equal to average products when average product reached its peak. Bothe started decreasing afterward. Below is a graph showing the average and marginal products (refer to Figure 6.1).

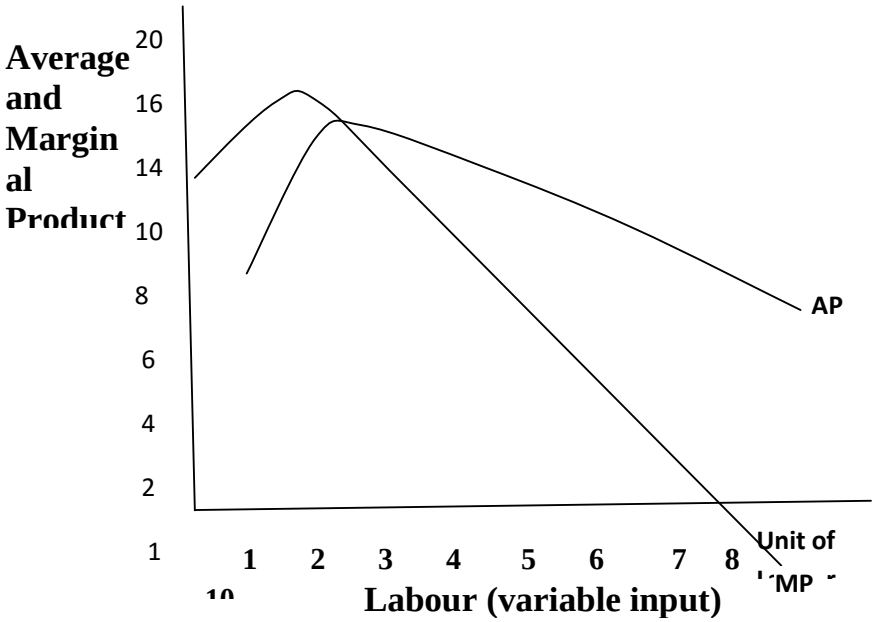

Fig. 5.5: Average and Marginal Product Curves

SELF-ASSESSMENT EXERCISE

In the production process as mentioned earlier, increase in the variable input while another input is fixed increases the quantity produce. TRUE OR FALSE?

3.2 Optimum Factor Combination

Firms have different production function that can be used in order to produce a given level of output- total Physical Product **TPP** (total output over a certain period). However the firm needs to carefully make decision on the optimum mix of factor of production by using optimum or least cost combination of factors of production. This can be achieved by substituting one factor for another if it will reduce the cost of producing a given level of output. Let assume that a firm uses two factors of production, labour (L) and capital (K). Its TPP will be:

$$TPP = f(K,L)$$

The Marginal Physical Product (MPP); which is the change in total product as a result of employing an extra unit of variable input; for the firm that employed capital –fixed input and labour-variable input is equal to:

$$\frac{MPP_L}{P_L} = \frac{MPP_K}{P_K}$$

If the left side of the equation is greater than the right side, it means more labour could be employed in relation to capital because the firm is earning more returns from employing and paying for extra labour than for injecting more capital. Meanwhile as the firm employs more labour per unit of output, diminishing return will set in to labour because ***Marginal Physical Product*** of labour **MPPL** will fall while Marginal Physical Product of capital **MPPK** will rise. That is injecting more capital to production earns the firm more returns than spending on more labour. This situation will continue until the above equation is achieved. This is when the factor in this production technique becomes optimum-***productive efficiency***. At this stage substitution of labour for capital or capital for labour sizes because the least cost combination of factors for that given output has been reached. Multi-factor firm optimum factor of production or productive efficiency will be:

$$\frac{MPP_a}{P_a} = \frac{MPP_b}{P_b} = \frac{MPP_C}{P_C} \ldots\ldots = \frac{MPP_N}{P_N}$$

Where a, b, c….N are multi factors of production. The firm continues to substitute factors with high ratio of MPP/P with those with low level of MPP/P in order to reduce cost. The optimum combination of factor can be shown graphically using **isoquants** and **isocosts**. ***Isoquant*** is a line which shows all alternative combination of production function of two factors that can produce a given level of output. Again let assume that a firm aimed at producing 1000 units of toy per year (TPP) with various

capital and labour combination (see example of isoquant in Figure 5.6 and a table showing the combination in (Table 5.4 preceding it).

Table 5.4: Capital and Labour Combination

	a	b	c	d	e	f
Unit of Capital (K)	60	40	30	20	10	5
Unit of Labour (L)	6	15	25	40	50	55

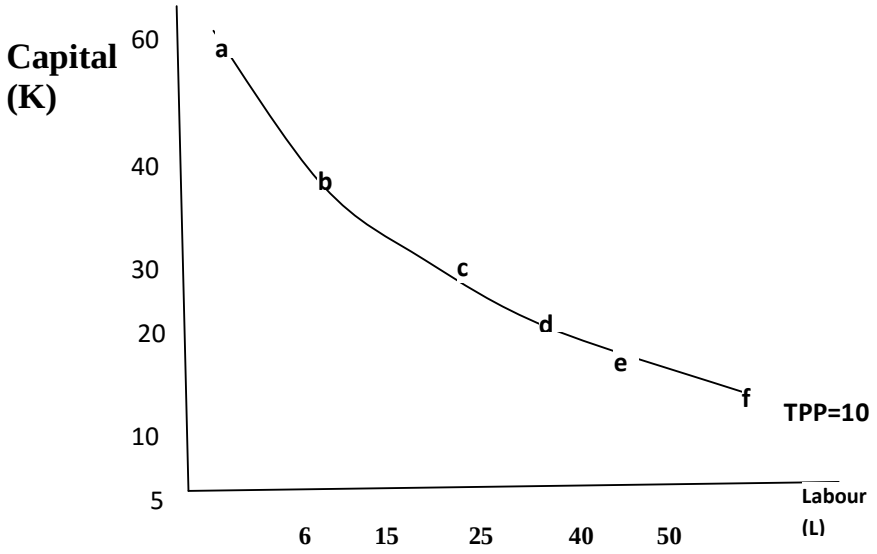

Fig. 5.6: An Isoquant

It worth mentioning that Cobb-Douglas production function is a simple and widely used function which is:

$$TPP = AK^{\alpha} L^{\beta}$$

Cobb Douglas production function for two factor combination is:

$$TPP = f\left(F_1, F_2 = AF_1^{\alpha} F_2^{\beta}\right)$$

And multi factor Cobb Douglas production function is:

$$TPP = f\left(F_1, F_2 = AF_1^{\alpha} F_2^{\beta} F_3^{c} \ldots F_n^{\infty}\right)$$

Where F1, ….Fn are all factors of production and

$$\alpha + \beta \text{ or } \alpha + \beta + c + \ldots \infty = 1$$

In contrast, ***Isocost*** shows all combinations of two factors that cost the firm the same amount to employ. See a hypothetical Isocost line (Figure 5.7) based on the figures in the Table 5.5 before it. Each combination has a Total cost- TC of N8000.

Table 5.5: Hypothetical Isocost Line Table

Unit cost of Capital (K)= N2000	0	1	2	4
Unit cost of Labour (L)= N1000	8	6	4	0

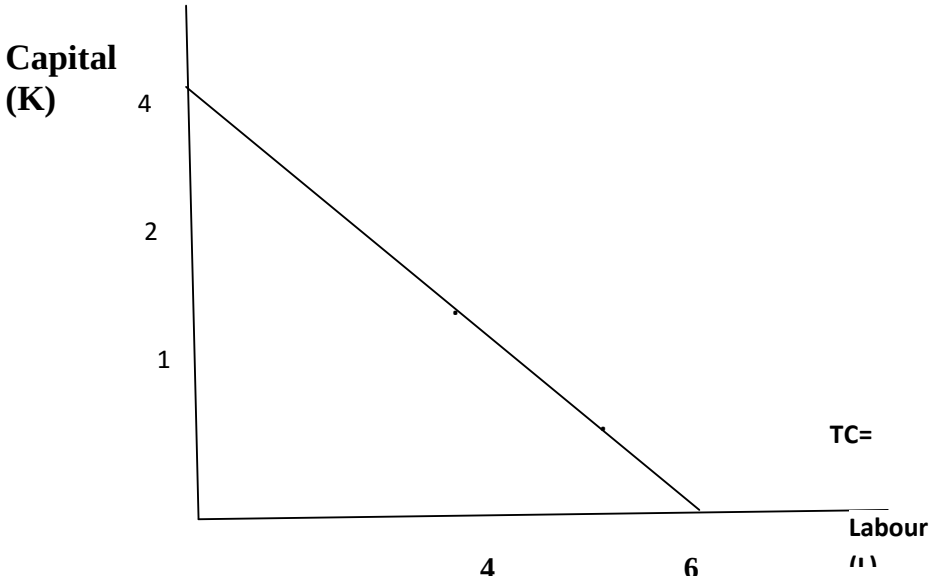

Fig. 5.7: An Isocost

SELF-ASSESSMENT EXERCISE

What is isoquant and isocost?

3.3 Economic and Diseconomy of Scale

When a firm expands its production capacity and goes beyond a certain size, it cost of producing a unit of output increases as the scale of production increase. This is call ***diseconomic of scale***. As more variables are employed, diminishing marginal returns sets it and technology of the firm increases Long-run Average Cost –LRAC as production increases. Then the LRAC slopes upward. Before this stage, the firm will have enjoyed ***economic of scale*** as a result of expansion or production of whole range of product. It enjoys economic of scale because individual product producing will become cheaper than when it is a single product firm. Large size of the factory will assist in reducing overhead cost as a result of usage of more specialised technology, division of labour and organisational economies. These will bring the long-run average cost (LRAC) down. This is when LRAC curve slope downward. Summarily, there is either economic of scale, constant

economic of scale or diseconomy of scale when the conditions below hold:

MC< AC = Economies of Scale
MC=AC = Constant Economies of Scale
MC>AC = Diseconomies of Scale

SELF-ASSESSMENT EXERCISE

Explain economic and diseconomies of scales through relationship between marginal and Average curves.

4.0 CONCLUSION

Factors of production are input into production process. Outputs are the end products produced by certain number of input combined under different methods of production given available technology. The higher the cost of factors of production to be input into the production function the higher will be the cost of production. The relationship between input and output as well as fixed and variable inputs in the process of production revealed that varying one variable input given a fixed input increases both average and marginal products.

5.0 SUMMARY

So far we have discussed on basic concept of production where each concept relating to production were defined. Production Schedule and Production Curve was used to explain Total Product Curve (TPC). Explanation on Average and Marginal Product Curves was followed by discussions on Marginal Physical Product (MPP) and Total Physical Product (TPP); Isoquant and Isocost. Law of diminishing return set in to the production process as a result of decrease in both average and marginal product as variable input increases. We discussed that has diminishing return sets in firm comes up with alternative input combinations that will produce same level of output at a given time. The substitution ration for each combination is referred to as Marginal Physical Product. The curve that depicts these alternative combinations is referred to as isoquant.

6.0 TUTOR-MARKED ASSIGNMENT

1. Explain with the aid of a graph why average and marginal cost decreases as variable input increases.
2. Show the shape of Long run Average Cost-LAC and different production plant's Short run average Cost-SAC.
3. Draw hypothetical Total Product Curve.
4. What happens to Average Cost (AC) when:

a. When MC <AC,
b. When MC>AC,
c. When MC=AC
d. Define an isoquant. What is the name for the above relationship between MC and AC in 4a, b and c.

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MODULE 6 THEORY OF FIRM

UNIT 1 PERFECT COMPETITION

CONTENTS

1.0 INTRODUCTION

Firm's decision on what to produce and how much to produce are usually to answer the demand and supply question. Supply and demand are the two sides of the market which makes market mechanism work through the price determination. However type of available market structure usually influences firm's behavior as regards pricing and output in order to maximise profit. Under perfect competitive market that is a market structure where there exists many buyers and sellers, we may look further into what price is the firm going to charge, shall it be low or high price? What determines the firm's profit? Is it small or large profit? How will the firm's decision affect the customers? Will the firm be producing efficiently or at low or high level of output? Therefore, we shall take a look at the behavior of the firm and perfect competitive market.

Samuelson and Nordaus (2010) defined a perfect competitive firm that sells identical products sold by others in the industry -homogenous product. The size of this firm is small compare to its market; therefore it cannot influence the market price. Thus it becomes a *price-taker*. In that case, what is the effect of this on the firm's profit? Recall that firms aimed at maximising profit and this is achieved when marginal cost of

the firm equals to its marginal revenue. When there is no competition, a firm can influence the market price in order to maximise its profit. However when a firm faces competition from other firms in the industry producing the same product, the firm is forced to become a price-taker thereby, keeping its price low as determined by the market in order to survive in the competitive environment. Consequently, discussions on perfect competitive market are based on assumptions that the firm is a profit maximising firm and small firms that are price-taker.

2.0 OBJECTIVES

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

- explain how perfectly competitive market behave
- discuss what determines the firm's profit?
- state assumptions of perfect competitive market
- explain short and long-run equilibrium of a firm in perfect competition market.

3.0 MAIN CONTENT

3.1 Basic Assumption of Perfect Competition

The input and output market operate dependently so also the firms and the households. Decision of firms and households to buy and sell in the input and output markets determines the quantity of supply and demand in these market and hence the price of either input or output. Examining the operation of the whole system shows different market structure of which perfect competition is one. Classical Economists opined that assumptions underlying perfect competitive market are far away from real life scenario. They are purely theoretical; however they agreed that these theoretical assumptions can assist in better understanding of the real world economy. Let us examine the assumptions one after the other.

a. Large Buyers and Sellers
b. Homogenous Products
c. Free Entry and Free Exit
d. Perfect Factor Mobility
e. Perfect Knowledge of Market condition

Large Buyers and Sellers

In perfect competition or pure competition, assumption of large buyers and seller implies that the size of each firm in comparison to the total market is small. This is ditto for individual buyers in the market. Therefore individual buyers and sellers only buy or sell a tiny fraction of

the total exchange in the market place and by implication they have no discernible influence on the market price, in other words they are price-takers. Take for instance, there is fewer bread factories compare to the total bread market itself. Retail bread sellers are usually many compare to the bread producer. In the same context, bread consumers and buyers are many and both sellers and buyers in the bread market have no influence on the price of the bread. They are price-takers because the seller must sell N200 bread at that price and buyers have no option to reduce the price. Any seller, who may attempt to sell such bread at a price higher than N200, may be shown the way out of the market when demand for his own bread fell below supply. Also there is no need to lower the price because buyers already have information about the market price and may think such product is substandard.

Homogenous Products

Interaction between the demand and supply in a perfect competition market determines the price of goods and market output; hence market players have no control over price. So also there is no comparison between the products because they are identical. Flour that is an input into bread production is identical; no buyer can differentiate whether it is from this producer or that producer. There is no advertisement in the bread market therefore market product is homogeneous. There is standardisation in the market product.

Free Entry and Free Exit

In a perfect competitive market, the size of what a firm produce has no effect on the market price. Other firms are free to enter into the market while any other firm is also free to exit the market. Therefore no firm will dominate the market or influence price thereof nor drive other firm away from the market through its dominance. Our bread factory is a good example; no bakery can dominate the bread market as such, no bakery can evict any other bakery nor stop another interested bakery from entering the bread industry. A bakery can decide to stop production and its decision has no effect on the bread market. Another bakery willing to come into the bread market is as well free to do so. In essence, there is free entry and free exit into a perfect competition market.

Perfect Factor Mobility

Factor of production mobility in a perfect competition market is another assumption in this market. Resources such as land and labor are free to move among alternative uses. For instance, labor can move between different jobs without any constraint if that will increase its returns.

Bread factory worker is free to move from one factory to another if his returns will appreciate by so doing.

Perfect Knowledge of Market condition

This assumption is the dichotomy between pure competition and perfect competition market. That is when the first four assumptions hold, such market is pure competition. However, when the five assumptions hold; then that market is a perfect competition market. For a market to be perfectly competitive, producers and consumers must have perfect knowledge of the market condition; that is such information about price. The producer must be aware of latest price and market opportunities and adjust to the changing market conditions. Consumers must be fully aware of not only price but also market supply of the product and its quality. This is to avoid exploitation by any market player.

SELF-ASSESSMENT EXERCISE

What are the basic assumptions of perfect competition?

3.2 Perfect Competition and Short-Run Equilibrium

Demand and supply in the industry determines the market price, market output and firm's profit. Remember, firms are price-taker due to homogeneous products in the market. Remember also that it is absurd for a firm to sell below or above the market price. Consequently, a firm in the perfect competition market faces a perfectly elastic demand because if its raises its price buyers who have perfect information on market condition will not buy its product. Also if the firm lowers its price, it will affect its profit and market opportunity to sell at the current market price. Recall that under the discussion on demand and supply in the previous sections we stated then that 'the lower the price in the industry the higher the demand; the higher the price the lower the demand'. As such, firms' aggregate market demand which is the industry's demand curve is downward sloping because more will be bought at lower price. Meanwhile, its supply curve is upward sloping. Therefore, short-run equilibrium under perfect competition market is a period when there is too little time for other firms to enter into the industry. Let examines the short-run equilibrium through the demand and supply curve and through the marginal curve and marginal revenue curves as shown below. Let assumes that a toy factory produce 10 units of toy a day and the total market supply is 20000 units of toys per day. The toy is selling at N5 per one, if aggregate supply is S and aggregate demand is D1 then there will be equilibrium in the market (Figure 6.1).

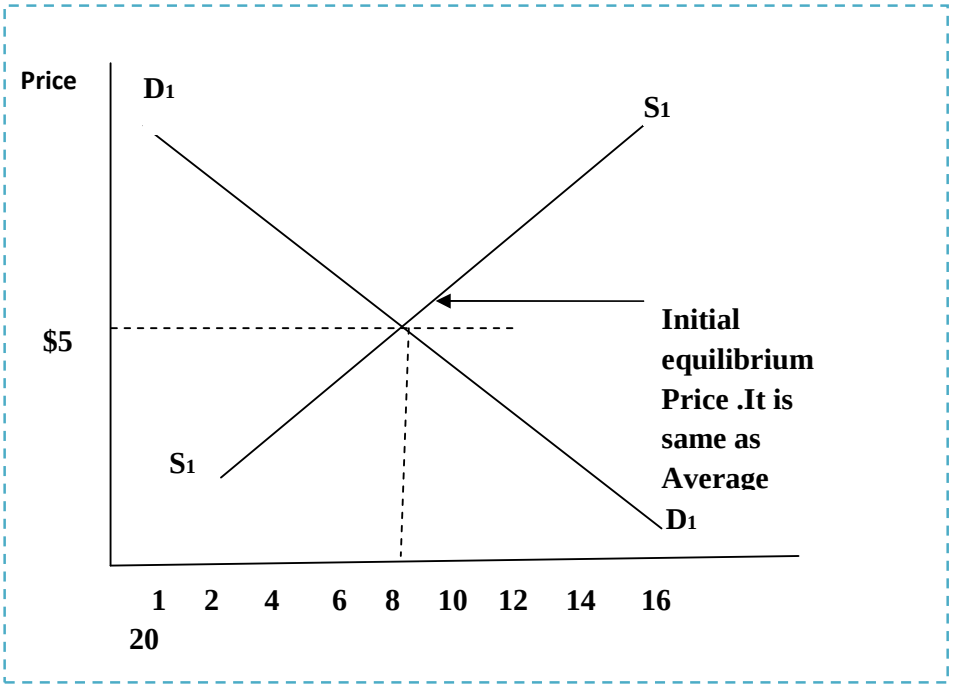

Fig. 6.1: Market Equilibrium under Perfect Competition

A rise or fall in price of toy will cause a fall or rise in demand and supply thereby leading to change in the equilibrium. Let assume that the price of toy rises from N5 to N10 and when the price decreases, it moves from N5 to N2. How will this affect the equilibrium in the market? How will the demand curve shift, where is the new equilibrium? What will happen to the industry's supply? Will there be a shift in the supply curve? (Figure 6.2).

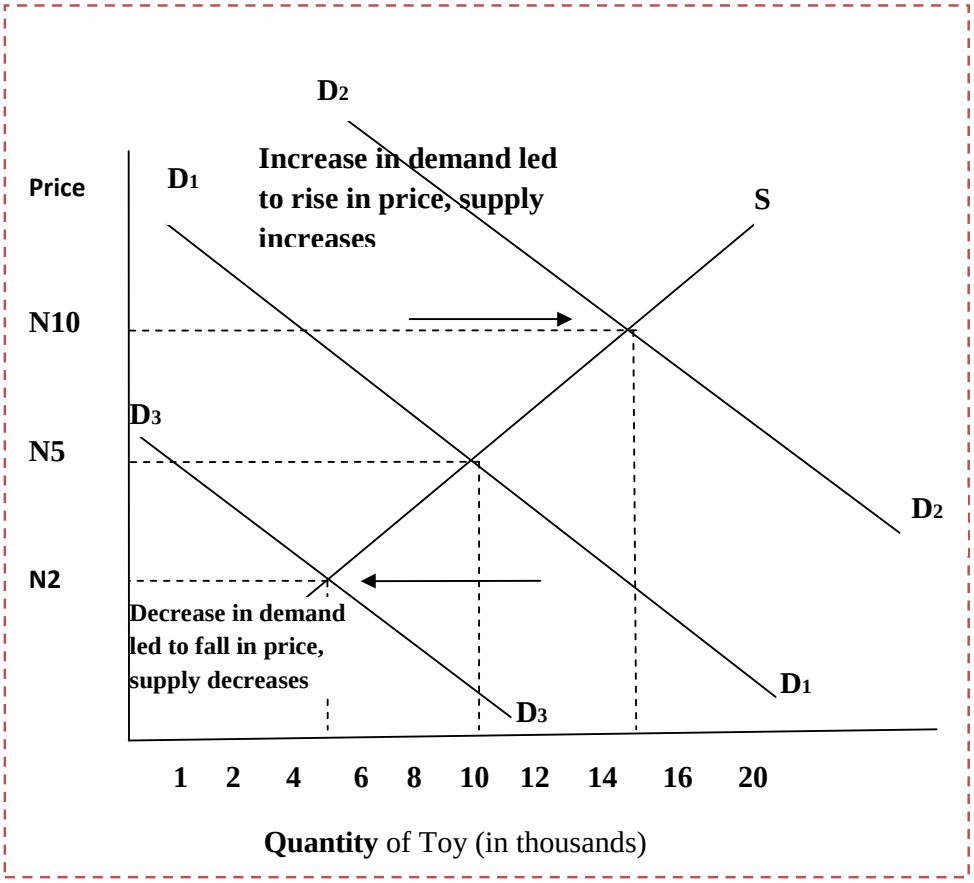

Fig. 6.2: Shift in Supply Curve under Perfect Competition

Market works efficiently because of the assumption of perfect information which give producers and consumers full knowledge of market price, product availability and other opportunities in the market. From the above diagram, knowledge of increase in demand from D1 to D2 by the producer push them to increase output so as to take advantage of a new rise in price from N5 to N10 thereby there was a movement along the upward sloping supply curve. In contrast, information about a fall in demand from D1 to D3 necessitated a decrease in output produced by the firm. Thereby supply decreases and price fell.

Having assumed that firm's objective is to maximise profit, at what level of output will a firm maximise profit? Profit which had been defined earlier as the difference between a firm's total revenue and total cost can also be derived by taking the difference between Average Marginal cost and Revenue (MC and MR). This approach to Profit Maximisation in perfect competition market is achieved at an output level where the difference Average Marginal revenue is highest and Average Marginal cost is lowest. Remember that a firm will increase output in the short-run when demand moved from D1 to D2. At this juncture, there would

be a change in the total cost due to additional unit of output produced. In the same vein, there would be change in total revenue due to increase in sale of that unit of output. An efficient condition is that MC must intersect Demand D, Average Cost curve from below and MC must be equal to MR. That is MC=MR=P (refer to Figure 6.3).

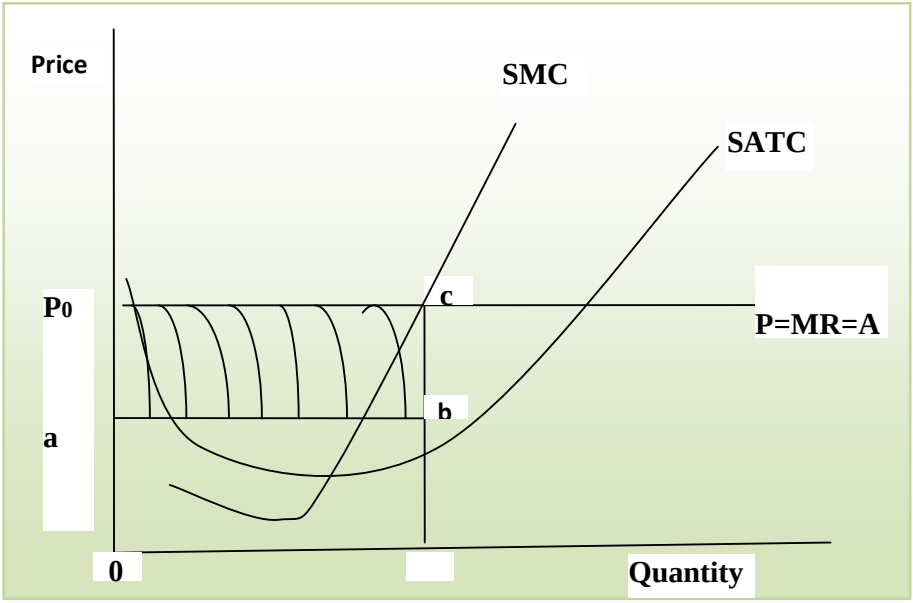

Fig. 6.3: Profit Maximisation under Perfect Competition

Excess or Supernatural Profit in Perfect Competition in Short-run

Price is not affected by the firm's output which means the firm faces an horizontal demand, consequently, marginal revenue MR will be equal to price P. This is the first order condition which is a necessary condition for equilibrium that determines firm's profit maximising level of output that is MC=MR. However, when MR>MC, there is room for output expansion by the firm because additional or Marginal cost incur on increased unit of output is lower than additional or Marginal Revenue. Hence firm's profit can be increased. The area P0abc is the area where firm earn excess or supernatural profit. Moreover the sufficient condition is that the slope of MC should be greater than the slope of MR that is MC should be rising at it intersect with MR (see the graph above). To the right of c above, MC continue to rise and till it is greater than MR. Firm may need to reduce variable input employed as well as output produced. Why do the firm needs to do this? The firm cannot make profit as soon as the ATC is above the MR=AR (Figure 6.4).

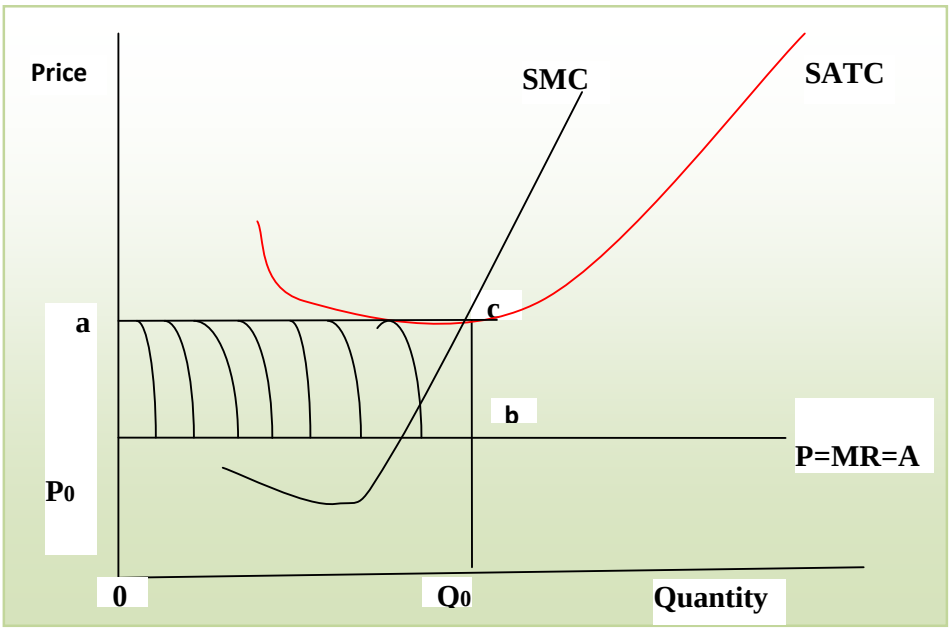

Fig. 6.4: Supernatural Profit of a Perfect Competitive Firm

Loss in Perfect Competition in Short-run

Area aP0bc represent the loss incurred by a firm in perfect competition market. The sensitive question we must ask at this point is, should the firm continue to produce? If yes how long can the firm continue to survive in the market? At point c, what the firm is earning is less than normal profit i.e. loss. This point is known as loss minimising point. However, the firm may need to take its exit from the market at a point when the firm is unable to cover its TVC i.e. when price is below the AVC. When average revenue is lower than average variable cost and the firm is not able to pay for its fixed cost; then it is advisable for the firm to close down. It can exit the industry because it makes no economic sense to continue in business. Let show graphically (Figure 6.5) the above explanations.

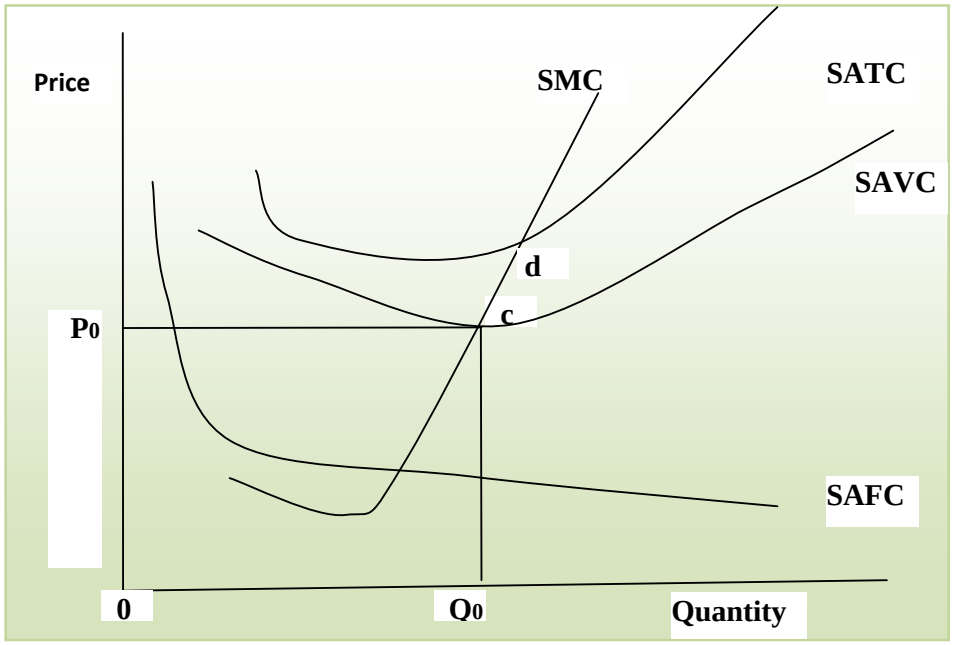

Fig. 6.5: Close-down Point in Perfect Competition in Short-Run

Point c is the close down point where the AVC is above P. the firm cannot neither cover its AVC nor make payment for its fixed assets. It will maximise profit by shutting down. Point d is the zero-profit point.

SELF-ASSESSMENT EXERCISE

Differentiate between normal and supernatural profit in a perfect competitive market.

3.3 Long-Run Equilibrium and Perfect Competition

Continuation of Supernatural profit made by firm will encourage thus they can expand their production capacity because all factors of production are variable in the long-run. This may attract new firms who may want to share from the supernatural profit into the industry. Whether the old firm increases production of the new firms comes into the industry to take advantage of the excess profit, market supply curve will be affected. These actions and decisions will increase market supply shifting the supply curve to the right. This in turn will lead to a fall in price and firms in the industry make just normal profit because there is an optimum allocation of resources among firm's competing uses.

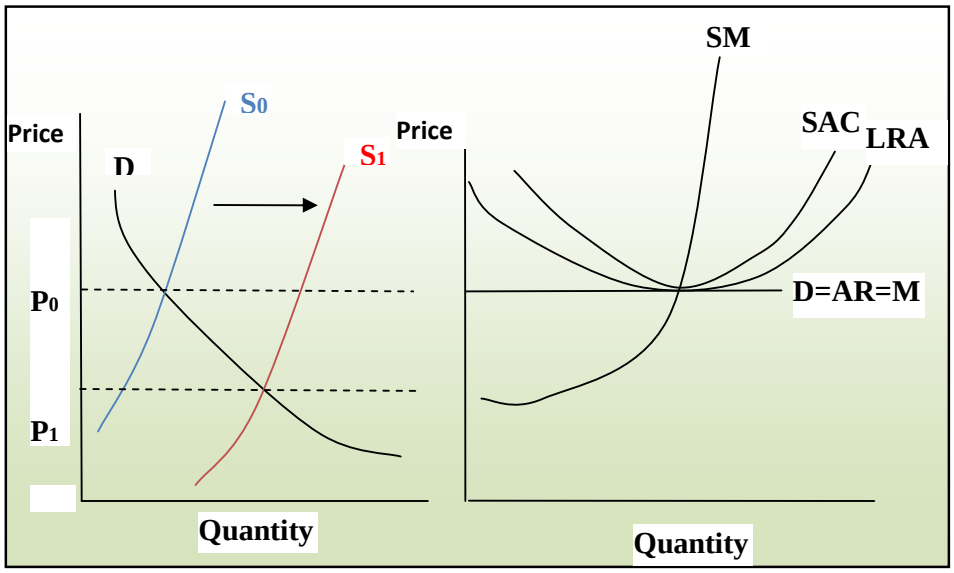

Fig. 6.6: Long-Run Equilibrium of the Firm under Perfect Competition

SELF-ASSESSMENT EXERCISE

What happens in the long-run to the supply curve of a perfect competitive firm?

4.0 CONCLUSION

Behavior of firm in making decision on demand and supply has been the focus of this unit. Assumptions of perfect competition market are far from real world realities. However some of these features have their own benefits in real life scenario. Take for example, the situation of optimal or least cost where price is equal to marginal cost, at this point there is efficient allocation of resources among competing use. Likewise, in the long-run, a firm will continue to produce at least cost for any given technology it employ. In addition, at a point when firms are making supernatural profit, more firms will come into the industry and in the long-run all inefficient firms may not be able to make even normal profit and may be driven out of the market. That is only the fittest will survive in the market. This situation is an encouragement to efficiency by firm.

5.0 SUMMARY

We discussed about assumptions of perfect competition market as having many buyers and sellers; homogeneous product; free entry and exit and perfect market information. Supernatural or excess profit earn by existing firm in the market in the short-run is shared with new firms entry into the market in the long run. In the long-run, the market price is

equal to the firm's long run average cost; this is where equilibrium is achieved in the long-run. Competition of small firm having high-cost of production with large firm having low cost of production due to economic of scale is an indication that new firm entering the firm needs to be efficient to stay in business.

6.0 TUTOR-MARKED ASSIGNMENT

1. What do you understand by perfect competition market? Discuss the basic assumptions underlying this market.
2. Show with the aid of a graph the short run equilibrium of a firm in perfect competition market.
3. At what point do you think a firm should shut down?
4. Will firm continue to enjoy supernatural profit in the long run?
5. Show the long run equilibrium of a firm in the long-run with a graph.

7.0 REFERENCES/FURTHER READING

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UNIT 2 MONOPOLY

CONTENTS

1.0 INTRODUCTION

In the previous section, we discussed about perfect competition market and how perfect the market is by examining the basic assumption with it benefit despite that the assumptions are far from real world realities. Violation of one or two of the perfect competition market will give birth to imperfect competition. For instance when firms are not just making decision on output alone but also on the price; i.e. they are no more price-taker. Firms can change the equilibrium price by increasing or decreasing output. In the same vein, monopolistic competition firm's product has no close substitute. That is there is only one firm in the industry, thus the firm is large enough to affect market price of it output because of its ability to enjoy economic of scale and its technological innovation that can drive growth in the long run. However, this does not mean that the firm has absolute control over the price of its product because it cannot control demand for its product. Understanding the modalities of monopolistic competition may assist us in understanding the workings of modern industrial economies. Monopoly, oligopoly and monopolistic completion are the major kinds of imperfect competition.

2.0 OBJECTIVES

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

- define and explain monopolist competition
- explain what determines price and output in monopolistic competition market
- state why firm leaves or enter monopolistic market
- explain how price determination increases monopolistic profit
- compare perfect and monopolistic competition.

3.0 MAIN CONTENT

3.1 What is Monopoly?

The word Monopoly has Greek origin, '***mono***' in Greek means 'one' while '**polist**' mean 'seller'. Consequently we may define monopolist as a single seller producing in its industry without any firm producing a close substitute. It is a type of imperfect competition market. A basic assumption is that a monopolist must sell all it product at the same price i.e. no price discrimination. The amount of monopolist power is determined by the substitute produced by its rival and the closeness of that substitute to its product. It then means that making excess profit is what a monopolist will appreciate especially if he can sustain such supernatural profit by creating entry barrier into the market for new firm. Then the type of barrier determines the type of monopoly. **Entry barrier** is anything that can impede the entry of other firms into an industry such that it limits the competition faced by the existing firm in the industry. If a monopolist dominates the industry as a result of substantial economic of scale then he becomes a ***pure monopolist***. If determines his product price then the market determines the quantity he can sell and vice versa. The price he fixed will determine quantity demanded so also the quantity he supply determines the price at which he can sell his output. The market demand curve is his demand curve and it is downward sloping from left to right (inelastic demand at all price level).

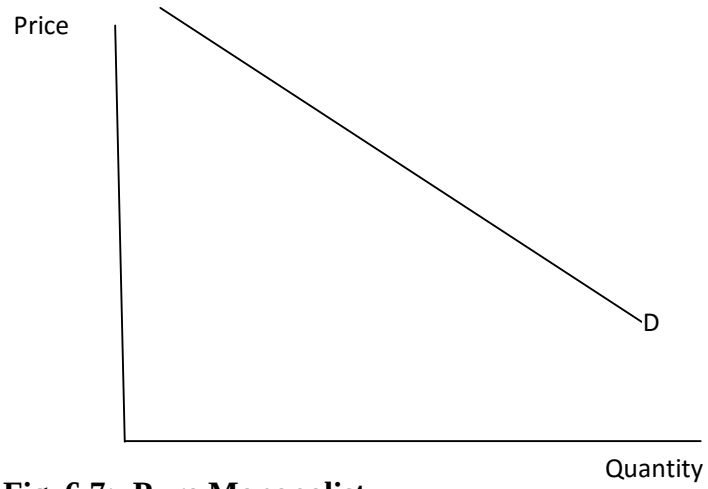

Fig. 6.7: Pure Monopolist

However even if another firm is able to break the barrier to enters into the industry to share the monopolist supernatural profit; he may not be able to make supernatural profit at any output before the entry of his competitor like he does in point x and y. Consequently price will be affected such that both face the market demand curve and the long-run average cost of production is higher. Natural Monopoly is when the

long-run average cost is lower under a monopolist than when there is entry of one or more competitors (see a natural monopolist curve in Figure 6.8).

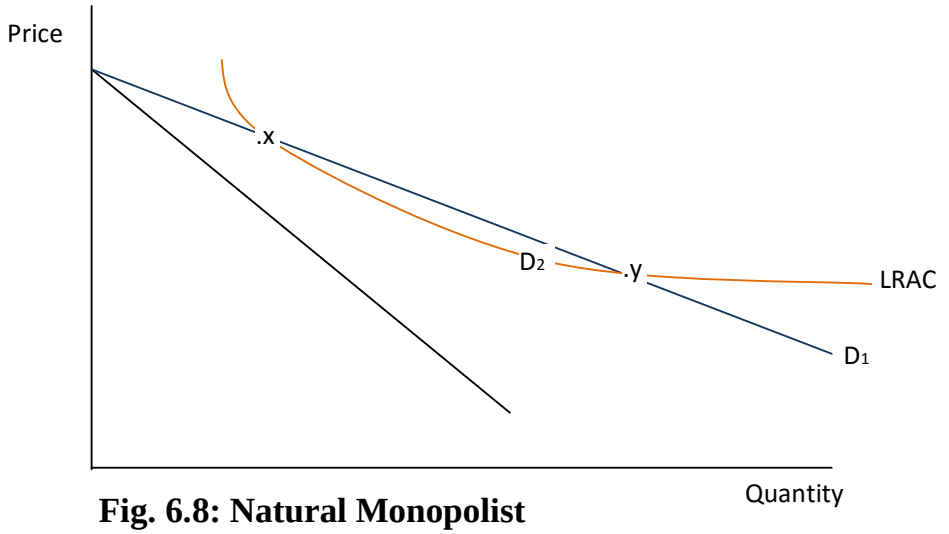

Fig. 6.8: Natural Monopolist

Other barriers to entry are product differentiation and branding; control of key input factors hence as an establish firm, it has lower costs of production; merger and takeover; legal protection; intimidation and aggressive tactic through aggressive advertisement, price war new brand introduction and after sales services. Accordingly monopolist is a '***price maker'*** and not a 'price taker'. DHL and FedEx have broken the post office monopoly.

SELF-ASSESSMENT EXERCISE

Monopolists are price-makers. Discuss.

3.2 Short-Run Equilibrium Price and Output

As a price maker, a monopolist charge whatever price he preferred, he is constraint by his product demand curve because an increase in price will lead to a decrease in demand. Notwithstanding monopolist strives to maximise profit at a point where marginal cost equals to marginal revenue (MC=MR=Supernatural profit). Note that the marginal revenue, average revenue and the demand curve of a monopolist are different unlike in perfect competition. When the MR is greater than MC; expansion of the output increases the monopolist revenue. In contrast when MR is less than MC; the monopolist reduces output because he will no longer enjoy increase in revenue but rather increasing cost. Let see the relationship graphically below:

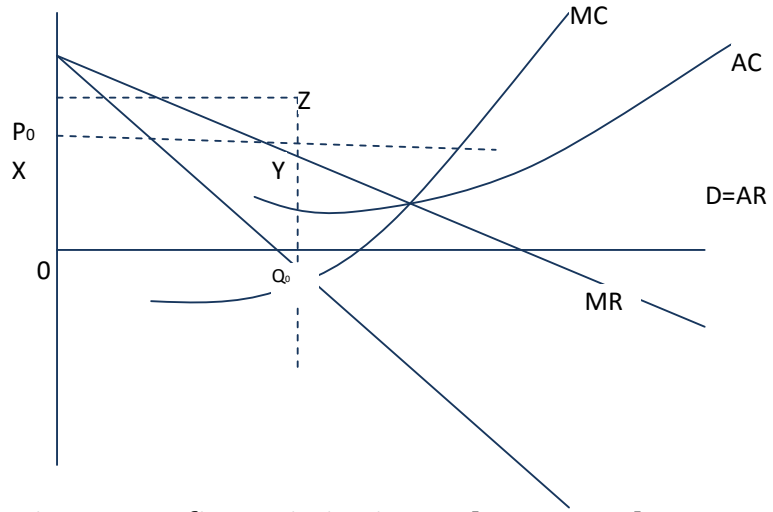

Fig. 6.9: Profit Maximisation under Monopoly

From the graph above, a monopolist enjoys supernatural profit at point P0xyz. Note that unlike perfect competition market where new firms enter into the market to share the excess profit, a monopolist can enjoy this excess profit for a long time because he dominates the industry. Profit maximising output and price is at Q0 and P0. P0 is the maximum profit at which consumers are ready to buy. Quantity and price within P00 and 0Q0 add more to monopolist revenue that is MR>MC while any output beyond 0Q0 add more to cost than to revenue that is MR<MC. Total revenue and total cost from the graph are P00Q0Z and 0Q0YX. However in the long-run, monopolist will produce at MR=MC.

SELF-ASSESSMENT EXERCISE

Graphically show profit maximisation under monopoly market structure.

3.3 Long-Run Equilibrium and Monopolistic Competition

There is likelihood of rival firm coming in to the industry as a result of monopolist's supernatural profit. In order to distract new firms from entering the industry, a monopolist may reduce price of a unit output. This action will protect monopolist long-run profit even if that price is below short-run profit maximising price. This is called 'limit pricing'. Limit pricing occurs when a monopolist set a price limit that is below the short-run profit maximising level in order to dissuade new entries into the industry. Competing firm that wants to enter the industry will be discouraged because they will not be able to make excess profit (Figure 6.10)

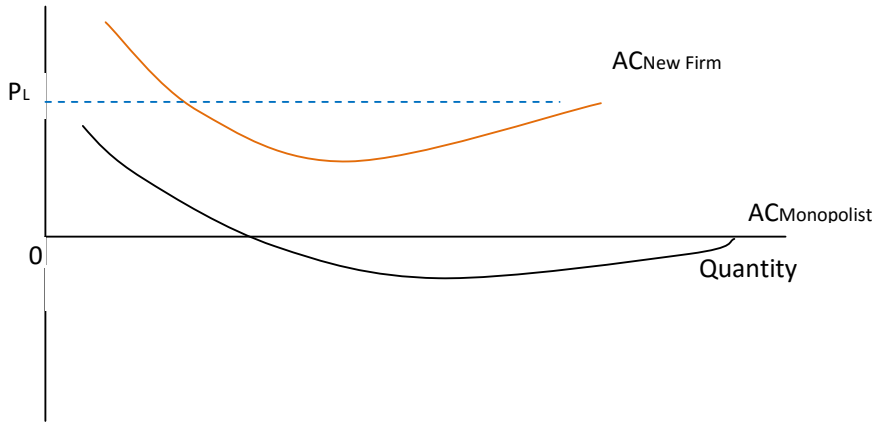

Fig. 6.10: Monopolist Limit Pricing Curve

SELF-ASSESSMENT EXERCISE

What is limit pricing? Explain with the aid of a graph.

4.0 CONCLUSION

Despite the assumption that monopolist may enjoy excess profit in the long-run, despite the limit pricing tactic to deter new entrance into the industry; monopolist must always watch his back for potential rivals. It means monopolist is not totally protected from competitors in the long-run. Monopolist becomes inefficient when it produce lower quantity at higher price in the short-run and long-run. This is because supernatural profit is sustained in the long-run due to barrier to entry into the firm. A firm under perfect competition will rather produce higher output at lower price.

5.0 SUMMARY

In real life, it may be difficult to determine if monopoly exists because monopoly is when there is only one firm in the industry. Monopolist create barrier to entry for new firms to keep away competitors and to enjoy supernatural profit in the short-run and long-run. Monopolist maximises profit at a point where MR=MC. However the price of a monopolist is relatively higher at this point when compare to other firms especially under perfect competition. Supernatural profit of monopolist may be sacrifice by setting a price below short-run profit maximising price to keep new entrant away through i.e. limit pricing technique.

6.0 TUTOR-MARKED ASSIGNMENT

1. Describe briefly what monopoly is
2. Show graphically the supernatural profit of a monopolist
3. Mention some barriers to entry a monopolistic market
4. Do you think that limit pricing may keep competitors off totally in the long-run?

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UNIT 3 MONOPOLISTIC COMPETITION AND OLIGOPOLY

CONTENTS

1.0 INTRODUCTION

An American Economist Edward Chamberlin developed theory of monopolistic competition in the 1930s. This theory is distinct to perfect competition in that there is product differentiation. It is also similar to perfect competition in the sense that there are many buyers and sellers; there is easy entry and exit and firms are price-maker. A classic feature of monopolistic competition is that there is only one firm in a particular location though there are many firms competing in the industry. Consequently, each firm has a certain degree of market power and hence some control over the price of his product. Monopolistic competition can be defined as a market structure where there is free entry for numerous firms selling products that are close substitutes. Some assumptions underlying this theory are:

- There are numerous sellers with insignificant small share of the market hence his decision will most likely has no effect on his competitors. In order words, his decision has no influence on what his rival choose to do.
- Any firm that wishes to enter into the industry is free to do so without barrier. For example a fashion designer can join the fashion designing industry without little or no barrier. Small fashion designing shop can compete with established ones and survive the competition due to lack of economic of scale in the industry. Each firm in the industry strives to distinguish it product in the minds of their consumer since they produce slightly different product.
- There is assumption of product differentiation that is each firm can produce its product in some ways different from his rivals.

The firm as a price-maker can raise it price to earn more profit without losing all its consumers once the firm is able to research and detect the consumer existing demands. What consumer wants and how they want them is usually reflected in variety of products available in mega and supermarkets. Only the product that is able to satisfy consumer's demand will survive the competition.

2.0 OBJECTIVES

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

- state the underlying assumptions of monopolistic competition
- explain short-run equilibrium of monopolistic competition
- enumerate long-run equilibrium of monopolistic competition
- differentiate between oligopoly and interdependency
- explain collusive Oligopoly and its other forms.

3.0 MAIN CONTENT

3.1 Short-run Equilibrium Price and Output

Just like we have profit maximising output at a point where MR=MC under perfect competition and monopoly so also do we have under monopolistic competition. The demand strength for a monopolistic competitive firm determines its profit in the long-run. As a result it is possible for him to also make supernatural profit (see the graph in Figure 6.11 below) in the short run through significant differentiation of his product.

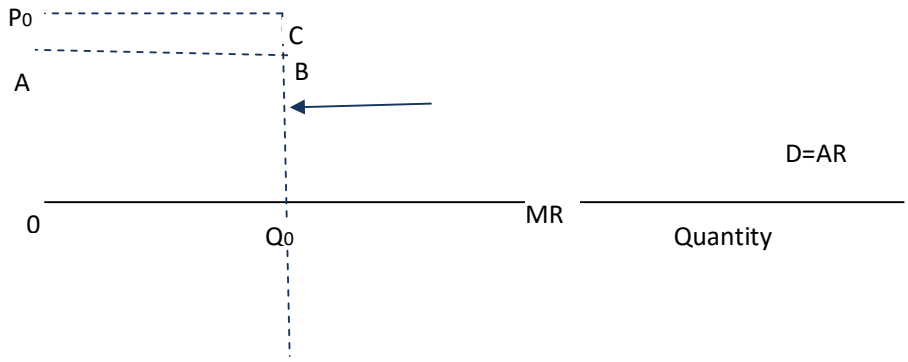

Fig. 6.11: Short-run Equilibrium Profit of a Monopolist Competition

The firm will choose output-price combination that maximises profit and this occur at P0Q0. The firm will continue to increase production until marginal revenue equals marginal cost at the point touched by the arrow in the graph above. The total cost is equal to ABQ00 while the total

profit is the rectangular area P0CBA. However a supernatural profit in the short-run is not guaranteed for a monopolistic competitive firm because market demand may be insufficient to make the firm profitable though the firm as a price-maker has some control over market price of its product. Therefore when the demand is insufficient to earn profit for the firm, the firm will decrease production; charge price that is enough to cover variable costs. This is to minimise losses at an output where firm's profit will be able to cover its total fixed costs (see the graph in Figure 6.12).

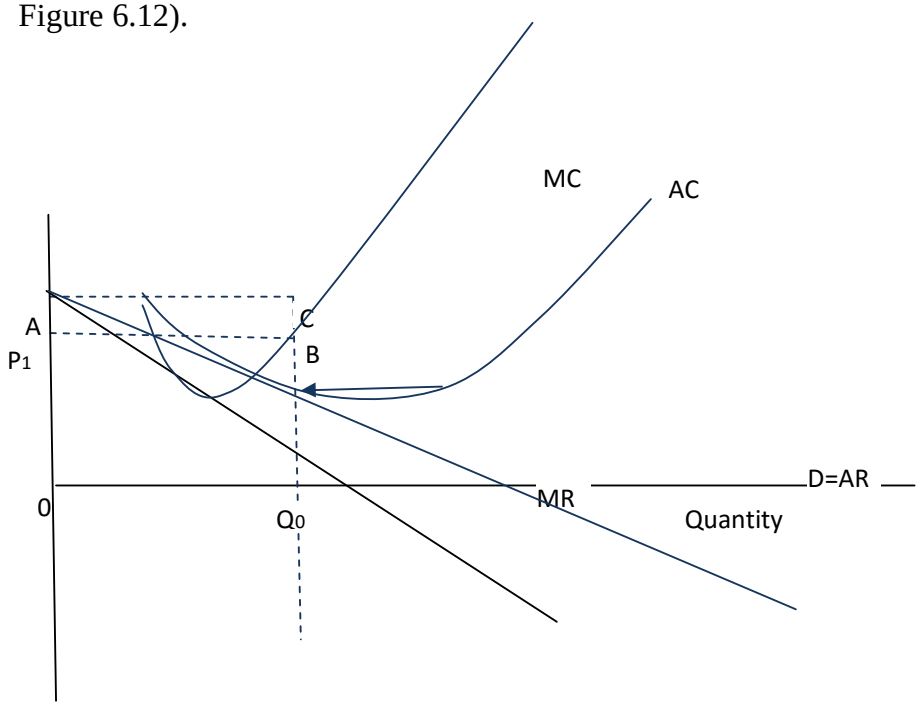

Fig. 6.12: Short-Run Loss-Minimising Level of a Monopolistic Competition

Loss-minimising output-price combination is P1Q0. Total cost is ACQ00 which is now greater than total revenue that is represented by P1BQ00.

SELF-ASSESSMENT EXERCISE

Monopolist makes supernatural profit due to differentiation of his product. Show this with the aid of a graph.

3.2 Long-Run Equilibrium and Monopolistic Competition

In the short run, firm earn supernatural or excess or economic profit (when MR>MC), normal profit (when MR=MC) and zero profit at loss minimising point (when MR<MC). Meanwhile, in the long run, new firm enters into the industry until firms earn normal profit or until loss

minimising point is achieve. At the loss minimising point firm will start leaving just like when entered to compete away the supernatural profit. They will exit the industry until firms in the industry start to earn normal profit again. Therefore in the long run free entry and exit of firms into monopolistic competition industry eliminate supernatural profits or loss. That is monopolistic competition is similar in this regard to firms under perfect competition. Also monopolistic competition is similar to monopoly in the sense that the firm's demand curve is downward sloping. Below is long run equilibrium of a monopolistic competitive firm (Figure 6.13).

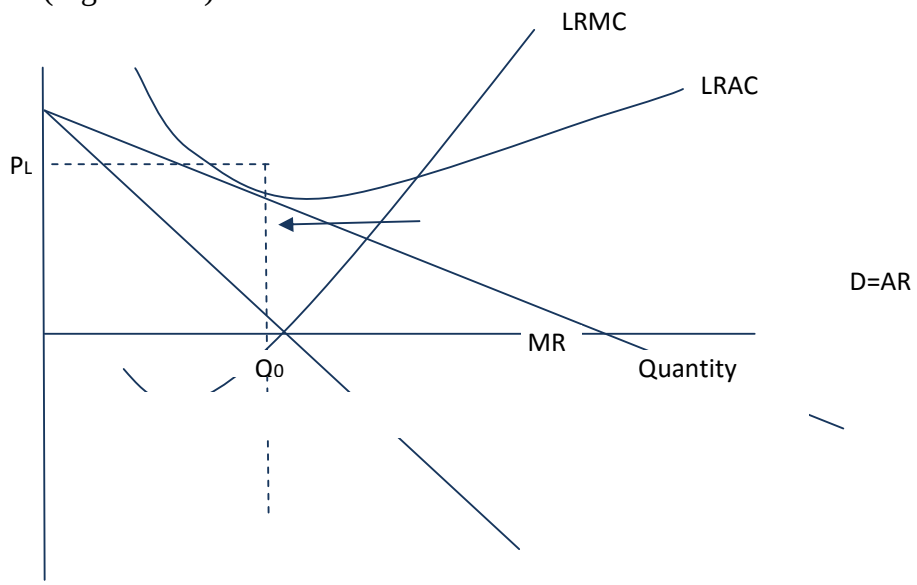

Fig. 6.13: Long run equilibrium of Monopolistic Competition

SELF-ASSESSMENT EXERCISE

How does free entry into monopolistic competition market affects the supernatural profit in the long-run?

3.3 Features of Oligopoly

Oligopoly is a market structure where only few firms dominate the large industry with varying degree of entry barriers based on the industry. Entry is easy in some industry and virtually impossible in others. Fewness of firms in the industry has effect on their behavior. Each firm is conscious of actions and decision of the other firm. Two major features of oligopoly are:

- Industry-based entry barrier that is it is relatively easy to break entry barrier in some industry depending on the industry size

while it is practically impossible to break entry barrier in some industry.

- Interdependence or strategic interaction that is a firm business strategy depends on its competitor's business behavior. If a firm in the industry increases it product price, the other firm must take a decision whether to also increase its own product price too so as to match with the market price or to lower its product price to undercut his competitor thereby making its own product preferable. Therefore each firm in the industry thinks of how other firms will react to its action. Therefore a firm considering change in price or product change will often consider likely reactions of it rival. This feature may make firms in the industry to collude with one another, act as if they are monopoly so as to jointly maximise the profit in the industry. If such happens it is referred to as **collusive oligopoly**. On the other hand it may lead to competition such that the firm will gain a larger share of the industry's profit. In this case it is known as **non-collusive oligopoly**.

SELF-ASSESSMENT EXERCISE

Explain two major features of oligopoly.

3.4 Competition and Collusion

Collusive oligopoly is similar to monopoly because firms in the industry cooperate with one another in taken business decision jointly, set price jointly, set output supply jointly and then divide the market among them to bring competition to it low in the industry. Therefore ***Collusion*** *occurs when price and quantity are explicitly fixed by the firms in the industry*. Whereas ***Tacit collusion*** occurs when firms fixed prices and quantities implicitly. That is without any specific agreement. This usually assists firms in the industry to quote high but identical prices that will push up the industry profit and decrease competition. When firm does this, then oligopolist profit maximising price is very similar to that of monopolist. Profit maximising equilibrium of oligopolist is shown in the graph below (Figure 6.18).

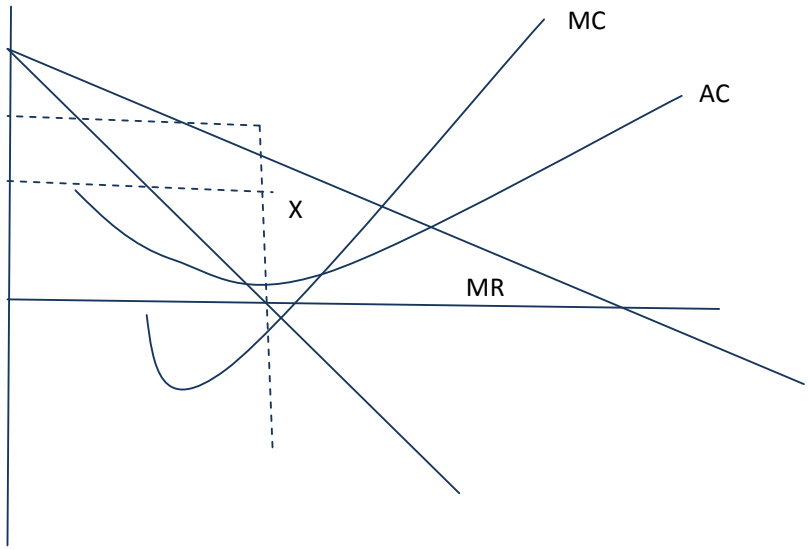

Fig. 6.18: Collusive Oligopoly and Industry Equilibrium

Consequently when oligopoly colludes they employ their mutual interdependency to maximise their profit thereby producing a monopoly output and price and in turn monopoly profit in the long run. However, collusion is illegal; explicit agreement by the firms in the industry may be breach. An explicit agree by oligopolist is known as cartel. ***Cartel*** is a group of firms that comes together to make price and output decisions in order to maximise profit. Another form of oligopoly is the ***Cournot model*** usually referred to as ***duopoly***. Duopoly was postulated by Augustin Cournot almost two centuries ago with these three basic assumptions:

- there are just two firms in the industry
- each firm takes the output of the other firm as given
- both firms maximise profits.

Therefore duopoly form of oligopoly produce output quantity that is intermediate between the expected market output in an organised competition and output set by a monopolist. However existing duopolist seems not to anticipate how the other duopolists may reaction but rather react after the action of one another.

Another form of oligopoly is the ***Price-Leadership Oligopoly*** where a firm dominates the industry by setting prices for the industry's output and all smaller firms in the industry follows its pricing policy. This type of oligopoly also has three basic assumptions:

- the industry consist of one large firm and many small competing firms

- that dominant firm maximises profit subject to market demand constraint and smaller but competitive firms' behavior
- that the price-leader firm will allows smaller but competitive firms to sell all they want at the price it has set thereby the dominant firm produces and sells the different between the market demand quantity and the smaller firms supplied quantity.

In a nutshell, the smaller firms in the industry tends to constraint the dominant firm's power and a way to deal with such constraint is for the dominant firm to set temporary but artificially lower price known as ***predatory pricing*** in order to drive smaller firms out of business and then to monopolise the industry. Consequently in a contestable market like oligopoly market, large oligopolist seems to behave like perfectly competitive market where output prices are pushed towards long-run average cost and supernatural profit discontinue.

SELF-ASSESSMENT EXERCISE

Describe price leadership oligopoly and predatory pricing.

4.0 CONCLUSION

Monopolistic competition is similar to pure competitive because entry and exit are free thereby eliminating supernatural profit in the long-run. Competitive force controls the behavior of monopolistic competitive firm therefore very competitive firms survives in this market structure. In contrast, oligopoly market structure and its entry barriers prevent other input factors from responding to market profit or supernatural profit. Under perfectly competitive market structure, new firms are attracted to the industry to increase production therefore supernatural or economic profit does not persist. In consequent, monopolistic competition and oligopoly tends to prevent efficient use of resources because outputs are produced below the efficient level and pricing is usually above the marginal cost. When price is above the marginal cost, monopolistic competitor and oligopolist are making consumers to pay more for their outputs than they cost to produce. In addition, product differentiation under these two market structures produces varieties of products through innovation. However competition may be efficient but blocks entry of new firms therefore it may lead to failure of market allocation mechanism.

5.0 SUMMARY

A monopolistic competitive firm will earn short-run profit at a point where MC=MR. Its marginal revenue curve lies below its demand curve and its total cost is below the total revenue. The average cost is below

the demand curve. However in the short-run when the market demand is insufficient to cover its average cost and the average cost is above the demand curve; the firm suffers short-run losses but since the firm must earns profit, it earns profit that can only cover its total fixed costs. For that reason in the long-run, as new firms enters the industry to compete away the profit, close substitutes comes into the market and supernatural or economic profit is eliminated at a point where the demand curve tangent with the average cost curve. Under oligopoly market structure a necessary require is that a firm should be large and well established enough to gain some degree of control of the output price in the industry. All forms of oligopoly market structure laid emphasis on interdependency. Like monopolistic competition, they aimed at product differentiation in order to increase product price without losing all their consumers.

6.0 TUTOR-MARKED ASSIGNMENT

1. In few lines define monopoly, monopolistic competition and oligopoly.
2. What do you understand by duopoly, price-leader and predatory pricing?
3. Show the long-run equilibrium of a monopolistic competitive firm
4. Where is the short-run equilibrium price and quantity achieve in a monopolistic competition market (show this with the aid of a graph).
5. In the profit-maximising equilibrium of an oligopolist, show the equilibrium total cost and total revenue with the aid of a graph.

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UNIT 4 MARKET STRUCTRURE COMPARISON

CONTENTS

1.0 INTRODUCTION

This section describe briefly the dichotomies between different market structures in line with the types of market; largeness or number of firms expected in the industry; freedom of entry and exit into the industry; influence of the firm on setting price in the industry and the nature of their products.

2.0 OBJECTIVES

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

- differentiate between perfect competition and imperfect competition market structure
- spell out dichotomy between perfect market and monopoly
- know the degree of market price control.

3.0 MAIN CONTENT

3.1 Perfect Competition versus Monopoly

Recall that in perfect market competition no firm is large enough to influence or control market price, firms are many in the industry hence market forces determines the market price. In contrast, perfect market feature of many firms producing and supply the industry market demands is the opposite of monopolist feature of one firm producing the entire output of the industry. Consequently, both market structures face different demand curves. Under monopoly market structure, the quantity of output producer is restricted and a monopolist became inefficient because it can still increase production but will not in order to have control over market price. Thereby consumers are made to pay more for a monopolist's products and enjoy less of it despite the higher price. In

essence, consumer surplus under monopolist is reduced considerably. This is not so under perfect competition market structure. Consumer enjoys considerable consumer surplus due to efficiency of many firms in the industry which usually eliminate supernatural profit. Monopolist safeguards his supernatural profits by reducing quantity of output produced. Let see a graphical comparison of these two market structure in Figure 6.19.

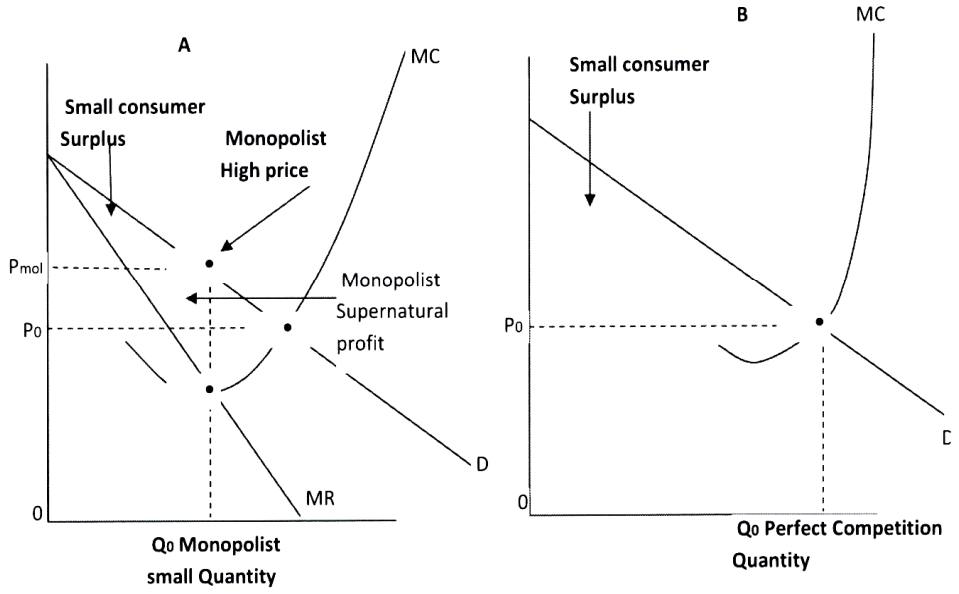

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Fig. 6.19: Perfect Competition vs. Monopoly

Looking at the graph A above, monopolist charges high price that is higher than the marginal cost P>MC. Despite that consumers are ready to pay the high price which is more than what it cost to produce the output, yet, a monopolist deliberately cut production to reduce quantity supply to the market. This is referred to as allocative inefficiency.

SELF-ASSESSMENT EXERCISE

With the aid of a graph differentiate between perfect completion and monopolist.

3.2 Table 6.1 Market Structure comparison

Market Types	Firm's Largeness	Entry and Exit Freedom	Firm's Product Nature	Firm's power over Price
Perfect Competitio	Large number	Freedom of entry	Homogeneous product	Firms are price-taker, no control

n	of firm	and exit to firms		over price. For instance natural products such as gold, silver, agricultural etc
Monopolistic Competition	Large number of firms	Freedom of entry and exit is nor restricted	Homogeneous but differentiated product	are sold at market given price Firms are price-makers. Hairdressers, shoe cobblers, restaurant etc
Monopoly	One single firm	Very restricted freedom of entry and exit (entry and exit barrier)	No close substitutes	have some degree of control over their charges Price-maker and distinctive pricing. Examples of monopoly are Water corporation and Power Holding Companies. They have unique product and control pricing
Duopoly	Two firms	Entry and exit freedom is also restricted (entry and exit barrier)	No close substitutes	Same as monopoly. Examples are telecommunication industry (private and public) and
oligopoly	Small firms	There is also entry and exit barrier	Standardised or differentiated products	They are also price-maker because they have some degree of control over the market price. Examples are gas suppliers, microfinance banks, video rental shops, chairs and table rental shops.

SELF-ASSESSMENT EXERCISE

List different market structures and define them briefly.

4.0 CONCLUSION

Market structure are characterised with smallness or largeness of the firm in the industry and entry and exit barrier for new firm that may like to compete away positive profit earn by existing firm. Achieving the latter depends a great deal on availability of close substitute(s) to what the existing firm is producing and the degree of control of existing firms on the market price of the product in the industry.

5.0 SUMMARY

In perfect competition market structure there are many firms in the industry with freedom of entry and exit without cost. In monopoly market structure, there is only one firm in the industry. Barrier entry is very strong so also are tactics in order to eliminate competition and to protect monopolist. New firm may have cost advantage that a monopolist has due to economic of scale. Profit maximising point for firms under perfect and monopoly market structure is the same i.e. where MC=MR. However a monopolist will achieve this equilibrium at highest possible price relative to marginal cost than for firms in perfect competitive market.

6.0 TUTOR-MARKED ASSIGNMENT

1. Make a brief comparison between two market structure i.e. monopoly and perfect competition markets.
2. Monopoly and perfect competitive markets achieve profit maximising equilibrium at MR=MC. Is it as the same price? If not explain with the aid of graph(s).
3. List different market structures that you know. Define each structure briefly.
4. Mention some differences or similarities between market structures in (3) above.

7.0 REFERENCES/FURTHER READING

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