NATIONAL OPEN UNIVERSITY OF NIGERIA

FACULTY OF SOCIAL SCIENCES

COURSE CODE: ECO 121

COURSE TITLE: PRINCIPLE OF ECONOMICS

COURSE GUIDE

Course Developer

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CONTENT

Introduction

Principle of Economics is a three-credit and one-semester undergraduate course for Economics student. The course is made up of twenty-one units spread across fifteen lectures weeks. This course guide tells you what economic problems are and howare 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 Competencies

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.

Learning Outcome

This is an introductory principles of economics course that covers topics in microeconomics. The breath of topical coverage limits the course objectives to subject matter mastery. The course will present factual material concerning the operation of the firm and household as well as the development of rudimentary understanding of economic decision-making. Succinctly, the course introduces the microeconomic concepts, the importance of economic approaches in decision making, basic terminologies and key assumptions imposed in modern economics in general, and understand the applications of economic theories in business decisions. Specifically, after the course, students are expected to learn about:

- Understand the meaning and scope of the subject Economics
- Understand the distinctions between the terms Microeconomics and Macroeconomics
- Understand fundamentals of Microeconomics
- Understand the importance and significance of Microeconomics

- Understand the limitations of Microeconomics

Working through the Course

This Course Guide is provided to assist students in mastering the subject matter presented E201, Introduction to Microeconomics. The purpose of this Course Guide is fourfold. First, the course syllabus is included in the Guide. Second, the Guide provides the student a listing of the key concepts covered in the lectures. Third, the Guide provides students with problems and study-guides to aid each individual in the retaining the materials presented by the text and lecture. Fourth, sample exams are offered as self-test exercises and to give students an idea of the level of mastery expected in this course. Organization The Guide is divided into eleven units, following the organization of the Course Outline found in the syllabus. At the end of each module in the reading assignments there is a section containing the key concepts developed in the module, sample exam questions and a brief study guide. Also in the Guide is the course syllabus included. Following the reading assignments are the lecture notes for each module. The final section of the Guide contains sample examinations, including answers. Note to Students There is no substitute for doing the reading assignments, attending class, and working through the material. A facilitator cannot cause a student to learn, all a facilitator can do is to organize and present the material, grades can provide a small extrinsic reward for accomplishment, but it is the student's ability, effort, and desire that determine how much and how well they will learn. It is hoped this Guide will help in the learning effort.

Study Units

There are six modules in this course broken into 21 study units.

References/Further Readings/Web Resources

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

Case, Karl.E and Fair, Ray. C (1999), Principles of Economics, Prentice Hall, Upper Saddle River, New Jersey.

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Presentation Schedule

Units	Title of Work	Week's 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**	

The presentation schedule included in your course materials gives you the important dates for this year for the completion of tutor-mark 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

The assessments are of two folds for this course; The tutor marked assignments; The second, the 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.

Assignments & Grading

Academic Honesty: All class work should be done independently, unless explicitly stated otherwise on the assignment. You may discuss general solution strategies, but must write up the solutions yourself.

If you discuss any problem with anyone else, you must write their name at the top of your assignment, labeling them “collaborators”.

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 provide 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 readings section. Some units require you to undertake practical overview of historical events. You will be directed when you need to embark on discussion and guided through the tasks you must do.

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

Self-assessments are interspersed throughout the units, and answers are given at the ends of the units. Working through these tests will help you to achieve the objectives of the unit and prepare you for the assignments and

the examination. You should do each self- assessment exercises as you come to it in the study unit. Also, ensure to master some major historical dates and events during the course of studying the material. The following is a practical strategy for working through the course. If you run into any trouble, consult your tutor. Remember that your tutor's job is to help you. When you need help, don't hesitate to call and ask your tutor to provide it.

1. Read this Course Guide thoroughly.
2. Organize a study schedule.

Refer to the `Course overview' for more details. Note the time you are expected to spend on each unit and how the assignments relate to the units. Important information, e.g., details of your tutorials, and the date of the first day of the semester is available from study centre. You need to gather together all this information in one place, such as your dairy or a wall calendar. Whatever method you choose to use, you should decide on and write in your own dates for working breach unit.

3. 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.
4. 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.
5. 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.
6. Up-to-date course information will be continuously delivered to you at the study centre.
7. 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.
8. 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.
9. 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.
10. When you have submitted an assignment to your tutor for marking do not wait for it return `before starting on the next units. Keep to your schedule. When the assignment is returned, pay particular attention to your tutor's comments, both on the tutor-marked assignment form and also written on the assignment. Consult your tutor as soon as possible if you have any questions or problems.
11. 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).

Online Facilitation

There will be ten hours of tutorials to support of this course. The dates and times of these tutorials will be communicated together with the name and phone number of your tutor as soon as you are allocated a tutorial

group. There be need to call your tutor for comment on relating assignments, progress and any difficulties you might encounter so as to provide assistance to you during the course. You must mail your tutor done assignment to your tutor well before the due date (at least two working days are required). The assignments 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 for personal discussions if you need help. The following might be circumstances in which you would find help necessary:

i. You do not understand any part of the study unit
ii. You have difficulty/difficulties with the self-assessment exercise(s)
iii. You have a question or problem with your tutor's comments on any assignment or with the grading of an assignment.

You are advised to ensure that you attend tutorials regularly. This is the only opportunity to have a face-to-face contact with your tutor and ask questions. You can raise any problem encountered in the course of study. To gain the maximum benefit from course tutorials, prepare a question list before attending them and ensure you participate maximally and actively.

Course Information

Course Code: ECO 121
Course Title: **Course Information**
Course Code: ECO 153
Course Title: Principles of Economics
Credit Unit: 3
Course Status: Compulsory
Course Blub:
Semester: First Semester
Course Duration: 32 hours in course of 12 weeks Required Hours for Study
Course Team
Course Developer: NOUN
Course Writer: Olure-Bank, Adeyinka
Content Editor:
Instructional Designer:
Learning Technologists:
Copy Editor

MODULE 1 BASIC CONCEPT IN ECONOMICS

Unit 1: What is economics?

Unit 2: Economics System

Unit 3 Fundamental principles of economics contents

Unit 1: What is economics?

Unit Structure

 **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 was 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 economic and understanding its principles are also part of what we shall find out from this unit.

 **2.0 Learning Outcomes**

The student is expected, at the end of the unit; to be able to:

- Define economics.
- Explain the concepts of scarcity and opportunity cost and how they relate to the definition of economics.
- Understand the three fundamental economic questions: What should be produced? How should goods and services be produced? For whom should goods and services be produced?

3.0 Definitions of Economics

Economics as a course is interesting, it is the analyses of human being's choices as way to maximize it utility. And the analyses of how economic agent make effort to allocate their limited resources in other to achieve prosperity. The term economics is coin from two words economy and science meaning the science of the economy or the science of utilization of resources. The basic concepts of economics are used to give a better understanding of the definitions and to understand the basic economic problems of economic agent as the world problems revolve around these problems. There are various definitions:

The Classical View of Economics

Classically, economics as a science of wealth. Adam Smith, the father of economics, in his book titled: 'An Enquiry into the Nature and Causes of Wealth of Nations', state economics as the science of wealth. Stating, economics are inquiries into the factors that determine the wealth and growth of a nation. Therefore, production and expansion of wealth are basis of the subject matter of economics. For, Ricardo economics is the study of wealth distribution. Again, J. B Say, state economics as the science of production, distribution and consumption of wealth. Other classical economists such J.S. Mill, states economics as the law that governs mankind in the production of wealth. The wealth definition means that wealth was considered to be an end in itself.

The classical definition economic is narrowed the scope of economics to science that deals with only material wealth. They do not regard the services of non-tangible goods; services do not relate to production of tangible goods. This conception by the classical economists is view with lot of criticisms. AS economics don't only tangible goods and wealth, but study both tangible goods and non-tangible goods (services of teachers, doctors, lawyers). These services provided by human resources fulfill human wants and should be regarded as part of wealth. Secondly, the classical definition relates to the importance of wealth rather than human beings in economic life. That is, wealth is given primary role and human life is given secondary role, contrarily, human life plays a primary role and so cannot be sacrificed for wealth. Lastly, the classical economists, state wage to labour is the only source of wealth to a nation, without considering other sources of wealth such as natural resources, human resources and capital resources.

The Neo- Classical View of Economics

Alfred Marshal state economics as the study of mankind in the ordinary business of life, examining the part of individual and its social action relating to the attainment and use of material for individual wellbeing. Wealth is regarded not as an end in itself but a means to an end because it is use for human welfare. Marshall state economics is the science of material welfare. Again, economics is a social science that study how men live, move and think relation to it ordinary business of life and lastly, economics is the study of rational behavior of people as they

maximize their material welfare. The definition economic is narrowed the scope of economics to economic activities that promote material welfare and excludes all non-economic activities that are socially undesirable like stealing, prostitutions, etc. Robbins regards all goods and services which command a price as economic activity whether they are material or non-material. To say services are non–material is misleading and misrepresentation of the science of economics because all services have value. For example, the production and sale of tobacco, drugs and alcohol are economic activities but harmful to human health. That is, welfare is a subjective as thing varies from person to person, from age to age. So, it cannot be stated objectively what promote welfare and the ones that do not. Robbins believes that economics is not concerned with welfare but economics is a problem come up as result of scarcity of resources.

Scarcity and Choice Definition

An Essay on the Nature and Significance of Economic from Robbins, state economics is the science that studies human behaviour in relationship to ends and scarce means with alternative uses. That is, economics is a human science, that involves maximisation of satisfaction from scarce resource and the means available for satisfying the ends (wants) are scarce or low in supply. Again, the scarce supply has alternative uses, that is, the use of scarce resource for one end prevents its use for any other purpose at the sometime. The ends are of varying importance which necessarily leads to the problem of choice in selecting the uses to which scarce resources can be put to. It is the various alternative uses of the resources that we have to decide on to best allocation scarce resources.

Unarguably, wants are unlimited, resources scarce and there are alternative uses of the scarce resources. Robbins economics studies man's activities in regards to all goods and services, without distinguishing them as material and non-material; provided they satisfy human wants. In other words, economic problem is one of allocating scarce means in relation to numerous ends. However, Robbins definition mention welfare which he earlier criticized, allocation of resources to maximize satisfaction is nothing but welfare. Also, 'end' are subjective, immediate ends many act as intermediaries to further ends. It is difficult to separate ends from means because immediate ends may be the means to the achievement of further ends.

Again, for Robbins, resources are given but economic growth theory concerned itself with reducing scarcity of resources through accumulation of capital and wealth. Therefore, Robbins definition is more applicable to full employed economy is not realistic for analyzing the economic problems of the real world. Economic problems arise not only due to scarcity but due to under, miss or over utilization of resources so full economy is unattainable.

Samuelson's Growth Oriented Definition

Globally, the priority is increasing welfare of states and improvement in the standard of living (reduction of poverty, reduction of unemployment and reduction of income inequality). In line with Sustainable Development Goals (SDGs). Samuelson state economics as relate to growth. "Economics is the study of how people and society end up choosing with or without the use of money, to employ scarce productive resources that could have alternative uses to produce various commodities over time and distribute them for consumption, now or in the future, among various person or groups in the society". Samuelson's definition is an improvement over Robbins scarcity definition based on the following facts:

1. Samuelson emphasised consumption and distribution of various commodities for present and future economic growth relating to study of macroeconomics.
2. Samuelson emphasised cost-benefit analysis to consumption and distribution of scarce resources.
3. Samuelson emphasised inclusion of time element thereby making the scope of economics dynamic.

From the above discussion, it is clear that economics cannot adequately be defined in one sentence. No definition of economics has been generally accepted as being satisfactory because every single definition has been followed up with criticism. Even though there are different definitions as there are different scholars, there is need for a use able definition of economics as a social science concerned with how human beings allocate their limited resources in order to achieve a given end over time. That is, it analyses how economics agent (households, firms, and government) as a whole try to maximize their gains from their limited resources and opportunities now and in the future. A better understanding of the subject matter of economics needs a probe into the scope.

3.2 The Scope of Economics

Economics as a subject is dynamic with continuous growth. Alfred Marshall separated it from *Political Economy*. The scope of economics includes the definition of economics, whether economics is an art or a science and whether it is a positive or a normative science.

3.2.1 Economics as an Art and a Science

The questions whether economics is an art or a science exits. Economics is an art and a science. Economics is an art because different theories and laws are explained with the help of graphs, figures, tables, equations. Again, economics make use of assumptions which helps to define the conditions for the application of theories, laws and relationship between economic variables.

Economics is a science because it is a systematized body of knowledge in which economic facts are studied and analyzed. Economics just like science have laws and theories analysis relationship between two or more phenomena be it causal or correlations. For instance, the law of demand says, all things being equal, a fall in price leads to an increase in demand and vice versa. A rise or fall in price is the cause while the decrease or increase in demand is its effect. Also, Economics is a science with laws that has universal validity (the law of demand, law of diminishing marginal utility), etc. Some people do not regard economics as a science because there is no scope for experimentation. Science involves collections of facts and testing them by experimentation. Economic phenomena are complex because they relate to man who acts irrationally as a result of tastes, habits, social and legal institutions in the society.

Although economics deal with statistical, mathematical and econometric methods for testing, but they are not so accurate to judge the true validity of economic laws and theories. As a result, exact quantitative prediction becomes impossible. For instance, a rise in price may not lead to a reduction in demand rather may increase demand because people are scared of shortages in future. But this does not mean that economics is not a science. It is rather classified as a social science because it deals with human beings whose actions are so filled with uncertainty.

3.2.2 Economics as a Positive and Normative Science

Positive Economics is a branch of economics that has an objective approach, based on facts. It analyses and explains the casual relationship between variables. It explains people about how the economy of the country operates. Positive economics is alternatively known as pure economics or descriptive economics.

When the scientific methods are applied to economic phenomena and scarcity related issues, it is positive economics. Statements based on positive economics considers what's actually occurring in the economy. It helps the policy makers to decide whether the proposed action, will be able to fulfill our objectives or not. In this way, they accept or reject the statements.

The economics that uses value judgments, opinions, beliefs is called normative economics. This branch of economics considers values and results in statements that state, 'what should be the things. It incorporates subjective analyses and focuses on theoretical situations.

Normative Economics suggests how the economy ought to operate. It is also known as policy economics, as it takes into account individual opinions and preferences. Hence, the statements can neither be proven right nor wrong.

Key Differences Between Positive and Normative Economics

The important differences between positive and normative economics are explained in the points given below:

1. Positive Economics refers to a science which is based on data and facts. Normative economics is described as a science based on opinions, values, and judgment.
2. Positive economics is descriptive, but normative economics is prescriptive.
3. Positive economics explains cause and effect relationship between variables. On the other hand, normative economics pass value judgments.
4. The perspective of positive economics is objective while normative economics have a subjective perspective.
5. Positive economics explains 'what is' whereas normative economics explains 'what should be'.
6. The statements of positive economics can be scientifically tested, proved or disproved, which cannot be done with statements of normative economics.
7. Positive economics clearly define economic issues. Unlike normative economics, in which the remedies are provided for the economic issues, on the basis of value judgment.

two branches are not contradictory but complementary to each other, and they should go hand in hand. While laying down laws and theories, economics should be treated as a positive science, but at the time of practical application, economics should be treated as a normative science.

Basis Comparison	Positive Economics	Normative Economics
Meaning	A branch of economics based on data and facts is positive economics.	A branch of economics based on values, opinions and judgement is normative economics.
Nature	Descriptive	Prescriptive
What it does?	Analyses cause and effect relationship.	Passes value judgement.
Study of	What actually is	What ought to be
Testing	Statements can be tested using scientific methods.	Statements cannot be tested.
Economic issues	It clearly describes economic issue.	It provides solution for the economic issue, based on value.

Economics is both a positive and normative science because positive economics sets about to discover what is true about the economy, while normative economics evaluates whether the facts found are good or bad. The two branches are not contradictory but complementary to each other, and they should go hand in hand. While laying down laws and theories, economics should be treated as a positive science, but at the time of practical application, economics should be treated as a normative science.

3.4 Central Economic Problems of any Economy

All modern economies have certain fundamental or basic economic problems to deal with. The limited resources have led to the problem of how to assign the scare resources in order to achieve maximum satisfaction. There is the need to economize and utilize these resources in the most efficient manner in order to satisfy the welfare of the

society. These problems are called central economic problems because other problems revolve around them. They are:

What to produce: - This has to do with the problem of allocation of resources among different goods and services. It involves selection of what should be produced and in what quantity in order to satisfy consumer wants as best as possible using the available resources. The society has to choose among different kinds of goods and decide on how to allocate resources among them, for instance whether to produce capital goods or consumer goods. The society also needs to determine the specific quantity of each type of good to be produced. In a market economy, the choice of what to produce is made by the buyers in other to fulfill their needs. Government can through its laws determine what to produce in a given economy. But the production of one good means a reduction in the production of another.

How to Produce: -This problem refers to selection of appropriate technique of production, that is, how to combine resources in other to produce goods and service in a more efficient way and at a minimum cost. A combination of resources (factors) implies a technique of production. The technique of using a combination which involves less capital and more labour is known as labour-intensive mode of production while a combination of more capital and less labour is capital-intensive mode of production. The decision on which resource combination to use depends on availability of factors and their relative prices. Therefore, it is in the interest of the society that factors should be combined in a manner that maximum output can be produced at minimum cost, using least possible scarce resources.

For whom to produce: - This economic problem focuses on how the national product is to be distributed among the members of the society, that is, how the consumer goods and capital goods will be distributed. The society has to decide who receives the outputs produced in the economy because human wants are unlimited. Should the economy produce goods for those with high incomes or for those with low income? What demographic group should production be targeted at? The money income of the people determines the distribution of output in the society. The greater one's money income, the greater the quantity of goods the person will purchase from the market. Sometimes the supply of goods is in short supply leading to government intervention through price legislation, rationing or through quotas.

What provision should be made for economic growth?

This problem deals with how to decide on how much saving and investment should be made for future economic growth. No society or individual would like to use all its scarce resources for only current consumption or else future production will remain stagnant leading to a decline in the levels of living. The society should devote a part of its resources for the production of capital goods and for the promotion of research and development activities. Capital and technological progress achieved in this way will lead to production of consumer goods in the future and increase standard of living.

3.5 Microeconomics and Macroeconomics

Economics is divided into two major areas – Microeconomics and Macroeconomics

Microeconomics: - The word *micro* is derived from the Greek word *mikros* meaning small. Microeconomics is a branch of economics that is concerned with the behavior of individual consumers, firms, industries, commodities and prices. It studies how decisions made by individuals and businesses affect the prices of goods and services. The main objective of microeconomics is to maximize utility and minimize cost. It is also known as the price theory. The major drawback of microeconomics is the unrealistic assumption of full employment condition in an economy and it deals with the part of the economy instead of the whole economy.

Macroeconomics: - The word *macro* is derived from the Greek word *makros* meaning large. It is that branch of economics that focus on the impact of choices on the total or aggregate level of economic activities. Macroeconomics is the study of aggregates of individuals, firms, prices and outputs. In other words, it studies the economy as a whole. It analyses issues such as aggregate level of employment, the general price level, aggregate savings and investment in the economy. The main objectives of macroeconomics are full employment, economic growth, favourable balance of payment and price stability. The major limitation of macroeconomics is that it ignores the welfare of individuals in an economy and it takes into account only aggregate variables which may not clearly explain economic conditions.

Microeconomics differs from macroeconomics in that while microeconomics maps up close how individuals make decisions and how these decisions affect the price and output of various goods and services, macroeconomics analyses not individuals but aggregates of the economy. While microeconomics studies how an individual firm employs its labours, macroeconomics studies the total employment in a given economy. While microeconomics is particularly concerned with the relative prices of goods and service; macroeconomics studies total prices of all goods and services in the economy.

The division between microeconomics and macroeconomics is not rigid, they are interrelated. What affects the part affects the whole while the whole is made up of the parts. For instance, national income is the sum of the incomes of individuals, households, firms and industries. Also aggregates that are studied in macroeconomics are nothing but individual quantities which are studied in microeconomics. Moreover, modern macroeconomics is based upon the study of microeconomics. Therefore, microeconomics and macroeconomics cannot be isolated from each other.

SELF ASSESSMENT EXERCISE

Give various definitions of economics.

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

5.0 SUMMARY

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 is aimed at maximizing resources which hitherto has been allocated efficiently. Summarily, economists are concerned with choosing the correct way to achieving an objective which may allow us to be able to predict human behavior 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 maximizing 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

5.0 References/Further Readings/Web Resources

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6.0 Self-Assessment Exercise(s)

1. Explicate on the relationship between the basic economic problems

   The fundamental problem in economics is the issue with the scarcity of resources but unlimited wants. Economics has also pointed out that a man's needs cannot be fulfilled. The more our needs are fulfilled, the more wants we develop with time. By definition, scarcity implies a limited quantity of resources.

2. Enunciate on the meaning of economics and its relationship between objectives and rationality.

Economics is the study of scarcity and its implications for the use of resources, production of goods and services, growth of production and welfare over time, and a great variety of other complex issues of vital concern to society. Rational behavior refers to a decision-making process that is based on making choices that result in an optimal level of benefit or utility. Rational choice theory is an economic theory that assumes rational behavior on the part of individuals. Rational behavior may not involve receiving the most monetary or material benefit, because the satisfaction received could be purely emotional or non-monetary.

UNIT 2: THE ECONOMICS SYSTEM

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 determine 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 is 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.

1.2 Learning Outcome

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

- Understand different methods of solving economic problems which lead todifferent types of economies.
- Differentiate between different types of economies
- Know the weaknesses and strengths of each method of economy

3.0 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 meet 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 behavior which determines their decisions in answering basic economic problem.

3.1 What is economic system?

An economic system consists of individual, government and their interaction in the process of answering basic economic problems. Individual and government 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 government and then the government. North (1990) posited that government 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 behavior. 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 three basic economic problems such has 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 organizing 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.

Role of Government in Economic Systems

Due to the failure of the free market mechanism, the intervention of government became indispensable for the growth of an economy. Now, the question arises of determining the extent of government in regulating and managing economic activities. This remains a debatable issue among various economists. This is because of the reason that the government intervention is also not able to eradicate the economic problems of a nation completely. Different economists have given different viewpoints for the role of government in an economy.

From the aforementioned viewpoints, it can be concluded that the accurate and exact percent or amount of government intervention in an economy is hard to decide and calls for an issue of collective social choice. The extent of role of

government differs in different economies. An economic system is a way through which economic resources are owned and distributed. On the basis of the ownership and distribution of resources, the economic system can be grouped into three categories:

3.2 Types of Economic Systems

Economic decision made by a society shapes the economic system of that Country. The Figure 1 below shows the basic economic systems:

- Traditional economy
- Capitalist Economy (Free market)
- Socialist economy (Controlled economy)
- Mixed economy

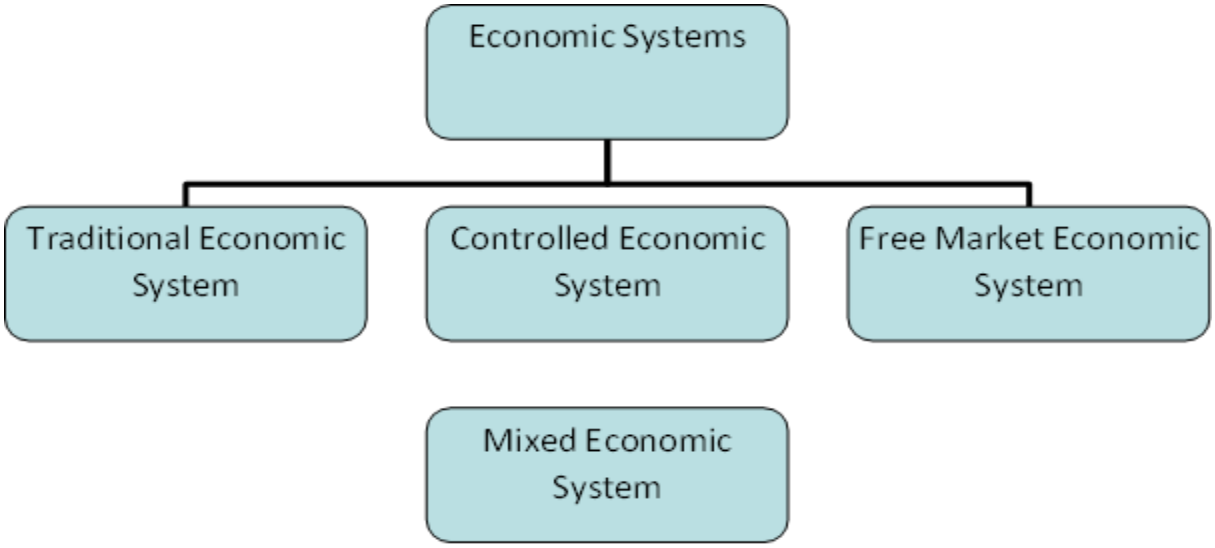

Figure 1 The economic System

Traditional economy

In a traditional economy, the economic decision 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 say 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 friends 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 and 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 monopolized by the family that specialized 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.

Capitalist Economy (Free market Economy)

A capitalist economy refers to an economy that works on the principle of the free market mechanism. It is also termed as laissez faire system. In a capitalist economy, the role of government is very limited. The main functions of government, as given by Adam Smith, are to maintain law and order in a country, make national defense stronger, and regulate money supply. According to Smith, the market system administers various economic functions. However,

over a period of time, the functions of government in an economy have increased.

In a capitalist economy, the main responsibilities performed by the government are as follows:

a. Regulating and controlling various economic situations, such as inflation and deflation, by formulating and implementing various fiscal and monetary measures
b. Controlling the power of monopolistic and large corporations to elude various economic problems, such as unemployment and inequitable distribution of resources
c. Possessing the ownership of public utilities, such as railways, education, medical care, water, and electricity, which are required by an economy as a whole
d. Prohibiting discrimination among individuals and providing them equal educational and job opportunities
e. Limiting restrictive trade practices and power of trade unions
f. Maintaining law and order, administering justice, and safeguarding the freedom of individuals in an economy
g. Supporting private ventures in an economy
h. Creating central planning body that helps in the development of an economy on a larger scale
i. Handling problems to environment, extinction of natural resources, and growth of population

Therefore, we can conclude that the major role of government in a capitalist economy is to control and encourage the free market mechanism. In addition, the government should encourage private ventures for safeguarding the future of an economy.

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.

Socialist Economy (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 produces. 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 accomplished 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.

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 determine how the resources is 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

4.0 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.

Each market has its own strengths and weaknesses, 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.

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Economics Defined - Economics is the study of the ALLOCATION of SCARCE resources to meet UNLIMITED human want

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SELF ASSESSMENT EXERCISE

a. List and discuss briefly the basic economic system.

An economic system is a means by which societies or governments organize and distribute available resources, services, and goods across a geographic region or country. Economic systems regulate the factors of production, including land, capital, labor, and physical resources. An economic system encompasses many institutions, agencies, entities, decision-making processes, and patterns of consumption that comprise the economic structure of a given community.

The main types are – traditional, command, mixed, and market economies. Identifying the system followed by a nation discloses how it operates within and outside its border regarding trade, income, tax rules, and growth.

Traditional

It is based on and gives significance to the customs and traditions of a country's citizens

Command economy

The government or a central authority plan and control the vital processes in the economy

Market Economic System

Minimal or no government intervention and economic processes shaped by the law of supply and demand

Mixed Economic System

A mixed economic system originates when a system is made of specific principles from different economic systems. It is the amalgamation of the market, traditional, and command economies.

UNIT 3: FUNDAMENTAL PRINCIPLES OF ECONOMICS

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. 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 Learning Outcome

At the end this unit, students will be able to:

- Understand the economic concepts
- Understand why and how available choices leads to decision making
- Know difference between the explicit or out-of-pocket cost and implicit or opportunity cost of the best alternative forgone as part of the total cost.
- Identify that correct ways of achieving an objective is rationality especially when the objectives are simply based on assumption

3.0 Fundamental of Principles 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.

Scarcity

Scarcity means limited in supply. According to Thomas Sowell, the first lesson of economics is scarcity. There are three categories of economic resources: Land, labour and capital. Each of these resources exists in a finite, limited quantity. People have unlimited wants and since we have a limited number of resources it means we can only produce a limited amount of goods and services, that is, the limited resources cannot produce enough to satisfy everyone's unlimited wants. This gives rise to the study of economics for better allocation of scare resources among competing and insatiable needs so as to maximize welfare. This led us to choose among competing alternative

Choice

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. A choice is a comparison of alternatives. The problem of scarcity leaves us in a situation in which we must constantly choose which of our wants we will seek to satisfy. For instance, an individual consumer must choose among the types of goods and services to consume because of his limited income. He/she must also choose between spending on present consumption and saving for future consumption. 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 big note. He must take a decision whether to buy big note or go for the ice-cream. His decision is influenced various factors. For example, if it is a sunny day and Ade is thirsty, he might prefer ice-cream to big note. If he has discovered that buying big note stimulate him to study more, he might go for big note because he needs to study more or leave big note because he can study thereafter. He will thus go for one of the choices which he believes is the correct one to maximize his satisfaction.

The firm with its limited capital must decide what to produce and what not to produce. A situation where the firm wants to produce two commodities, the choice to produce more of one would mean a resolve to produce less of the other.

The government is also forced to make a choice on the nature of public goods to provide for the citizens. The government has the task of utilizing the scare resources effectively in order to improve the welfare of the people. Scarcity gives rise to choose and making a choice creates a sacrifice because alternatives must be given up leading to the loss of the benefits which the alternative would have provided.

Scale of Preference

In economics, it is assumed that man is rational in his choice making, that is, if a man has to choose between one thing and another, it is expected that he will always choose the alternative that will yield the greatest satisfaction. Similarly, a firm faced with how to make a choice between production of one product and another, will choose the product that will yield the greatest profits. Scale of preference presents a list of wants arranged in order of importance with the most pressing want listed first, followed by the second most pressing need and so on.

3.1 Opportunity Cost

In making a decision, it is implicitly comparing 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 big note because he needs it to stimulate him to read more. The ice-cream becomes the opportunity cost of buying big note. An out-of-pocket expense is the price of the big note i.e. N20 which is an obvious cost. Opportunity cost is an implicit cost and 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.

Opportunity cost means forgone alternative. People must make choices because of limited resources. Every choice has an opportunity cost and so the satisfaction of one want involves forsaking the other. Therefore, the real cost of satisfying any want is the alternative forgone or the opportunity cost. For instance, suppose a community uses a land and other resources to build a school instead of a factory, the opportunity cost of choosing the school is the loss of the factory and what could have been produced by building the factory. Also, if a student misses his lecture on economics because he wants to go to the cinema, the cost to him is the lectures that he decides to miss. Opportunity cost of any choice is the value of the best alternative forgone in making it and not simply the amount spent on that choice.

3.3 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. Behavior, 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 behavior that appears to be intrinsically self-defeating or inane. 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 action.

4.0 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. The objective of each individual differs 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, categorizing the choices to see the best that can maximize 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 behaviors. 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.

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6.0 Self-Marked Assignment

I. Explain ‘implicit or opportunity cost’. Give real life example (your example must be different from what was given under this unit).

A student spends three hours and $20 at the movies the night before an exam. The opportunity cost is time spent studying and that money to spend on something else. A farmer chooses to plant wheat; the opportunity cost is planting a different crop, or an alternate use of the resources (land and farm equipment).

II. Discuss 'choices', 'opportunity cost' and 'rationality' in relation to economics. Why do you think that individual, corporation and government make choices?

Rational choice theory states that individual, corporation and government rely on rational calculations to make rational choices that result in outcomes aligned with their own best interests. Rational choice theory relate to the concepts of rational actors, self-interest, and the invisible hand and are beneficial to the economy as a whole. There are many economists who dispute the veracity of the rational choice theory and the invisible hand theory.

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

opportunity cost of a resource, they mean the value of the next-highest-valued alternative use of that resource. If, for example, you spend time and money going to a movie, you cannot spend that time at home reading a book, and you can't spend the money on something else. If your next-best alternative to seeing the movie is reading the book, then the opportunity cost of seeing the movie is the money spent plus the pleasure you forgo by not reading the book.

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

Cost-benefit analysis allows an individual or organization to evaluate a decision or potential project free of biases. As such, it offers an agnostic and evidence-based evaluation of your options, which can help your business become more data-driven and logical.

MODULE 2 DEMAND AND SUPPLY

UNIT 1 THE BASIS OF DECISION-MAKING

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 and government are the 'buyers' Sellers and buyers exchange 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 digital market (telephone, internet, and emails orders). Basically, the sellers (supply) and the buyers (demand) the 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 will be bought and sold in the market.

2.0 Learning Outcome

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

- Understand how 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)
- Understand the circular flow of supply and demand between households and firm

3.0 Households, Firms, and Government

Modern economies feature a synthesis of two or more economic systems, as economies fall usually at some point. The government works with the private sector, but sometime the two compete for the same limited resources. Mixed economic systems allow private sector profit-seeking, but with regulations and often nationalise the industries that

provide a public good. For example, the Nigeria is a mixed economy, with ownership of the means of production in private hands but incorporates elements such as subsidies for agriculture, regulation on manufacturing, and partial or full public ownership of some industries like letter delivery and national defense. In fact, all known historical and modern economies fall somewhere on the continuum of mixed economies. Pure socialism and pure free markets represent theoretical constructs only. A mixed economy typically combines the features of a market-based economy with a strong public sector. While most prices are set by supply and demand, the government may intervene in the economy by enforcing price floors or ceilings for certain goods, or by directing public funds to certain industries at the expense of others.

Market

Definition 1 of a market. A market is defined as one particular product (or the product and its close substitutes and complements) and the economic interactions of individuals; who own, produce, trade and consume this product. This definition is imprecise since it not always obvious how generally the product should be defined. In a pure sense the product should be homogeneous. Homogeneity is usually defined in terms of form, place, time, and possession. For example, in some cases the product may be exactly the same as far as physical characteristics (form), but may differ as far as its location (place) or its time of availability. In many cases close substitutes must be considered in analyzing a market as with Coke and Pepsi. But the extent to which close substitutes must be considered is not always this obvious, as for example, chicken versus beef in considering meat consumption. In general, we will assume that a market under consideration is well defined and involves either a homogeneous product or a group of differentiated products that are fairly close substitutes (or complements) for at least one product in the group and have limited interaction with the rest of the economy. Thus, we can speak of the market for corn, or the market for unskilled labor in Abuja, or the market for soft drink Coke and Pepsi.

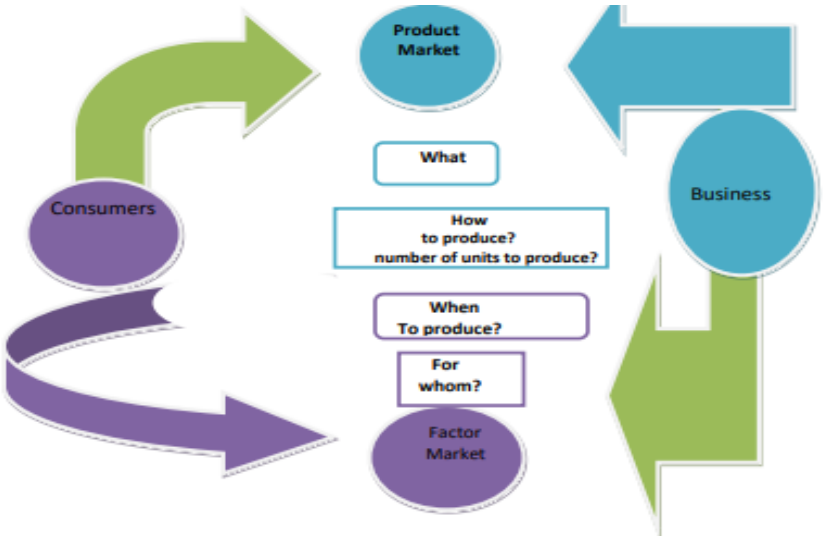

Figure 2: Product market and Basic Economic Problems

Definition 2 of a market. A market is often defined as a situation in which buyers and sellers can negotiate the exchange of some product or products. One might say that it is a group of buyers and sellers with facilities for trading. A market may be located in a specific place such as the local farmers' market but can just as easily operate without all participants or the product in question being present such as the market for corn (including futures) or the market for used cars. The traders may be spread over a whole city, region, country or the world as long as they are in close communication with each other and can convey the necessary information to promote exchange. This definition considers a market as a general means to facilitate the exchange of products and services.

Product differentiation and market definition. The product under consideration in a given market is usually assumed to be homogeneous or close to it. A product that is not homogeneous is referred to as differentiated. Differentiated products usually differ by form, place, time or possession. These differences are sometimes called form, time, place and possession utilities though they are not assumed to be additive.

Form utility. Products that differ physically are said to differ in form. For example, Pepsi and Coke are two similar cola products but they differ (at least to sensitive mouths) physically enough that they are not considered the same product. Similarly, with hamburgers, a Big Mac and a Burger King Whooper are physically different. Form utility may also be in the eye of the beholder. Processing is a common way to change the form utility of a product.

Place utility. Speaking of place and time utility Marshall specifies that "the more nearly perfect the market is, the stronger is the tendency for the same price to be paid for the same thing at the same time in all parts of the market; but of course if the market is large, allowance must be made for the expense of delivering the products to different purchasers; each of whom must be supposed to pay in addition to the market price a special charge on account of delivery." Place utility is defined as the difference (to a single consumer as an argument in the utility function or in value in general equilibrium) in an otherwise homogeneous product that occurs because of the product's physical location or circumstance. Transportation is the most common way to change the place utility of a product.

Time utility. In addition to differences such as those based on location, a product may trade at different prices or terms based on its date of delivery as evidenced by the pattern of cattle futures prices or the term structure of interest rates. Time utility is defined as the difference in an otherwise homogeneous product that occurs because of the time at which the product will be available for delivery. Storage and futures or forward contracts are the most common way to change the time utility of a product.

Possession utility. In an advanced economy where legal titles and contract terms are important, the exact rights conveyed with the product may be important. Often the title to delivery of a product will specify certain terms such

as time of payment, limited liability, ability to return the product if defective, ties to other products or actions such as agreement to purchase additional product, pricing based on some index, etc. All of these terms differentiate an otherwise homogeneous product. Possession utility is defined as the difference in an otherwise homogenous product that occurs because of the terms and conditions of sale and transfer of title.

Vertical chains. The process that begins with the acquisition of raw materials and ends with the distribution and sale of finished products to a consumer is known as a vertical chain. A vertical chain may be made up of a large number of firms using different or the same technologies or a single firm that turns raw materials into a finished product ready for final consumption.

Market channels. A market channel is a description of the set of firms or activities that add place, time, form or possession utility to a product as it is transformed from a raw material or intermediate product into one that is purchased by another firm or final consumers. A broadly defined market channel is synonymous with a vertical chain while a more narrowly defined one may be a subset of a particular chain such as the market channel for new cars (manufacturers inventory to retail sale) or the market channel for fresh sweet corn sold at a roadside stand.

Equilibrium (loose definition). A set of prices (p,w) and allocations of products to consumers and firms is said to be an equilibrium if

- For every firm set of inputs used and outputs produced maximize profit at those prices given the firms technology.
- For each consumer the consumption bundle is maximal for i in the budget set defined by the initial endowment (valued at the equilibrium prices) and their share of the profits of the J firms in the economy.
- The total consumption of products by consumers is equal to initial endowments plus the net output of firms.

Definition of market structure. Market structure refers to all features of a market that affect the behavior and performance of firms (and consumers) in that market. The keys factors in defining a market structure are the short run and long run objectives of buyers and sellers in the market, their beliefs about the ability of themselves and others to set prices, the technologies they employ, the amount of information available to them about the product and about each other, the degree of coordination or noncooperation they may exhibit, the extent of entry and exit barriers, and the degree of product differentiation.

Price

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. price is defined as the rate at which a commodity is exchanged for money or other units of exchange. Therefore, "Price determination" is one of the cores focuses of microeconomics.

3.1 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 (labor) 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 prioritize 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 labor that the firms demand. Input market or factor market is a market where resources used to produce products are exchange.

3.2 Firm as Primary Producing Unit

Firms and households are made up of people in the society who are performing different functions with different 'human behavior'. 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, labor, 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 maximizing profits for those people who comes 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 take risk, manage; organize and coordinate and take decision in a firm are called 'entrepreneur'.

3.3 Government as the Consuming, Producing, and Regularity Unit

From the above definition of input or factor market and output or product market, it can be inferring 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 determined, there is the need to take a decision on what is the required input needed to achieve the supply target. For example, if Nasmart Company decides that a 1 million unit of Nasmart drinks is to be produced and supply to the households who demands to buy; assuming the question of land and building as factors of production 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 labor and capital will also be raised. These two are sourced from Labor and capital markets which are types of factor markets where households supply land resources to the firm. Labor 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 supply 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 labor market. In contrast, products produced by labor for the firm flows to household through the product or output market. In all these the government produce the regulation framework against externalities.

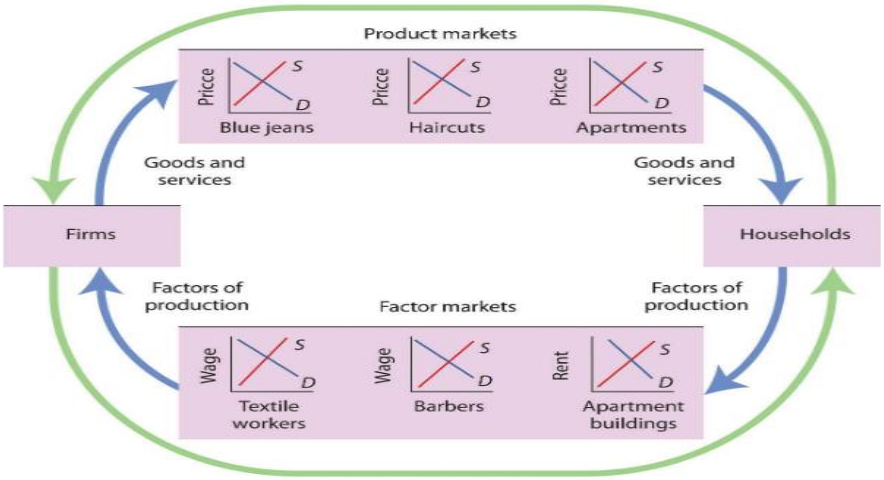

Figure 3: The Circular Flow of Economic Activity

4.0 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 labor from labor 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.

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, labor 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 labor are rewards to the firms. Land, labor 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 References/Further Reading

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6.0 Self-Assessment Exercise(s)

I. Mention and define the two major markets for economic activities.

In the view of economists, there are only two markets: the factor market and the goods and services market. Also, can be called the input market and the output market. The input market supplies the resources needed to make finished products. The output market buys and uses the finished products.

II. What flows from the firm to the household and what flows from the households to the firms?

Firms offer goods and services for households to consume. They also offer incomes to the households. Households then offer land, labor, and capital (known as factors) to firms so that they can then produce the goods and services.

UNIT 2: DEMAND

1.0 Introduction

2.0 Learning Outcome

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 Learning Outcomes

After reading this unit, students will be able to:

- Understand price mechanism
- Explain demand for a commodity in relation to changes in price
- Elucidate on factors that determines quantity demanded
- Understand the movement and shift on the demand curve

3.0 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 number 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 percent but prices of other items as 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.

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 an individual has the following hypothetical demand schedule for commodity X in the Table 1; the market demand schedule for the month.

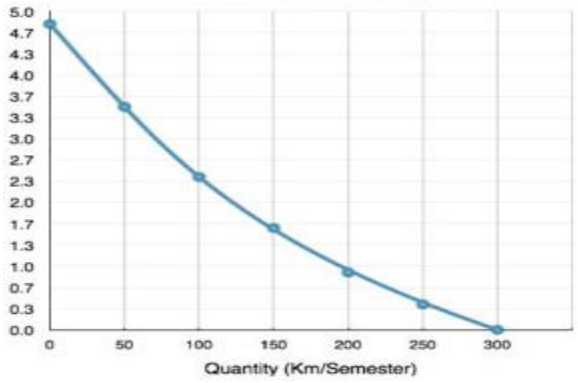
Table 1

Price per unit of commodity X (Px)	Quantity demanded of commodity X
100	25
200	35
300	45
400	60
500	75

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 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. Let see the demand curve for a lecturer of National Open University of Nigeria with increase and decrease price of petroleum per litre.

Demand Curve

It is a graphical representation of the individual demand schedule. The X-axis represents the demand and Y-axis represents the price of a commodity.



The above demand curve shows the demand for petroleum. When the price of petroleum is N 3.5 per litre, its demand is 50 litres and when the price is N 0.5 per litre, its demand is 250 litres. From the demand curve of the lecturer, it reveals that the demand slopes downward because when the price is too high, only few individuals can afford to buy much. Meanwhile, a fall in price make consumption easier and many individuals will be willing to buy the product. Succinctly, Demand curves embody:

- preferences, substitution potential and income, with other factors that influence an economic agent's ability to assess willingness to pay at a specific point in time for goods and services.
- Demand curves may be linear or curved.
- Aggregate demand is the sum of the quantity demanded for a specific price over a group of economic agents.

3.1 Factors Affecting the Demand

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 their households' demand will rise because increase in income means increase in their consumption power. So, they tend to buys 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 Accra, 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 consumed 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 increased 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

3.3 Demand Function

Demand refers to the quantity of a commodity the customer is willing and capable to purchase, at any given time and at each possible price. The above definition highlights essential components of demand: (i) Quantity of the commodity (ii) Willingness to buy (iii) Price of the commodity (iv) Period of time. Demand for a commodity can be expressed with respect to the individual (Individual Demand) or the entire market (Market Demand).
The quantity of a good or service that a consumer is willing and capable to purchase at each possible price during a given time period is referred to as an **Individual Demand**. However, the quantity of goods or services that all consumers are willing and capable to purchase at every possible price within a given time period is referred to as **Market Demand.**

The relationship between the quantity demanded of a particular commodity and the factors influencing it is expressed by the Demand Function. It can be with respect to an individual customer (Individual Demand Function) or all consumers in the market (Market Demand Function).

1. Individual Demand Function

The functional relationship between the individual quantity demanded of a particular commodity and the factors influencing it is defined as the **Individual Demand Function**.

It is expressed as:

$$\mathbf{D_x = f\ (P_x,\ P_r,\ Y,\ T,\ F)}$$

Where,

D_x= Demand for Commodity x,

P_x= Price of the given Commodity x,

P_r = Prices of Related Goods,

Y = Income of the Consumer,

T = Tastes and Preferences, and

F = Expectation of Change in Price in the future.

2. Market Demand Function

The functional relationship between the market demand of a particular commodity and the factors influencing it is defined as the **Market Demand Function**. As earlier stated, market demand is influenced by all of the factors that influence individual demand. In addition to those factors, it is also influenced by population size and composition, season and weather, and income distribution.

It is expressed as:

$$\mathbf{D_x = f\ (P_x,\ P_r,\ Y,\ T,\ F,\ P_o,\ S,\ D)}$$

Where,

D_x= Demand for Commodity x,

P_x= Price of the given Commodity x,

P_r = Prices of Related Goods,

Y = Income of the Consumer,

T = Tastes and Preferences, and

F = Expectation of Change in Price in the future.

P_o= Size and Composition of the population,

S = Season and Weather, and

D = Distribution of Income.

3.3 Movement and Shift in Demand Curve

The movement means an increase or decrease in the volume of demand from its equilibrium. There exist some determinants other than the price of the commodity which affects the quantity of demand, like the income of consumers, the taste of consumers, preference of consumers, population, technology, etc. Due to the effects of these determinants, demand of a product movement make demand curve to shifts. Such shifts affect the equilibrium price and quantity. Discussion on changes in demand.

Changes in demand include an increase or decrease in demand. Due to the change in the price of related goods, the income of consumers, and the preferences of consumers, etc. the demand for a product or service changes. So, there are two possible changes in demand:

- Increase (shift to the right) in demand
- Decrease (shift to the left) in demand

1) Increase in demand (Shift to the Right)

If, the income of the consumer increases. The price of the product and supply of the product remain the same. Due to an increase in income of the consumer, the purchasing power of consumption increases. So, the demand for the product in the market will also increase. Resultantly demand will change even if the price and supply of the product remain the same. This is called an increase in demand. If supplies are short, the price of the product will increase. So, due to the higher price, manufacturers of the product also increase their supply to cover extra demand in the market. Ultimately new equilibrium between demand and supply will be established.

That is, if there is an increase in demand, there will be an increase in the equilibrium price. Resultantly quantity supplied also will rises because quantity sold have increased. The Demand curve will shift rightward. Note the following points:

- No change in the price of the product
- No change in the supply of product
- Income of Consumer is increasing

- Demand is increasing

2) The Decrease in Demand (Shift to the Left)

If the Income of the consumer decreases. But, the price of the product and the supply of the product remains the same. Due to the decrease in income of the consumer, the purchasing power of the consumer will also decrease. So, the demand for the product in the market will also decrease. Resultantly demand will change even if the price and supply of the product remain the same. This is called a decrease in demand.

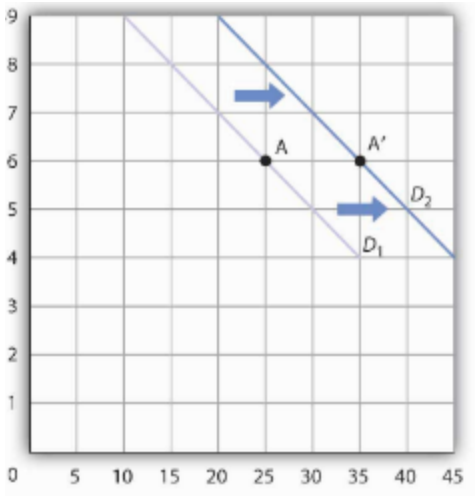
If supplies are excess in comparison to demand, the price of the product will decrease. With lower price, manufacturers of the product will reduce their supply to meet with demand in the market. Ultimately new equilibrium between demand and supply.

Changes in Demand

Price alone does not change the quantity of a good that people consume. Lipton tea consumption can be affected by such variables as income, population, preferences, and teste. It is also expected that other product prices to affect Lipton tea consumption. People often eat doughnuts with Lipton tea, so a reduction in the price of doughnuts can induce people to drink more Lipton tea. An alternative to Lipton tea is coffee, so a reduction in the price of Lipton tea can result in the consumption of more Lipton tea and less coffee. So, a change in any one of the variables held constant in constructing a demand schedule will change the quantities demanded at each price. The result will be a *shift* in the entire demand curve rather than a movement along the demand curve. A *shift* in a demand curve is called a change in demand.

An example, if something happens that increase the quantity of Lipton tea demanded at each price. As a result of increase in incomes, an increase in population, or an increase in the price of coffee can increase the quantity of Lipton tea demanded at each price such change produces a new demand schedule. See example;

Price	Old Quantity Demand	New Quantity Demand
N 9	10	20
8	15	25
7	20	30
6	25	35
5	30	40
4	35	45

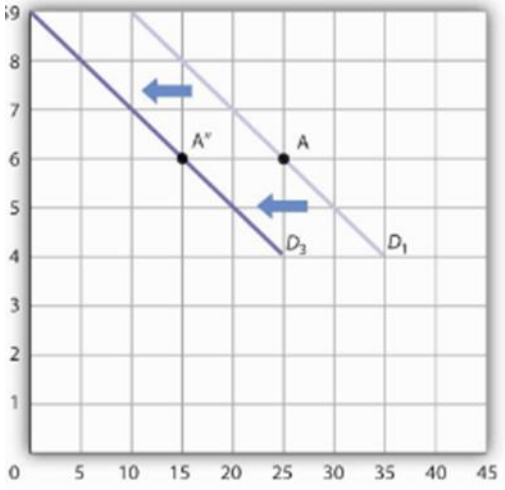


From the demand schedule, quantity of Lipton tea demanded per month is greater at each price than before. Graphically, a shift in the demand curve reveal. Price is on vatical axis and quantity demand is on the horizontal axis. The first curve, labeled D_1, shifts to the right to D_2. At a price of N 6 per unit, for example, the quantity demanded rises from N 25 million per month (point A) to N 35 million per month (point A′).

Demand can increase or decrease. In the case of Lipton tea, demand can fall as a result of reduction in population, reduction price of coffee, or a change in preferences. For example, a definitive finding that the caffeine in Lipton tea contributes to heart disease, which is currently being debated in the scientific community, could change preferences and reduce the demand for Lipton tea.

A reduction in the demand for Lipton tea is reveal. In the demand schedule for less Lipton tea demand at each price. The result is a shift in demand from the first curve D_1 to D_3. The quantity of Lipton tea demanded at a price of N 6 per unit falls from N 25 million per month (point A) to N 15 million per month (point A″). Note, again, that a change in quantity demanded, ceteris paribus (all thing being equal), refers to a movement *along* the demand curve, while a

Price	Old Quantity Demand	New Quantity Demand
N 9	10	20
8	15	25
7	20	30
6	25	35
5	30	40
4	35	45



change in demand refers to a *shift* in the demand curve. The variables that curse change the quantity of a good demanded at each price is called a demand shifter. When the variables change, all other things being equal, the original demand curve no longer hold.

Although different goods and services will have different demand shifters, the demand shifters are likely to include (1) consumer preferences, (2) the prices of related goods and services, (3) income, (4) demographic characteristics, and (5) buyer expectations.

The demand function that relates to quantity demand with one determinant (price). Note that if other determinant of price changed this equation will also change. The market equilibrium will be;

$$Qd = a - bP$$

Where;

Qd is the change quantity demanded

P is the price

The demand function 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 demand function will change to;

$$Qd = a + bY$$

Also, the two factors can be combined to give;

$$Qd = a - bP + cY$$

Where;

Qd is the change quantity demanded

P is the price

Y is the income

4.0 Summary

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. Other factors that affect 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. 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.

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6.0 Self-Assessment Exercise

1. Discuss other factors that can affect quantity demanded aside price of a product and state simple demand equation.
   The quantity demanded (qD) is a function of five factors—price, buyer income, the price of related goods, consumer tastes, and any consumer expectations of future supply and price. As these factors change, so too does the quantity demand. linear demand equation is Q = a - bP.
2. Explain how income effects and substitution effects can affect the quantity demanded.
   For normal goods, the income effect and the substitution effect both work in the same direction; a decrease in the relative price of the good will increase quantity demanded both because the good is now cheaper than substitute goods, and because the lower price means that consumers have a greater total purchasing power and can increase their overall consumption.
3. Why will a demand curve shift to the right from left or left from right.

To sum up, if the income level of a population increases, the demand curve will shift to the right, since there is more quantity of demand at every price point. The opposite will happen if the income level drops. Now there will be less money to spend, and the demand curve will shift to the left

UNIT 3: Supply

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 "Supply". 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 Learning Outcomes

At end of this unit, students will be able to:

- Understand price mechanism
- Explain supply for a commodity in relation to changes in price
- Elucidate on factors that determines quantity supply

- Understand the movement and shift on the supply curve

3.0 Supply and Price: A Link

Supply is the quantity of goods or service that a producer is willing and able to offer for sale at a particular price and at a particular period of time. It is the maximum quantity of good or service that firms will offer for sale at a given market price within a specified time period when all other supply factors other than the commodity's price remain unchanged. It simply refers to only that part of the total production actually offered for sale at the market price and at a particular time. This is referred to as effective supply.

The Law of Supply:

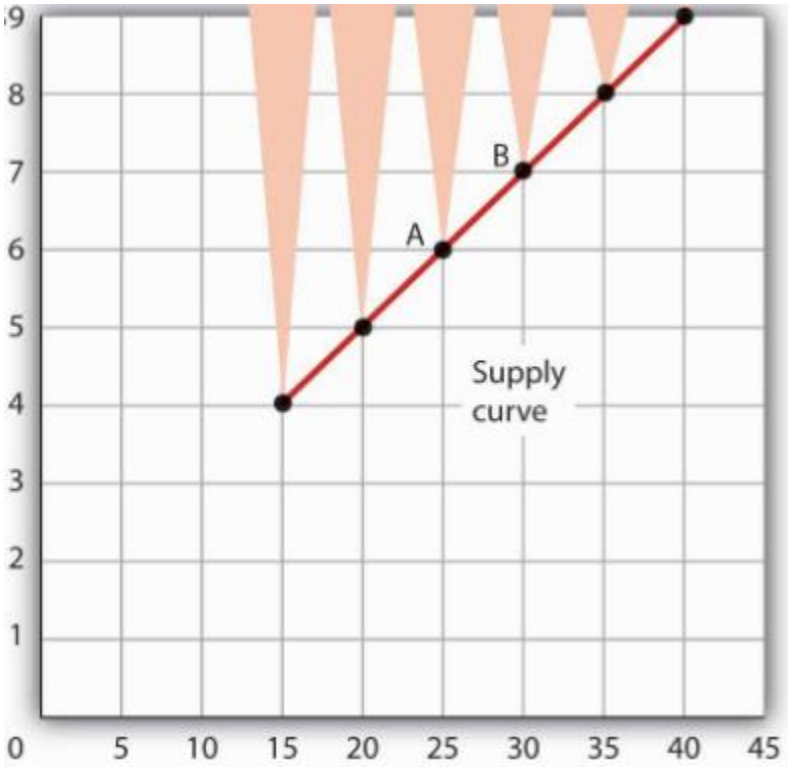
The law of supply states that all things being equal, the higher the price, the higher the quantity of good or service that will be supplied, and vice-versa. This means that suppliers are willing to increase the quantity of a good or service supplied when the price of the good or service rises and decrease the quantity supplied when the price falls, all other things remaining unchanged. A higher price gives producers incentive to increase production and vice-versa.

When the price of a good or service 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 outputs 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 labor 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. There are cases in which a higher price will not induce an increase in quantity supplied. Goods that cannot be produced, such as additional land on the corner of Park, are fixed in supply, a higher price cannot induce an increase in the quantity supplied. There are even cases, in microeconomic analysis, in which a higher price induces a reduction in the quantity supplied.

Price and the Supply Curve

The relationship between price and quantity supplied is revealed in a supply schedule, a table that shows quantities supplied at different prices during a particular period, all other being things equal. A Supply Schedule and a Supply Curve, given a supply schedule for the quantities of Lipton tea that will be supplied per month at various prices, ceteris paribus (all other being things equal). At a price of N 4 per unit, If, producers are willing to supply 15 million unit of Lipton tea every month. At a higher price of N 6 per unit, induces sellers to supply a greater quantity of 25 million unit of Lipton tea per month. The Supply Schedule is as:

Price per unit	Quantity suppled per month (Millions of Naria)
4	15
5	20
6	25
7	30
8	35
9	40



Quantity suppled per month (Millions of Naria)

A supply curve in a graphically from the supply schedule. It reveals the relationship between price and quantity supplied during a particular period; all other things being equal. Because the relationship between price and quantity supplied is generally positive, supply curves generally upward sloping. The supply curve for tea graphically reveals the values given in the schedule.

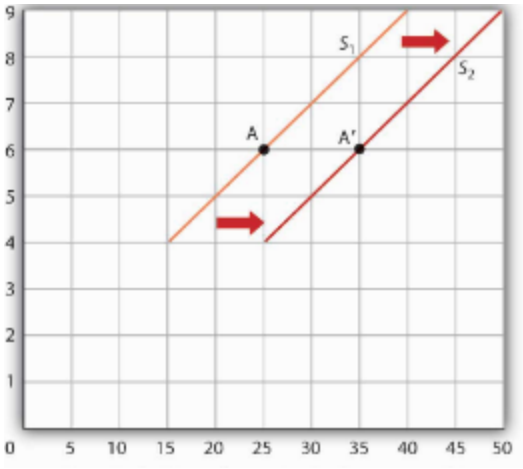
Price	Old Quantity Demand	New Quantity Demand
N 4	15	25
5	20	30
6	25	35
7	30	40
8	35	45
9	40	50

are Lipton supply

A change in price causes a movement *along* the supply curve; such a movement is called a change in quantity supplied. As is the case with a change in quantity demanded, a change in quantity supplied does not shift the supply curve. Theoretically, it is a movement along the supply curve. That is, if the price rises from N 6 per unit to N 7 per unit, the quantity supplied rises from 25 million units per month to 30 million units per month. That's a movement from point A to point B along the supply curve.

Shift in Supply

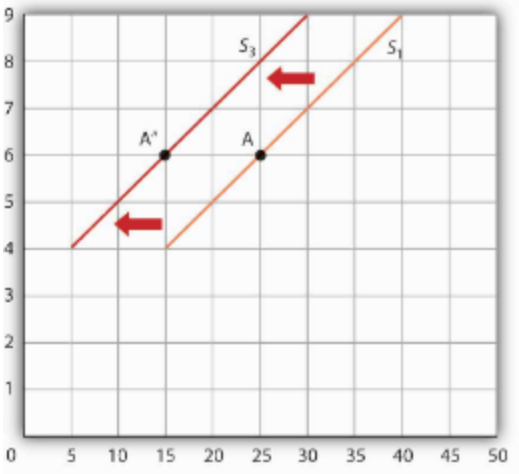
The drawing of a supply curve, assume that all other variables aside price that affect the willingness of sellers to supply a good or service are unchanged. That is, a change in any of those variables will cause a shift in supply, shift in the supply curve. A change that increases the quantity of a good or service supplied at each price shifts the supply curve to the right. If the price of fertilizer falls. That will reduce the cost of producing tea and thus increase the quantity of Lipton tea producers will offer for sale at each price. The supply schedule shows an increase in the quantity of Lipton tea supplied at each price. Graphically, a shift in the supply curve from S_1 to S_2. Show that the quantity supplied at each price increases by 10 million units of Lipton tea per month. At point A on the original supply curve S_1, if 25 million units of Lipton tea per month are supplied at a price of N 6 per unit. After the increase in supply, 35 million units per month are supplied at the same price (point A′ on curve S_2).



Quantity suppled per month (Millions of Naria)

A change that reduces the quantity supplied at each price shifts the supply curve to the left. An increase in production costs and excessive rain that reduces the yields of tea plants are examples of events that might reduce supply. A reduction in the supply of Lipton tea, reveal in the supply schedule that the quantity of Lipton tea supplied falls by 10 million units of Lipton tea per month at each price. The supply curve shifts from S_1 to S_3.

Price	Old Quantity Demand	New Quantity Demand
N 4	15	5
5	20	10
6	25	15
7	30	20
8	35	25
9	40	30



The variables that can change the quantity of a good or service supplied at each price are called supply shifter. Supply shifters include (1) prices of factors of production, (2) returns from alternative activities, (3) technology, (4) seller expectations, (5) natural events, and (6) the number of sellers. If any of these other variables change, the all things being equal, the original supply curve no longer hold. The supply shifters are explained.

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 affect the supply curve are discussed below:

Cost of production

Change in input price, government policy, organizational 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 labor, 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.

4.0 Summary

This unit takes the student 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. In conclusion, whenever there is a rise in prices of commodities, law of supply says the quantity to be supply 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 References/Further Readings/Web Resources

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Obafemi, F. N., Ayodele, S. N., Udah, E. B, Uket, E. O. and Ovat, O. O (2005), Principles of Economics. El-Sapphire Ltd., Lagos, Nigeria.

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6.0 Self-Assessment Exercise(s)

1. Define the following:

Supply schedule

A supply schedule is a table that shows the quantity supplied at each price. A supply curve is a graph that shows the quantity supplied at each price. Sometimes the supply curve is called a supply schedule because it is a graphical representation of the supply schedule

Supply curve

The supply curve is a graphic representation of the correlation between the cost of a good or service and the quantity supplied for a given period. In a typical illustration, the price will appear on the left vertical axis, while the quantity supplied will appear on the horizontal axis.

2. Mention 2 factors that can affect supply curve apart from price. How do you think they can cause a shift.

Other factors can shift the supply curve are, change in the cost of production. If a cost of petrol causes transport prices to high, the supply curve will shift to the left. The price of a substitute product, from the supplier's perspective, if price of corn increases, farmers will shift to growing that instead, and the supply of soybeans will decrease price.

If a new technology, such as a pest-resistant seed, increases yields, the supply curve will shift right. If the future price of soybeans is higher than the current price, the supply will temporarily shift to the left (S_3), since producers have an incentive to wait to sell.

MODULE 3: PRICE DETERMINATION

UNIT 1: Market Equilibrium

UNIT 1: Market Equilibrium

 **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 supply to the market. It can be deduced from the discussion that market price plays 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 o 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 follow 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 Learning Outcome**

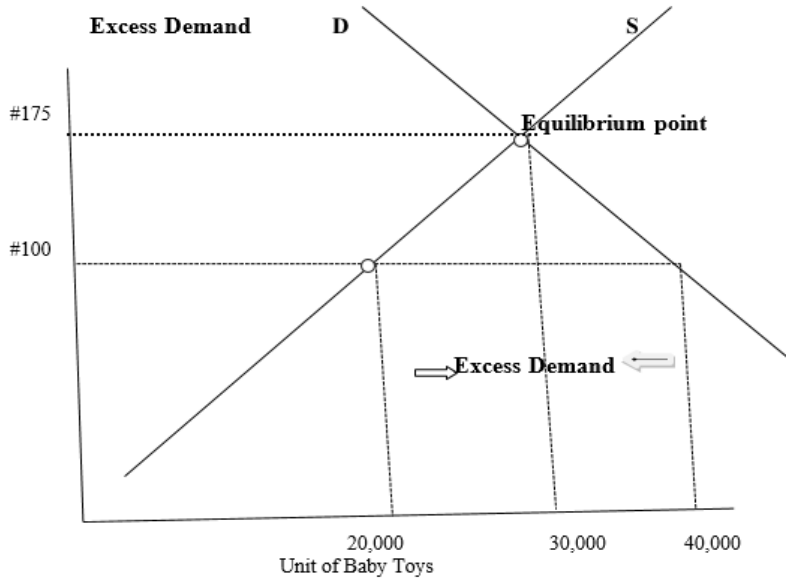
At the end of this unit, student are expected to be able to

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

3.0 Market Equilibrium

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 defined 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 firm 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.

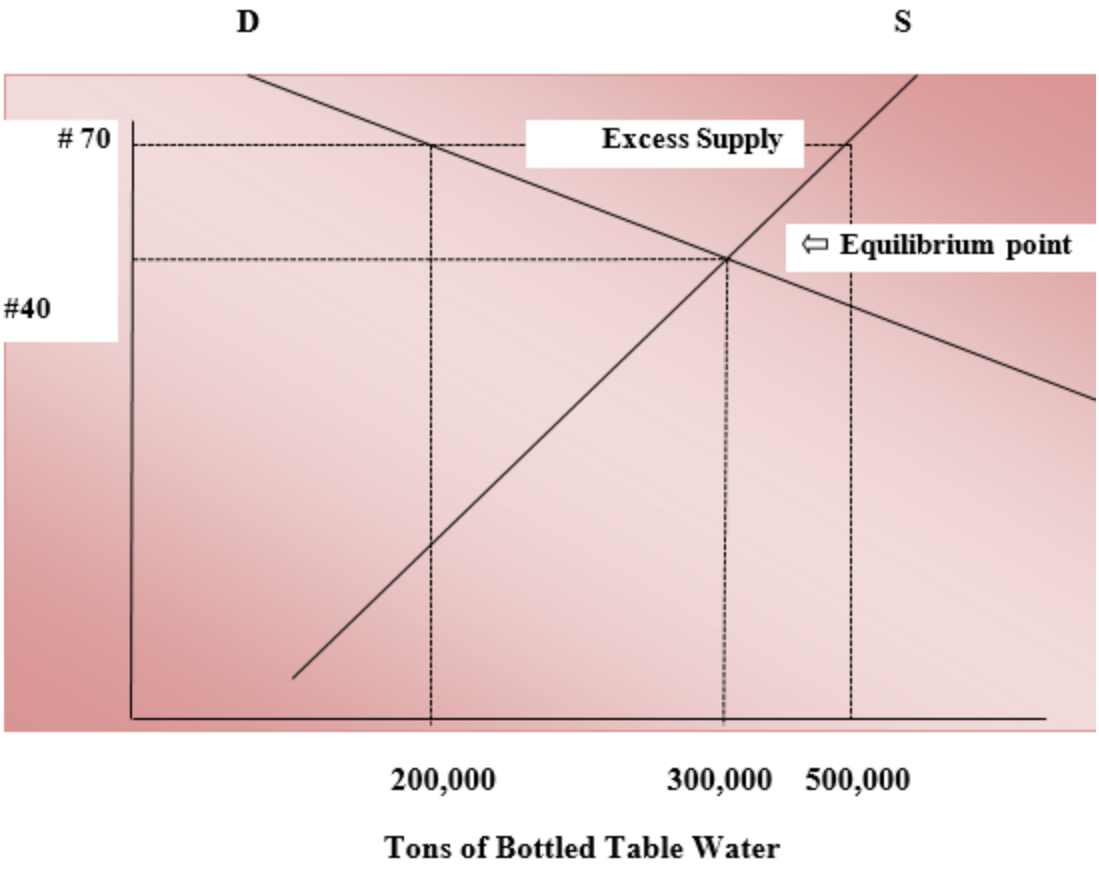


From the above graph, there was a rise in price of baby toy per unit as a result of excess demand by consumers. The price went up from #100 to #175. The toy firms supplied 20,000 units and the demand for this product is 40,000 units. Note that at 30,000 units, the new price is #175; this is the market 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.

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.

Excess Supply



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.

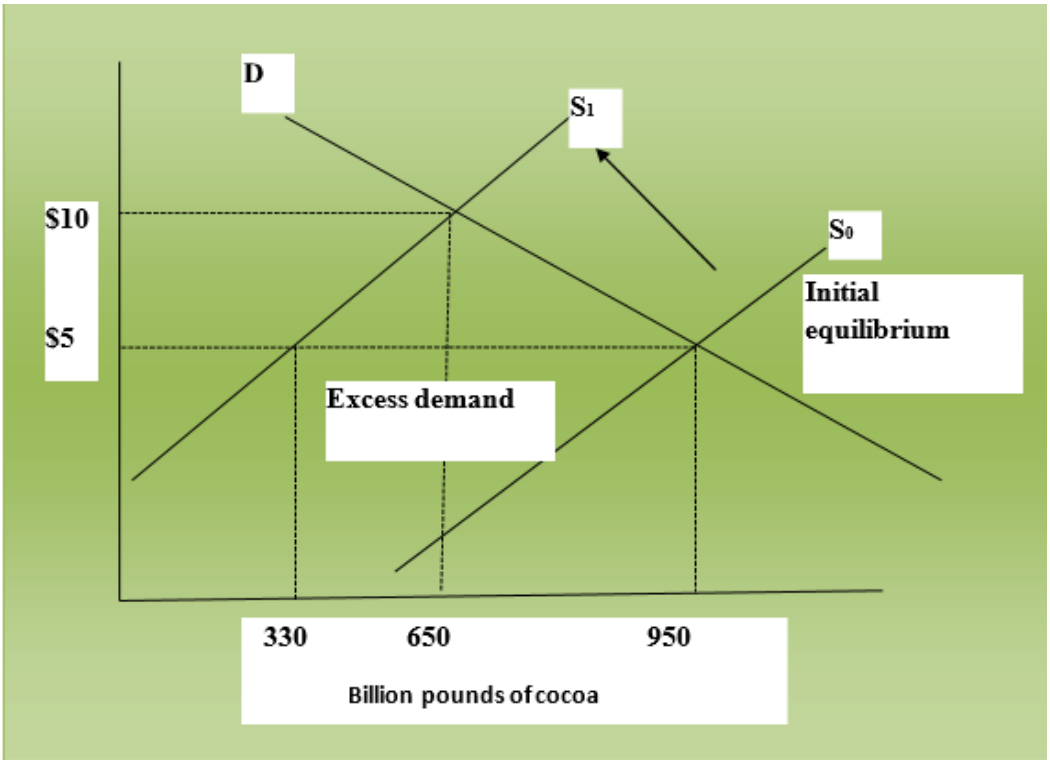
3.3 Market Equilibrium

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 N5 and equilibrium quantity of 950,000,000 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 N 10 and the supply to the market is 650,000,000 billion pounds of cocoa. Shortage in the market shifts the cocoa supply curve from right to left- S_0 to S_1. 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.

Shift in the supply Curve

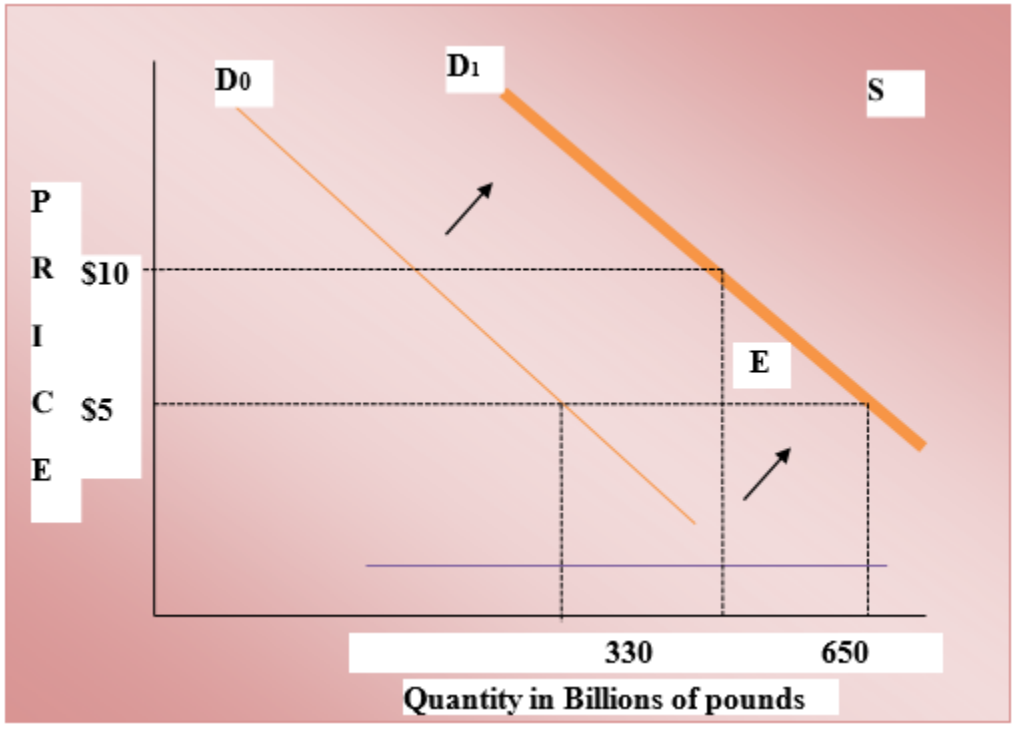


The above figure illustrates how Nigerian supply of cocoa to the world market has affected the equilibrium in the market. Initially, the market was at equilibrium price of N 5 and the demand was equal to supply at 950 billion pounds. But inability of the highest producer to supply large quantities as usual shifted the supply curve from the right S_0 to the left S_1. 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 N10. 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 N5.

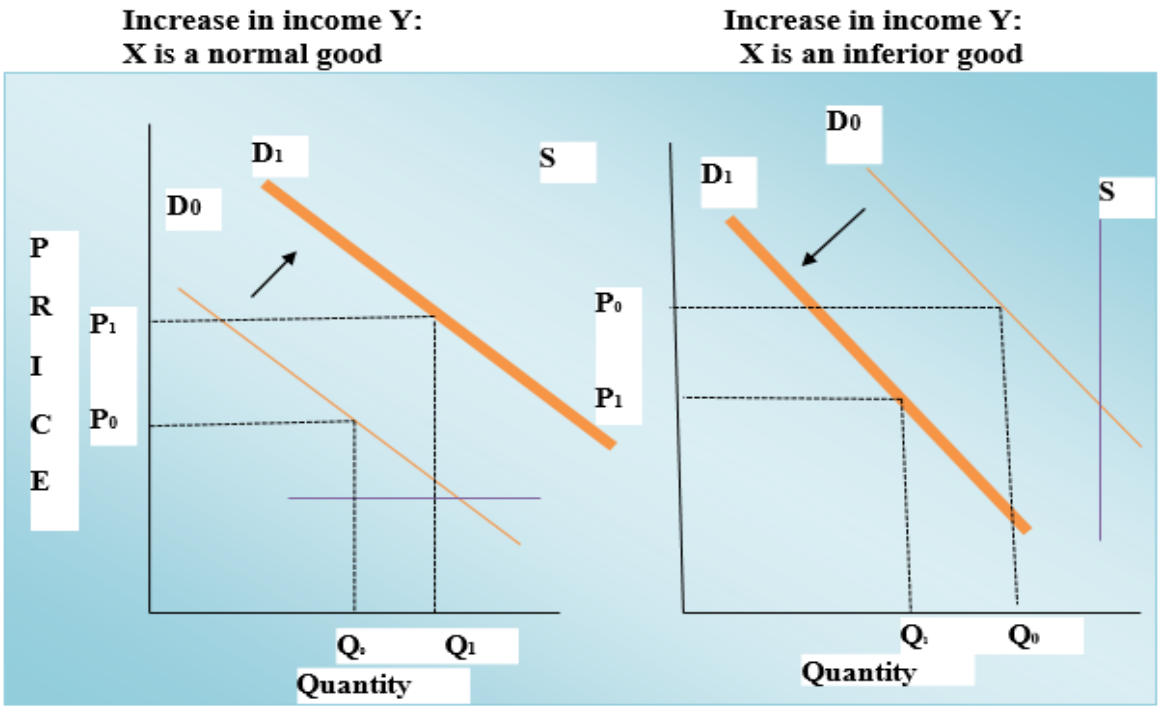
Assuming that it was demand for Nigeria cocoa that rise leading to excess demand, there would be shortage in the market. When this happened, a rise in price would follow as well as a shift in the demand curve. From the graph below, note a movement along the supply curve in response to the increase in the demand for cocoa. The initial equilibrium where demand equals to supply was at a point where demand curve D_0 intersect supply curve S. At that point, the current market price was N 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 D_1 intersect the supply curve S. The new equilibrium price is N10 after a shift in the demand curve from D_0 to D_1. 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).

Shift in the Demand Curve



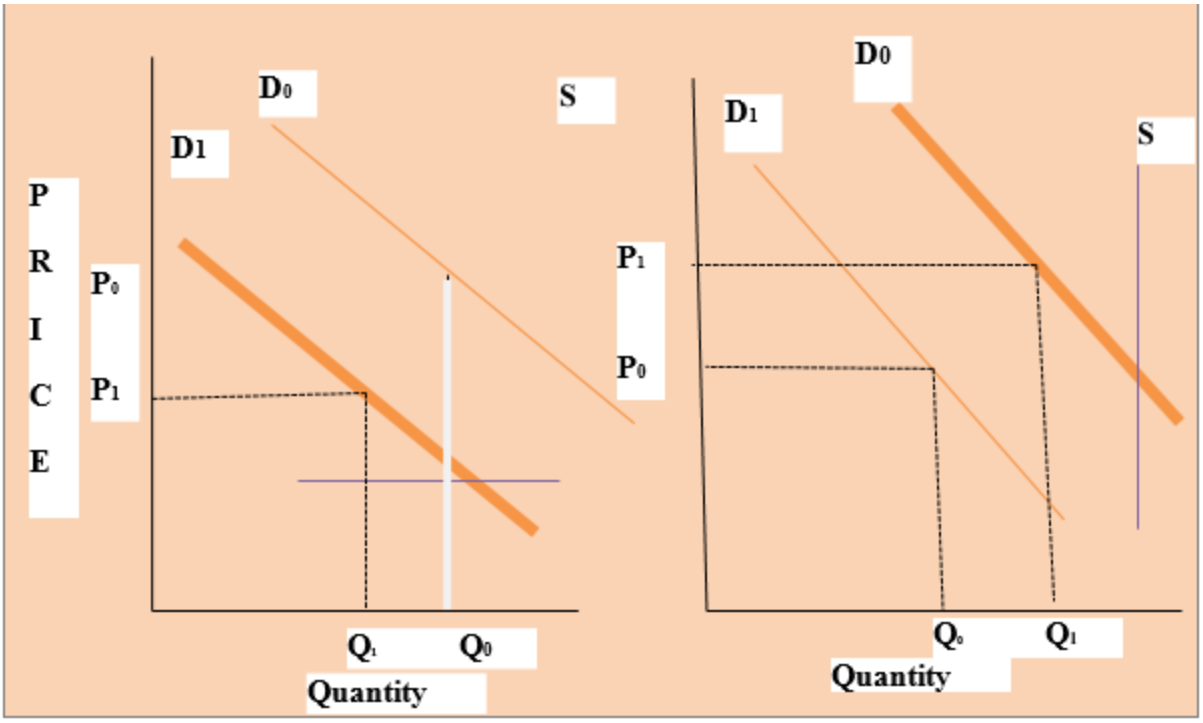
The fundamental way of interaction between the forces of supply and demands is unambiguous. We shall quickly go through how these forces work through various examples diagrammatically. Then one can appreciate the beauty of studying economics through our day-to-day dealings and economic activities. For instance, if we read in the paper that Ogun state government mechanized farm is to increase supply of yam tubers to the market by 40 percent, 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 percent, 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.

Different Shift in demand Curve



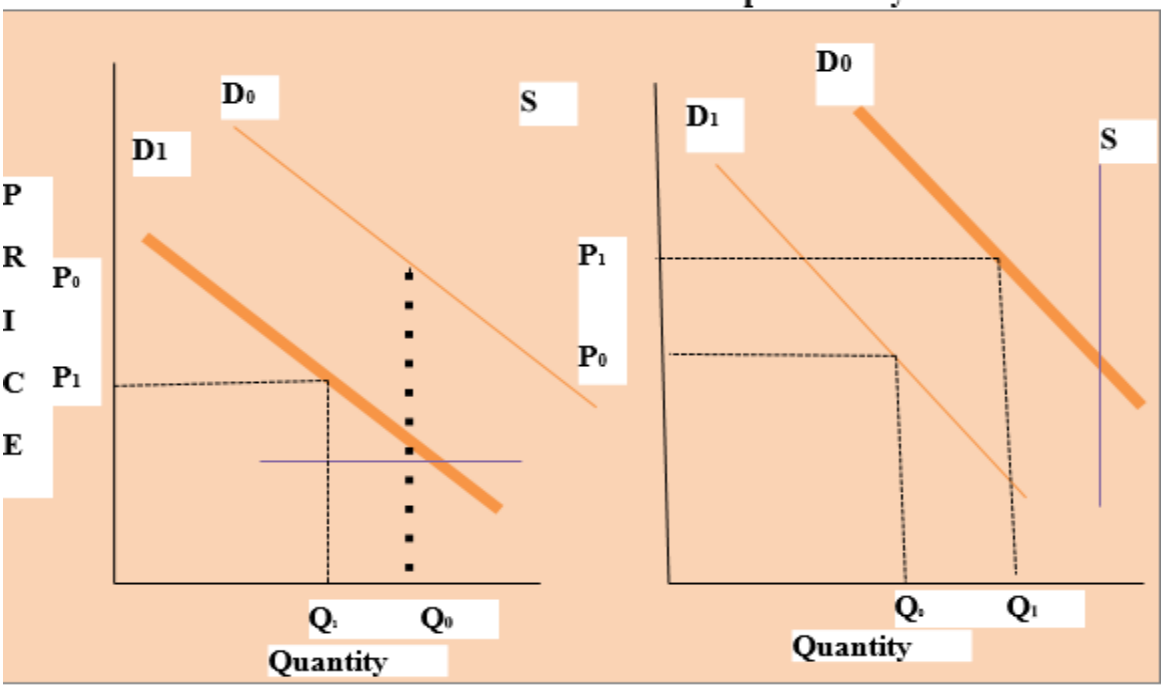
Increase in the price of Substitute for X

Increase in price of complementary for X



Decrease in price of
A substitute for X

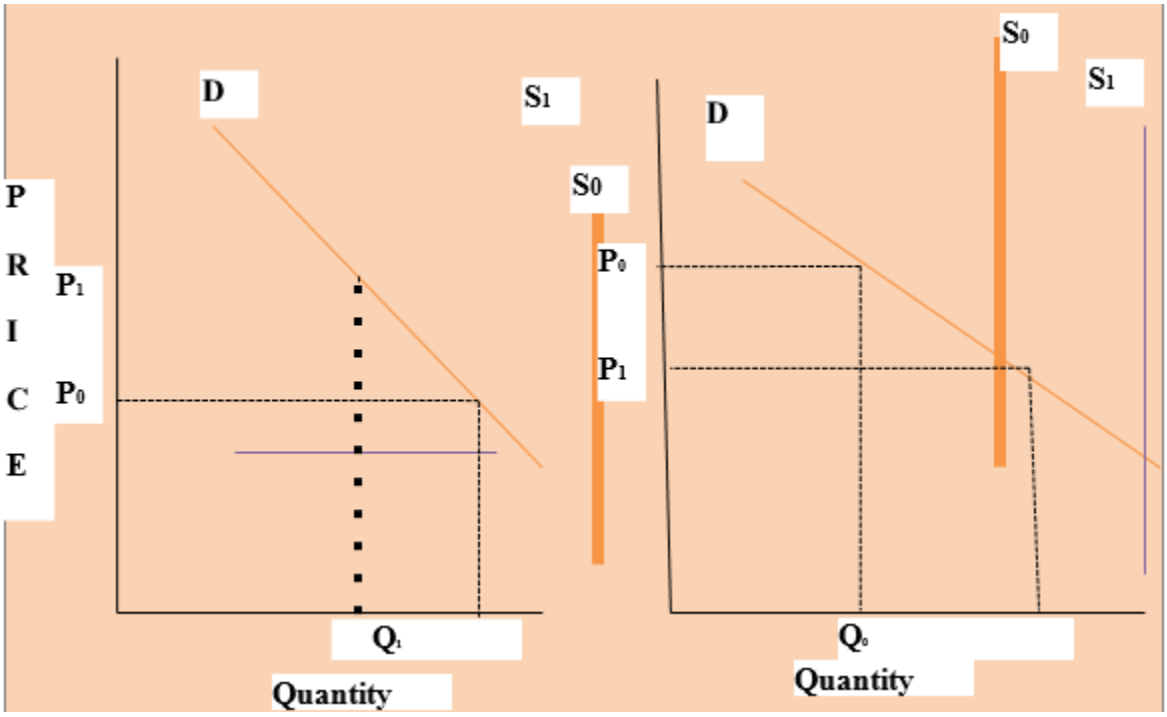
Decrease in price of
complementary for X



Different Shift in Supply Curve

Increase in Cost of Production of X

Decrease in Cost of Production of X



4.0 Summary

The unit examined demand and supply curve; factors that can affect each one of them and how price changes when these factors change. 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 remains 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.

Demand and supply depend 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 References/Further Readings/Web Resources

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6.0 SELF-ASSESSMENT EXERCISE

How many market conditions do we have? Mention them

Excess demand is defined as market condition that exists when quantity demanded exceeds quantity supplied at the current market price.

Excess supply is a market condition where quantity supplied exceeds quantity demanded at the current market price.

Describe excess demand and supply and how to achieve equilibrium.

A market is said to have reached equilibrium price when the supply of goods matches demand. A market in equilibrium demonstrates three characteristics: the behavior of agents is consistent, there are no incentives for agents to change behavior, and a dynamic process governs equilibrium outcomes. The concept of market equilibrium refers to keeping a balance between market supply and market demand. When this balance is achieved, the quantity of goods is called equilibrium quantity and similarly the price is referred to as equilibrium price. Considering market equilibrium, a market demand curve moves downwards because of the excessive demand. On the other hand, a market supply curve goes to upwards direction because of excessive supply. Both the market demand curve and the market supply curve are supposed to intersect with each other to attain that balance. The point where these two intersect is called the point of equilibrium.

UNIT 2: PRICE CEILING AND PRICE FLOOR

3.2 Price Floor

4.0 Summary

5.0 References/Further Reading

6.0 Self-Marked Assignment

 **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.

 **1.2 Learning Outcome**

At the end of this unit, the student should understand:

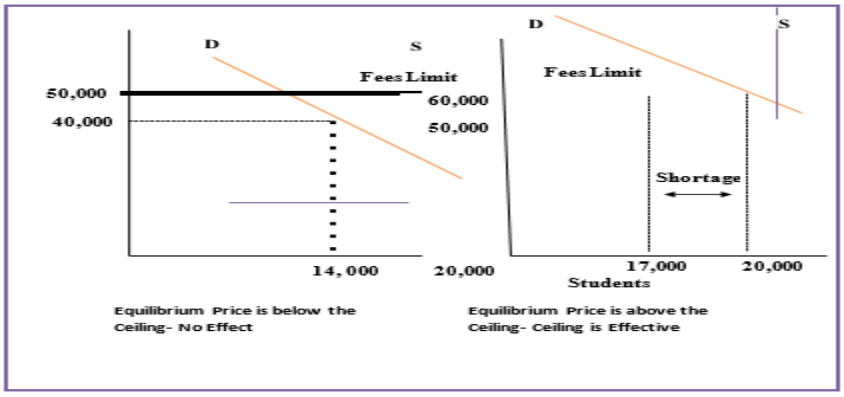
- Why government interfere in the market price determination
- How government interfere in the market
- Explain price ceiling and understand price floor

 **3.0 Price Ceiling and Price Floor**

3.1 Price Ceiling

Price ceiling also referred to as Upper Price Limit which 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 (N.O.U.N), 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 N.O.U.N 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 N.O.U.N will admit. The ceiling in the market has no effect. However, when N.O.U.N 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 N.O.U.N. If the cost of enrolment for B.Sc. Economics is N40, 000, the fees can rise to N60, 000 if N.O.U.N is to admit up to 20,000 students. The federal government therefore places a price ceiling on the school fees at N50, 000 if N.O.U.N is to admit up to 17,000 students. The price ceiling of N50, 000 has no effect if N.O.U.N 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 N.O.U.N of N60, 000 is above the price ceiling of N50, 000.

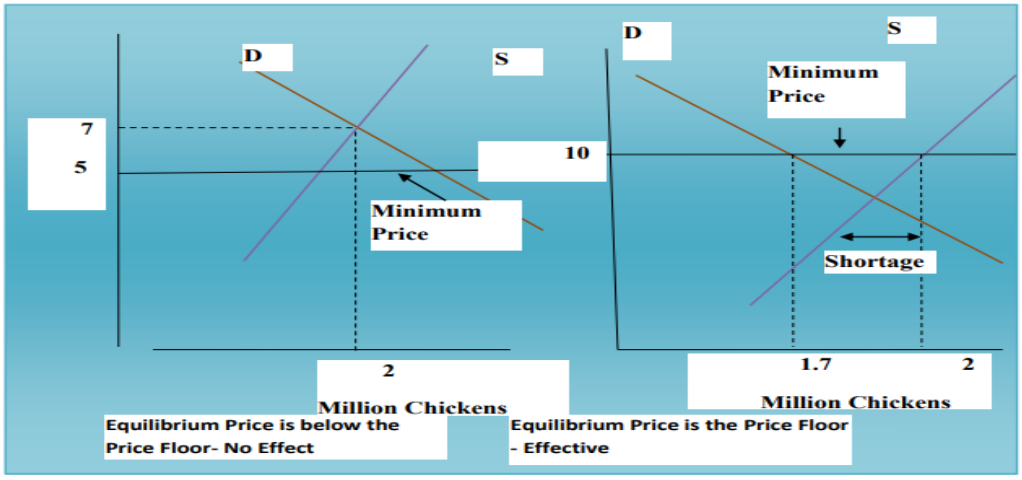
Price Ceiling Graph



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 charge on a particular product or services. Let 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 increased 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.

Price Floor Graph



4.0 Summary

Price ceiling and price floors are two separate government policy 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.

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.

 **5.0 References/Further Readings/Web Resources**

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 **Self-Assessment Exercise(s)**

1. What is the equilibrium price?

Equilibrium price (EP) refers to the market price at which the quantity of a product demanded is equal to its quantity supplied. It is a stable price that has no tendency to change unless there are changes in the demand and/or supply. The purpose of finding the it is to identify the ideal price agreed upon for buying and selling

2. What is the equilibrium quantity demanded and supplied

Equilibrium quantity in economics refers to the quantity distributed following the demand creating no shortage or surplus condition in the market; that is, the supply and demand are balanced and equal.

The equilibrium point is the point where the supply and demand curves intersect. The point reveals the optimum price and quantity. It is calculated by solving equations for quantity demanded and quantity supplied ($a - bP = x + yP$). Solving it gives the value of "P," and applying the value of "P" in the QD or Qs equation gives the result.

UNIT 3 ELASTICITY OF DEMAND

6.0 Self-Assessment Exercise(s)

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 be 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 Learning Outcomes

After reading this unit, students will be able to:

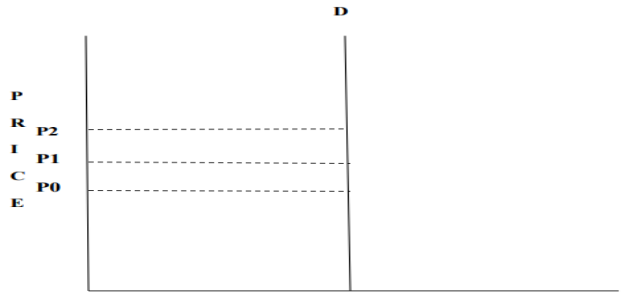
- Define elasticity in relation to demand
- Knows different types of elasticity of demand
- Calculate elasticity
- Should be able to explain the determinants of demand elasticity

3.0 Elasticity of Demand

3.1Demand 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

Perfectly Inelastic Demand



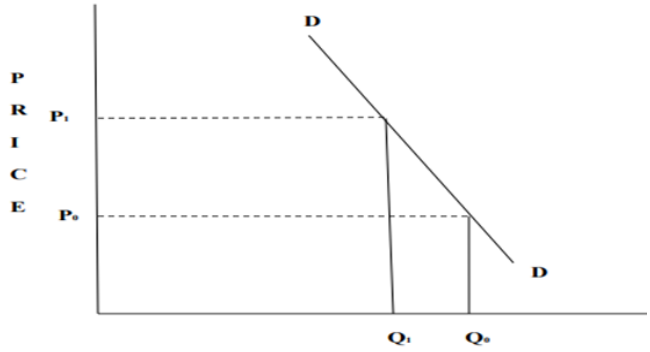
Quantity of Needle demanded

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, note that the distance between Q_1 and Q_0 is smaller to the distance between P_1 and P_0. For example, if 20 percent increase in price of needle drives down quantity demanded by 2 percent, elasticity for needle is calculated as: -2 / 20 = -0.

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.

Inelastic Demand

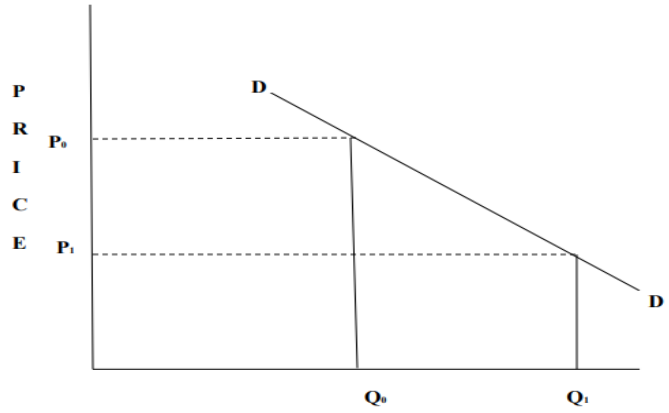


Quantity of Needle demanded

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 4.0), note that the distance between P_0 and P_1 is equal to the distance between Q_0 and Q_1.

Unitary Elasticity



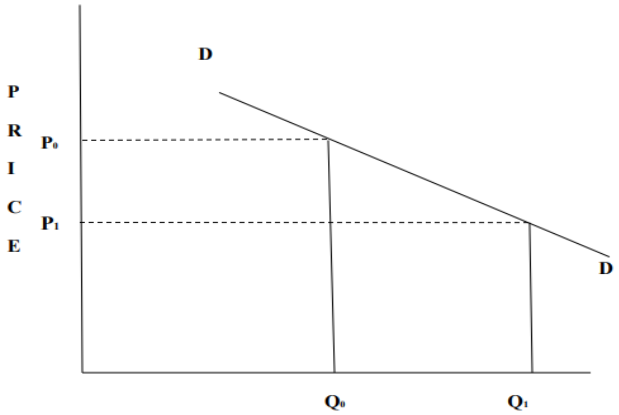
Quantity of Petrol demanded

For instance, if 5 percent increase in price of petrol drives down the quantity of petrol demanded by 5 percent. 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, the distance between P_0 and P_1 is smaller than the distance between Q_0 and Q_1.

Elastic Demand



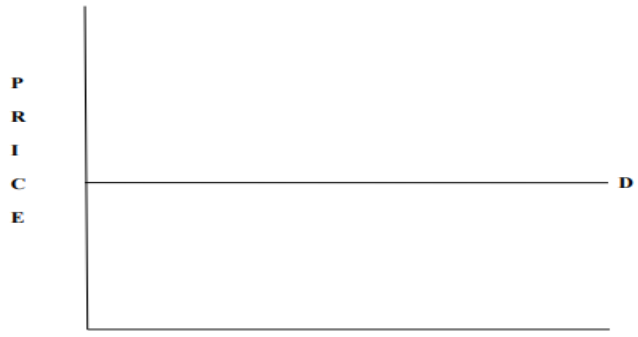
Quantity of Bread demande

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 (see the Figure 4.2 below) because producers can only sell at a fixed price.

Perfectly Elastic Demand



Quantity of Soya Beans demanded

Elasticity Calculations

Calculation of Percentage change in Quantity Demanded

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

$$= \frac{Q_1 - Q_0}{Q_0} \text{ X } 100\%$$

Let assume that quantity demanded of chicken increased from 6kg (Q0) to 12kg (Q1) due to decrease in price from N10 to N7. To calculate the percentage change in quantity demanded using the above formula, as:

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

$$= \frac{12-6}{6} \text{ X } 100\% = 1 \text{ X } 100\% = 100\%$$

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 N10 (P0) to N7 (P1) as an example.

$$\% \text{ change in quantity demanded} = \frac{p_1 - p_0}{p_0} \text{ X } 100\%$$

$$\% \text{ change in quantity Price} = \frac{p_1 - p_0}{p_0} \text{ X } 100\%$$

$$= \frac{7-10}{7} \text{ X } 100\% = \frac{-3}{7} \text{ X } 100\% = \frac{-300}{7}\% = 42.86\%$$

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:

$$\text{Price elasticity of demand} = \frac{change\ in\ quantity\ demanded}{(Q_1 + Q_0)/2} \text{ X } 100\%$$

$$= \frac{12-6}{(12+6)/2} \text{ X } 100\% = \frac{6}{18/2} \text{ X } 100\% = \frac{6}{9} \text{ X } 100\% = 0.6666 \text{ X } 100\% = \%$$

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

$$\%\text{ change in price} = \frac{change\ in\ price}{(p_1 + p_0)/2} \text{ X } 100\%$$

$$= \frac{7-10}{(10+7)/2} \text{ X } 100\% = \frac{-3}{17/2} \text{ X } 100\% = \frac{-3}{8.5} \text{ X } 100\% = -0.3529 \text{ X } 100\% = -35.3\%$$

Now that we know that: % change in quantity demanded = 66.7% % and change in price = -35.3%

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

$$= \frac{66.7}{-35.3} = -1.9$$

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.

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, Close up, 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 determined 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.

4.0 Summary

Elasticity is a means of measuring how quantity demanded or supplied of a product react to changes change in price and other determinant. 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. 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.

5.0 References/Further Readings/Web Resources

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Awodun, M. O. (2000), Economics; Microeconomics Theory and Applications. Chapter 7 and 8.

Obafemi, F. N., Ayodele, S. N., Udah, E. B, Uket, E. O. and Ovat, O. O (2005), Principles of Economics. El-Sapphire Ltd., Lagos, Nigeria.

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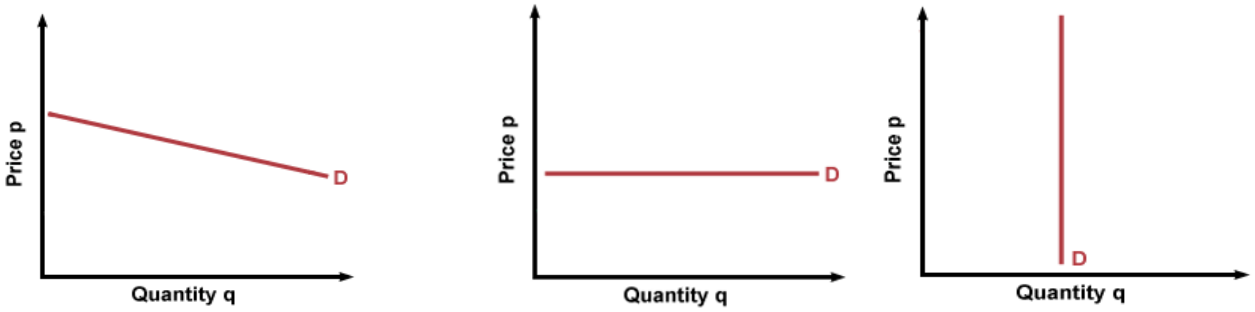
6.0 Self-Marked Assignment

1. Show diagrammatically the following types of demand elasticity: a). Unitary elastic demand; b). Elastic demand; c). Perfectly inelastic demand.



Unitary elastic demand Elastic demand Perfectly inelastic demand

2. If the price of bread increased which led to decrease in demand for butter, then calculate the cross-price elasticity of demand.

   Let, bread = x and butter y

$$Exy = \frac{\%Change\ in\ Quantity}{\%Change\ in\ Price\ o}$$

$$= \frac{\frac{\Delta Q_x}{Q_x}}{\frac{\Delta P_y}{P_y}} = \frac{\Delta Q_x}{Q_x} \text{ X } \frac{\Delta P_y}{P_y} \text{ cross multiple; } \frac{\Delta Q_x}{\Delta P_y} \text{ X } \frac{P_y}{Q_x}$$

   where:

   Q_x = Quantity of good X

   Py = Price of good Y

   Δ=Change

UNIT 3 ELASTICITY OF DEMAND

1.0 Introduction

2.0 Objective

3.0 Elasticity of Supply

   2.1 Price Elasticity of Supply

   3.2 Determinants of Supply Elasticity

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 purchase 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 Learning Outcomes

After reading this unit, students will be able to:

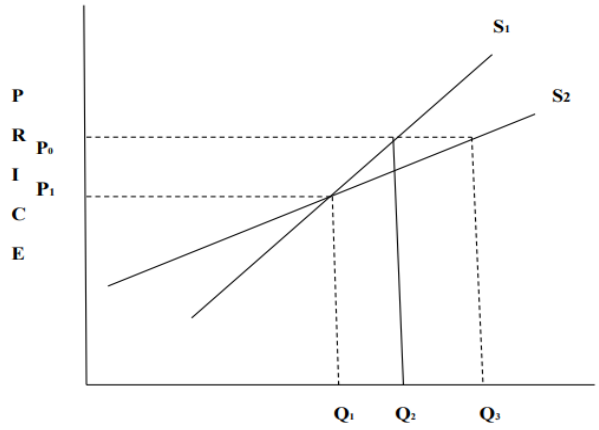
- Explain elasticity in relation to supply
- Knows other types of elasticity that are important
- Calculate elasticity

3.0 Elasticity of Supply

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 below shows how quantity supplied respond to changes in price shifting the supply curve from S_1 to S_2 as the price changes from P_1 to P_2.

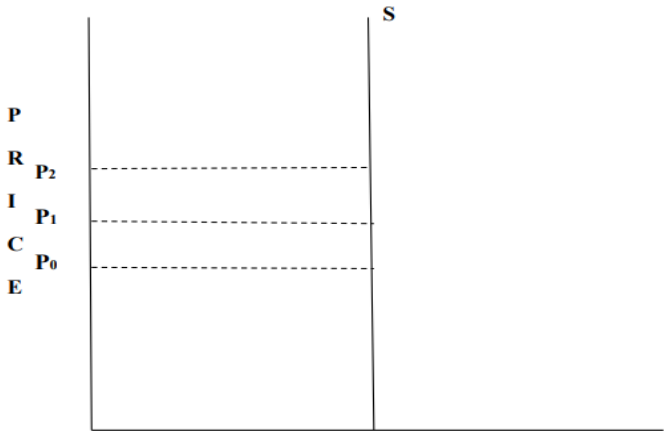
Elasticity of Supply Graph



Quantity of Supplied

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.

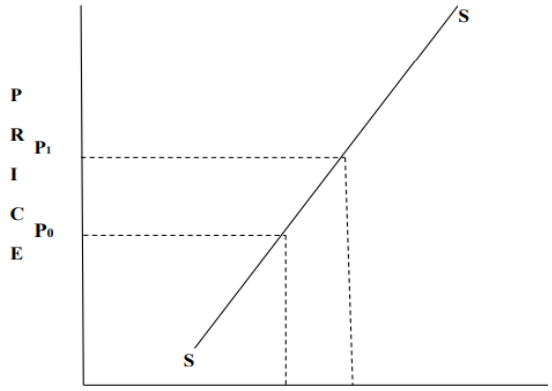
Perfectly Inelastic or Zero Elasticity



Quantity of Coffee supplied

From the above diagram, it shows that no matter the rise in price of coffee, the supply remains the same.

Inelastic Supply



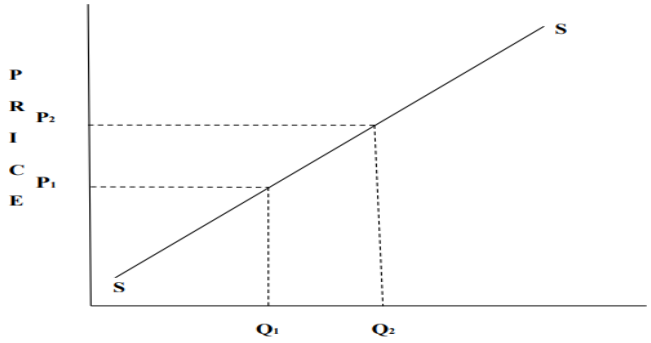
Quantity of Supplied

The quantity supplied may change but not proportionate to the percentage changes in price. From the above graph, 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.

Unitary Elasticity of Supply Graph

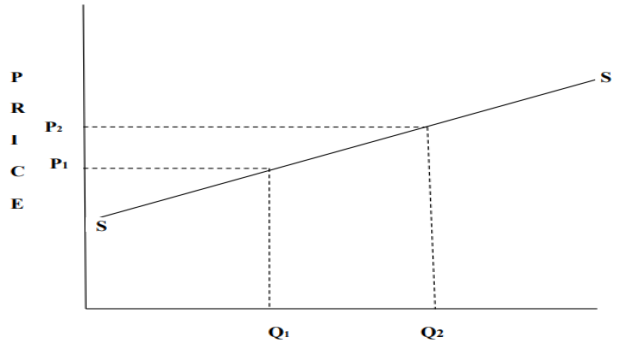


Quantity of Supplied

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.

Elastic Supply Graph

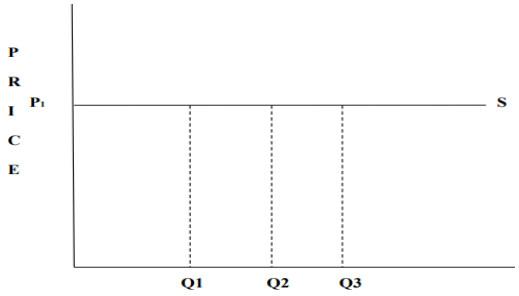


Quantity of Supplied

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.

Perfectly Elastic Supply



Quantity of Supplied

Calculating Price Elasticity of Supply

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

$$P_{\in S} = \frac{\%\Delta Q_s}{\%\Delta p}$$

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

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

$$P_{\in S} = \frac{\%\Delta Q_s}{\%\Delta p} = \frac{15\%\ \Delta Q_s}{5\%\ \Delta p} = \frac{15\ \%\Delta}{5\ \%} = 3\%$$

In the above estimention, 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:

$$P_{\in S} = \frac{15\%\ \Delta Q_S}{25\%\ \Delta p} = \frac{15\%}{25\%} = 0.6$$

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

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:

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

$$Y_{\in D} = \frac{\%\Delta Q_D}{\%\Delta Y}$$

Cross elasticity

Cross elasticity of demand is used 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:

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

$$\text{Cross elasticity of demand} = \frac{\%\Delta QD_S}{\%\Delta pg} = \frac{-4}{7} = -0.57$$

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:

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

$$\text{Cross elasticity of demand} = \frac{\%\Delta QD_S}{\%\Delta pg} = \frac{2}{10} = 0.2$$

3.3 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 a sometimes to increase some factors of production while others remain fixed, then it supplies 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.

3.4 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.

4.0 Summary

As said earlier on elasticity is a means of measuring how quantity demanded or supplied of a product react to changes change in price and other determinant. 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.

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.

5.0 References/Further Readings/Web Resources

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6.0 Self-Marked Assignment

3. What do you understand by elasticity of demand and supply?

Elasticity is a measure of a variable's sensitivity to a change in other variables. Most commonly this sensitivity is the change in quantity demanded relative to changes in other factors, such as price. price elasticity is the degree to which individuals, consumers, or producers change their demand in response to price or income.

4. Give the formula of two other important elasticities

   Formula for Price (Point) Elasticity of Demand

$$Pe_d = \frac{\%\ \text{Change in Qty}}{\%\ \text{Change in Price}}$$

$$\text{Arc } E_d = \left[\frac{(Qd2 - Qd1}{\text{midpoint Qd}}\right] \div \left[\frac{(P2 - P1)}{\text{midpoint P}}\right]$$

5. Explain the following:

   a. Perfectly inelastic supply

      When a good has zero elasticity, it is called "perfectly" inelastic. This means the product's supply and/or demand will not change, even as its price changes.

   b. Elastic supply

Elasticity supply refers to a situation in which the quantity supply is extremely sensitive to changes in price, with even a small change in price leading to a large change in quantity supply.

c. Unitary supply

Unitary elasticity of supply refers to a situation when the percentage change in quantity supplied of a commodity is exactly equal to the percentage change in its price.

6. Briefly discuss factors determining elasticity of supply.

Availability of close substitutes

If consumers can substitute the good for other readily available goods that consumers regard as similar, then the price elasticity of demand would be considered to be elastic. If consumers are unable to substitute a good, the good would experience inelastic demand.

If the good is a necessity or a luxury

The price elasticity of demand is lower if the good is something the consumer needs, such as Insulin. The price elasticity of demand tends to be higher if it is a luxury good

The proportion of income spent on the good

The price elasticity of demand tends to be low when spending on a good is a small proportion of their available income. Therefore, a change in the price of a good exerts a very little impact on the consumer's propensity to consume the good. Whereas, when a good represents a large chunk of the consumer's income, the consumer is said to possess a more elastic demand

Time elapsed since a change in price

In the long term, consumers are more elastic over longer periods, as over the long term after a price increase of a good, they will find acceptable and less costly substitutes.

MODULE 4 THEORY OF CONSUMER BEHAVIOR

UNIT 1 BASIS OF CHOICE: UTILITY

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 consistency according to economist because all households behave in a consistency 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 maximize 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 behavior is studied with consideration for understanding consumer utility.

2.0 Learning Outcomes

After reading this unit, students will be able to:

- The student should be able to define utility
- Understand the concept of marginal utility
- And the concept of total utility
- Explain marginal benefit and marginal cost curve

3.0 Basis of Choice: Utility

3.1Utility 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 seems to be an implicit problem about measuring utility accurately. Different people in the households has different tastes and preference, what Mr. A considered has 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 behavior.

3.2 Marginal Utility and Total Utility

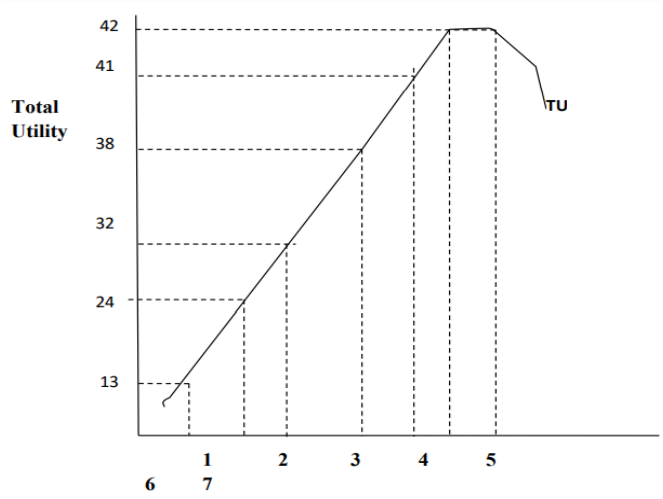
Having considered satisfaction or reward from consuming a particular good and having made choices on sets of goods and services to be consumed, the households is again concern about extra satisfaction from consumption. The spread of households' income on some goods and services is to avoid consumption 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

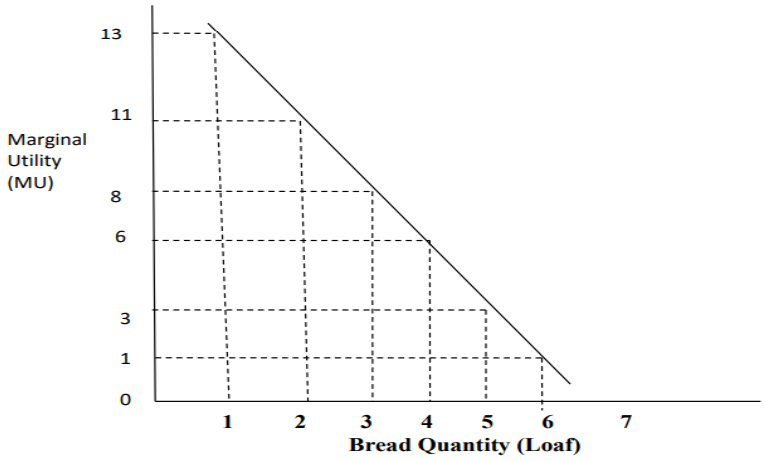
5th , 7 th and 9th hot bread (that melt butter) she consumed can be referenced and measured using util. The util is what can be used to measure utility. Since the satisfaction gotten by the lady for the 5th consumption or what another lady (Gaga) got in term of satisfaction on consuming the same hot bread (that melt butter) cannot be really ascertained. Therefore, util is one unit of satisfactionderived 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:

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 load. Hence the total utility remains 42. The figures for marginal and total utility are plotted in the graph below.

Total Utility Curve





3.3 Diminishing Utility

Let us continuing with the above example of the lady who loves hot bread (that can melt butter); the more she consumes 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 hotter 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.

3.4 Marginal Benefit and Marginal Cost Curve

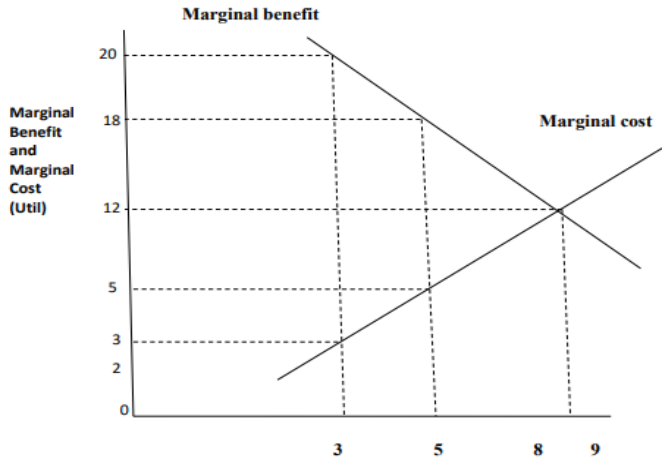
Everybody has fixed budget he is willing to spend on some items, the fixed budget is usually as a result of limitation imposed on consumers by their incomes. Lady Bola has an income of #60 for her fixed budget and if she planned to spend her income on Bread and Beans cake for instance. Assuming that Bread cost #6 per item while Beans cake 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 Bread and 15 packs (#2 x 15= #30) of Beans cake. Meanwhile Lady Bola has the following utilities from consumption of Bread and Beans cake as shown below:

Number of Bread loaves	Bread Marginal Utility	Number of Beans cake	Beans cake Marginal Utility
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 Beans cake in other to enjoy more Bread. Therefore, in order to compute that marginal cost, we need to know the trade-off between Bread and Beans cake. Since a Bread pack cost #6, by implication, the trade-off is 3 Beans cake when the Beans cake' price is #2. Hence when Lady Bola consumed the first 3 Bread packs, she spent #18 on that but decided to spend just #4 on Beans cake. She derived 20 utils from the Bread consumption and additional 7 utils from Beans cake consumption. Consequently, marginal cost of the third Bread is obtained by multiplying the number of Beans cake consumed at that point by 1 util. Let see how the marginal benefit and marginal cost curves look like.

Marginal Benefit and Marginal Cost Curves



4.0 Summary

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. 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.

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6.0 SELF-ASSESSMENT EXERCISE

1. What is marginal utility?

Marginal utility is the added satisfaction a consumer gets from having one more unit of a good or service. The concept of marginal utility is used by economists to determine how much of an item consumer are willing to purchase.

2. Briefly explain the concept of diminishing marginal utility

What is the basis of choice and in what unit is it measured?

The law of diminishing marginal utility says that the marginal utility from each additional unit declines as consumption increases. 1. The marginal utility can decline into negative utility, as it may become entirely unfavorable to consume another unit of any product.

3.What is the difference between marginal utility and total utility?

What is the difference between total utility and marginal utility? Total utility is the total amount of satisfaction derived from consuming a certain amount of a good while marginal utility is the additional satisfaction gained from consuming an additional unit of the good.

UNIT 2 BUDGET CONSTRAINT

1.0 Introduction

In the previous sections, we have seen how utility derivable by consumer can shape the behavior 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 behavior 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 behavior; a general weakness of the theory is that it cannot be measure 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 Learning Outcome

After reading this unit, students will be able to:

- Consumer's preference and indifference curve
- Characteristics of indifference curve shared by all consumer
- Budget constraint and consumer's income and preference
- Where customer's utility is maximized on indifference curve and budget line

3.0 Budget Constraint

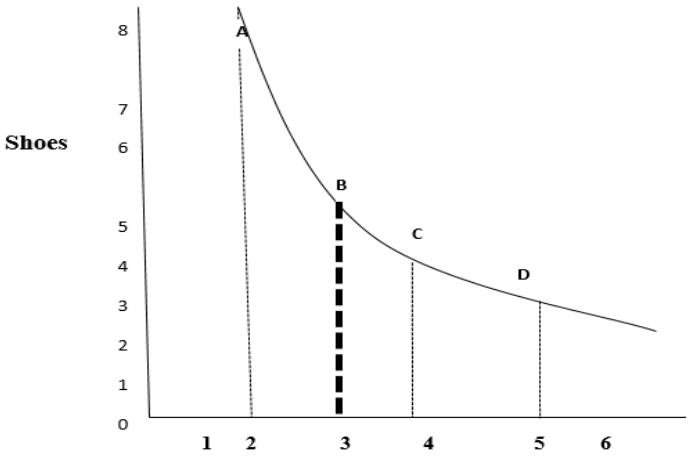
3.1 Indifference Curve

Utility theory is one of the techniques we can utilize to measure consumer behavior. 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 maximization. They can give up one good for the other in order to maximize 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. Graphically, the movement of Uche's indifference curve for a pair of good
that is shoes and gold jewelries.

Uche's Indifference Curve for Shoes and Jewelries



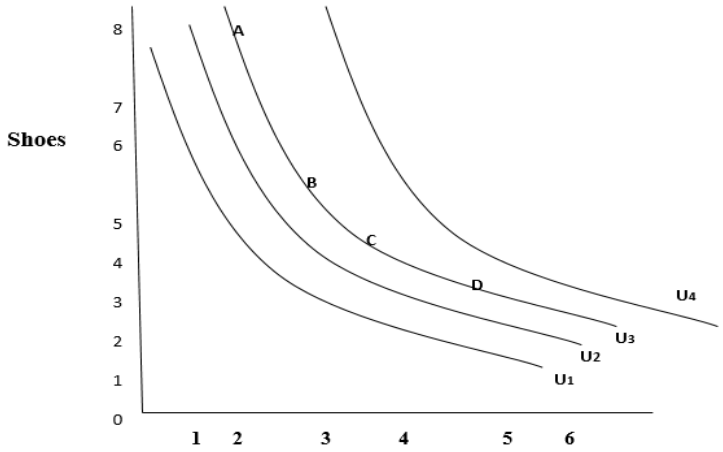
Gold Jewelries

Uche's Indifferent Combination

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

From Uche's Indifference combination, she 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 below:

Indifference Curves and Higher Level of Utility



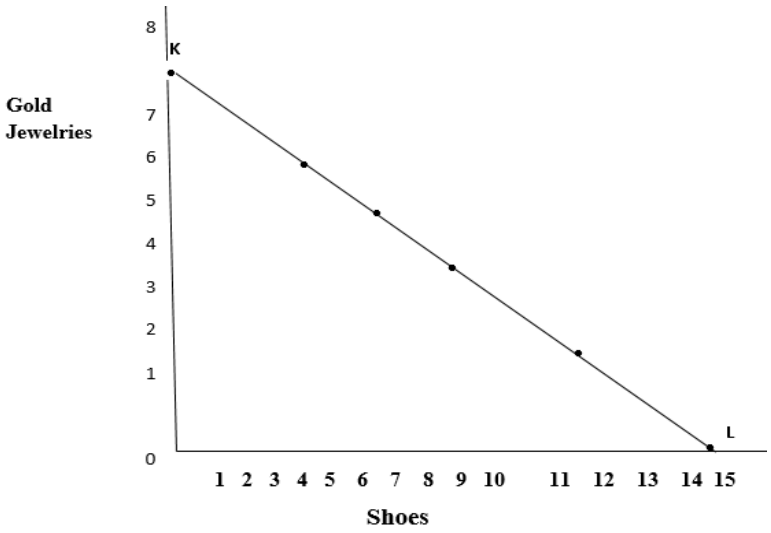
The utility U1, U2, U3 and U4 are four indifference curves respectively. Utility derivable from indifference curve U1 in the above is lower than utility derivable from indifference curve U2. Indifference curve U3 is less than U4 which stands for highest utility. The consumer is most likely to prefer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

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 move 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 assumed 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 below:

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



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.

4.0 Summary

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 behavior 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 which to combine. 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 wishes 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 has.

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6.0 Self-Assessment Exercise

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? indifference curve analysis, consider:

    Individual choice indifference

    Marginal utility theory indifference

    Income indifference

Substitution effects indifference

The subjective theory of value indifference

2. State the budget constraint equation from question 1. The formula for the budget constraint line would be: P 1 × Q 1 + P 2 × Q 2 = I
3. Describe what you understand by marginal rate of substitution (MRS). Marginal Rate of Substitution (MRS)

   The slope of the indifference curve is known as the marginal rate of substitution (MRS). The MRS is the rate at which the consumer is willing to give up (or substitute) one good for another. For example, a consumer who values apples will be slower to give them up for oranges, and the slope will reflect this rate of substitution.

UNIT 3 EQUILIBRIUM, PRICE AND INCOME CHANGES

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 Learning Outcome

After reading this unit, students will be able to:

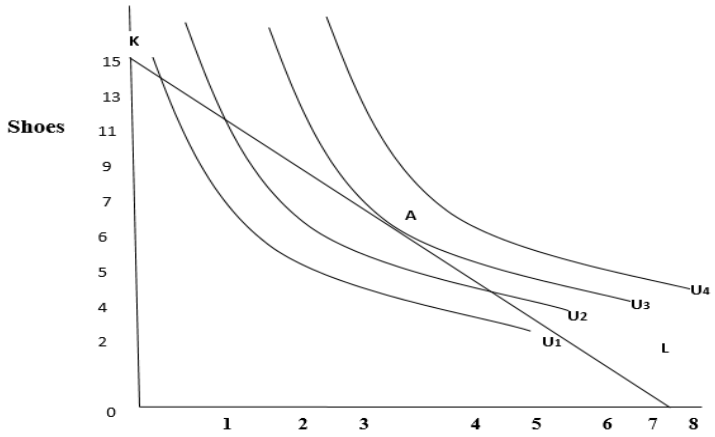
- To know the consumer equilibrium point on the budget line
- To know the effect of changes in income on the consumer's equilibrium
- To know the effect of changes in price of goods on the consumer's equilibrium

3.0 Equilibrium, Price and Income Changes

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.

Tangency and Equilibrium Position



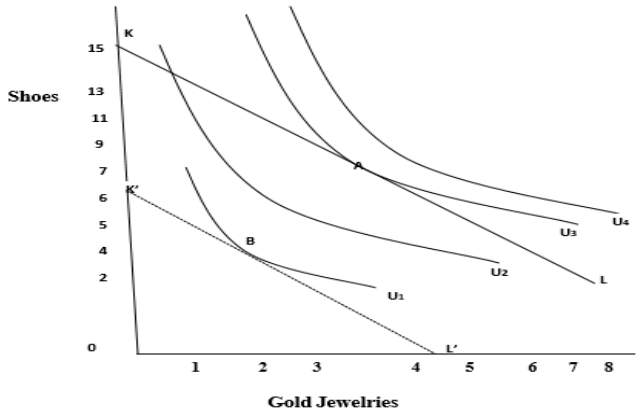
Gold Jewelries

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.

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?

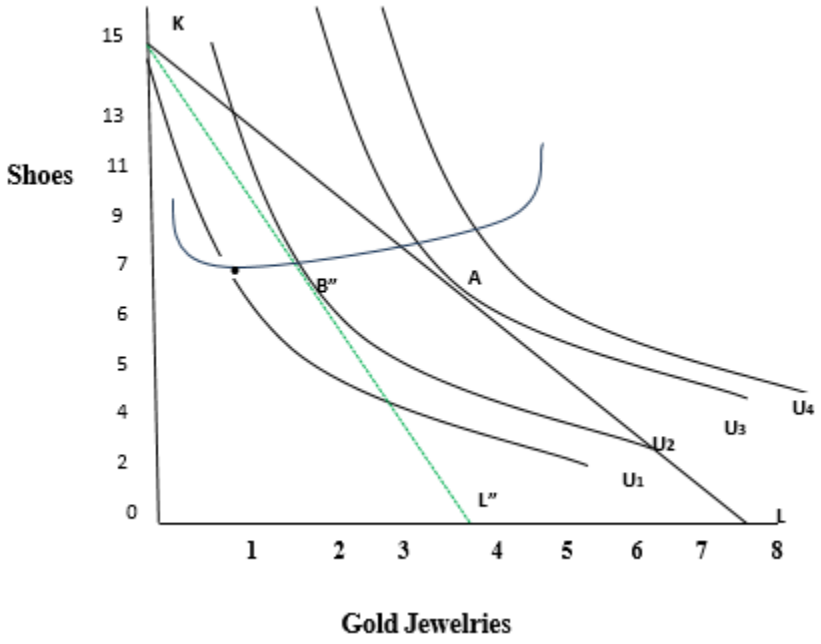
Income Change Effect on Consumer's equilibrium



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 unit 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 (refer to the figure below). 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".

Price Change Effect on Consumer's equilibrium



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

5.0 References/Further Readings/Web Resources

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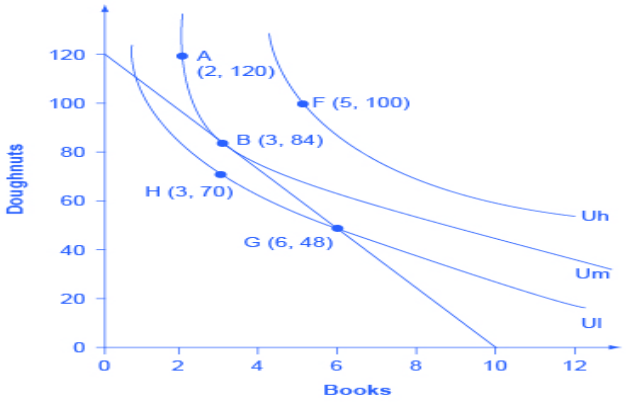
6.0 Self-MARKED ASSIGNMENT

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.

   One's utility-maximizing choice. Several possibilities are identified in the diagram.



The highest achievable indifference curve touches the opportunity set at a single point of tangency. Since an infinite number of indifference curves exist, there will always exist one indifference curve that touches the budget line at a single point of tangency.

2. Describe the equilibrium point and what can affect it

Equilibrium is the state in which market supply and demand balance each other, and as a result prices become stable. Generally, an over-supply of goods or services causes prices to go down, which results in higher demand—while an under-supply or shortage causes prices to go up resulting in less demand. An increase in supply, all other things unchanged, will cause the equilibrium price to fall; quantity demanded will increase. A decrease in supply will cause the equilibrium price to rise; quantity demanded will decrease.

MODULE 5 THEORY OF PRODUCTION

UNIT 1 Factors of Production

1.0 Introduction

Consumers aim at maximizing his satisfaction given his income and market prices of goods and services. In the same vein, a firm aims at maximizing 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. 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

The 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 maximize profit and minimize 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 Learning Outcome

After reading this unit, students will be able to:

- Factors of productions
- Their specific contribution to process of production
- Production function
- The role of firm and entrepreneur in productivity

3.0 Factors of Production

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; labor, 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 labor, working capital, raw materials etc.


Output

Transformation of factor of production into goods and services that are use 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, labor, machines, raw materials like flour, sugar and other factors of production to engage in bread production activities.

Entrepreneur

A person who manages and or own a firm; who also assume risk of operating and organizing 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 inputs is fixed.

The Long-run

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

3.2 List of Factors of Production

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

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

2. Labor- This is the physical and mental human effort that is input into production process whether the production process is computerized or not. This made labor a distinctive factor of production. The reward for labor is wages.
3. Capital- It encompasses money all and all other tangible assets such as building, machinery, equipment, furniture etc. Capital also has a reward referred to as interest.
4. Entrepreneur- Like labor, entrepreneur is another distinctive factor of production because an entrepreneur is usually the initiator of production. He organizes 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.

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, labor, equipment and other factors of production of a firm. New development in technology, training that enhances labor'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 laborers may be working on a piece of land for 3 days to clear the land; pack the cut grasses and make heaps for planning 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 need 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 labor-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

4.0 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, labor, 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

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.

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6.0 SELF-ASSESSMENT EXERCISE

1. Define the following:
   a. Fixed factors and Variable factors

      Fixed factor of production is one whose quantity cannot readily be changed (major pieces of equipment, factory land). A variable factor of production is one whose usage rate can be changed easily.

   b. Input and output

      Input refers to the resources, like fuel and labor, that goes into the production of a good or service. Output is the finished product that is the result of input resources combined

   c. Land and capital

      Land refers to natural resources and Capital is the tools and buildings used to produce things.

2. What is production function? How will a firm arrive at new production function?

   The production function is a mathematical equation determining the relationship between the factors and quantity of input for production and the number of goods it produces most efficiently.

   Shifting the production function: An increase in the stock of capital. When the capital stock increases from K_0 to K_1, holding everything else fixed, the production function shifts up. Then for a given amount of labor, N_0, the amount of output produced in the economy increases from Y_0 to Y_1.

3. Explain what you understand by short-run and long-run in the production process.

Short-run is a period when some factors of production are fixed and some are variable. Output can be increased only by increasing the application of the variable factor. In the short run, the scale of production remains constant. The long run is a period when all factors of production are variable.

UNIT 2 PRODUCTION PROCESS AND COST CONCEPTS

1.0 Introduction

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

2.0 Learning Outcome

After reading this unit, students will be able to:

- Cost concepts and their definitions
- Total Cost Schedule and Cost Curve Schedule
- Marginal cost and Average Cost relationship
- Short-run and Long-run Average costs relationship

3.0 Production Process and Cost Concepts

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 inputs. 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.

Hypothetical Total Cost Schedule

UNITS	TOTAL FIXED COST(TFC)	TOTAL VARIABLECOST (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

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- tvcof 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

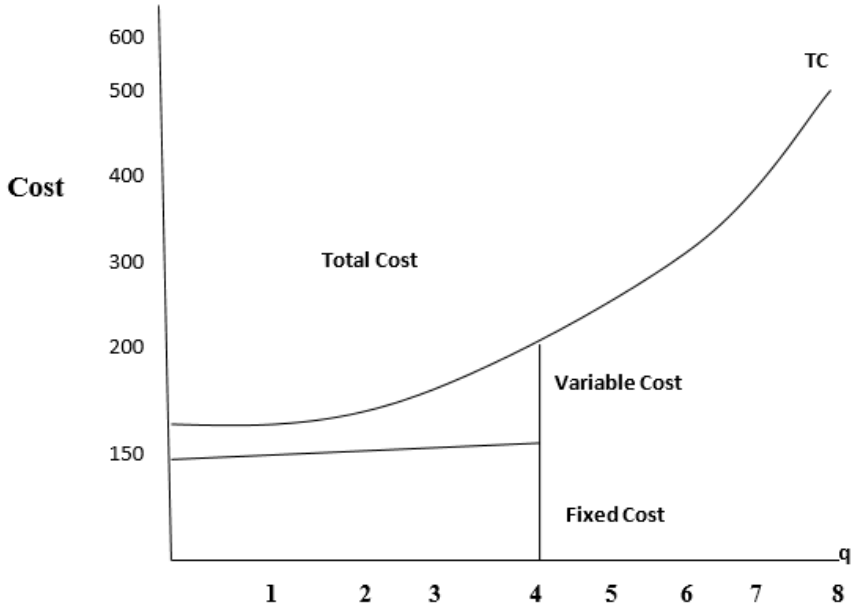
13	11.54	15.46	27	35
14	10.71	19.93	30.64	78
20	7.5	20.05	27.55	122

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.

2.2 Production process

Outputs are produced by certain number of inputs 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.

Total Fixed Cost (TFC) and Total Variable Cost (TVC)

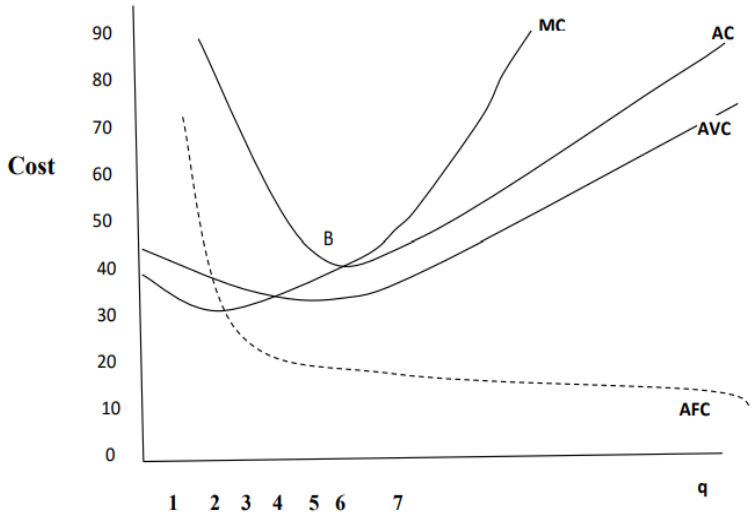


These take us to the relationship between Average Cost and Marginal cost. What happens when Average Cost (AC) is below, equal to or above Marginal Cost-MC? Three closely related links had been identified in the literature:

1. When MC <AC, it pulls AC down
2. When MC>AC, it pulls 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

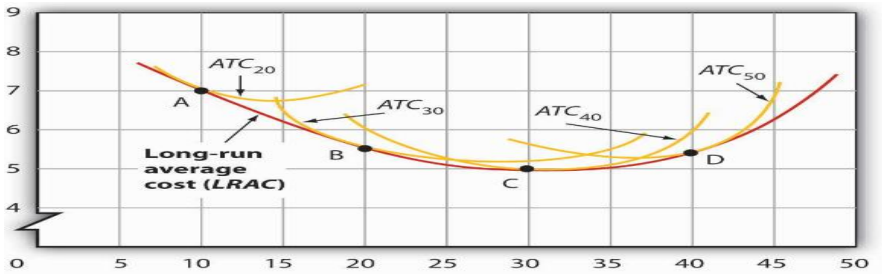
Average Cost and Average Revenue Curves



Total Output (Quantity)

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.

Long Run Average Cost Curve



Unit of Output

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.

4.0 Summary

Under this unit, we have discussed on process of production, some basic concept 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 pulls 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.

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.

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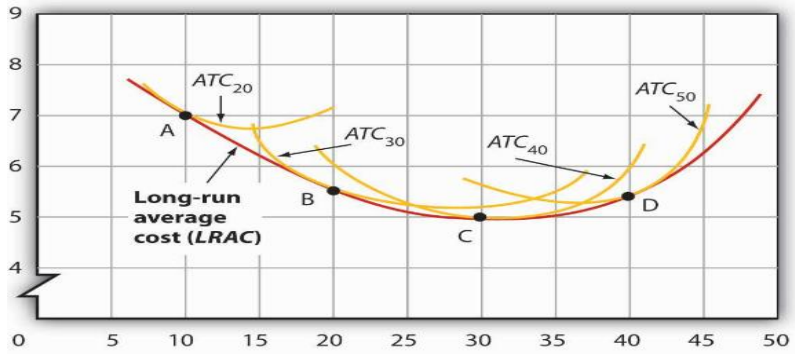
6.0 SELF-ASSESSMENT EXERCISE

1. Show with the aid of a diagram the relationship between long-run and short-run average cost.



Relationship Between Short-Run and Long-Run Average Total Costs. The *LRAC* curve is found by taking the lowest average total cost curve at each level of output.

2. Below is a hypothetical Total Cost Schedule, calculate and fill in the missing figure.

UNITS	TOTAL FIXED COST(TFC)	TOTAL VARIABLECOST (TVC)	TOTAL COST (TC)=TFC+TVC
0	150	-	150
1	150	7	……. (150 +7) = **157**
2	150	……. (165 – 150) = **15**	165
4	……. **(150)**	18	168
6	150	52	……. (150 + 52) = **202**
8	150	……. (247 – 150) = **97**	247

UNIT 3 LAW OF PRODUCTION

1.0 Introduction

2.0 Learning Outcome

3.0 Law of Production

 **1.0 Introduction**

We have been able to look at marginal returns as relate to change of one input, holding the other input constant. Let consider what happens to output when there is increase or decrease *both* inputs. Increasing or decreasing both inputs can be described as scaling the firm up or down, it will help know how it affects output. In particular, proportional changes to output. For example, if the firm doubles both inputs, does output double as well? Does it increase more or less than double the previous amount? The answer to these questions determines the **returns to scale** of the firm: the rate at which the output increases when all inputs are increased proportionally.

 **2.0 Learning Outcome**

After reading this unit, students will be able to:

- Explain law of diminishing returns
- Understand how factors of production are combine optimally
- Know 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 Law of Production**

3.1 Law of Diminishing returns

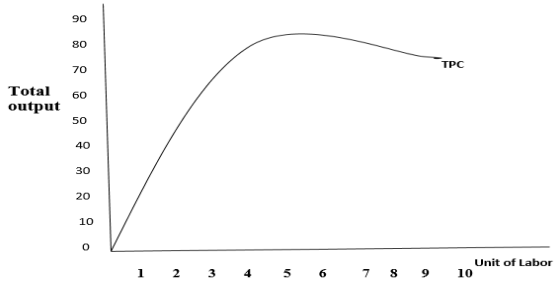
In the previous section we define total output as the total amount of output produced from combination of certain inputs with a particular production technology. Average product (AP) was defined as the average amount of product produced by one unit of a variable factor of production or total product 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 labor 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.

Product Schedule for Walle

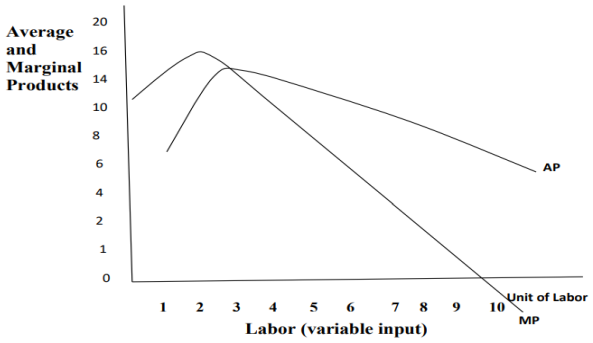
Labor	Total output in Unit	Average Product	Marginal Product
1	7	7	-
2	18	9	11
3	33	11	15
4	52	13	19
5	65	13	13
6	72	12	7
7	75	10.7	3
8	77	9.6	2
9	78	8.6	1
10	**75**	**7.5**	**-3**

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 increased the less the additional increase to production. For example, from the addition of one unit of labor (increase from 4 to 5) in the production of wallet, average product of four laborers and five laborers remains the same while marginal product decrease from 19 to 13. In the same vein, increase of laborers 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

Average and Marginal Product Curves



3.2 Optimum Factor Combination

Firms have different production function that can be use 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, labor (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 labor-variable input is equal to:

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

If the left side of the equation is greater than the right side, it means more labor could be employed in relation to capital because the firm is earning more returns from employing and paying for extra labor than for injecting more capital. Meanwhile as the firm employs more labor per unit of output, diminishing return will set in to labor because ***Marginal Physical Product*** of labor **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 labor. 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 labor for capital or capital for labor 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:

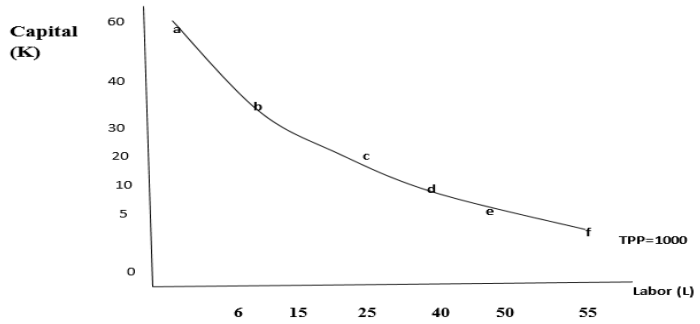
$$\frac{MPP_a}{P_a} = \frac{MPP_b}{P_b} = \frac{MPP_c}{P_c} \ldots\ldots = \frac{MPP_N}{P_N}$$

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 labor combination reveal by isoquant.

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

An Isoquant



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

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

Cobb Douglas production function for two factor combination is: $TPP = f(F_1F_2 = AF_1^{\propto}F_2^{\beta})$

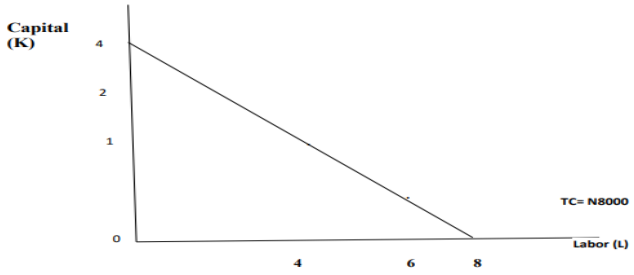
And multi factor Cobb Douglas production function is: $TPP = f(F_1F_2 = AF_1^{\propto}F_2^{\beta}F_3^{c} \ldots\ldots F_n^{\propto})$

Where F_1, …. F_n are all factors of production and $\propto + \beta$ or $\propto + \beta + c + \ldots\ldots \infty = 1$

In contrast, ***Isocost*** shows all combinations of two factors that cost the firm the same amount to employ.

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

An Isocost



3.3 Economic and Diseconomy of Scale

When a firm expand it 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 it is

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 labor and organizational 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

4.0 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.

Factors of production are input into production process. Outputs are the end products produced by certain number of inputs 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.

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6.0 SELF-ASSESSMENT EXERCISE

1. What happens to Average Cost (AC) when:

   When MC <AC, When MC>AC, When MC=AC.

   - When the average cost declines, the marginal cost is less than the average cost.
   - When the average cost increases, the marginal cost is greater than the average cost.
   - When the average cost stays the same (is at a minimum or maximum), the marginal cost equals the average cost.

2. Define an isoquant. What is the name for the above relationship between MC and AC in 1a, b and c.

   An isoquant is a concave-shaped curve on a graph that measures output, and the trade-off between two factors needed to keep that output constant. Among the properties of isoquants: An isoquant slopes downward from left to right.

   Cost curve: - cost curve shows the average total cost, marginal cost, and marginal revenue. The curves show how each cost changes with an increase in product price and quantity produced.

MODULE 6 THEORY OF FIRM

UNIT 1 PERFECT COMPETITION

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 maximize 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 firm aimed at maximizing 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 maximize 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 is based on assumptions that the firm is a profit maximizing firm and small firms that are price-taker.

2.0 Learning Outcome

After reading this unit, students will be able to:

- How perfectly competitive market behave
- What determines the firm's profit?
- Assumptions of perfect competitive market
- **Short and Long-run equilibrium of a firm in Perfect competition market**

3.0 Perfect Competition

3.1 Basic Assumption of Perfect Competition

The input and are 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 this 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 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

a. Large Buyers and Sellers

In perfect completion 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.

b. 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. 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 standardization in the market product.

c. 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.

d. 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.

e. Perfect Knowledge of Market condition

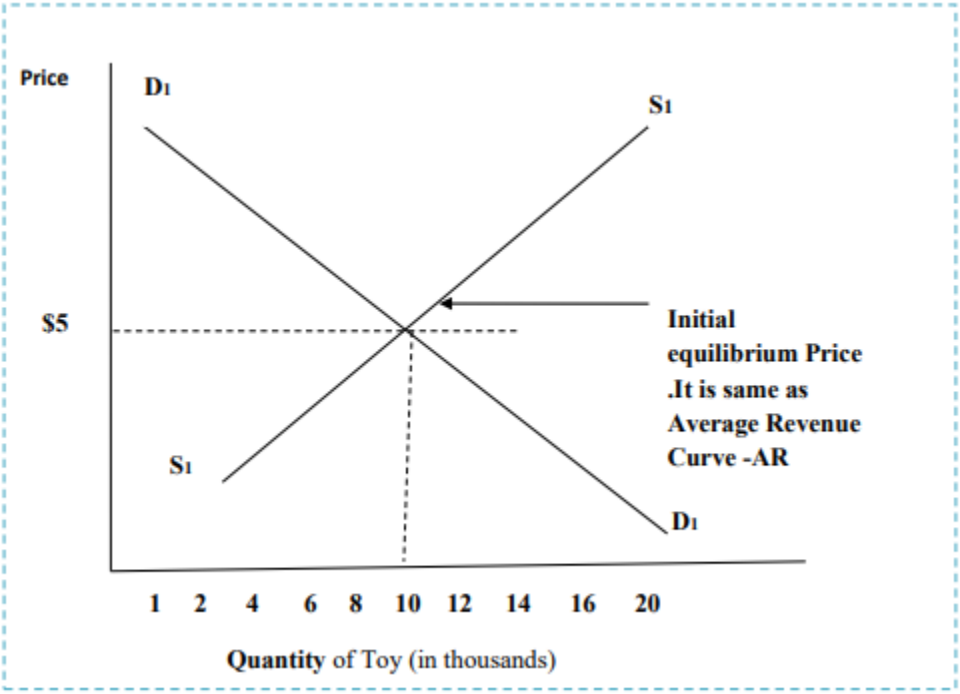
This assumption is the dichotomy between pure competition and perfect competition market. That is when the first four assumptions hold, such market is pure competition. However, when the five assumptions hold; then that market is a perfect competition market. For a market to be perfectly competitive, 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.

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 belowor 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

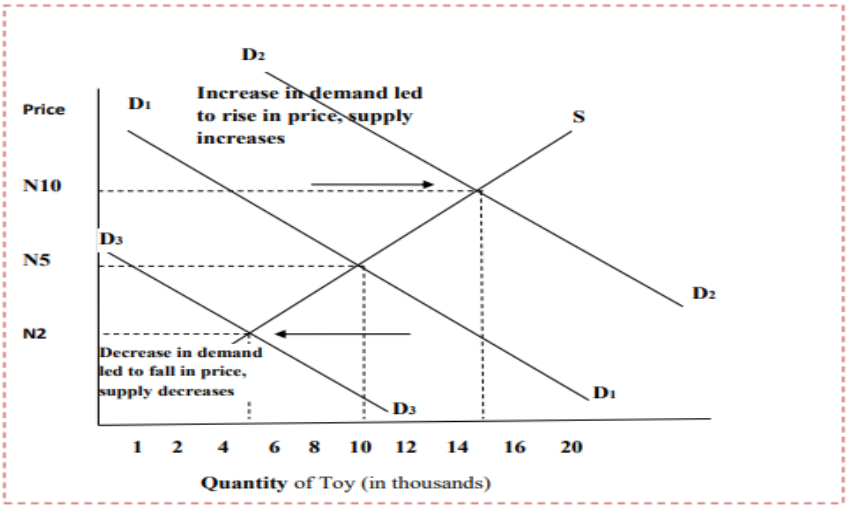
which is the industry's demand curve is downward sloping because more will be bought at lower price. Meanwhile, its supply curve is upward sloping. Therefore, short-run equilibrium under perfect competition market is a period when there is too little time for other firms to enter into the industry. Let 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 produces 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.

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? See the graph below.

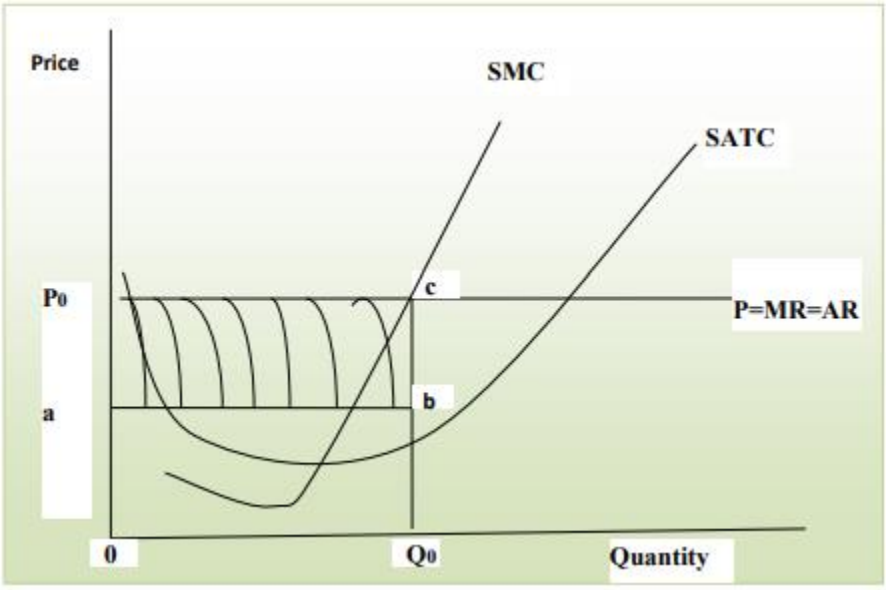
Shift in Supply Curve under Perfect Competition



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 maximize profit, at what level of output will a firm maximize 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 Maximization 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

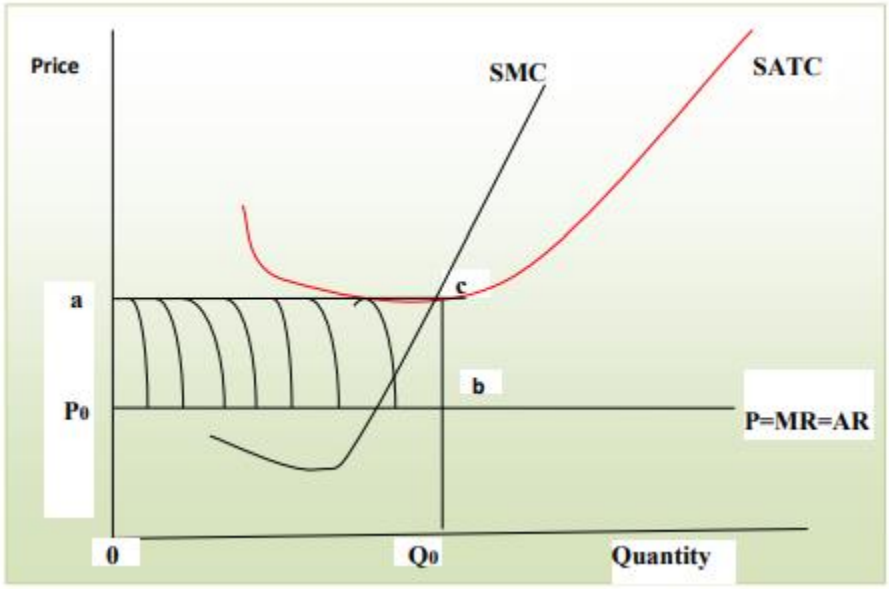
Profit Maximization under Perfect Competition



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 maximizing 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 need to do this? The firm cannot make profit as soon as the ATC is above the MR=AR

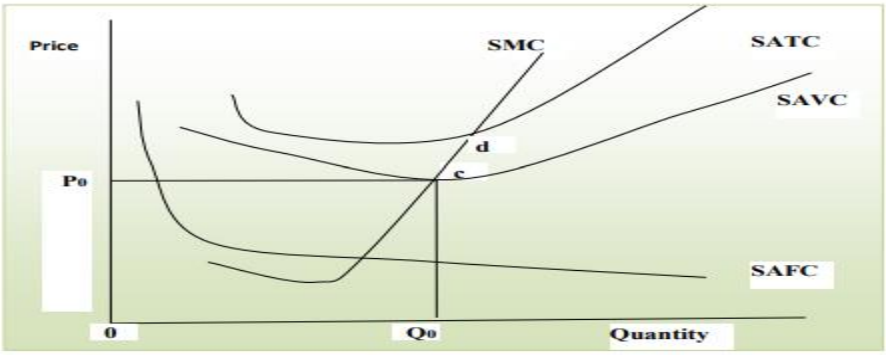
Supernatural Profit of a Perfect Competitive Firm



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 minimizing 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 the above explanations.

Close-down Point in Perfect Competition in Short-run

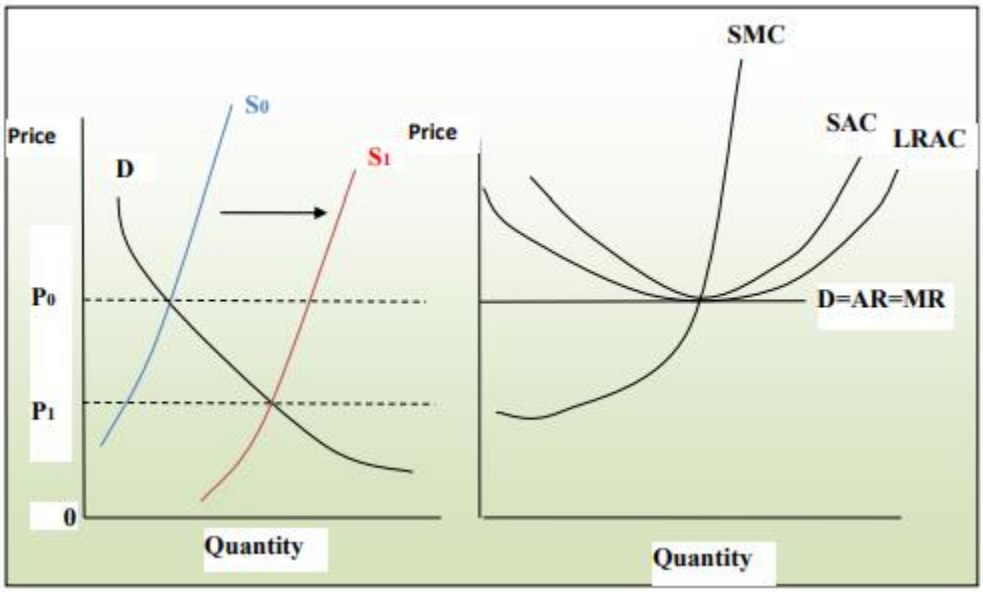


Point c is the close down point where the AVC is above P. the firm cannot neither cover its AVC nor make payment for its fixed assets. It will maximize profit by shutting down. Point d is the zero-profit point.

2.3 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.

Long-run Equilibrium of the Firm under Perfect Competition



4.0 Summary

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 benefit 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 employs. 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. 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.

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6.0 SELF-ASSESSMENT EXERCISE

1. What do you understand by perfect competition market? Discuss the basic assumptions underlying this market.

Perfect competition market has characteristic that price is determined by the interaction of demand and supply; buyers and sellers are price takers. The model assumes: a large number of firms producing identical (homogeneous) goods or services, a large number of buyers and sellers, easy entry and exit in the industry, and complete information about prices in the market. The model of perfect competition underlies the model of demand and supply.

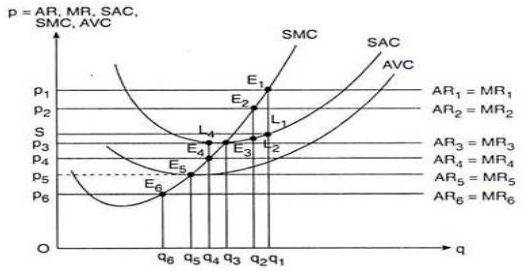
2. Show with the aid of a graph the short run equilibrium of a firm in perfect competition market.

The short-run profit maximising or equilibrium conditions of the firm are:

First order condition (FOC)

$$MR = SMC \qquad (1)$$

That is, FOC would be fulfilled at the point of intersection of the MR and SMC curves of the firm. MR = SMC point, the firm's SMC curve is positively sloped, i.e., at E_1, the SOC of firm's equilibrium has also been satisfied.



Therefore, at $p = p_1$ (or op_1), if the firm produces $q = q_1$ (or, oq_1 of output at the point E_1, then it would be in short-run profit-maximising equilibrium. At E_1, we obtain the firm's AR ($= q_1E_1 = Op_1$) > SAC ($= q_1L_1$)

$\Rightarrow$ AR x oq_1 > SAC x oq_1

$\Rightarrow$ TR ($= \square OP_1E_1q_1$) > STC ($= \square OSL_1q_1$)

UNIT 2 MONOPOLY

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 Learning Outcome

After reading this unit, students will be able to:

- Define and explain monopolist competition
- What determines price and output in monopolistic competition market
- Why firm leaves or enter monopolistic market

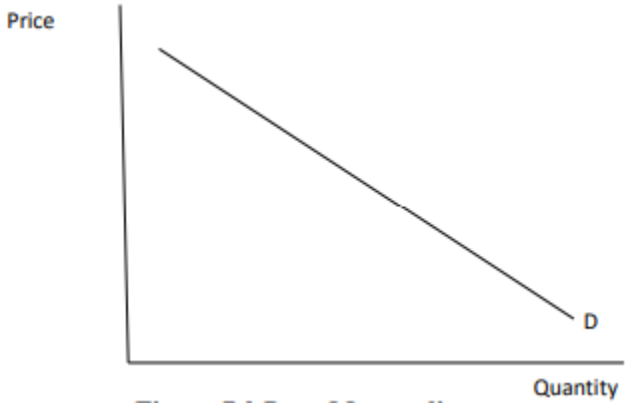
- Explain how price determination increases monopolistic profit
- Compare perfect and monopolistic competition

3.0 Monopoly

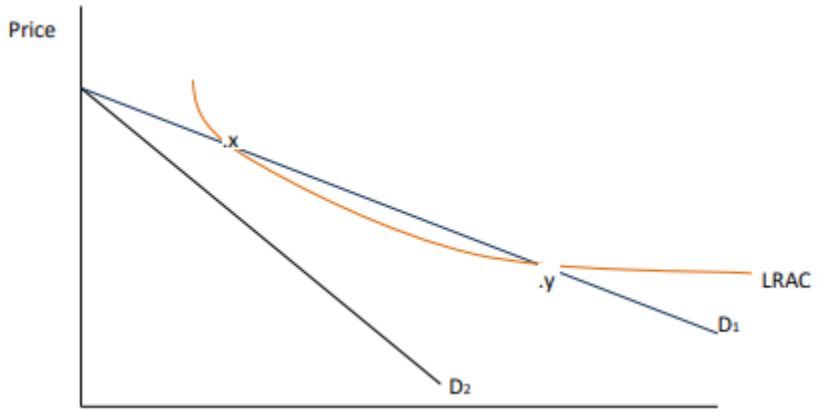
3.1What is Monopoly?

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 thing that can impede the entry of other firms into an industry such that it limit 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).

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 below).

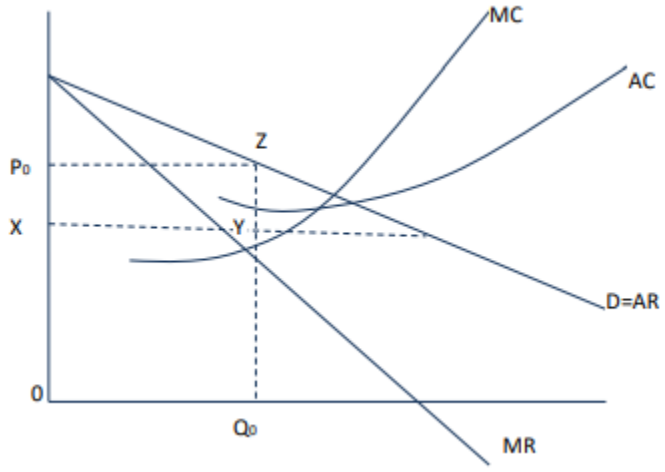


Natural Monopolist Demand Curve

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.

3.2 Short-run Equilibrium Price and Output

As a price maker, a monopolist charges 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 maximize 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:

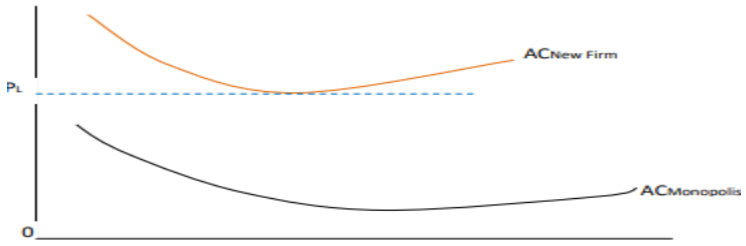


Profit Maximization under monopoly

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 maximizing 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.

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 maximizing price. This is called 'limit pricing'. Limit pricing occurs when a monopolist set a price limit that is below the short-run profit maximizing 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. See limit pricing graph below:



Monopolist Limit Pricing Curve Quantity

4.0 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 maximizes 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 maximizing price to keep new entrant away through i.e., limit pricing technique

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 produces 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. 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 maximizes 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 maximizing price to keep new entrant away through i.e., limit pricing technique.

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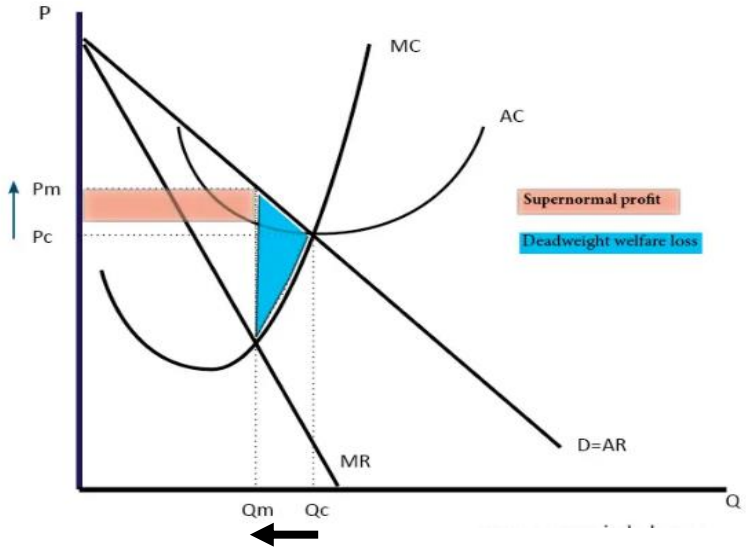
6.0 SELF-ASSESSEMENT EXERCISE

1. Show graphically the supernatural profit of a monopolist.



- A monopolist will seek to maximise profits by setting output where MR = MC
- This will be at output Qm and Price Pm.

- Compared to a competitive market, the monopolist increases price and reduces output
- Red area = Supernormal Profit (AR-AC) * Q
- Blue area = Deadweight welfare loss (combined loss of producer and consumer surplus) compared to a competitive market

2. Mention some barrier to entry a monopolistic market

Barriers to Entry: Reasons for Monopolies to Exist

Resource Control

Control over a natural resource that is critical to the production of a final good is one source of monopoly power.

Economies of Scale

Economies of scale and network externalities discourage potential competitors from entering a market.

Government Action

Two types of government-initiated monopoly: a government monopoly and a government-granted monopoly.

Government-Granted Monopoly

In a government-granted monopoly, the government gives a private individual or a firm the right to be a sole provider of a good or service.

Government Monopoly

In a government monopoly, an agency under the direct authority of the government itself holds the monopoly, and the monopoly is sustained by the enforcement of laws and regulations that ban competition or reserve exclusive control over factors of production to the government.

Legal Barriers

The government creates legal barriers through patents, copyrights, and granting exclusive rights to companies.

Copyright

Copyright gives the creator of an original creative work (such as a book, song, or film) exclusive rights to it, usually for a limited time, with the intention of enabling the creator to be compensated for his or her work.

Patent

A patent is a limited property right the government gives inventors in exchange for their agreement to share the details of their invention with the public.

UNIT 3 MONOPOLISTIC COMPETITION AND OLIGOPOLY

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 it 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 Learning Outcome

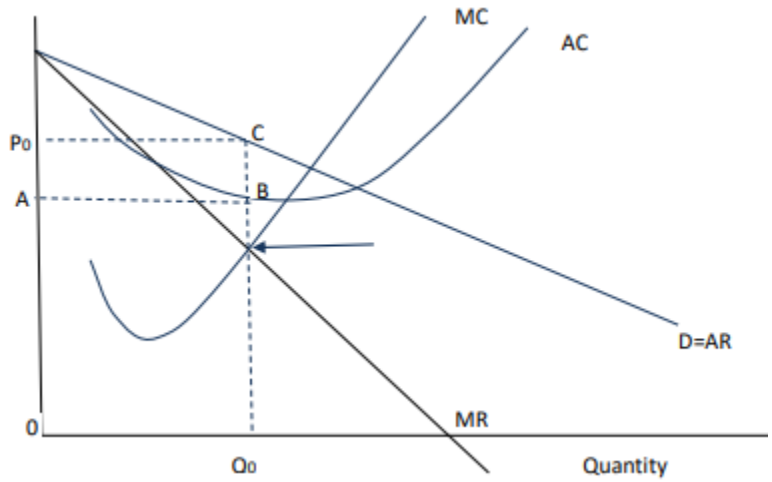
After reading this unit, students will be able to:

- Underlying assumptions of monopolistic competition
- Short-run equilibrium of monopolistic competition
- Long-run equilibrium of monopolistic competition
- Oligopoly and interdependency
- Collusive Oligopoly and its other forms

3.0 Monopolistic Competition and Oligopoly

3.1Short-run Equilibrium Price and Output

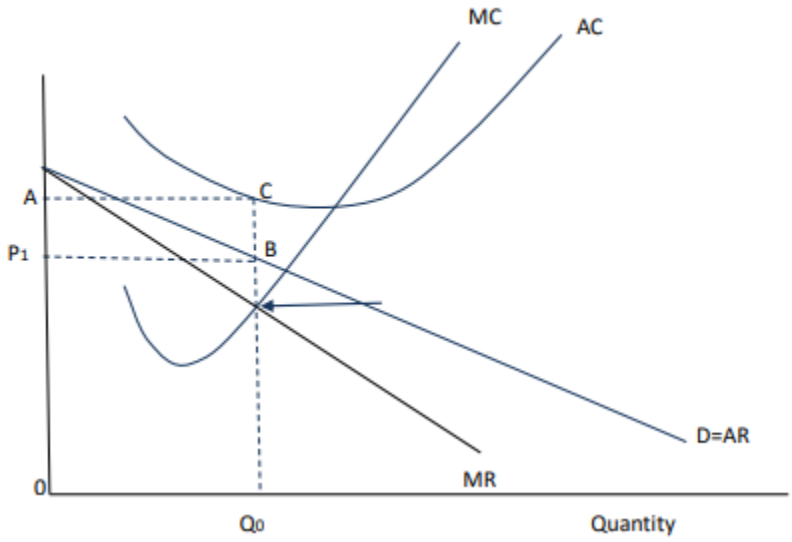
Just like we have profit maximizing output at a point where MR=MC under perfect competition and monopoly so also do we have under monopolistic competition. The demand strength for a monopolistic competitive firm determines its profit in the long-run. As a result, it is possible for him to also make supernatural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



Short-run Equilibrium Profit of a Monopolist Competition

The firm will choose output-price combination that maximizes 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 it

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 minimize losses at an output where firm's profit will be able to cover its total fixed costs (see the graph below).

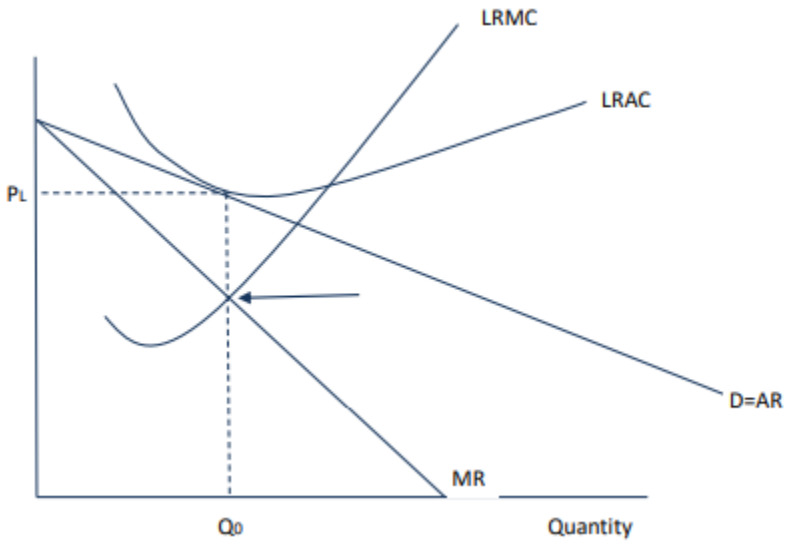


Short-run Loss-Minimizing Level of a Monopolistic Competition

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

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 minimizing point when (when MR 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 (see the graph below).



Long run equilibrium of Monopolistic

3.3 Features of Oligopoly

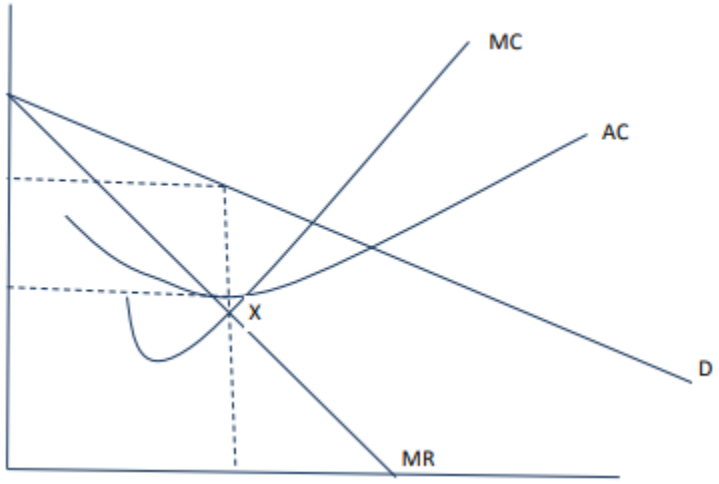
Oligopoly is a market structure where only few firms dominate the large industry with varying degree of entry barriers based on the industry. Entry is easy in some industry and virtually impossible in others. Fewness of firms in the industry has effect on their behavior. Each firm is conscious of actions 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 it product price to undercut his competitor thereby making it own product preferable. Therefore, each firm in the industry thinks of how other firms will react to it 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 maximize 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.

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 maximizing price is very similar to that of monopolist. Profit maximizing equilibrium of oligopolist is shown in the graph below.



Collusive Oligopoly and Industry Equilibrium

Consequently, when oligopoly colludes, they employ their mutual interdependency to maximize 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 maximize 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 maximize profits.

Therefore, duopoly form of oligopoly produces output quantity that is intermediate between the expected market output in an organized 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 consists of one large firm and many small competing firms
- That dominant firm maximizes 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 monopolize 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.

4.0 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.

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 210 firms survive 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 are 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 References/Further Readings/Web Resources

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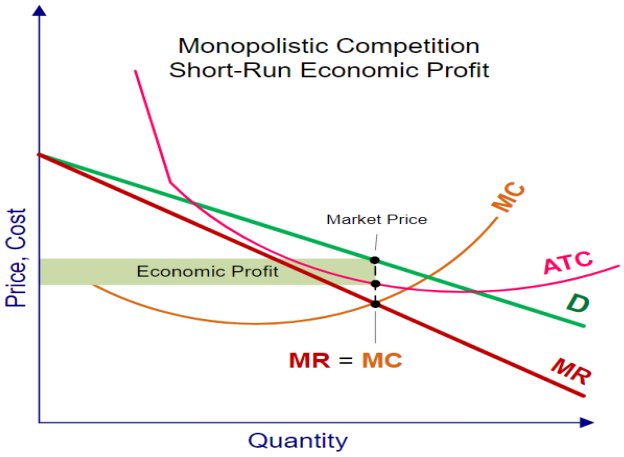
6.0 SELF-ASSESSEMENT EXERCISE

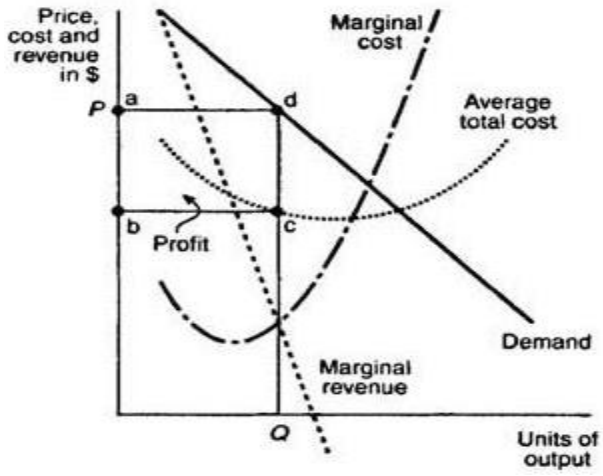
1. Where is the short-run equilibrium price and quantity achieved in a monopolistic competition market (show this with the aid of a graph).

   In the short run, a monopolistically competitive firm maximizes profit or minimizes losses by producing that quantity where **marginal revenue = marginal cost**. If average total cost is below the market price, then the firm will earn an economic profit.



2. In the profit-maximizing equilibrium of an oligopolist, show the equilibrium total cost and total revenue with the aid of a graph.

The oligopolist maximizes profits by equating marginal revenue with marginal cost, which results in an equilibrium output of *Q* units and an equilibrium price of *P*.



Profit-maximizing equilibrium of an oligopolist

At high prices, the firm faces the relatively elastic market demand curve, labeled MD 1. Corresponding to MD 1 is the marginal revenue curve labeled MR 1. At low prices, the firm faces the relatively inelastic market demand curve labeled MD 2. Corresponding to MD 2 is the marginal revenue curve labeled MR 2.

UNIT 4 MARKET STRUCTRURE COMPARISON

1.0 Introduction

This section describes 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 Learning Outcome

After reading this unit, students will be able to:

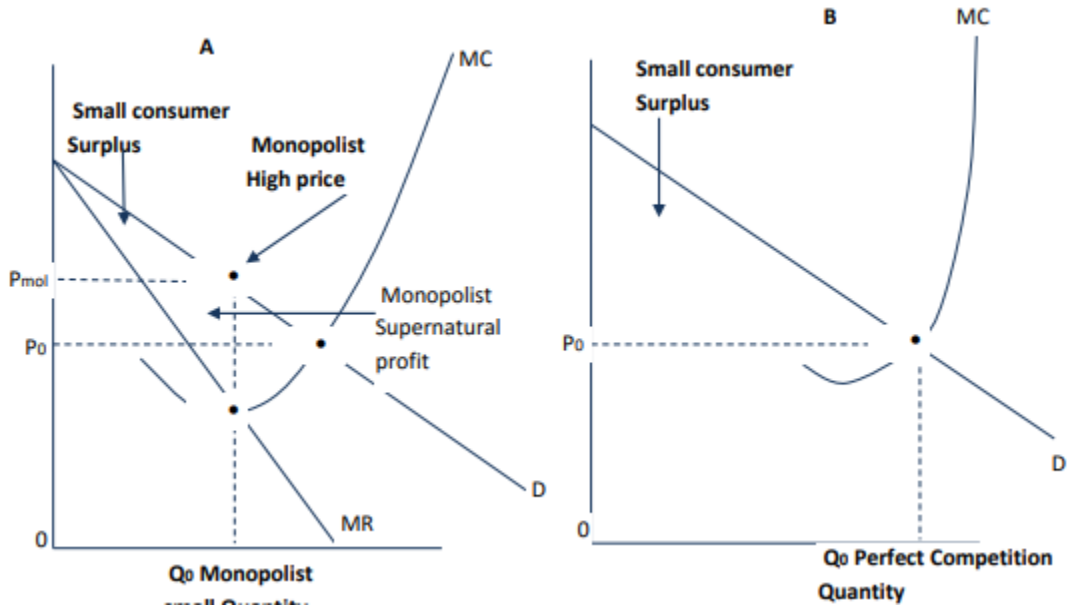
- Differentiate between perfect competition and imperfect competition market structure
- Spell out dichotomy between perfect market and monopoly
- Their degree of market price control

3.0 Market Structure Comparison

3.1Perfect 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 determine 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



Perfect Competition verses 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.

Market Types	**Firm's Largeness**	**Entry and ExitFreedom**	**Firm's Product Nature**	**Firm's power overPrice**
Perfect Competition	Large number of firms	Freedom of entry and exit to firms	Homogeneous product	Firms are price taker, no control over price. For instance, natural products such as gold, silver, agricultural etc. are sold at market given price
Monopolistic Competition	Large number of firms	Freedom of entry and exit is nor restricted	Homogeneous but differentiated product	Firms are price makers. Hairdressers, shoe cobblers, restaurant etc. have some degree of control over their charges
Monopoly	One single firm	Very restricted freedom of entry and exit (entry and exit barrier)	No close substitutes	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	Standardized or differentiated products	They are also pricemaker 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.

4.0 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 maximizing 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.

Market structure are characterized 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 References/Further Readings/Web Resources

Case, Karl.E and Fair, Ray. C (1999), Principles of Economics, Prentice Hall, Upper Saddle River, New Jersey.

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6.0 SELF-ASSESSMENT EXERCISE

1. Make a brief comparison between two market structure i.e., monopoly and perfect competition markets.

Solution

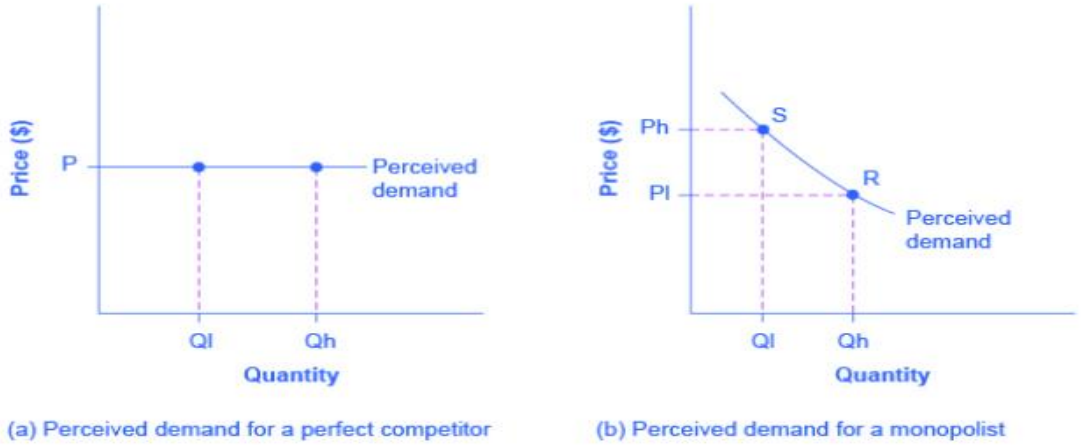
A monopolistic market and a perfectly competitive market are two market structures that have several key distinctions in terms of market share, price control, and barriers to entry. Distinctions are:

- In a monopolistic market, there is only one firm that dictates the price and supply levels of goods and services.
- A perfectly competitive market is composed of many firms, where no one firm has market control.
- In the real world, no market is purely monopolistic or perfectly competitive.

- In between a monopolistic market and perfect competition lies monopolistic competition or imperfect competition.
- In monopolistic and perfect competition, there are many producers and consumers in the marketplace, and all firms only have a degree of market control.
- In monopolistic and perfect competition there is free entry and exit

2. Monopoly and perfect competitive markets achieve profit maximizing equilibrium at MR=MC. Is it as the same price? If not explain with the aid of graph(s).

Perfectly competitive and monopolistically competitive markets share is elasticity of demand in the long-run. In both circumstances, the consumers are sensitive to price; if price goes up, demand for that product decreases. The two only differ in degree. Firm's individual demand curves in perfectly competitive markets are perfectly elastic, which means that an incremental increase in price will cause demand for a product to vanish). Demand curves in monopolistic competition are not perfectly elastic: due to the market power that firms have, they are able to raise prices without losing all of their customers. Graphcally;



The Perceived Demand Curve for a Perfect Competitor and a Monopolist. (a) A perfectly competitive firm perceives the demand curve that it faces to be flat. The flat shape means that the firm can sell either a low quantity (Ql) or a high quantity (Qh) at exactly the same price (P). (b) A monopolist perceives the demand curve that it faces to be the same as the market demand curve, which for most goods is downward-sloping. Thus, if the monopolist chooses a high level of output (Qh), it can charge only a relatively low price (Pl); conversely, if the monopolist chooses a low level of output (Ql), it can then charge a higher price (Ph). The challenge for the monopolist is to choose the combination of price and quantity that maximizes profits.

3. List different market structures that you know. Define each structure briefly.

Types of Market Structures

Market structures based on the competition levels and the nature of these markets. The four basic types of market structures include perfect competition, oligopoly market, monopoly market, and monopolistic competition and others.

Perfect Competition

Perfect competition occurs when there is a large number of small companies competing against each other. They sell similar products (homogeneous), lack price influence over the commodities, and are free to enter or exit the market.

Monopolistic Competition

Monopolistic competition refers to an imperfectly competitive market with the traits of both the monopoly and competitive market. Sellers compete among themselves and can differentiate their goods in terms of quality and branding to look different. In this type of competition, sellers consider the price charged by their competitors and ignore the impact of their own prices on their competition.

Oligopoly

An oligopoly market consists of a small number of large companies that sell differentiated or identical products. Since there are few players in the market, their competitive strategies are dependent on each other.

Monopoly

Monopoly market, a single company represents the whole industry. It has no competitor, and it is the sole seller of products in the entire market. This type of market is characterized by factors such as the sole claim to ownership of resources, patent and copyright, licenses issued by the government, or high initial setup costs.

Natural monopoly

Monopoly in which economies of scale cause efficiency to increase continuously with the size of the firm. A firm is a natural monopoly if it is able to serve the entire market demand at a lower cost than any combination of two or more smaller, more specialized firms.

Duopoly

Special case of an oligopoly with two firms.

Monopsony

When there is only one buyer in a market.

Oligopsony

Market in which many sellers can be present but meet only a few buyers.

Similarities between market structures.

It is common to differentiate these markets across the following seven distinct features.

1. The industry's buyer structure
2. The turnover of customers
3. The extent of product differentiation
4. The nature of costs of inputs

5. The number of players in the market
6. Vertical integration extent in the same industry
7. The largest player's market share