DEPARTMENT OF FINANCE & ACCOUNTING

Course Title: Introduction to Micro-Economics

CONTENTS

Course Outline

Purpose: To enable the learner understand and appreciate the importance of the various economics activities. This will enable thee learner actively play a practical role in economic activities in the society.

Course Objectives: By the end of the course unit the student should be able to:-

- Define and understand terminologies and meaning of key concepts used in economics
- Appreciate the relevance and importance of economics as a discipline
- Relate knowledge of Economic to other discipline involved in economic growth and development of a country
- Explore how they can contribute to the development of

society **Course Outline**

Lesson 1 (Week 1- 3)
Introduction to economics
- Basic economics concepts
- Production Possibility Frontier/Capacity (PPF/PPC)
- The main branches /scope of economics
- Why study economics?
- The methodology of economics
- Economic systems
- Why Intervene in the economy
- Specialization
- Review questions

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- The law of negatively sloped demand and exceptions
- The determinants of demand
- Movement along and shift in demand curve
- Definition of supply
- Determinants of supply
- Movement along and shift in supply curve
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- The effect of a shift of demand and supply on market equilibrium.
- Price control
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- Elasticity of supply

Lesson 3 (Week 7 - 8)
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- Cardinalist marginal utility approach
- Consumer equilibrium
- Ordinalist/ indifference curve approach
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- Application of indifference curves
  CAT 1

- Factors of production
- Specialization
- Production function
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- Economies of scale
- Mergers and acquisitions

Lesson 4 (Week 11 - 12)
Market structures
- Perfect markets
- Monopoly
- Monopolistic competition
- Oligopoly

Recommended Text Books:

- Hardwick, Philip, et al; *An introduction to Modern Economies,* Longman Group

- Saleemi M.A (2001) *Economics Simplified (Revised Edition)* Saleemi Publishers.

Text Books for further Reading:

- Koutsoyiannis A; (1994), *Modern Microeconomics*, Macmillan Education Ltd Nicholson,

- Walter (1992), *Microeconomics Theory: Basic Principles and Extensions,* Dryden Press

Other support materials: Various applicable manuals and journals; variety of electronic information resources as prescribed by the lecturer

Purpose: To introduce the learner to the tenets of economics, as the building blocks for studying and understanding economics.

Specific Objectives

By the end of the lesson the learner should:

(i)   Define the term economics

(ii)   Differentiate between microeconomics and macroeconomics

(iii)   Describe economics systems

1.1   Introduction to Economics

Economics essentially studies the way in which mankind provides for the material well being. It"s thus concerned with the way people apply their knowledge, skills and effort to the gift of nature in order to satisfy human their material wants. Economics is a social science which studies the allocation of scarce resources which have alternative uses among competing and usually limitless wants of the consumers in the society.

Basic Economic Concepts

i)   *Human wants* This refers to people desires for goods and services and circumstances that enhance their material well being.

ii)   *Economic Resources* These are ingredients that are available for providing goods and services in order to certify the human wants. A resource must be scarce and have money value. Resources can be categorized as natural, or man made.

iii)   *Natural Resources* refer to anything given by God or nature such as fertile soil, rivers, lakes, mountains etc.

iv)   *Man Made Resources* refers to anything created by man to assist in further production such as tools, equipments, roads and buildings etc.

N/B Economics resources also refer to as factors of production which includes land, labour, capital and entrepreneurship.

v)   *Scarce and Choice* if the resources available are not enough to produce goods and services to satisfy all the wants then they are said to be scarce. As a result, individuals and society cannot have all the things that they want. Since resources are limited, *choices* have to be made. The choice to satisfy one want implies

others are forgone. Individuals have to make choices e.g. consumers with their limited income and unlimited wants have to choose how they spent their inco e.

vi) *Opportunity Cost* refers to the value of benefit expected from the best second alternative forgone. It is based on the fact that resources being scarce have competing alternative uses. The choice to satisfy one alternative means that another is forgone. The value of the second best forgone alternative is the opportunity cost.

It provides a graphical illustration of the problem of scarcity and choice which is the basic economic problem. The curve shows what a country produces with existing supply of land, capital and entrepreneurship ability. With limited supply of economics resources a country has a wide variety of options and variety of goods and services it can produce. Assume a simple hypothetical economy where a country produces two types of goods i.e. agriculture and manufactured goods. The two extreme possibilities are:

a) The country commits all its resources to the production of agriculture and non to manufacturing.

b) All the resources are put to manufacture and non to agriculture.

These two extreme cases are unlikely and the country will most likely choose to produce goods of both commodities. The opportunity cost of producing either of them is increasing which the law of diminishing return.
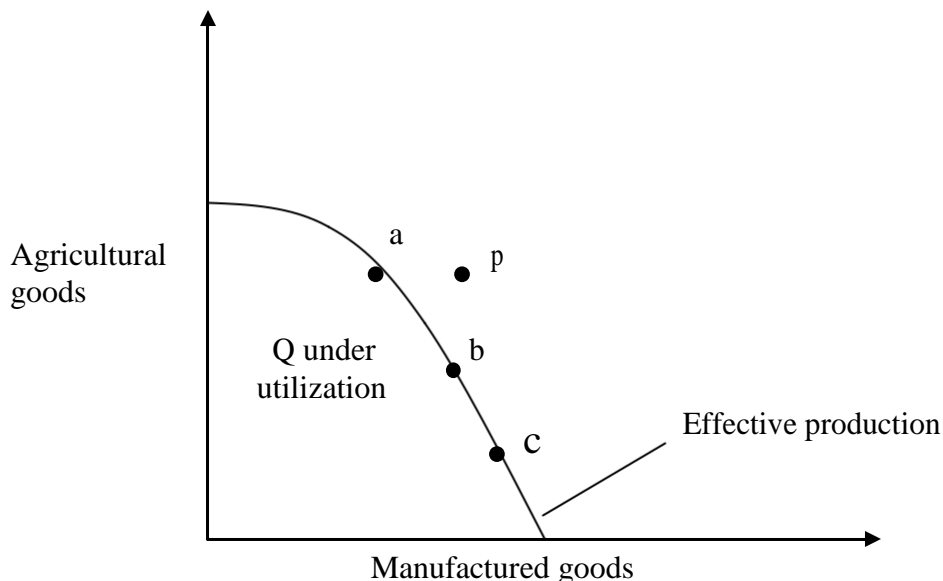
The PPF is a locus of all combination point which represents goods and services that a country can produce if all resources are utilized fully and efficiently. Points on the curve such as A, B and C show maximum possible combined output of the two commodities. The economy can produce any combination inside the curve such as point Q where it means some resources are unemployed. The resources in such a case will produce more commodities by moving either to point B or point A. The points outside the curve are not attainable with the country's present productive capacity. The country can only achieve this if its productive capacity has been increased and this will cause the curve to shift to the right as shown by the dotted curve. A country's productive capacity can increase if there is advancement in technology or if there is a discovery of new resources. The PPF/C is concave to the original indicating the concept of increasing opportunity costs.

1.2   Scope of Economics

The main branches of economics are:

Microeconomics which is the study of the smallest economic decisions making units of the society. *Microeconomics theory* is a branch of economics that studies the behavior of individual decision making units such as consumers, resource owners and business firm as well as individual markets in a free market economy. The aim of microeconomics is to explain the determination of prices and quantities of individual goods and services. Microeconomics also considers the impact of government regulation and taxation of individual markets. For example, microeconomics analyses the forces that determine the prices and quantities of television sets sold. Microeconomics can be considered as the ultimate cellular structure of economics.

i)   It is the study of individuals, households and firms. The major areas are
- demand and supply analysis
- market equilibrium
- consumer theory
- theory of the firm
- market structure
- distribution theory

Macroeconomics is the study of bigger and complex systems. *Macroeconomic theory* is the study of the behaviour of the economy as a whole whereby the relationship is considered between broad economic aggregates such as national income, employment and prices. The economy is disaggregated into broadly homogenous categories and determinants of the behavior of these aggregates are integrated to provide a model to the entire economy.

ii) Macroeconomics focuses on the economic stabilization whereby government policy is used to moderate business cycles and encourages real economic growth. Macroeconomics became a separate topic of discussion in the aftermath of John Maynard Keynes and the great depression. The line between microeconomics and macroeconomics is, however, blurred and there are many areas of overlap between the two. Key areas of macroeconomics are:

- national income
- economic growth and development
- money and banking
- public finance
- unemployment
- inflation
- international trade

1.3   Why Study Economics?

It is useful to study economics for the following reasons

i)   Economics provides the underlying principles of optimal resource allocation and thus enables individuals and firms to make economically rational decisions. Thus for example the preparation of budgets involves knowledge of demand and elasticity analysis. The making of price policy decisions draws heavily on the concept of elasticity in economics. Additionally, the theory of production in economics is concerned with the principles that facilitate the optical combination factors of production.

ii)   A study of economics enables individuals and organizations to appreciate the constraints imposed by the economic environment within which any entity

operates. Thus an individual or firm is more fully enabled to appreciate the implications of the annual budget considering how for example the increased liberation of the economy will affect a particular business entity and the economy in general. Additionally, the student of economics is able to appreciate the effects of such economic variables as inflation, exchange rates, interest rates money supply and so on.

iii)   The area of development economics is fundamentally concerned with the reasons why societies develop and means of accelerating development. It is vital for individuals as citizens to appreciate the parameters that determine the development process so that they contribute more fully to facilitate and contribute to solving the economic problems that characterize their society.

iv)   Economics is an analytical subject and its study can help develop logical reasoning which is never superfluous.

1.4   The Methodology of Economics

A useful insight into the methodology applied in economics can be gained by distinguishing between positive and normative economics. This enables one to appreciate the limitations and scope of economics.

Positive economics is concerned with what is, or how the economic problem facing societies are actually solved. Positive statements therefore, only deal with *facts* for example; "Kenya is a member of the East African community" and "Uganda is currently Kenya‟s major trading partner" are positive statements. For example a dispute over whether Uganda is currently Kenya‟s major trading partner can be settled by looking at the statistics of Kenya‟s trade with its partners.

Normative economics refers to the part of economics that deals with the value of judgments. This implies that normative deals with what ought to be, or how the economic problems facing the society should be solved. Normative statements usually reflect people‟s moral attitudes and are expressions of what particular individuals group thinks ought to be done. A statement such as "Uganda to should join the Southern Africa

Development Community" or "upper income classes ought to be taxed heavily", are normative statements.

Economics makes use of the *scientific methods* to develop theories. Scientific inquiry is generally confined to positive questions. One of the major objectives of sciences is to develop theories. A *theory* is a general or unifying principle that describes and explains the relationship between things observed in the world around us.

The purpose of a theory is to predict and explain. The search for a theory begins whenever a regular pattern is observed in the relationship between two or more variables and one asks why this should is so. A theory refers to a *hypothesis* that has been successfully tested. It is important to note that economics hypothesis is not tested by realism of its assumptions but its ability to predict accurately and explain.

The following procedures are adopted in the scientific method:

i**.** *The concepts are defined in such a way that they can be measured in order to be able to test the theory against the facts*.

Whereas these facts may seem superfluous, in practice it is quite difficult to define many concepts in economics in a way that is agreeable to all schools of thought. It is often correctly postulated that when you want to argue, first define your terms.

ii**.** *A hypothesis formulated* A hypothesis refers to tentative untested statement, which attempts to explain how one thing is related to another. Hypotheses are based on observation and upon certain assumptions about how the real world works.

The assumptions may themselves be based upon prevailing theories that have proved to have a high degree of reliability. In a social science, the basic assumptions or paradigms about reality are vital. A discipline"s basic assumptions about reality determine what it focuses on. In economics for example, many theories are based on the rationality assumption. The formulation hypothesis is thus arrived at through a process of logical reasoning using observed facts and certain assumptions. As mentioned earlier, a hypothesis is not tested by the realism of its assumptions but its ability to predict

accurately. Economic hypothesis must be framed in a manner that enables scientists to test their validity.

iii. The hypothesis is then used to make predictions.

If the hypothesis is correct, then if certain things are done, certain others will happen. For example hypothesis may predict the rise in the price of a given commodity may lead in the fall of the quantity demanded of that commodity.

iv. The hypothesis is tested by considering whether its predictions are supported by facts.

In order to test a hypothesis and arrive at a theory, one must go to the real world and see whether the hypothesis is indeed true for various situations. The social scientists however cannot carry out controlled experiments in the laboratory. The laboratory of the social scientist in the human society and human beings cannot be put into a controlled situation to see what happens. Observed economic data is subjected to statistical analyses whose techniques help the economist to determine the probability that particular events have certain causes. If a hypothesis is supported by factual evidence we have a successful theory, note that a theory can never be true in all circumstances and new theories are developed as old ones are discarded because their predictions have become unreliable.

1.5   Economic Systems

These refer to the way in which different societies solve the three different basic economic problems which are:

a   Which goods should be produced and in what quantities?

b. How should various goods and services be produced?

c. How should various goods and services be distributed?

These in turn determine various political and economic structures in the society. The economic systems are as follows:

(a) Free market economy Also referred to as capital system or laiser faire economy. It refers to a system where decisions about allocation of resources are made by individuals on the basis of prices generated by forces of market prices of demand and supply. A free market economy has the following features

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- *Private property* individuals have the right to own or dispose off their property as they may consider it fit.
- *Freedom of choice and enterprise* Individuals have the right to buy or hire economic resources, organize them for production purpose and sell them in the market of their choice. Such persons are referred to as entrepreneurs.
- *Self interest* the pursuant of personal goals. The individuals are free to do as they wish and have the motive of economic activity in self interest.
- *Competition* There is a large number of buyers and sellers such that each buyer and seller accounts for but is insignificant to influence the supply and demand and hence prices.
- *Reliance on price mechanism* This is an elaborate system of commerce in which numerous choices of consumers and producers are aggregated and balanced against each other. The interaction of demand and supply determine prices.
- *No government intervention* Hence no price controls, taxes and subsidies.
- *There are property rights* provided and enhanced by the government through copy rights patents, trademarks etc.

- There is the matching of demand and supply. Production takes place in response to demand hence a balance between what is produced and consumed. No wastage.
- There is flexibility of the market in responding to changes in demand and supply conditions.
- There are no resources wasted in planning as no planning is required
- Consumer sovereignty and competition gives rise to a wide variety of goods and services giving consumers a wide range to choice from.
- Higher rates of economic growth due to the incentive available for hard work which is motivated by profits.
- No wastage of resources on unrealistic projects because investment decision are based on profits.

Disadvantages

- *Income inequality* the ability of some people and firms to acquire excessive market power leads to greater inequality in income and ealth.
- *Monopoly power* refers to the ability of a firm to control its prices
- *Externalities spill over* refers to social costs and benefits not taken into consideration when determining price levels.
- *Public goods.* The price mechanism on its own cannot allocate resources to the production of public goods such as roads, schools, security etc., which have no rivals and no excludability.
- Instability and unemployment due to the trade cycles of recession, depression, recovery and boom.
- The inability to deal with structural changes caused by wars, natural calamities among others.
- Inadequate provision of merit goods. Merit goods are goods of importance to the community such as health, education, security among others

(b) *Planned economy* Also referred to as command economy or government controlled economy, socialism or communism. It refers to an economic system where the crucial decisions are determined a body appointed by the state. The body takes up the role of mechanism which prevails in a free market economy

- *Leadership and control of economies*. All important means of production (resources) are publicly owned such as land, power generation, housing among others.
- *Rationing* of certain commodities if supply of such fall bellow demand.
- Existence of *production targets* for different sectors of the economy. The government determines how resources are allocated through planning.
- Fixing of *prices and wages*
- Occasional existence of restricted labour market in which workers take up jobs assigned to them.
- Government decides what is to be produced

Advantage of planned economy

- Avoids economic instability
- Minimize negative externalities
- Makes adequate provision of public and merit goods
- Facilitate the shift of resources in pursuant of grand schemes such rapid industrialization
- Puts checks on monopoly power which are controlled by state monopolies (Parastatals).

- There is wastage of resources in production because consumers demand is judged in advance without the use of price mechanism.
- The cost of gathering information for planning is expensive to the state.
- In absence of profit motive in production there is no incentives for hard work and innovation.
- The power of consumer sovereignty is curtailed

(c) *Mixed economy* refers to an economic system where resource allocation is determined by the state and price mechanism. This form of economic system can exist in two ways:

- Where the means of production are privately owned but the government through fiscal and monetary policies regulate the working of price mechanism towards desired levels.
- The government does not only regulate the working of the price mechanism but also strategic resource thus taking part in production.

Fiscal policy refers to the policies which the government uses to stabilize the economy through government revenue and expenditure.

Monetary policy refers to the policies implemented by the central bank to stabilize the economy by use of money supply and interest rates.

Both policies make up the budgetary policy of the government.

1.6   Why Intervene in the Economy

 - To create a framework of regulations and rules to ensure fair competition thus promote competition between firms both small and big.

- Redistribute income through a system of taxation

- Prevent market failure of price mechanism

- Stabilize the economy

- Maintain competition by controlling monopoly

Partial Equilibrium refers to the study of the behaviour of individual decisions making units and the functioning of individual markets in isolation.

General Equilibrium is the analysis of the behaviour of all individuals" decision making units on all individual markets simultaneously.

1.7   Specialization

This refers to the process where people concentrate on those activities where they are best at. It takes a form of division of labour which is dividing up of economic tasks of production into tasks which people specialize into. Division of labour therefore leads to specialization which leads to increase in output.

Advantages of specialization

- It help individual development by exploring their talent
- It is possible to use machines to do specific/ particular task
- Increase in skills result in increased expertise and performance
- Time saving as a worker will accomplish more by doing a particular task.

- Leads to loss of craftsmanship. Extensive specialization leads to increased use of machines which are more automated leading to loss of basic skills
- Production of standardized goods limiting the range of goods consumers can choice from. It does not cater for different tastes and preferences.
- Monotony and boredom due to repetitions of the same work. This leads increased accidents, absenteeism which are associated with lack of motivation.

- Increased inter-dependence as a specialized system of production increases the extent to which different sectors of the economy rely on each other. If mistakes are made in one production unit it may cause the fall of all or other organization which depend on items from that production unit.
- Increase in risk of unemployment if one''s skills are no longer required in the market they may get an alternative employment.

1.8   Review Questions
1. Briefly define the term „economics‟
2. What is a production possibility frontier?
3. Distinguish microeconomics from macroeconomics
4. What is an economic system?
5. Why is the study of economics important?
6. Explain the advantages and disadvantages of the three economic systems
7. Why should the government intervene in the economy?
8. Explain the main advantages of specialization

1.9   References

Saleemi M.A (2001) *Economics Simplified (Revised Edition)* Saleemi Publishers Ltd (Pages 1-12)

Koutsoyiannis A; (1994), *Modern Microeconomics*, Macmillan Education Ltd

Purpose The theory of demand and supply enables us to understand the determination of prices and quantities in different markets. For example, why the prices of agricultural commodities such as tomatoes, apples, mangoes and cabbages increase and decrease at certain times of the year, why have the prices of computers, music systems and television sets been steadily declining over time. An understanding of the working of the price system provides us with the answers to some of these questions. The price system provides the basis for determining the prices of factors of production.

Specific Objectives

At the end of this lesson you should be able to:

(i)   Outline the key determinants of demand and supply

(ii)   Explain the difference between a movement along a demand and supply curve and shift of the curve.

(iii)   Explain the concept of market equilibrium

(iv)   Distinguish between maximum and minimum price controls and explain the consequences of each

(v)   Compute equilibrium values in elementary market models.

2.1   Definition of Demand

Demand refers to the quantity of a commodity that consumers are willing and able to purchase at any given price over a given period of time. It is important to realize that demand is not the same thing as want, need or desire. Only when want is supported by the ability and willingness to pay the price does it become an effective demand and have an influence on the market price. Hence demand in economics means effective demand. It is different from desire in that it has to be supported by the ability to purchase the product/service.

The price of a commodity is most important factor/determinant of demand. All factors affecting demand other than the price are referred to as conditions for demand. While analyzing the relationship between price and quantity of demand economists assume that all factors affecting demand remain constant. An individual demand for a given good can

be presented in a form of a demand schedule. A demand schedule is a table showing quantity of a commodity that could be purchased at various prices. The Table 2.1 shows an individuals demand for commodity X.

Price per unit in Kshs	Consumers" weekly demand
6	65
5	70
4	80
3	90
2	100
1	115

Table 2.1 Demand schedule for an individual commodity

From the table, 65 units of commodity X will be demanded per week if the price is Kshs 6 per unit.

A demand schedule can be represented in the form of a graph known as a *demand curve.* Figure 2.1 shows the demand curve for commodity X. The curve shows graphically the relationship between quantity demanded and the price of the commodity. A demand curve has a negative slope. It slopes downwards from left to right showing that as the price of a commodity *falls* demand *increases*. The inverse relationship between the price of a commodity and the quantity demanded is what is referred as the law of demand.
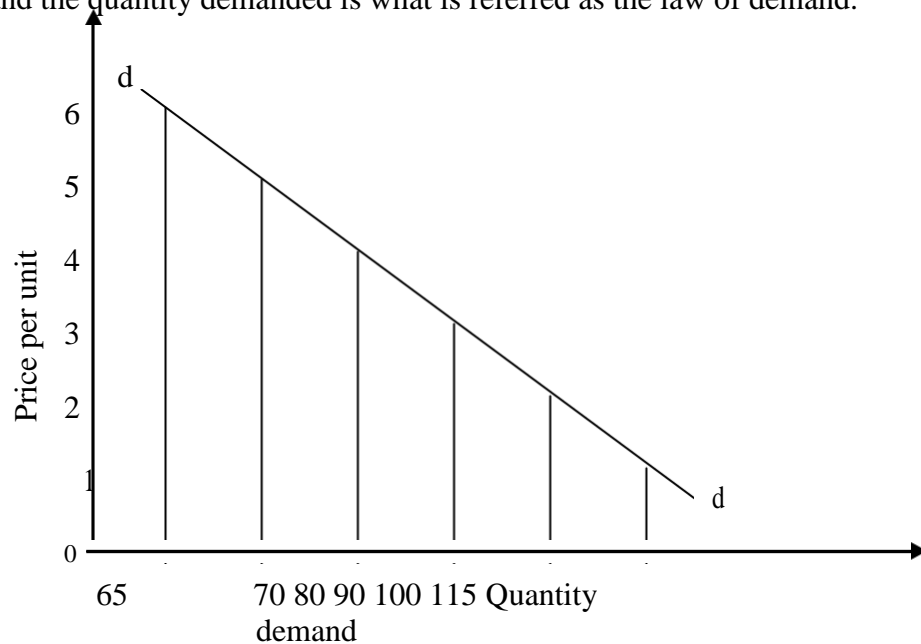

Figure 2.1 The law of negatively sloped demand

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This law states that, "*ceteris paribus (other things remaining constant), the lower the price of a commodity the greater the quantity demanded by the individual and vice versa*".

Exceptions to the Law of Demand

There are some demand curves that slopes upwards from left to right showing that as the prices of a product rise more is demanded and vice versa. This type of demand curve is known as regressive, exceptional or abnormal demand curve and occurs in the following situations:

i. When there is fear of a more *drastic* price changes in the future. This will causes consumers to increase there quantity demanded to avoid paying a higher price in the future. This situation is often found in the stock exchange where there is often an increase in the demand of shares of a company if its shares are expected to increase.

ii. In the case of *giffen goods*. This refers to basic foodstuffs that constitute a high proportion of the budget of low income families. When the price of a giffen good rises, the proportion of the total income of individuals who consumes these giffen goods rises and since such consumers are worse off in real terms, they can no longer afford to consume other more expensive commodities like meat and fruits. To make up for the goods they can no longer afford to buy, they are more likely to purchase more of basic foodstuffs; conversely when the price of basic foodstuffs falls. They become better of in real terms and are likely to buy more or relatively more expensive foodstuffs and less basic foodstuffs.

Goods of *ostentation (Veblen goods).* These are commodities whose prices falls in the upper price ranges and that have a snob appeal. The wealthy are usually concerned about status. Believing that only goods at high prices are worth buying and worth the effect of distinguishing them from other consumers. In the case of such commodities, a firm increasing its prices may find that the sales of its product increase and at lower prices less of the commodity may be bought as the commodity is rejected as being substandard. Consumers often in making comparisons between similar products with different prices opt for relatively more expensive product believing it to be better. As prices increase

demand increases this is referred to as *sonob effect.* Examples of goods of ostentation are expensive perfume, jewellery, cars clothes, etc. The demand curve will be positively slopping as indicated in Figure 2.2.
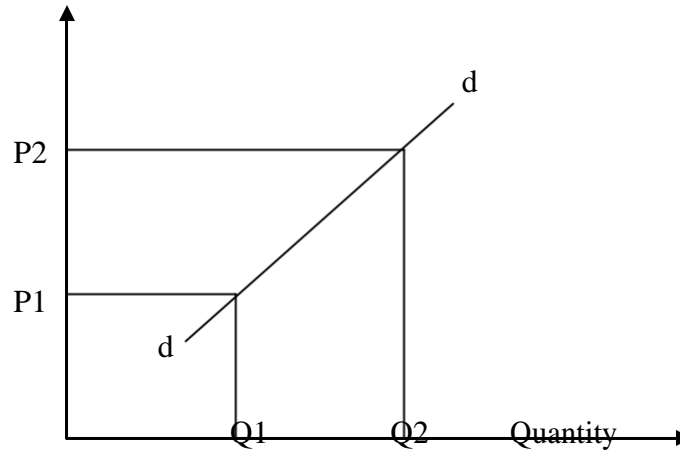

Figure 2.2 positively slopped demand curve

2.2   The Determinants of Demand

The demand of the product can be considered from the standpoint of either individual demand or market demand. Demand for any commodity can be considered from two points of view:

(a) *Individual demand* is the amount the individual is willing and able to buy at a given price and over a given period of time. Factors affecting individual demand are;

- Price of the product
- Price of other related goods
- Consumer‟s income
- Consumer‟s tastes and preferences
- Future expectation in price changes
- Advertising
- Other factors such as subsidies, climate change etc.

The price of the product. When deciding whether or not to buy a particular product, an individual will compare the price of the product and the amount of utility or satisfaction expected to be received from the product. If the price is considered worth the anticipated

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utility the individual will buy the product and if not will not buy. A decrease in the price of a product will probably increase individual''s demand for it since the amount of utility obtained is likely to be worth the lower price. Conversely a rise in the price of a product will probably result in a fall in demand, as the amount of utility received is less likely to be worth the higher price to be paid. An example of this phenomenon is the hotel industry in Kenya. There is usually an increase in domestic tourism during the low season when many Kenyans consider the lower hotel prices to be worth the level of satisfaction they are receiving. During the high season when the hotel prices are high, many do not consider the satisfaction they are receiving to be worth.

 If the amount a consumer is willing and able to purchase due to change in the price, a change in the quantity demanded is said to take place. If on the other hand the amount the consumer is willing and able to purchase changes because of a change in the price of a given commodity leads to a change in the quantity demanded will be undertaken later in utility analysis and indifference curve analysis.

The prices of related goods. The demand for all goods is interrelated in that they are competing for consumer''s limited income. Two peculiar interrelationships can be;
Substitutes goods such as tea and coffee butter and margarine, beef and mutton, a bus ride and a matatu ride, a mango and an orange, CDs and cassettes.

Two goods, X and Y are said to be substitutes if a rise in the price of one commodity, say Y, leads to a rise in the demand of the other commodity X. If the price of tea increases consumers will find coffee relatively cheaper to tea as a result demand for coffee increases. Substitutes are commodities that can be used in place of other goods. This phenomenon is illustrated in Figure 2.3. The graph shows the relationship between the prices of tea over the quantity for coffee. If the price of tea increases from P1 to P2 the quantity of coffee demanded increases from Q1 to Q2.
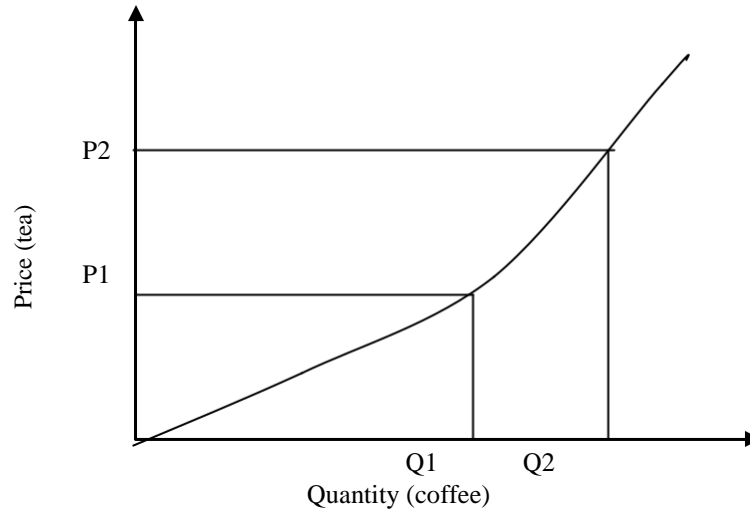
Figure 2.3 Demand curve for substitutes

Compliments goods such as shoe and polish, pen and ink cars and petrol, computers and software, bread and margarine, hamburgers and chips, tapes and tape recorders. Demand for some commodities can also be affected by changes in the prices of the complementary if a rise in the price of one of the goods, say A leads to the fall in the demand of another food, say B. Complimentary goods are usually jointly demanded in the sense that the use of one requires or is enhanced by the use of the other. Figure 2.4 illustrates the relationship between complementary goods graphically. For example if the price of cars is lowered demand for petrol increases because more cars will be bought/demanded. The curve shows the relationship between the price and of a car and quantity demanded for petrol. If the price of cars falls from P2 to P1 the quantity demanded for petrol increases from Q1 to Q2.

Changes in disposal real income. An individual‟s level of income has an important effect on the level of demand for most products. If income increases demand for the better quality goods and services increases. This relationship however, depends on the type of goods and level of consumers‟ income. The three types of are goods;

Normal gods these are goods whose demand increases as income increases. The demand for normal goods increases continuously with increase in income. It tends to become gently as people reach the desired level of satisfaction.
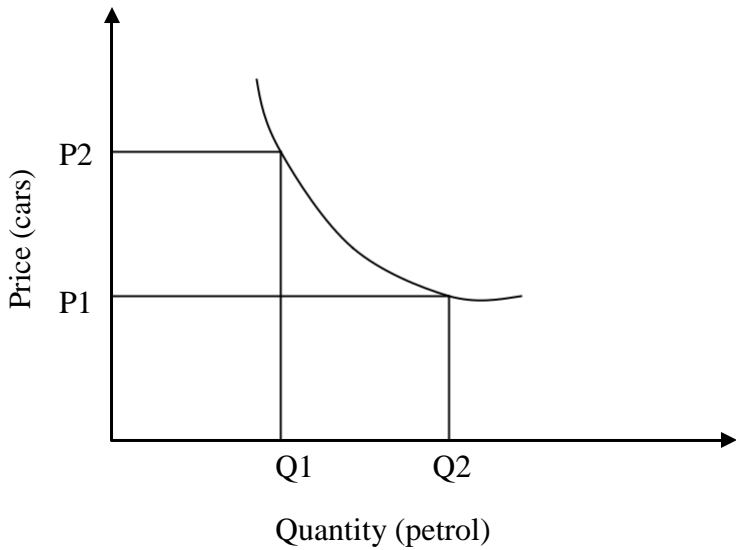
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Figure 2.3 Demand curve for commentary goods

Inferior goods refer to goods for consumers with low income levels such that as income increases its demand falls. At low level of income, these individuals will tend to consume large amount of these goods but as income increases they buy other goods which they consider superior thus demanding less of the inferior goods. At very low level of income an inferior good behave like a normal good only to behave inferior as income increases.

Necessities these are goods which consumers cannot do without such as salt, match boxes among others. Their income demand curve tends to remain constant other than at the lowest levels of income as indicated in Figure 2.5
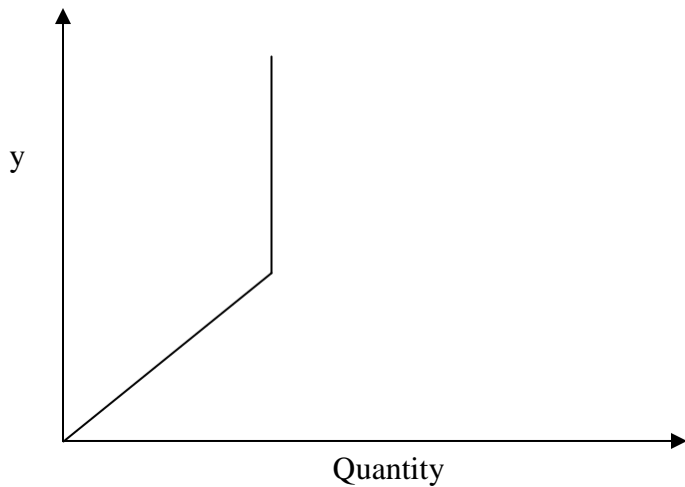

Figure 2.5 Demand curve for a necessity

Changes in consumer tastes, preferences and fashion Personal tastes play an important role in governing the consumer"s demand for certain goods. For example, preferring to consume imported commodities despite them being extremely expensive. Prevailing

fashions are an important determinant of tastes. The demand for clothing for example, particularly is susceptible to changes in fashion.

Level of advertising is also an important determinant of demand. In highly competitive markets, a successful advertising campaign will increase the demand of a particular product while at the same time decreasing the demand for competing products. Increase in advertising will increase demand in the following ways;

- it helps inform about the product of a firm
- Can introduce new products to the market.
- Induce individuals to frequently use the

product/service Factors affecting advertising policies

- cost of advertising
- mode of advertising
- impact of advertising on the demand of the product
- The target group (old, young)
- number of competitors and quality of their products
- The market share of the firm and the degree of competition
- Future expectations in price changes
- Government policies and taxes
- Appropriate time to make advertisements
- Cultural background
- Language

The availability of credit consumers. This factor especially affects the demand for durable consumer goods which are often purchased on credit. For example a decrease in availability of credit or the introduction of more stringent credit terms is likely to lead to a reduction in the demand of some durable consumer goods.

The government policy The government may influence the demand of a given commodity through legislation. For example making it mandatory for everyone to wear seatbelts. The consumers inevitably get to purchase more seatbelts as a result.

Subsidies it‟s the opposite of taxation. When the government grants subsidies prices of goods falls leading to increase in demand and vice versa.

Climate change demand of various goods varies depending on weather. For instance there is high demand for woolen clothes during rainy reasons

(b) Market factors affecting individual demand

It"s a horizontal demand sum of the demands for individual consumers. It refers to quantity demanded in the market at each price by individual consumers. For this reason all the factors affecting individual demand will affect market demand. The market demand for a commodity can be derived graphically as in Figure 2.6.
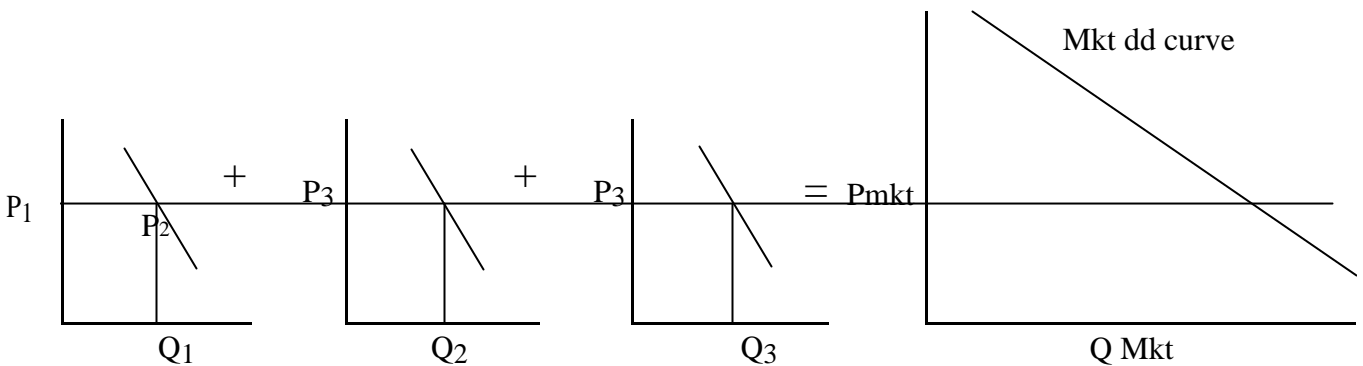

Figure 2.6 Derivation of market demand

Where P1, P2 and P3 are individual prices Q1, Q2 and Q3 are individual quanties demanded. Pmk is the market price qmk is market quantity demanded. Other factors affecting market demand

Change in population market demand is influenced by the size of the population, the composition of the population in terms of age sex as well as geographical distributions. Distribution of income more evenly distribution of income may increase demand for normal goods while at the same time it may lower the demand for luxuries.

2.3   Movement Along and Shift in Demand Curve

Demand is a multi- variant function in the sense that it is influenced by so many factors such as the price of the commodity, the price of other related commodities, consumer incomes etc. The price of the commodity is the most important determinant of demand and its relationship with the quantity demanded give rise to a demand curve.

Movement along demand curve is demonstrated by a change in the price of a good as shown in Figure 2.7 by movement from one point to another on the same demand curve.
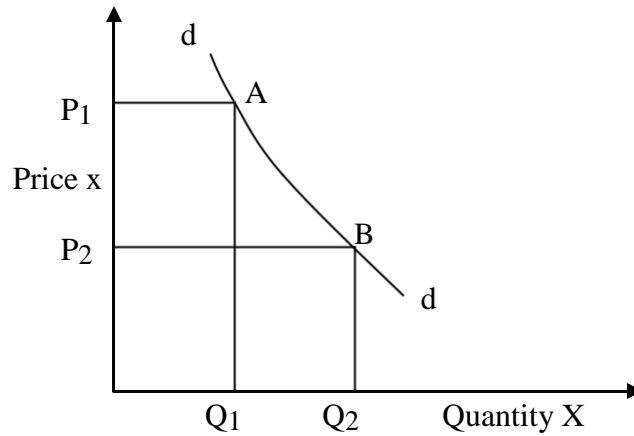
Figure 2.7 Movement along a demand curve

A change in price of a good from P1 to P2 causes a movement from point A to B along the demand curve. This movement along demand curve shows a change in quantity demanded which is an increase or a fall in the quantity demanded. A shift in the demand curve is caused as a result of a change in any factor affecting demand other than price such as changes in consumer income tastes and preferences. For this reason all other factors affecting demand other than price of the product are also referred to as shifting factors as illustrated in Figure 2.8

Any change in the shifting factors will cause changes in demand (an increase or a fall in demand). A shift to the right (dd to d1d1) shows an increase in demand while a shift from (dd to d2d2) shows a decrease in demand.

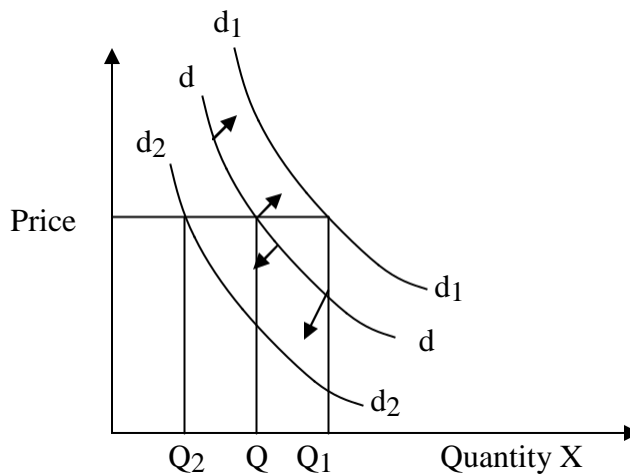
Figure 2.8 Shift in demand curve

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Terms used in demand

    (a) *Joint demand* it is the demand whereby two commodities are always demanded together. One good cannot be demanded in the absence of the other such as car and petrol.

    (b) *Competitive/rival goods* it is the demand for goods which are substitutes such tea and coffee.

    (c) *Derived demand* where goods are demanded in order to provide goods such as cotton is required to produce cotton wool

    (d) *Composite demand (several uses)* where some goods are used for different purposes such as steel for cars machine etc

2.4   Definition of Supply

Individual supply refers to the quantity of a given commodity that a producer is willing and able to sell at a given price over a specific time period.

Market supply refers to horizontal summation of individuals producers/firms supply in the market.

The supply schedule and the supply curve demonstrate the relationship between market prices and quantities that suppliers are willing to offer for sale. Supply differs from "existing stock" or the amount available because it is concerned with amounts actually brought to the market. The basic law of supply states that, "a greater quantity will be supplied at a higher price than at a lower price". An individual producer"s supply schedule shows alternative quantities of a given commodity that a producer is willing and able to sell various alternative prices for that commodity *ceteris paribus* (other things remaining constant).

Price per unit in Kshs	Quantity supplied each week in units
30	500
31	550
32	600
33	650
34	675
35	700
36	725

Table 2.2 Supply schedule for commodity Y

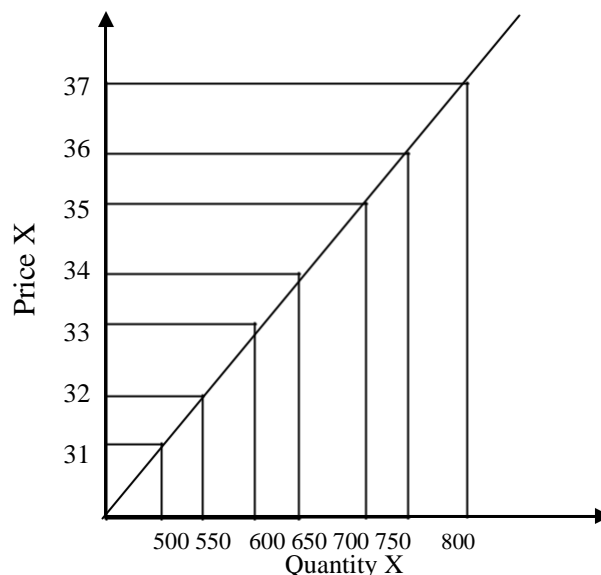This can be represented by the use of a graph referred to as a supply curve as shown in

Figure 2.9 Supply curve

A supply curve show the relationship between the price of the commodity and the quantity supplied. The relationship is a direct one as the supply curve slopes upwards from left to right. The direct relationship is a graphical representation of the law of supply which states that other things remaining constant a greater quantity will be supplied at higher prices and vice versa.

Determinants of Supply

The supply of a good is influenced by the following factors

- price of the commodity in the market

- the price of other related goods

- cost of production

- state of technology

- objective of the firm

- future expectations of price changes

- climate

- government policy and taxes

Price of the good as the price of a given commodity say X rises, with the costs and the prices of all other goods remaining unchanged, the production of commodity X becomes more profitable. The existing firms are therefore likely to expand their profit and new firms are to be attracted into the industry. It should be noted however, that not just the current rise but also expectations concerning the future increases prices may motivate producers. The total supply of goods is expected to increase as the prices rise.

Prices of other related goods changes in the prices of other commodities may affect the supply of a commodity whose price does not change.

Substitutes; two goods X and Y are said to be substitutes in production if the supply of good X is inversely/negatively related to the price of Y. For instance barley and wheat or tea and coffee. If a firm producing both tea and coffee notices that the price of tea is rising may decide to allocate more resources to tea at the expense of coffee. The supply of coffee will therefore fall as the price of tea increases. However, the movement of resource from one use to the other is dependent on the mobility of factors of production.

Complimentary goods; two goods X and Y are said to be compliments if an increase in the price of X causes an increase in the supply of Y such as a vehicle and petrol.

Jointly supplied goods; two goods X and Y are said to be jointly supplied if an increase in the price of X causes an increase in the price of Y such as petrol and paraffin. If the demand for petrol increases the supply of petrol will rise and at the same time the supply of paraffin will increase.

N/B The extent to which firms can move from one industry to another in search of higher profits depends on occupational and geographical mobility of the factors of production.

Prices of factors of production as the prices of factors of production used intensively by producers of a certain commodity rise, so do the firm costs. This will cause the supply to fall since some firms will eventually leave the industry. Similarly, if the price of one factor of production, say land, increases, some firms may move out of the production of land intensive products into the production of goods that are intensive in other factors of production which are relatively cheaper. Finally other less efficient firms will make losses and eventually leave the market.

The state of technology is a society"s pool of knowledge concerning industrial activities and its improvements. Technological improvements or progress such as improvements in machine performance, management and organization or an improvement in quality of raw materials leads to lower costs through increased productivity and increases the profit margin in every unit sold. This leads to increase in supply.

Future expectations of price change Supply of a good is not only influenced by the current prices but future expected price as well. For example, if the price of a good is expected to rise the firm may decide to reduce the amount of supply in the current period. This is to enable them pile stock which they can offer for sale when prices increase in the future. This is known as *hoarding*.

Government policies through tax imposition on goods increases the cost of production hence decline in production and supply

Through *subsidies* -a grant to citizens of a country which lowers the cost of production hence encourages production and increases in supply.

Through *price control* can either by price minimization where prices are fixed above equilibrium encouraging producers to produce more hence increase in supply. It may be undertaken through price maximization where prices are fixed below equilibrium discouraging production hence decline in supply.

Though *quotas* where the government puts restriction or limit production of various goods which leads to decline in supply.

Weather /climate the supply of agricultural products is considerably affected by changes in weather conditions. Output in agriculture is subject to variations in weather from year to the next. An excellent growing season associated with favorable weather conditions

will result in a bumper harvest leading to an increase in supply. An unfavorable season that results in a poor harvest may be viewed as an increase in the average costs of production because a given expenditure on inputs yields a lower input than it would in a good/ favorable season. A bad harvest is represented by a leftward shift of the supply curve.

Objectives of the firm a business may pursue several objectives such as sales maximization, market leadership, quality leadership, survival, profit maximization, social responsibility. Firms with sales maximization as an objective aim at supplying greater quantities of its product than a firm aiming at profit maximization where the later supplies less quantities but at a higher price in order to maximize the profit.

Incidence of strikes lead to a reduction in supply of a product. The supply of manufactured goods is particularly likely to be affected by industrial disputes because of generally stronger unions in the industrial sector.

Market supply

The market supply curve represents the alternative amount of a good supplied per period of time at various alternative prices by all the producers of goods in the market. The market supply of goods therefore will be influenced by all the factors that determine individual producer supply and all the number of producers of goods in the market. This concept is illustrated in Figure 2.10 It therefore follows that the market supply curve will have a gently slope than individual supply curves. Figure 2.10 Derivation of market supply curve

| Producer 1 | Producer 2 | Producer 3 | Market supply |
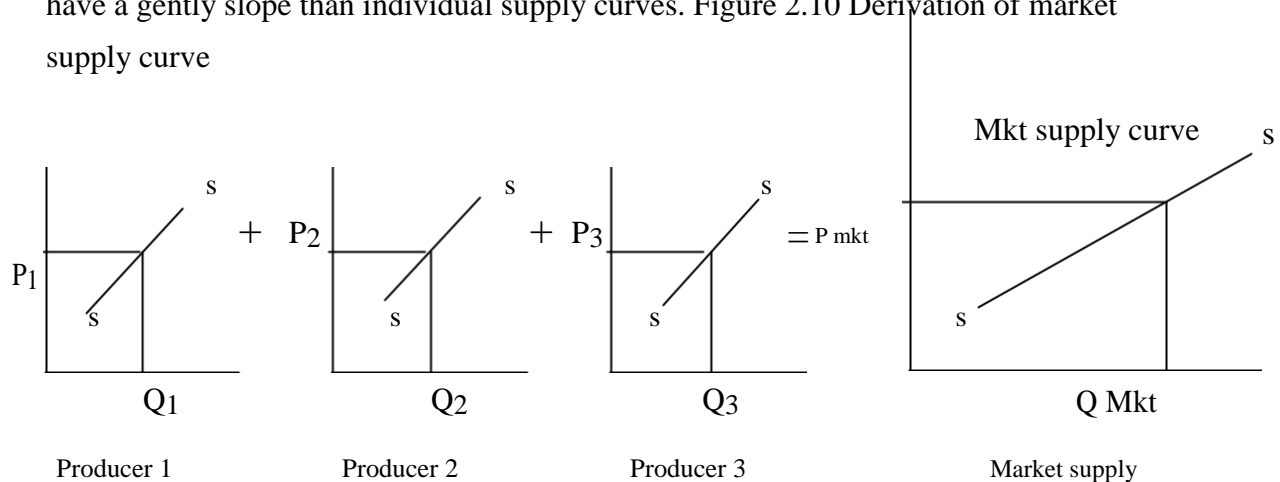
2.5 Movement Along and Shift in Supply Curve

The relationship between price of a commodity and quantity supplied give rise to supply curve. Any changes in the price of a good causes change in the quantity supplied. This can be traced by the movement along supply curve as shown in Figure 2.11

The movement from point A to B is caused by changes in price from P1 to P2 which bring fourth the movement along the supply curve.
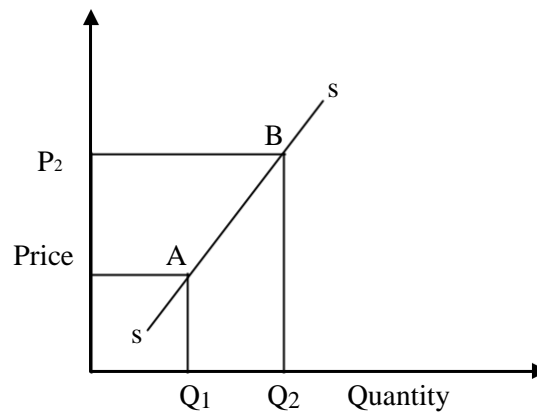
Figure 2.11 Movement along supply curve

A shift of supply curve is caused by a change in any other factors affecting supply other than the price of the goods. This shift indicates changes in supply as a result of e.g. advances in technology which makes it cheaper to produce goods and services and therefore their supply will increase. Similarly incase of increase in cost of production will lead to a fall in quantity supplies as shown in Figure 2.12. A shift to the right from S1S1 to S3S3 shows a fall in supply.
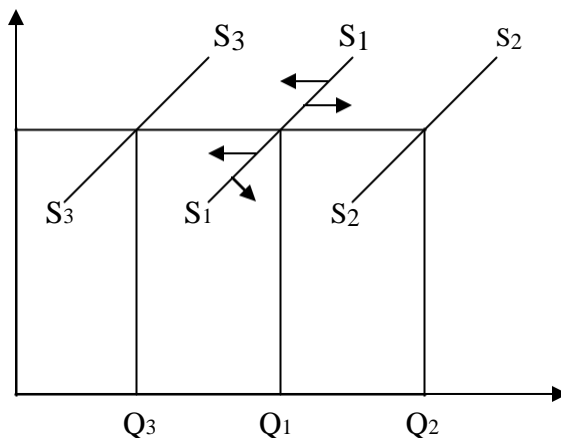
Figure 2.12 Shift in supply curve

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2.6　The Concept of Equilibrium in Economics

Equilibrium in economics refers to a situation in which the forces determine the behavior of variables are in balance and therefore exert no pressure on these variables to change. In equilibrium the actions of all economic agents are mutually consistent. Market equilibrium occurs when the quantity of a commodity demanded in the market per unit equals the quantity of the commodity supplied to the market over the same period of time. Geometrically, equilibrium occurs at the intersection point of the commodity"s market demand and market supply curve. The price and quantity at the equilibrium are known as the equilibrium price and equilibrium quantity respectively. The price Pe is also referred to as market clearing point. At this equilibrium point the amount that producers are wiling and able to supply in the market is just equal to the amount that consumers are wiling and able to demand. Both consumers and producers are satisfied and there is no pressure on prices to change and thus the market for goods is said to be at equilibrium. This is illustrated in Figure 2.13 Equilibrium point
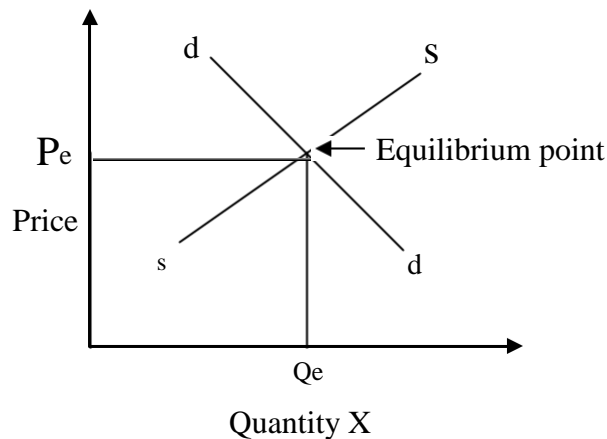

Figure 2.13 Equilibrium point

Equilibrium can be defined as a state of rest or balance in which no economic forces are being generated to change the situation. These economic forces are excess demand and supply and are illustrated in Figure 2.14. At P1, the quantity demanded by consumers is Q1 units but producers are willing to supply at price a quantity of Q2 units. Therefore there is an excess supply equal to (Q2 –Q1). Excess supply refers to a situation where quantity demanded is less than quantity supplied at prevailing market price. Producers may therefore react to the excess supply by lowering prices of their products so as to sale the unsold stocks. Excess supply is referred to as a buyer"s market since suppliers may be

obliged to lower their prices in order to dispose of excess output a situation which is favorable to buyers. Excess supply represents an economic force that exerts downward pressure on prices. At P2 the quantity demanded is Q2 but producers are wiling to supply Q1 units of goods. Therefore, there will be excess demand equal to (Q2-Q1). This situation of excess demand is referred to as sellers market because competition among buyers will force up the price due to the existing shortage Excess supply is a situation where quantity demanded is greater than quantity supplied at prevailing market prices.
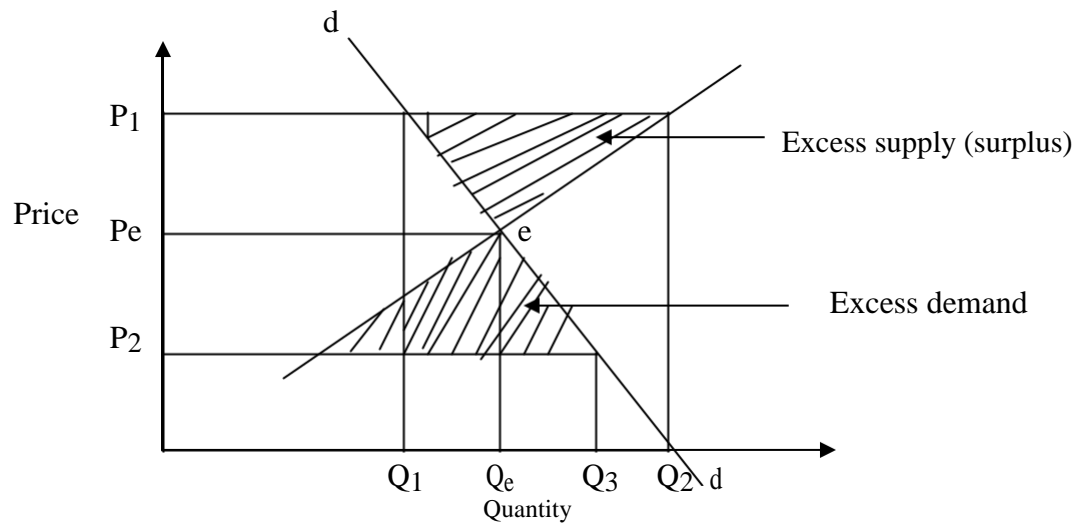
Figure 2.14 Mechanism of market equilibrium

In this case, the price of goods will rise because of competition among buyers. Excess demand represents an economic force on prices which exerts upward pressure. Prices P1 and P2 are disequilibrium prices and market is said to be at disequilibrium. Therefore, the general rule for equilibrium is that demand should equal supply represented by Qe and Pe.

2.6.1 Mathematics Derivation of Equilibrium

Exercise 2.1

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You are given two functions; the demand function and the supply function as follows:

Demand function $Qd = 3550 – 266p$

Supply function $Qs = 1526 + 240p$

Required:

Determine the equilibrium market price and quantity.

Solution

$$Qd = Qs$$
$$3550 – 266p = 1526 + 240p$$
$$2550 – 1526 = 240p -266p$$

$$\underline{2024} = \underline{506p}$$
$$506 \quad\quad 506$$
$$4 \ = p$$

$$Qd \text{ or } Qs = 3550 -266(4)$$

$$= 2486$$

Exercise 2.2

The following economic function has been derived by the finance manager of Kenya Breweries ltd.

$Qa = 3p^2 - 4p$ $\quad\quad\quad\quad$ $6p – 4 – \text{supply}$

$Q6 - 24 – p^2$

Where P represents prices and Q represents quantity.

Which of the two function could represent in demand curve and supply curve and why. At what value of price and quantity is the market in equilibrium? $\underline{\Delta Qa} = 6p – 4$ - supply curve

Δp

$\underline{\Delta Qb} = -2P$ – Demand curve. The price is always

negative ΔP

$Qa = Q6$

$3P^2 – 4P = 24 – P^2$

$3P^2 + P^2 – 4P = 24$

$4P^2 – 4P – 24 = 0$

$4P^2 – 4P – 24 = 0$

$= P^2 – P – 6 = 0$

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P2–3P+2P–6=0

P(P–3)+2(P–3)=0

P = 3 or P = 2

$Q = 3 \times 3^2 - 4 \times 3 = 15$

2.6.2. Types of Equilibrium

The are three types of equilibrium; stable, unstable and neutral.

(i) *Stable equilibrium* If there is a force that distracts market equilibrium then there will adjustment that brings back the prices and quantity demand to the initial equilibrium. This is well explained in the previous section.

(ii) *Unstable equilibrium* equilibrium is said to be equilibrium if there is divergence from the equilibrium set by forces which push the prices further away from the equilibrium prices. For example, in case of a giffen good which assumes a demand curve which is positive as indicated in Figure 2.15

Figure 2.15 Knife edge equilibrium

At P1 there is excess demand and this will exert an upward pressure on the prevailing market thus push it further away from th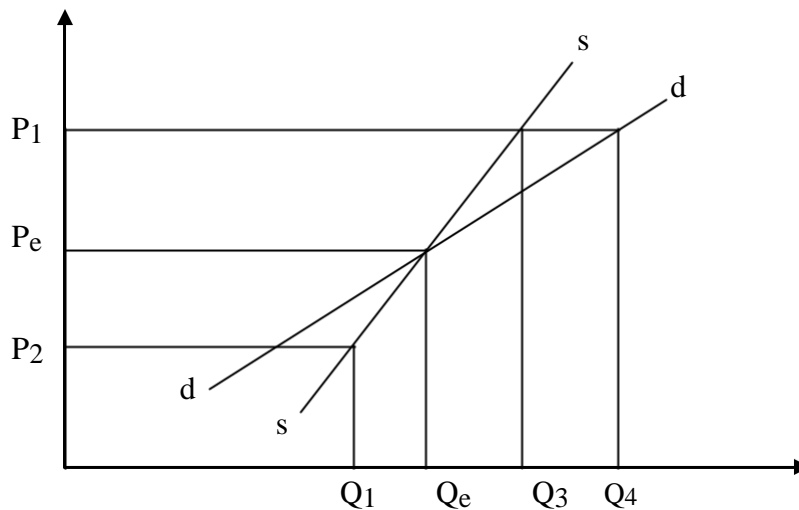e equilibrium. At p2 there is excess demand and this will exert an upward pressure on the prevailing market prices thus pushing it further away from the equilibrium. This type of equilibrium is known as *knife edge* equilibrium. A small in price will send the system further away from the equilibrium.

(iii)   *Neutral equilibrium* occurs when initial equilibrium is disturbed and forces of disturbances leads to a new equilibrium point. It may occur due to a shift of either demand or supply or through the effect of taxes.

The effect of a shift of demand and supply on market equilibrium.

(a) Shift in demand

Increase in demand. Consider Figure 2.16 which illustrates the effect of an increase on demand on market equilibrium. An increase in demand is represented by a shift of the demand curve from d1d1 to d2d2. The immediate effect will be shortage and this will force prices to rise leading to increase in quantity supplied until equilibrium is re-established at Pe.

Fall in demand Consider Figure 2.17 which illustrates the effect of a fall in demand on the market equilibrium.

A fall in demand is represented by a shift of demand curve to the left from d1d1 to d2d2. The immediate effect will be a surplus and this will force the producers to lower the price in an attempt to get rid of excess stock. This fall in price will led to decline in quantity supplied until a new equilibrium is established at Pe1; Qe1
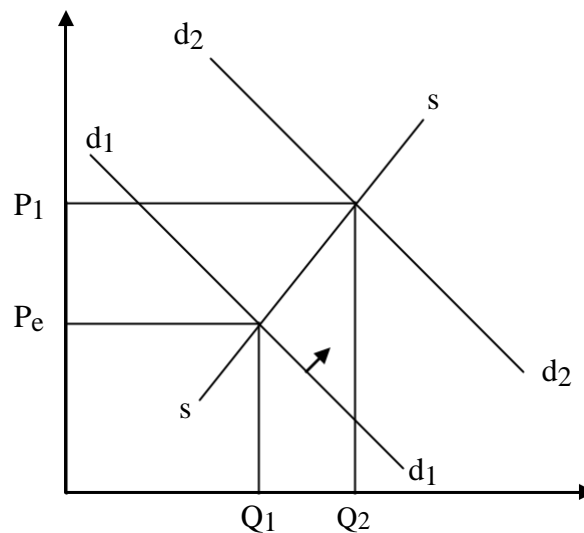
Figure 2.16 Increase in demand
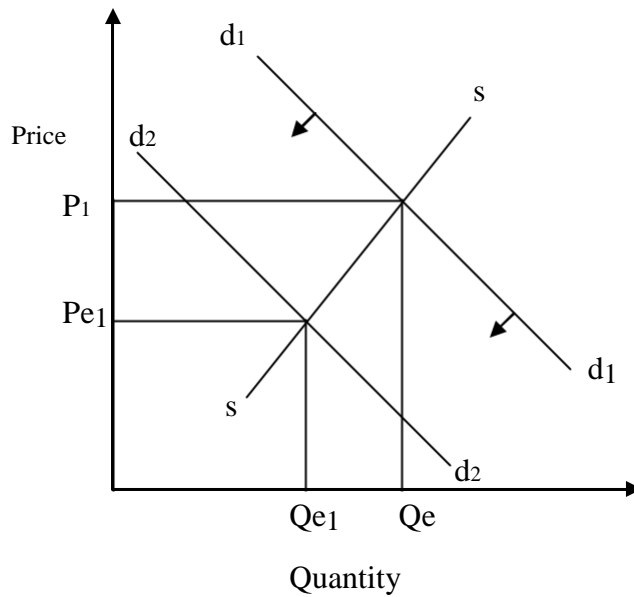
Figure 2.17 fall in demand

(b) Shift in supply

Increase in supply Consider Figure 2.18 which illustrates the effect of an increase of supply on the market equilibrium. An increase in supply is represented by a shift of supply curve to the right from S1S1 to S2S2. The immediate effect will be surplus and this will force the producer to lower their prices in order to get rid of excess stock. This fall will lead to an increase in quantity demanded until a new equilibrium is established at Pe.
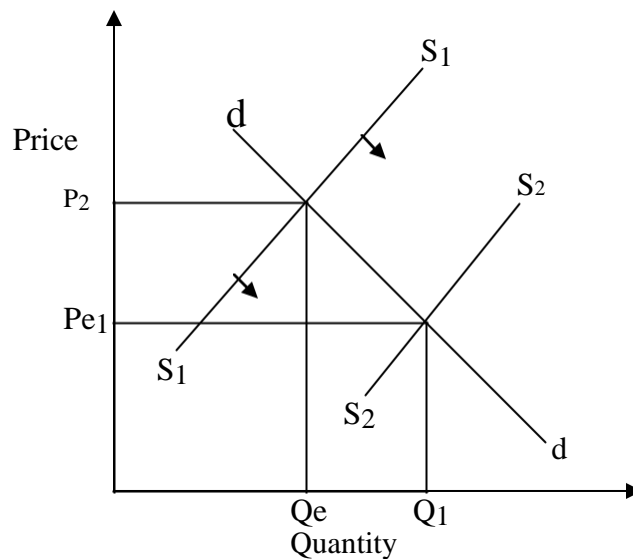
Figure 2.18 Increase in supply

A fall in supply Consider the Figure 2.19 which illustrates the effect of a fall in supply on the market equilibrium. A fall in supply is represented by a shift of supply curve to the left from S1S1 to S2S2. The immediate effect will be shortage and thus will force the prices to go up leading to a fall in quantity demanded until a new equilibrium is established at Pe1, Qe2.
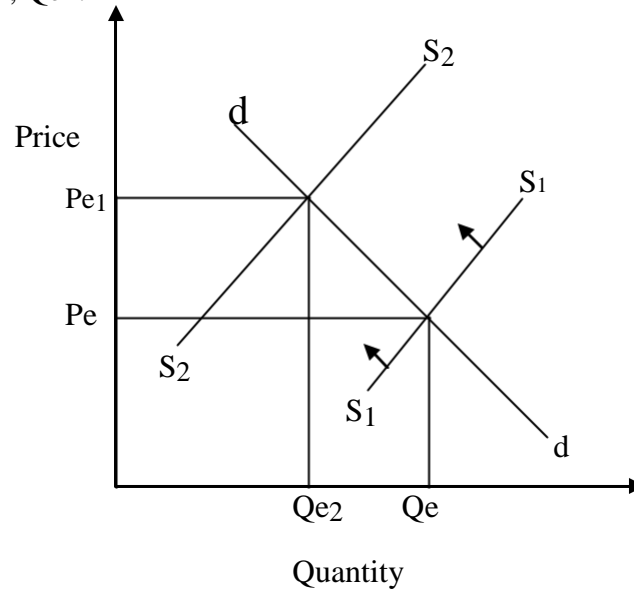
Figure 2.19 Fall in supply

Multiple Changes Consider Figures 2.20 to 2.22 which shows a simultaneous increase in cost of production and a fall in the price of a complimentary good. An increase in cost of production will lead to a fall in supply. This is represented by a shift of supply curve to the left. A fall in the price of a complimentary good will lead to an increase in demand. This is represented by a shift of demand to the right.
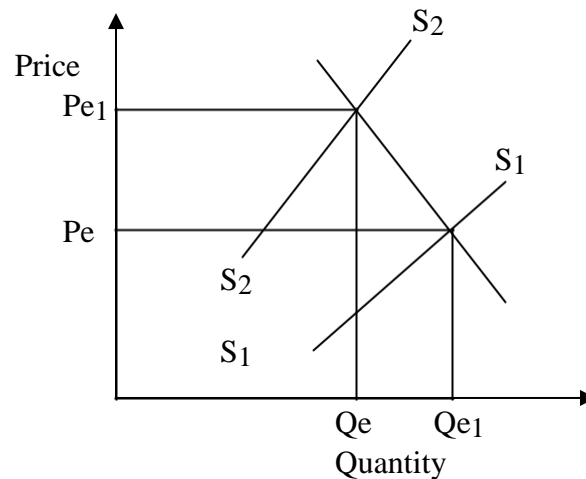
Figure 2.20 Increase in the cost of production
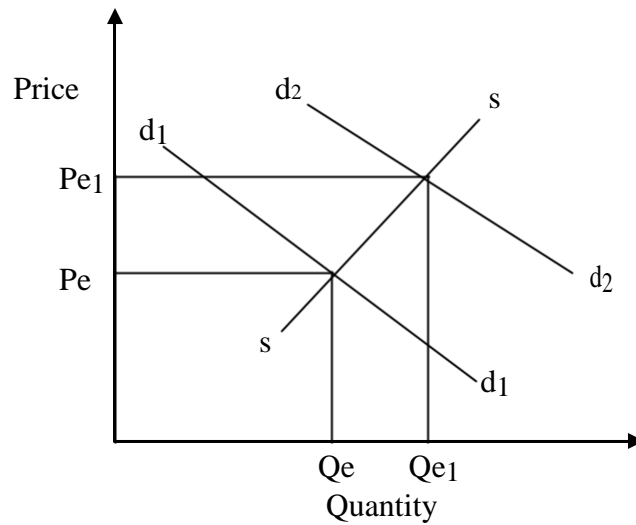
Figure 2.21 Fall in the price of complimentary
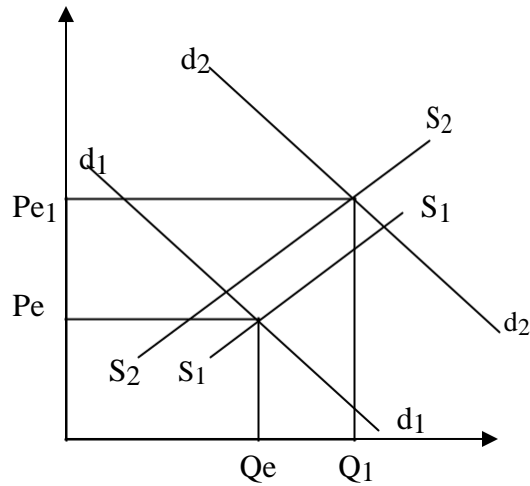
Figure 2.22 Multiple changes

2.7   Price Control

This refers to a deliberate action by the government to artificially impose through legislation the prices of certain goods and services. Such imposed prices are referred to as *flat prices*. These flat prices may be a maximum or a minimum price. A maximum price refers to that price above which a good or a service cannot be sold. A minimum price refers to that price below which a good/service cannot be sold.

The government may find it necessary to control the prices of certain good/service because:

(i)   *Cheapness* It may be objective of the government to keep price of certain goods and services at a level at which they can be afforded by most people hence protecting the consumer being exploited by producers

(ii)   *Maintenance of income.* The government may want to keep the income of certain producers at a higher level than that which would be supplied by market forces demand and supply. Thus the government is able to maintain the low income producers in the market.

(iii)   *Price stability* if there is a wide variation in the price of product year to year the government may wish to iron out these variations for the interests of both producers and consumers. This price control will act as one of the methods to curb inflation.

Maximum price control/price ceiling

Consider Figure 2.23, if the government imposes a price ceiling, given by P1 there will an excess demand or shortage *equivalent to Q2- Q.* Under normal circumstances this economic force of excess demand will exert an upward pressure prices. However, in this case the price cannot go above P1, since P1 is the maximum price. This price is unable to fulfill the rationing function leading to a demand for a centrally administered system of rationing of the good in question.
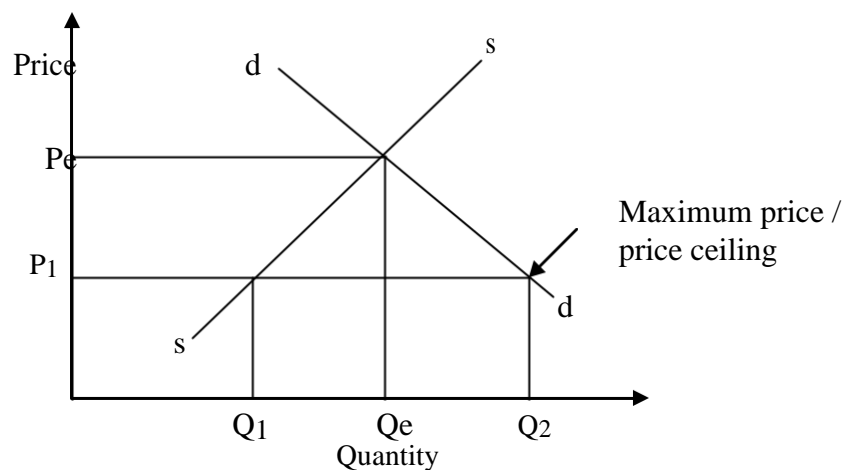
Figure 2.23 Maximum price ceiling

Other effects of Price controls

(i)   Rise of *black market* where goods are sold above legal price even above the equilibrium price.

(ii)   *Shortage*s are likely to become chronic as producers move away from production of price controlled goods.

(iii)   Research and development will be encouraged as the producers move from the price controlled industry.

(iv)   There will be *increased costs efficiency* in production by firms as profits can only be increased by reducing costs.

Minimum price/price floor

This refers to the action taken by the government to set a price below which a good/service cannot be sold. They are normally imposed above the equilibrium price since the government feels that the price determined by forces of demand and supply is too low as illustrated in Figure 2.24

If the government imposes a minimum price by P1, the immediate effect will be surplus given by Q1 Q2. Under normal circumstances excess supply exerts a down ward pressure on prices, but in this case prices cannot go below P1 for it is a minimum price. The government then has to intervene by buying excess stock or limiting it to prevent prices from going down.
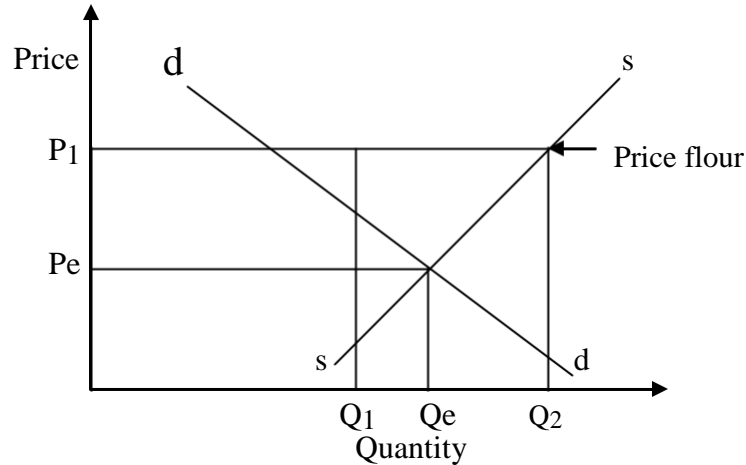
Figure 2.24 Price four

Other effects of price floors

(i)   In the case of a minimum produce price floor, (low income producers) will have a stabilizing effect on their income.

(ii)   In the case of minimum wages employed workers will be guaranteed an income compatible with the cost of living.

(iii) Some producers may be wiling to dispose off their product below the minimum legal prices especially in the case of labour.

(iv) In the case of minimum wage rate, it will lead to reduction in employment.

(a) Protects consumers, especially the low income consumers from price increases by producers.

(b) Ensures that producers have a reasonable income which is subject to inflation

(c) Contributes to industrial peace especially if they constitute part of the comprehensive income policy and a maximum price is fixed on some basic goods.

(d) It may be associated with a decrease in price and an increase in output such as the case of a monopolist overcharging for its products and is forced to lower prices. In this case the monopolist may accompany the fall in price with an increase in output in order to compensate for loss in revenue.

(e) It may be used as one of the several counters of inflation.

2.8   Elasticity of Demand

It can be defined as the ratio of the relative change of a dependent variable to changes in another independent variable. Elasticity can be analyzed in terms of demand and supply. It can also be defined as a measure of responsiveness of quantity demanded of a good in to changes in income or prices of other related goods. There are three types of elasticity; price elasticity of demand, cross elasticity of demand and income elasticity of demand. *Price elasticity of demand* it's the measure of responsiveness of the quantity demanded of a commodity to changes in its own price. It is also referred to as *own price* elasticity. It abbreviated as PED/ED.

It is calculated as follows

PED $\quad = \dfrac{\text{Proportionate change in quantity demanded}}{\text{Proportionate change in price}}$

$\quad = \dfrac{\Delta Q/Qo}{\Delta P/Po}$

$\quad = \dfrac{\Delta Q}{Qo} \div \dfrac{\Delta P}{Po}$

$\quad = \dfrac{\Delta Q}{Qo} \times \dfrac{Po}{\Delta P}$

PED $\quad = \dfrac{\Delta Q}{\Delta P} . \dfrac{P}{Q}$

If changes in prices cause more than proportionate change in quantity demanded it is said to be price elastic, in this case ED >1. If changes in the price causes less than proportionate change in quantity demanded, then demand is said to be price inelastic this is represented by ED < 1. If changes in price causes proportionate change inn quantity demanded then, demand is said to be unit elastic or unitary elastic where ED= 1.

To illustrate price elasticity consider the Table 2.3 which shows demand schedule of commodity X.

Price	Quantity
10	100
5	150

Calculate the PED when the price changes from Kshs per unit 10 to Kshs 5 per unit.

PED $= \dfrac{\Delta Q}{\Delta P} . \dfrac{P}{Q}$ $\quad = \dfrac{Q2 - Q1}{P2 - P1} . \dfrac{P}{Q}$

$= \dfrac{150}{5} \times \dfrac{10}{100}$ $\quad = 30 = \dfrac{-3}{10}$ absolute = /3/ = 3

This price elastic because 3 >1

The price elasticity of demand is classified into two:

(i)   Point elasticity

(ii)   Arc elasticity

The point elasticity of demand measures elasticity at a particular point along the demand curve. It is calculated using the formulae $\quad \dfrac{\Delta Q}{\Delta P} . \dfrac{P}{Q}$

Graphically illustrated as:
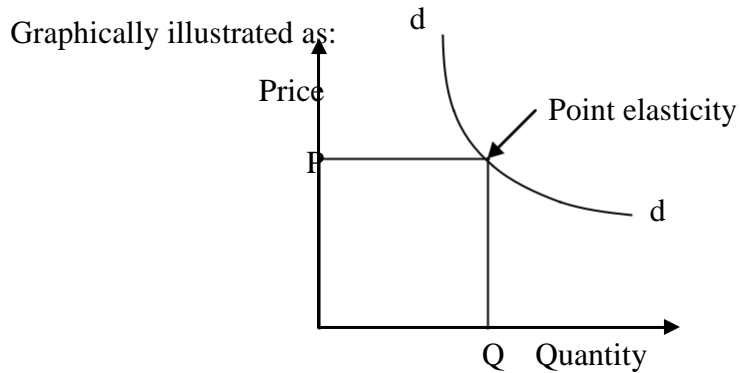
Figure 2.25 Point elasticity

Calculate the point elasticity of demand given that Qd= $4P +2p^3$ -3 Q = 4+2-3 =3

Where P =1

Solution

PED = $\dfrac{\Delta Q}{\Delta P} \cdot \dfrac{P}{Q}$ P = 1   Qd = $4(1) + 2(1^3)$-3 = 3

$\dfrac{\Delta Q}{\Delta P}$=4P+2P3–3

   =$4+6P^2$

But P = 1

Therefore $\dfrac{\Delta Q}{\Delta P}$ = 4 + 6 x 12   = 10

From the formular $\dfrac{\Delta Q}{\Delta P} \cdot \dfrac{P}{Q}$

10 x 1/3 = 3.3 price elastic

Calculate point elasticity of demand given Qd = $^1/p$ = P2 + 1 when P =

2 Qd = ½ + 2^2 + 1

Q = 35.5

$\dfrac{\Delta Q}{\Delta P}$=$P^{-1}+P^2$+1

=-P2+2P

=$\dfrac{-1+2P}{2^2}$

= 3.75

From the formular$\dfrac{\Delta Q}{\Delta P} \cdot \dfrac{P}{Q}$

          = 3.75 x $\dfrac{2}{5.5}$ = 1.36

Arc Elasticity of demand

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This measures the elasticity of demand between two points on the demand curve. Arc elasticity is the coefficient of the price elasticity between two points on the demand curve. It is therefore an estimate of the elasticity along a range of the demand curve. This estimate improves as the arc becomes small and approaches a point in the limit. Arc elasticity can calculated for both linear and non-linear demand curves using the following formula: It is illustrated as in Figure 2.26
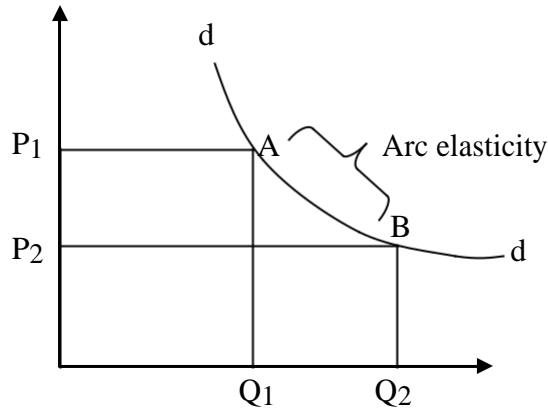
Figure 2.26 Arc elasticity of demand

$$\frac{\Delta P}{\Delta P} \quad \frac{.P}{Q} \qquad \text{where } \frac{P}{Q} \qquad = \frac{\dfrac{P_1 + P_2}{2}}{\dfrac{Q + Q2}{2}}$$

$$= \frac{P1 + P2}{2} \ x \ \frac{2}{Q1 + Q2}$$

$$\frac{Pr + P_2}{Q1 + Q2}$$

Therefore $\quad \dfrac{\Delta Q}{\Delta P} \quad . \quad \dfrac{P_1 = P_2}{Q1 + Q2} \ \dfrac{Q1 + Q2}$

When $P_1 = 2$

$\qquad P_2 = 3$

Solution

$$PED = \frac{\Delta Q}{\Delta P} \ . \ \frac{P_1 + P_2}{Q1 + Q2}$$

$Q = 24 - 2^2$ to get Q

$\quad = 20$

$Q = 24 - 32$ Use of $P_2 = Q2$

$= 15$

$\frac{\Delta Q}{\Delta P} = \frac{Q2-Q1}{P2-P1} = \frac{15-20}{3-2} = \frac{-5}{2}$

PED = -5 x $\frac{2+3}{20+15}$

-5 x $\frac{5}{35}$ = $\frac{-5}{7}$

= 0.714 price inelastic since PED

Exercise 2.1

The demand for a commodity is 5 units when the price is Sh.1000 per unit. When the price per unit falls to Sh.600 the demanded rise to 6 units. Calculate the arc and price elasticity of demand

Point PED $= \frac{\Delta Q}{\Delta P} \cdot \frac{P}{Q}$

$= \frac{1}{-400} \times \frac{1000}{5}$ $= \frac{-2}{4}$ $= \frac{-1}{2} = 0.5$ price inelastic

Because ED > 1

Arch PED = $\frac{\Delta q}{\Delta P} \times \frac{P1+P2}{Q1+Q2}$

$\frac{1}{-400} \times \frac{1000+600}{5+6}$

$= \frac{1}{-400} \times \frac{1600}{11}$ $\frac{-4}{11}$ 0.36
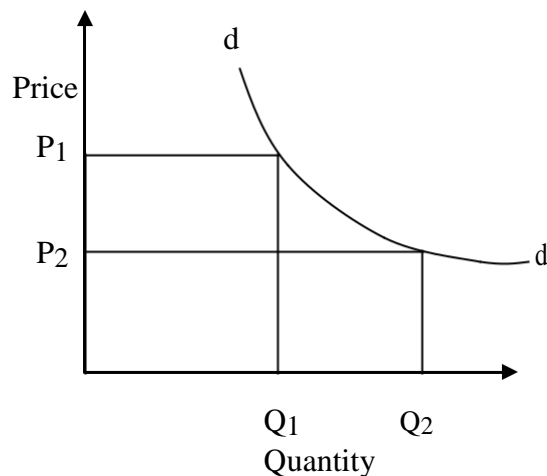
Figure 2.7 Graphical illustration of price elasticity of demand

43

Slope / gradient $= \dfrac{\Delta Y}{\Delta P}$ which

$ED = \dfrac{\Delta Q.P}{\Delta P \quad Q}$

but $\dfrac{\Delta Q}{\Delta P} = \dfrac{1}{\dfrac{\Delta P}{\Delta Q}}$

$= \dfrac{1}{gradient}$

Therefore $\dfrac{\Delta Q}{\Delta P} = \dfrac{1}{gradient}$

Making PED $\dfrac{1}{gradient} \quad \dfrac{P}{Q}$

2.8.1 Types of elasticity

There are five types of elasticity of demand.

(i)   *Perfectly elastic demand.* Demand is said to be perfectly elastic when the consumers are willing to buy an amount of a commodity at a given price, but non at a slightly higher price. In this case elasticity of demand is equally to infinity. The will be a horizontal straight line as illustrated in Figure 2.28. This is a case of a commodity in a perfectly competitive market. Where an increase in price may lead to a loss of all customers.
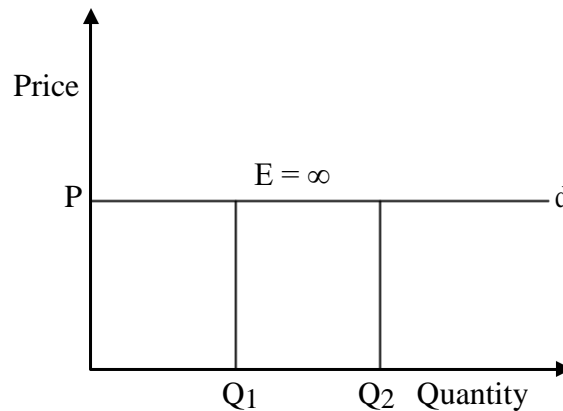
Figure 2.28 Perfect elastic demand

(ii) *Elastic demand.* Demand is said to be price elastic when a charge in price causes more than proportionate change in quantity demanded. In this case the value of elasticity of demand is greater than 1 and the demand curve ill be gently sloped as indicated in Figure 2.29. This implies that if prices increase from P1 to P2 the quantity demanded falls in greater proportion from Q1 to Q2 and vice versa. This is a case of luxury commodity which consumes can do without or a case of a substitute.
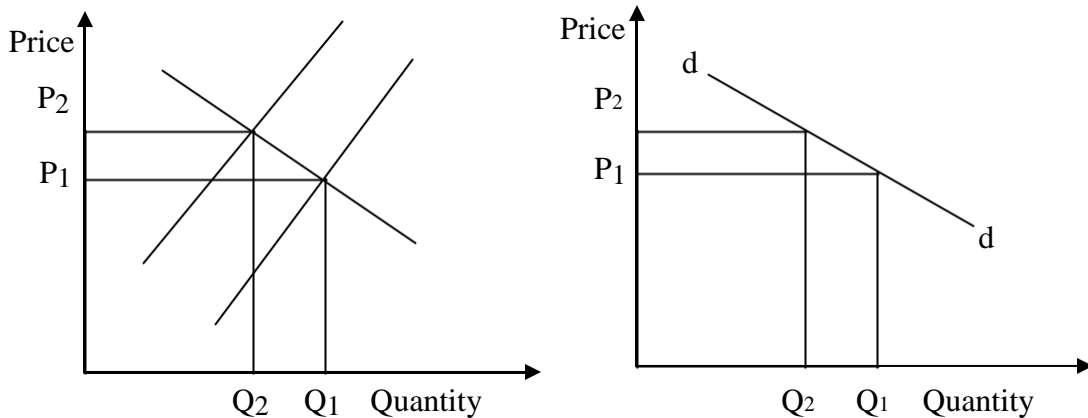
Figure 2.29 Elastic demand

(iii) *Unity elastic demand.* Demand is said to unit elastic if changes in price cause proportionate change in quantity demanded. If price increase quantity falls in the same proportion and vice versa. ED = 1 and the demand curve will be rectangular hyperbola as illustrated in Figure 2.30. This is a case of a good that lies between a luxury and necessity such as soap opera film or movie.
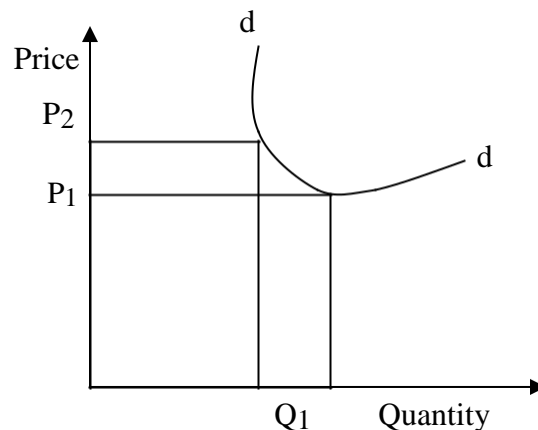
Figure 2.30 Unity elastic demand

(iv)   *Inelastic demand.* Demand is said to be price inelastic if changes in price causes less than proportionate change in quantity demanded. If prices increases the quantity falls in less proportion and if the prices falls the quantity demanded increases in less proportion ED < 1 as illustrated in Figure 2.31. This is a case of a good which is a necessity. These are goods which consumers can not do without but need not be consumed in fixed amount like an absolute necessity such a staple food like ugali and milk. It also applies in the case of habit forming goods like beer and cigarettes.
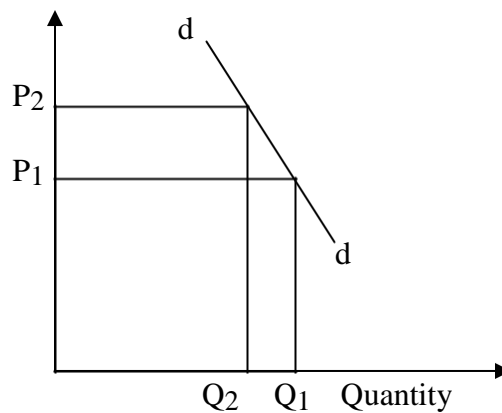
Figure 2.31 Inelastic demand

(v)   *Perfectly inelastic demand.* Demand is said to be perfectly price inelastic if changes in price has no effect on the quantity demand (ED= 0). In this case the demand curve will be vertical straight as illustrated in Figure 2.32. This is a case of a good which is an absolute necessity. A good that consumes cannot do without and have to consume in fixed amounts such as salt.
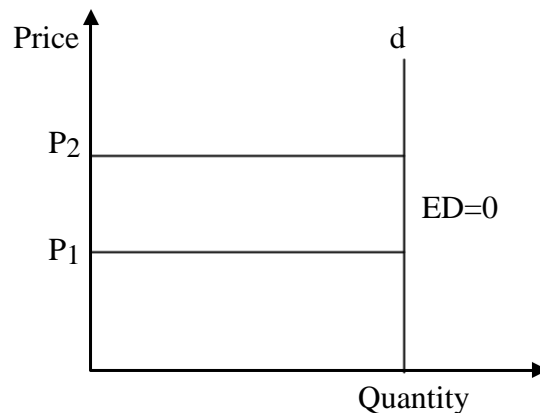
Figure 2.32 Perfectly inelastic demand

Factors affecting price elasticity of demand

(i) *Substitutability*. If a substitute is available in the relevant price range, quantity demanded will be elastic. The demand for a particular brand of cigarettes maybe considered being elastic because if there is existence of other brands that are close substitutes. However, the total demand for cigarettes may be inelastic because there are no close substitutes for cigarette. It can hence be said that the greater the number of substitutes for a given commodity, the greater will be its price elasticity of demand.

(ii) *The proportion of a consumer's income spent on the commodity*. If this proportion is very small as in the case of match boxes , the quantity demanded will tend to be inelastic. On the other hand if this proportion is relatively large as for example in the case of meat, demand will tend to be elastic. This implies that the greater the proportion of income which the price of the product represents, the greater price elasticity of demand will end to be.

(iii) *The extent to which the product is habit forming*. Habit forming products like cigarettes or alcohol have a low price elasticity of demand. In the case of in addiction to, say drugs, the price elasticity of demand is likely to be even lower.

(iv) *The number of uses of a commodity*. The greater the number of uses of the commodity, the greater the price of elasticity. The elasticity of alluminium for example is likely to be much greater than of butter because butter is mainly used as food while alluminium has hundreds of uses such as electrical wiring and appliances.

(v) *The length of adjustments*. The longer the period allowed for adjustment in the quantity demanded as a commodity the greater its price elasticity is likely to be. This is because it usually takes some time for new prices to be known and for consumers to make the actual switch. Consumers adjust buying habits slowly.

(vi) *The level of prices.* If the ruling price is at the upper end of the demand curve, quantity demanded is likely to be more elastic than if it was towards the lower end. This is always true for a negatively sloped straight line demand curve.

(vii)   *Necessities and luxuries* Demand for luxury is likely to be price elastic while the demand for necessities is generally price inelastic. However, this depends with availability of close substitutes.

(viii)   *Width/size of the market* the wide definition of the market of a good, the lower is the price elasticity of demand. Thus for wide markets demand will tend to be price inelastic while for a small market demand will tend to be price elastic.

(ix) *Time* demand for most goods and services tend to be more elastic in the long run as compared to the short run period. This is because consumers will take some time to respond to price changes. For instance, if the price of petrol falls relative to diesel, it will take long for motorists to respond because they are locked in existing investment in diesel engines.

(x) *Durability of the commodity* durable goods have low elasticity of demand or they are price elastic while perishable goods are price inelastic.

Importance of price elasticity of demand/economic application of the concept of elasticity

(a) *The consumer* needs knowledge of elasticity when spending income where more income is spent on goods whose elasticity of demand is inelastic and vice versa.

(b) *The government* imposes taxes with inelastic demand and vice versa. Devaluation when a country devalues or lowers the value of its currency. The currency is made cheaper relative to other currencies. This makes a country''s exports cheaper for foreigners. Its import expensive for the residents. For a country to benefit by increasing exports, the elasticity of demand must be high.

(c) *Business/producers* They use elasticity of demand on deciding on whether to charge high or lower prices or even deciding on commodities to bring to the market especially those which are price inelastic.

2.8.2 Income Elasticity of demand

It is the measure of responsiveness of demand due to change in income.

$$YED = \frac{\Delta Q/Q}{\Delta P/Y}$$

Where income elasticity is positive this is a *normal* good. Where income elasticity is negative this is an *inferior* good. When the demand of a good does not change with increase in income then income elasticity is zero. In wealthy countries for instance basic clothes will tend to have low income elasticity of demand while foreign will have high elasticity of demand as income increases. In poor countries basic commodities will have high income elasticity compared to manufactured expensive items.

Importance of Income Elasticity of Demand

(i) *Business firms*- if demand of a commodity is elastic to price, its possible to revenue by reducing prices. Businesses use specific information to know which price to increase to eliminate shortages or which price to reduce to eliminate surpluses.

(ii) *Government* uses elasticity to determine the yield of indirect taxes. Inelastic commodities are highly taxed. However, if demand of a commodity is elastic an increase in tax will hinder production

(iii) *Price elasticity* is relevant for a country considering devaluation as a means of rectifying balance of payment disequilibrium. Devaluation decreases imports and increases exports. However, this will depend on demand of import and export elasticities.

(iv) It helps to explain price instabilities in the agricultural sector

(v) Monopolists apply price discrimination by understanding the demand elasticities. High price is charged to those markets with lower price elasticity

Factors affecting Income elasticity of demand

(i) Nature of the need that the commodity covers. For certain goods and services the percentage of income spent declines as income increases such as food.

(ii) The initial level of income of a country (level of development) TV sets, refrigerators, motors vehicles are considered as luxuries in underdeveloped countries while they are considered as necessities in countries with high per capita income.

(iii) Time period. The demand for most goods and services will tend to be income elastic in the long run as compared to short run period. This is because the consumption pattern adjusts with time and also with change in income.

Cross elasticity of demand

It is the measure of responsiveness of quantity demanded of a good due to changes in the price of another related good. It is abbreviated as EXY where X and Y are to goods. It is calculated as follows:

EXY = <u>Proportionate change in quantity demanded of a good X</u>

Proportionate change in quantity demanded of a good
Y $\frac{\Delta Qx}{\Delta Py} \cdot \frac{Py}{Qx}$

The sign of cross elasticity of demand is positive if the good X and Y are substitutes and negative if X and Y are complimentary. The higher the absolute value of cross elasticity of demand the stronger the degree of substutability or complimentaribility. The main determinant of cross elasticity is the nature of the commodity relative to their uses. If two goods can certify equally the same need the cross elasticity will be high and vice versa.

Importance of cross elasticity of demand

(i) Protection of local industries. If the government imposes a tariff on a good with the intention of protecting a local industry then the local product and the imported product must be close substitutes for the government to achieve it objectives

(ii) If a firm is in a competitive market, there a high positive elasticity of demand between its products and those of competitors. For such a firm, it will not be in it"s interests to increase the price of its product as this may result to more than proportionate reduction in its sales. However, it might consider lowering the prices of its products in the hope of attracting customers from other firms.

(iii)   For product with high degree of complimentarity, a fall in price of one of the goods due to increase in supply will benefit the producers of a compli ent product due to an increase in sales. E.g. if there is a fall in prices of vehicles, due to an increase in supply the suppliers of fuel experience an increase in sales because more cars will be bought.

2.9   Elasticity of Supply

It is the measure of responses of quality supply of a commodity to change in the factors affecting supply

Price elasticity of supply

It is the measure of responses of quality supplied of a commodity to change in its two prices. It is abbreviated as ES and calculated as: Proportional change in quality supplied

Proportional change in price

$$E.S = \frac{\Delta Qs}{\Delta P} \cdot \frac{P}{Qs}$$

ES will have appositive value because of the direct relationship between the price of the product and quality supplied.

   If ES is greater than 1, then the supply is said to be price elastic

   If Es <1 then supply is price inelastic

   If Es =1 then supply is unit elastic.

Type of price elasticity of supply

1. Perfectly elastic supply
2. Elastic supply
3. Unit elastic supply
4. Inelastic supply
5. Perfectly inelastic supply.

Factors affecting price elasticity of supply

a) *Mobility of factors of production* If they are highly mobile then supply will be price elastic since more factors can be employed quickly when the prices increase thus increase in supply

b) *The level of employment of resources* It refers to the utilization and allocation of resources. If the factors are fully utilized supply will be price inelastic due to the fact that all the facts are occupied and thus can not be mobilized in order to increase supply. However if they are under employed, supply will be price elastic.

c) *Production period* for product that take short period of time to produce their supply tend to be price elastic. While thus that take a longer period will be price inelastic because it will take a while before the products can reach the market.

d) *Nature of the commodity* Price elasticity of supply for perishable goods tend to be inelastic due to the fact that the goods do not respond to price fall as they can not be easily stored. On the other hand supply for durable goods tend to be price elastic since they can be store when the price falls thus contracting supply.

e) *Risk taking* If the entrepreneurs are willing to take risk then supply of the products will be price elastic. Risk taking will in return be determined by the prevailing conditions in the economy. E.g. Political stability, security, government incentives, infrastructure, etc.

f) *Level of stock* If it"s high supply will be price elastic because if the price of a good increases more of the good will is supplied from the stock

g) *Time period* Supply for most goods and services will tend to be more elastic in the long run than in the short run because producer need more time to reorganize factors of production so that they can increase supply of the products.

Importance of price elasticity of supply

i) If supply of a good is price elastic thus an increase in demand will benefit both the producer and consumer of products because the producer will be in apposition to supply relatively more of their products and consumer will eventually pay a relatively lower price.

ii) If the supply of commodity I price inelastic business may risk losing revenue when there is a fall in the price of their products. This is because they will be

forced to sell their products at a loss or a reduced price margin, e.g. In the case of perishable goods, however in the supply of the goods is price elastic the business people may store their products when price fall thus contracting supply e.g. the case of durable goods.

Relationship between total revenue and elasticity

a) *Elastic demand* Increase in price will reduce the total revenue while a fall in price increase the total revenue

b) *Inelasticity demand* Increase in price will reduce the total revenue while a fall in price causes reduction in total revenue.

c) *Unit demand* change in price will leave the price unchanged.

i. Products/services pricing decisions

ii. Customer spending programmes

iii. Production decisions

iv. Government policy orientation -Taxation policy

                                                  -Evaluation policies

                                                  -Price control/minimum

v. Price discrimination

vi. Shift of the tax burden

2.10   Review Questions

1. Define demand. Explain the law of demand by the help of a schedule and diagram

2. Discuss the assumptions and exceptions of law of demand

3. Distinguish between change in quantity demanded and change in demand.

4. Discuss the factors of change in demand.

5. Write short notes on the following

    a) Abnormal demand curve

    b) Joint demand

    c) Composite demand

6. What do you mean by elasticity of demand? Explain it with the help of diagrams

7. Discuss factors which determine the elasticity of demand

8. How is elasticity of demand measured? Explain with examples

9. Explain the importance of elasticity of demand

10. Discuss the concept and importance of income elasticity and cross elasticity of demand.

11. Distinguish between point elasticity and cross elasticity.

12. Define supply. Explain the law of supply and its assumptions

12. Distinguish between change in quantity supplied and change in supply

13. Discuss factors which affect supply

14. Explain the concept of elasticity of supply. How is elasticity of supply measured?

15. Discuss the factors of elasticity of supply

2.11   References

Saleemi M.A (2001) *Economics Simplified (Revised Edition)* Saleemi Publishers Ltd (Pages 15-42)

Koutsoyiannis A; (1994), *Modern Microeconomics*, Macmillan Education Ltd

LESSON THREE: THEORY OF CONSUMER

3.1   Introduction

It touches on satisfaction other than a customer desire from consuming a particular commodity"s. The satisfaction the consumers derives from consumption of commodity is called utility. Average utility is the satisfactory per unit consumed on average. Marginal utility is the incremental satisfaction brought about by consuming an extra unit of a commodity. All this is assessed by two schools thought

a) Cardinality / Marginal utility Approach
b) Ordinals Approach Indifference

3.2   Cardinalist Marginal Utility Approach

This school of taught believes that utility satisfaction is measurable by use of cardinal numbers. This theory assumes that the consumer"s satisfaction can be measured in a unit known as *utils*. An individual demands for a particular commodity because of the satisfaction/utility received from consuming it. The cardinalist approach assumes that the consumer"s satisfaction or utility received from consuming a product/service. Up to a point, the more units of a commodity the individual consumes per unit time the greater the total utility received. Total utility is the total satisfaction received from consuming a commodity. Marginal utility is the extra utility derived from the consumptions of one more unit of a commodity, the consumption of all other goods remaining unchanged. It explains that individual demand slopes downwards from left to right because of law of diminishing marginal utilities.

The Law of Diminishing Marginal Utility (DMU)

This law states that holding other factors constant as more and more units of a product are consumed one after another the marginal utility falls as the total consumption increases..

Assumptions

1. The consumer is a rational being. As he/she consumes a commodity he goes for those commodities that give maximum satisfaction.

2. Price of commodity is constant hence marginal utility of money in constant
3. Quality of the commodity should be consumed in suitable and responsible unit hence consumption should process commodity
4. Trend of the consumer's consumption should remain constant.

    1) Desire for money, the more money one gets the more satisfaction.
    2) Use of liquors-the more and more it is take the more the satisfaction derived
    3) Desire for knowledge
    4) Personal hobbies/ habits, more and more of this will give high satisfaction.

a) It is applied on the bases of customers' behavior analysis.
b) It is applied in money whereby utility of money for poor people is greater than for the rich.
c) It used in the base of progressive taxation whereby the higher the income the higher the tax which led to dissatisfaction

N/B The law applies in many practical situations. For example a person on an exotic holiday to the Maasai Mara will experience increasing in total utility as his holiday proceeds but he is likely to derive greater satisfaction during the earlier days of his holiday than during the late days.

The law of diminishing utility applies provided other factors affecting the consumer's level utility, apart from the quantity consumed, remain constant. If any of these factors such as taste of fashion change, the law may be temporarily inapplicable until a stable situation is re-established. For example a person may progress from an occasional buyer of paintings into an obsessive collector or art.

Illustration of total utility and marginal utility

Quantity	Total Utility	Marginal Utility
0	0	0
1	20	20
2	50	30
3	60	10
4	62	2
5	60	-2

Table 3.1 Total Utility and Marginal Utility

Marginal utility = Change in total utility
$$\frac{}{\text{Change in quality}}$$
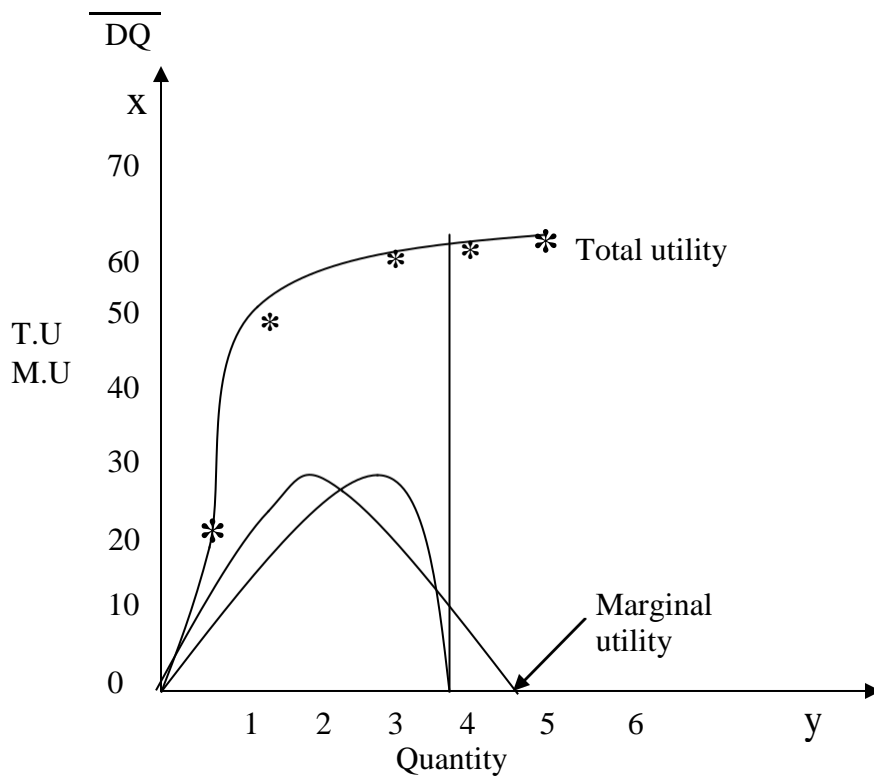
I.e. Mu = DTU
$$\overline{DQ}$$

Figure 3.1 Total Utility and Marginal Utility

The above illustration shows the relationship between total and marginal utility.

A saturation point is reached when the utility is maximum and the marginal utility is at minimum beyond which the total utility starts to decline while marginal utility becomes negative yielding dissatisfaction.

The Limitation of Utility (Cardinal Utility)

1) It is difficult to make inter-personal comparison of utility since satisfaction is subjective

2) Measurement of utility is difficult since utility is a mental phenomenon even by the help of any instrument hence difficult to determine equilibrium position of a customer.

3) It dose not consider other factors that determine utility such as environment

4) Indivisibility of commodities is not possible to divide some goods into small units in order to equalize marginal utility

5) Ignorance of individual who are some times not aware of the substitute or different goods, e.g. cheap substitute leading items to have low satisfaction from the commodity they consume.

6) Different behaviour of individual due to different customs and fashion

3.3   Consumer Equilibrium

A consumer is in equilibrium position when he/she achieves maximum satisfaction out of the available resources. A consumer in an equilibrium position when he/she distributes expenditure on purchase of different goods in such a way that marginal utility of a different good is equal to that of the good. This behaviour of customers is called the law of equal marginal utility. Based on the mention assumption the consumer will maximize this utility if he allocates his income in such a way that a shilling spent on one good yield as much satisfaction as a shilling spent to any other goods. The marginal utility per shilling spent on good X equals to the marginal utility spent on good Y hence consumer equilibrium is obtained when

$$\frac{\text{Marginal utility } x}{\text{Price of X}} = \frac{\text{Marginal Utility of Y}}{\text{Price of Y}}$$

$$\frac{Mux}{PX} = \frac{Muy}{PY}$$

The law of diminishing marginal utility is also based on the assumption that the consu er is rational. An economic agent is said to be rational when the agent exhibits behaviour which is consistent with a set of rules governing preferences. In the context of consumer behavior this would imply the following assumption or axioms;

i. The axiom of dominance which implies that consumers will always prefer more goods or less. This is also known as the *axiom of non- satiation*

ii. The *axiom of selection* which relates to the idea that the consumer aims for his or her most preferred state.

iii. The *axiom of completeness* states that the consumer is able to order al the available combinations of goods according to his or her preferences.

iv. The *axiom of transivity* states that if in some combination of goods; A is preferred to B and B is preferred to C then (by transivity) A is preferred to C.

Importance of Law of Equal Marginal Utility

1) It is application in consumption .A consumer can achieve maximum satisfaction when utility of different commodities is equal since the objective is to achieve maximum satisfaction.

2) Application in production. Objective of the firm is to maximize profit achieved when cost of production is minimal and when marginal productivity of all factors is equal.

3) Application is distribution. When share of different factors of production are determine, they are determined according to the principal of marginal utility

4) Application in saving and spending. A special part of the income is spent on purchase of consumer good and the remaining saved for future use.

3.4   Ordinalist / Indifference Curve Approach

This school of thought is opposed to the law that utility is measurable through cardin l numbers. This school of thought maintains that customer behaviour can be explained in terms of preference so that customers need to state the commodity they prefer without assigning numeral values without the strength of their preferences. Consumers are expected to value their preferences of the entire service market of goods and service in order to choose i.e. combination of two goods that can be chosen if the two goods are ranked. This is explained by the use of indifference curves. The assumptions of this approach are:

1. Price of goods is constant

2. Consumers are rational

3. Consumer can rank his/her preferences over time

4. Their behavior must be transitive i.e. if a consumer prefer A to B to l C then he can prefer A to C (axiom of transitivity)

5. Customer always prefer more to less of every commodity (axiom of non-station)

6. The slope of indifference curve gives the marginal rate of situation (M.R.S)

7. The consumer is able to order all the available combination (axiom completeness)

Indifference Curve

This is curve joining together all different combination of two goods that yield the same amount of utility to a consumer. It is a locus of point of possible combination of two alternative good that yield the same level of utility. The shape of indifference curve is called the marginal rate of situation (MRC) i.e. the rate at which good Y can be substituted for by good X leaving the consumer at the same level of utility.
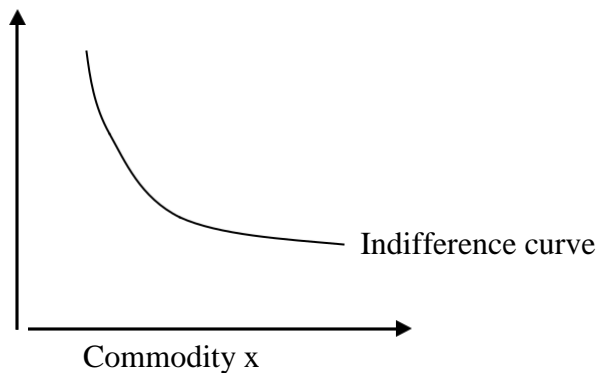
Figure 3.2 Indifferent curve
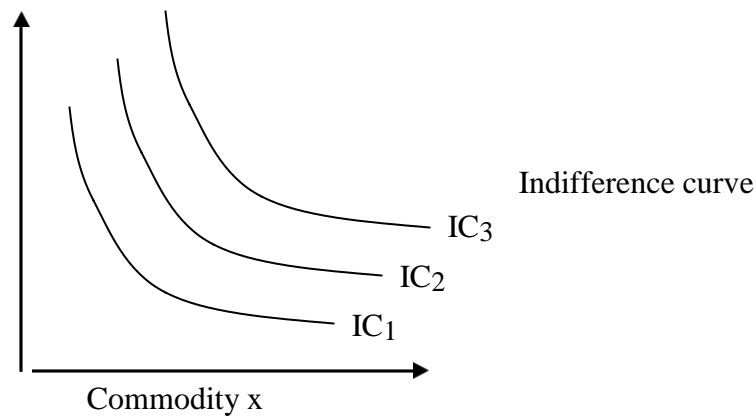
Figure 3.3 Indifferent map

Indifference map indicate different indifference curves drawn on the same plane price with different level of utility.

Properties of Indifference

a) *Indifference has a negative slope.* This shows if the quality of one good say decrease the quality of other good must increase if the consumer has to remain on the same level of satisfaction

b) *Indifference curve do not intersect.* This is because if they did the point of intersection implies two levels of satisfaction which is not possible. consider the Figure 3.4
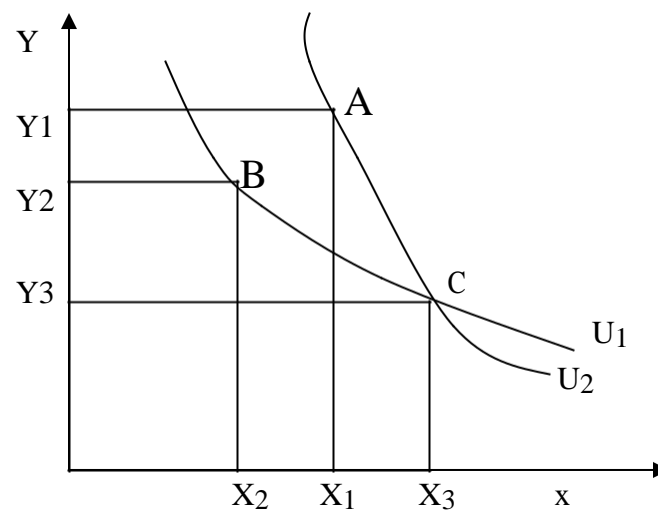
Figure 3.5 Indifference curves do not intersect

Since combination A and C are on the same indifference come u2 the consumer must be indifferent between them. Band C are on the same in difference curve u, the consumer

must be indifferent between then. If the consumer is indifferent between A and C then the he must be indifferent between A and B (considering the rule of transitivity). This is however, absurd since the combination A contains more of Y and more of X and thus preferring A to B. To be consistent with consumption assumption of rationality it can be concluded that indifference curve cannot intersect.

c) *They are convex to the original* This implies that if the slope of indifference decrease in absolute terms as we move longs the curve from left downwards to the right therefore the marginal rate of the substance will be decreasing or diminishing as show in Figure 3.6.
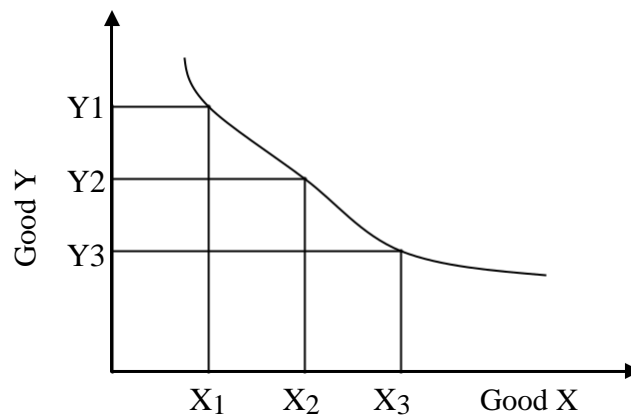
Figure 3.6 Convex to the original

The theory of diminishing marginal rate of substitute expresses the observed behavior that as people consume more of a good, the utility they gain from each excessive unit decline. As the number of units of X the customer is will to sacrifice in order to obtain additional unit of Y decrease as the quantity of Y rises. Therefore it is difficult to substitute X for Y as the customer consume more of y and vice verse.

3.5   Consumer Equilibrium

To explain the concept of consumer equilibrium the price of the two commodities should be given as well as the customers" income so as to derive the budget line. Budget line is a curve or a line showing combination of two goods that can be afforded with a given level of income. A consumer will be at equilibrium where the budgets line is a tangent to an indifference curve as shown in Figure 3.7.
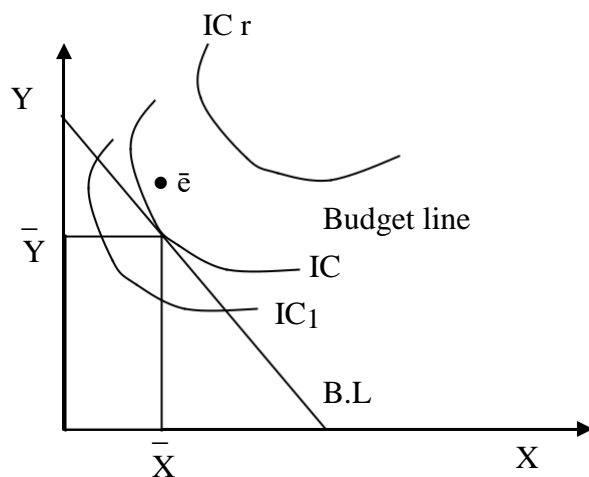
Figure 3.7 Consumer budget line (B.L)
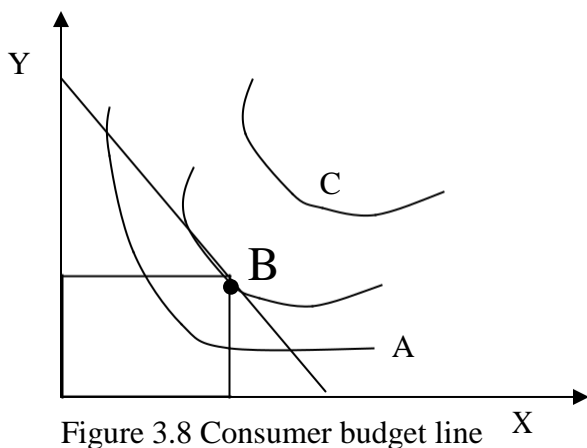
Figure 3.8 Consumer budget line

Point B is the equilibrium point where the consumer is maximizing the utility subject to his budget constraint. At point A the consumer has unutilized income and cannot derive maximum satisfaction. Point C is an attainable since the consumer‟s income is limited by the marginal rate of substitution at the point B which is also the slope of budget line.

3.6   Income Consumption Curve

Increase in consumer income leads to an upward shift in the budget line such that it remains parallel to the original one and vice versa. Income consumption curve is a locus of points of consumer equilibrium resulting when only the consumer income is varied or the consumer income change. It is also referred to as effects on an income change. The income consumption curve can be used to derive the *Engel curve* which illustrates the

amount of a good a consumer will purchase per unit of time at various leave of income
holding the price constant.
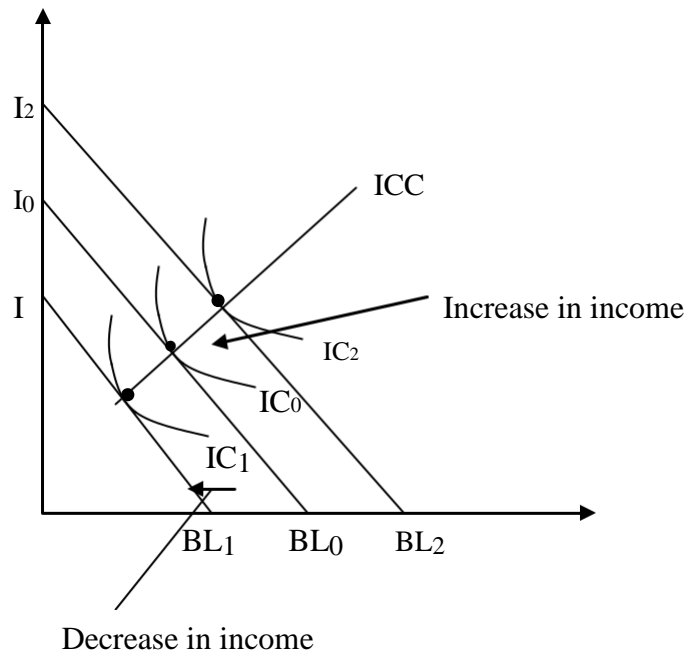
Figure 3.9 Consumer income curve

Illustration of indifferent curve for perfect substitute and perfect complimentary goods

The assumption that indifference curves are convex to the original implies that the goods
are substitute but not perfect substances. In case goods are perfect substances the
indifference curve is represented by a strait line with negative s lopes parallel to one
another. For perfect substitutes goods the marginal rate of substitution is constant
complimentary goods have indifference curves that are L shape if only they are perfect
compliments as illustrated in Figures 3.10 and 3.11
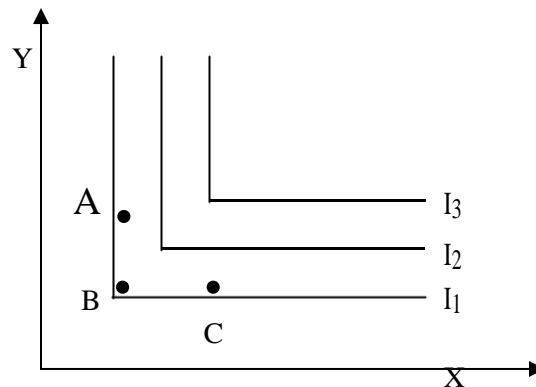
Figure 3.10 Perfect compliments
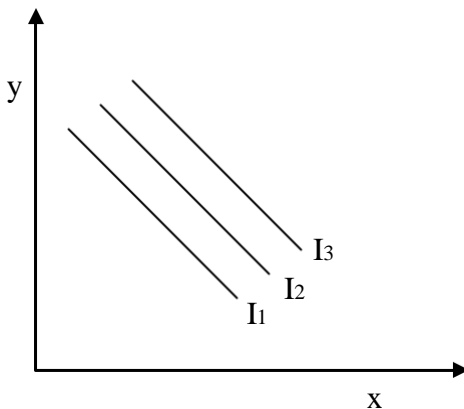
Figure 3.11 Perfect substitutes

Point A, B and C are o the same indifference curve yet at point C it involves the same amount of commodity Y but more of commodity X than at point B. This implies that the customer is saturated with commodity Y and therefore the MRS=0 for both X and Y. Similar case applies at point A involving same amount of X and more of commodity of Y indicating that the consumer is saturated with commodities X and therefore the Marginal Rate of Substitution (MRS) of X and Y =0

Application of Indifference Curves

1) It provides an explanation of the underlying reasons why change in price led to change in quality demand by distinguishing between substitution and income effects of price change.

2) It enables the derivation of normal and abnormal demand curve through price consumption curve

3) It is applied in labor economics to measure the trade off between income and leisure

4) It is used to examine the welfare affect of different Government Policy like taxes, subsidies for comparative welfare effects of direct and indirect taxes.

5) It enables assessment of the impact of change in the cost of living on welfare E.g.., the effect of change in money income and price of the welfare can be analyzed.

3.7 Review Questions

1. What are indifference curves? Discuss the properties of indifference curves

2. Explain the law of diminishing marginal rate of substitution

3. What do you mean by price line? How does it change?

4. Explain the equilibrium of the consumer according to indifference curve technique.

5. Write notes on

    a) Income consumption line

    b) Price consumption line

6. Distinguish between income and substitution effects

3.8 References

Saleemi M.A (2001) *Economics Simplified (Revised Edition)* Saleemi Publishers Ltd (Pages 69-93)

Koutsoyiannis A; (1994), *Modern Microeconomics*, Macmillan Education Ltd

LESSON FOUR: THE THEORY OF PRODUCTION

Purpose: To introduce the learner to the production theory so as to be able to appreciate the role the key factors that influence production.

Specific Objectives

By the end of the lesson the learner should:

 (i)   Explain the key factors influencing production

 (ii)   Explain the importance of specialization

 (iii)   Apply the production function in determining optimal combination of resources

4.1   Definition

Production comprises all activities that provide goods and services which people want and for which they are prepared to pay a price. The composition of the total output can be classified into consumer goods and produce goods and services.

Consumer goods are commodities that satisfy human needs directly .They can be:

   a. *Durable consumers' goods* provide a steady stream of satisfaction and their value diminishes slowly through age and usage.

   b. *Non- durable consumer good* are consumed and destroyed in the very act of being used e.g. Food, juice, cigarettes.

Producer goods are commodities that do not directly satisfied wants but they are used for the contribution they make to the production of other goods. Example: factories, buildings etc.

Services are intangible economic goods e.g. banking, transport, tourism and administration. Services are non transferable i.e. they can not be purchased and then resold at a different price.

Production can be categorized into three:

Extractive industries, examples are farming, fishing and forestry. Primary products result from such industries

Manufacturing industries these include engineering, vehicle manufacture, chemical and food processing.

Distribution industries; these incorporate the activities of wholesaling and retailing.

4.2 Factors of Production

This refers to the inputs or resources from the society that are used in the process of production .They include land, labour, capital and entrepreneurship

Land It refers to all natural recourses over which people have power of disposal and which may be used to yield income. It includes farming land, forest, river, lakes, building land, and mineral deposit. The total supply of land in the world is limited although the supply of land for some particular use is not fixed. Thus for example, more maize can be planted at the expense of potatoes. Alternatively, more land can be allocated to buildings at the expense of farming land, drainage, irrigation and fertilizers can increase the area of agricultural land.

Labour refers to the exercise of human mental and physical effort in the production of goods and services. The supply of labour in an economy is measured by the number of hours of work which is offered at a given wage rate at a given period of time.

Capital is a manmade input. It can be classified as working capital or circulating capital referring to stocks or raw materials, partly finished goods and goods held by producers. Alternatively, capital can be classified as fixed capital which consists of equipment used in production such as machinery and buildings. The value of total output required for replacement of won out producer goods every year is referred to as depreciation. The total output of producer goods is referred to as the gross investment and any addition to capital stock is referred to as the net investment.

This implies that: Gross investment – Depreciation = Net investment

Note that in economics, the concept of depreciation is distinct from the concept of depreciation in accounting. Depreciation is considered to be the period allocation of the cost of a fixed asset

Entrepreneurship the organizational of the factors of production with a view to make a profit It involves hiring and combining other production factors making decision on what to produce how and what and where to produce. It in involves risk taking which arises because most production is undertaken in expectation of demand and in most cases the future is uncertain. Entrepreneurs make payments to cover their costs without any certainty that the cost will be covered by revenue.

Mobility of Factors of Production has two main aspects

a) Occupational mobility refers to the ease of movement of factors of production from one job or task to another.

b) Geographical mobility refers to the movement factors of production from one location to another.

Land is not mobile geographically but has a high degree of occupation mobility i.e. land can be put into different uses of farming building roads etc

Capital is mobile in both cases e.g. a vehicle and tools are geographical and occupational mobile. Some capital are immobile e.g. railways. Other form of capital has occupational mobility e.g. a building

Labour is mobile both geographical and occupation. However there are barriers to geographical and occupation mobility.

Barriers to Mobility of Labour

1) Reluctance of the family to move
2) Cost involves in labour mobility
3) Language barriers
4) Adverse climatic condition
5) Insecurity and political instability
6) Ignorance of job opportunities

4.3   Specialization

This refers to the concentration of activity in those lines of production where the individual, firm or country has natural or acquired an advantage. Adam Smith drew attention to the importance of division of labour in his book, the wealth of nations. He was fundamentally concerned with division of labour of a particular industry where the manufacture of products was broken down into many specialized activities. Adam Smith observed that the making of pins required 18 distinct operations, estimating that the production per day in the factory was about 5,000 pins per person employed. If however the whole operation was undertaken from first to finish by each employee, Smith estimated that he would have been able to make only a few dozen pins per day. Apart

from specialization in particular industries the following other forms of specialization can be identified:

a) *International specialization* – refers to the concentrating of a country of its resources on a specific area of production for example, the concentration by Kenya in the production of coffee and tea or the production of copper by Zambia.

b) *Regional specialization* within a country where factor endowments and economic history have led industries to concentrate in certain areas because it is difficult for competitive plants to be established elsewhere. Thus for example, in Kenya the production of tea is concentrated in the highlands.

c) *Specialization between Industries* since each economy includes many industries an example; it is possible to speak of the motor manufacturing industry, the steel industry and so on.

d) *Specializations between firms*- since industries are composed of firms that can be regarded as units of production. Thus for example different firms can specialize in the manufacture of different components of a product. Thus for example, in the car industry certain firms specialize in the provision of spare parts.

e) *Specialization within factories* which arises because one firm will often control a number of factories, and these are usually referred to as plants and are units of production. For example, a manufacturer might find it economical to build engines in one plant, axles in another, car bodies in a third and so on, and subsequently transport all the parts of another plant for final assembly.

f) Specialization within plants can be of two types:

    i) A particular plant may produce more than one item and plant may thus be regarded as two working side by side.

    ii) Within every plant there is a considerable specialization of labour. In a typical manufacturing firm, some employees will be receiving and storing raw materials and components whereas the majority will be engaged in the manufacturing process, while others will be checking and packing finished product.

The advantages of specialization

1. The fundamental advantage of division of labour is the increased output arising from division of labour.

2. Specialization may lead to boredom or monotony as some workers perform the same operation hundred of times. This monotonous repetion may lead to a greater incidence of accidents and greater absenteeism as a result of low morale. In addition, labour relations between senior management and production workers may deteriorate as communication becomes more difficult.

3. Specialization may be accompanied by decline in craftsmanship as skills are transferred from the hands of the workers to a machine that controls the design, quantity and quality of a given product. It should however be noted that mechanization has produced many craftsmen in occupations that require a high degree of skills.

4. Specialization is associated with an increased risk of unemployment as specialized workers do not have a wide industrial training that would make them adaptable to changes in techniques of production. In the short term such workers are susceptible to unemployment although in the long run the simplification of tasks implied by specialization would mean that jobs in different industries are fairly similar and retraining is relatively easily achieved.

5. Specialization is economically limited by the extend of the market in that methods of production using expensive capital equipment are only worthwhile if there is a potential demand for the mass produced product that keeps the capital equipment fully employed. This mass market may not always exist because of low income levels in a particular country.

6. Specialization especially in cases involving mass production is inevitably associated with standardization of products. This is because of the heavy development costs incurred in launching mass commodities that leave little possibility for the accommodation of tastes and preferences of individual

consumer"s sovereignty is, to some extend, limited by this narrow regard for individual preferences.

4.4   Production Function

This is a technical relationship between the output of good and the input required to make these goods. The function may take the form of an equation, a table or a graph. The relationship between an input and output is a technological relationship which may be the short run or long run.

$Q = f(K, L)$ where Q-output;   K-capital; L - Labour

Short run refers to a period of time in which only some variables change. It is an economic process during which supply of certain factors of production e.g. land are fixed and cannot be varied.

Long run refers to a period of time in which all variables are able to settle at their equilibrium and all economic processes have time to work in full.

Average product (AP) is the output per unit of the variable factors and it"s given by:

AP = <u>Total product (TP)</u>
        Number unit of variable factors

E.g. the average product of workers and capital are given by:

$AP = \dfrac{TP}{L}; AP = \dfrac{TP}{K}$

Marginal products it is changes in the total product brought about by varying the employment of the variable factors by one unit e.g. increasing employment by 1 person.

MP = <u>Change in total product</u>
        Change in quality of labour employment

= $\dfrac{\Delta TP}{\Delta L}$

Fixed Costs – are costs that do not change as output varies. They are associated with fixed factors of production and include; rent rates, insurance, interest on loans and depreciation. Fixed costs remain the same whether output is one unit or output is 1,000 units. Fixed costs are also referred to as overhead costs or unavoidable costs.

Depreciation, especially in capital intensive industries usually constitute a major item in fixed costs since the life of capital tends to be measured in economic rather than technical terms and machinery, for example, depreciates even when not in use.

Variable Costs- are costs that are related directly to output and include the wages of labour, the costs of raw materials, fuel and power. Variable costs are alternatively known as *direct or prime* costs.

Total Costs represent the sum of fixed costs (FC) and variable costs (VC).

TC = FC+VC

When output is equal to zero, total costs will be equal fixed costs since variable costs will be zero. When production begins to increase total costs will continue to rise as variable costs increase since output expands.

Law of Diminishing Marginal Returns/Law of Variable Proportions

It states that holding other factors constant as additional unit of a variable factor are added to a given quantity of a fixed factors, the total product and the marginal product will initially increase at an increasing rate but beyond a certain level of output it will increase at a decreasing rate and eventually fall.
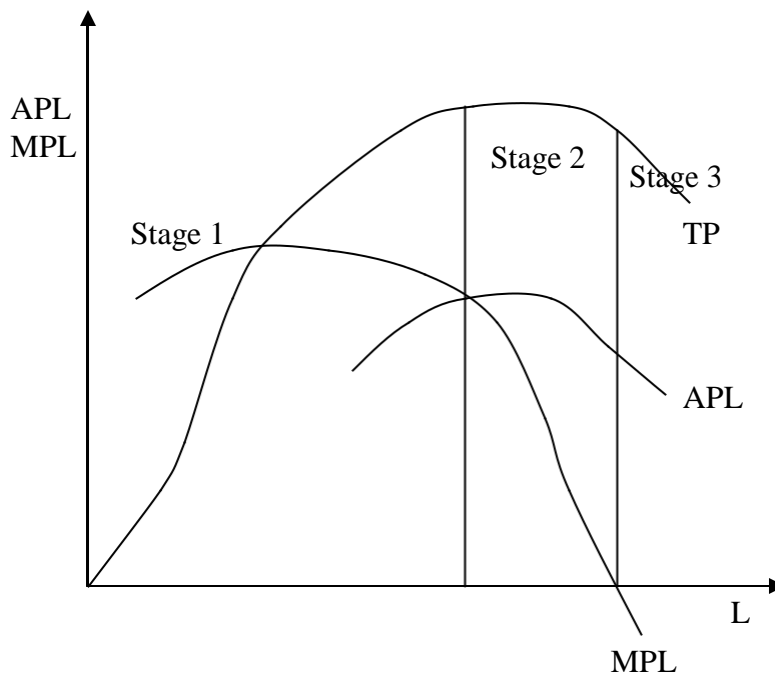
Figure 4.1 Law of diminishing marginal returns

Stage 1

There is increasing returns to the variable factors. In this stage the total product is increasing at an increasing rate while the marginal product and average product are also rising with marginal product higher than average product at any given point. This is an indication of increasing efficiency of the proportion in which the factors are combined since the fixed factors are still under utilized and there is greater scope of specialization.

Stage 2

It represents a decreasing return to the variable factors in that the total product is increasing at a decreasing rate. The marginal product and the average product are positive but they are falling at this stage. The average product is higher than the marginal product and only national production takes place.

Stage 3

This represents a stage of negative return of the variable factors. At this stage the marginal product is negative and as a result the total output is reducing. It represents a stage of extreme inefficiency when factors of production are probably getting into each other"s way (conflicting). At this stage the producer will not operate even with free labour, since he could also raise the total output by using less labour.

The law of diminishing marginal returns is explained by the use of the schedule in Table 4.1

Labour	Total product	Average product (AP)	Marginal product (AP)
0	0	0	0
1	3	3	3
2	8	4	5
3	12	4	4
4	15	3.75	3
5	17	3.4	2
6	17	2.83	0
7	16	2.29	-1
8	13	1.625	-3

Table 4.1 Law of diminishing marginal returns

The average product curve raises at first, reaches the maximum and then falls. It remains a positive as long as the total product is positive. The marginal product rises and reaches the maximum before the average product and then declines. The marginal product becomes zero when the total product starts to decline. Therefore the falling portion of marginal product curve illustrates the law of diminishing returns.

Assumptions

1) The state of technology remains unchanged.
2) Successive units of the variable factors are assumed to be equally efficient
3) Production take place in the short run where at least one factor of production is fixed.
4) There is one variable factor of production under consideration.

4.5   Long Run Changes in Production

In the long run all factors of production can be varied and thus the firm will chose the input combination which optimize output and at the same time minimize their cost. This is illustrated by the use *isoquant and isocost.*

Isoquant shows all the difference combination of labour and capital with which a firm can produce a specific quantity of output.

Assumption of Isoquant

1) There are only two factors of production i.e. labour and capital
2) It is possible to substitute labour for capital and vise versa continuously in the production process
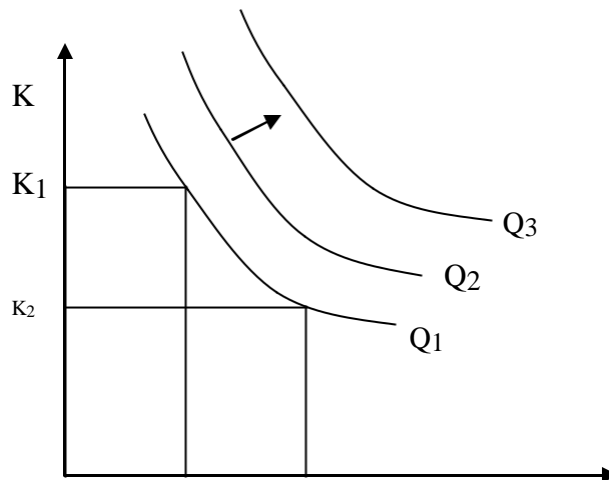
Figure 4.2 Graphical representations of isoquants

A higher isoquant shows a greater level of output (Q3) while a lower isoquant shows lower level of output (Q1). A series of isoquant gives isoquant map series

Properties of Isoquants

1) They are convex to the origin

2) Do not intersect

3) They have a negative slope

Isocost shows all different combination of labour and capital that a firm can purchase given the total outlay (ability) of the firm and factor prices.

1) The firm takes the input prices as given by the market

2) There are two inputs; there are the labour and the capital.
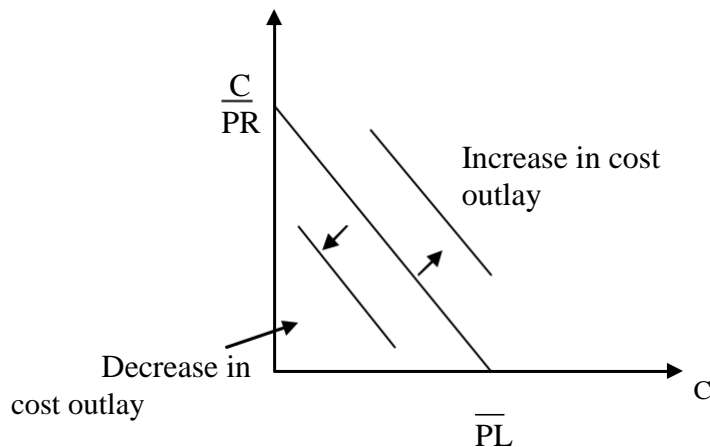
Figure 4.3 Graphical representations of isocosts

The slope of an isocost line is given by $\dfrac{\Delta Pk}{\Delta PL}$

If the firm spends all the total outlay on capital then he will purchase $\dfrac{C}{PK}$ units of capital

If the spends all the outlay in labour then would purchase $\dfrac{C}{PL}$

By going the two points we get the is cost of the firm and therefore the total cost for utilizing labour and capital will be given by

$C = WL + rK$ Where w- price for labour; r- Price for capital

Optimal Input Utilization

For a firm to minimize the cost of production which is the optimal input utilization point, it must do so t hat the point where the isoquant is a tangent to the isocost line are shown in Figure 4.4.
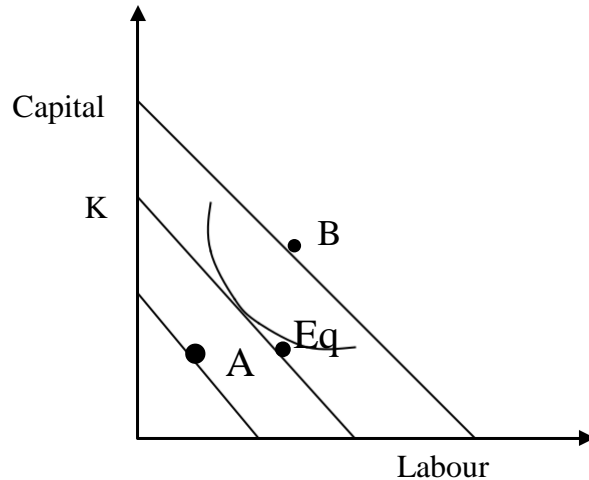
Figure 4.4 Optimal input utilization

At point A there will be under production since the resource are not maximally utilized.

At point Eq the firm achieves the optimum input utilization.

At point B the firm is unable to produce since the resources are limited at the point Eq.

The Marginal Rate of Substitution (MRTS)

The slope of an isoquant measures the rate at which labour can be substituted for capital keeping the output constant.

The MRTS refers to the slope of the isoquant

The MRTS of labour for capital refers to the amount of capital that a firm can give up by one unit and still remain on the same isoquant

$$MRTs = \frac{MPl}{MPk} = \frac{\Delta L}{\Delta k}$$

$$MRTsk = \frac{MPk}{MPL} = \frac{\Delta K}{\Delta}$$

Expansion Path

In the long run all the factors of production can be varied and thus there is no limitation to the firms" expansion on its output. The objective of the is to choose the optimal way of expanding its output so as to minimize its cost and maximize the output within a given factor prices and given the production function, the optimal expansion path is determined by the point of tangency of successive isocost line sand successive isoquant curves as shown in Figure 4.5
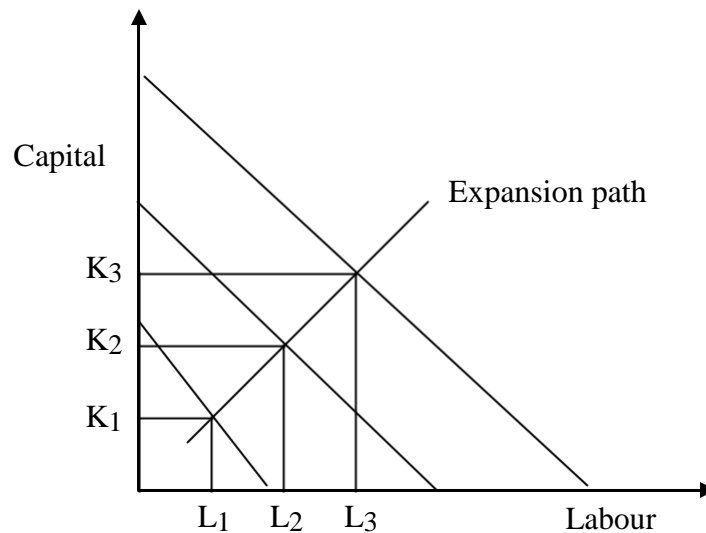
Figure 4.5 Path of expansion

4.6   The Theory of Cost

It helps in understanding the concept of cost. The following are necessary:

Opportunity Cost Assuming full resources allocation and employment in production of good and services increasing the production of any one product involves the sacrifice of an alternation product. The cost of producing a certain product is taken to refer to the forgone value of the alternative product

Private cost and social cost (negative externalities) private cost refers to these costs which relates to an individual producer. They include both explicit and implicit. While social cost refer to these costs which occur to the third party in the production process.

Implicitly cost The explicit costs refer to the money paid out made by the firm. This includes payment for resources bought or hired e.g. wages, cost of raw materials, rent etc.

Implicit cost includes the resources owned and used by the firm"s the owner. When the profits are calculated on the bases of explicit and implicit cost we obtain *economic profit*. When calculated only on basis of explicit cost we obtain *financial profit*.

Assumptions

(i)   The firms take prices or input as determined by the market forces.

(ii)   Firms aim at minimizing the production cost.

Short Run Cost Function

In the short run input levels will depend on output level that the firm wants to achieve. In short run not all factors will be varied. At least one must be fixed and therefore the cost incurred on it will be fixed cost. The total fixed cost will be constant regardless of the output level e.g. rent for factory building, salaries of office staff etc.

Variable costs are incurred by the firm for its variable input. A firm wishing to increase its out put will require large variable input thus higher variable cost. The variable costs of a firm will increase as the output levels increase e.g. cost of raw materials, cost of direct labour and other direct running expenses.

$VC = f(Q)$ Where VC – variable costs, f –function, Q- output

Total cost represents the sum of the fixed cost and the varied cost.

$TC = (VC + FC)$ Where TC – Total costs; VC variable costs, FC – fixed costs *Average cot* is the cost per unit is the total cost of producing any given output divided by the total number of unit produced. Given by:

$$AC = \frac{TC}{Q} \quad \text{Where AC – average cost, Q – total units produced}$$

Average fixed cost, the total fixed cost divided by the output. Given by:

$$AFC = \frac{TFC}{Q} \quad \text{Where TFC – total fixed costs}$$

Average variable cost is given total variable cost divided by the output

$$AVC = \frac{TVC}{Q} \quad \text{Where TVC – total variable costs}$$

Marginal cost is the change in the total cost as a result of a unit change in output.

$$MC = \frac{\Delta TC}{\Delta Q.}$$

Graphic representation

Figure 4.6 Fixed costs

Figure 4.7 Variable costs
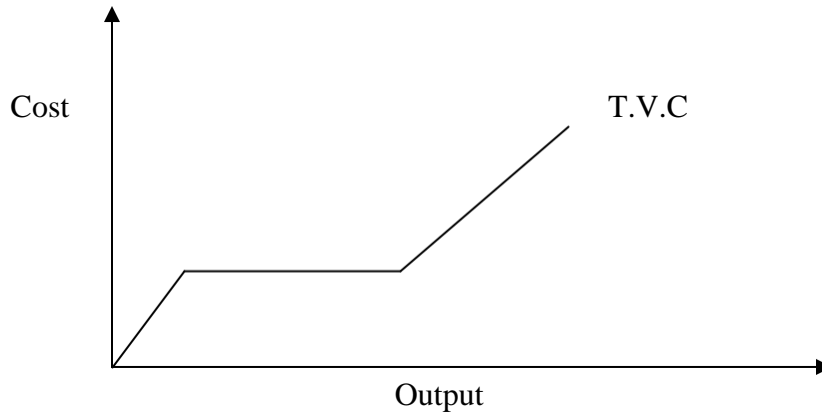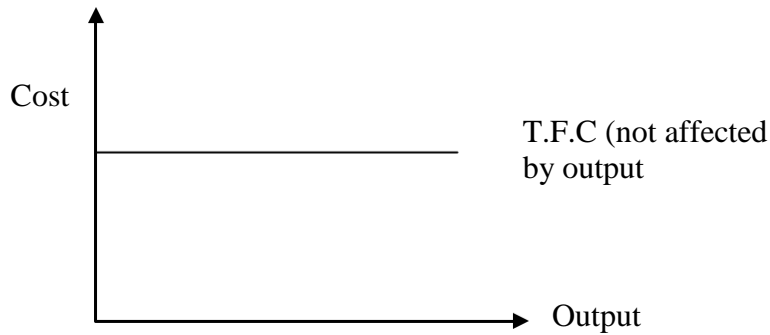
The relationship between average cost and marginal cost

In most of case the marginal cost the average cost from below. The average cost must be failing as compared to marginal cost

a) Mathematically it can be shown that, if the slope of average cost is less than zero, then the marginal cost will be less than average cost AC<0; MC<AC

b) If the average cost is greater than zero, then marginal cost is greater than average cost. AC>0 ;MC>AC

   Since the average cost curve is U- shaped the slope of average cost becomes zero to its minimum and hence marginal cost is equal to costs at this point.

The relationship between average total costs, average fixed cost, average variable cost and marginal cost is shown in Table 4.2.

Output	AFC	AVC	AC	MC
1	50	20	10	-
2	25	15	40	10
3	16.7	11.7	28.3	5
4	12.5	11.3	23.8	10
5	10	13	23	20
6	8.3	18.3	26.7	4.5

Table 4.2 Relationship between costs variables
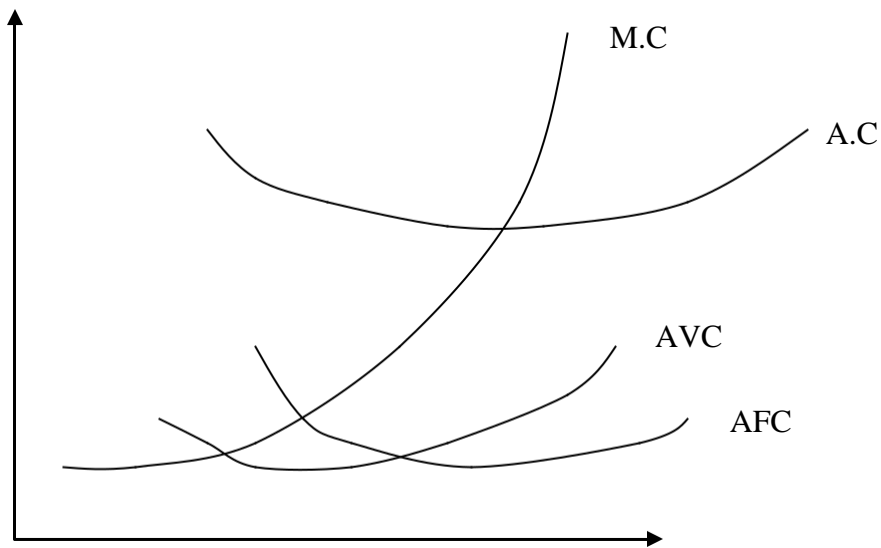
Figure 4.8 Graphical representations of cost variables

Exercise 4.1

Given that total cost is

$$TC = Q^2 + 3Q + 2$$

Find a) Marginal cost function

$$\frac{\Delta TC}{\Delta Q} = 2Q + 3$$

b) The average total cost function

$$ATC = \frac{TC}{Q} = \frac{Q^2 + 3Q + 2}{Q} = Q + 3 + \frac{2}{Q}$$

c) Average variable cost function

$$AV = \frac{VC}{Q} = \frac{Q^2+3Q}{Q} = Q+3$$

d) At what level of output would the firm minimize its average total cost and its average variable cost in the short run

MC = ATC - 2Q + 3 = Q+3+2/Q

$$(2Q+3)Q = (Q+3)Q$$
$$= 2Q^2 + 3Q = Q^2+3Q+2$$
$$2Q^2 - Q^2 = 2$$
$$Q^2 = 2$$
$$Q = 2$$
$$= \sqrt{1.41}$$

MC = AVC

2Q+3 = Q+3

q=0

Exercise 4.2

Suppose that the total cost function of a firm operating in the short run is given by

$$TC = Q^2 + 5Q+6 \text{ Find}$$

(i)   The ATC function

(ii)   The marginal cost function

(iii) The average variable cost function Calculate

the average fixed cost where Q= 3

(iv)   What will be the value of the following at the output of 100 unit

a) Average variable cost

b) AFC

c) Marginal

(v)   At what level of output will the firm minimize its average total cost by average variable cost?

i. $ATC = \frac{TC}{Q} = \frac{Q^2}{Q} + \frac{5Q}{Q} + \frac{6}{Q} = Q+ 5+\frac{6}{Q}$

ii.   MC = ΔTC = 2Q+5

iii.   AVC = AVC = Q+5

iv.   Give 3= AFC = $\frac{6}{3}$ =2

v.   Given Q = 104 Unit

   a.   AVC = $\frac{VC}{Q}$ = $\frac{\{(10)^2 +5X10\}}{10}$ = $\frac{150}{10}$ =15

   b.   AFC = $\frac{TC}{Q}$ = $\frac{6}{10}$ =0.6

   c.   MC=$\frac{\Delta TC}{\Delta Q}$=2Q+5=2X10+5=25

   d.   MC=TC

$$Q(2Q+5) = (Q+5+\frac{6}{Q})Q$$
$$2Q^2 +5Q = Q^2 + 5Q +6$$
$$2Q^2+5Q-Q^2-5Q=6$$
$$Q^2=6$$
$$Q=\sqrt{6}$$
$$= 2.45 \text{ Unit} \sim 3 \text{ Unit}$$

$$MC = AVC$$
$$2Q+5 = Q+5$$
$$Q = 0$$

Exercise 4.3

Suppose the marginal cost function of firm operating in the short run is given by MC = 2Q +9. Find

    i)   the total cost function

    ii)   The average variables cost function

    iii)   Calculate the average fixed cost where Q=3

iv)

        At what level of output will firm minimize its average total cost and average variables cost in the short run.

$MC = \dfrac{\Delta TC}{\Delta Q}$

$2Q+9 = \dfrac{\Delta TC}{\Delta Q}$

$\Delta TC = Q^2 + 9Q + C$ $2Q+9 = \dfrac{\Delta TC}{\Delta Q}$

i) $TC = Q^2 + 9Q + C$

ii) $AVC = \dfrac{VC}{Q} = \dfrac{Q^2 + 9Q}{Q} = Q + 9$

iii) $AFC = \dfrac{FC}{Q} = \dfrac{C}{Q} = \dfrac{C}{3}$

$MC = ATC$ $ATC = \dfrac{Q^2 + 9Q + C}{Q} = Q + 9 + \dfrac{C}{Q}$

$2Q+9 = Q + 9 + \dfrac{C}{Q}$

$Q = \dfrac{C}{Q}$

$Q^2 = C$

$Q = 5C$

4.7 Revenue Function

Revenue is the receipt from the sales of a good or service

Total revenue is given by the price x quantity sold

TR = PQ Where TR- total revenue, PQ- price x quantity

Average Revenue is given by;

$AR = \dfrac{TR}{Q}$ refers to revenue per unit sold on average

Marginal revenue it is the increase in revenue brought about on extra unit sold.

$MR = \dfrac{\Delta TR}{\Delta Q}$

Exercise 4.4

Given a demand function P = 5 -1/4 Q. Calculate total revenue marginal revenue and average revenue.

TR=PQ

$= (5-{}^1/_4Q)Q=5Q-\tfrac{1}{4}Q^2$

$MC=\dfrac{\Delta TR}{\Delta Q}=5-\tfrac{1}{2}Q$

$AV=\dfrac{TR}{Q}$ $=\dfrac{5Q-{}^1/_4Q^2=\tfrac{1}{4}Q}{Q}$

$=5-\tfrac{1}{4}Q$

Exercise 4.5

Give the following demand function $P = \dfrac{3}{Q} +Q - 5$

Calculate total revenue marginal revenue and average revenue.

$TR=PQ=({}^3/_{Q2}+Q-5)Q$

$={}^3/_Q+Q^2-5Q$

$AV=\dfrac{TR=\dfrac{{}^3/_Q+Q^2-5Q}{Q}=3+\dfrac{Q-5}{Q-2}}{Q}$

$MR=\dfrac{\Delta TR}{\Delta Q}=2Q-5-\dfrac{3}{Q^2}$

$$AV = \underline{TR} = {}^3/\underline{Q} + \underline{Q^2} - \underline{5Q}$$
$$Q \quad Q \quad Q \quad Q$$
$${}^3/Q^2 + Q - 5$$

4.8   Optimum Seize of a Firm

This is the level of output at which total profit is at maximum. It is the best or the most efficient size of a firm when the long run average cost of a firm is at minimum. At this point there will be no motive for further expansion since at any other size large or smaller the firm will be less efficient. This is also attained when the firm cost of production is at its minimum level as illustrated in Figure 4.9
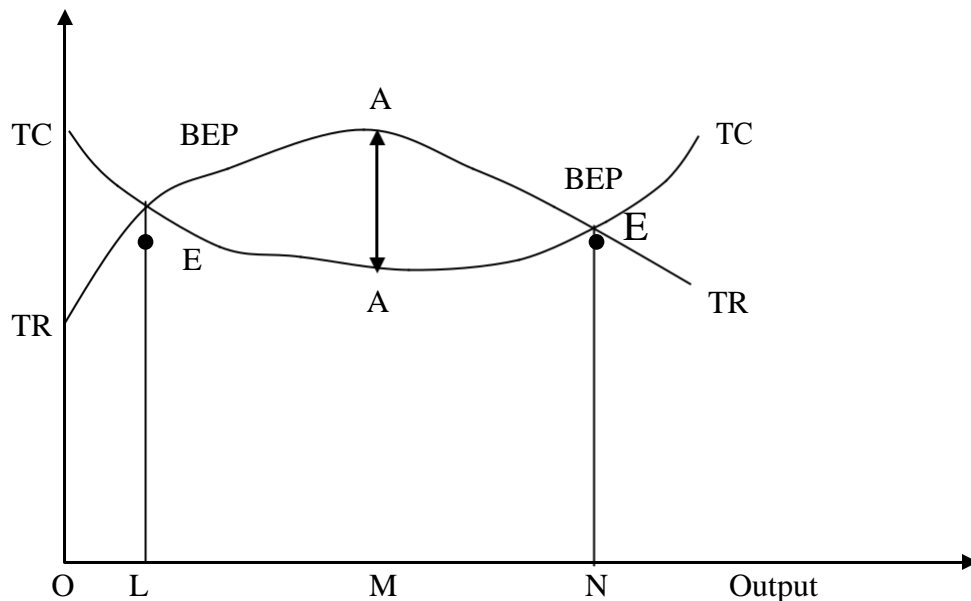
Figure 4.9 Optimum seize of a firm

Below OL total cost exceeds total revenue and hence the firm is making loss. At the point EL neither profit nor loss are being made and hence its break even point (BEP) when total revenue is equal to the total cost. The same case applies to the point EN. Maximum profit lies where revenue and total cost difference total in the greater i.e. the point where the vertical distance between the total revenue and the total cost is greatest. In Figure 4.9 the maximum profit is at point M where AA is the largest vertical distance.

N/B: For profit maximization the following two conditions must be met

i)   The necessary conduction – according to this conduction profit are maximized at the levels of output where marginal revenues is equal to marginal cost. To maximize profits profit is symbolized by pie ($\prod$)

Maximize profit= $\dfrac{\Delta \text{ Profit}}{\Delta \text{ Quantity}}$ = 0

$\qquad\qquad = \dfrac{\Delta \prod}{\Delta Q}$ = 0

But $\prod$ = TR - TC

$\dfrac{\Delta \prod}{\Delta Q}$ $= \dfrac{\Delta TR}{\Delta Q} - \dfrac{\Delta TC}{\Delta Q}$

0=MR–MC

MR=MC

ii)   The sufficient condition states that the slope of marginal revenue curve must be less than the slope of marginal cost curve at the point where they meet. Meaning that the marginal cost curve cuts the marginal revenue curve from below as shown in Figure 4.10
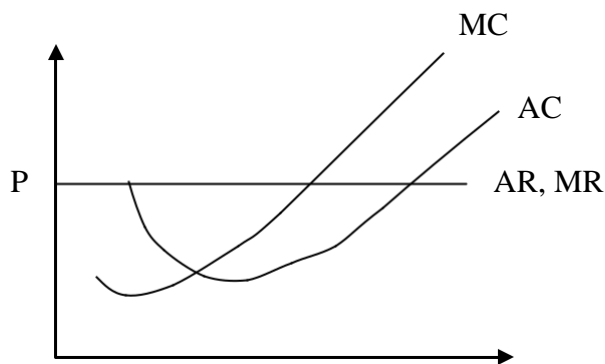
Figure 4.10 Sufficient conditions for revenue maximization

N/B: Total profit function is maximized as follows

i.   Taking the first derivative and setting it equal to zero to obtain the critical values.

ii.   Taking the second derivative and evaluating it at the critical values to ascertain if the function is at the relative minimum or maximum.

Exercise 4.6

Trusts enterprises is a medium sized firm which specializes in production of water taps
The finance department has determined the following cost structure per unit of a tap
produced.

   a) Variables cost per unit 15/=

   b) The fixed cost period is 20/=

   c) Selling price for tap is 2 5/=

 Required:

   i.   Deriver the total cost function and re venue function

   ii.   Determine the break win point.

   iii. The number of taps that would give a profit of 4/=

   iv.   If for some reason the price o f taps increase to 3 5/= per tap. What will be the
         break even output?

VC=15   FC=20   P=25

1) TC =VC + FC   VC =f (Q)

                 = 15Q

a) TC = 15Q+ 20

b) TR = PQ=2 5q

ii) TC = TR

    15Q + 20 = 25Q

    20 = 10Q

    2 = Q

iii) P - $\prod$ = TR - TC

    4 = 2 5Q-(15Q+20)

    4 = 1 0Q-20

$24 = 10Q$

$2.4 = Q \simeq 2\text{taps}$

iv) TR= TC

$35 \times Q = 15Q \times 20$

$2Q=20$

$Q = 1$

Exercise 4.7

The total cost equation in the production of beckon at a certain factory is given as follows C= 1000 + 1000-25Q2+ Q3 Where C is the cost is Shs. and Q is the quality in Kg. Required:

  i.   Compute the total and average cost at the output of 1 0kg and 11kg.

  ii.   What is the marginal cost of the 12th kg?

  iii.   Explain the slope and relationship between the average cost, average variable cost, marginal cost and fixed cost curve using relevant diagrams

Solution

$TC = 100 + 100Q - 15Q^2 + Q^3$ $\qquad ATC = \dfrac{TC}{Q} = \dfrac{100}{Q} + 100 - 15Q + Q^2$

1 a) $TC = 1000 + 100 \times 10 - 15 \times 10^2 + 10^3$ $\qquad ATC = \dfrac{1000}{10} + 100 - 15 \times 10 + 10^2$

$\qquad\qquad = 1500$ $\qquad\qquad\qquad\qquad\qquad = 150$

b) $TC = 100 + 100Q \times 11 - 15 \times 11^2 + 11^3$ $\qquad ATC = \dfrac{1000}{11} + 100 - 15 \times 11 + 112$

$\qquad\qquad = 1616$ $\qquad\qquad\qquad\qquad\qquad = 146.91$

ii) $MC = \dfrac{\Delta TC}{\Delta Q} = 100 - 30Q + 3Q^2$ At 12th KG $= 100 - 30 \times 12 + 3 \times 122$

$\qquad\qquad\qquad\qquad\qquad\qquad\qquad\qquad = 172$

4.9   Economies of Scale

In the long run, all the input into production processes are variable so the problems associated with diminishing returns to the variable factors do not arise. The law of diminishing returns therefore only applies to short run costs and not on long run costs. This implies that whereas short term decisions are concerned with diminishing returns given fixed factors of production, long run output decisions are concerned with economies of scale which are based on assumptions that all factor inputs are variable. Economies of scale are aspects of increasing size which lead to falling long run average costs. Economies of scale assist in explanation of trend towards large production units in some industries. Economies of scale can be classified into internal and external economies of scale. They are the advantages that arise due to expansion in scale of are two categories:

a) Internal economies of scale
b) External economies of scale

Internal economic of scale are factors which bring to reduction in average cost as the scale of production of individual firm rise. Internal economies of scale are those factors which bring out a reduction in average costs as the scale of production of individual firm arises, depending on what is happening to other firms. This is attributed to the activities within the firm hence the economics are brought about by various source which include:

(i)   *Marketing economies* of scale consists of all the advantages a firm acquires as they approach the market such as

- *Buying advantage-* large firms enjoy buying advantage since they purchase goods in bulk hence receive heavy bulk discounts that reduce cost of production.

- *Packaging advantage* It is easier to package goods in bulk than in small unit with reference to packaging costs.

- Transportation advantage due to transporting many units at the same time which reduces transportation cost to a large scale producer compared to a small scale producer.

- *Selling advantage* in terms of advertising whereby the large scale producer will benefit more as he will sell more as compared to a s all scale producer due to mass advertisement

(ii)   *Technical economic of scale* consists of:

- *Factor indivisibility* e.g., certain capital equipment must be of a specific minimum scale or capacity of justify manufactures ability. A small firm will not utilize its equipments in full due to idle capacity arising from the small production capacity. Large scale producer will be advantaged since he will optimally utilize the equipments.

- *Increased specialization* The larger the scale of production the greater the scope of specialization of both labour and machinery leading to high productivity.

- *Principle of multiples* If the production process involves use of different stages and type of machinery the large firms will benefit due to high productivity while smaller ones will be disadvantaged since they produce fewer units.

- *Research and developments* A large firm may be able to support its research and development programs which could result in cost reducing innovations

(iii)   *Financial economies* Large firms can easily obtain financial resources at lower rates than small firms. Large firms can also produce more security for loans and investments

(iv)   *Risk becoming economies a* large firm that has diversified into several markets is usually better placed to withstand adverse trading conditions.

(v)   *Managerial and administrative economies* Managers and administrators are highly qualified in managements of large firms. This creates division of labour which improves efficiency.

External economies of scale

These are advantages that arise from the growth of industry resulting from simultaneous interaction of a number of industries in the same or various industries as well as the community at large. External economies of scale are those advantages in the form of

lower average costs that a firm gains from the growth of the industry. External economies are available to all firms in the industry no matter their size. These advantages include:

(i) *Employment* Due to growth of industries employment opportunities are created to the communities that will help to improve the standard of living.

(ii) *Specialization* Different firms within the industry will decide to specialize in one area of production which will reduce cost of production and improves quality of the product and reduce prices. The repeated performance of the same actions means that labour can become very skilled. The breaking of the production process into many stages signifies that machines can be designed specifically for each stage. An example is in the motor assemble plant where many of the different stages in the assembly are completed using computer controlled machines.

(iii) *Growth of complimentary service* Whenever a business is expanding its output, there are some complimentary services that arise e.g. schools medical facilities financial institutions, better roads, etc. that benefit the society.

(iv) *Increased co-operation* Many firms within the industry can co-operate with one another in terms of research and development hence improve the quality of a product, new techniques in production which lowers the cost of production and reduction in prices.

Internal diseconomies of scale

Increasing the size of a firm beyond a certain scale can lead to rising average costs. This is because of management difficulties and rising prices of inputs. Management problems arise because:

a) As the size of departments in an organization increase, the task of coordination becomes more difficult.

b) Despite the existence hierarchy of authority in large firms, the task of control, that is, of ensuring implementation is extremely difficult in practice.

c) In the firms of large sized *communication* may be problematic in that it is difficult to ensure an effective vertical and lateral line of communication.

Communication network are generally more complex in large organization with associated greater likelihood of communication breakdown.

d) The maintenance of morale is more difficult in large organizations because individual workers in large organizations may feel unimportant the firm and often do not identify with the firm"s objectives.

e) An additional source of internal diseconomies of scale is increase in price of inputs since as the scale of production increases, the firm will increase the demand for inputs likelihood and transport and this may lead to the bidding up of prices of prices of certain inputs.

External diseconomies of scale

May arise because of a shortage of various inputs used in the industry may arise leading to an increase in the cost of those inputs. For example, an increased demand for raw materials may bid up the prices of raw materials and cause their prices to rise. Heavy localizations of industry may make land for expansion scarce and therefore more expensive to rent and purchase. Increased congestion could also lead to higher transport costs. Others costs include:

- *Over production* Increase in growth of a firm will lead to overproduction leading to wastage due to lack of a market

- *Negative externalities e.g*. pollution, poor working condition this will be experienced as many firms expand their output.

- *Maintenance of morale* Individual workers feel unimportant to the firm and may not identify with the firm objectives

- *Government interference* Whenever there is increase in output due to increase in growth it"s led to increase in profit. The government then imposes tax which is a disadvantage to the firm

4.10   Mergers and Acquisitions

Mergers occur where two firms agree mutually to joint their operations together. While an acquisition occurs when a firm called a predator decides to take over another firm referred to as a prey either forcefully of willings. Mergers and acquisitions are driven by different motives. The following are major types of mergers and acquisitions.

(i) *Vertical integration occurs* when merger takes place between firms engaged in different stages of the production process. Thus for example, a tyre manufacturer can acquire rubber plantations. Backward integration is said to take place when the movement is towards the market outlets as, for example in the case of large oil companies taking control of petrol stations.

(ii) *Horizontal integration occurs* when firms engage in the production of the same kind of good or service brought under unified control. An example would be an amalgamation of several motor manufacturers.

(iii) *Diversification occurs* when firms that produce goods that are not directly related to each other combine. An example would be the merger of a firm producing fertilizers with a manufacturer of paint. The main aim of diversification or conglomerates is to reduce the risk of trading.

a) Demand for variety that cannot be met by mass production especially in industries like clothing and footwear.

b) Many owners of small firms have no ambition to grow large because they do not want to sacrifice their independence and control.

c) A personal contact with customers is important in many industries like accountancy and architecture.

d) The size of the firm may be limited by the extend of the market since a firm can only grow in size if this is permitted by the market. The market for luxury items for example is limited by income and wealth.

e) Firms may want to avoid the rising costs that arise from diseconomies of scale

f) There is a tendency for mass production industries to disintegrate into a large number of specialist firms.

4.11 Review Questions

1. What are the main factors of production? Briefly describe them.

2. What do you understand by mobility of factors of production?

3. Discuss different forms of specialization

4. Explain law of diminishing marginal returns/law of variable proportions

5. Write short notes on:

   a) Isocosts

   b) Isoquants

6. Define total, average and marginal product. Discuss the relationship between average and marginal product.

7. Define total, average and marginal product cost. Discuss the relationship between average and marginal cost.

8. Distinguish between average total cost, average variable cost and average fixed cost.

9. Explain the short run and long run cost curves of the firm.

10. Define total, average and marginal revenue

4.12   References

 Saleemi M.A (2001) *Economics Simplified (Revised Edition)* Saleemi Publishers Ltd (Pages 117-143)

Koutsoyiannis A; (1994), *Modern Microeconomics*, Macmillan Education Ltd

LESSON FIVE: MARKET STRUCTURES

Purpose: To introduce the learner to market structures. This will enable the learner appreciates features of different market for various industries.

Specific Objectives

By the end of the lesson the learner should:

 (i)   Explain features perfect markets

 (ii)   Describe characteristics of monopoly market

 (iii)   Explain features of a monopolistic market

Markets can be divided into imperfect market and perfect market.

5.1   Perfect Markets

Perfect market is a market with many buyers and sellers where nobody can determine the price of goods or services.

Characteristics

 (i)   Large number of buyer and sells where each individual firm supplies part of total quality supplied. Buyers are many such that no monopolistic powers can affect the working of the markets. Under this condition no individual firm or buyer can affect the market

 (ii)   *Free entry and free exist* there are no barriers to entry or exit to the industries. Entry and exit from the industries may take time but firms have the freedom of movement in and out of the industry.

 (iii)   *Product homogeneity* The industry is defined as group of firms producing homogenous product i.e. the technical characteristic as well as the service associated with product sold are identical. There is no why is which buyer can differentiate among the products of different firms.

N/B: Under perfect competition firms are price takers. Meaning the demand curve of an individual firm will be perfectly elastic showing that the firm can sell any quantity of output at a given or prevailing market price. The concept of price taking is illustrated in Figure 5.1
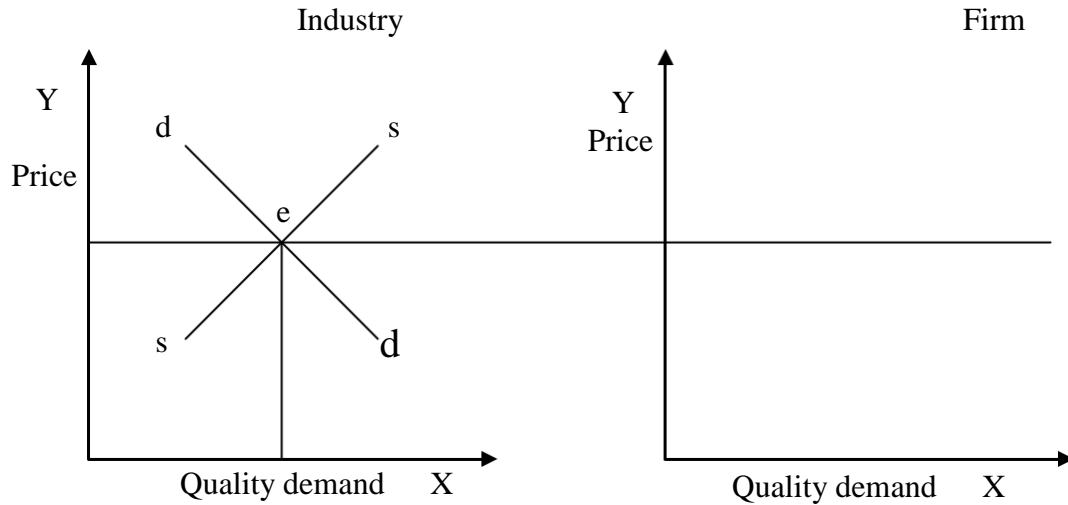
Figure 5.1 Concept of price taking

(iv) *Profit maximization* The goal of the firm is profit maximization both is the short run and in the long run. No other goal is pursued.

(v) No government regulation. There is no government intervention in the operation of this market.

(vi) *Perfect mobility of factors of production.* Factors are free to move from one firm to another throughout the economy. It is assumed that there is perfect competition on the factor market.

(vii) *Perfect knowledge* All sellers and buyers are assumed to have complete knowledge about the conditions in the market. This knowledge refers not only to prevailing condition in current but also for future periods.

The revenue position of a perfectly competitive firm

In perfect competition since each unit of out is sold at the same price both the average and marginal revenue are constant. This is illustrated in Table 5.1

Price(ksh)	Qty demand	Total demand	Marginal revenue
20	1	20	20
20	2	40	20
20	3	60	20
20	4	80	20
20	5	100	20
20	6	120	20
20	7	40	20
20	8	160	20

Table5.1 illustrates that as the quality demand increases the price remains unchanged. This implies that each additional unit sold increases the total revenue by in amount equal to its price. This relationship is illustrated graphically as shown in Figure 5.2
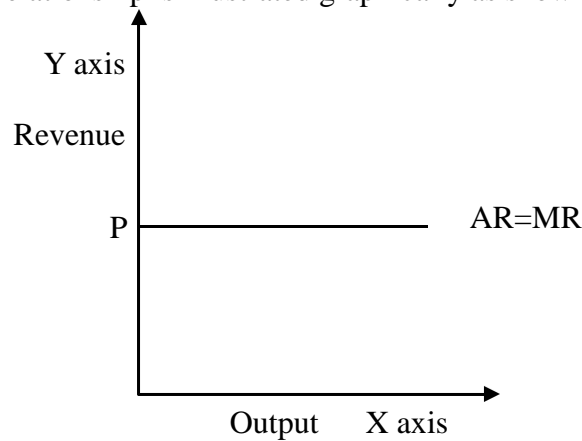
Figure 5.1 Output of the firm in perfect competition

The short run Recall that the short run is the context the theory of the firm is the period in which the quality of at least one factor of production is fixed. The level of output during this period of time can alter the utilization of variable factors. In the short run is the perfect competition can make normal profit, abnormal profits or losses

Normal profit This refers to the minimum level of profit which a firm must make in order to induce it to remain in operation. The level of normal profit varies from one industry to the other. This because of different level of risk and nature of the production process involved in different industries. Normal profits may be considered be just past cost of production line since production will not continue unless at least this level of profit is attained.
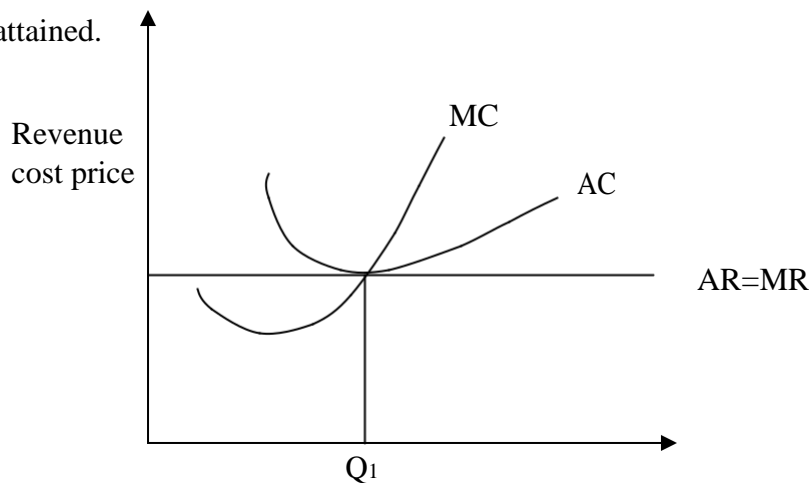
Figure 5.2 Normal profits

In the Figure 5.2 the firm is earning normal profit because price is equal to the average cost. The profit maximizing level of output is Q1 where the necessary sufficient conditions are satisfied. Since normal profit are made where the price is equal to average cost it implies that when price exceeds average cost the firm is said to be earning normal or super-normal profits.

Supernormal profit (P>AC) Categories all those firms which are earning a return which exceeds the minimum necessary to induce them to remain the industry they currently occupy. Figure 5.3 shows a firm making super-normal profits.
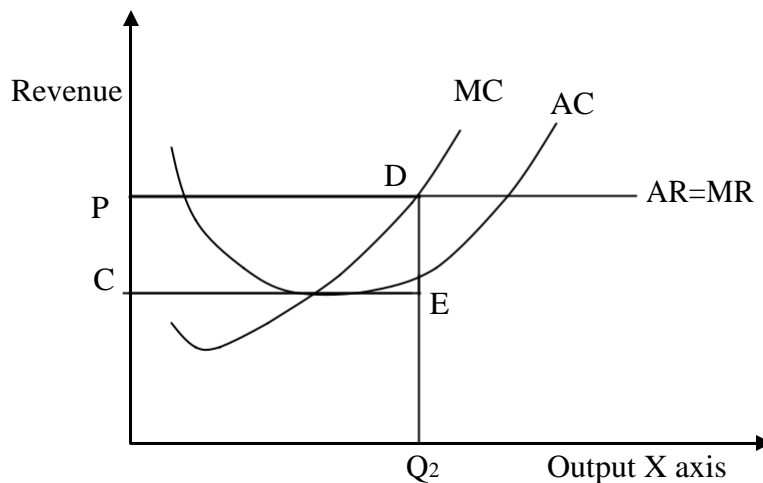

Figure 5.3 Firm making super-normal profits

From Figure 5.3 when the level of output is Q2 the cost for unit is EQ2 and the price DQ2 supernormal profit is equal to CPDE which is represented by the scheduled area.

5.2   Monopoly

Monopolies are usually associated with economies of scale because of the large size of the market controlled by the firm. Economies of scale imply lower unit"s costs of production. It is likely that the consumer will benefit from this cost effectiveness through lower prices from a monopoly supplier. A monopolist like any other firm finds profit maximizing level of output where the marginal revenue is equal to marginal cost as shown in Figure 5.4. Monopoly firm maximizes profit at the level of output Q where the necessary and sufficient conditions of profit maximization are satisfied. The super normal profits earned by the monopolist are represented by the shaded area PCBX. This monopolist profit will persist in the long run since the are barriers to the entry in the

industry. In the long run the monopoly can expand or use the existing plants at any level that will maximize profit. Owing to the existence of barriers it is unnecessary for the monopolist to reach the optimum scale of production which corresponds to the minimum point of the long run average curve.
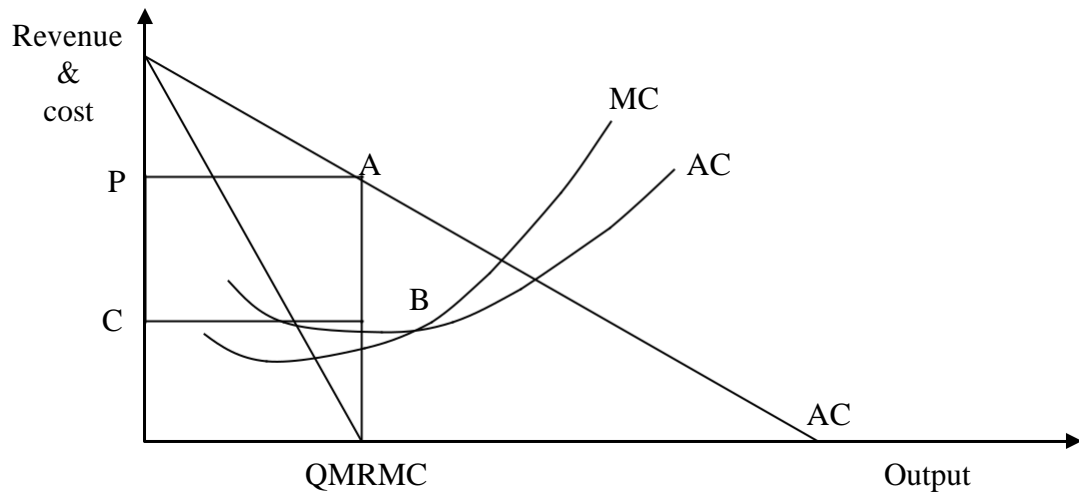
Figure 5.4 Supernormal profits made by a monopolistic firm

Sources of monopoly power

Legal barriers This takes the form of statutory monopolies or patents i.e. monopolies established by an Act of parliament and patent meaning that a firm is protected from competition of new firms.

Products differentiation barrier This may be in form of product uniqueness, advertisements and branding where an existing monopolist may exploit his position as a supplier of an established products which the customer is persuaded to believe that it is the best.

Economies of scale barriers could arise where existing firms are already operating on a vast scale production and enjoying technical economies of sale.

Transport cost and tariff barriers Some firms may enjoy local monopoly position arising from the ability to sell more cheaply in their own localities than other firm. Such firms can therefore rise prices in their local markets above the production cost by an amount that does not exceed transport cost close of firm in other localities with similar production cost

Advantages of monopolies

    a) Economies scale

    b) No wastage of resources

    c) Price stability since monopolists are price makers

    d) Ability to carry out research and development to improve on their product

    (i) *Diseconomies of scale arises* in case the firm grows in a very large size, exploits the economies of scale and fails to achieve the targeted economies of scale.

    (ii) Inefficiency since there is no competition

    (iii) Lack of motivation though the firm is in a better financial position to research and develop there product the monopoly may fail to do so since there is no competition or a challenging firm.

    (iv) Consumers" exploitation .This is the most notorious practice of monopoly. This is done through overpricing and price discrimination of their products.

Price Discrimination

This exists where the same product is sold at different prices to different buyers. This depends on the tastes and preferences of the consumers, different periods of the firm, consumers" income etc. These factors will give rise to a demand curve with different elasticities in different areas in the markets for the firms. Price discriminates is easily implemental by a monopolists since he controls the whole supply of a given good. There are two necessary conduction for price discrimination to take place:

1. The monopolist must effectively separate markets. If he has not separated the market the customers in the low price market will buy and sell the commodities those consumers in the higher price market.

2. The price elasticity of demand for the two markets must be different so that profitability will be realized. At every price the demand in any market must be elastic than the other where the low priced market have a more elastic demand than the high priced market. By selling the quality dined by the equation MC and MR at different price the monopolist realizes a higher total revenue and profits, the

monopolists realizes a higher total revenue and profits as compound to charging uniform prices.

N/B: suppose that a monopolist has two markets M1 and M2 the profit in each market maximized by equating marginal cost to the corresponding marginal revenue i.e. In the first market; MR1=MC1

In the second market; MR2=MC2

That mean monopolist will maximize profit by equating the common market cost with the individual market revenues as MC=MR1=MR2

5.3   Monopolistic Competition

This is a form of imperfect competition which lies between the extremes of perfect competition and monopoly and includes elements from both markets. Examples include: restaurants, hair dressers etc

Characteristics

1   There are many buyers and sellers in the market

2   The product of the sellers is differential yet very close substitute for each other

3   There is freedom of entry and exist of firms

4   The goal of the firms is profit maximization both in the short run and in the long run.

5   The prices of factors of production and technology are given. Under this competition, each producer sells a product which is to slightly different from that of the competitor and attempts to emphasize on differences like packaging and advertisements.

This process of creating the differences is called product differentiation which is aimed at creating brand loyalty. The firm demand curve will be relatively elastic since the products sold by the competition will be relatively close substitutes. Monopolistic firm sells differentiated products therefore have limited control over the price. They are prices makers since they can raise their prices without loosing their customers and have to reduce the prices in order to sell more

Short run equilibrium in monopolistic competition

In Figure 5.5 a firm operating under monopolistic competition makes supernormal profit in the short run as shown by PCAB. The supernormal profit will attract new firms into the industry and the surplus profit will be reduced to normal profit in the along-run as shown in Figure 5.6

Revenue
&
cost

P ──── A

C ──── B

MC

AC

AR

MR

O   Q   Output
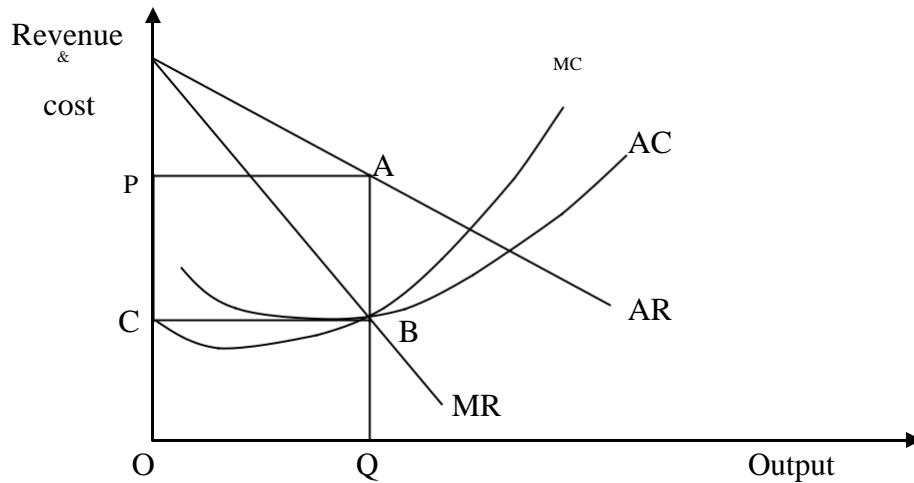
Figure 5.5 Supernormal profits in short run

MC
AC

P ──── A

MR

AR

O   Q1   Q2   Output
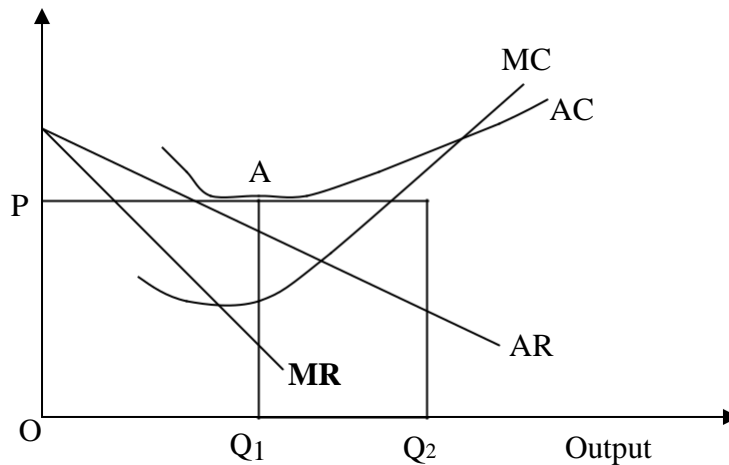
Figure 5.6 Normal profits in long run

A firm in monopolistic competition in the long run will make normal profit since average revenue will be equal to average cost. The existence of many brands enhances the consumer choice and ability. However it is considered wasteful because of existence of excess capacity shown by (Q2-Q1) which is carried (borne) by the consumer through

prices. It is also in wasteful since the resources that could have been used in expansions and exploitation of economies of scale are used in advertising.

5.4 Oligopoly

This refers to the market structure dominates by large few firms. The number of sellers (firms) is small enough for other sellers to take account of each other i.e. if one seller changes his prices or uses non- price strategies his/her rivals would react. This is called oligopolistic dependency.

Characteristics

1. Contains few firms who produce goods that are substitute but need to be perfect substitutes.
2. Lies somewhere between extreme of perfect competition are monopoly.
3. There are barriers to the entry.
4. Decision of the firms are strictly interdependent
5. Sellers agrees on the price or the market share

(i) Duopoly where market is dominated by two firms

(ii) Pure oligopoly where the products of the few sellers are identical.

(iii) Differentiated oligopoly where products are differentiated in term of quality packaging etc.

(iv) Collusive oligopoly where the few sellers in the market come together and make decisions to control the prices, quality and quantity to be produced.

(v) Non collusive oligopoly where the few sellers determine their prices, quality and quantity without colluding.

The interdependence in oligopolistic firms explains the price rigidity among the firms. The theory of kinked demanded curve suggests that firms in oligopoly face two sets of demand curves.

(i) Price increase
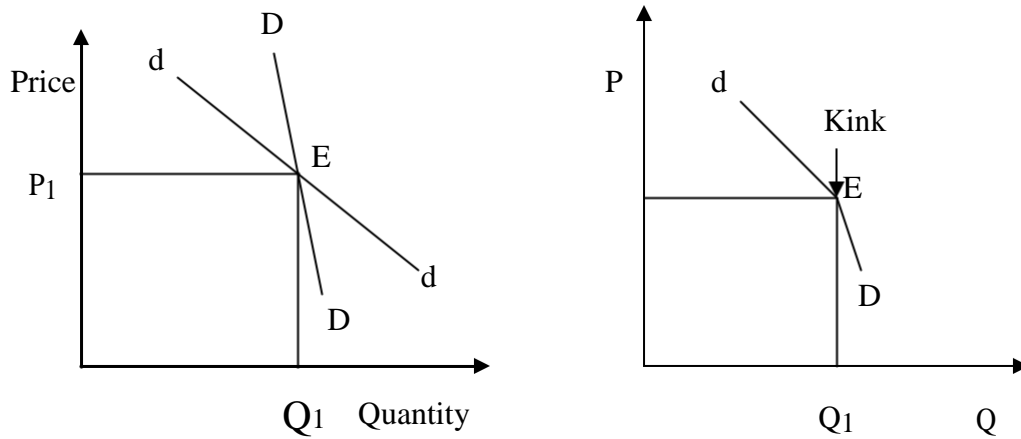
(ii) Price reduction which is slightly inelastic

Figure 5.7 Kinked demand curve

For price increases the firm is an elastic demand curve dd. For price decreases it is on the inelastic demand curve DD. This means the actual demand curve for firms is represented by dED. The demand is said to have a kink at point E associated with the price P1 and quantity Q1. All firms in the industry are assumed to be in a similar position which implies that if a firm raises its prices and its competitor fails to follow suits then, it will loss large sales of revenue. This firms is on the elastic portion of the demand curve

If one firm reduces prices then, its competitors will have to reduce their price by at least a much or even more to retain the market share. When the price is lower each firm has the same market share which implies that the firms are on the inelastic portion of the demand curve. Collusion will take the form of agreeing the prices for each market share. This is done in order for the oligopolistic firms to maximize their joint profits and reduce uncertainty. A form of open collision is known as a cartel whereby firms produce differently but act like determinants of price and output. Figure 5.8 shows the Equilibrium of an oligopolistic firm facing kinked demand curve.

The marginal revenue is discontinuous at the output level where there is a kink in the demand curve. The kink in the demand curve explains the nature of the marginal revenue curve. Where at point E and output Q the marginal revenue curve falls vertically since at the higher price the marginal revenue curve correspond to less elastic demand curve. The firm maximizes its profit where the marginal cost is equal to marginal revenue. Its is very likely that the marginal cost curve will cut the marginal revenue curve between point X and Y which corresponds to the discontinuous part of marginal revenue curve.

105
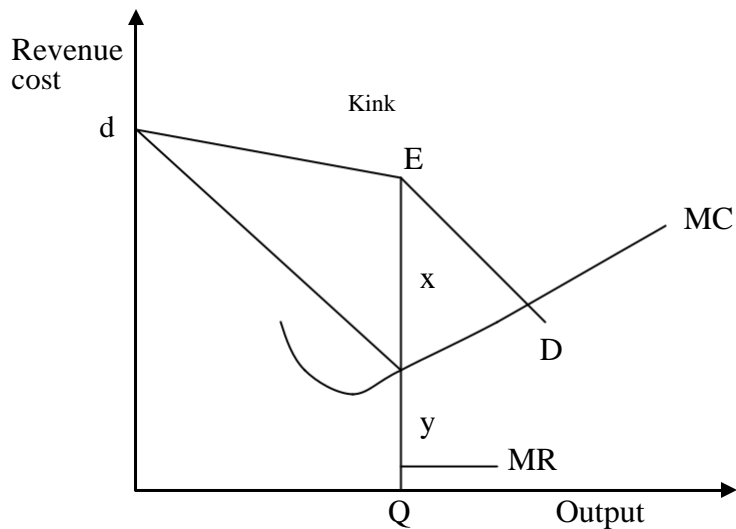
Figure 5.8 Equilibrium with kinked demand curve

5.5 Review Questions

1. What is meant by a perfect market?

2. What is meant by monopoly? What are the main sources of monopoly power?

3. Give the arguments for and against monopoly

4. How can the government control monopoly?

5. Discuss the equilibrium of a firm under monopoly

6. Compare the equilibrium under a firm under perfect competition and monopoly

7. How are price and output determined under price discrimination?

8. What is monopolistic competition? Discuss the salient features

9. Explain the concept of kinked demand curve.

5.6 References

Saleemi M.A (2001) *Economics Simplified (Revised Edition)* Saleemi Publishers Ltd (Pages 132-170)

Koutsoyiannis A; (1994), *Modern Microeconomics*, Macmillan Education Ltd

Mt Kenya University

UNIVERSITY EXAMINATIONS 2010/2011 SCHOOL OF BUSINESS & PUBLIC MANAGEMENT DEPARTMENT OF FINANCE & ACCOUNTING BACHELOR OF BUSINESS MANAGEMENT

BBM 115 INTRODUCTION TO MICROECONOMICS

July 2010   **Time: 2 hrs**

*Answer Question **ONE which** is COMPULSORY and any other **TWO** questions* **QUESTION ONE**

a) Define the term "consumer rationality" and outline the conditions that must be fulfilled for consumer rationality   (6 marks)

b) Using indifference curves derive the demand curve for a normal good. (6 marks)

c) With the help of a diagram distinguish between the income effect and substitution effect of change in the price of a normal good.   (8 marks)

d) Using an illustration, explain the concept of market equilibrium in economics

                                                                                                                 (8 marks)

e) Define the term "opportunity cost"   (2 marks)

                                                                                                        (30 marks)

QUESTION TWO

a) Explain the factors that influence cost beheviour in a firm   (4 marks)

b) Illustrate and briefly explain the relationship between marginal cost (MC) and average cost (AC) curves of a firm   (6 marks)

c) The total cost in thousands of shillings (TC) of producing Q units of a given product is given by the following function:

   $TC = 1,000 + 2Q^2 - 12Q$

   Required:

   (i)   The total fixed costs.
   (ii)   The output level that will minimize the marginal cost.
   (iii)   The marginal cost when the level of output is 5000 units.

                                                                                                                 (6 marks)

d) Economics is both a science and an art. Explain   (4 marks)

                                                                                                        (20 marks)

QUESTION THREE

a) Distinguish between the following

      (i) Consumption curve and Engel curves   (4 marks)

      (ii) Cardinal approach and marginal approach to measuring utility   (6 marks)

b) Briefly explain the limitations of the cardinal approach in measuring utility

                                                       (6 marks)

c) Define the term "cross elasticity of demand"   (2 marks)

Price of commodity X (SH)	Demand for commodity X (Units)
12	80
16	100
20	120
24	140
28	160

d) The following data relate to a consumer in a certain market:

Required: Calculate the cross elasticity of demand of commodity Y with each of the changes in price of commodity X. comment on the relationship the two commodities.

                                                    (2 marks)

                                                 (20 marks)

QUESTION FOUR

    a) Define the term "inferior goods"   (2 marks)

    b) Explain the law of supply   (2 marks)

    c) Explain a situation where the law of supply is violated   (2 marks)

    d) Explain the concept of consumer sovereignty   (4 marks

    e) Briefly explain the usefulness of the concept of elasticity of demand in decision making process   (8 marks)

QUESTION FIVE

a) Identify the source of monopoly power   (6 marks)

b) In relation to the theory of production, explain the shut point of a firm   (6 marks)

c) Explain with illustrations, the long run output choice of a firm operating in a perfectly competitive structure   (8 marks)

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BBM 115 INTRODUCTION TO MICROECONOMICS

July 2010   **Time: 2 hrs**

*Answer Question **ONE which** is COMPULSORY and any other **TWO**
questions* **QUESTION ONE**

    a) Write brief notes on the following:

        i)   Scarcity and choice

        ii)   Diminishing marginal utility

        iii)   Price elasticity of demand

        iv)   Substitution and income effects of price change   (Each 5 marks)

    b) Illustrate and explain the three stages associated with the law of variable

      proportions   **(10 marks)**

                                                     (30 marks)

QUESTION TWO

  a) What is oligopoly? (4 marks) b) Using a well illustrated diagram, show that a
monopolist can make losses in the short-run even when MC= MR (8 marks)

    c)   Using a well illustrated diagram, explain why prices are „sticky" downward

       under oligopolistic market   (8 marks)

                                                       (20 marks)

QUESTION THREE

a) The demand and supply schedules for carrots in a certain market are given below.

Price KShs „000" per ton	Quantity demanded per month (thousands of tons)	Quantity supplied per month (thousands of tons)
2	110.0	5.0
4	90.0	46.0
8	67.5	100.0
10	62.5	115.0
12	60.0	122.5

Determine the equilibrium quantity and price by graphical method   (8 marks)

b) Explain how the of elasticity guides in price discrimination by a monopolist

(2 marks)

c) By focusing on an inferior good, use the indifference curve analysis to demonstrate and explain income and substitution effects   (10 marks)

(20 marks)

QUESTION FOUR

a) What is meant by the term "production function"   (2 marks)

b) Giving appropriate examples, explain the term "fixed factors of production"

(3 marks)

c) Explain and illustrate the resultant hypothetical total and marginal product curves for an economy with only two factors of production, one of which is fixed.

(8 marks)

d) What is a "production possibility frontier"   (3 marks)

e) Given a production possibility frontier curve, show the impact of a new more efficient mode of production.   (4 marks)

(20 marks)

QUESTION FIVE

a) Discuss the barriers to occupational mobility of labour   (10 marks)

b) Explain the characteristics of free market economy   (10 marks)