Introductory Economics I

ECO101

University of Ibadan Distance Learning Centre
Open and Distance Learning Course Series Development

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Vice-Chancellor's Message

The Distance Learning Centre is building on a solid tradition of over two decades of service in the provision of External Studies Programme and now Distance Learning Education in Nigeria and beyond. The Distance Learning mode to which we are committed is providing access to many deserving Nigerians in having access to higher education especially those who by the nature of their engagement do not have the luxury of full time education. Recently, it is contributing in no small measure to providing places for teeming Nigerian youths who for one reason or the other could not get admission into the conventional universities.

These course materials have been written by writers specially trained in ODL course delivery. The writers have made great efforts to provide up to date information, knowledge and skills in the different disciplines and ensure that the materials are user-friendly.

In addition to provision of course materials in print and e-format, a lot of Information Technology input has also gone into the deployment of course materials. Most of them can be downloaded from the DLC website and are available in audio format which you can also download into your mobile phones, IPod, MP3 among other devices to allow you listen to the audio study sessions. Some of the study session materials have been scripted and are being broadcast on the university's Diamond Radio FM 101.1, while others have been delivered and captured in audio-visual format in a classroom environment for use by our students. Detailed information on availability and access is available on the website. We will continue in our efforts to provide and review course materials for our courses.

However, for you to take advantage of these formats, you will need to improve on your I.T. skills and develop requisite distance learning Culture. It is well known that, for efficient and effective provision of Distance learning education, availability of appropriate and relevant course materials is a *sine qua non*. So also, is the availability of multiple plat form for the convenience of our students. It is in fulfilment of this, that series of course materials are being written to enable our students study at their own pace and convenience.

It is our hope that you will put these course materials to the best use.

Prof. Abel Idowu Olayinka

Vice-Chancellor

Foreword

As part of its vision of providing education for "Liberty and Development" for Nigerians and the International Community, the University of Ibadan, Distance Learning Centre has recently embarked on a vigorous repositioning agenda which aimed at embracing a holistic and all encompassing approach to the delivery of its Open Distance Learning (ODL) programmes. Thus we are committed to global best practices in distance learning provision. Apart from providing an efficient administrative and academic support for our students, we are committed to providing educational resource materials for the use of our students. We are convinced that, without an up-to-date, learner-friendly and distance learning compliant course materials, there cannot be any basis to lay claim to being a provider of distance learning education. Indeed, availability of appropriate course materials in multiple formats is the hub of any distance learning provision worldwide.

In view of the above, we are vigorously pursuing as a matter of priority, the provision of credible, learner-friendly and interactive course materials for all our courses. We commissioned the authoring of, and review of course materials to teams of experts and their outputs were subjected to rigorous peer review to ensure standard. The approach not only emphasizes cognitive knowledge, but also skills and humane values which are at the core of education, even in an ICT age.

The development of the materials which is on-going also had input from experienced editors and illustrators who have ensured that they are accurate, current and learner-friendly. They are specially written with distance learners in mind. This is very important because, distance learning involves non-residential students who can often feel isolated from the community of learners.

It is important to note that, for a distance learner to excel there is the need to source and read relevant materials apart from this course material. Therefore, adequate supplementary reading materials as well as other information sources are suggested in the course materials.

Apart from the responsibility for you to read this course material with others, you are also advised to seek assistance from your course facilitators especially academic advisors during your study even before the interactive session which is by design for revision. Your academic advisors will assist you using convenient technology including Google Hang Out, You Tube, Talk Fusion, etc. but you have to take advantage of these. It is also going to be of immense advantage if you complete assignments as at when due so as to have necessary feedbacks as a guide.

The implication of the above is that, a distance learner has a responsibility to develop requisite distance learning culture which includes diligent and disciplined self-study, seeking available administrative and academic support and acquisition of basic information technology skills. This is why you are encouraged to develop your computer skills by availing yourself the opportunity of training that the Centre's provide and put these into use.

In conclusion, it is envisaged that the course materials would also be useful for the regular students of tertiary institutions in Nigeria who are faced with a dearth of high quality textbooks. We are therefore, delighted to present these titles to both our distance learning students and the university's regular students. We are confident that the materials will be an invaluable resource to all.

We would like to thank all our authors, reviewers and production staff for the high quality of work.

Best wishes.

Professor Bayo Okunade

Director

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Contents

About this Course Material

Introductory Economics I ECO101 has been produced by University of Ibadan Distance Learning Centre. All course materials produced by University of Ibadan Distance Learning Centre are structured in the same way, as outlined below.

How this Course is structured

The course overview

The course overview gives you a general introduction to the course. Information contained in the course overview will help you determine:

- If the course is suitable for you.
- What you will already need to know.
- What you can expect from the course.
- How much time you will need to invest to complete the course.

The overview also provides guidance on:

- Study skills.
- Where to get help.
- Course assignments and assessments.
- Activity icons.
- Study Sessions.

We strongly recommend that you read the overview *carefully* before starting your study.

The course content

The course is broken down into Study Sessions. Each Study Session comprises:

- An introduction to the Study Session content.
- Study Session outcomes.
- Core content of the Study Session with a variety of learning activities.
- A Study Session summary.

- Assignments and/or assessments, as applicable.
- Bibliography

Your comments

After completing Introductory Economics I we would appreciate it if you would take a few moments to give us your feedback on any aspect of this course. Your feedback might include comments on:

- Course content and structure.
- Course reading materials and resources.
- Course assignments.
- Course assessments.
- Course duration.
- Course support (assigned tutors, technical help, etc.)

Your constructive feedback will help us to improve and enhance this course.

Course Overview

Welcome to Introductory Economics I ECO101

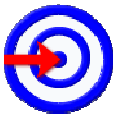
Economics as a subject has a wide coverage. Hence, the field of economics is divided into two broad areas: microeconomics and macroeconomics. This course essentially introduces students to basic rudiments of microeconomics. Microeconomics deals with decision making at individual economic agents level.

Introductory Economics I ECO101—is this course for you?

ECO101 is a required prerequisite (to ECO201). It is aimed at acquainting students with basic concepts in such areas as individual demand decision, firm's supply decision, markets analyses, game theory, information economics, labour market issues, externalities and property right.

Course outcomes

Upon completion of Introductory Economics I ECO101 you will be able to:



Outcomes

- *discuss* the scope, problems and method of economic analysis.
- *show* how demand and supply decisions for goods and services are made by individuals and firms.
- *point out* consumer's utility maximisation, and firm's profit maximisation in different market settings.
- *make* strategic economic decisions.
- *solve* the problem of externality.
- *present* how labour demand and supply decisions are made, and analyse how wages are set in competitive market.

Timeframe

How long?

This is a 15 week course. It requires a formal study time of 45 hours. The formal study times are scheduled around online discussions / chats with your course facilitator / academic advisor to facilitate your learning. Kindly see course calendar on your course website for scheduled dates. You will still require independent/personal study time particularly in studying your course materials.

How to be successful in this course

As an open and distance learner your approach to learning will be different to that from your school days, where you had onsite education. You will now choose what you want to study, you will have professional and/or personal motivation for doing so and you will most likely be fitting your study activities around other professional or domestic responsibilities.

Essentially you will be taking control of your learning environment. As a consequence, you will need to consider performance issues related to time management, goal setting, stress management, etc. Perhaps you will also need to reacquaint yourself in areas such as essay planning, coping with exams and using the web as a learning resource.

We recommend that you take time now—before starting your self-study—to familiarize yourself with these issues. There are a number of excellent resources on the web. A few suggested links are:

- http://www.dlc.ui.edu.ng/resources/studyskill.pdf

  This is a resource of the UIDLC pilot course module. You will find sections on building study skills, time scheduling, basic concentration techniques, control of the study environment, note taking, how to read essays for analysis and memory skills ("remembering").
- http://www.ivywise.com/newsletter_march13_how_to_self_study.html

  This site provides how to master self-studying, with bias to

emerging technologies.

- http://www.howtostudy.org/resources.php
  Another "How to study" web site with useful links to time management, efficient reading, questioning/listening/observing skills, getting the most out of doing ("hands-on" learning), memory building, tips for staying motivated, developing a learning plan.

The above links are our suggestions to start you on your way. At the time of writing these web links were active. If you want to look for more, go to www.google.com and type "self-study basics", "self-study tips", "self-study skills" or similar phrases.

Need help?

Help

As earlier noted, this course manual complements and supplements ECO101at UI Mobile Class as an online course.

You may contact any of the following units for information, learning resources and library services.

Distance Learning Centre (DLC)
University of Ibadan, Nigeria
Tel: (+234) 08077593551 – 55 (Student Support Officers)
Email: ssu@dlc.ui.edu.ng

Head Office
Morohundiya Complex,
Ibadan-Ilorin Expressway,
Idi-Ose, Ibadan.

Information Centre
20 Awolowo Road, Bodija,
Ibadan.

For technical issues (computer problems, web access, and etcetera), please send mail to webmaster@dlc.ui.edu.ng.

Academic Support

Help

A course facilitator is commissioned for this course. You have also been assigned an academic advisor to provide learning support. The contacts of your course facilitator and academic advisor for this course are available at onlineacademicsupport@dlc.ui.edu.ng

Activities

Activities

This manual features "Activities", which may present material that is NOT extensively covered in the Study Sessions. You will be provided with answers to every activity question. Therefore, your emphasis when working the activities should be on understanding your answers. It is more important that you understand why every answer is correct.

There are different forms of activities in this manual, ranging from reading activities, case studies, discussion activities. The use of activities is particularly based on learning outcomes and nature of content. Some Study Sessions comes with discussion topics. You may discuss the Study Sessions at respective discussion boards on course website.

You may see dates for active discussion with tutor on course schedule. This course schedule is available on the course website.

Assignment

Assignment

This manual also comes with tutor marked assignments (TMA). Assignments are expected to be turned-in on course website. You may also receive TMAs as part of online class activities. Feedbacks to TMAs will be provided by your tutor in not more than 2-week expected duration.

Schedule dates for submitting assignments and engaging in course / class activities is available on the course website. Kindly visit your course website often for updates.

Assessments

Assessments

There are two basic forms of self assessment in this course: in-text questions (ITQs) and self assessment questions (SAQs). Feedbacks to the ITQs are placed immediately after the questions, while the feedbacks to SAQs are at the back of manual.

Getting around this Course

Margin icons

While working through this course you will notice the frequent use of margin icons. These icons serve to "signpost" a particular piece of text, a new task or change in activity; they have been included to help you to find your way around this .

A complete icon set is shown below. We suggest that you familiarize yourself with the icons and their meaning before starting your study.

 **Activity**	 **Assessment**	 **Assignment**	 **Case study**
 **Discussion**	 **Group Activity**	 **Help**	 **Outcomes**
 **Note**	 **Reflection**	 **Reading**	 **Study skills**
 **Summary**	 **Terminology**	 **Time**	 **Tip**

Study Session 1

The Scope of Economics and Economic Problems

Introduction

This Study Session introduces you to the scope and method of economics. It also explores economic problems, economic systems, and problems with making economic decisions.

Learning Outcomes

When you have studied this session, you should be able to:

1.1 *present* the relevance of economics as a field of study.
1.2 *point out* the focus of each of the two major divisions of economics.
1.3 *discover* appropriate basic method in an economic analysis.
1.4 *show how* scarcity, choice and opportunity cost are related.
1.5 *differentiate* the ideologies (economic systems) with respect to how basic economic problems could be solved.
1.6 *point out* errors associated with making economic decisions.

1.1 Why Study Economics?

Economics is the study of how individuals and societies choose to use the scarce resources that nature and previous generations have bestowed on them. The study of economics is important because it provides us with appropriate economic way of thinking. By learning a way of thinking, it enables us to understand some basic concepts such as opportunity cost, marginalism, choice, and efficient markets, which will help us in our every day decision making. The study of economics will also enable you to understand the society better. Past and present economic decisions have an enormous influence on the pattern of life in a society. The current states of the physical environment, the level of material well-being, and the nature and number of jobs are all products of the economic system. Furthermore, the study of economics will enable you to understand global affairs.

ITQ

Question

Why are you studying economics?

Feedback

We don't know what you have considered as the reason for your studying economics; however the underlying rationale behind the economics is "engaging in rational thinking which helps in taking the best decision among various alternatives".

1.2 The Scope of Economics

There are two major divisions of economics: microeconomics and macroeconomic. **Microeconomics** deals with the economic decisions of individuals, households and firms; such as firms' choices of what to produce and how much to charge; and households' choice of what and how much to buy. **Macroeconomics** looks at the economy as whole. Instead of trying to understand what determines the output of a single firm or industry or the consumption patterns of a single household or group of households, macroeconomics examines the factors that determine national output or national product. Microeconomics is concerned with household income, macroeconomics deals with national income.

Activity 1.1

Allow 15 minutes

1. Read pages 2-7 of Karl E. Case and Ray C. Fair (2007), *Principles of Economics*.
2. Match the following definitions of Economics with their respective authors.

Q 1	An inquiry into the nature and the causes of the wealth of a nation.	
Q 2	The study of mankind in the ordinary business of life.	
Q 3	The science which studies human behaviour as a relationship between ends and scare mean which have alternative uses.	

Feedback

Q 1	Adam Smith
Q 2	Alfred Marshall
Q 3	Lionel Robbins

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1.3 Method of Economic Analysis

There are two basic approaches to economic analysis: positive and normative economics. **Positive economics** attempts to understand behaviour and the operations of economic systems with making judgement about whether the outcomes are good or bad. It tends to describe what exists and how it works. For example, describe the wage rate of unskilled worker? What would happen if we abolish the corporate income tax? *In essence, positive economics deals with what is, or what exist.*

Normative economics on the other hand, looks at the outcomes of economic behaviours and asks whether they are appropriate or not, and whether they could be made better. Normative economics involves judgements and prescription of action. For example, should the government subsidize or regulate the cost of higher education? Should we reduce or eliminate income tax? Normative economics tends to give judgements to these questions and this is why it is often called policy economics. *Thus, normative economics deals with what ought to be.*

Tip

Positive economics deals with what is, while normative economics deals with what ought to be.

Furthermore, positive economics is often divided into descriptive economic and economic theory. **Descriptive economics** is simply the compilation of data that describe phenomena and facts. **Economic theory** attempts to generalise about data and interpret them. An economic theory is a statement or set of related statements about cause and effect, action and reaction. One of the first theories you will

encounter in this course is the law of demand, which was most clearly stated by Alfred Marshall in 1890. When the price of a product rises, people tend to buy less of it; when the price of a product falls, they tend to buy more.

Tip

Theories build formal models of behaviour. A model is a formal statement of a theory. It is usually a mathematical statement of a presumed relationship between two or more variables

ITQ

Question

Which method of economic analysis is based on value judgment?

Feedback

It is normative economics that deals with value judgment.

1.4 Economic Problems

Every society, no matter how small or large, simple or complex, has a system or process that works to transform the resources that nature and previous generations provided into useful form. Thus, economics is the study of that process and outcomes. There are three basic questions that must be answered to understand the functioning of the economic system, they are; what to produce? How is it produced? And who gets what is produced?

Human wants are unlimited, but resources are not. Limited or scarce resources force individual and societies to choose among competing uses of resources – alternative combinations of produced goods and services – and among alternative final means of distributing of what is produced among households.

ITQ

Question

What are the fundamental questions faced by every society which help them to transform their resources into useful form?

Feedback

These questions are: what to produce, how to produce and who gets what is produced.

1.4.1 Scarcity, Choice and Opportunity Cost

Scarcity is a fundamental problem of life. There is never enough time, money or energy to do everything we desire or everything we would like to have. This is the reason why economics is defined sometimes as the study of how people make choices under conditions of scarcity, and of the results of those choices for the society. For instance, if one is to choose to enjoy the benefits of a particular item, this will be only at the price of having less resource for other items. This choice comes down inevitably to the relative importance of competing activities. These trade-offs are widespread and important, which is one of the core principles of economics. This is called the scarcity principle, because of the simple fact that scarcity makes trade-offs necessary. Another name for the scarcity principle is the "*no-free-lunch*" principle (which comes from the observation that even lunches that are given to you are never really free because somebody, somehow, somewhere always has to pay for them.

ITQ

Question

What differentiate microeconomics from macroeconomics?

Feedback

The difference between them lays on the aspect of the economy that each of them studies. While microeconomics studies the individual performance of each economic agent, macroeconomics focuses on the aggregate performance of the economy as a whole.

The concepts of choice and scarcity are central to the discipline of economics. They can be applied when discussing the behaviour of individuals and when analysing the behaviour of large groups of people in complex societies. Given the scarcity of time and resource, there is a trade-off between any two commodities, say food and shelter. If we decide to build more shelters, this requires that we give up the food we might have produced. Thus, opportunity cost is the best alternative that we forgo when we make a choice. For

instance, if one decides to rest in a beach and enjoy the sun, in common sense that benefit is free because he does not have to pay for the privilege. However, in reality, it does have opportunity cost. The true cost of that leisure is the value of the other things one would have produced or done, but did not, during the time one spent on the beach.

ITQ

Question

Which concept in economics makes the word "trade-off" relevant?

Feedback

The concept of scarcity.

1.5 Economic Systems

There are different ideologies with respect to how the basic economic problems identified above could be solved. The following are the ideological divisions on how the economic problems could be solved.

1.5.1 The Command Economy

In this economy, the basic economic questions are answered by the central government. Through a combination of government ownership of state enterprises and central planning, the government, either directly or indirectly, sets output targets, incomes, and prices. This type of economic system is also known as the centrally planned.

1.5.2 The Free Market: Laissez-Faire Economy

At the opposite end of the spectrum from the command economy is the laissez-faire economy. The term laissez-faire, which translated literally from French, means "allowing (them) to do", implies a complete lack of government involvement in the economy. In this type of economy, individuals and firms pursue their own self-interest without any central direction or regulations; the sum total of millions of individual decisions ultimately determines all basic economic outcomes. The central institution through which a laissez-faire system answers the basic questions is the *market*, a term that is used in economics to mean an institution through which buyers and sellers interact and engage in exchange. In short, some markets are simple and others are

complex, but they all involve buyers and sellers engaging in exchange. The behaviour of buyers and sellers in a laissez-faire economy determines what to produce, how is it produced and who gets it.

1.5.3 The Mixed Economic System

The differences between command economy and laissez-faire economy in their pure forms are enormous. In fact, these two economies do not exist in the real world; all real systems are in some sense "*mixed*". That is, individual enterprises exist and independent choices are made even in economies in which the government plays the major role. Thus, the mixed economic system is a system where both the private and government own the means of production. In this case, individuals are allowed to control means of production, while the government will put in place enabling environment for production activities to strive, and at the same time engage in production of goods and services that private sector cannot easily produce.

Therefore, there are no purely planned or command economies and no purely laissez-faire economies, all economies are mixed. Individual enterprise, independent choice, and relatively free markets exist in centrally planned economies, and there is significant government involvement in market economies such as the United States of America (USA).

ITQ

Question

There are different ideologies with respect to how the basic economic problems could be solved. The best ideologies that yield optimal solution is

a) command economy
b) free market economy
c) mixed economy
d) All of the above

Feedback

a) command is centrally planned, it provides no room for private ownership.
b) free market is the economy of individuals and firms with no central planning.
c) mixed economy combines the elements of both

command and free market making it the best option.

d) it is not possible to combine the three as the combination of both a and b already gives c.

1.6 Decision Making

In the course of taking decision, an individual usually considers the benefit that such decision would give him/her and also considers the cost of taking such decision. This is often called cost-benefit principle, which allows an individual to take an action if, and only if, extra benefits from taking the action are at least great as the extra costs.

1.6.1 Pitfalls in Decision Making

There are four important pitfalls in decision making, they are as follows:

1. **The pitfall of measuring cost or benefits proportionately**: Many decision makers treat a change in cost or benefit as insignificant if it constitutes only a small proportion of the original amount. Absolute naira amounts, not proportions, should be employed to measure costs and benefits.
2. **The pitfalls of ignoring opportunity costs:** When performing a cost-benefit analysis of an action, it is important to account for all relevant opportunity cost, defined as the values of the most highly alternatives that must be forgone in order to carry out the action. A resource may have high opportunity cost, even if you originally got " for free" if its best alternative use has high value. The identical resource may have a low opportunity cost, however, if it has no good alternative uses.
3. **The pitfall of not ignoring sunk cost:** When deciding whether to perform an action, it is important to ignore sunk costs-those costs that cannot be avoided even if the action is not taken. Even though, a ticket to a concert may have cost you ₦100, if you have already bought it and cannot sell it to anyone else, the ₦100 is a sunk cost and should not influence your decision about whether to go to the concert or not.
4. **The pitfall of using average instead of marginal costs and benefits:** Decision makers often have ready

information about the total cost and benefit of an activity, and from these it is simple to compute the activity's average cost and benefit. A common mistake is to conclude that an activity should be increased if its average benefit exceeds its average cost. The cost-benefit principle tells us that the level of an activity should be increased if, and only if, its marginal benefit exceeds its marginal cost.

ITQ

Question

Mention those difficulties that are closely associated with the use of cost-benefit principle.

Feedback

Certain difficulties are inherent while applying cost-benefit principle, these difficulties are:

- Problem of measuring cost or benefits proportionately.
- Problem of ignoring opportunity costs.
- Problem of not ignoring sunk cost.
- Problem of using average instead of marginal costs and benefits.

Activity

John, a student of UI has ₦2,000 to spend on textbook, food and accommodation. He went to the bookstore to buy the books, later went to the market where he bought food and eventually got to the hostel and find out that he had ran out of cash to settle his accommodation.

i. The situation of John pictured above shows that the resources are

a) Few in number
b) Scarce
c) Essential

ii. What is the implication of his visiting the bookstore?

a) He had made his choice
b) Accommodation is not important to him
c) Bookstore is the closest to him

iii. What best denote accommodation in this scenario?

a) Economic Choice

b) Scarce Commodity
c) Social Cost
d) Opportunity Cost.

Study Session Summary

Summary

This Study Session served as an introductory session to the course. It presented the relevance of economics and also exposed you to the scope and method of economics. It also explored economic problems, economic systems, and problems with making economic decisions.

Assessment

Assessment

SAQ 1.1 (tests Learning Outcome 1.1)
What is the rationale behind the study of economics?

SAQ 1.2 (tests Learning Outcome 1.2)
Critically examine the center of attention of each of the two branches of economics.

SAQ 1.3 (tests Learning Outcome 1.3)
What are the techniques employed in carrying out economic analysis?

SAQ 1.4 (tests Learning Outcome 1.4)
Justify the nexus between scarcity, choice and opportunity cost

SAQ 1.5 (tests Learning Outcome 1.5)
Make a distinction between the various ideologies representing economic systems.

SAQ 1.6 (tests Learning Outcome 1.6)
What are the flaws inherent in economic decision making?

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Reading

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Study Session 2

Economics of Exchange

Introduction

This Study Session will point out why economic systems that are based on specialization and the exchange of goods and services are generally far more productive than those without specialization. In doing so, you will explore why people choose to exchange goods and services in the first place, rather than having each person produce his or her own food, clothing, shelter and other necessities of life.

Learning Outcomes

When you have studied this session, you should be able to:

2.1 *highlight* the rationale behind the principle of specialization in production of goods and services.

2.2 *construct* the Production Possibilities Curve (PPC) and point out its' usefulness.

2.1 Exchange and Opportunity Cost: Comparative Advantage Principle

The scarcity principle tells us that the opportunity cost of spending more time on any one activity is having less time available to spend on others. This principle helps in explaining why everyone can do better by concentrating on those activities at which he or she performs best relative to others. The principle of absolute advantage tells us that one person has an absolute advantage over another if he or she takes fewer hours to perform a task than the other person. However, comparative advantage is the case where one person has a comparative advantage over another if his or her opportunity cost of performing a task is lower than the other person's opportunity cost. Simply put, a person has a comparative advantage at producing a particular good or service, say; haircuts; if that person is relatively more efficient at producing haircuts than at producing other goods or services. It will be seen that we can all have more of every

good and service if each of us specialises in the activities at which we have a comparative advantage.

One of the most important insights of modern economics is that when two people (or two nations) have different opportunity costs of performing various tasks, they can always increase the total volume of available goods and services by trading with one another. For example, consider a community in which Mosorire is the only professional bicycle mechanic and Iremide is the only professional software programmer. Mosorire also happens to be an even better software programmer than Iremide. If the amount of time each of them takes to perform these tasks is as follows:

Table 2.1. Production information for Mosorire and Iremide

	Time to design a software programme	**Time to complete a bicycle repair**
Mosorire	20 minutes	10 minutes
Iremide	30 minutes	30 minutes

The above table shows that mosorire has an absolute advantage over Iremide for both activities. While Mosorire the mechanics needs only 20 minutes to design software, Iremide, the programmer, needs 30 minutes. Mosorire's advantage over Iremide is even greater when the task is fixing bikes. She can complete a repair in only 10 minutes, compared to Iremide's 30 minutes.

ITQ

Question

In what way does opportunity cost and comparative advantage principle related?

Feedback

Comparative advantage is synonymous with opportunity cost because it describes a phenomenon where a nation, firm or an individual has a lower opportunity cost in the production of a particular commodity over and above competing firms, nations or individuals.

However, the fact that Mosorire is a better programmer than Iremide does not imply that Mosorire should design a software programme. Iremide has a comparative advantage over Mosorire at programming. She is relatively more

productive at programming than Mosorire. Similarly, Mosorire has a comparative advantage at a given task if his or her opportunity cost of performing that task is lower than another person's. What is Iremide's opportunity cost of designing a software programme? Since she takes 30 minutes to design a programme the same time she takes to fix a bicycle – her opportunity cost of designing a software programme is one bicycle repair. In other words, by taking the time to design a software programme, Iremide is effectively giving up the opportunity to do one bicycle repair. Mosorire, in contrast, can complete two bicycle repairs in the time she takes to design a software programme. For her, the opportunity cost of designing a software programme is two bicycle repairs. Mosorire's opportunity cost of programming, measured in terms of bicycle repairs forgone, is twice as high as Iremide's. Thus, Iremide has a comparative advantage at programming.

The interesting and important implication of the opportunity cost comparison summarised in Table 2 below is that the total number of bicycle repairs and software designs accomplished if Mosorire and Iremide both spent part of their time at each activity will always be smaller than the number accomplished if each specialises in the activity in which she has a comparative advantage.

Table 2.1.
Opportunity cost for Mosorire and Iremide

	Opportunity cost of designing a software	**Opportunity cost of a bicycle repair**
Mosorire	2 bicycle repairs	O.5 software design
Iremide	1 bicycle repair	1 software design

Suppose, for example, that people in the community demand a total of 16 software programme designs per day. If Mosorire spent half her time designing softwares and the other half repairing bicycles, an eight-hour workday would yield 12 software programme designs and 24 bicycle repairs. To complete the remaining 4 updates, Iremide 4 designs, Iremide will have to spend two hours programming, which would leave her six hours to repair bicycles. And since she takes 30 minutes to do each repair, she would have to complete 12 of them. So, when the two women try to be jacks-of-all-trades, they end up completing a total of 16 software programme designs and 36 bicycles repairs. Consider what would have

happened had each woman specialised in her activity of comparative advantage. Iremide could have designed 16 software programmes on her own, and Mosorire could have performed 48 bicycle repairs. Specialisation would have created an additional 12 bicycle repairs out of thin air.

The conclusion is that gains from exchange are possible if trading partners have comparative advantages in producing different goods and services. You have a comparative advantage in producing, say, software programme, if your opportunity cost of producing software – measured in terms of the corresponding opportunity costs of your trading partners. Maximum production is achieved if each person specialises in producing the goods and services in which he or she has the lowest opportunity cost. Comparative advantage makes specialisation worthwhile even if one trading partner is more productive than the others, in absolute terms, in every activity.

ITQ

Question

If Nigeria devotes all her resources on the production of petroleum resources, while Niger produces clothing and both nations trade with one another, in Nigeria, clothing implies

a) the alternative forgone
b) the scarce commodity
c) economic leftover
d) imported product

Feedback

Clothing implies the alternative forgone of producing petroleum resources in Nigeria. So, option (a) is correct.

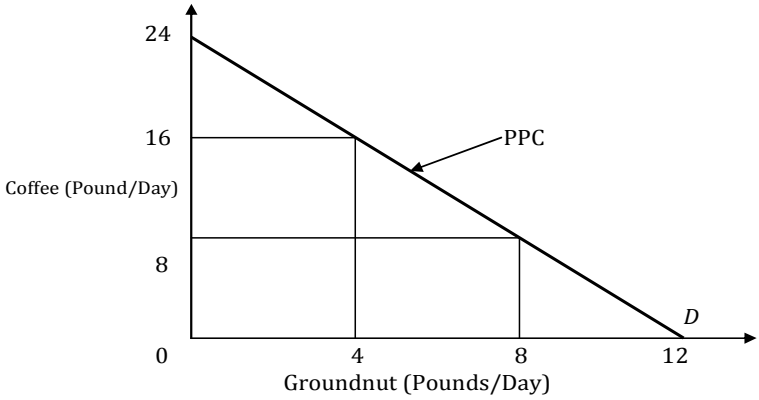
2.2 Comparative Advantage and Production Possibilities Curve

In this section, you will gain further insight into the advantages of specialisation by introducing a graph that can be used to describe the various combinations of goods and services that an economy can produce.

Given a hypothetical economy in which only two goods are produced, coffee and groundnuts. It is a small economy, and production consists either of picking coffee beans or groundnuts. The more time workers spent picking coffee, the less time they have available for groundnuts. So, if people want to drink more coffee, they must make do with a smaller

amount of groundnuts. It is the combination of coffee and groundnuts that can be produced that gives a way of possibilities, which is known as production possibilities curve. Production possibilities curve is a graph that describes the maximum amount of one good that can be produced for every possible level of production of the other good. For example, assume an economy with a single worker that can divide her time between two activities. The Production Possibilities Curve (PPC) of the worker is given thus:

Fig 2.1



Since the worker's PPC is a straight line, its slope is constant. The absolute value of the slope of the worker's PPC is the ratio of its vertical intercept to its horizontal intercept: (24 pounds of coffee/day) / (12 pounds of groundnuts/day) = (2 Pounds of coffee) / (1pounds of groundnuts). The ratio means that the worker's opportunity cost of an additional pound of groundnuts is 2 pounds of coffee. Note that the worker's opportunity cost (OC) of groundnut can also by expressed as the following simple formula:

$$\mathrm{OC}_{\mathrm{nuts}} = \frac{loss\ of\ coffee}{gain\ in\ groundnuts}$$

Where "loss of coffee" equals the amount of coffee given up, and "gain in nuts" is the corresponding increase in groundnuts. Likewise, the opportunity cost of coffee can be represented by the formula:

$$\mathrm{OC}_{coffee} = \frac{loss\ of\ groundnuts}{gain\ in\ coffee}$$

To say that the opportunity cost of an additional, pound of groundnuts is 2 pounds of coffee is thus equivalent to saying that the opportunity cost of a pound of coffee is ½ pound of groundnuts.

ITQ

Question

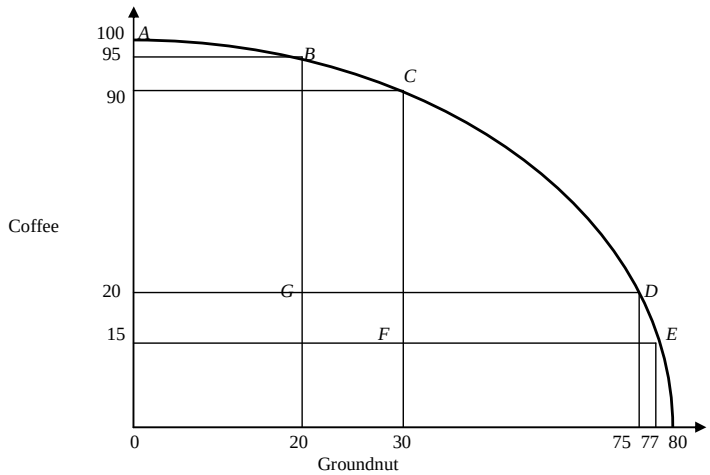
Why is the slope of a PPC with a straight line constant?

Feedback

The slope of a straight line PPC is constant because the ratio in terms of opportunity cost of producing extra amount of either of the commodities in each axis (vertical and horizontal) is the same all through.

Although, most actual economies consist of millions of workers, the process of constructing a production possibilities curve for an economy of that size is really no different from the process for a one-person economy. For instance, consider an economy in which the only two goods produced are coffee and groundnut. The maximum attainable amount of coffee production is 100,000 pounds per day, for example, while the maximum attainable amount of groundnuts production is 80,000 pounds per day.

Fig 2.2



The PPC above is not a straight line – as in the earlier examples involving only a single worker- but rather a curve that is bowed out from the origin. This bow shaped PPC means that the opportunity cost of producing groundnuts increases as the economy produces more of them. For example, when the economy moves from point A in the graph above to B, it gets 20,000 pounds of groundnuts per day by given up 5,000 pounds per day of coffee. When the production of groundnuts is increased further, by moving from

B to C, the economy gives up 5,000 pounds per day of coffee, yet this time gets only 10,000 additional pounds of nuts. This pattern of increasing opportunity cost persists over the entire length of the PPC. Note that the same pattern of increasing opportunity cost applies to coffee. Thus, as more of coffee is produced, the opportunity cost of producing additional coffee- as measured by the amount of groundnuts that must be sacrificed – also rises.

Note

- Any point on the PPC represents point of efficient production where all available resources are fully utilised, and it is therefore impossible to increase the production of one product without reducing the production of the other.
- Any point within the PPC represents inefficient production because not all available resources are used at such a point.
- The bowed shaped PPC illustrates the "low-hanging-fruit" principle that when resources have different opportunity costs, we should always exploit the resource with the lowest opportunity cost first.

Therefore, the reason why the PPC is bowed out is that some resources are relatively well suited for producing groundnuts while others are relatively well suited for producing coffee. The bowed shaped PPC illustrates the general principle that when resources have different opportunity costs, we should always exploit the resource with the lowest opportunity cost first. This is called the **low-hanging-fruit** principle. Further, it is important to note that any point on the PPC represents point of efficient production where all available resources are fully utilised, and it is therefore impossible to increase the production of one product without reducing the production of the other. On the other hand, any point within the PPC represents inefficient production because not all available resources are used at such a point.

ITQ

Question

(A)Why is Production possibility Curve bowed in shape?

(B) Which principle in economics justifies this?

Feedback

(A) A bowed PPC basically explains the fact that some resources are relatively well suited for the production of a particular product while others are suited for the production of other products.

(B) The principle that justifies this is known as **low-hanging-fruit** principle.

2.2.1 Factors that can Shift the Production Possibilities Curve

The following are the factors that can shift the PPC.

1. The PPC can shift as a result of increase in the amount of the production resources available. When a nation's resource endowment increases or new resources are discovered, more production opportunities will occur and thus, the PPC shifts outward.
2. Population growth also causes an economy's PPC to shift outward and thus is often listed as one of the sources of economic growth. However, because population growth also generates more mouths to feed, it cannot by itself raise a country's standard of living. Indeed, it may even cause a decline in the standard of living if existing population densities have already begun to put pressure on available land, water, and other scarce resources.
3. Improvement in knowledge and technology is another factor that can shift the PPC. As economists have long recognised, such improvements often lead to higher output through increased specialisation. Improvements in technology often occur spontaneously, but more frequently they are directly or indirectly the result of increases in education.

ITQ

Question

An outward shift in the production possibility curve is best known as?

Feedback

It is known as economic growth.

Study Session Summary

Summary

In this study session, we presented the rationale behind the principle of specialization in production of goods and service. We also show how to construct the PPC and point out its' usefulness.

Assessment

Assessment

SAQ 2.1 (tests Learning Outcome 2.2)
What is the underlying principle of specialization in goods and services production?
SAQ 2.2 (tests Learning Outcome 2.2)
Justify the usefulness of production possibilities Frontier (PPF) to an economy.

Bibliography

Reading

Karl E. Case and Ray C. Fair, Principles of Economics, Prentice Hall, 6th ed., Chapter 2.

Robert. H. Frank and Ben S. Bernanke, (2007) Principles of Economics, McGraw-Hill Irwin, 3rd ed, Chapter 2.

Study Session 3

Introduction to Market Mechanism: Demand and Supply

Introduction

In this Study Session, you will explore how market allocates goods and services with remarkable efficiency. You will also see why market functions so smoothly most of the time, and why bureaucratic rules and regulations rarely work in solving complex economic problems.

Learning Outcomes

When you have studied this session, you should be able to:

3.1 *outline* the basic principles of demand.
3.2 *construct* supply curve.
3.3 *determine* market equilibrium price and quantity.
3.4 *differentiate* between "changes in demand" and "quantity demanded".

3.1 Making Economic Decision: Central Planning versus Market

There is no society; irrespective of how it is organised, that can escape the need to answer certain basic economic questions. For example, how much of our limited time and other resources should we devote to building housing? How much to the production of food? Who should be assigned to each specific task? And how should the resulting goods and services be distributed among people?

In many societies, issues like these have been decided in essentially one of two ways. One approach is for all economic decisions to be made centrally, by an individual or small number of individuals on behalf of a larger group. For example, the economic organisation of the former Soviet Union (and other communist countries) was largely centralised. In centrally planned communist nations, a central bureaucratic committee established production targets for the country's farm and factories, developed a master plan for how to achieve the targets (including detailed instructions

concerning who should produce what), and set up guidelines for the distribution and use of the goods and services produced.

At the beginning of the twenty-first century, many societies employed the second major form of economic system – free market economy – one in which production and distribution decisions is left to individuals interacting in private markets. In the so-called free-market or capitalists economies, people decide for themselves which careers to pursue and which products to produce or buy. There are however, no pure free-market economies today. Modern industrial countries are more properly described as "mixed economies", meaning that goods and services are allocated by a combination of free markets, regulation, and other forms of collective control.

Markets have replaced centralised control in many countries for the simple reasons that they tend to assign production tasks and consumption benefits much more effectively. There is overwhelming agreement among economists about a broad range of issues, with the great majority accepting the efficacy of markets as means for allocating society's scarce resources.

ITQ

Question

Which of the following best describe a situation whereby means of production and distribution are collectively control by the combination of free market, regulation and other forms of control?

a) free market economies
b) mixed economies
c) communal economies
d) Laissez-faire economies.

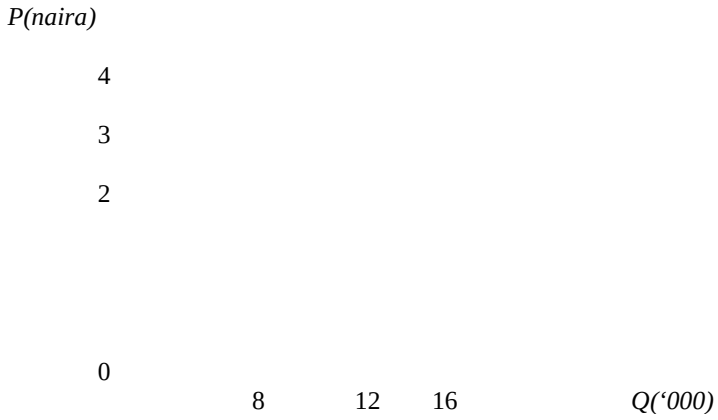
Feedback

- Option (a) and (d) means the same thing which implies an economy of individuals and firms with no central planning.
- Option (c) command is centrally planned; it provides no room for private ownership.
- Option (b) combines the elements of both command and free market making it the best option.

3.2 Demand Curve

The demand curve is a simple schedule or graph that shows the amount of a given good people are willing to buy at different prices. Invariably, this is a graph of quantity demanded at varying price. By convention, economists usually put price (*P*) on the vertical axis of the demand curve and quantity (Q) on the horizontal axis. A fundamental property of the demand curve is that it is downward-slopping with respect to price. For example, the demand curve for bread tells us that as the price of bread falls, buyers will buy more. This is depicted in Fig 3.1.

Fig 3.1



The demand curve in Fig 3.1 shows that when the price of bread is low, say ₦ 2, buyers will want to buy 16,000 loaves per day, whereas they will want to buy only 12,000 loaves at a price of ₦3, and only 8,000 loaves at a price of ₦ 4. The demand curve for bread (and any other good) is downward-slopping for multiple reasons. Some of the reasons have to do with the individual consumer's reactions to price changes. Thus, as bread becomes more expensive, a consumer may switch to garri or other foods that substitute for bread. This is called the **substitution effect of a price change**.

In addition, a price increase reduces the quantity demanded because it reduces purchasing power. A consumer simply cannot afford to buy as many loaves of bread at higher prices as at lower prices. This is called the **income effect of a price change.**

A substitution effect is the change in the quantity demanded of a good that results from the fact that the buyers switch to substitutes when the price of the good changes; while income

Note	effect is the change in the quantity demanded of a good that results because a change in the price of a good changes the buyer's purchasing power.

Another reason that the demand curve slopes downward is that consumers differ in terms of how much they are willing to pay for the good. The **cost-benefit principle** tells us that an individual will buy the good if the benefit he expects to receive from it exceeds its cost. The benefit is the buyer's reservation price, the highest naira amount he would be willing to pay for the good. The cost of the good is the actual amount the buyer actually must pay, which is the market price of the good. In most markets, different buyers have different reservation prices. Thus when the good sells for a high price, it will satisfy the cost-benefit test for fewer buyers than when it sells for a lower prices.

In another way, the fact that the demand curve for a good is downward-sloping reflects the fact that *the reservation price of the marginal buyer declines as the quantity of the good bought increases.* Here, the marginal buyer is the person who purchases the last unit of the good that is sold. If buyers are currently purchasing 12,000 loaves of bread a day as shown in Fig 3.1, the reservation price for the buyer of the 12,000 loaves must be 3 naira. By similar reasoning, when the quantity sold is 16,000 loaves per day, the marginal buyer's reservation price is 2 naira.

ITQ

Question

Why is demand curve downward sloping?

Feedback

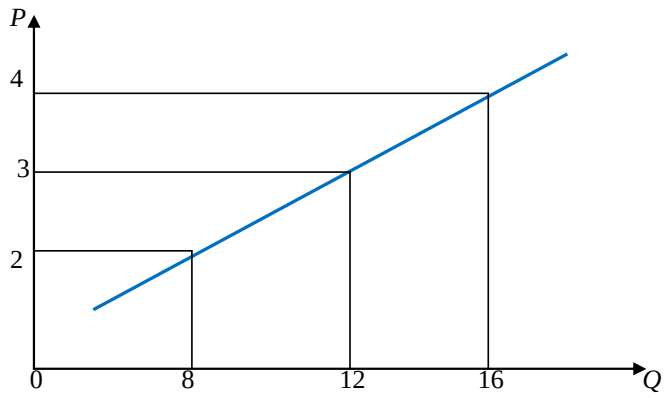
Several reasons account for the downward sloping of the demand curve. Some of these reasons are:

- Consumer reaction to price changes which brings about substitution and income effects.
- Variation in consumers' reservation prices.
- Decline in the reservation price of the marginal buyer.

3.3 Supply Curve

Supply curve is a graph showing the quantity of a good that sellers wish to sell at a given price. In the market for bread, the supply curve is a simple schedule or graph that tells us the quantity of bread that a supplier is willing to supply at every price level. For each possible price, the total number of loaves that all bread sellers would be willing to sell at that price. Just as buyers differ with respect to the amounts they are willing to pay for bread, sellers also differ with respect to their opportunity costs of supplying bread. For those with limited education and work experience, the opportunity cost of selling bread is relatively low (because such individual typically do not have a lot of high-paying alternatives). For others, the opportunity cost of selling bread is of moderate value, and for others, it is prohibitively high. The supply curve of bread will be upward-sloping with respect to price. For example, Fig 3.2 below shows a hypothetical supply curve for bread in a given market on a given day.

Fig 3.2 Supply curve



The fact that the supply curve slopes upward may be seen as a consequence of the low-hanging –fruits principle, discussed in the preceding Study Session. This principle tells us that as we expand the production of bread, we turn first to those whose opportunity costs of producing bread are lowest, and only then to others with highest opportunity costs. Like the demand curve, the supply curve can be interpreted either horizontally or vertically. Under the horizontal interpretation, we begin with a price, and then go over to the supply curve to read the quantity that sellers wish to sell at that price on the horizontal axis. For instance, at a price of 2 naira per loaf, sellers in figure 4 wish to sell 8,000 loaves per day. Under the vertical interpretation, we begin with a quantity, and then go up to the

supply curve to read the corresponding marginal cost on the vertical axis.

Thus, if sellers in Fig 3.2 are currently supplying 12,000 loaves per day, the opportunity cost of the marginal seller is 3 naira per loaf of bread. Thus, the sellers' reservation price of selling an additional unit of a good is her marginal cost of producing that good. It is the smallest naira amount for which she would not be financially worse off if she sold an additional unit. In other words, the seller's reservation price is the smallest naira amount for which a seller would be willing the sell an additional unit, which is generally equal to the marginal cost.

ITQ

Question

Describe briefly the theory of low-hanging –fruits principle

Feedback

Low-hanging-fruits principle theory states that some resources are best suitable in the production of a particular product while others are suitable in the production of other products depending on their respective opportunity costs.

3.4 Market Equilibrium

A market is said to be at equilibrium when no actor in the market has any reason to change his behaviour, so that there is no tendency for production or prices in that market to change. The price at which a good will be sold and bought is known as **equilibrium price**, while the quantity that will be sold and bought at the price is the **equilibrium quantity**. It is the supply and demand curves that serve as the basic tools for finding equilibrium in the market.

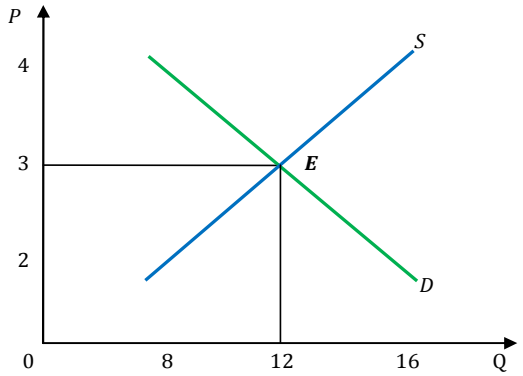
Tip

The equilibrium price and quantity of a good are the price and quantity at which the supply and demand curves equate or intersect. Thus, market equilibrium is the point whereby the supply and demand curves intersect to determine the price and quantity.

Fig 3.3a shows supply and demand curves that intersect at point *E*, and at this point the quantity demanded is 12, while the price is 3 naira. Thus, point *E* is the equilibrium point. At price 3 naira, both the buyers and sellers are satisfied because

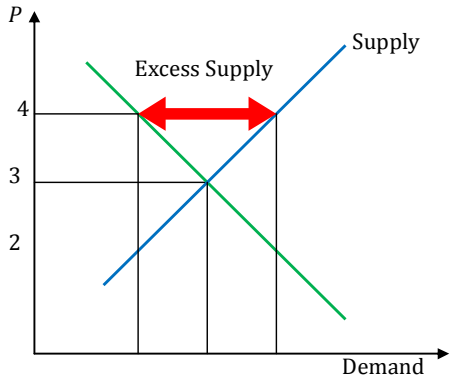
at this price, buyers are buying exactly what they intend to buy and sellers are selling exactly the quantity they wish to sell.

Fig 3.3a shows supply and demand curves that intersect at point ***E***, point ***E*** is the equilibrium point.



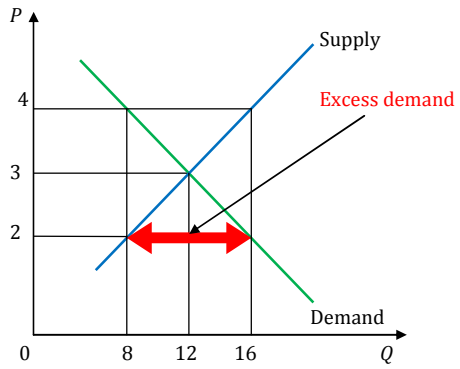
Note that the satisfaction of both buyers and sellers at market equilibrium is in limited sense because this does not preclude the fact that sellers do not prefer higher prices than the equilibrium price, but they were able to sell all they wish to sell at that price. Similarly, it does not imply that buyers would not prefer low prices than the equilibrium price, but they could buy exactly as many units of the good as they wish. Thus, if the equilibrium price should change, buyers and sellers would be frustrated. For example, if the equilibrium price should rise to 4 naira, buyers will demand 8 quantities, but sellers will supply 16 amount of the good (see Fig 3.3b).

Fig 3.3b
Market equilibrium



At the price of 4 naira, there is excess supply of 8 quantities of the good, which makes the sellers to be frustrated. Conversely, suppose the equilibrium price is reduce to 2 naira, the buyers are ready to buy 16 quantity of the good, but the sellers supply only 8 quantity to the market (see Fig 3.3c).

Fig 3.3c



In this case, the buyers are frustrated since they cannot force the sellers to supply against their wish. This led to an excess demand of 8 quantities of the good. However, when there is excess supply, the sellers have the option of cutting the price, which will stimulate demand upward, until it gets back to equilibrium position. Also, given the excess demand, the buyers can decide to offer better price (by offering to pay more), which will motivate sellers to supply more, until supply gets back to the equilibrium price. Thus, it is at the equilibrium point that both the buyers and sellers are satisfied.

ITQ

Question

What are the effects of commodity price been above or below the equilibrium price?

Feedback

When commodity price is above the equilibrium price, this results into excess supply. Conversely, when price is below the equilibrium price, it results into excess demand.

3.4.2 Changes in Prices and Quantities

Let us distinguish between the meanings of the seemingly similar expressions of “change in the quantity demanded” and “change in demand”. Change in quantity demanded means the change in the quantity that people are willing to buy that is due to change in price. For instance, Fig 3.4a depicts changes in the quantity demanded that are due to changes in the price of the good. When the price falls from 5 naira to 4 naira, the quantity demanded rises from 2 to 4. In contrast, change in demand is a situation where there is a shift in the entire demand curve as shown in Fig 3.4b, which depicts an increase

in demand that at every price the quantity demanded is higher than before. Thus, a change in the quantity demanded refers to the movement along the demand curve, while a change in demand is the shift in the entire curve.

Fig 3.4a

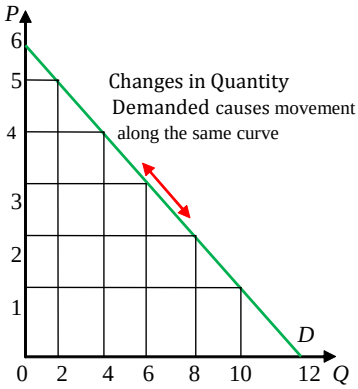
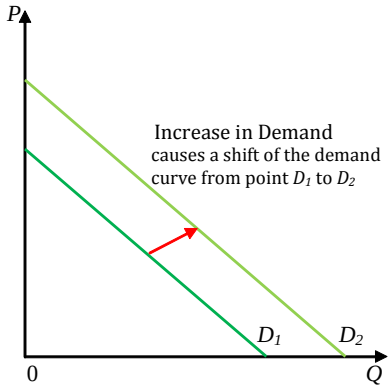


Fig 3.4b



Similar analogy can be given to the supply side of the market. A change in supply indicates a shift in the entire supply curve, whereas a change in the quantity supplied shows a movement along the supply curve.

Activity 3.1

Allow 20 minutes

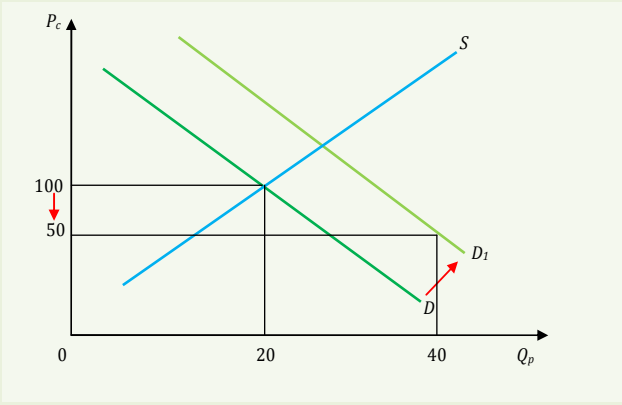
Read the article below on factors that determine change in demand. Which of the discussed factors is the most cogent and why? Post your answers on Study Session 3 forum board at the course website.

Factors that Determine Change in Demand

1. Change in Relative Prices

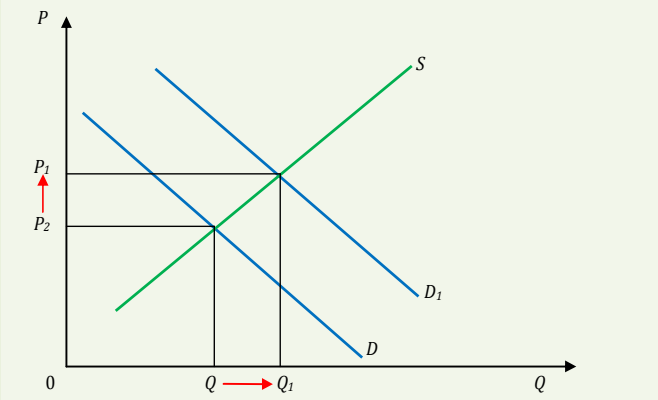
An increase or decrease in relative prices will either shift the demand curve outward or inward. This shift in the demand curve will depend on the type of good that is involved. In the case of complementary goods (these are goods that are jointly consumed, e.g. Bread and butter), an increase in the price of one of the goods will shift the demand curve of the other to the left or inward. Thus, when the price of a complement falls, demand shifts rightward, causing equilibrium price and quantity to rise. For example, Fig. 3.5a shows that a fall in the price of a car, P_c, will increase the quantity demanded of fuel, $Q_{p,}$ given that car and fuel are complementary goods.

Fig. 3.5a



However, if the goods are substitute, an increase in the price of good *A* will lead to increase in the quantity demanded of good *B*. For instance, if the price of rice (say P_A) rises, there will be increase in the quantity demanded of the substitute, say beans. In Fig 3.5b as the price of good *A* increases from P_0 to P_1, the quantity demanded of good *B* increases from Q_0 to Q_1 and this shift the demand curve outward from D_0 to D_1.

Fig 3.5b



2. Income

The income level also shifts the demand curve either to the right or left. An increase in the general income level in the country will shift the demand curve to the right, while a reduction in the general income level will shift demand curve to the left.

3. Population

Another factor that can shift the demand curve is the total population in a country, which influences effective demand. An increase in the population will shift the demand curve rightward since there are more people to demand a good

than it was before. Conversely, a reduction in the population will reduce the number of people that will buy a given good, which will shift the demand curve leftward.

4. Taste and Fashion

Taste is another factor that can shift demand curve, a positive or favourable taste for a good will increase the demand for the good, which thereby shifts the demand curve rightward. While unfavourable taste for a good will decrease the demand and thereby shift the demand curve leftward. For instance, Nigerians are known to buy more of Nokia phones, if there is a change in taste of Nigerians in favour of Samsung phones, what this means is that the demand curve of Samsung phones will shift rightward and vice versa.

Fashion of the people can also shift the demand curve. For instance, if fashion favours a good, there will be a rightward shift in the demand curve of the good; otherwise there will be reduction in demand for the good, which will shift the demand curve leftward. For example, Nigerians used to prefer baggy trousers but due to change in fashion of the people, Nigerians now prefer straight trousers, which shift the demand curve for baggy trousers leftward and that of straight trousers rightward.

5. Taxation

Taxes are imposed on people by the government in order to raise revenue. A tax is a periodical deduction from people's income that is made mandatory by government laws. An increase in taxes will reduce their income and make them to have little to spend on consumption. This little income will reduce the consumption of goods and services of the people and thereby shift the demand curves of the goods consume leftward. However, a reduction in taxes will increase the amount of money available for consumption expenditure, which will lead to a shift of the demand curve rightward.

Do not forget to post your response on Study Session 3 Discussion Board.

ITQ

Question

What is the difference between "change in quantity demanded" and "change in demand"?

Feedback

Change in quantity demanded involves movement along the same demand curve caused by change in price only. Change in demand is a shift in demand curve from its original position to a new position entirely as a result of other factors while commodity price in question is held constant.

Study Session Summary

Summary

In this Study Session, you learnt how market allocates goods and services. You also explored how market equilibrium is determined. Lastly, we discussed the differences between changes in demand and changes in quantity demanded.

Assessment

Assessment

SAQ 3.1 (tests Learning Outcome 1.1)

What are the essential rules of demand?

SAQ 3.2 (Tests Learning Outcome 2)

Sketch a supply curve and explain why it's upward sloping

SAQ 3.3 (Tests Learning Outcome 3)

Distinguish between market equilibrium price and quantity

SAQ 3.4 (Tests Learning Outcome 4)

Make a distinction between "changes in demand" and "quantity demanded".

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Reading

Karl E. Case and Ray C. Fair, Principles of Economics, Prentice Hall, 6th ed., Chapter 3.

Robert. H. Frank and Ben S. Bernanke, (2007) Principles of Economics, McGraw-Hill Irwin, 3rd ed, Chapter 3.

Study Session 4

Elasticity of Demand

Introduction

In the last Study Session, we saw how shifts in supply and demand curves enabled us to predict the direction of change in the equilibrium values of price and quantity. In this Study Session, you will explore price elasticity (of demand) which will enable you to make more precise statements about the effects of such changes.

Learning Outcomes

When you have studied this session, you should be able to:
4.1 *highlight* the determinants of price elasticity of demand.
4.2 *calculate* the different types of elasticity of demand.

4.1 Price Elasticity of Demand

Price Elasticity of Demand ratio of percentage change in quantity demanded to percentage change in price.

The **price elasticity of demand** is the degree of responsiveness of quantity demanded of a good to change in its price. It can also be defined as the percentage change in the quantity demanded that results from a percent change in its price. For example, if the price of a tin of milk falls by one percent and the quantity demanded rises by two percent, then the price elasticity of demand for the tin of milk has a value of -2.

Conventionally, the price elasticity of demand will always be negative or zero, because price changes are always in the opposite direction from changes in quantity demanded. However, it is often interpreted in absolute term or value. The demand for a good is said to be *elastic* with respect to price if the absolute value of its price elasticity is greater than 1. It is said to be *inelastic* if the absolute value of it price elasticity is less than 1. Finally, price elasticity of demand is said to be *unity* or *unit elastic* if the absolute value of its price elasticity is equal to 1.

ITQ

Question

A researcher, investigating the responses of consumer to changes in the price of groundnut oil in Ibadan metropolis, observe that: "if the price per bottle of groundnut oil falls by 0.5%, the quantity demanded rises by 1.0 %". This result implies that the price elasticity of demand for groundnut oil in Ibadan is:

a) -0.5
b) -1.0
c) -1.5
d) -2.0

Feedback

- price per bottle of groundnut oil falls by 0.5% (-0.5%)
- quantity demanded rises by 1.0 % (+1.0%)
- price elasticity of demand = +1.0/-0.5=-2

The correct answer is d.

Note: Remember the example in the last sentence of the first paragraph under section 4.1 (Price Elasticity of Demand**).**

- price of a tin of milk falls by one percent (-1.0%)
- quantity demanded rises by two percent (+2.0%)
- price elasticity of demand for the tin of milk has a value of -2 [= +2.0/-1.0]

4.1.1 Determinants of Price Elasticity of Demand

The following are the factors that determine the price elasticity of demand for any goods and services.

Possibilities of Substitution

The price elasticity of demand will tend to be higher for product that has close substitutes. For example, salt has no close substitutes, which make its demand to be highly inelastic. That is, as the price of salt increases, the demand will only decrease at an insignificant rate. Example of another product is this category is vaccine against rabies. A person who is bitten by a rabid animal and does not take the vaccine faces a certain and painful death. So, most people in that position would pay any price they could afford rather than do without the vaccine.

Budget Share

This indicates the amount that is allocated to an item in ones budget. The larger the share of your budget for an item, the greater is your incentive to look for substitutes when the price of the item rises. Thus, items with big budget share tend to have higher price elasticity of demand.

Time

The substitution of one good for another takes time to take place; while some substitutions occur in the immediate aftermath of a price increase, others take place years or even decade later. Thus, the price elasticity of demand for any good or service will be higher in the long run than in the short run.

ITQ

Question

Over the last ten years the price elasticity of demand for tea in many countries has risen. Which of the following is the most likely cause of this change in price elasticity?

a) a decrease in the incomes of consumers
b) a decrease in the number of complements to tea
c) an increase in the number of substitutes for tea
d) an increase in the supply of tea

Feedback

Option a: Wrong [income is not part of the factors listed above as the determinants of price elasticity of demand. However, it is one of the factors that causes change in quantity demanded]

Option b: Wrong [availability of complementary goods is not part of the factors listed above as the determinants of price elasticity of demand.]

Option c: Correct [note the discussion under 'Possibilities of Substitution' above: *when there is no substitute, as for salt, price elasticity is low; this implies that availability of many substitutes is associated with high elasticity*]

Option d: Wrong [there has been no reference to supply in the discussion of price elasticity of demand].

4.2 Types of Elasticity

4.2.1 Calculating Elasticity: Price Elasticity

For small changes in price, price elasticity of demand is the proportion by which quantity demanded changes divided by the corresponding proportion by which price changes. That is,

$$E_d = \frac{\text{Percentage change in quantity demanded}}{\text{Percentage change in price}}$$

where E_d is the price of elasticity of demand.

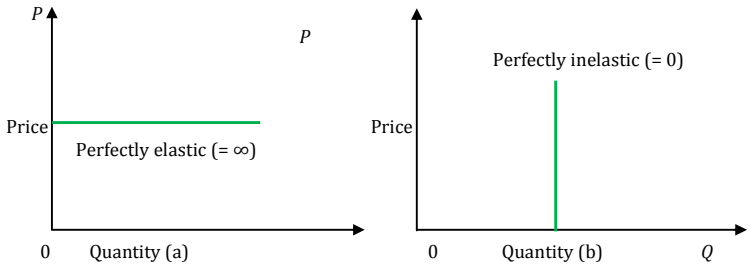
This formulation enables us to construct a simple expression for the price elasticity of demand for good using only minimal information about it demand curve. Suppose we let P represent the current price of a good and Q the quantity demand at that price. Similarly, let ΔP represent a small change in the current price and ΔQ the resulting change in quantity demanded. The expression $\Delta P/P$ will then stand for the proportion by which price changes when P changes by ΔP; and $\Delta Q/Q$ will stand for the corresponding proportion by which quantity changes. The formula for price elasticity may then be written as:

$$Price\ elasticity = E_d = \frac{\Delta Q/Q}{\Delta P/P}$$

If the horizontal demand curve has a slope of zero, this mean that the reciprocal of its slope is infinite. The price elasticity of demand is thus infinite at every point along a horizontal demand curve. Such demand curves are said to be perfectly elastic (Fig 4.1(a).

In contrast, the demand curve in the graph (b) above is vertical, which indicates that its slope is finite. The reciprocal of its slope is thus equal to zero. Price elasticity of demand is thus exactly zero at every point along the curve. For this reason, vertical demand curves are said to be perfectly inelastic.

Fig 4.1a **Fig 4.1b**



Mid-Point Elasticity

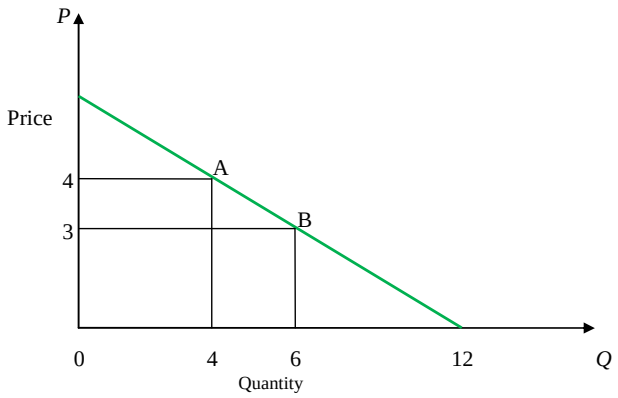
The mid-point elasticity of demand occurs when there are two points on the demand curves, e.g., points *A* and *B* in Figure 4.2. Here, it is possible to have two elasticities. If we reckon with prices and the quantity changes as proportion of their values of point. Here, it is possible to have two elasticities. If we reckon with prices and quantity changes as proportion of their values of point A, we get one answer, but if we compute them as proportions of their values at point B we get another. Neither of these answers is incorrect. The fact that they differ is merely a reflection of the fact that the elasticity of demand varies at very point along a straight-line demand curve. Nonetheless, there is a formula called mid-point elasticity that could take care of elasticity at two points. If the points are Q_A, P_A and Q_B, P_B, the formula is given as:

$$E_{mp} = \Delta Q/ [Q_A + Q_B]/2]$$
$$\Delta P/[P_A + P_B]/2]$$

The midpoint formula could be reduce to

$$E_{mp} = \Delta Q/ [Q_A + Q_B]$$
$$\Delta P/[P_A + P_B]$$

Fig 4.2 Elasticity



4.2.2 Cross Elasticity of Demand

This is the degree of responsiveness of demand for a good say *A* to the changes in the price of another good say *B.* that is, what has happened to the demand of good A given that the price of good B has changed. The formula of cross elasticity of demand is given as:

$$\frac{\text{Change in quantity demanded of good A}}{\text{Change in price of good B}}$$

Note that here the sign of the result is important because it shows whether the two goods involved are substitute or complement. If the sign is positive (+), then the goods are substitute and when it is negative (-), they are complementary goods.

4.2.3 Income Elasticity of Demand

This is defined as the responsiveness of quantity demand to changes in income. That is, to what extent will the demand for a given commodity change if the income level changes. Income elasticity of demand formula is given as:

$$\frac{\text{Change in quantity demanded}}{\text{Change in income}}$$

Activity 4.1

Allow 5 minutes

Calculating Elasticity

The price of Good X rises by 20 %. As a result, the demand for a substitute Good Y rises by 10 %. What is the cross-elasticity of demand for Good Y with respect to Good X?

a. + 2

b.+ 0.5

c.- 0.5

d.- 2

Feedback:

Option a: Wrong [you obtain this result by using +20/+10 which means that you divided percentage change in price by the percentage change in quantity.]

Option b: Correct
Percentage change in quantity demanded of good Y =+10
Percentage change in price good X =+20%
cross-elasticity of demand for Good Y with respect to Good X =+10/+20=+0.5

Option c: Wrong [you obtain this result either by using +10/-20=-0.5 or -10/+20=0.5. The first case implies 'price of Good X falls by 20%' meanwhile, the question states that 'price of Good X rises by 20%'. Similarly, the second case implies that 'demand for Good Y falls by 10%' while the question states that 'demand for Good Y rises by 10%'.]

Option d: Wrong [this implies that you have simultaneously committed the error related to both Option a and Option c]

ITQ

Question

How many types of elasticity do we have? List them.

Feedback

There are three types of elasticity, these are:

i. Price elasticity
ii. Cross elasticity, and
iii. Income elasticity

Activity

Time required: **10** minutes

Question

Janet, a 300 level economic student living in Queen Idia's Hall buys convenient goods from Mama Ada shop very close to her block. Ada, a 300 level Psychology student observed Janets's buying behaviour over a semester and found that Janet decreased her consumption of 'bananas biscuit' when the price of 'peanut butter' increased. Ada has done a lot of analysis based on consumer psychology and now need your assistance for economic interpretation of her observation. For Janet, 'peanut butter' and 'bananas biscuit' are

a) substitutes in consumption.
b) both inferior goods.
c) complements in consumption.
d) both luxury goods.

Feedback

Option a: Wrong [the change in quantity of banana biscuit is negative while the change in price of peanut butter is positive, the ratio is negative. For substitute, the cross price elasticity is positive. Recall the statement "If the sign is positive (+), then the goods are substitute ....."].

Option b: Wrong [relationship between two goods can be interpreted as 'substitute', 'complement' or 'no relationship'].

Option c: Correct [since the ratio of the % change in quantity of banana biscuit to the % change in price of peanut butter is negative, the two goods are complement. Recall the statement "....when it is negative (-), they are complementary goods].

Option d: Wrong [relationship between two goods can be interpreted as 'substitute', 'complement' or 'no relationship'].

Question

The price of good X rises by 10 %. As a result, the demand for a substitute good Y rises by 20 %. What is the cross-elasticity of demand for good Y with respect to good X?

a) a.–0.5
b) b.–2
c) c.+2
d) d.+0.5

Feedback

Option a: Wrong [you obtain this result by reversing the formula as well as interpreting one of the changes as decrease of fall meanwhile, both price of good X and demand for good Y rise].

Option b: Wrong [you use the correct formula but making the mistake of interpreting one of the changes as decrease of fall meanwhile, both price of good X and demand for good Y rise].

Option c: Correct

Percentage change in quantity demanded of good Y =+20

Percentage change in price good X =+10%

cross-elasticity of demand for Good Y with respect to Good X =+20/+10=+2.0

Option d: Wrong [though you get the direction of changes involved, you have reverse the formula].

Study Session Summary

Summary

In this Study Session, you explored price elasticity of demand. The Study Session also highlighted the determinants of price elasticity of demand; and discussed the different types of elasticity of demand.

Assessment

Assessment

SAQ 4.1 (tests Learning Outcome 4.1)

What are the determinants of price elasticity of demand?

SAQ 4.2 (tests Learning Outcome 4.2)

Explain briefly the various types of elasticity of demand.

Bibliography

Reading

Karl E. Case and Ray C. Fair, Principles of Economics, Prentice Hall, 6th ed., Chapter 4.

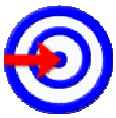
Robert. H. Frank and Ben S. Bernanke, (2007) Principles of Economics, McGraw-Hill Irwin, 3rd ed., Chapter 4.

Study Session 5

Utility

Introduction

In this Study Session, we will further explore the demand side of the market by looking at the satisfaction that people derive from consuming certain goods and services and how this leads to the concept of demand for goods and services.



Learning Outcomes

When you have studied this session, you should be able to:

5.1 *relate* the concept of utility maximisation to demand for goods and services.

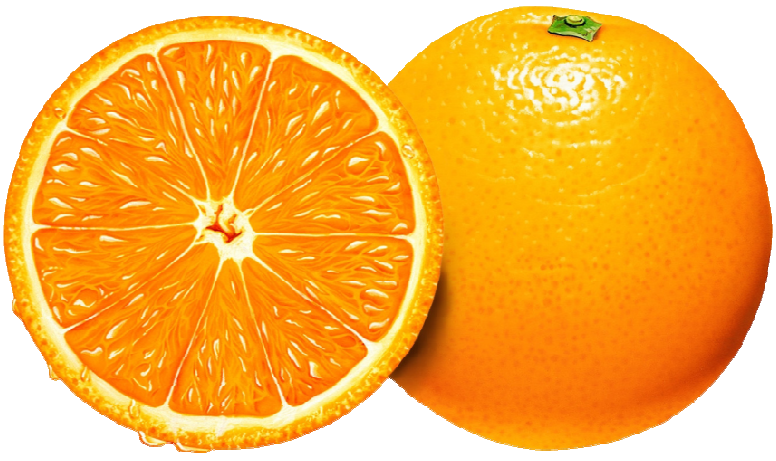
5.2 *show* consumer behaviour when acquiring multiple products with the same satisfaction using indifference curve.

5.3 *analyse* the relationship between household budget and indifference curve.

5.4 *apply* consumer surplus to cost benefit analysis.

5.5 *point* out maximum point of utility.

5.1 Utility



Do you enjoy drinking orange?

Utility is the satisfaction people derive from their consumption activities. The assumption is that people try to allocate their incomes so as to maximise their satisfaction, a

goal that is referred to as **utility maximisation**. This satisfaction will tend to increase as the consumption of the good increase. The summation of all the satisfaction (utility) that a consumer derives from the consumption of a good is known as the **total utility**.

Table 5.1 shows that as more and more oranges are consumed, the total utility derived from the consumption increases, until it gets to quantity 5 where it is maximum and additional consumption of orange leads to reduction in the total utility (satisfaction) derived from the consumption. Table 5.1 shows that as more and more orange are consumed, the total utility derive from the consumption increases, until it gets to quantity 5 where the total utility is maximum; and additional consumption of orange leads to reduction in the total utility (satisfaction) derived from the consumption.

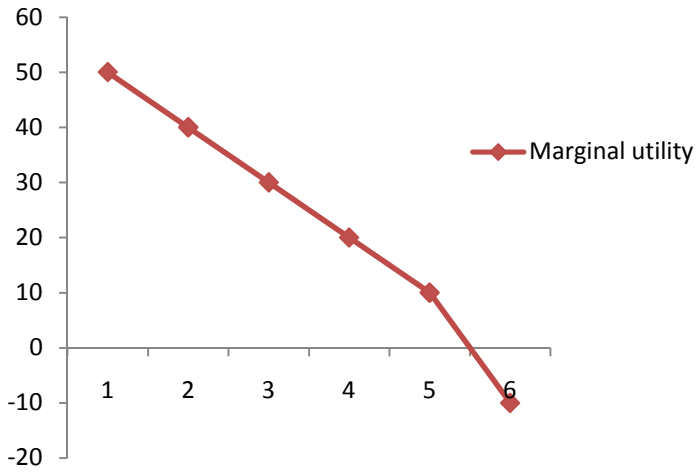
Table 5.1 **Total Utility from Orange Consumption**

Quantity	Total Utility	Marginal Utility
0	0	-
1	50	50
2	90	40
3	120	30
4	140	20
5	150	10
6	140	-10

Marginal utility denotes the amount by which total utility changes when consumption changes by one unit. The third column in the Table shows the marginal utility values that correspond to changes in the consumption of orange. From the Table, it could be seen that as the consumption of orange increases, the total utility derived from the consumption also increases, but the marginal utility indicates that the increment in total utility is at a decreasing rate. For instance, at quantity 1, the total utility is 50, but at quantity 2, total utility has increased to 90, however this increment is not as much as in the quantity 1. Hence, it is the marginal utility that can enable us to know the extent to which total utility is increasing.

As quantity consumed of a good increases, the marginal utility derived from each additional consumption decreases (Fig 5.1). The tendency for marginal utility to decline as consumption increases beyond some point is called the law of diminishing marginal utility. In other words, law of diminishing marginal utility is the tendency for the additional utility gained from consuming an additional unit of a good to diminish as consumption increases beyond certain point.

Fig 5.1 Graph showing marginal utility of Orange Consumption in Table 5.1



ITQ

Question

The law of diminishing marginal utility refers to

a) the decrease in total satisfaction as more units of a good are consumed.
b) the decrease in additional satisfaction created by consumption of more and more units of a good.
c) the idea that total utility is negative.
d) the idea that marginal utility is negative.

Feedback

Option a: Wrong [law of diminishing marginal utility relates to 'additional (or marginal) utility (or satisfaction) and not to 'total utility'. Recall, it is not referred to as law of diminishing total utility]

Option b: Correct [law of diminishing marginal utility is the tendency for the additional utility gained from consuming an additional unit of a good

to diminish as consumption increases].

Option c: Wrong [total utility will always be positive].

Option d: Wrong [though marginal utility can be negative, the law relates to relationship among successive values of marginal utility as consumption increases].

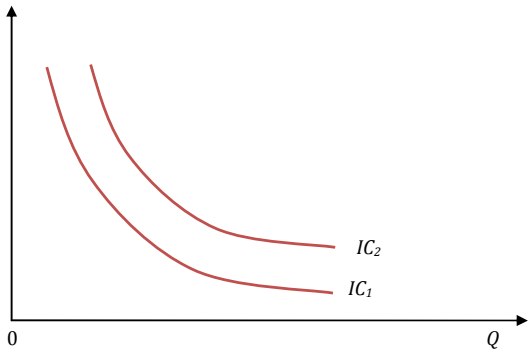
5.2 Indifference Curve

The concept of utility as discussed is useful when a consumer consumes only one good. In real life however, individuals consume more than one goods at the same time.

Assume that a consumer consumes a combination of two or more different commodities bundles such as garri and groundnut (A), bread and butter (B), rice and beans (C), and beans and plantain (D). Suppose that commodity bundles A and B give the consumer the same level of satisfaction, while commodity bundles C and D also yield the same level of satisfaction, but which is higher than that of A and B. The consumer will be indifferent between the consumption of A and B. Similarly, he will be indifferent between consuming commodity bundles C and D. However, the consumer will prefer any of C and D to any of A and B, because C and D yield greater level of satisfaction.

The consumer's preference can be represented by indifference curves. An indifference curve (IC) shows the combinations of goods and services that give a consumer the same level of satisfaction. Figure 5.2 shows ICs representing combinations of A and B (IC_1), and C and D (IC_2). The further away an IC is from the origin, the higher the level of satisfaction it represents. Indifference curves are downward-slopping, and they do not intersect.

Fig 5.2 An indifference curve



ITQ

Question

An assumption underlying indifference curve analysis is that MUx/MUy

a) increases as more of X and less of Y is consumed.
b) decreases as more of X and less of Y is consumed
c) remains constant as more of X and less of Y is consumed.
d) always equals one

Feedback

Option a: Wrong [more of X implies falls in MUx, and less of Y implies rises in MUy. Decrease in numerator and increase in denominator cannot lead to increase in the ratio you will agree that (5-1)/(10+1) which implies 4/11 (=0.36) cannot be greater than 5/10 (=0.50)]

Option b: Correct [more of X implies falls in MUx, and less of Y implies rises in MUy. Decrease in numerator and increase in denominator lead to decrease in the ratio]

Option c: Wrong [when there is a change of different direction in numerator and denominator, the ratio can never remain the same]

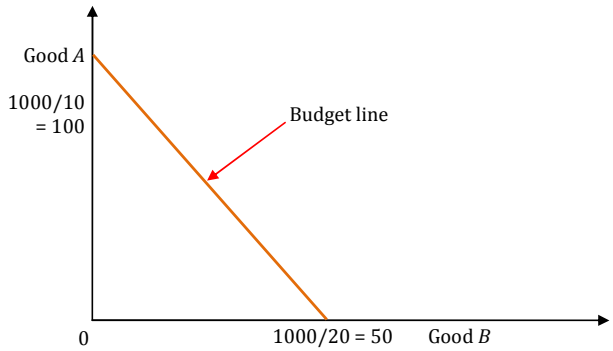
Option d: Wrong [nothing technically suggests this].

5.3 Household Budget Constraint

The household budget constraint shows the various combinations of bundles of commodities that a household can purchase at a given level of income, given the price of the commodities. If the household decides to consume a bundle of commodity, then the budget constraints shows the maximum amount of the bundle of that commodity that the household can buy at a given price over a certain income level. For instance, if the household income is 1,000 naira and the price of the bundle of good, say *A*, is 10 naira, then it means that the maximum amount of the good that can be bought at that level of income is 100 units. Also, the maximum amount of another bundle of good, say *B*, at price 20 naira that the household can

buy is 50 units. Graphical illustration of budget constraint is in shown in Fig 5.3.

Fig 5.3



However, within these two extremes, the household can combine certain amount of the two bundles of goods that will exhaust its income. Thus, it is either these extremes or combinations of the bundle of goods that can be purchased within the household's income that is called the household budget constraint.

ITQ

Question

What are the factors that determine budget constraint of a household?

Feedback

Two factors determine the budget constraint of a household, these are:

i. Household income, and
ii. Price of the commodity in question.

5.4 Consumer Surplus

This is the difference between the highest amount that a consumer is willing to pay for a product and the price that he actually pays for it. The term consumer surplus sometimes refers to the surplus received by a single buyer in a transaction. On other occasions, it is used to denote the total surplus received by all buyers in a market or collection of markets. Thus, consumer surplus is a quantitative measure of the amount by which buyers benefit as a result of their ability

to purchase goods at the market price. It is the area between the demand curve and the market price.

ITQ

Question

The lower the market price of a commodity, the _____ the _____ surplus.

a) lower; government
b) lower; consumer
c) higher; producer
d) higher; consumer

Feedback

Option a: Wrong [as we have consumer surplus, we can have producer surplus; we do not define government surplus].

Option b: Wrong [lower market price increases the gap between the actual price paid by a consumer and the highest amount the consumer is willing to pay].

Option c: Wrong [producer benefits from increase in price while consumer benefit from decrease in price. Thus, decrease in price will lead to decrease in producer surplus].

Option d: Correct [decease in price leads to increase in consumer surplus].

5.5 Utility Maximization Rule

The utility maximisation rule says that spending should be allocated across goods so that the marginal utility per naira is the same for each good. For the consumption of a single product, utility is maximised at the point where the marginal utility (MU) is equal the price of the product, i.e. $MU = P$. In case of two goods, say X and Y, utility is maximised at the point where the ratio of marginal utility of X to its price of good is equal to the ratio of marginal utility of Y to the price its price, that is

$$\frac{MU_x}{P_x} = \frac{MU_y}{P_y}$$

The example of two goods utility maximization can be extended to many goods and in this case the utility will be maximised at the point where

$$\frac{}{} \quad \frac{}{} \quad \frac{}{} \qquad\qquad \frac{}{}$$

ITQ

Question

The utility-maximizing rule can be stated in words in the following way: A person will maximize utility when the _____ is equalized across products.

a) total utility per naira spent
b) marginal utility
c) total utility
d) marginal utility per naira spent

Feedback

Option a: Wrong [utility maximisation rule is based on the concept of marginal utility and not on total utility]

Option b: Wrong [utility must be compared with the price]

Option c: Wrong [utility maximisation rule is based on the concept of marginal utility and not on total utility]

Option d: Correct [recall that utility will be maximised at the point where:

$$\frac{}{} \quad \frac{}{} \quad \frac{}{}$$

$$\frac{}{}$$

Study Session Summary

Summary

In this Study Session, we examined the concept of utility. We related the concept of utility maximization to demand for goods and services. We show consumer behaviour when acquiring multiple products with the same satisfaction using indifference curve. We then went to analyze the relationship

between household budget and indifference curve. You were subsequently exposed to how to apply consumer surplus to cost benefit analysis, and point out maximum point of utility.

Assessment

Assessment

SAQ 5.1 (tests Learning Outcome 5.1)
In what way does utility maximization relates to the demand for goods and services?

SAQ 5.2 (tests Learning Outcome 5.2)
Use indifference curve analysis to express how consumer's behaves when dealing with multiple products while maintain the same level of satisfaction.

SAQ 5.3 (tests Learning Outcome 5.3)
Discuss the link between the indifference curve and household budget.

SAQ 5.4 (tests Learning Outcome 5.4)
Relate consumer surplus with cost-benefit analysis.

SAQ 5.5 (tests Learning Outcome 5.5)
At what point is utility of a consumer maximized?

Bibliography

Reading

Karl E. Case and Ray C. Fair, Principles of Economics, Prentice Hall, 6th ed., Chapter 5.

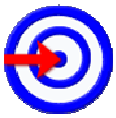
Robert. H. Frank and Ben S. Bernanke,(2007)Principles of Economics, McGraw-Hill Irwin, 3rd ed, Chapter 5.

Study Session 6

The Production Process

Introduction

In this Study Session, you will analyse the supply side of economic system. Business firms purchase inputs to produce and sell outputs. In other words, they demand factors of production in input markets, and supply goods and services in output markets. Hence, production will be central to this Study Session.



Learning Outcomes

When you have studied this session, you should be able to:
6.1 *analyse* output determination process of firms.
6.2 *relate* different output concepts to each other.

6.1 Supply Decision

The decisions on how much to produce, how to produce it and what inputs to demand are made by firms. If a firm decides that it wants to double or triple its output, it may need time to arrange financing, hire architects and contractors, and build a new plant. Planning for a major expansion can take years. In the meantime, the firm must decide how much to produce within the constraint of its existing plant. If a firm decides to get out of particular business, it may take time to arrange an orderly exit. There may be contract obligations to fulfil, equipment to sell, and so forth. Once again, the firm must decide what to do in the meantime.

Production The process by which inputs are combined, transformed, and turned into outputs

A firm's immediate response to a change in the economic environment may differ from its response over time. However, because of the character of immediate response that differs from long-run adjustment, it is useful to define two time periods: the *short-run* and the *long-run*. Two assumptions define the short-run. First, a fixed scale (or a fixed factor of **production**) and secondly; no entry into or exit from the industry. The **short-run** is defined as that period during which existing firms have some **fixed factors** of production, that is,

during which time some factors are locked into the current scale of operations. In other words, short-run is the period of time for which two conditions hold: the firm is operating under a fixed scale (fixed factor) of production and firms can neither enter nor exit an industry. Also, new firms cannot enter, and existing firms cannot exit an industry in the short-run. Firms may curtail operations, but they are still locked into some costs, even though they may be in the process of going out of business. In the **long-run**, there are no fixed factors of production. Firms can plan for any output level they find desirable. They can double or triple output, for example. In addition, new firms can start up operations (enter the industry), and existing firm can go out of business (exit the industry). Thus, in the course of making economic decisions, firms' need to know three things:

i. the market price of output;
ii. the available techniques of production; and
iii. the prices of inputs.

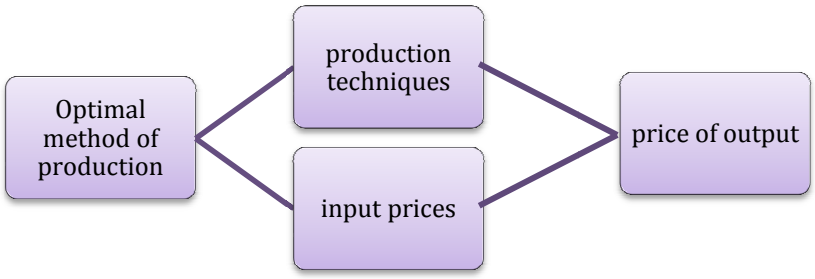


Fig 6.1 Economic decision: determining optimal production method

Tip

The output price determines potential revenues. The techniques available tell firms how much of each input they need, and input prices tell them the costs of inputs together, the available production techniques and the prices of inputs determine costs. *Hence, the optimal method of production is the one that* minimises *cost.*

With cost determined and the market price of output known, a firm will make a final judgment about the quantity of output to produce and the quantity of each input to demand.

ITQ

Question

Point out the assumption of a short-run production function from the options below:

a) the usage of at least one input is fixed.
b) the level of output is fixed.
c) all inputs are fixed inputs.
d) produce at least one fixed output

Feedback

Option a: Correct [this is the fixed scale or fixed factor of production condition for short run].

Option b: Wrong [short run relates to input and not output].

Option c: Wrong [this is not necessary (unless we define a very short run), it is sufficient to have one fixed input say Capital].

Option d: Wrong [short run relates to input and not output].

6.1.1 Production Technology

This relates from inputs to outputs. Specific quantities of inputs are needed to produce any given service or good. Most outputs can be produced by a number of different techniques. We can pull down an old building and clear a lot to create a park in several ways, for example. Five hundred men and women could descend on it with sledgehammers and carry the pieces away by hand; this would be a labour-intensive technology. The same park could be produced by two people with a wrecking crane, a steam shovel, a backhoe, and a dump truck; this would be a capital-intensive technology. In choosing the most appropriate technology, firm choose the one that minimises the cost of production. For a firm in an economy with a plentiful supply of inexpensive labour but not much capital, the optimal method of production will involve labour-intensive techniques. For example, assembly of items like running shoes is done most efficiently by hand. That is, the reason Nike produces virtually all its shoes in developing countries where labour costs are very low. In contrast, firms in an economy with high wages and high labour costs have an incentive to substitute away from labour and to use more capital-intensive, or labour-saving techniques.

Choice of Technology

Capital enhances the productivity of labour and similarly, labour enhances the productivity of capital. However, inputs can be substituted for one another, that is, if labour becomes expensive, firms can adopt labour-saving technologies by substituting capital for labour. If capital becomes relatively expensive, firms can substitute labour for capital. In short, most goods and services can be produced in a number of ways, using alternative technologies. One of the key decisions that all firms must make is which technology to use. Thus, to make the choice, on production technique, the firm must look to input markets to find out the current market prices of labour and capital.

ITQ

Question

What determines the choice of technology to be adopted by a firm?

Feedback

The technology choice of a firm is determine majorly by the current market prices of factor inputs (labour and capital)

6.2 Production Function

Production function shows the relationship between inputs and outputs, that is, production technology, expressed mathematically. For example, the quantity of shoes produces is a function of capital and labour is $Q_s = f(K, L)$. Where Q_s is the amount of shoes produced, K is capital (such as machines) and L is labour (man hours), respectively.

6.2.1 Marginal Product (MP) and the Law of Diminishing Returns

Marginal product is the additional output that can be produced by adding one more unit of a specific variable input, holding all other inputs constant. Column 2 in Table 6.1 shows that the marginal product of the first unit of labour is 10; the marginal product of the second is 15; the third is 10, and so on. The marginal product of the sixth is worth zero. Thus, marginal product is the additional output that can be produced by adding one more unit of a specific variable input to the fixed factor(s).

Table 6.1 **Production Function**

Labour unit	Total product	Average product	Marginal product
0	0	-	-
1	10	10.0	10
2	25	12.5	15
3	35	11.7	10
4	40	10.0	5
5	42	8.4	2
6	42	7.0	0

The law of diminishing returns indicates a situation when additional units of a variable input are added to fixed inputs, after a certain point, the marginal product of the variable input declines. Diminishing returns, or diminishing marginal products, begin to show up when more and more units of a variable input are added to a fixed input, such as the scale of the plant. However, diminishing returns is always applicable in the short run, and in the short run every firm will face diminishing returns. This means that every firm finds it progressively more difficult to increase its output as it approaches capacity production.

Tip

The law of diminishing returns states that after a certain point, when additional units of a variable input are added to fixed inputs, the marginal product of the variable input declines..

ITQ

Question

When will you say diminishing marginal productivity will occur?

a) when the marginal product curve begins to slope downward.
b) when each additional unit of the variable input has, on average, fewer units of the fixed input with

which to work.

c) when adding one more unit of the variable input reduces total product.

Feedback

Option a is the definition of marginal productivity; while option b gives the reason while that situation occurs.

If you have chosen option c, then you are wrong. It is when total product increase at a decreasing rate that marginal productivity occurs.

6.2.2 Total Product (TP)

This is the sum of all outputs or products produced with a given set of inputs. It is the total amount of products that are produced with a given set of production inputs at a particular period of time. From the Table 4, it can be seen that the total products increase as more and more inputs are added to the production process, until the last set of inputs is added which yields no additional gain to total output.

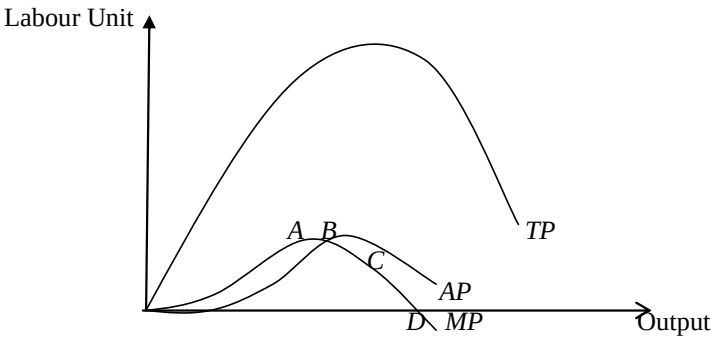
6.2.3 Average Product (AP)

Average product is the average amount produced by each unit of a variable factor of production. State in equation form, the average product of labour is the total product divided by total units of labour.

$$\text{Average Product} = \frac{\text{Total product}}{\text{Total unit of labour}}$$

Average product "follows" marginal product, but it does not decline as quickly as marginal product. If marginal product is above the average product, the product rises; and if marginal product is below, then average product average falls. Fig 6.1 shows a typical product in function and both the marginal and average products that are derived from it.

Fig 6.2



The marginal product curve is a graph of the slope of the total product curve. Average and marginal products start out equal. Figure 6.1 indicates that as the marginal product climbs, the graph of average product follows it, but more slowly up to point *A*. At point *A*, marginal product begins to fall, because every firm has a finite capacity, efforts to increase production will always run into the limits of that capacity. At point *B*, marginal product has fallen to equal to average product, which has been increasing and got to its peak. Between point *B* and *C*, marginal product falls below average product and average product begins to follow it down. Average product is at its maximum at point *B*, where it is equal to marginal product. At point *D* more labour yields no more output, and marginal product is zero.

ITQ

Question

If average product is decreasing, then marginal product…

a) must be greater than average product.
b) must be less than average product.
c) must be increasing.
d) cannot be decreasing.

Feedback

Option a: Wrong [this is the opposite of the true situation, examine figure 6.2 again].

Option b: Correct [when average product is decreasing, marginal product is decreasing and below average product].

Option c: Wrong [when average product is decreasing, marginal product is decreasing].

Option d: Wrong [this option is the same as option c].

Study Session Summary

Summary

Our analysis in this Study Session was on supply side of economic system. We presented output determination process of firms; and related different output concepts such as TP and AP to each other.

Assessment

Assessment

SAQ 6.1 (tests Learning Outcome 6.1)
Discuss how firms carrying out processes of their output determination.

SAQ 6.2 (tests Learning Outcome 6.2)
Explain the relationship between total product, average product and marginal product of a firm.

Bibliography

Reading

Karl E. Case and Ray C. Fair, Principles of Economics, Prentice Hall, 6th ed., Chapter 6.

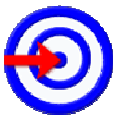
Robert. H. Frank and Ben S. Bernanke, (2007) Principles of Economics, McGraw-Hill Irwin, 3rd ed., Chapter 6.

Study Session 7

Output Decisions in Short-Run and Long Run Costs

Introduction

We will start this Study Session by looking at the meaning of short run and long run decisions. We will attempt to explore costs – such as fixed cost, variable cost and total cost, isocost line and isoquant; and how output decision is taken to maximise profit under a perfectly competitive market.



Learning Outcomes

When you have studied this session, you should be able to:
7.1 *differentiate* short run decision from long run decision.
7.2 *point* out the costs concepts associated with production process in a perfectly competitive market.
7.3 *discuss* how a perfect competitive firm maximises its profit

7.1 Short Run Decision versus Long Run Planning

Short-run is a constrained decision, in the sense that at least one of the firm's inputs is fixed. For example, some factor inputs or factors of production cannot be varied, such as firm's production technology and its stock of capital equipment.

Long-run is a planning decision for a firm, in the sense that all factors inputs can be varied, there is none that is fixed. Even those that are fixed in the short-run can now be varied in the long run. For example, decisions to enter a new business or build a new plant are long run decisions.

7.2 Cost Concepts of a Firm

7.2.1 Costs in the Short-Run

Opportunity cost

An opportunity cost is the cost of any activity measured in terms of the sacrifice made in doing such activity. In other words, it is the cost measured in terms of the opportunities forgone.

Explicit Costs

These are out of pocket expenses incurred by a firm; they involve the expenditure of money to buy resources, raise financial capital, and so on. They are direct payment of money by firms.

Implicit Costs

These are opportunity costs of using resources that are already owned by the firm. In fact, they are equal to what the factors could earn for the firm in some alternative use, either within the firm or hired out to some other firms.

7.2.2 The Firm's Cost Functions

One of the important determinants of production costs is the production function. This determines the kind and quantity of inputs required for a given level of output. The other determinant of costs is input prices. A firm has to pay the market price for each input that it purchases to use in production.

ITQ

Question

What are the major determinants of production costs?

Feedback

The determinants of production costs are: production function and input prices.

Total Cost

This is the summation of the cost (Price times the quantity) of each input used in the production process (plus any implicit costs). Alternatively, it is the addition of both variable and fixed costs. That is, TC = TFC + TVC. See Table 7.1.

Table 5 Total Costs for firm ABC

Output	TFC	TVC	TC
0	10	0	10
1	10	10	20
2	10	19	29
3	10	29	39

4	10	43	53
5	10	59	69

Fixed Cost

This cost does not vary with output. Total Fixed Cost (TFC) is the sum of all costs that do not vary with output. Examples include overhead expenses, cost of capital, building, machinery etc.

Variable Cost

This cost varies with output. Total variable cost (TVC) is the sum of all costs that vary directly with the quantity of output produced. Examples are costs of raw materials, labour costs etc.

Average Cost.

There are three different average cost functions:

Average Total Cost **(ATC):** This is total cost per unit of output, that is, ATC = TC/Q. This cost measure is also known as unit cost of production that is, what it costs a firm to produce per unit of output.

Average Variable Cost **(AVC):** This is total variable cost per unit of output, that is, AVC = TVC/Q.

Average Fixed Cost **(AFC):** This is total fixed cost per unit of output, that is, AFC = TFC/Q.

Tip

Fixed costs are constant in the short run. Therefore, as output increases, average fixed cost steadily declines. Furthermore, since TC = TVC + TFC, it therefore follows that ATC = AVC + AFC.

Marginal Cost

The other cost function that is very important in the firm's decision making process is marginal cost. It is the addition total cost associated with the production of an additional unit of output.

MC = $\Delta TC/\Delta Q$, where Δ represents a change.

ITQ

Question

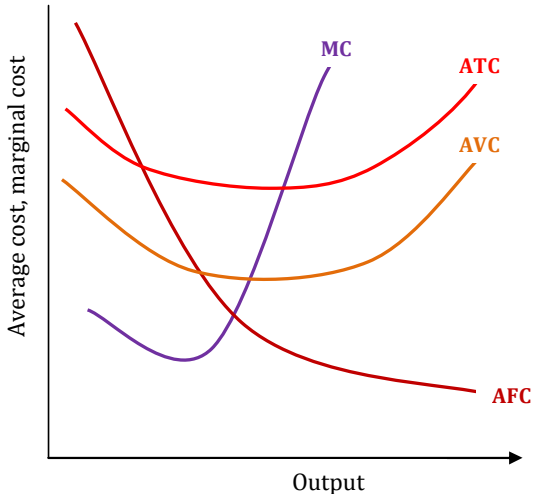
The addition of average fixed cost and average variable cost gives?

Feedback

Average fixed cost plus average variable cost gives average total cost.

Fig 7.1 shows that the average total cost, average variable cost and marginal cost curves assumed U-shaped; they initially decrease as output increases and then begin to increase with further increases in output. This is as a result of the law of diminishing marginal returns in the production function.

Fig 7.1



Relationship between Marginal Cost and Average Cost

Marginal cost may differ from average cost because it is an additional unit of output. If it is higher than average, it will cause the average to rise; if it is lower than the average, it will cause the average to fall. As a consequence of this relationship between the margin and average costs, the MC cuts the AC at the minimum point of the latter. So long as MC is less than AC, ATC will fall, but the moment MC exceeds AC, ATC will rise. This same is true of the relationship between MC and AVC.

ITQ

Question

At what point does marginal cost intersect average cost of a firm?

Feedback

Marginal cost intersects average cost when average cost is at minimum. That is MC cuts AC at a point where AC is lowest.

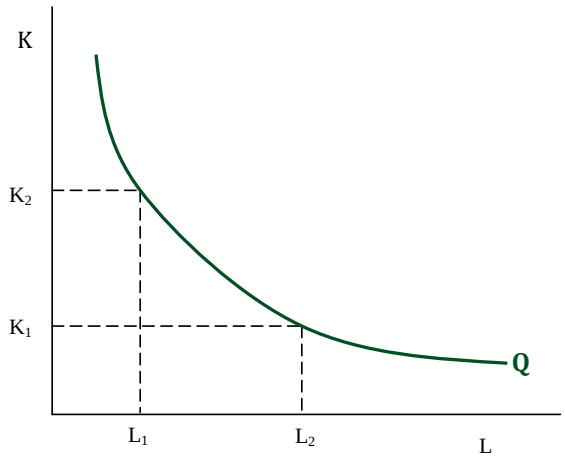
7.2.3 The Firm's Production Function

The firm's production function tells us how much output can be produced from a given level of inputs and a particular technology.

Isoquant

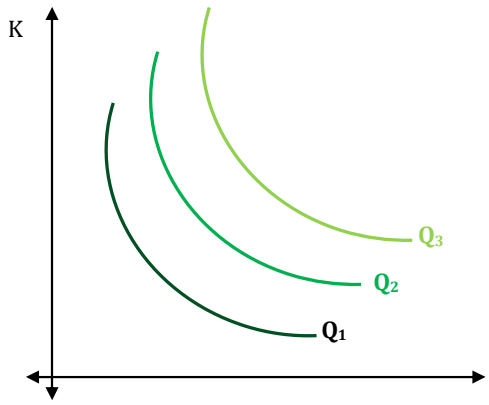
This is all the combinations of a set of inputs that yield the same level of total output. Another name for it is *equal output curve*. It can be represented in a diagram as thus Fig 7.2. This depicts the various combinations of two inputs, Labour (L) and Capital (K) that yield a constant level of total output.

Fig 7.2



***Isoquant Map*:** This can be defined as all the output levels that can be produced with a set of inputs; moving up to the right (away from the origin) moves the firm to higher levels of total output (Fig 7.3).

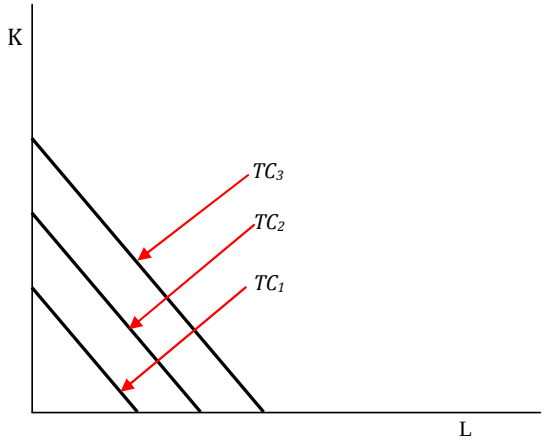
Fig 7.3



The Isocost Line

This represents all the combinations of two inputs that result in the same total cost. Assuming we have this total cost function denoted as: $TC = P_L L + P_K K$; where TC stands for total cost, and P_L and P_K are the prices of labour and capital. The total cost function is used to derive a set of isocost lines or what we can also referred to as *equal cost lines*. An isocost line can be represented as shown in Fig 7.4.

Fig 7.4



ITQ

Question

What is the difference between an indifference curve and an isoquant curve?

Feedback

An indifference curve relates to consumer behaviour, while an isoquant curve relates to producer behaviour.

7.3 Profit Maximization in a Perfectly Competitive Market

7.3.1 Economic Profit

This is the difference between total revenue and the total costs of production (including normal profit). Economic profit is different from accounting profit. Accounting profit is the difference between total revenue and explicit or accounting costs. The implicit costs of production, including normal profit, are omitted from an accountant's definition of profit. This is one of the reasons why accounting profit is always greater than the economic profit. Economic profit is the difference between total revenues and total opportunity costs, including normal profit.

7.3.2 Competitive Market

A competitive market is a market where there are many buyers and sellers trading identical products so that each buyer and seller is a price taker. A competitive market, sometimes called a perfectly competitive market has two characteristics.

1. There must be many buyers and sellers in the market.
2. The goods offered by the various sellers are largely the same.

Given these conditions, the actions of any one buyer or seller in the market have a negligible impact on the market price. Hence, each economic agent in such market is a price taker.

ITQ

Question

Why do we refer economic agents under a competitive market as "price takers"

Feedback

Economic agents under a competitive market are known as price takers because none of them has the power to change or influence the ruling or prevailing price in the market. However, it should be noted that forces of demand and supply fixes or determines the price of goods and service in a competitive market.

7.3.3 Revenue Concepts

Total Revenue (TR*)*

This is the firm's total earnings per period of time from the sale of a particular amount of output. For instance, if a firm sells 500 units of output per month at a price of 2 naira each, then, the monthly total revenue will be $TR = P \times Q$, that is, 500 x 2 = 1,000

Average Revenue (AR)

This is the amount the firm earns per unit sold. Thus, $AR = TR/Q$. So if the firm earns 2000 naira from selling 500 units, it will simply earn 4 naira per unit (2000/500)

Marginal Revenue

This is the external total revenue gained by selling one more unit (per time period), it is calculated as thus: $MR = \Delta TR/\Delta Q$.

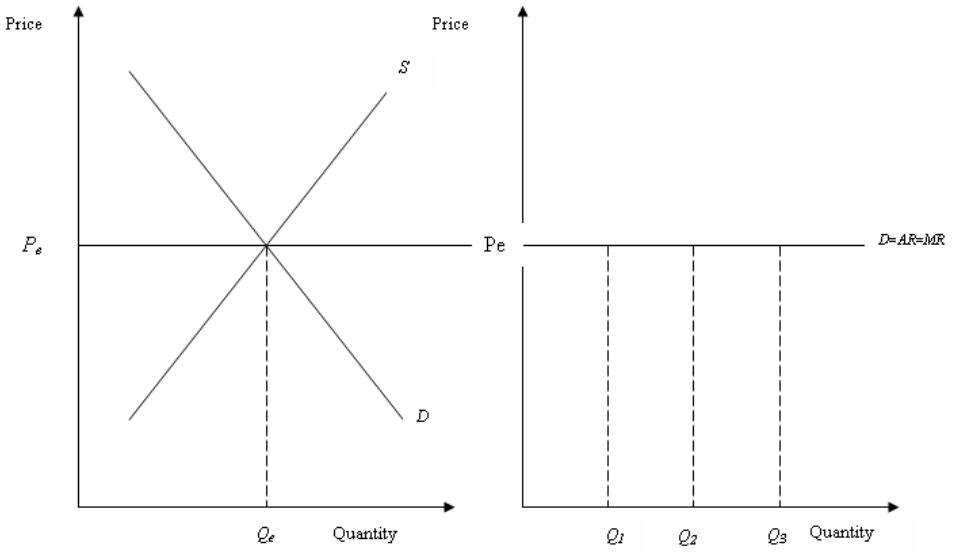
7.3.4 Firm's Output and Revenue

Read the article that follows and establish the relationship among costs, revenues and profits of a perfectly competitive firm.

Price Taking Firm

A firm is said to be a price taker when its output decision has no effect on market price. The firm simply takes the market price as given. A price taking firm's demand curve is illustrated below in Fig 7.5.

Fig 7.5



Profit Maximization and Output Determination in a Perfectly Competitive Market

Profit is the difference between total revenue and total cost which accrues from a firm's business operation. This will be analyzed from two main angles.

i. Total Revenue – Total Cost Approach
ii. The Marginal Cost Approach

Total Revenue – Total Cost Approach

Profit is maximized in the short-run at the output level where the difference between total revenue and total cost is the largest.

The Marginal Approach

Profit of a perfectly competitive firm can be said to be maximized when this condition holds: *MC* = *MR*.

What sets the limit to the output a firm can produce is that the firm's *MC* must intersect the demand curve and average cost (AC) from below. Note that it is only profitable for a firm to produce at *D*, because this is where output price begins to cover cost of production. Note also that *A* represents price, *P*. Therefore, profit is maximised where *P* = *MC* = *MR* = *AR* = *D*. Note that the rectangular ABCD represents abnormal profit. This is illustrated in figure 20 below.

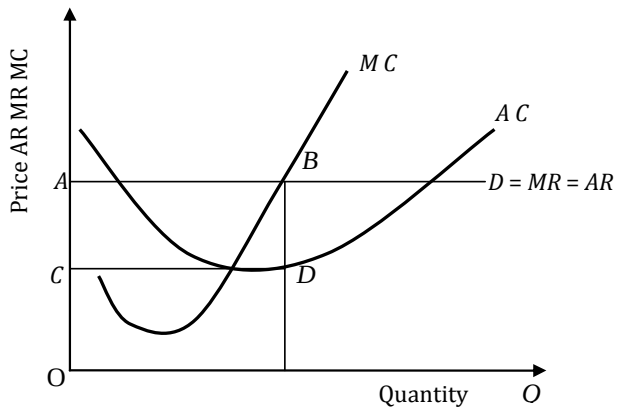


Fig 7.6 Short-run profit maximization under a perfectly competitive firm

ITQ

Question

Under what conditions is the profit of a firm maximized in the short run?

Feedback

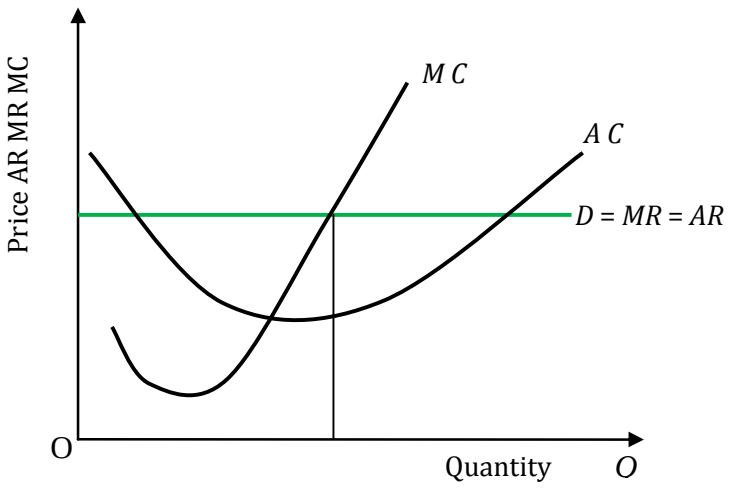
The profit of a firm in the short run can be maximized under two scenario;

- When the difference between total revenue and total cost is the largest and positive and positive, and
- When marginal cost equal marginal revenue, that is MC= MR

Long-run profit maximization under a perfectly competitive firm

The abnormal profit indicated by rectangle ABCD in Fig 7.6 which a firm could have said to have made will be wiped off because of free entry and exit assumption of a perfectly competitive market. Therefore, in the long-run only normal profit is possible as depicted in Fig 7.7.

Fig 7.7 Long-run profit maximization



Study Session Summary

Summary

We started this Study Session by exploring the meaning of short run and long run decisions. We looked at costs concepts that are associated with production process in a perfectly competitive market. Lastly, we discussed how output decision is taken to maximise profit under a perfectly competitive market.

Assessment

Assessment

SAQ 7.1 (tests Learning Outcomes 7.1)

What differentiate short run decision of a firm from its long run?

SAQ 7.2 (tests Learning Outcomes 7.2)

Write short notes on the following:

- Total cost
- Fixed cost
- Variable cost
- Average total cost
- Average variable cost
- Average fixed cost
- Marginal cost
- Explicit cost, and
- Implicit cost.

SAQ 7.3 (tests Learning Outcomes 7.3)

Depict how profit is maximized under a perfect competitive market

Bibliography

Reading

Karl E. Case and Ray C. Fair, Principles of Economics, Prentice Hall, 6th ed., Chapters 7 & 8.

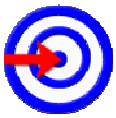
Robert. H. Frank and Ben S. Bernanke, (2007) Principles of Economics, McGraw-Hill Irwin, 3rd ed., Chapter 6.

Study Session 8

Efficiency and Exchange

Introduction

In this Study Session, you will be exposed to the conditions under which unregulated markets generate the largest possible economic surplus. We will also try to provide explanation to why attempts to interfere with market outcomes often leads to unintended and undesired consequences.



Learning Outcomes

When you have studied this session, you should be able to:
8.1 discover the point of efficient market equilibrium.
8.2 discuss the causes of market imperfections.
8.3 point out ways of correcting market imperfections.

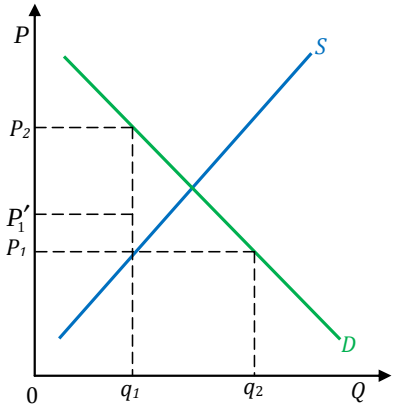
8.1 Market Equilibrium and Efficiency

Market equilibrium is said to be efficient if the prevailing price and quantity cannot take any other values than their equilibrium values, without making at least some people better off and others worse off. This concept is also known as *Pareto efficiency*. At a *Pareto* efficient equilibrium, no change is possible that will help some people without harming others.

Efficient Market equilibrium can be illustrated using the cost-benefit principle. Let us assume a market in which price is below the equilibrium level as illustrated in Fig 8.1. From the diagram, at a price $0P_1$, seller's offer $0q_1$ and the buyer is willing to pay $0P_2$ for an additional amount of the good. One will also observe that at $0P_1$ excess demand of q_1q_2 has already been created. Let us assume further that in order to satisfy the demand of some of the people that are eager to get the product, sellers now decide to raise the price up to $0P_1'$ and this merely cost the seller $0P_1$ to produce. One would notice eventually that the difference between $0P_1$ and $0P_1'$ is the gain called economic surplus that sellers have benefited

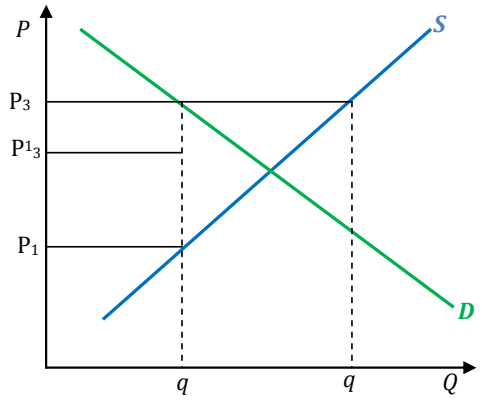
while buyers who are eager to satisfy their demand by paying $0P_1'$ have also benefited economic surplus which is difference between $0P_2$ and $0P_1'$. In sum, the transaction has created an economic surplus with the difference between $0P_2 - 0P_1$.

Fig 8.1



On the other hand, what happens if the price is hold above the equilibrium price as shown in Fig 8.2. At a price $0P_3$, excess supply is created (q_1q_3). Suppose the dissatisfied sellers now reduce the price to $0P_3'$ to buyers who value the good most highly. The buyers who would have been willing to pay $0P_3$ are now better off with the difference between $0P_3$ and $0P_3'$ while the seller who would have been willing to sell as little as $0P_1$ (which is the marginal cost of producing at quantity, q_1) will be better off with the difference between $0P_3' - 0P_1$. Here also economic surplus of P_3P_1 has been created.

Fig 8.2



From the analysis, none of the economic agents is harmed with that transaction. Indeed, it is only at the market equilibrium price that a surplus enhancing transaction cannot be designed.

ITQ

Question
When is an economy refers to as been pareto efficient?

Feedback
An economy is said to be pareto efficient (optimally efficient) when its resources are allocated in such a way that it is impossible to make any one individual better off without making at least one individual worse off.

8.2 Sources of Market Failure

Market is considered to have failed in relation to the following reasons:

1. ***Externalities*:** The market will not lead to social efficiency if the actions of producers or consumers affect people other than themselves.
2. ***Public Goods*:** This is a category of goods that the free market, whether perfect or imperfect will under produce or may not produce at all. They are called public goods.
3. ***Imperfect Information*:** Market always assumes that consumers, firms and factor suppliers have perfect knowledge of costs and benefits. In the real world there is often a great deal of ignorance and uncertainty that result in imperfect information on the part of actors.
4. ***Imperfect Markets*:** Whenever markets are imperfect, whether as pure monopoly or as some forms of imperfect competition, the market will fail to equate marginal social benefit and marginal social cost. In this situation Pareto optimality will be difficult to achieve.
5.

ITQ

Question

What do you understand by the word “market failure”?

Feedback

Market failure is an economic theory that describes a situation whereby the allocation of goods and services by free market (invisible hand) is not efficient.

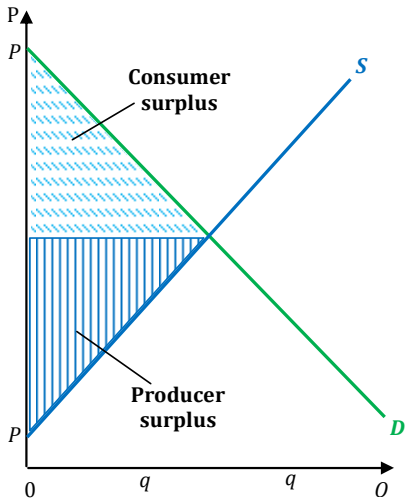
8.3 The Cost of Preventing Price Adjustments

Price Ceilings

Price ceiling is a law or regulation that prevents sellers from charging more than a specified amount. Two different scenarios will be considered here. One is when there is no price ceiling and second is when there is an imposition of price ceilings.

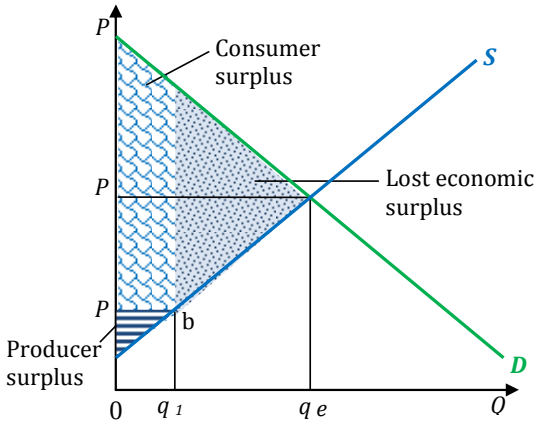
First let us consider the situation when there is no price ceiling (Fig 8.3). A consumer surplus is the difference between what a consumer would be willing to pay and what he actually pays. Alternatively, it is the area between the demand curve and the market price as indicated on the diagrams which is P_e0P_2. Whereas, to producer surplus is the difference between what a seller would have been willing to accept as price and what he actually takes. Also, it is the area between market price and the supply curve.

Fig 8.3



The implications of the existence of price ceiling are illustrated in Fig 8.4. $0P_1$ is the price ceiling that has been imposed, thus only $0q_1$ will be supplied by the seller. Looking at the diagram, the imposition of price ceiling has actually reduced the total economic surplus. In fact, the producer surplus is badly affected while that of a consumer will still remain the same. What this implies is that the loss in total economic surplus is equal to the loss in producer surplus! The producer surplus is now $0P_1b$.

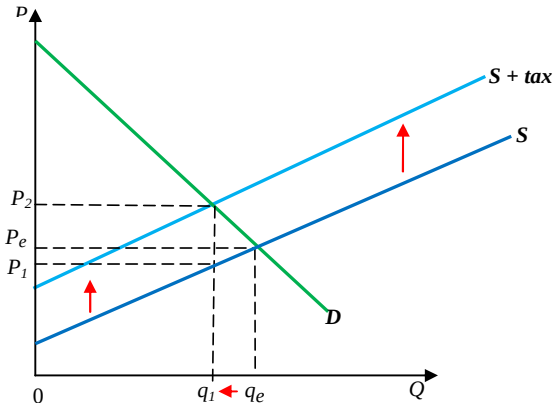
Fig 8.4



Taxes and Efficiency

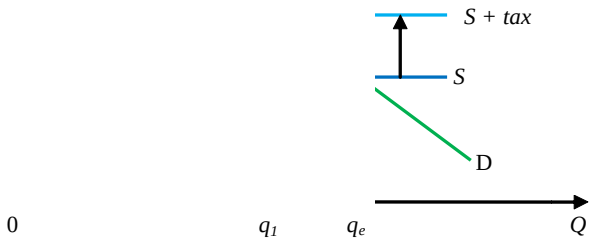
Whenever a tax is being imposed, the burden of taxes may not necessarily fall entirely on the person paying the tax. For example, when taxes are imposed on sellers the burden is often shared with buyers. Given the initial supply and demand curve as illustrated in figure 8.5, with no tax, market is clear at a price P_e and q_e is bought and sold. With a tax imposition collected from a seller, consumers end up paying $0P_2$ instead of $0P_e$. While a seller receives $0P_1$, equilibrium quantity falls from $0q_e$ to $0q$. It is clear from the diagram that the burden is being shared both by the sellers and buyers of goods and seller.

Fig 8.5



It is important, however, to note that the burden of the tax need not fall equally on buyer and sellers. This will of course depend on the degree of elasticity of demand and supply (Fig 8.6). When the supply curve for a good is perfectly elastic, the burden of a tax collected from sellers falls entirely on buyers.

Fig 8.6



ITQ

Question

How can price adjustment be prevented in an economy?

Feedback

Price adjustment can be prevented though the use of the following means;

- Price ceilings, and
- Taxes and efficiency.

Note: Price adjustments is also known as market imperfections.

Study Session Summary

Summary

In this Study Session, you were exposed to the conditions under which unregulated markets generate the largest possible economic surplus. We went further to discuss causes of market imperfections; and pointed out ways of correcting these imperfections.

Assessment

Assessment

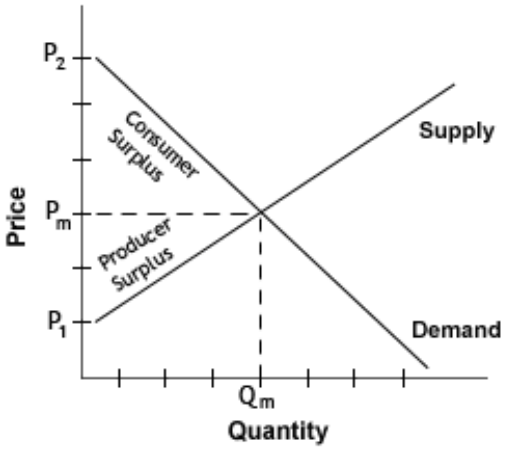
SAQ 8.1 (tests Learning Outcomes 1)

Describe how an economy arrives at efficient point of market equilibrium.

Answer:

Efficient Market Equilibrium

In economics, a market is efficient if the maximum amount of goods and services are being produced with a given level of resources, and if no additional output is possible without increasing the amount of inputs. Efficient markets ensure optimal resource utilization by allowing for price to motivate independent actors in the economy. If buyers and sellers are free to choose how to allocate resources, prices will direct resources towards those who value them most and can utilize them most effectively. Suppose consumer preferences change so that good A is now more desired than good B. We would expect the price of good A to shift higher and the price of good B to shift lower. This in turn will induce the production of additional units of good A and the devotion of more input resources to good A, while similarly decreasing production of B and its associated input resources. The diagram below explains more on this:



In the figure 8.1 above, the triangle defined by the points P2PmQm represents consumer surplus, while the triangle defined by points P1PmQm represents producer surplus. The marginal benefit for all people in a society can be described as the marginal social benefit. Similarly the marginal costs

for all producers in a society of a good can be described as the marginal social cost. At market equilibrium, the marginal social benefit of consuming an additional unit of a good is just equal to the marginal social cost of producing the additional unit.

In the real world today we have seen higher oil prices stimulate more drilling for oil and more investment in oil substitutes. The wage rates of a cocoa farmer in Nigeria has decreased over the last several years in comparison to the year 1990s, as there less of a need for their services. The lower wage rates have induced more cocoa farmers to retrain themselves with other computer skills, or to leave the field.

SAQ 8.2 (tests Learning Outcomes 2)

What are the reasons behind the existence of market imperfections?

SAQ 8.3 (tests Learning Outcomes 3)

How can market imperfections be corrected in any economy?

Study Session 9

Imperfect Competition

Introduction

On a continuum of market structure there are two extremes: perfect competition and a pure monopoly. A state of imperfect competition arises when at least two or more of the requirements for perfect competition are violated or broken down. Having discussed perfect completion in previous Study Sessions, we shall proceed to focus on imperfect competition in this Study Session and the next.

Learning Outcomes

When you have studied this session, you should be able to:
9.1 *distinguish between* perfectly and imperfectly competitive firms.
9.2 *point out* the characteristics of at least three forms of imperfect market.

9.1 Basic Differences between Perfectly and Imperfectly Competitive Firms

The following are the basic differences between perfect and imperfect competitions:

1. In a perfectly competitive firm, there must be a large number of buyers and sellers so that each economic agent action will not necessarily have any appreciably impact on the market price, whereas in an imperfectly competitive situation, it is possible to have one or few sellers and many buyers or many sellers but with a single buyer or few buyers so the case may be.
2. Perfectly competitive firms deal with homogenous products, while imperfectly competitive firms deal with heterogeneous or differentiated products.
3. Each economic agent in a perfectly competitive system is a price taker, while in an imperfectly competition, they are necessarily price-makers.
4. A perfectly competitive firm is facing a perfectly elastic demand curve whereas imperfect competitive

firms are faced with a downward sloping demand curve.

5. Perfect information is assumed under perfect competition but this may not be so with imperfect competition.
6. A perfectly competitive firm only has output decision to make but not the pricing decision, but imperfectly competition can either make output or pricing decisions.

ITQ

Question

Who is a "price taker" and "price maker" between a perfectly competitive firm and imperfect competitive firm?

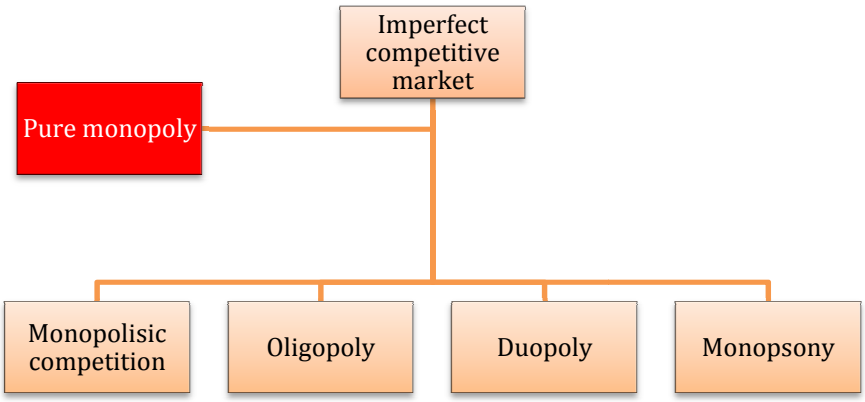
Feedback

A perfectly competitive firm is a "price taker" because he/she cannot determine or set the market price himself but can only decide quantities to be sold. However, an imperfectly competitive firm is a "price maker" because he/she can either determine or influence the ruling price or quantities to be sold but not the two simultaneously.

9.2 Forms of Imperfect Competition

There are different forms of imperfect competition. At the extreme is a pure monopoly situation. A semblance to real life situations consists of monopolistic competition, oligopoly, duopoly and monopsony.

Fig 9.1

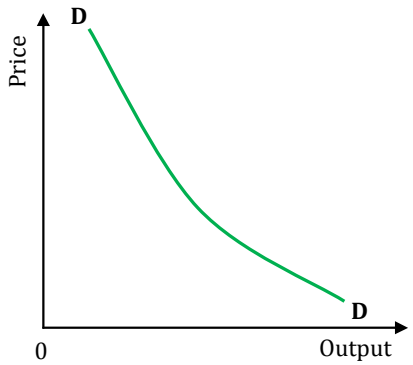


9.2.1 Pure Monopoly

It is a market structure where there is a single firm or producer of a product that has no close substitutes. This may take the form of a sole supplier, a unified business organization etc. Thus, a pure monopolist constitutes both the industry and a firm.

A pure monopolist has the power to determine either (i) the price or (ii) the quantity he wishes to sell. He cannot determine the two simultaneously. The nature of the demand facing it is a downward sloping demand curve as shown in Fig 9.2.

Fig 9.2



Causes of Monopoly

A monopoly situation could arise via different ways. They include among others:

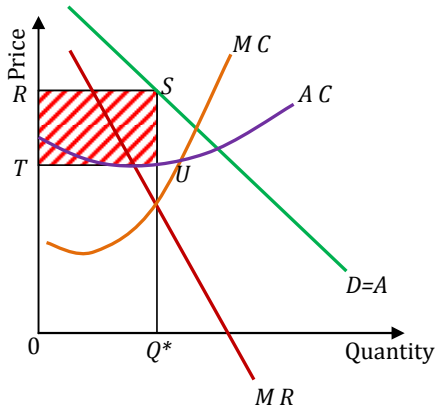
1. **Natural monopolies:** These occur when a single firm can supply a good or service to an entire market at a smaller cost than could two or more firms. That is, where there are economies of scale over the relevant range of output produced.
2. **Government - created monopolies:** This monopoly situation arises because the government has given one person or firm the exclusive right to sell some goods or services.
3. **Resource – based monopolies:** This occurs when a single firm owns a key resource. Here, exclusive ownership of a key resource is a potential cause of monopoly.
4. **Technologically-induced monopolies:** This occurs when a firm enjoys extensive technological economies of scale, such that the entry of new firms is virtually not feasible or impossible.

5. **Merger or acquisition monopolies:** The merger of smaller firms to form a single formidable firm could lead to monopoly situation. Also, a relatively larger firm may acquire smaller firms and hence form a monopoly.
6. **Patent and copyrights monopolies:** A patent confers a monopoly right to the exclusive use of an invention. For the work of art and literature copyrights may be issued to prevent the original innovator from being copied.

Profit Maximization of a Monopolist

It is possible for a monopolist to make abnormal profit either in the short-run or in the long-run this is because of the assumption of no free entry condition. Thus, for a monopolist to maximize profit in the short-run, this condition must be adhered to, that is, *MR = MC;* this is shown in Fig 9.3. In the diagram, profit maximization output level occurs where *MC = MR*. This occurs at output level *Q**. At lower output than 0*Q**, every additional unit produced adds more to revenue than to cost (i.e. *MR > MC*), when output is greater than 0*Q** every additional unit produced adds less to total revenue than to total costs (i.e. *MR < MC*). Therefore, the most profitable output level is 0*Q**.

Fig 9.3



ITQ

Question

Why is it possible for a pure monopolist to enjoy or make abnormal profits both in the short run and long run periods unlike a perfectly competitive market?

Feedback

A pure monopolist enjoys abnormal profits both in the short run and long run periods because of the assumption of no free entry condition.

9.2.2 Monopolistic Competition

A monopolistic competition is a market structure in which many firms sell products that are similar but not identical. This market also faces a downward sloping demand curve for its own product. An example of monopolistic competition market is the soft drink industry.

Tip

Monopolistic competition is based mainly on these four key assumptions:

1. Each firm produces one specific variety or brand of the industry's differentiated product.
2. The industry contains so many firms that each one ignores the possible reactions of its many competitors when it makes its own price and output decisions.
3. There is freedom of entry and exit in the industry.
4. There is symmetry. This simply means a new entrant into the market or industry takes sales in equal proportion from all existing firms.

Non Price Competition

In a monopolistic market arrangement many firms spend large sums of money on advertising. They do so in an attempt both to shift the demand curve for the industry's product and to attract customers from competing firms. Firms also use advertising to signal their commitment to quality and service in order to generate customers' loyalty for their brand.

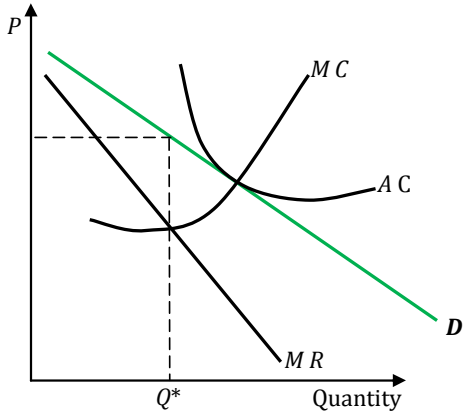
Price and Output Determination in Monopolistic Competition

The equilibrium of the firm involves the usual profit maximization where marginal revenue equals marginal cost. The short-run equilibrium is similar to that of a monopolist. The firm is not a passive price taker, it may manipulate price or quantity until profits are maximized.

Long-Run Equilibrium in a Monopolistic Competition

A monopolistic competitive firm will maximize profit where *MR* = *MC* and will produce output 0*Q** and sell at 0*A* per unit of output. In the short-run abnormal profit is possible, and this is represented by rectangle in Fig 9.4. In the long-run, this market exhibits a feature similar to that of a perfectly competitive firm. At such, the abnormal profit realized in the short-run will be wiped off. This is mainly due to free entry condition of the monopolistic competitive firm.

Fig 9.4



ITQ

Question

How do monopolistic competitive firms differentiate their goods and services from one another?

Feedback

Monopolistic firms make use of trade marks to differentiate their goods and services from one another.

9.2.3 Oligopoly Model

This is the type of market structure in which there are only a few rival firms whose economic well-being and behaviour is mutually interdependent. One firm's actions influence the actions of other firms.

Oligopoly market has the following general characteristics:

1. Small number of dominant firms
2. Mutual interdependence
3. Barriers to entry
4. Homogenous or differentiated product

Short-run Profit Maximization Condition among Rivals in Oligopoly

Unlike the other market structures we have analyzed, the profit maximizing decision under oligopolistic competition is difficult to analyze graphically. This is a direct result of mutual interdependence of the firms in the industry. In this market there is action-reaction such that any decision taken by a firm to increase (decrease) the price of its product, may stir other firms reaction to alter their prices as well.

Due to mutual interdependent which is prevalent in such market, competition among firms may lead to reduced profits for everyone in the long-run. Thus, cooperation among firms is an attractive alternative.

Alternatives to Competition

There are several alternatives available to avoid a situation of engaging in competition among firms in an oligopolistic market structure. They are as follows:

Collusion

This is the act of firms working together (cooperating) to establish the price and level of output in a particular market. Explicit collusion among firm is however prohibited and illegal collusion can still occur or take a variety of forms.

a. **Cartel:** This is a group of firms that have explicitly and openly agreed to work together to set the price that will be charged in a particular market.
b. **Price Leadership:** This refers to a situation in which one firm in an industry establishes the market price and the remaining firms in the industry to follow suit.
c. **Secret Agreement:** This is a situation in which firms have worked together, secretly (and illegally) to control the price in a particular industry.

Mergers

This can also provide a means of reducing the degree of competition faced by individual firms and enhancing their market power. It can take three forms.

a. **Horizontal Merger:** This is a merger into a single firm of two or more firms producing the same or similar products.
b. **Vertical Merger:** This is a merger into a single firm of two or more firms at different levels in the chain of production.

c. **Conglomerate Merger:** This is a merger between two or more firms whose outputs are unrelated.

ITQ

Question

Which assumption of oligopolistic firms is its most distinguish feature?

Feedback

The most distinguish feature of oligopolistic firms is its mutual interdependence among its members firms that made up the firms.

Study Session Summary

Summary

We distinguished between perfectly and imperfectly competitive firms in this Study Session. We also pointed out the characteristics of different forms of imperfect market.

Assessment

Assessment

SAQ 9.1 (tests Learning Outcome 9.1)
What differentiate a perfectly competitive firm from an imperfectly competitive firm?

SAQ 9.2 (tests Learning Outcome 9.2)
Discuss any three forms of imperfect market and their underlying characteristics.

Bibliography

Reading

Karl E. Case and Ray C. Fair, Principles of Economics, Prentice Hall, 6th ed., Chapters 12 and 13.

Robert. H. Frank and Ben S. Bernanke, (2007) Principles of Economics, McGraw-Hill Irwin, 3rd ed., Chapter 10.

Study Session 10

Externalities and Property Rights

Introduction

This Study Session deals with another important source of market imperfection – the problem of externality. In your course of study, you will explore sources of externality and the various ways of dealing with the problem.

Learning Outcomes

When you have studied this session, you should be able to:
10.1 *relate* the problem of externality to market efficiency.
10.2 *present* the process of correcting externality problem.

10.1 Definition of Externality

Externality is the impact of one person's action on the well-being of others. That is, if one person's action affect the well-being of other person who does not participate in such action. If such effect has an adverse effect, it is called a **negative externality**, but if such effect is beneficial, it is called **positive externality**.

Tip

Market equilibrium is not efficient in the presence of externalities because buyers and sellers neglect the external effects of their actions when making decision on how much to demand and supply.

Examples of externalities include:

i. The exhaust from automobiles is a negative externality.
ii. Barking dogs constitutes a negative externality.
iii. Research into new technology is a positive externality.
iv. Restoration of historic building is a positive externality.

ITQ

Question

Can we have a positive and negative externality occurring at the same time?

Feedback

Yes it is possible, for instance, music from a neighbour's stereo may constitute positive externality to others who are enjoying the music, at the same time it may constitute negative externality to a sick neighbour.

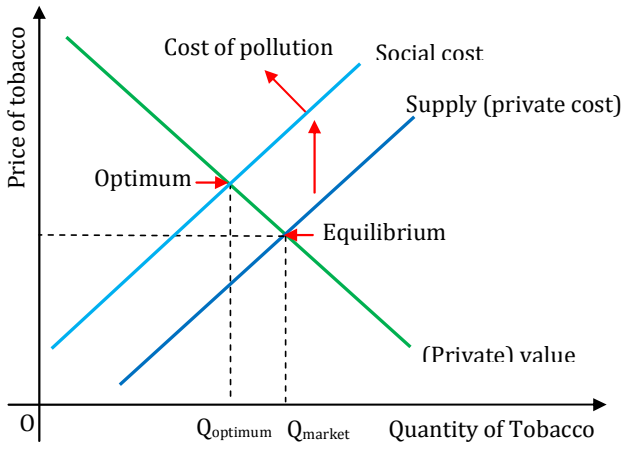
10.1.1 Effect of Externalities on Resource Allocation

We will discuss the effect of externalities using two scenarios involving both negative and positive externalities.

Scenario One (Negative Externality)

First of all, let us assume that a manufacturing company in Ibadan emits pollution for each of tobacco produced; since this smoke creates a health risk for those who unconsciously breathe it in, it is a negative externality. The cost to society is larger than the cost to the producer of the good as illustrated in Fig 10.1.

Fig 10.1



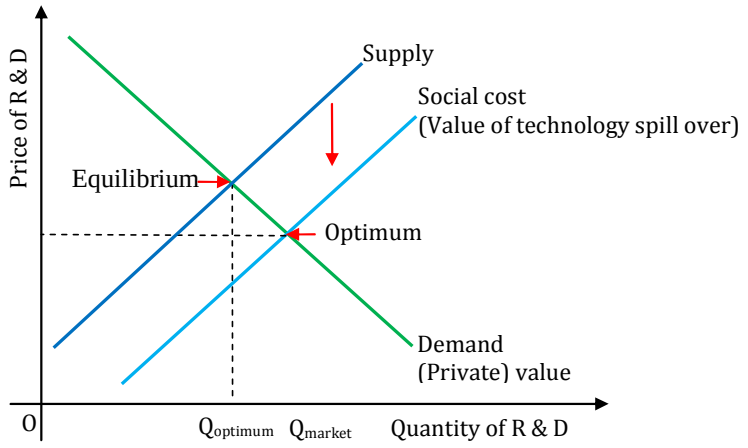
From the diagram it can be observed that because of the presence of negative externality to production, the social cost of producing tobacco exceeds the private cost. The optimal quantity of tobacco, $Q_{Optimum}$, is therefore smaller than the equilibrium quantity, $Q_{market.}$ The inclusion of the social cost into the cost of production raises the price of tobacco and reduces the equilibrium quantity.

Scenario Two (Positive Externality)

In this scenario, let us take an example of technology spillover. Here, the social cost of production is less than the private cost unlike a negative externality case earlier considered. Let us look at the illustration in Fig 10.2.

The consideration of social cost pushes down price and raises the equilibrium quantity. It is observed that the presence of a positive externality to production, the social cost of producing research and development (R & D) is less than the private cost. The optimal quantity of R & D, $Q_{Optimum}$ is therefore larger than the equilibrium quantity, Q_{market}.

Fig 10.2



10.2 Remedies for Externalities

Coarse theorem is developed by Ronald Coarse. It is a private arrangement for solving the problem of externalities.

Coarse Theorem can be employed if private parties can bargain without cost over the allocation of resources; in this way, they can solve the problem of externalities on their own. Generally, the problem of externalities can be curtailed either through a private arrangement or government intervention.

1. ***Private Arrangement*:** Sometimes government action is not needed to solve the problem of externalities but through private solutions.
   a. Through moral codes and social sanctions
   b. Through charity organisations' activities.
   c. Reliance on the relevant parties and self-interest, which may take the form integrating different types of business
   d. Entering into a contract – economic agents can enter into contractual agreement just like coarse theorem discussed above.

2. **Government:** Government can respond in one of two ways:
   a. Command and control policies – using regulation e.g., creating environmental protection agency and other forms of environmental regulations.
   b. Market-based policies - government may also adopt this method to remedy externalities, taxes and subsidies.

ITQ

Question

What are the means through which externality problems can be solved?

Feedback

Externality problems can be resolved through the following means:

i. Private arrangement, and
ii. Government intervention

Study Session Summary

Summary

In this Study Session, we addressed the problem of externality. We explored sources of externality and the various ways of dealing with the problem.

Assessment

Assessment

SAQ 10.1 (tests Learning Outcome 10.1)
Discuss the effects of externality on resources allocation and market efficiency.

SAQ 10.2 (tests Learning Outcomes 2)

How can externality problems be resolved?

Bibliography

Reading

Karl E. Case and Ray C. Fair, Principles of Economics, Prentice Hall, 6th ed., Chapters 14.

Robert. H. Frank and Ben S. Bernanke, (2007) Principles of Economics, McGraw-Hill Irwin, 3rd ed., Chapter 12.

Study Session 11

The Game Theory

Introduction

This Study Session will expose you to game theory. Game theory is an important aspect of economic analysis that provides many insights into the real world behaviour of economic agents in situations where there is an actual or potential conflict of interest.

Learning Outcomes

When you have studied this session, you should be able to:

11.1 *analyse* rational decision-making behaviour in conflict situations.

11.2 *make* strategic decisions as an economic agent.

11.1 What is Game Theory?

This is an approach to analyzing rational decision-making behaviour in interactive or conflict situations. In other words, it is the study of alternative strategies that firms may choose to adopt depending on their assumptions about the rivals' behaviour. Thus, the 'game' element occurs because the outcome depends not only on the choices made by one player, but also on what other players choose to do at the same time (or subsequently).

Simply defined, therefore, game theory is the study of how people behave in strategic decisions. By "strategic" we mean a situation in which each person, in deciding what actions to take, must consider how others might respond to that action. This is very common to oligopolistic market structure earlier discussed.

11.1.1 Elements of a Game

The following are the elements that are very typical of any game theory

A. ***Strategies*:** These are the choices that each player can take.

B. ***Pay offs*:** This is the utility that each player receives if a particular combination of strategies is chosen.

C. ***Common Knowledge*:** Each player is also assumed to know his own pay offs and strategies and the other player's pay offs and strategies. Furthermore, each player knows that other player knows his own too.

D. ***Player*:** This constitutes the person or firm concern in the participation in the game in question.

11.2 Nash Equilibrium Technique

An American Mathematician, called John Nash developed a technique known as Nash equilibrium. Nash equilibrium technique seeks to establish that each person or firms does the best it can, given the strategy of its competitors.

Nash equilibrium is one in which none of the players can improve their pay off given the strategy of other players. For example just like in an oligopoly market in which none of the firms can increase its pay off (sales) given the strategy of the rival firm.

Dominant Strategy

This is a strategy that is best for a player in a game regardless of the strategies chosen by the other players. Alternatively, it is that strategy that gives optimum pay-offs, no matter what the opponent does.

Prisoner's Dilemma

This is a game between two captured prisoners that illustrates why cooperation is difficult to maintain even when it is mutually beneficial. This can be further illustrated with this example.

Let us assume that two university students were caught raping a girl and they are to face disciplinary committee. Assume further that they are being kept in police net before they face the committee. They are kept separately for interrogation with the following conditions:

1. If you confess your involvement in the raping, you will get just a 2 year imprisonment.
2. If you deny your involvement and your partner denies too, you will be set free.

3. If one confesses and the other person denies then one who confesses gets only 6 months imprisonment and one who denies gets 5 year maximum imprisonment.

Given these scenarios, each of them has two options open to him (a) to confess and (b) not to confess. The dilemma involved is that each does not know what the other person might say. He may confess or not confess. Given these situations, it is quite likely that both of the suspects may opt for 'confession' because neither A knows what B will do, nor B knows what A will do. If they both confess, each gets a 2 year jail term. This is the second best option. They would avoid 5 years imprisonment the maximum possible jail sentence under the law. This is the best they could achieve under the given conditions.

ITQ

Question
What determines whether a player has a dominant strategy or not?

Feedback
The degree of pay-offs associated with each movement a player makes determine whether or not he/she has a dominant strategy.

Study Session Summary

Summary

This Study Session exposed you to game theory. We discussed rational decision-making behaviour in conflict situations; and how to make strategic decisions as an economic agent.

Assessment

Assessment

SAQ 11.1 (tests Learning Outcome 11.1)
Examine how rational decision can be arrived at in conflicting scenarios.

SAQ 11.2 (tests Learning Outcome 11.2)
As an economic agent, formulate strategic decisions that involve another economic agent.

Bibliography

Reading

Robert. H. Frank and Ben S. Bernanke, (2007) Principles of Economics, McGraw-Hill Irwin, 3rd ed., Chapter 11.

Study Session 12

Economics of Information

Introduction

Most times, economic theory assumes that there exists a perfect knowledge or information, particularly in a competitive setting. In real life situations, information is not perfect; hence this could give room for exploitation from one economic agent on another economic agent. In this Study Session, you will explore economic of information using some basic economic principles that can assist you in identifying those situations in which additional information is most likely to prove useful.

Learning Outcomes

When you have studied this session, you should be able to:
12.1 *illustrate* how economic agents add value.
12.2 *present* how to determine the amount of information required for making decisions.

12.1 How the Middleman adds Value

One of the problems that confront consumers is to choose among different varieties of a product whose many features they do not fully understand. At times, consumers might need to rely on knowledge of others to be able to make or take the right decisions.

Consider a student who can buy a computer set for 100,000 naira on his own with his little knowledge, but he can also obtain the same computer set through a specialized agent (well versed and knowledgeable about computer products) for 125,000 naira. The 25,000 naira extra is likely to be a good investment since it is possible for the student to buy a bad computer set that may get spoilt easily unlike when it was assigned to the specialist to buy for me.

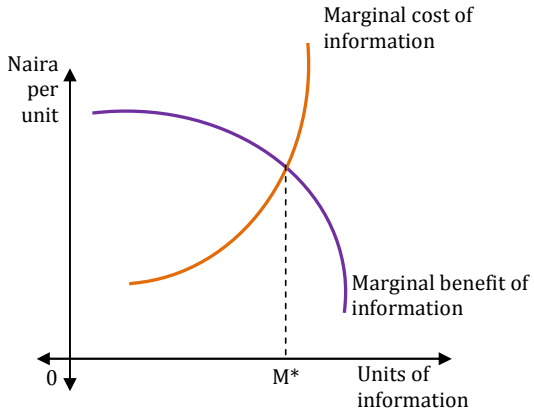
Thus, in a world of incomplete information, sales agents and other middlemen add genuine economic value by increasing

the extent to which goods and services find their way to the consumers who value them most.

12.1.1 Optimal Amount of Information

Without any doubt, having access to more information is better than having less information. This will be discussed using the *cost-benefit test*. This concept simply tells us that a rational consumer will continue to gather information as long as its marginal benefit exceeds its marginal cost. This can be illustrated using Fig 12.1.

Fig 12.1



From the illustration, it is can be seen that economic agents receive optimum amount of information when the marginal benefit derived from such information is equal to its marginal cost. Thus, the optimal amount of information occurs at M*. Beyond that point, information costs more to acquire than it is worth.

ITQ

Question

At what point should an economic agent stop receive information about the existence of goods and services?

Feedback

An economic agent should receive desirable amount of information about existing goods and services up to the point where the marginal cost of acquiring such information is equal to its marginal benefit. At this point optimum amount of information is received. Beyond this point, marginal cost exceeds marginal benefit of receiving such information.

12.2 Asymmetric Information

This is a situation in which buyers and sellers are not equally well informed about the characteristics of goods and services available in the market place. For example, if I have a car to dispose off, I know quite well everything about the car whereas the potential buyer may not have all the necessary information about the car, even if he/she decides to test-drive the car. As such, there has been an asymmetric in the information between seller and the buyer.

Study Session Summary

Summary

In this Study Session, we had an overview of economic of information. We discussed how economic agents add value; and how to determine the amount of information required for making decisions.

Assessment

Assessment

SAQ 12.1 (tests Learning Outcome 12.1)
How do economic agents add value to goods and services?

SAQ 12.2 (tests Learning Outcome 12.2)
Discuss how to establish the required amount of information needed for rational decision making.

Bibliography

Reading

Karl E. Case and Ray C. Fair, Principles of Economics, Prentice Hall, 6th ed., Chapters 14.

Robert. H. Frank and Ben S. Bernanke, (2007) Principles of Economics, McGraw-Hill Irwin, 3rd ed., Chapter 13.

Study Session 13

Labour Market

Introduction

In this Study Session, we will look at the interplay of buyers and sellers of labour services. The labour market is the most important market for most people, as that is where they find employment and earn their living.

Learning Outcomes

When you have studied this session, you should be able to:
13.1 *discuss* basic factor market concepts.
13.2 *explain* the factors that affect the demand and supply of labour.

13.1 Input Markets

These are the market for the inputs that firms use to make their outputs – mainly labour and capital. In these markets it is firms that are typically the demanders, and the suppliers may be either other firms or individuals.

Basic Concepts in Input Markets

1. **Distribution Theory:** This is a theory that explains how the total national income is divided up among the nation's citizen.
2. **Factor Price Theory:** Any theory that explains inputs distribution on the basis of market forces.
3. **Marginal Productivity Theories:** These are the theories that use the marginal products of inputs to explain their demands.
4. **Functional Distribution of Income:** This refers to the share of total national income going to owners of different resources; thus it focuses on the source of income by distinguishing income from employment and income from property.
5. **Size Distribution of Income:** Refers to the proportion of total income received by various groups, it therefore explains inequality of income among various income

earners, irrespective of the sources from which that income is derived.

6. **Marginal Physical Product:** The change in total output that results from employing an additional unit of a resource.
7. **Marginal Revenue Product:** The change in total revenue resulting from the employment of an additional unit of a resource.

13.1.1 Demand for Inputs

Firms use the services of factors of production like land, capital, labour and entrepreneur as inputs. They also use products; such as steel, motor van, electricity, that are produced by other firms. These products are in turn made by using land, labour, capital and entrepreneur. Thus, it is clear from these explanations that the demand for any input is derived from the demand for the goods and services that it helps to produce. As a result of this, the demand for all inputs is called a **derived demand**. The demand curve for any input is negatively sloped because if the price of input increases, the quantity demanded of that input will falls.

ITQ

Question

Why is the demand for factor inputs a derived demand?

Feedback

The demand for factor input is a derived demand because they are demanded for the sake of goods and services they can be used to produce and not because of their direct or immediate benefits.

13.1.2 The Derived Demand Curve of the Firm

One Variable Factor of Production

The demand curve of a firm for any given factor of production shows the different quantities of that factor the firm will be willing to purchase at various prices. A profit maximizing firm will employ a factor of production only as long as it adds more to the revenue than it adds to the total cost. Therefore, firms will demand for an input based on this condition $MRP_x = P_{x..}$ This implies that marginal revenue product of input X

should be equal to its price. A firm will continue to employ input as long as $MRP_x > P_x$. Conversely, the employment of a factor will be reduced once $MRP_x < P_x$. The optimum situation which maximizes the firm's profit is where $MRP_x = P_x$.

Multiple variable inputs

When a firm can vary the amounts of several inputs that it uses, profit maximization requires that the last naira it spends on each input brings in the same amount of revenue.

Suppose there are two inputs with prices P_A and P_B respectively, and their marginal revenue product MRP_A and MRP_B. The amount of extra revenue per one naira spent on hiring more of input A is MRP_A/P_A, while that of input B is MRP_B/P_B. By equating the two we have:

$$\frac{\square\square\square_{\square}}{\square_{\square}} = \frac{\square\square\square_{\square}}{\square_{B}} \quad , \quad \frac{\square\square\square_{\square}}{R\square_{\square}} = \frac{\square_{\square}}{\square_{B}}$$

That is, a profit maximizing firm will hire inputs up to the point where the marginal revenue products of the inputs are equal to the ratio of their prices.

ITQ

Question

The profit-maximizing rule can be stated in the following way: A firm will maximize its profit when the firm hire inputs up to the point where the _____ of the inputs are equal to the ratio of their prices.

a) total revenue product
b) marginal revenue product
c) total utility
d) marginal utility per naira

Feedback

Option a: Wrong [profit maximisation rule is based on the concept of marginal revenue and not on total revenue].

Option b: Correct [recall that utility will be maximised at the point where:

$$\frac{\Delta TU_A}{\Delta Q_A} = \frac{\Delta TU_B}{\Delta Q_B} \quad , \quad \frac{\Delta TU_A}{\Delta R Q_A} = \frac{\Delta Q_A}{\Delta Q_B}$$

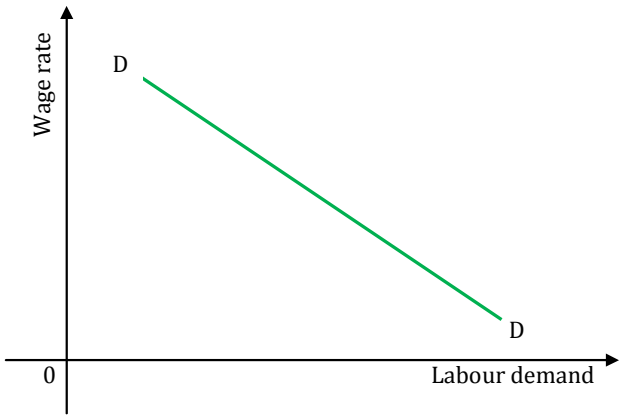
Option c: Wrong [utility is not in consideration here].

Option d: Wrong [profit maximisation rule is based on the concept of marginal revenue and not on marginal utility].

13.2 Supply and Demand for Labour

The firms, industries and governments are the buyers or demanders of labour services. The demand for labour as earlier mentioned is a derived demand. In the sense that, labour service is not needed for its own sake but for what labour can produce. Hence, a firm will employ labour so long as is productive and the revenue derived from what the labour produces is at least equal to the wage rate paid for its services. Thus, the derived demand curve for labour is usually of the normal downward – sloping shape. This by implication means that there is tendency for buyers to increase their demand for labour when wage rates are low and vice versa, as illustrated in Fig 13.1.

Fig 13.1



Supply of labour, on the other hand will be upward sloping from left to right for only a part of its length. A higher wage rate will call for a greater supply up to a point, beyond which increases in wage rates may entail reduction in labour supply as the supply curve of labour will bend backward as illustrated in Fig 13.2 (a) and (b).

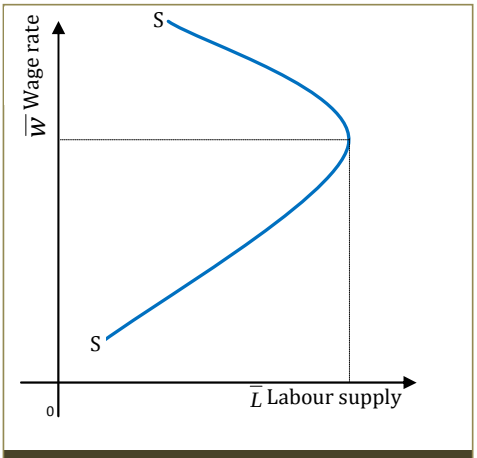


Fig 13.2a Individual worker's supply of labour

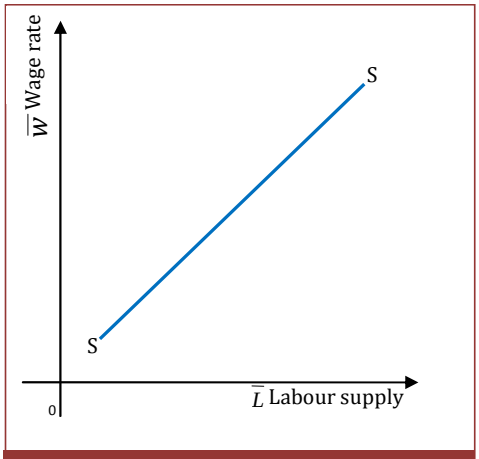


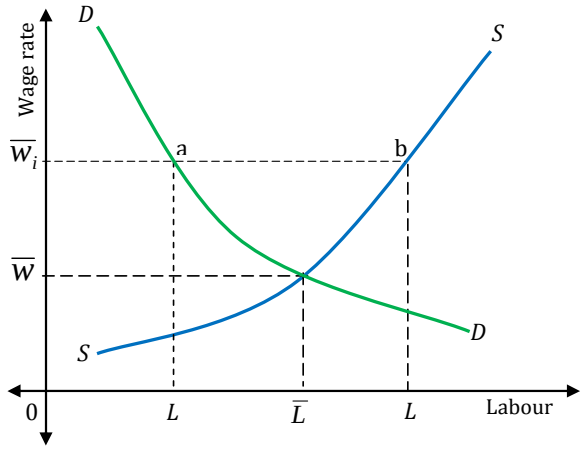
Fig 13.2b Industry supply of labour curve.

In (a) as the wage rate rises to 0*W*, the labour supply increases up to 0*L*. Any further increases beyond 0*L* will call for reduction in the labour supply. This is not true of supply curve for an industry in (b). Here, higher wage rate will attract more workers to that occupation and vice versa. This explains why labour supply curve slope continuously upward.

Equilibrium in Labour Market

The equilibrium market wage rate for labour services is determined by the interplay of the forces of demand (given) by marginal revenue productivity curve of labour and a supply (given) by a curve showing the volume of labour which is offered at each level of wages). This is illustrated in figure 13.3 as follows:

Fig 13.3



At 0*W* wage rate, the amount of labour services supplied is equal to that of labour services demanded at 0*L*. If the wage rate is set at $0W_1$, labour supplied will be far greater than quantity of labour demand thus, leading to unemployment. The magnitude of the unemployment is *ab* which is equivalent

to L_1L_2.

ITQ

Question

What determines equilibrium level in the labour market?

Feedback

Equilibrium level in the labour market is determined by the interplay between demand for labour and supply of labour. Demand for labour here refers to the marginal revenue productivity curve of labour, while supply of labour refers to a curve showing the volume of labour which is offered at each level of wages.

Study Session Summary

Summary

In this Study Session, we examined the labour market. We looked at the factors that affect the demand and supply of labour. We also discussed related concepts to labour market.

Assessment

Assessment

SAQ 13.1 (tests Learning Outcome 13.1)
Explain some basic concepts in input markets.

SAQ 13.2 (tests Learning Outcomes 13.2)
What are those factors that determine the demand and supply of labour?

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Reading

Feedbacks to SAQs

SAQ 1.1

i. b
ii. a
iii. d

SAQ 4.1

Option a: Wrong [the change in quantity of banana biscuit is negative while the change in price of peanut butter is positive, the ratio is negative. For substitute, the cross price elasticity is positive. Recall the statement "If the sign is positive (+), then the goods are substitute ....."].

Option b: Wrong [relationship between two goods can be interpreted as 'substitute', 'complement' or 'no relationship'].

Option c: Correct [since the ratio of the % change in quantity of banana biscuit to the % change in price of peanut butter is negative, the two goods are complement. Recall the statement "....when it is negative (-), they are complementary goods].

Option d: Wrong [relationship between two goods can be interpreted as 'substitute', 'complement' or 'no relationship'].

SAQ 4.2

Option a: Wrong [you obtain this result by reversing the formula as well as interpreting one of the changes as decrease of fall meanwhile, both price of good X and demand for good Y rise].

Option b: Wrong [you use the correct formula but making the mistake of interpreting one of the changes as decrease of fall meanwhile, both price of good X and demand for good Y rise].

Option c: Correct

Percentage change in quantity demanded of good Y =+20

Percentage change in price good X =+10%

cross-elasticity of demand for Good Y with respect to Good X =+20/+10=+2.0

Option d: Wrong [though you get the direction of changes involved, you have reverse the formula].

SAQ 5.1

Option a: Wrong [the law relates to additional utility derived from additional consumption. Thus, it relates to demand rather than supply].

Option b: Wrong [this is opposite of the true prediction of the law].

Option c: Wrong [no consumer can buy all goods].

Option d: Correct [since equilibrium consumption relates marginal utility to price, diminishing marginal utility implies diminishing prices as quantity increases].

SAQ 5.2

Option a: Wrong [this will imply an indifference curve that resemble the bowed out production possibility curve].

Option b: Correct [like the law of diminishing marginal utility; this concept is termed diminishing marginal rate of substitution].

Option c: Wrong [this will lead to a perfect straight line indifference curve].

Option d: Wrong [this can never yield a continuous curve].

SAQ 5.5

Option a: Wrong [there is no way you can rearrange MUx/Px=MUy/Py to get Px(MUx) = Py(MUy)].

Option b: Wrong [there is no relationship between the rule that MUx/Px=MUy/Py and TUx/Px = TUy/Py. The first is based on marginal utility while the second is based on total utility].

Option c: Correct [you can easily rearrange MUx/Px=MUy/Py by using cross multiplication to get MUx/MUy = Px/Py].

Option d: Wrong [the price component of the utility-maximising rule is missing in this equation].

SAQ 6.1 (tests Learning Outcomes 6.1 and 6.2)

i.

Option a: Wrong [the standard production function is expressed in quantity and not in prices].

Option b: Wrong [both input and output are express in quantity].

Option c: Correct [production function relates quantity of output to quantity of input].

Option d: Wrong [both input and output are express in quantity].

ii.

Option a: Wrong [this will require all factors of production to be fixed].

Option b: Correct [this is the definition of short run].

Option c: Wrong [fixed factor of production relates to short run and not long run].

Option d: Wrong [fixed factor of production relates to short run and not long run].

iii.

Option a: Wrong [diminishing returns relates to short run].

Option b: Wrong [diminishing returns is defined in terms of marginal product and not profit].

Option c: Wrong [diminishing returns is defined in terms of marginal product and not average product].

Option d: Correct [this is the description of diminishing returns and diminishing marginal productivity].

iv.

Option a: Wrong [when TP is at maximum, MP cut the horizontal axis].

Option b: Wrong [when TP is falling, AT is also falling].

Option c: Correct [when $MP > AP$, AP is increasing].

Option d: Wrong [this statement is also true and the question asks for wrong option].

SAQ 1.1

Economics helps us to know a way of thinking. Studying economics enables us to understand some basic concepts such as opportunity cost, scarcity, marginalism, sunk cost and efficient market. All these help us to take rational decisions in our everyday life.

It enables us to understand the society better. Past and present economic decisions have an enormous influence on the pattern of life in a society. The current states of the physical environment, the level of material well-being, the nature and number of jobs are all products of the economic system. Studying the course economics will enable us to get familiar with both past and present happenings in our environment.

The study of economics will enable us to understand global affairs. News headlines are most times filled with economic stories. International events often have enormous economic consequences. The dramatic decline in the value of stock traded in the US stock market coupled by the general economic melt-down has resulted in a reduction in the household wealth in the United States and other economies of the world that solely rely on the US economy. This has also had a huge effect on world trading patterns.

Lastly, the study of economics helps us to be informed Citizens. The knowledge of economics is essential to be an informed citizen. Major activities and happenings around the world all revolve rounds economic cum political processes. Thus, when we participate in the political process, we are voting on issues that require a basic understanding of economics.

SAQ 1.2 (tests Learning Outcome 1.2)

Critically examine the center of attention of each of the two branches of economics.

SAQ 1.2

There are two branches of economics; these are Macroeconomics and Microeconomics.

- **Macroeconomics:** is about the performance of the economy in general. It deals with the larger aspects of a nation's economy, such as the sectors of agriculture, industry, and service. It is a branch of economics that

deals with the performance, structure, behaviour and decision-making of the entire economy, be that a national, regional, or the global economy. Macroeconomists study aggregated indicators such as GDP, unemployment rates, and price indices to understand how the whole economy functions. Macroeconomists develop models that explain the relationship between such factors as national income, output, consumption, unemployment, inflation, savings, investment, international trade and international finance.

It aims to (a) speed up the economy's growth rate and increase total production; (b) increase the rate of employment; (c) keep the prices of commodities stable so that they remain affordable; and (d) have sufficient reserves for foreign exchange for importing goods and paying off loans. Economists help in solving problems like unfair wages, rapid population growth, people migration to city centers, high crime incidence, and loss of human resources due to overseas migration.

- **Microeconomics:** is about smaller and more specific things such as how families and households spend their money. It is a branch of economics that deals with the personal decisions of consumers and entrepreneurs. It is a branch of economics that studies how the individual parts of the economy, the household and the firms, make decisions to allocate limited resources, typically in markets where goods or services are being bought and sold. Microeconomics also deals with the effects of national economic policies (such as changing taxation levels) on individuals and firms.

  Its primary concern is to help consumers and investors make their lives better by increasing their earnings and satisfying their needs despite limited resources. Also included in its study are the consumers' decisions on what products to buy and how the cost of commodities is determined.

SAQ 1.3

There are two main techniques/ approaches of carrying out economic analysis. These are positive and normative economics respectively. These two different approaches of analyzing economics are inextricably linked, you cannot have one without the other and often they complement each other

to form strong arguments. Nevertheless, making distinctions between normative and positive statements is very useful and important to understanding economics and political economy.

Normative or predictive economics describes how things "should" or "ought" to be. This approach involves making value judgments based on theory; or in other words, making subjective statements based on unproved/unprovable economic models. Potentially involving empirical findings, normative economic statements are based primarily on norms, i.e. ideas and actions accepted by a particular social group. Because norms can vary from group to group and individual to individual, we can say that normative statements are subjective.

Normative economics is often concerned with theory and predictions within theory, examples include neoclassical economic theory and trickle-down economics. These

Normative analysis is often concerned with what is "fair," and is particularly important in forming governmental policy. Normative economic statements consider questions on ethics, society, and politics. For example, economic justice, like income equality, is a common topic in of normative analysis. While normative analysis might help us discover new ideas and help us make goals to work towards, such as poverty reduction or greater income equality between men and women, it is particularly limited when it does not contain substance, that is, empirical evidence. This is where positive analysis comes in.

"Research without theory is blind, theory without research is empty." (Bourdieu and Wacquant 1992)

Positive economic analysis is the reverse of normative economic analysis. Positive analysis attempts to explain processes in reality and derive predictions about future events based on empirical evidence. In other words, positive economic analysis is concerned with what "is."

Most economists use positive analysis in their research. Like scientists, economists seek to limit subjectivity while conducting their research and forming conclusions. By Institutional economics, for example, uses positive analysis on a case oriented level to measure comparative economic effects of alternate structures.

To come full circle, normative analysis can help give research vision or direction and enhance imaginative enquiry, but ultimately visions must be backed up with positive analysis to give them weight. Likewise, value judgements determine what we focus our empirical studies on. Therefore the integration of normative and positive economics is necessary, and it forms a third category of economic analysis called applied economics.

Positive economic analysis provides insights that strengthen or weaken normative economic models.

SAQ 1.4

Scarcity

Scarcity can be defined as a situation in which human wants are greater than the capacity of available resources to provide for those wants. In other words, it means that people want more than is available. Economic resources are limited, but human needs and wants are infinite. Indeed the development of society can be described as the uncovering of new wants and needs - which producers attempt to supply by using the available factors of production.

Choice

Making choices Because of scarcity, choices have to be made on a daily basis by all consumers, firms and governments. For a moment, just have a think about the hundreds of millions of decisions that are made by people in your own country every single day. Trade-offs when making choices

Making a choice normally involves a trade-off - in simple terms, choosing more of one thing means giving up something else in exchange. Because wants are unlimited but resources are finite, choice is an unavoidable issue in economics. For example:

1. Housing: Choices about whether to rent or buy a home. There are costs and benefits to renting a property or choosing to buy a home with a mortgage. Both decisions involve a degree of risk.

2. Working: Choosing between full-time or part-time work, or to take a course in higher education lasting three years – how have these choices and commitments been affected by the introduction of higher university tuition fees?

3. Transport and travel: Your choices about which modes of transport to use to get to and from work or school each day.

Opportunity Cost

There is a well known saying in economics that "there is no such thing as a free lunch!" Even if we are not asked to pay a price for consuming a good or a service, scarce resources are used up in the production of it and there must be an opportunity cost involved.

Opportunity cost measures the cost of any choice in terms of the next best alternative foregone. In other words, though we have alternative uses for resources, we have to select the best way to use these resources. When we choose best alternative, the next best alternative which is left out is known as the Opportunity cost of making a choice. In other words, the benefits we lost and could have achieved from the next best alternative. Note that this is applicable to individuals, firms and the government. Work-leisure choices, for instance, the opportunity cost of deciding not to work an extra ten hours a week are the lost wages foregone. If you are being paid N6 per hour to work at the local supermarket, if you choose to take a day off from work you might lose N48 from having sacrificed eight hours of paid work.

SAQ 1.5

There exist various ideologies representing the economic system. Some of these ideologies include:

The Command Economy

In this type of economy, Central government are responsible for answering basic economic questions. Also, there exist central planning and combination of government ownership such that is either direct or indirect setting out of prices incomes and output targets. This type of economic system is also known as the centrally planned or Socialism.

The Free Market: Laissez-Faire Economy

This is the opposite side of the command economy. The term laissez-faire, which translated literally from French, means "allowing (them) to do", implies a complete lack of government involvement in the economy. Here, individuals and firms attempt to embark on their own self-interest without any central direction or regulations. Thus, the central institution through which a laissez-faire system answers the basic questions is the *market*, a term that is used in economics to mean any arrangement whereby buyers and sellers are in contact so as to facilitate exchange of goods and services. It is

worthy to note that the behaviour of buyers and sellers in a laissez-faire economy determines what to produce, how is it produced and who gets it.

The Mixed Economic System

Sequel to the fact that the differences between command economy and laissez-faire economy in their pure forms are enormous, hence the existence of any of these two ideologies completely does not exist anywhere in the world. Instead, real system in the world phenomenon is in some sense "mixed" in nature. That is, individual enterprises exist and independent choices are made even in economies in which the government plays the major role. Mixed economy system, is therefore, a system that allow both private and government collectively deciding and owning the means of production and distribution. Thus, individuals are allowed to control means of production, while the government will put in place enabling environment for production activities to strive, and at the same time engage in production of goods and services that private sector cannot easily produce.

SAQ 1.6

Every human being engages in decision taking at one time or the other about life. However, arriving at a rational and desirable decision is not something that is easy to come by. Hence, certain errors/ flaws are found to be inherent in decision making. Some of these flaws include:

- Error of measuring cost or benefits proportionately: Many decision makers treat a change in cost or benefit as less important if it constitutes only a small proportion of the original amount. Thus, absolute naira amounts, not proportions, should be employed to measure costs and benefits.
- Error of ignoring opportunity costs: It is important to account for all relevant opportunity cost when performing cost-benefit analysis. Opportunity cost is defined here as the values of the most highly alternatives that must be forgone in order to carry out the action. Resources, if got "for free" may have high opportunity cost, if its best alternative use has high value. Conversely, the same resources may have a low opportunity cost if it has no good alternative uses.
- Error of not ignoring sunk cost: When planning to take an action, it is important to ignore sunk costs-those costs

that cannot be avoided even if the action is not taken. Even though, a ticket to a Cinema house may have cost you ₦100, if you have already bought it and cannot sell it to anyone else, the ₦100 is a sunk cost and should not influence your decision about whether to go or not.

- Error of using average instead of marginal costs and benefits: Decision makers often make mistakes of reckoning with the total cost and benefit of an activity. Thus, it becomes simple for them to compute the average cost and benefit of such an activity. The cost-benefit principle tells us that the level of an activity should be increased if, and only if, its marginal benefit exceeds its marginal cost and not the total benefit and cost.

SAQ 2.1

In the economic sense, specialization simply connotes the social phenomenon of individual human beings or organizations each concentrating their productive efforts on a rather limited range of tasks. Specialization entails focussing on a narrow area of knowledge or skill or activity. It involves a person's or an organization's adapting for the unusually effective or efficient performance of some particular function, often at the expense of the individual's or organization's ability to perform most other functions for themselves, which are then necessarily left to others with more appropriate skills or talents or abilities. [For a related concept, see division of labour.] Like the division of labour, specialization generally comes about because it is discovered (usually by trial and error) that the individuals or groups concerned can increase their productivity (and hence, under a market economy, their incomes) through greater specialization according to the principle of comparative advantage.

SAQ 2.2

The production possibility frontier (PPF) represents the point at which an economy is most efficiently producing its goods and services and, therefore, allocating its resources in the best way possible. If the economy is not producing the quantities indicated by the PPF, resources are being managed inefficiently and the production of society will dwindle. The production possibility frontier shows there are limits to production, so an economy, to achieve efficiency, must decide what combination of goods and services can be produced.

Let's turn to the chart below. Imagine an economy that can produce only wine and cotton. According to the PPF, points A, B and C - all appearing on the curve - represent the most efficient use of resources by the economy. Point X represents an inefficient use of resources, while point Y represents the goals that the economy cannot attain with its present levels of resources.

As we can see, in order for this economy to produce more wine, it must give up some of the resources it uses to produce cotton (point A). If the economy starts producing more cotton (represented by points B and C), it would have to divert resources from making wine and, consequently, it will produce less wine than it is producing at point A. As the chart shows, by moving production from point A to B, the economy must decrease wine production by a small amount in comparison to the increase in cotton output. However, if the economy moves from point B to C, wine output will be significantly reduced while the increase in cotton will be quite small. Keep in mind that A, B, and C all represent the most efficient allocation of resources for the economy; the nation must decide how to achieve the PPF and which combination to use. If more wine is in demand, the cost of increasing its output is proportional to the cost of decreasing cotton production.

Point X means that the country's resources are not being used efficiently or, more specifically, that the country is not producing enough cotton or wine given the potential of its resources. Point Y, as we mentioned above, represents an output level that is currently unreachable by this economy. However, if there was a change in technology whiles the level of land, labour and capital remained the same, the time required to pick cotton and grapes would be reduced. Output would increase, and the PPF would be pushed outwards. A new curve, on which Y would appear, would represent the new efficient allocation of resources.

When the PPF shifts outwards, we know there is growth in an economy. Alternatively, when the PPF shifts inwards it indicates that the economy is shrinking as a result of a decline in its most efficient allocation of resources and optimal production capability. A shrinking economy could be a result of a decrease in supplies or a deficiency in technology.

An economy can be producing on the PPF curve only in theory. In reality, economies constantly struggle to reach an optimal production capacity. And because scarcity forces an economy to forgo one choice for another, the slope of the PPF will always be negative; if production of product A increases then production of product B will have to decrease accordingly.

SAQ 3.1

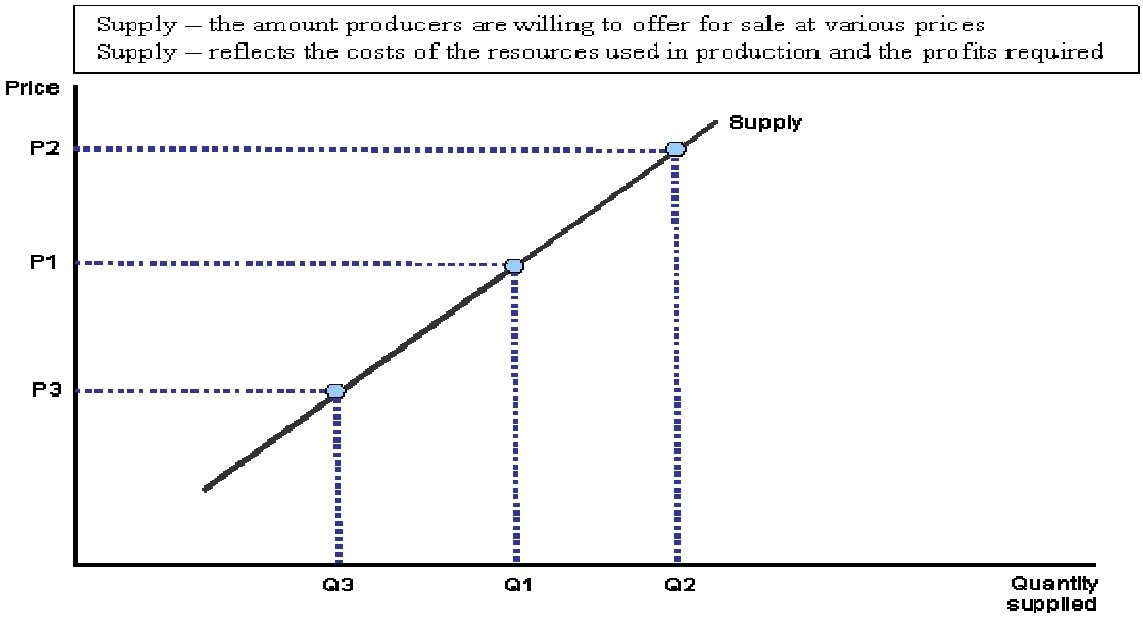
The Law of Demand

Demand can be defined as the amount or quantity of goods and services in which a consumer is willing, ready and able to pay for at a given price and at a particular period of time. In economics, the law of demand states that, all else being equal, as the price of a product increases, quantity demanded lowers; likewise, as the price of a product decreases, quantity demanded increases. In other words, the law of demand states that the quantity demanded and the price of a commodity are inversely related, other things remaining constant. If the income of the consumer, prices of the related goods, and preferences of the consumer remain unchanged, then the change in quantity of good demanded by the consumer will be negatively correlated to the change in the price of the good. There are, however, some possible exceptions to this rule

Very simply, the law of demand states that if all other factors remain constant, if a good's price is higher, fewer people will demand it. As the price of that good goes down, the quantity of that good that the market will demand will increase. In the Fig 3.1, you see this relationship. At price 4, the quantity of that good demanded is 8. If the price of this good were to be decreased to 3, the quantity of that good demanded would increase to 12. The same is true for 2 and 16. When prices move up or down (assuming all else is constant), the quantity demanded will move up or down the demand curve and define the new quantity demanded.

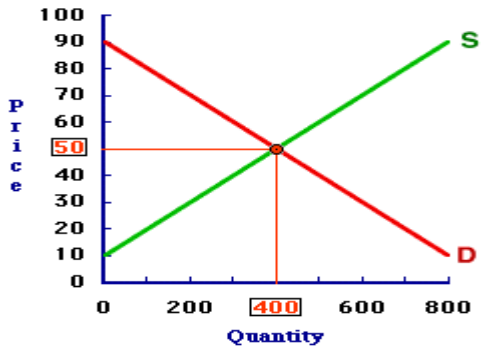
SAQ 3.2

Supply is defined as the quantity of a product that a producer is willing and able to supply onto the market at a given price in a given time period. The basic law of supply is that as the price of a commodity rises, so producers expand their supply onto the market. A supply curve shows a relationship between price and quantity a firm is willing and able to sell.



A supply curve is drawn assuming ceteris paribus - that all factors influencing supply are being held constant except price. If the price of the good varies, we move along a supply curve. In the diagram above, as the price rises from P1 to P2 there is an expansion of supply. If the market price falls from P1 to P3 there would be a contraction of supply in the market. Businesses are responding to price signals when making their output decisions.

Explaining the Law of Supply



There are three main reasons why supply curves for most products are drawn as sloping upwards from left to right giving a positive relationship between the market price and quantity supplied:

- The profit motive: When the market price rises (for example after an increase in consumer demand), it

becomes more profitable for businesses to increase their output. Higher prices send signals to firms that they can increase their profits by satisfying demand in the market.

- Production and costs: When output expands, a firm's production costs rise, therefore a higher price is needed to justify the extra output and cover these extra costs of production.
- New entrants coming into the market: Higher prices may create an incentive for other businesses to enter the market leading to an increase in supply.

SAQ 3.3

In economics, economic equilibrium is a state where economic forces such as supply and demand are balanced. Thus, in the absence of external influences the (equilibrium) values of economic variables will not change.

Thus, equilibrium price is the price that prevails when the market is balance. It is a price at which quantity demanded equals to quantity supplied. It can also be defined as the prevailing market price that equates quantity demanded and quantity supplied. The price that exists when a market is in equilibrium. Equilibrium price is found at the intersection of the demand curve and the supply curve. On the other hand, equilibrium quantity is the quantity exchanged when a market is in balance. Because quantity demanded and quantity supplied are equal, there is no shortage nor surplus in the market, which means that neither buyers nor sellers are inclined to change the price or the quantity, which is an essential condition for equilibrium. Equilibrium quantity is simultaneously equal to both the quantity demanded and quantity supplied. In a market graph, similar to price, the equilibrium quantity is found at the intersection of the demand curve and the supply curve. Equilibrium quantity is one of two equilibrium variables. The other is equilibrium price.

Equilibrium price and quantity result when the market is in balance, which is equality between quantity demanded and quantity supplied. The market is clear of any shortage or surplus. The only quantity that accomplishes this task is at the intersection of the demand curve and supply curve.

SAQ 3.4

Law of Demand states that other things being constant, amount demanded falls with rise in price and rises with a fall in price. Here two things are worth discussing. First one is price and second one is other factors other than price.

Demand for a commodity depends on several factors like price, income, taste and preference of consumers, price of other related commodities, future expectations of price and population etc. Changes in demand imply two things: (i) change in quantity demanded (ii) change in demand.

(1) Change in quantity demanded

Change in quantity demanded refers to the change in the amount of a commodity as a result of change in the price of it. Amount demanded rises or falls according to the fall or rise in price. In such a case other factors influencing demand are held constant. The fall and rise in amount demanded due to the change in price is technically called "contraction" and "extension" of demand.

The demand function or the demand curve never changes. The change takes place in the same demand curve. The existing demand curve contains the changes in the different price-quantity combination. In case of change in quantity demanded movement takes place along the existing demand curve.

(2) Change in demand

'Change in demand' means changes in demand due to the change in the factors other than price. Those other factors are income, taste and preference, population, future expectation, prices of other related commodities etc. Price remaining constant these factors bring about a change in demand which is called "Change in demand". The change in demand involves "increase" and "decrease" of the demand for a commodity.

The change in demand implies a change in the demand function itself. In case of change in demand the entire demand schedule and demand curve change. With an increase in demand curve shifts upward and with a decrease in demand curve shifts downward. Thus change in demand takes place on different demand curves.

SAQ 4.1

Given the significance of price elasticity of demand, it is important to know how responsive demand is to price changes. Certain factors serve as determinants of elasticity of demand, these factors are:

Availability of substitutes. In general we will find demand becomes more responsive as the number of substitutes increases. If we were to look at the demand for Peak milk we would expect it to be elastic since there are many substitutes for Peak milk. When we look at the demand for electricity, however, we may expect to find demand to be less responsive since there are not many very close substitutes to it This would be where we would see the influence of loyalty. When a firm successfully creates brand loyalty what it is doing is effectively reducing the availability of substitutes in the minds of buyers. Because the buyers no longer believe the other products are close substitutes, the increase in price is less likely to lower demand for the product.

Size matters. Price elasticity of demand is also likely to be smaller when your total expenditure on the item is small - when it is a small ticket item. For example, if the price of matches rose substantially it is unlikely that you would reduce your demand since total expenditures on matches is still very small and the change would have virtually no impact on your total budget.

Durability. If you have an item that is durable, you would expect demand to be more responsive to price changes. When an item is durable you will not need to buy it if the price rises because you can put off your purchase and still receive the benefits from your previous purchase. If the price of garden tools rose, you could use your old tools because they are durable, but if the price of milk rose, it is unlikely that you will be able to get by with using milk that you bought last month.

Time matters. If you give people longer to adjust their behaviour, they will be able to make larger adjustments. For example, if the price of petrol rises rapidly then your initial reaction is likely to be minimal. You will still buy the same amount of petrol because your driving habits will not have changed. If you are given a longer period to adjust, however, you may find that you buy a new, more petrol efficient car which will lower your demand for petrol. The generalization

to be drawn from this is that elasticity increases with the time horizon.

Habit . Because habits are slow to break, a change in price is not likely to have a large immediate impact on demand. If you give people a chance to adjust, however, they may very well be able to 'break' their habits and thus we could expect a larger response to the price change in the long-run.

SAQ 4.2

There exist three types of elasticity of demand, these are:

1. Price Elasticity of Demand

2. Income Elasticity of Demand

3. Cross Elasticity of Demand

1. Price Elasticity of Demand:

We will discuss how sensitive the change in demand is to the change in price. The measurement of this sensitivity in terms of percentage is called price Elasticity of Demand. According to Marshall, Price Elasticity of Demand is the degree of responsiveness of demand to the change in price of that commodity.

Types of Price Elasticity of Demands:

a) Perfectly Elastic

b) Perfectly Inelastic

c) Relatively Elastic

d) Relatively Inelastic

e) Unit Elasticity

2. Income elasticity of demand:

In economics, the income elasticity of demand measures the responsiveness of the quantity demanded of a good to the change in the income of the people demanding the good. It is calculated as the ratio of the percent change in quantity demanded to the percent change in income. For example, if, in response to a 10% increase in income, the quantity of a good demanded increased by 20%, the income elasticity of demand would be 20%/10% = 2.

3. Cross elasticity of demand:

In economics, the cross elasticity of demand and cross price elasticity of demand measures the responsiveness of the

quantity demand of a good to a change in the price of another good.

It is measured as the percentage change in quantity demanded for the first good that occurs in response to a percentage change in price of the second good. For example, if, in response to a 10% increase in the price of fuel, the quantity of new cars that are fuel inefficient demanded decreased by 20%, the cross elasticity of demand would be -20%/10% = -2.

SAQ 5.1

Utility is the satisfaction people derive from their consumption activities. This simply refers to the satisfaction people derived when consuming goods and services. Utility maximisation on the hand refers an attempt by the people to allocate their incomes so as to maximise their satisfaction and goal. This satisfaction tends to increase as the consumption of the good increase.

Total utility describes summation of all the satisfaction (utility) that a consumer derives from the consumption of a good. As more and commodities are consumed, the total utility derived from the consumption increases, until it gets to a certain level. After, reaching that level, total utility is at its peak (maximum). Beyond this level, total utility begins to fall drastically (read more on table 5.1). **Marginal utility** denotes the amount by which total utility changes when consumption changes by one unit. It means a change in total utility resulting from the consumption of an extra unit of that commodity. Marginal utility is the additional utility, or satisfaction of wants and needs, obtained from the consumption or use of an additional unit of a good. It is specified as the change in total utility divided by the change in quantity. Marginal utility indicates what each additional unit of a good is worth to a consumer.

In discussing the relationship between utility and demand, marginal utility and the law of diminishing marginal utility can be used to provide insight into market demand, the law of demand, and the demand curve. An explanation of the law of demand and the negatively-sloped demand curve based on utility analysis and the law of diminishing marginal utility. The law of diminishing marginal utility states that marginal utility declines as consumption increases. Because demand price depends on the marginal utility obtained from a good, price also declines as consumption increases, meaning price

and quantity demanded are inversely related, which is the law of demand.

This insight rests on two propositions.

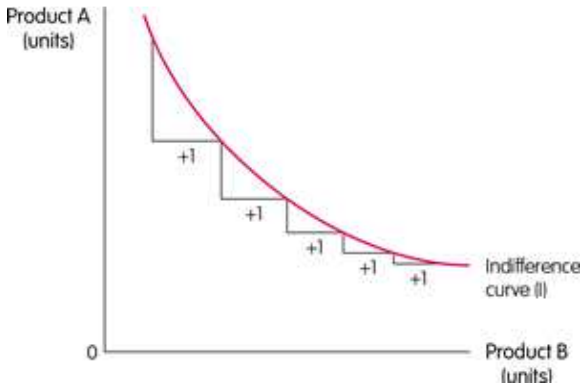
- One, the law of diminishing marginal utility means that the marginal utility obtained from consuming good declines as the quantity consumed increases.
- Two, the marginal utility of a good underlies the demand price that buyers are willing and able to pay for a good.

When combined, these two propositions indicate the demand price that buyers are willing and able to pay for good declines as the quantity demanded (and consumed) increases, which is the law of demand.

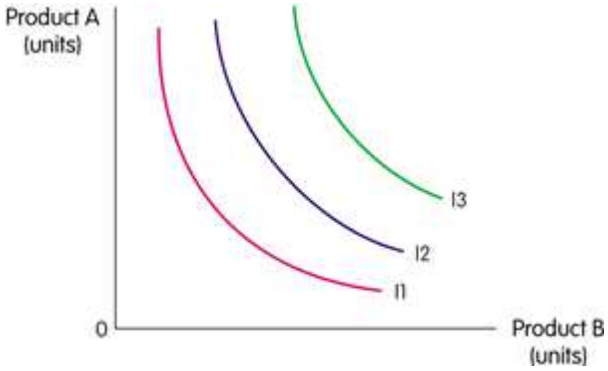
Note: go back to page 72 and study the graph of marginal utility.

SAQ 5.2

An indifference curve shows the combination of two products that provide an individual with a given level of utility (satisfaction). Assuming the products are "good" (i.e. we want more of them rather than less) then if we have more of one product we must give up some of the other to compensate and still maintain the same total utility; therefore an indifference curve must slope downwards from left to right from quadrant 1 to 3 on the diagram.



The further away from the origin on an indifference curve the higher the total utility; this is because the higher the indifference curve the more products are being consumed and if goods are "good" our utility must be therefore be greater.



I3 has a higher level of utility than 11. Assuming the aim of consumers is to maximise utility this means they will want to consume on the highest possible indifference curve.

SAQ 5.3

The link between indifference curve and household can be best captured using the utility maximisation theory. Having discussed indifference curve above, we now move to budget line (household budget).

The budget line

The constraint for consumers is their income. Given the prices of the products and given an amount of income there is a limit to what a consumer can buy. The maximum affordable combination of products that a consumer can afford is shown by the budget line.

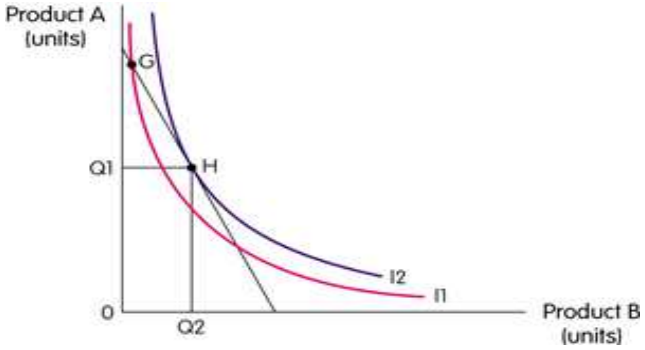
The slope of the budget line depends on the relative prices of the products. It is given by:

Price of B = PB

Price of A PA

Imagine the consumer's income is N100, the price of A is N10 and the price of B is N20. If all the income is spent on A then 10 units of these can be bought. If all the income is spent on B then 5 units can be bought. The budget line shows the maximum combinations that can be afforded given the prices of A and B and an income of N100.

Utility Maximisation



A consumer will maximise utility by consuming on the highest possible indifference curve (i.e. we assume all income is spent). This is where an indifference curve is tangent to the highest possible budget line. A consumer could consume at G, for example, but would be on a higher indifference curve at H. This means that to maximise utility the consumer would consume Q1 of product A and Q2 of product B.

The consumer is maximising utility where the budget line and indifference curve are tangent i.e.

$$\frac{MU\ B}{MU\ A} = \frac{P\ B}{P\ A}$$

Rearranging this equation we get:

$$\frac{MUa}{Pa} = \frac{MUb}{Pb}$$

This is the equi marginal condition. The last unit of A per pound provides the same utility as the last unit of B per pound. The consumer cannot increases her utility by rearranging her consumption patterns; she is maximising her utility.

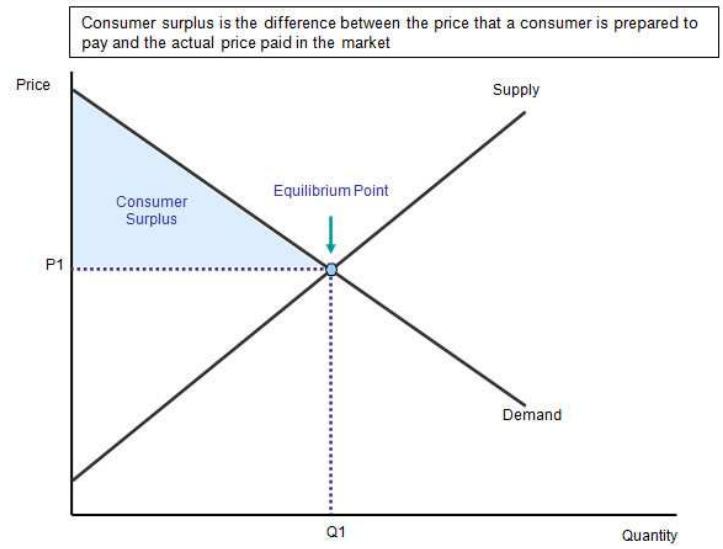
If there were more products available the condition would be:

$$\frac{MUa}{Pa} = \frac{MUb}{Pb} = \frac{MUc}{Pc} = \frac{MUd}{Pd} \ldots$$

SAQ 5.4

Consumer surplus is the amount by which the consumer's willingness to pay for a good exceeds its price. It is a measure of the welfare that people gain from consuming goods and services. Consumer surplus can also be defined as the difference between the total amount that consumers are willing and able to pay for a good or service (indicated by the demand curve) and the total amount that they actually do pay

(i.e. the market price). When there is a difference between the price that you pay in the market and the value that you place on the product, then the concept of consumer surplus becomes a useful one to look at. The diagram below describes a consumer surplus:



The link between consumer surplus and cost-benefit analysis can be captured through price elasticity of demand.

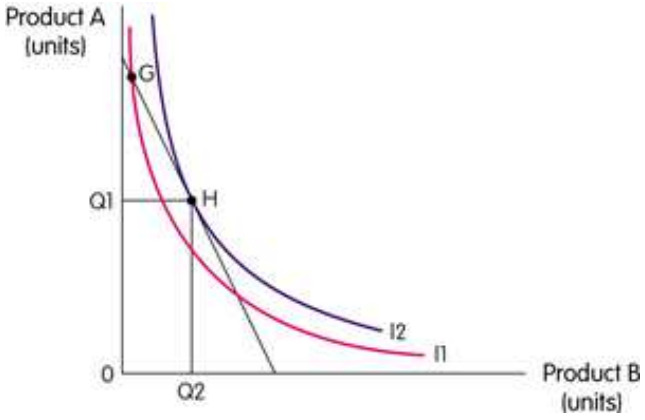
When the demand for a good or service is perfectly elastic, consumer surplus is zero because the price that people pay matches what they are willing to pay.

In contrast, when demand is perfectly inelastic, consumer surplus is infinite. Demand does not respond to a price change. Whatever the price, the quantity demanded remains the same. Are there any examples of products that have such zero price elasticity of demand?

The majority of demand curves are downward sloping. When demand is inelastic, there is a greater potential consumer surplus because there are some buyers willing to pay a high price to continue consuming the product. Thus, when there is a shift in the demand curve leading to a change in the equilibrium market price and quantity, then the level of consumer surplus will change too

SAQ 5.5

Consumer's utility is maximised at a point where the indifference curve is tangential to the budget line (household budget).



From the diagram above, a consumer maximises his/her utility by consuming on the highest possible indifference curve (i.e. we assume all income is spent). This is where an indifference curve is tangent to the highest possible budget line. A consumer could consume at G, for example, but would be on a higher indifference curve at H. This means that to maximise utility the consumer would consume Q1 of product A and Q2 of product B.

The consumer is maximising utility where the budget line and indifference curve are tangent i.e.

$$\frac{MU\ B}{MU\ A} = \frac{P\ B}{P\ A}$$

Rearranging this equation we get:

$$\frac{MUa}{Pa} = \frac{MUb}{Pb}$$

This is the equi marginal condition. The last unit of A per pound provides the same utility as the last unit of B per pound. The consumer cannot increases her utility by rearranging her consumption patterns; she is maximising her utility.

If there were more products available the condition would be:

$$\frac{MUa}{Pa} = \frac{MUb}{Pb} = \frac{MUc}{Pc} = \frac{MUd}{Pd} \ldots$$

SAQ 6.1

Output determination of a firm relates to the production of goods and services. Thus, for a firm to engage in the production of goods and services, certain decisions have to be made as regards the questions of what to produce, how to produce, the desirable quantities to be produced, and amount

of inputs to be used in production. After all these considerations have been met, firm can now proceed into production of goods and services.

Production is the name giving to the transformation of factors of production into goods and services. People also refer production to as wealth creation. A firm is an economic institution that transforms s factors of production into goods and services. Firm organises factors of production to produce goods and services and sell them to business individuals and government. The underlying objective of every firm is to maximise profit, i.e. profit motive.

It is thus obvious that supply is key to the ability of market to provide goods and services that the society wants. However, for supply to take place there must be production and firm is also important because they are the one that determine and control the price. Production decision can be categorised into two periods, namely:

- Short run period, and
- Long run period

Short run period: This is a period in which at least one factors of production is fixed in nature. Therefore, production decision is constrained. It is a period characterized by at least one factors of production been fixed in nature.

Long run period: This is a period in which every factor of production is variable in nature. In this period, production decision is not constrained. It must be noted that, in the long run, no factor of production is fixed in nature no matter how relevant or irrelevant it is.

Thus, what we refer to as short run and long run periods reflect the degree of flexibility of a firm. In the long run, the firm can vary inputs as much as he wants, which implies high degree of flexibility. But in the short run, since the flexibility does not longer exist, the firm cannot vary inputs as much he wants, i.e. low degree of flexibility.

However, in the process of taking decision as regards production plan by the firm, three (3) things are so germane to the firm which must be put into consideration. These things are;

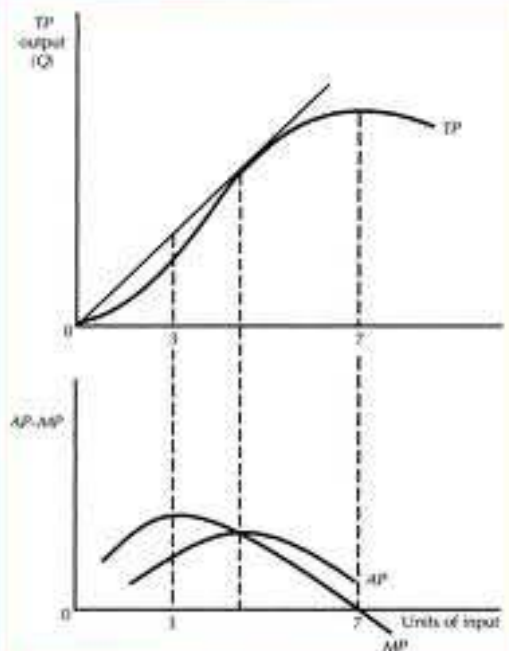
- the market price of output;
- the available techniques of production; and

- the prices of inputs

These three things are so germane because they determine the survival and success of a firm. The output price determines potential revenues. The techniques available tell firms how much of each input they need, and input prices tell them the costs of inputs together, the available production techniques and the prices of inputs determine costs. Hence, the optimal method of production is the one that minimises cost. Thus, when cost is determined and the market price is known, firm can now make a final decision as regards quantity of output to be produced and quantity of each input required.

SAQ 6.2

- **Total product** (also known as total physical product) is defined as the total quantity of output produced by a firm for a given quantity of input necessities. Total product identifies the specific outputs which are possible using variable levels of input. An understanding of total product is essential to the short-run analysis of a firm's production.
- **Average Product** is defined as the product produced per unit of variable input employed when fixed inputs are held constant. It is commonly thought of as the amount of product produced by every worker.
- **Marginal Product** is the increase in total product resulting from selling an extra unit of output. This is similar to average product but is looked at from another perspective. Discrete marginal product is defined as the change in total product that comes as a result of a one unit increase in the variable input/capital level of a firm. Continuous marginal product is calculated as the derivative of total product with respect to the variable input employed. The link between them can be captured through the diagram below:



From this diagram, a mathematical connection between average product and marginal product stating that the change in the average product depends on a comparison between the average product and marginal product. If marginal product is less than average product, then average product declines. If marginal product is greater than average product, then average product rises. If marginal product is equal to average product, then average product does not change. That is :

- If the marginal is less than the average, then the average declines.
- If the marginal is greater than the average, then the average rises.

If the marginal is equal to the average, then the average does not change.

SAQ 7.1

The short run is the conceptual time period in which some factors are variable and others are fixed. The short run contrasts with the long run, such that in the long run there are no fixed factors of production as to changing the output level by changing the capital stock or by entering or leaving an industry.

Short run

All production in real time occurs in the short run. The short run is the conceptual time period in which at least one factor of production is fixed in amount and others are variable in

amount. Costs that are fixed, say from existing plant size, have no impact on a firm's short-run decisions, since only variable costs and revenues affect short-run profits. Such fixed costs raise the associated short-run average cost of an output long-run average cost if the amount of the fixed factor is better suited for a different output level. In the short run, a firm can raise output by increasing the amount of the variable factor(s), say labour through overtime.

A generic firm already producing in an industry can make three changes in the short run as a response to reach a posited equilibrium:

- increase production
- decrease production
- shut down.

In the short run, a profit-maximizing firm will:

- increase production if marginal cost is less than marginal revenue (added revenue per additional unit of output);
- decrease production if marginal cost is greater than marginal revenue;
- continue producing if average variable cost is less than price per unit, even if average total cost is greater than price;
- shut down if average variable cost is greater than price at each level of output

Long run

In the long run, firms change production levels in response to (expected) economic profits or losses, and the land, labour, capital goods and entrepreneurship vary to reach associated long-run average cost. In the simplified case of plant capacity as the only fixed factor, a generic firm can make these changes in the long run:

- enter an industry in response to (expected) profits
- leave an industry in response to losses
- increase its plant in response to profits
- decrease its plant in response to losses.

The long run is a planning and implementation stage. Here a firm may decide that it needs to produce on a larger scale by building a new plant or adding a production line. The firm

may decide that new technology should be incorporated into its production process. The firm thus considers all its long-run production options and selects the optimal combination of inputs and technology for its long-run purposes. The optimal combination of inputs is the least-cost combination of inputs for desired level of output when all inputs are variable. Once the decisions are made and implemented and production begins, the firm is operating in the short run with fixed and variable inputs.

SAQ 7.2

A list and definition of different types of economic costs are discussed below:

Fixed Costs (FC): They are costs which don't vary with changing output. Fixed costs might include the cost of building a factory, insurance and legal bills. Even if your output changes or you don't produce anything, your fixed costs stay the same. In the above example, fixed costs are always £1,000.

Variable Costs (VC): Costs which depend on the output produced. For example, if you produce more cars, you have to use more raw materials such as metal. This is a variable cost.

Total Costs (TC): This is the addition of fixed cost and variable cost. That is: Fixed + Variable Costs

***Average Total Cost* (ATC):** This is total cost per unit of output, that is, ATC = TC/Q. This cost measure is also known as unit cost of production that is, what it costs a firm to produce per unit of output.

***Average Variable Cost* (AVC):** This is total variable cost per unit of output, that is, AVC = TVC/Q.

***Average Fixed Cost* (AFC):** This is total fixed cost per unit of output, that is, AFC = TFC/Q.

Marginal Costs: Marginal cost is the cost of producing an extra unit. If the total cost of 3 units is 1550, and the total cost of 4 units is 1900. The marginal cost of the 4th unit is 350.

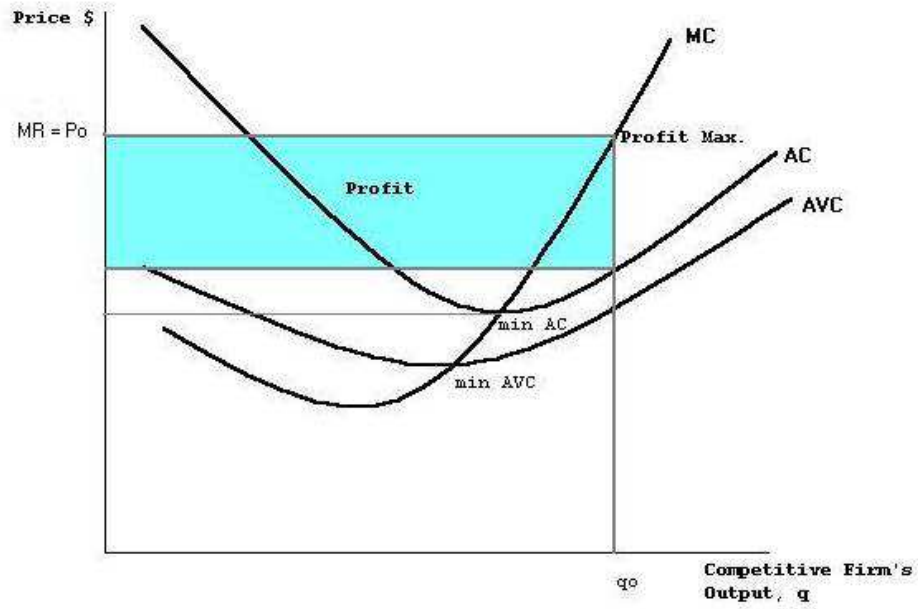
Explicit costs: are those expenses/expenditures that are actually paid by the firm. These costs are recorded in the books of accounts. Explicit costs are important for calculating the profit and loss accounts and guide in economic decision-making. Explicit costs are also called as "Paid out costs"

Example: Interest payment on borrowed funds, rent payment, wages, utility expenses etc.

Implicit costs: are parts of opportunity cost. They are the theoretical costs i.e., they are not recognised by the accounting system and are not recorded in the books of accounts but are very important in certain decisions. They are also called as the earnings of those employed resources which belong to the owner himself. Implicit costs are also called as "Imputed costs". Examples: Rent on idle land, depreciation on dully depreciated property still in use, interest on equity capital etc.

SAQ 7.3

Perfect competition arises when there are many firms selling a homogeneous good to many buyers with perfect information. Under perfect competition, a firm is a price taker of its good since none of the firms can individually influence the price of the good to be purchased or sold. As the objective of each perfectly competitive firm, they choose each of their output levels to maximize their profits. The key goal for a perfectly competitive firm in maximizing its profits is to calculate the optimal level of output at which its Marginal Cost (MC) = Market Price (P). The graph below explains how a perfect competitive firm maximizes its profits



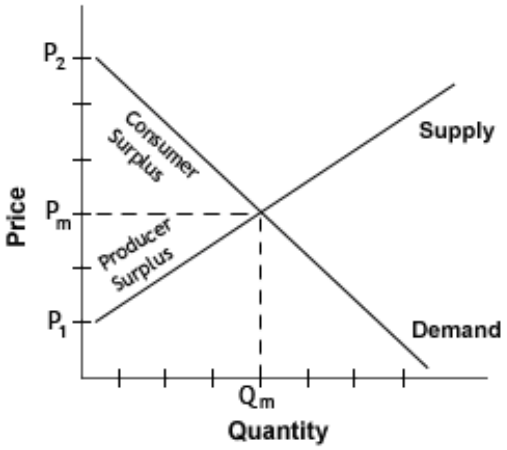
As shown in the graph above, the profit maximization point is where MC intersects with MR or P. If the above competitive firm produces a quantity exceeding qo, then MR and Po

would be less than MC, the firm would incur an economic loss on the marginal unit, so the firm could increase its profits by decreasing its output until it reaches qo. If the above competitive firm produces a quantity fewer than qo, then MR and Po would be greater than MC, the firm would incur profit, but not to its maximum. Therefore, the firm could increase its profits by increasing its output until it reaches qo.

SAQ 8.1

Efficient Market Equilibrium

In economics, a market is efficient if the maximum amount of goods and services are being produced with a given level of resources, and if no additional output is possible without increasing the amount of inputs. Efficient markets ensure optimal resource utilization by allowing for price to motivate independent actors in the economy. If buyers and sellers are free to choose how to allocate resources, prices will direct resources towards those who value them most and can utilize them most effectively. Suppose consumer preferences change so that good A is now more desired than good B. We would expect the price of good A to shift higher and the price of good B to shift lower. This in turn will induce the production of additional units of good A and the devotion of more input resources to good A, while similarly decreasing production of B and its associated input resources. The diagram below explains more on this:



In the figure 8.1 above, the triangle defined by the points P2PmQm represents consumer surplus, while the triangle defined by points P1PmQm represents producer surplus. The marginal benefit for all people in a society can be described as the marginal social benefit. Similarly the marginal costs for all producers in a society of a good can be described as the

marginal social cost. At market equilibrium, the marginal social benefit of consuming an additional unit of a good is just equal to the marginal social cost of producing the additional unit.

In the real world today we have seen higher oil prices stimulate more drilling for oil and more investment in oil substitutes. The wage rates of a cocoa farmer in Nigeria has decreased over the last several years in comparison to the year 1990s, as there less of a need for their services. The lower wage rates have induced more cocoa farmers to retrain themselves with other computer skills, or to leave the field.

SAQ 8.2

Market failure otherwise known market imperfection, is a situation in which the demand for a given product is not in commensurate with the supply that manufacturers are currently providing for sale. The failure may be in the form of a glut of available products that consumers are not purchasing at a pace that keeps up with the production, or involve a situation in which suppliers are unable to keep up with the current level of demand from consumers, creating a temporary shortage. Below are some of the causes of market imperfection:

Regulations: Restrictions such as price floors or price ceilings prevent the price mechanism from efficiently allocating resources. Example: minimum wage laws

Market power: Some industries may feature economies of scale or significant start-up costs, so is possible for an inefficient market outcome to be reached if one firm (or a few large firms) is able to exclude others to the detriment of potential market participants. Example: telecommunications

Transaction costs: If the costs of engaging in any trade are high in the first place, a market cannot function.

Imperfect information: One party has material information that the other does not, or both parties lack material information that would affect whether or not the trade occurs, or for what price it occurs. Examples: used cars, financial instruments

Externalities: A trade (or the goods being traded) may impose substantial costs on individuals not participating in the trade. Alternately, individuals not participating in the trade would realize significant benefits from it but the parties

directly involved in the trade would not. Example: national defense

Irrational actors: One party is not of sound mind when making the trade, factors are weighted inappropriately, long-term costs are ignored in favour of short-term benefits, etc.

SAQ 8.3

Market imperfections can be corrected through the following means:

Private solutions: This includes Social sanctions and moral code which is generally accepted sense of what is right or proper behaviour within a given society. Individual sense of right and wrong is a way of internalizing negative social externalities. Examples: Playing loud music, Littering etc. Also, non-profit organizations and charities are often established to deal with positive and negative externalities. Examples: Sierra Club and other environmental groups, Colleges and universities, United Way, and Local: Arts & Science Campaign. This is anchored on the Belief that if private parties can bargain without cost over the allocation of resources, they should be able to solve the problem of externalities on their own. This is known as the Coarse Theorem. People impacted should be able to reach an agreement based on the value of the benefit or harm borne by each party. In the real world, this sort of bargaining does not always work – Why? Transaction costs, transaction costs usually = legal costs. Local ordinances and property rights often make the issue more about legal claims versus theoretical value of harm or benefit. Rarely as simple as a one on one negotiation (although class action lawsuits can reduce the number of players involved)

Direct controls (regulation): This is otherwise known as "command and control" policies. Governments can prohibit or restrict certain actions, or mandate certain actions (i.e. use of technology). Often difficult or impossible to impose an outright ban (consider pollution), Society must weigh the costs and benefits of these restrictions. Direct controls can be very effective, especially in the case of limiting or eliminating actions that are deemed extremely costly (or dangerous) to society. But are these command and control policies efficient? Is there a more efficient way to achieve the same (or better) results?

Market based policies: Remember, the basic problem with demerit goods is that full costs to society are not factored into the output decision. Instead of directly regulating behaviour, governments can use market based policies to more closely align private incentives with social objectives. Two basic approaches:

- Corrective taxes and subsidies: This involves taxing those activities with negative externalities. This is known as a Pigovian Tax. Ideal tax would equal the external cost to society from an activity. Also, government should subsidize activities with positive externalities. Ideal subsidy would equal the external benefit from an activity. Both of these policies would narrow the spillover gap from externalities
- Trade-able Pollution permits: This approach starts with the creation of a new scarce resource – pollution permits (rights to pollute). If these rights are transferable a market will develop. The forces of supply and demand will determine the pricing and allocation of these permits. These permits will be owned (acquired) by firms that value these permits most highly – based on their willingness to pay and willingness to pay will be determined by a firm's cost of reducing pollution. Thus, the result is an efficient allocation of permits among firms based on their cost of reducing pollution, it also provides a market incentive to reduce pollution below "target" levels.

SAQ 9.1

What is Perfect Competition?

Perfect competition is where the sellers within a market place do not have any distinct advantage over the other sellers since they sell a homogeneous product at similar prices. There are many buyers and sellers, and since the products are very similar in nature there is little competition as the buyer's needs could be satisfied by the products sold by any seller in the market place. Since there are a large number of sellers each seller will have smaller market share, and it is impossible for one or few sellers to dominate in such a market structure.

Perfectly competitive market places also have very low barriers to entry; any seller can enter the market place and start selling the product. Prices are determined by the forces of demand and supply and, therefore, all sellers must conform to

a similar price level. Any company that increases the price over competitors will lose market share since the buyer can easily switch to the competitor's product.

What is Imperfect Competition?

Imperfect competition as the word suggests is a market structure in which the conditions for perfect competition are not satisfied. This refers to a number of extreme market conditions including monopoly, oligopoly, monopsony, oligopoly and monopolistic competition. Oligopoly refers to a market structure in which a small number of sellers compete with each other and offer a similar product to a large number of buyers. Since the products are so similar in nature, there is intense competition among market players, and high barriers to entry since most new firms may not have the capital, technology to start-up.

A monopoly is where one firm will control the entire market place, and will hold 100% market share. The firm in a monopoly market will have control over the product, price, features, etc. Such firms usually hold a patented product, proprietary knowledge/technology or holds access to a single important resource. Monospsony is where there are many sellers in the market with just one buyer and oligopoly is where there are a large number of sellers and a small number of buyers. Monopolistic competition is where 2 firms within a market place sell differentiated products that cannot be used as substitutes to each other.

Perfect vs. Imperfect Competition

Perfect and Imperfectly competitive markets are very different to one another in terms of the different market conditions that need to be satisfied. The main difference is that, in a perfectly competitive market place, the competitive conditions are much less intense, than any other form of imperfect competition. Furthermore, a perfectly competitive market structure is healthier as buyers have enough options to select from and aren't, therefore, pressured to purchase one / few products and sellers are able to enter/exit as they please, which is opposite to most market conditions within an imperfectly competitive market place.

SAQ 9.2

The four market structures that are technically included in the category of imperfect competition are monopolistic

competition, oligopoly, monopolistic competition, and oligopoly. The first two are the most noted participants. The second two are often overlooked, but justifiably included.

Monopolistic Competition: This market structure is characterized by a large number of relatively small competitors, each with a modest degree of market control on the supply side. A key feature of monopolistic competition is product differentiation. The output of each producer is a close but not identical substitute to that of every other firm, which helps satisfy diverse consumer wants and needs.

Oligopoly: This market structure is characterized by a small number of relatively large competitors, each with substantial market control. Oligopoly sellers exhibit interdependent decision making which can lead to intense competition among the few and the motivation to cooperate through mergers and collusion.

Monopolistic competition: This market structure is characterized by a large number of relatively small competitors, each with a modest degree of market control on the demand side. Monopolistic competition represents the demand-side counterpart to monopolistic competition on the supply side. A key feature of monopolistic competition is also product differentiation as each buyer seeks to purchase a slightly different product.

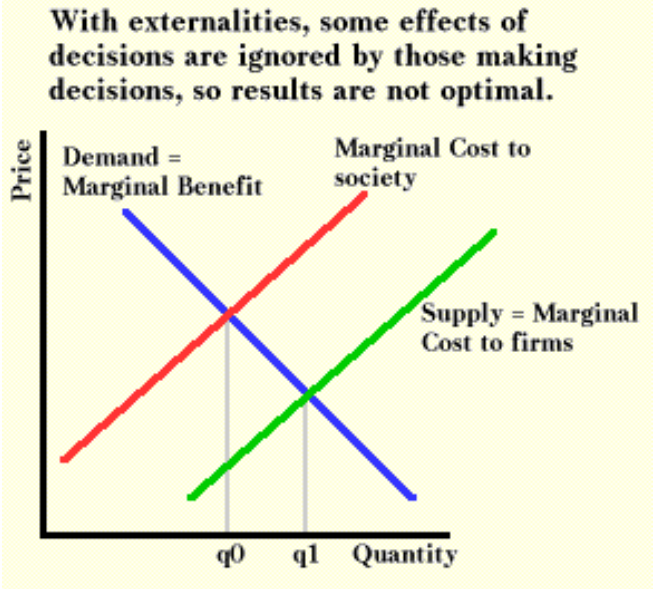
Oligopsony: This market structure is characterized by a small number of relatively large competitors, each with substantial market control on the buying side. Oligopsony represents the demand-side counterpart to oligopoly on the supply side. Oligopsony buyers exhibit interdependent decision making which can lead to intense competition and the motivation to cooperate.

SAQ 10.1

Externalities arise whenever the actions of one economic agent make another economic agent worse or better-off, yet the first agent neither bears the costs nor receives the benefits of doing so. Example: a firm that pollutes the air. Externality can be divided in to two, namely: positive and negative externalities. In terms of efficiency, the marginal rate of transformation will not equal the marginal rate of substitution. This is a common result when decision-makers do not take into account some by-product of their actions that burdens or benefits others. A polluter, for example, considers air or water

free. For him, dumping pollutants into the air or water is a cheap way to dispose of wastes. Yet, his actions do involve costs because he affects the alternatives that others face. The polluter may make others forego clean water. One could say that the polluter imposes some costs of production on others, although this use of the word "cost" differs from the normal meaning of cost. Those who bear this cost are not involved in the choice, and in its pure meaning cost is an alternative foregone in a choice.

It is easy to show that when a decision-maker ignores some costs of his decision, his decision may be economically inefficient. The graph below assumes that the market can be represented by supply and demand curves. The demand curve represents the marginal benefit to consumers (and to firms because they are price takers). The supply curve represents the marginal cost to sellers, and because producing the product requires resources that could be used elsewhere, it also represents a cost to buyers. But the production of the product also generates an unwanted by-product that sellers ignore. The marginal cost from the point of view of society as a whole includes this by-product and is thus higher than it seems to the firm. The economically efficient amount to produce in this illustration is q0, but the forces of the market will tend to result in the production of q1.



If negative externalities cause too much of a product to be produced, positive externalities should cause too little to be produced. When a person improves his house, his neighbours benefit. If the decision-maker does not consider these

spillover advantages to others, less than the efficient amount of the activity will take place. In terms of a supply-and-demand diagram, the marginal benefit curve as perceived by the decision-maker will be to the left of the marginal benefit curve of society as a whole, and thus too little of the activity will take place.

When scarce resources are perceived as "free", there will be potential value that a market will not capture. Is it possible for a society to capture this value, and if so, how?

SAQ 10.2

Externality problem can be corrected through three (3) approaches, namely:

i. Private solutions
ii. Direct controls (regulation), and
iii. Market based policies

i. **Private solutions:** This includes Social sanctions and moral code which is generally accepted sense of what is right or proper behaviour within a given society. Individual sense of right and wrong is a way of internalizing negative social externalities. Examples: Playing loud music, Littering etc. Also, non-profit organizations and charities are often established to deal with positive and negative externalities. Examples: Sierra Club and other environmental groups, Colleges and universities, United Way, and Local: Arts & Science Campaign. This is anchored on the Belief that if private parties can bargain without cost over the allocation of resources, they should be able to solve the problem of externalities on their own. This is known as the Coarse Theorem. People impacted should be able to reach an agreement based on the value of the benefit or harm borne by each party. In the real world, this sort of bargaining does not always work – Why? Transaction costs, transaction costs usually = legal costs. Local ordinances and property rights often make the issue more about legal claims versus theoretical value of harm or benefit. Rarely as simple as a one on one negotiation (although class action lawsuits can reduce the number of players involved)

ii. **Direct controls (regulation):** This is otherwise known as “command and control” policies. Governments can prohibit or restrict certain actions, or mandate certain

actions (i.e. use of technology). Often difficult or impossible to impose an outright ban (consider pollution), Society must weigh the costs and benefits of these restrictions. Direct controls can be very effective, especially in the case of limiting or eliminating actions that are deemed extremely costly (or dangerous) to society. But are these command and control policies efficient? Is there a more efficient way to achieve the same (or better) results?

iii. **Market based policies:** Remember, the basic problem with demerit goods is that full costs to society are not factored into the output decision. Instead of directly regulating behaviour, governments can use market based policies to more closely align private incentives with social objectives. Two basic approaches:

   a. Corrective taxes and subsidies: This involves taxing those activities with negative externalities. This is known as a Pigovian Tax. Ideal tax would equal the external cost to society from an activity. Also, government should subsidize activities with positive externalities. Ideal subsidy would equal the external benefit from an activity. Both of these policies would narrow the spillover gap from externalities
   b. Trade-able Pollution permits: This approach starts with the creation of a new scarce resource – pollution permits (rights to pollute). If these rights are transferable a market will develop. The forces of supply and demand will determine the pricing and allocation of these permits. These permits will be owned (acquired) by firms that value these permits most highly – based on their willingness to pay and willingness to pay will be determined by a firm's cost of reducing pollution. Thus, the result is an efficient allocation of permits among firms based on their cost of reducing pollution, it also provides a market incentive to reduce pollution below "target" levels.

SAQ 11.1

Rational decision making in conflict situations involves taking actions with due consideration in anticipation of what other competitors (players) could do in response, so as to counter the original moves or actions been taken. This involves a

careful study of alternative strategies that decision maker may choose to adopt depending on their assumptions about the rivals' behaviour. This is a game like strategy; hence it was named "game theory". Thus, the 'game' element occurs because the outcome depends not only on the choices made by one player, but also on what other players choose to do at the same time (or subsequently).Note, that the players here are the decision makers. However, for rational decisions to be taken under conflicting circumstances, all the players (decision makers) must put into consideration the following facts:

- ***Strategies*:** These reflect the choices options that are available for each decision makers to take.
- ***Pay offs*:** This represents the satisfaction each decision maker receives if a particular combination of strategies is chosen.
- ***Common Knowledge*:** Each decision maker is assumed to know his own pay offs and strategies and the other decision maker's pay offs and strategies. Furthermore, each decision maker knows that other decision maker knows his own too.
- ***Player*:** This constitutes the person or firm concern in the participation in the game in question. These are better known as decision makers.
- **Dominant Strategy:** This represents a strategy that remains best for a decision maker in a game regardless of the strategies chosen by the other decision makers. Alternatively, it is that strategy that gives optimum pay-offs, no matter what the opponent does.
- **Nash equilibrium:** is equilibrium arrived at by the decision makers such that none of them can improve their pay off given the strategy of other decision makers.

When all these aforementioned concepts are been put into consideration and carefully studied, a decision maker can now come up with his/her own decision in any conflicting situation or environment.

SAQ 11.2

As an economic agent, a typical strategic decision that involves another economic agent is the case of mobile telecommunication industry in Nigeria. This industry comprises of leading and giant telecommunication companies such as MTN, GLO, ETISALAT, and AIRTEL.

This type of industry can best be refers to as an oligopolistic market in nature. This is because; there are very few sellers who are in the market. More so, there is a mutual interdependence among these firms that make up the industry such that any action to be taken by any of these firms, must be in line with due consideration to other firms actions. For instance, Blackberry operators using any of these networks have to subscribe their phone with voucher worth of #1500 or #3000 monthly as the case may be; depending on the data bundle such subscriber is willing to subscribe for.

At a start, all these network giants charge the same flat rate. But in an attempt to win the hearts of many customers, the need to lower their subscription fees becomes imperative. To do this, they have to take a decision that is complementary to one another. This decision involves lowering their subscription fees with due consideration to what other firms in the same industry could do so as to counter such a move. At the end of the end of the day, all these companies lowered their fees to #1000 and #1500 respectively. Therefore, the pay-off received by each of these firms is consequent upon the action or decision taken by other firms who are in the same industry. Hence, they are oligopolistic in nature.

SAQ 12.1

Economic agents add values to goods and services by providing or supplying information needed by the consumers toward making the most rational decisions that will aid their trading activities. The role of information cannot be overemphasised in bargaining for exchange of goods and services. Consumers employ various strategies so as to obtain useful information about the existence of goods and services. Thus, the primary source of information needed by these consumers comes from the economic agents. Economic agents help to add value to goods and services through the provision of useful information available to them, to the users who are the consumers. Among the strategies used by consumers to obtain information about what they want are;

i. Consumer's reports
ii. Reading newspapers, and
iii. Talking to their relatives and friends.

The common problem consumer battle with is how to choose among various versions of a product whose many complex features they do not understand. For instance, how should a

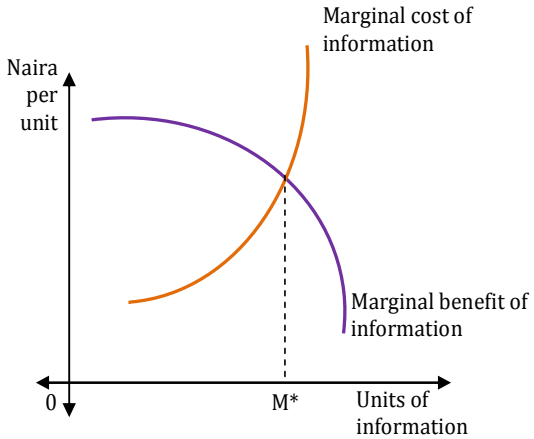
consumer decide which pair of shoe to buy? The answer to this question depends on many factors, and these are:

i. Income available to the consumer
ii. Quality of the good he/she is looking for
iii. The awareness of the various sources of the good, e.g. markets, supermarkets etc
iv. Consideration of the likely prices charged by various sources of the shoe based on a number of factors including the ability to purchase quality product, after sale service etc.

Therefore, apart from income available to the consumer, every other considerations are been provided for by the economic agents who are vast with experience and needed information about that good.

SAQ 12.2

Every decision makers needs some reasonable amount of information, so as to arrive at a better and desirable outcome. One can only arrive at a desirable outcome if and only if the right amount of information needed is acquired. Using the principle of cost-benefit analysis, a rational decision maker can establish or determine the amount of information required for effective decision making. This is done by comparing the marginal cost of acquiring information with its marginal benefits. Thus, a rational consumer will continue to gather information as long as its marginal benefit exceeds its marginal cost. This can also be represented graphically, and the diagram below depicts how optimal information can be acquired.



From the diagram above, optimal amount of information is acquired at a point where the marginal cost of information intersects its marginal benefits. Thus optimal amount information is acquired at M*. Below M*, marginal benefit of information exceeds its marginal cost. So it is advisable that one should continue to acquire more information until it gets to M*. Beyond M*, marginal cost of information exceeds its marginal benefit which make such information less relevant.

SAQ 13.1

Some basic concepts in Input markets include:

Distribution Theory: This is a theory that attempt to systematically account for the sharing of national income among the owners of factors of production-Land, Labour and Capital respectively.

Factor Price Theory: Any theory that describes inputs sharing or allocation on the basis of market forces.

Marginal Productivity Theories: These are the theories that employ the marginal products of inputs to describe their demands.

Functional Distribution of Income: This refers to the share of total national income received by the owners of different resources; it therefore focuses on the source of income by distinguishing income from employment and income from property.

Size Distribution of Income: This refers to the fraction of total income received by different groups; it therefore explains income inequality among various income earners, irrespective of the basis from which that income is derived.

Marginal Physical Product: The change in total output as a result of employing an additional unit of a resource or input.

Marginal Revenue Product: The change in total revenue resulting from the employment of an additional unit of a resource or input.

SAQ 13.2

Various factors are responsible for the demand and supply of labour. Thus, factors that determine the demand for labour include:

Derived Demand

The demand for labour is always derived from the demand for the goods and services it produces. Thus id the demand for a particular good or service increase, it will lead to a rise in the demand for labour used to produce those commodities. For instance, recently, there has been an increased demand for software professionals due to the increased demand for IT products.

Wage Rate

A fall in wage will cause an extension in the demand for labour while a rise in wage paid to works will cause a contraction in demand.

Technology Used

In Industry where there is improved technology, the demand for labour will tend to fall as producers will replace labour with sophisticated machinery.

On the other hand, the factors that affect the supply of labour include:

Wage Rate

In most cases, the supply of labour will increase with the increase in wages. This is because more workers will be attracted by a higher wage rate and moreover the existing workforce may be willing to work overtime at a higher wage rate.

Size of the Population

An increase in population will lead to an increase in supply of labour.

Social Factor

With more and more women entering the labour market, the supply of labour has increased in recent time.

Working Age

Lowering the working age of the people will increase the supply of labour. Also, an increase in the retirement age will increase the supply of labour.

Educational Requirement

Jobs which require special training or educational qualification will see less supply of labour compared to jobs which don’t need high level of educational qualification.

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