

ECONOMICS

INSTRUCTIONS FOR STUDENTS

This study guide is intended to assist distance learning students in their independent studies. The course has been broken down into eight lessons each of which should be considered as approximately one week of study for a full time student. Solve the reinforcement problems verifying your answer with the suggested solution contained at the back of the distance learning pack. When the lesson is completed, repeat the same procedure for each of the following lessons.

At the end of lessons 2, 4, 6, and 8 there is a comprehensive assignment that you should complete and submit for marking to the distance learning administrator.

SUBMISSION PROCEDURE

1. After you have completed a comprehensive assignment clearly identify each question and number your pages.
2. If you do not understand a portion of the course content or assignment question, indicate this in your answer so that your marker can respond to your problem areas. Be as specific as possible.
3. Arrange the order of your pages by question number and fix them securely to the data sheet provided. Adequate postage must be affixed to the envelope.
4. While waiting for your assignment to be marked and return to you, continue to work through the next two lessons and comprehensive assignment.

On the completion of the last comprehensive assignment, a two week period of revision should be carried out of the whole course using the material in the revision section of the study pack. At the completion of this period the final Mock Examination period should be completed under examination conditions. This should be sent to the Distance Learning Administrator to arrive in Nairobi at least five weeks before the date of your sitting the KASNEB Examinations. This paper will be marked and posted back to you within two weeks of receipt of the Distance Learning Administrator.

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ECONOMICS COURSE DESCRIPTION

This course is designed to develop the student's understanding of the basic concepts of Economics.

The economic environment in which business, government and public organisations operate is discussed. Economic principles and their relevance and application to economic policies are introduced. In conclusion a student is guided in the interpretation of current economic issues and problems and instructed in economic principles related to such problems.

The student has continuous opportunity to test his understanding by completing the reinforcing questions and checking his answers with those given in the revision section. This builds his knowledge to the level required by the KASNEB examinations.

STUDY TEXT: MODERN ECONOMICS By Robert Mudida.

ECONOMICS INDEX

Lesson – 1	Introduction to Economics
Lesson – 2	Elementary Theories of Demand and Supply and the Theory of Consumer Behaviour
	Comprehensive Assignment 1
Lesson – 3	The Theory of Production
Lesson – 4	National Income Analysis
	Comprehensive Assignment 2
Lesson – 5	Money and Banking
Lesson – 6	Labour and Unemployment
	Comprehensive Assignment 3
Lesson – 7	Public Finance
Lesson – 8	International Trade and Finance
	Comprehensive Assignment 4
Lesson – 9	KASNEB syllabus. Model answers to reinforcing questions. Selected past papers with model answers. Work through model answers ensuring they are understood. On completion submit final assignment to Strathmore University.
FINAL ASSIGNMENT	
Mock Examination Paper	

LESSON ONE

INTRODUCTION TO ECONOMICS

LEARNING OBJECTIVES

At the end of the lesson the student should be able to:

- Distinguish between economics and other social sciences like sociology, ethics etc
- Understand the meaning of scarcity as used in economics
- See how scarcity is at the centre of all economic problems
- Enumerate economic goals and problems
- Know that it is difficult to arrive at "Pure" economic decisions since the economic problems are closely bound up with political, sociological and other problems
- Understand the reasons for specialization and Exchange

CONTENTS

Meaning and scope of Economics

The Methodology of economics and its basic concepts

Economic description and analysis

Economic goals and problems

Scarcity, choice, opportunity cost and production possibility frontiers and curves

Economic systems

Specialization and Exchange

ASSIGNED READINGS:

MODERN ECONOMICS by Robert Mudida

Chapter 1

1. THE MEANING AND SCOPE OF ECONOMICS

(i) What is Economics?

The modern word "Economics" has its origin in the Greek word "Oikonomos" meaning a steward. The two parts of this word "Oikos", a house and "nomos", a manager sum up what economics is all about. How do we manage our house, what account of stewardship can we render to our families, to the nation, to all our descendants?

There is an economic aspect to almost any topic we care to mention – education, employment, housing, transport, defence etc. Economics is a comprehensive theory of how the society works. But as such, it is difficult to define. The great classical economist Alfred Marshal defined economics as the *"Study of man in the ordinary business of life"*.

This, however, is rather too vague a definition. This is because any definition should take account of the guiding idea in economics which is *scarcity*. The great American economist Paul Samuelson thus defined it as: *"The study of how people and society choose to employ scarce resources that could have alternative uses in order to produce various commodities and to distribute them for consumption, now or in future amongst various persons and groups in society."*

Virtually everything is scarce; not just diamonds and oil but also bread and water. The word scarcity as used in economics means that; *All resources are scarce in the sense that there are not enough to fill everyone's wants to the point of satiety.*

We therefore have limited resources, both in rich countries and in poor countries. The economist's job is to evaluate the choices that exist for the use of these resources. Thus we have another characteristic of economics; it is concerned with *choice*.

Another aspect of the problem is people themselves; they do not just want more food or more clothing they want particular types of food, specific items of clothing and so on. By want we mean;

"A materialistic desire for an activity or an item. Human wants are infinite."

We have now assembled the three vital ingredients in our definition, People (human wants), Scarcity and choice. Thus for our purpose we could define economics as:

"The social science which is concerned with the allocation of scarce resources to provide goods and services which meet the needs and wants of the consumers"

(ii) The Scope of Economics?

The study of economics begins with understanding of human "wants". Scarcity forces us to economise. We weigh up the various alternatives and select that particular assortment of goods which yields the highest return from our limited resources. Modern economists use this idea to define the scope of their studies.

Although economics is closely connected with such social sciences as ethics, politics, sociology, psychology and anthropology, it is distinguished from them by its concentration on one particular aspect of human behaviour – choosing between alternatives in order to obtain the maximum satisfaction from limited resources.

In effect, the economist limits the study by selecting four fundamental characteristics of human existence and investigating what happens when they are all found together, as they usually are. First, the ends of human beings are without limit. Second, those ends are of varying importance. Third, the means available for achieving those ends – human time and energy and material resources – are limited. Fourth, the means can be used in many different ways: that is, they can produce many different goods.

But no single characteristic by itself is necessarily of interest to the economist. Only when all four characteristics are found together does an economic problem arise.

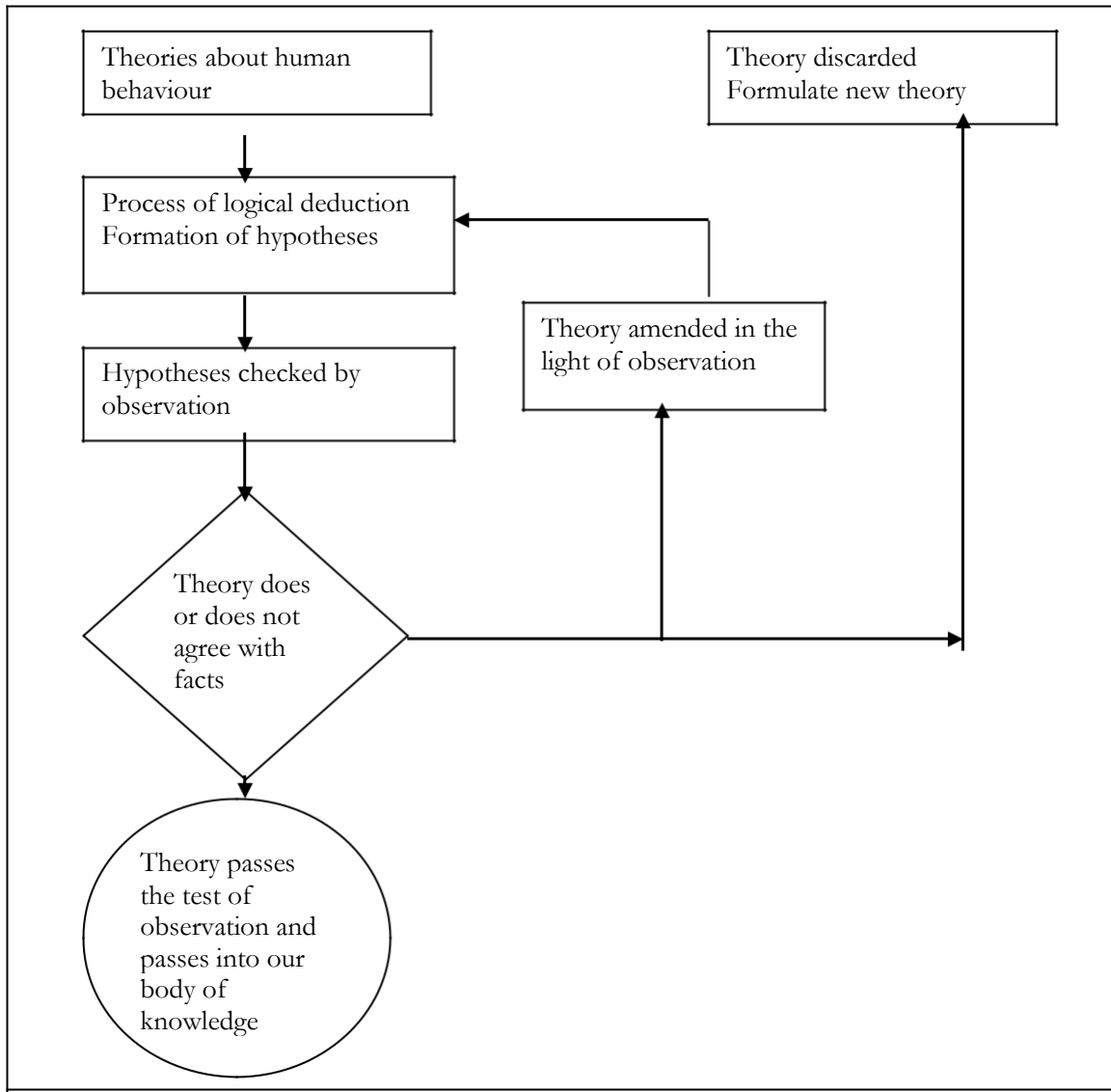
Resources: The ingredients that are combined together by economists and termed economic goods i.e. goods that are scarce in relation to the demand for them.

- (i) Economic Goods: All things which people want are lumped together by economists and termed economic goods i.e. goods that are scarce in relation to the demand for them.
- (ii) Free Goods: These are goods which people can have as much as they want, e.g. air.

2. THE METHODOLOGY OF ECONOMICS AND ITS BASIC CONCEPT

Economics proceeds as an evolutionary discipline, looking at data, developing hypotheses, testing them and reaching sometimes uneasy consensus on how the economy works. This is called the scientific method which begins with the formulation of a theory about behaviour. For example, we may put forward the idea that the demand for a good is determined by its price. On the basis of this we may reason that as the price is increased, demand goes down, while if the prices are decreased the demand will go up. This then gives us a hypothesis which can be tested on observed behaviour. This testing of ideas on the evidence is known as *empiricism*.

The scientific method is illustrated in the diagram that follows:



SCIENTIFIC METHOD

Having made our observation we may then;

- Confirm our theory
- Reject it
- Amend it in the light of the evidence

3. ECONOMIC DESCRIPTION AND ANALYSIS

Economics is used in two important ways today. The first is to describe, explain and predict the behaviour of production, inflation, incomes etc. But for many, the fruit of such labours is found in a second task – to improve economic performance.

Thus, we first attempt to describe the hardships of poverty. We then might present programmes that could reduce the extent of poverty. Or we might start with an analysis of how higher energy

taxes would lead to lower energy consumption. We might then conclude that the country should raise its gasoline taxes.

In each case, we first engage in positive economics, and then in normative economics.

POSITIVE AND NORMATIVE ECONOMICS

You may already have strong personal views about what sort of economic society we should have e.g. whether a free market “capitalist” economy is desirable, or whether a “communist” command economy is preferable. In our study of economics, one of the central distinctions is between a value judgement and a factual statement.

Positive Economics is concerned with the objective statements about what does happen or what will happen. It limits itself to statements that can be verified by reference to facts e.g. How does a higher level of unemployment affect inflation or how will a gasoline tax affect gasoline usage? A positive approach is more objective, and more scientific and it is the approach we shall try to take in our study of economics here.

Normative Economics, on the other hand, appreciates that in practice many economic decisions involve subjective judgements; that is, they cannot be made solely by an objective appraisal of the facts but depend to some extent on personal views in interpreting facts – ethics and value judgements. They can be argued about but they can never be settled by science or by appeal to facts, e.g. should taxation soak the rich to help the poor? Or should the defence spending grow at 3 or 5 or 10 per cent per year? They involve what ought to be and are settled by political choice.

4. ECONOMIC GOALS AND PROBLEMS

Whatever political party is in power, four main economic goals are:

- control of inflation
- reduction of unemployment
- promotion of economic growth
- attainment of a favourable balance of payments.

In addition to these generally agreed objectives, more “political” economic policies might be pursued, such as the redistribution of income.

5. SCARCITY, CHOICE, OPPORTUNITY COST AND PRODUCTION POSSIBILITY FRONTIERS AND CURVES

(i) Scarcity

To the economists all things are said to be scarce, since by “scarce” they mean simply “that there are not enough to fill everyone’s wants to the point of satiety”. Most people would probably like to have more of many things or goods of better quality than they possess at present: larger houses perhaps in which to live, better furnished with the latest labour-saving devices, such as electric washers, cookers, refrigeration; more visits to theatre or the concert hall; more travel; the latest models in motor cars; radios and television sets; and most women exhibit an apparently insatiable desire for clothes. People’s wants are many, but the resources

for making the things they want – labour, land, raw materials, factory buildings, machinery – are themselves limited in supply. There are insufficient productive resources in the world,

therefore, to produce the amount of goods and services that would be required to satisfy everyone's wants fully. Consequently, to the economist all things are at all times said to be "scarce".

(ii) CHOICE AND OPPORTUNITY COST

Because there are not enough resources to produce everything we want, a choice must be made about which of the wants to satisfy. In economics, it is assumed that people always choose the alternative that will yield them the greatest satisfaction. We therefore talk of Economic Man.

Choice involves *sacrifice*. If there is a choice between having guns and having butter, and a country chooses to have guns, it will be giving up butter to the guns. The cost of having guns can therefore be regarded as the sacrifice of not being able to have butter. The cost of an item measured in terms of the alternative forgone is called its opportunity cost.

(iii) PRODUCTION POSSIBILITIES AND OPPORTUNITY COSTS

Limitations of the total resources capable of producing different commodities forces society to choose between relatively scarce commodities. This can be illustrated quantitatively by simple arithmetic examples and geometrical diagrams.

Suppose, to take an example, that a society can spend money on two products, guns and butter. The society's resources are limited; therefore there are restrictions on the amount of guns and butter that can be made, which can be shown by a "production possibility" or "transformation curve".

ALTERNATIVE PRODUCTION POSSIBILITIES		
POSSIBILITIES	BUTTER (Millions of pounds)	GUNS (Thousands)
A	0	15
B	1	14
C	2	12
D	3	9
E	4	5
F	5	0

Table 1.1: Full employment of scarce resources implies guns- butter trade off

The above possibilities can be illustrated graphically using a production possibility frontier. By production possibility frontier we mean; "A geometric representation of production possibilities of two commodities feasible within an economy, given a fixed quantity of available resources and constant technological conditions.

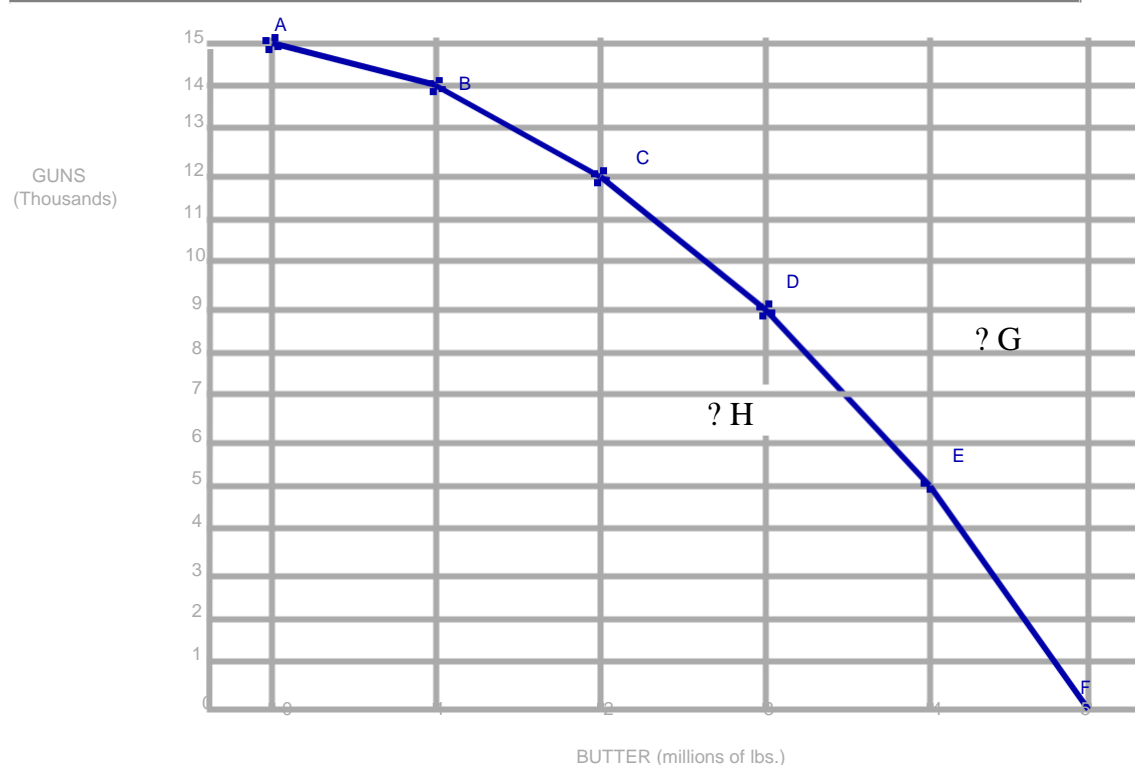


Figure 1.1: Possibilities of transforming butter into guns.

The concave (to the origin) shape of the curve stems from an assumption that resources are not perfectly occupationally mobile.

Points outside the P.P frontier (to the North East) are unattainable under the present technical know-how. Points inside it say, H, would be inefficient since resources are not being fully employed, resources are not being properly used, or outdated production techniques are utilized.

If production is on the frontier the resources are being fully utilized. Points on the production possibility curve such as B,C and E show the maximum possible output of the two commodities.

Output G will only become a production possibility if the country's ability to produce increases and the production possibility curve moves outwards. This can happen when there are changes such as increase in the labour force, increase in the stock of capital goods (factories power stations, transport networks, machinery) and/or an increase in technical knowledge.

(iv) SOME USES OF THE P-P FRONTIER

The production-possibility Frontier represented as a single curve can help introduce many of the most basic concepts of Economics.

- a) For example Figure 1:1 can well illustrate the basic definition of economics we gave earlier in the chapter. There we defined economics as *the science of choosing what goods to produce*. Should we live in a fortress economy bristling with guns but with austere living habits as at point B in figure 1:1?, or should we reduce the military to a pittance and enjoy an economy of butter and chocolates, as in point E?. It thus means if the economy is operating at a point on the production possibility curve, then we can say that resources are being fully employed and

that more of one good (guns) cannot be produced unless there is a reduction of the other good (butter). For additional resources to be devoted to gun production, they have to be diverted away from butter production. This illustrates the basic concept in economics – that of an opportunity cost.

- b) The production possibility frontier provides a rigorous definition of scarcity;

Points A, B and C are feasible points, given the current state of technical knowledge and the available resources. Points to the right of and above the frontier (such as G) are infeasible; they cannot be attained without technical change or an increase in resource availability. The P-P frontier shows the outer limit of the combination of producible goods.

Scarcity is a reflection of the fact that the P-P frontier constrains our living standards.

- c) The production-possibility schedule can also help make clear the three basic problems of economic life; *What*, *How*, and *For whom* to produce.

What goods are produced and consumed can be depicted by the point that ends up getting chosen on the P.P frontier?

How goods are to be produced involves an efficient choice of methods and proper assignments of different amounts and kinds of limited resources to the various industries.

For whom goods are to be produced cannot be discerned from the P.P diagram alone. Sometimes, though you can make a guess from it. If you find a society on its P.P frontier with many yachts and furs, but few potatoes and compact cars, you might suspect that it enjoys considerable inequality of income and wealth among its people.

- d) As a final use, we might apply the reasoning of the P-P frontier to student life. Let's say you have only 40 hours a week available to study Economics and Financial Accounting I. What might the P-P frontier look like for knowledge (or grades) in Economics and Financial Accounting I.

OR if the two commodities were grades and enjoyment what might the P-P frontier look like? Where are you? Where are your lazier friends positioned on the frontier?

6. THE CENTRAL ECONOMIC PROBLEM

There are many economic problems which we encounter everyday – poverty, inflation, unemployment etc. However if we use the term *The Economic Problem* we are referring to the overall problem of the scarcity of resources. Each society has to make the best use of scarce resources. The great American economist Paul A. Samuelson said that every economic society has to answer three fundamental questions;

What commodities shall be produced, clothes, food, cars, submarines etc. and in what quantities?

How shall goods be produced? That is given that we have scarcity of resources of land, labour etc, how should we combine them to produce goods and services which we want?

For whom shall goods be produced? Who is to enjoy and get the benefit of the nation's goods and services? Or to put it in another way, how is national product to be divided among different individuals and families?

ECONOMIC SYSTEMS: DIFFERENT ANSWERS TO THE SAME QUESTION

While there are a million variations on answers to these questions; when we look around the world we find that there are only a limited number of ways in which societies have set about answering them. These ways or methods are called Economic systems. They are free enterprise, centrally planned and mixed economies. We will now examine these briefly.

a) THE FREE ENTERPRISE: THE PRICE SYSTEM

The free market system is where the decision about what is produced is the outcome of millions of separate individual decisions made by consumers, producers and owners of productive services. The decisions reflect private preferences and interests.

For the free enterprise to operate there must be a *price system/mechanism*.

The price system is the situation where the vital economic decisions in the economy are reached through the workings of the market price.

Thus, everything – houses, labour, food, land etc come to have its market price, and it is through the workings of the market prices that the "What?", "How?", and "For whom?" decisions are taken. The free market thus gives rise to what is called **Consumer Sovereignty** – a situation in which consumers are **the ultimate dictators**, subject to the level of technology, of the kind and quantity of commodities to be produced. Consumers are said to exercise this power by bidding up the prices of the goods they want most; and suppliers, following the lure of higher prices and profits, produce more of the goods.

The features of a free market system are:

(i) Ownership of Means of Production

Individuals are free to own the means of production i.e. land, capital and *enjoy incomes from* them in the form of rent, interest and profits.

(ii) Freedom of Choice and Enterprise

Entrepreneurs are free to *invest in businesses of their choice, produce any product of their choice, workers are free to sell their labour in occupations and industries of their choice; Consumers are free to consume products of their choice.*

(iii) Self Interest as the Dominating Motive

Firms aim at maximising their profits, workers aim at maximising their wages, landowners aim at maximising their return from their land, and consumers at maximising their satisfaction

(iv) Competition

Economic rivalry or competition envisages a situation where, in the market for each commodity, there are a large number of buyers and sellers. It is the forces of total demand and total supply which determine the market price, and each participant, whether buyer or seller, must take this price as given since it's beyond his or her influence or control.

(v) Reliance on the Price Mechanism

Price mechanism is where the prices are determined on the market by supply and demand, and consumers base their expenditure plans and producers their production plans on market prices.

Price mechanism rations the scarce goods and services in that, those who can afford the price will buy and those who cannot afford the price will not pay.

(vi) Limited Role of Government

In these systems, apart from playing its traditional role of providing defence, police service and such infrastructural facilities as roads for public transport, the Government plays a very limited role in directly economic profit making activities.

Resource allocation in a free enterprise

Although there are no central committees organising the allocation of resources, there is supposed to be no chaos but order. The major price and allocation decisions are made in the markets. The market being *the process by which the buyers and sellers of a good interact to determine its price and quantity.*

If more is wanted of any commodity say wheat – a flood of new orders will be placed for it. As the buyers scramble around to buy more wheat, the sellers will raise the price of wheat to ration out a limited supply. And the higher price will cause more wheat to be produced. The reverse will also be true.

What is true of the market for commodities is also true for the markets for factors of production such as labour, land and capital inputs.

People, by being willing to spend money, signal to producers what it is they wish to be produced. **Thus what** things will be produced will be determined by the shilling votes of consumers, not every five years at the polls, but every day in their decisions to purchase this item and not that.

The “How?” question is answered because one producer has to compete with others in the market; if that producer can not produce as cheaply as possible then customers will be lost to competitors. Prices are the signals for the appropriate technology.

The “for whom?” question is answered by the fact that anyone who has the money and is willing to spend it can receive the goods produced. Who has the money is determined by supply and demand in the markets for factors of production (i.e. land, labour, and capital). These markets determine the wage rates, land rents, interests rates and profits that go to make up people’s incomes. The distribution of income among the population is thus determined by **amounts** of factors (person-hours, Acres etc) owned and the prices of the factors (wages-rates, land-rents etc).

Advantages of a Free Market System

Incentive: People are encouraged to work hard because opportunities exist for individuals to accumulate high levels of wealth.

Choice: People can spend their money how they want; they can choose to set up their own firm or they can choose for whom they want to work.

Competition: Through competition, less efficient producers are priced out of the market; more efficient producers supply their own products at lower prices for the consumers and use factors of production more efficiently. The factors of production which are no longer needed can be used in production elsewhere. Competition also stimulates new ideas and processes, which again leads to efficient use of resources.

A free market also responds well to changes in consumer wishes, that is, it is flexible.

Because the decision happen in response to change in the market there is no need to use additional resources to make decisions, record them and check on whether or not they are being carried out. The size of the civil service is reduced.

Disadvantages of a Free Economy

The free market gives rise to certain inefficiencies called market failures i.e. where the market system fails to provide an optimal allocation of resources. These include:

Unequal distribution of wealth: The wealthier members of the society tend to hold most of the economic and political power, while the poorer members have much less influence. There is an unequal distribution of resources and sometimes production concentrates on luxuries i.e. the wants of the rich. This can lead to excessive numbers of luxury goods being produced in the economy. It may also result to social problems like crimes, corruption, etc.

Public goods: These are goods which provide benefits which are not confined to one individual household i.e. possess the characteristic of non-rival consumption and non-exclusion. The price mechanism may therefore not work efficiently to provide these services e.g. defence, education and health services.

Externalities: Since the profit motive is all important to producers, they may ignore social costs production, such as pollution. Alternatively, the market system may not reward producers whose activities have positive or beneficial effects on society.

Hardship: Although in theory factors of production such as labour are “mobile” and can be switched from one market to another, in practice this is a major problem and can lead to hardship through unemployment. It also leads to these scarce factors of production being wasted by not using them to fullest advantage.

Wasted or reduced competition: some firms may use expensive advertising campaigns to sell “new” products which are basically the same as may other products currently on sale. Other firms, who control most of the supply of some goods may choose to restrict supply and therefore keep prices artificially high; or, with other suppliers, they may agree on the prices to charge and so price will not be determined by the interaction of supply and demand.

The operation of a free market depends upon producers having the confidence that they will be able to sell what they produce. If they see the risk as being unacceptable, they will not employ resources, including labour and the general standard of living of the country will fall..

b) PLANNED ECONOMIES

Is a system where all major economic decisions are made by a government ministry or planning organisation. Here all questions about the allocation of resources are determined by the government.

Features of this system

The command economies relies exclusively on the state. The government will decide what is made, how it is made, how much is made and how distribution takes place. The resources – factors of production – on behalf of the producers and consumers. Price levels are not determined by the forces of supply and demand but are fixed by the government.

Although division of labour and specialisation are found, the planned economies tend to be more self-sufficient and tend to take part in less international trade than market economies.

Advantages of Planned System

- i) **Uses of resources:** Central planning can lead to the full use of all the factors of production, so reducing or ending unemployment.
- ii) **Large scale production:** Economies of scale become possible due to mass production taking place.
- iii) **Public services:** “Natural monopolies” such as the supply of domestic power or defence can be provided efficiently through central planning.
- iv) **Basic services:** There is less concentration on making luxuries for those who can afford them and greater emphasis on providing a range of goods and services for all the population.
- v) There are less dramatic differences in wealth and income distribution than in market economy

Disadvantages of the Planned System

The centrally planned economies suffer from the following limitations:

Lack of choice: Consumers have little influence over what is produced and people may have little to say in what they do as a career.

Little incentive: Since competition between different producers is not as important as in the market economy, there is no great incentive to improve existing systems of production or work. Workers are given no real incentives to work harder and so production levels are not as high as they could be.

Centralised control: Because the state makes all the decisions, there must be large influential government departments. The existence of such a powerful and large bureaucracy can lead to inefficient planning and to problems of communication. Furthermore, government officials can become over privileged and use their position for personal gain, rather than for the good of the rest of the society.

The task of assessing the available resources and deciding on what to produce, how much to produce and how to produce and distribute can be too much for the central planning committee.

Also the maintenance of such a committee can be quite costly.

The Mixed Economy

There are no economies in the world which are entirely ‘market’ or planned, all will contain elements of both systems.

The degree of mix in any one economy is the result of a complex interaction of cultural, historic and political factors. For example the USA which is a typical example of a largely work-based society, but the government still plans certain areas of the economy such as defence and provides very basic care for those who cannot afford medical insurance.

Features of this system

The mixed economy includes elements of both market and planned economies. The government operates and controls the public sector, which typically consists of a range of public services such as health and education, as well as some local government services. The private sector is largely

governed by the force of mechanism and “market forces”, although in practice it is also controlled by various regulations and laws.

Some services may be subsidised, provided at a loss but kept for the benefit of society in general (many national railways, for example, are loss making), other services such as education or the police may be provided free of charge (though they are paid for through the taxation system).

The private sector is regulated, i.e. influenced by the price mechanism but also subject to some further government control, such as through pollution, safety and employment regulation.

Advantages of the Mixed Economy

Necessary services are provided in a true market economy, services which were not able to make profit would not be provided.

Incentive: Since there is a private sector where individuals can make a lot of money, incentives still exist in the mixed economy.

Competition: Prices of goods and services in the private sector are kept down through competition taking place.

Disadvantages of Mixed Economy

Large monopolies can still exist in the private sector, and so competition does not really take place

There is likely to be a lot of bureaucracy and “red tape” due to existence of a public sector.

7. SPECIALIZATION AND EXCHANGE

a) Specialization

The economies of mass production upon which modern standards of living are based would not be possible if production took place in self-sufficient farm households or regions.

As such, many societies and individuals specialize or concentrate on only one activity or type of production.

Division of labour and specialisation

Division of labour refers to the situation in which the production process is split into very large number of individual operations and each operation is the special task of one worker. The workers then specialise on one activity. Four distinct stages can be distinguished in the development of division of labour and specialization.

Specialisation by craft

Specialisation by process

Regional specialisation

International division of labour

Advantages of Division of Labour

(i) Greater skill of worker

The constant repetition of a task makes its performance almost automatic. The workers thus acquire greater skills at their job.

(ii) A saving of time

By keeping to a single operation, a worker can accomplish a great deal more, since he wastes less time between operations. Less time, too, is required learning how to perform a single operation than to learn a complete trade.

(iii) Employment of specialists

Specialisation makes it possible for each workman to specialise in the work for which he has the greatest aptitude

(iv) Use of machinery

Specialisation permits the use of some tools specific to a particular task, which can make the life of a worker that much easier.

(v) Less fatigue

It is sometimes claimed that the worker, habituated to the repetition of simple tasks, becomes less fatigued by his work.

Disadvantages of Division of Labour and Specialisation**(i) Monotony**

Doing the same work repeatedly can result in boredom, and this can offset the efficiency that would otherwise result from experience.

(ii) Decline of craftsmanship

If a person does the same kind of work repeatedly according to laid down routine, he loses initiative for innovation and this can lead to loss of job satisfaction.

(iii) Greater risk of unemployment

If a worker is highly specialised, he can be easily unemployed if something goes wrong with the product of his industry (e.g. if the product is found to have negative effects to health, and demands for it falls) or if a machine is introduced to perform his work.

(iv) Increased interdependency

Since each worker contributes only a small part towards the completion of the final product, the efficiency and success of the whole process will depend on the efficiency and co-operation of all the workers. If some of the workers are inefficient, they can frustrate the whole system even if the rest of the workers are doing their work properly.

b) Exchange

When societies or individuals specialize, they are likely to produce a flood of “surplus” goods. They are thus bound to exchange this surplus for what they don’t produce. In primitive cutlers, this exchange will take place in the form of barter. For example, it is not uncommon for food to be exchanged for weapons; or for aid in the building of a house to be exchanged for aid in

cleaning a field. But exchange today in all economies – capitalist or communist takes place through the medium of money.

8. RATIONALITY

One of the most important assumptions in economics and on which much *economic theory* is based, is the rationality of human behaviour. In order to make predictions about human behaviour, economists assume that human behaviour is "**rational**" and that consumers and producers act rationally e.g. in what they will decide to buy or produce at any given price.

9. MICROECONOMICS AND MACROECONOMICS

Overall the study of economics is divided into two halves, microeconomics and macroeconomics.

- (a) "**Micro**" comes from the Greek word meaning small, and microeconomics is the study of individual economic units or particular parts of the economy e.g. how does an individual household decide to spend its income? How does an individual firm decide what volume of output to produce or what products to make? How is price of an individual product determined? How are wage levels determined in a particular industry? It thus gives a worm's eye view of the economy.
- (b) "**Macro**" comes from the Greek word meaning large, and macroeconomics is the study of "global" or collective decisions by individual households or producers. It looks at a national or international economy as a whole, e.g. Total Output, Income and Expenditure, Unemployment, Inflation Interest Rates and Balance of International Trade, etc and what economic policies a government can pursue to influence the conditions of the national economy. It thus gives a bird's eye-view of the economy.

10. CETERIS PARIBUS

The economic world is extremely complicated. There are millions of people and firms; thousands of prices and industries. One possible way of figuring out economic laws in such a setting is by *controlled experiments*. A controlled experiment takes place when everything else but the item under investigation is held constant. This is an essential component of scientific method.

However economists have no such luxury when testing economic laws. Therefore, when formulating economic principles economists are usually careful to state that such and such will happen, *ceteris paribus* which is the Latin expression meaning *all other things remaining constant*.

11. ECONOMIC THEORY

A body of economic principles built up as a result of logical reasoning, it provides the tools of economic analysis. It is pursued irrespective of whether it appears to be of any practical advantage or not.

12. ECONOMICS FOR ACCOUNTANTS

A few teachers and some students have questioned the rationale for including economics in a course of study for professional accountants. In order to appreciate the need for the knowledge of economics by accountants it is necessary to know something of the accountant's role. It might be necessary to provide a brief survey of accountancy before going to the value of economics to the accountant.

(i) Accountancy

In general terms accounting consists of procedures for recording, classifying and interpreting selected experiences of an enterprise to promote effective administration. More specially, the accounting function can and often is broken down into specializations, a common distinction being made between **management accounting** and **financial accounting**. Briefly put, the role of the management accountant is to provide management with the best possible information upon which decisions can be based and enable both effective use of an organisations resources. The older specialization of cost accounting is perhaps best considered as part of management accounting which establishes budgets, standard costs and actual costs of operation and processes.

Financial accounting by contrast is concerned with the analysis, classification and recording of financial transactions in order to illustrate the effects on the performance and financial position of an undertaking. Both aspects of the accounting function must be executed if the organisation is to have adequate information for its management to formulate policy and to plan and control operations.

(ii) The role of economic knowledge

In no type of organisation can the accountant operate in isolation, however. He/she must have a working knowledge of many other areas, which impinge on the business or undertaking. The most relevant fields of knowledge are considered to be law, management, statistics, behavioural studies, information technology and economics.

The accountant is not expected to be an expert in these subject areas but to have sufficient knowledge to relate intelligently with specialists in such areas and to know enough to appreciate when and where to go for this specialist knowledge.

As part of the management team or advisor to that team, the accountant needs to appreciate the opportunities and constraints which the economic environment offers or impose on the organisation. This is true whether the organisation is in the private or public sector. All organisations must use the **scarce resources** available to them in an effective and efficient manner if the members of the organisations and the society generally are to gain maximum benefit. Given that allocation of resources is a central concern of economics, the relevance of economics for the accountant follows.

The accountant as a key provider of financial information for planning, control and decision making purposes will be better equipped to provide relevant information if he/she is aware of the organisational objectives, and the environmental constraints within which those objective are pursued.

As a final word one can also say that accountants need economics to understand analyse and solve economic problems of the organisation and society in general.

REINFORCEMENT QUESTIONS:

1. Write short notes on the following:
 - a) scarcity and choice
 - b) opportunity cost
 - c) production possibility frontier
 - d) positive and normative economics

2. Specialisation brings its benefits but it also has limitations. Discuss the statement.

Check your answers with those given in Lesson 9 of the Study Park.

LESSON TWO

ELEMENTARY THEORIES OF DEMAND AND SUPPLY AND THE THEORY OF CONSUMER BEHAVIOUR

LEARNING OBJECTIVES

At the end of the lesson the student should be able to:

- Distinguish between demand, desire, need and want.
- Know the factors that affect the quantity demanded of a commodity by a household and the total market demand.
- Explain using either the ordinalist or cardinalist approach why consumers buy more at lower prices, than at a higher one.
- Distinguish between supply, existing stock and amount available.
- Know the factors that determine the quantity supplied of a commodity in a given market.
- Understand how prices are determined in the market.
- Explain the various reasons for and methods of government modification of the price system and equilibrium prices.
- Explain the various effects of changes in either quantity demanded or supplied on the equilibrium price and quantity.
- Explain the various types of elasticities and their importance.

CONTENTS

1. Introduction
2. Demand analysis
3. The theory of consumer behaviour
4. Supply analysis
5. Determination of equilibrium price
6. Elasticity demand and supply

ASSIGNED READINGS

MODERN ECONOMICS by Robert Mudida Chapters 2,3,4,5

1. INTRODUCTION

In any economy there are millions of individuals and institutions and to reduce things to a manageable proportion they are consolidated into three important groups; namely

- Households
- Firms
- Central Authorities

These are the **dramatis personae** of the economic theory and the stage on which much of their play is acted is called the MARKET (see lesson three for definition of market).

HOUSEHOLD

This refers to all the people who live under one roof and who make or are subject to others making for them, joint financial decisions. The household decisions are assumed to be consistent, aimed at **maximizing utility** and they are the principal owners of the factors of production. In return for the factors or services of production supplied, they get or receive their income e.g.

- Labour – wages and salaries
- Capital – interest
- Land – rent
- Enterprise – profit

THE FIRM

The unit that uses factors of production to produce commodities then it sells either to other firms, to household, or to central authorities. The firm is thus the unit that makes the decisions regarding the employment of the factors of production and the output of commodities. They are assumed to be aiming at **maximizing profits**.

CENTRAL AUTHORITIES

This comprehensive term includes all public agencies, government bodies and other organisations belonging to or under the direct control of the government. They exist at the centre of legal and political power and exert some control over individual decisions taken and over markets.

2. DEMAND ANALYSIS

a. Definition and theoretical basis of demand

Demand is the quantity per unit of time, which consumers (households) are willing and able to buy in the market at alternative prices, other things held constant.

b. Individual demand versus market demand

(i) Individual and market demand schedule

The plan of the possible quantities that will be demanded at different prices by an individual is called **Individual demand schedule**. Such a demand schedule is purely hypothetical, but it serves to illustrate the ***First Law of Demand and Supply that more of a commodity will be bought at a lower than a higher price.***

<i>Price (Kshs)</i>	<i>Quantity demanded per week</i>
20	3
18	3½
16	4
14	5
13	6
12	7
11	8
10	9

Table 2.1: The individual demand schedule

Theoretically, the demand schedule of all consumers of a given commodity can be combined to form a **composite demand schedule**, representing the total demand for that commodity at various prices. This is called the **Market demand schedule**.

<i>Price (in KShs)</i>	<i>Quantity demanded (per week)</i>
20	100,000
18	120,000
16	135,000
14	150,000
13	165,000
12	180,000
11	200,000
10	240,000
9	300,000
8	350,000

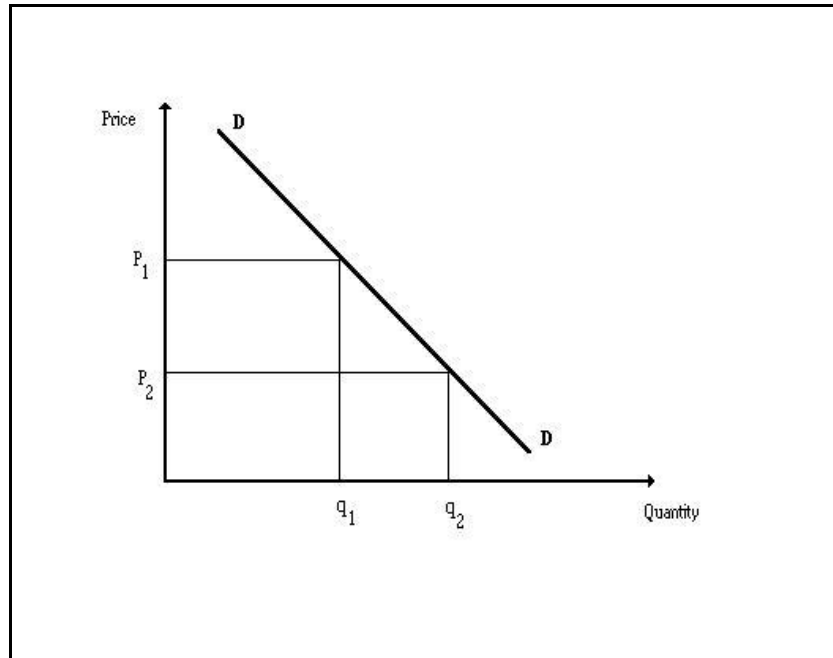
Table 2.2: The market demand schedule.

These prices are called **Demand Prices**. Thus, the demand price for 200,000 units per week is KShs 11 per unit.

(ii) The individual and market demand curves

The quantities and prices in the demand schedule can be plotted on a graph. Such a graph after the individual demand schedule is called **The Individual Demand Curve** and is downward sloping.

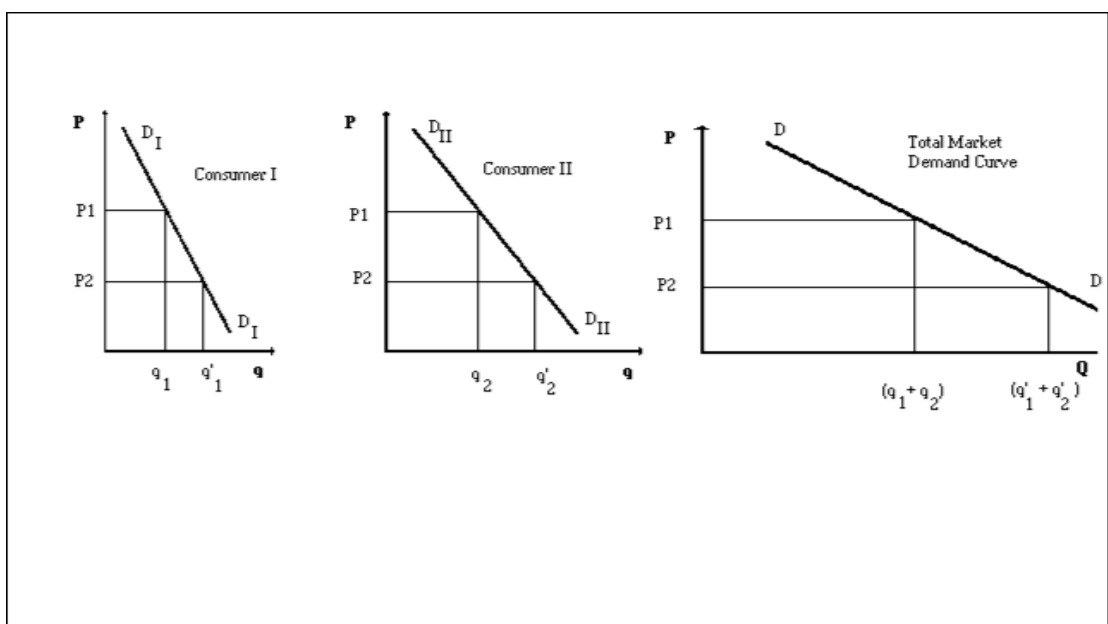
An individual demand curve is the graph relating prices to quantities demanded at those prices by an individual consumer of a given commodity



The curve can also be drawn for the entire market demand and is called a **Market Demand Curve**:

A market demand curve is the horizontal summation of the individual demand curves i.e. by taking the sum of the quantities consumed by individual consumers at each price.

Consider a market consisting of two consumers:



.At price P_1 fig. 2:2 above, consumer 1 demands q_1 , consumer II demands quantity q_2 , and total market demand at that price is (q_1+q_2) . At price p_2 , consumer 1 demands q'_1 , and consumer II demands quantity q'_2 and total market demand at that price is $(q'_1+q'_2)$. DD is the total market demand curve.

(iii) Factors influencing demand for a product

These are broadly divided into factors **determining household** demand and factors affecting **market demand**.

Factors affecting household demand

- The taste of the household
- The income of the household
- The necessity of the commodity, and its alternatives if any
- The price of other goods

Factors affecting the total market demand

These are broadly divided into the determinants of demand and conditions of demand.

(a) Own price of the product

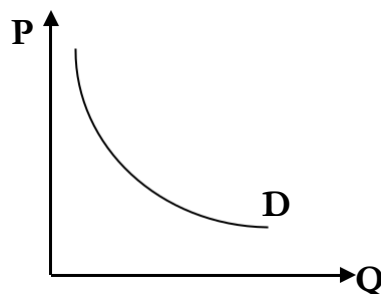
This is the most important determinant of demand. The determinants of demand other than price are referred to as the conditions of demand.

Changes in the price of a product bring about changes in quantity demanded, such that when the price falls more is demanded. This can be illustrated mathematically as follows:

$$Q_d = a - bp$$

Where Q_d is quantity demanded
 a is the factor by which price changes
 p is the price

Thus, *ceteris paribus*, there is an inverse relationship between price and quantity demanded. Thus the normal demand curve slopes downwards from left to right as follows:



Exceptional demand curves

There are exceptions when more is demanded when the price increases. These happens in the case of:

-
- (i) **Inferior goods:** Cheap necessary foodstuffs provide one of the best examples of exceptional demand. When the price of such a commodity increases, the consumers may give up the less essential compliments in an effort to continue consuming the same amount of the foodstuff, which will mean that he will spend more on it. He may find that there is some money left, and this he spends on more of the foodstuff and thus ends up consuming more of it than before the price rise. A highly inferior good is called **Giffen good** after Sir Robert Giffen.
- (ii) **Articles of ostentation (snob appeal or conspicuous consumption):** There are some commodities that appear desirable only if they are expensive. In such cases the consumer buys the good or service to show off or impress others. When the price rises, it becomes more impressive to consume the product and he may increase his consumption. Some articles of jewellery, perfumes- and fashion goods fall in this category.
- (iii) **Speculative demand:** If prices are rising rapidly, a rise in price may cause more of a commodity to be demanded for fear that prices may rise further. Alternatively, people may buy hoping to resell it at higher prices. In all these three cases, the demand curve will be positively sloped i.e. the **higher** the price, the greater the quantity bought. These demand curves are called reverse **demand curves** (also called perverse or abnormal demand curve).

(b) **Prices of other related commodities.**

Related commodities can be compliments or substitutes.

- (i) **Compliments:** The compliments of a commodity are those used or consumed with it. Suppose commodities A and B are compliments, and the price of A increased. This will lead to a fall in the quantity demanded of A, and will in turn lead to a fall in the demand for B. Example are bread and butter or cars and petrol.
- (ii) **Substitutes:** The substitutes of a commodity are those that can be used or consumed in the place of the commodity. Suppose commodities X and Y are substitutes. If the price of X increases, the quantity *demanded* of X falls, and the demand for Y increases.
- (c) **The Aggregate National Income and its distribution among the population.** In normal circumstances as income goes up the quantity demanded goes up. In such a case the good is called a **normal good**. However, there are certain goods whose demand shall increase with income up to a certain point, then remain constant. In such a case the good is called a **necessity** e.g. salt. Also there are some goods whose demand shall increase with income up to a certain point then fall as the income continues to increase. In such a case the good is called **an inferior good**.

(d) **Taste and preference**

There is a direct relationship between quantity demanded and taste. For instance, if consumers' taste and preferences change in favour of a commodity, demand will increase. On the other hand, if taste and preferences change against the commodity e.g. due to changes in fashion, demand will fall. Taste and preferences are influenced by religion, community background, academic background, environment, etc.

(e) **Expectation of future price changes**

If it is believed that the price of a commodity is likely to be higher in the future than at *present*, then even though the price has already risen, more of the commodity may be bought at the higher price.

(g) Climatic/seasonal factors

Seasonal variations affect the demand of certain *commodities* such as cold drinks like sodas and heavy clothing.

(h) The size and structure of population

Changes in population overtime affect the demand for a commodity. Also as population increases, the population structure changes in such way that an increasing proportion of the population consists of young age group. This will lead to a relatively higher demand for those goods and services consumed mostly by young age group e.g. fashions, films, nightclubs, schools, toys, etc.

Price

(i) Government influences

e.g. a legislation requiring the wearing of seatbelts.

(j) Advertising especially the persuasive ones

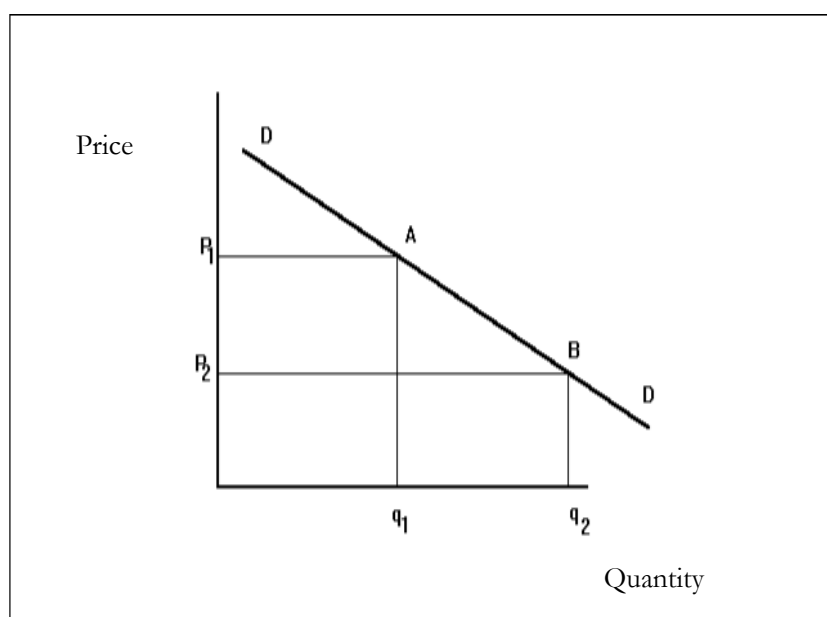
c. Movements in demand curve

There are basically two movements in demand curves, namely:

1. Movement along the demand curve.

Quantity

Movement along the demand curve are brought by changes in own price of the commodity.

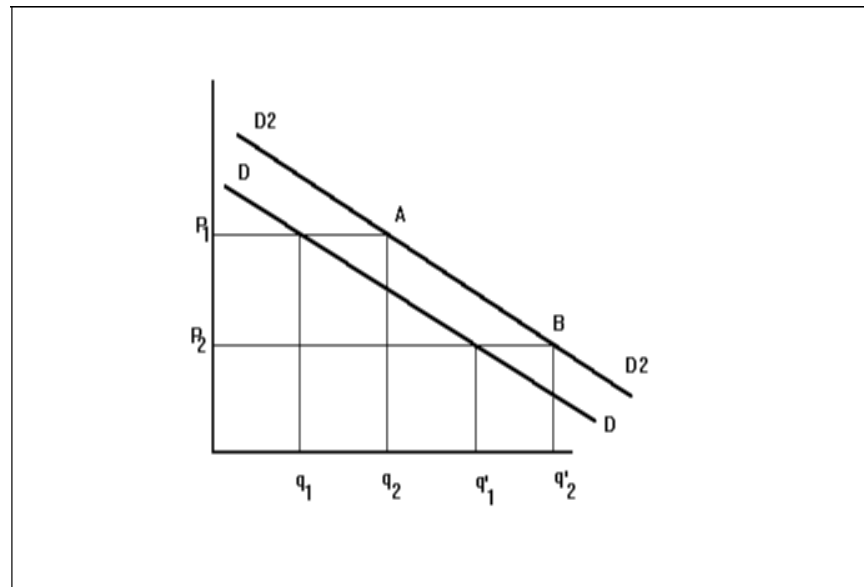


When price falls from p_1 to p_2 , quantity demanded increases from q_1 to q_2 and movement along the demand curve is from A to B. Conversely when price rises from p_2 to p_1 quantity demanded falls from q_2 to q_1 and movement along the demand curve is from B to A.

2. Shifts in demand curve

Shifts in the demand curve are brought about by the changes in factors like taste, prices of other related commodities, income etc other than the price of the commodity. The change in the demand for the commodity is indicated by a shift to the right or left of the original demand curve.

In the figure below, DD represents the initial demand before the changes. When the demand increases, the demand curve shifts to the right from position DD to positions D2D2. The quantity demanded at price P_1 increases from q_1 to q'_1 . Conversely, a fall in demand is indicated by a shift to the left of the demand curve from D2D2 to DD. The quantity demanded at price P_1 decreases from q_1 to q_2 .



Price

3. THEORY OF THE CONSUMER BEHAVIOUR

Through the study of theory of consumer behaviour we can be able to explain why consumers buy more at a lower price than at a higher price or put differently why individuals or households spend their money as they do. We shall assume that the consumer is rational and aims at maximising his satisfaction, so given his income he consumes that basket of goods and services which produces maximum satisfaction. Two major theories explain the behaviour of the consumer, neither presents a totally complete picture. The first approach is the marginal utility, or cardinalist approach. The second approach centres on the indifference curve analysis or the ordinalist approach.

Utility

Utility is the amount of satisfaction derived from the consumption of a commodity or service at a particular time. Utility is not inherent but a psychological satisfaction, i.e. depends on the individual's own subjective estimate of the amount of satisfaction to be obtained from the consumption of the commodity.

Marginal Utility

The extra utility derived from the consumption of one more unit of a good, the consumption of all other goods remaining unchanged.

The hypothesis of diminishing marginal utility

This states that as the quantity of a good consumed by an individual increases, the marginal utility of the good will eventually decrease.

Units of X consumed	Total Utility/ TU (utils)	Marginal Utility/ MU (utils)
0	0	0
1	15	15
2	25	10
3	33	8
4	38	5
5	40	2
6	40	0
7	39	-1

Consuming 1 unit of X gives 15 utils of satisfaction, consuming 2 units gives 25 utils, and so on. The figure of marginal utility decline as each successive unit is consumed. If the consumer

goes on consuming more and more units, eventually he reaches a point (the sixth unit) where additional units yields no extra satisfaction at all.

(i) Marginal utility approach

The downward sloping nature of the demand curve can be explained by using the **law of diminishing marginal utility**. For instance, consider a consumer who has to choose between two goods, X and Y, which have prices P_x and P_y respectively. Assume that the individual is rational and so wishes to maximise total utility subject to the size of the income.

The consumer will be maximising total utility when his or her income has been allocated in such a way that utility to be derived from the consumption of one extra shillings worth of X is equal to the utility to be derived from the consumption of one extra shillings worth of Y. In other words, when the marginal utility per shilling of X is equal to the marginal utility per shilling of Y. Only when this is true will it not be possible to increase total utility by switching expenditure from one good to another. This condition for **consumer equilibrium** can be written as follows:

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

Where MU_x and MU_y are the marginal utilities of X and Y respectively and P_x and P_y are the prices (in shillings) of X and Y respectively.

Any number of commodities may then be added to the equation. The table below gives **hypothetical** marginal utility figures for a consumer who wishes to distribute expenditure of K£44 between three commodities X, Y and Z.

Marginal utilities derived from each Kg of:

Kg consumed	X (£8/kg)	Y (£4/kg)	Z (£2/kg)
1	72	60	64
2	48	44	56
3	40	32	40
4	36	24	28
5	32	20	16
6	20	8	12
7	12	4	8

In order to maximize utility, the consumer must distribute available income so that:

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

From the table you can see that this yields, a selection where the consumer buys 2 kg of X, 4 kg of Y and 6 kg of Z. Hence:

$$\frac{48}{8} = \frac{24}{4} = \frac{12}{2}$$

If the consumer wishes to spend all the K£44, it is impossible to distribute it any other way which would yield greater total quality. This theorem is called the concept of **equi-marginal utilities**.

The demand curve

Suppose that starting from a condition of equilibrium, the price of X falls relative to Y. We now have a condition where the utility from the last shilling spent on X will be greater than the utility from the last shillings spent on Y. Mathematically this can be written as:

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

In order to restore the equilibrium the consumer will buy more of X (and less of Y), thus reducing the marginal utility of X. The consumer will continue substituting X for Y until equilibrium is achieved. Thus we have attained the normal demand relationship that, *ceteris paribus*, as the price of X falls, more of it is bought. We have therefore a normal downward-sloping demand curve. The demand curve we have derived is the individuals' demand curve for a product. The market demand curve can be then obtained by aggregating all the individual demand curves.

The explanation we have obtained here is of the price (or substitution) effect.

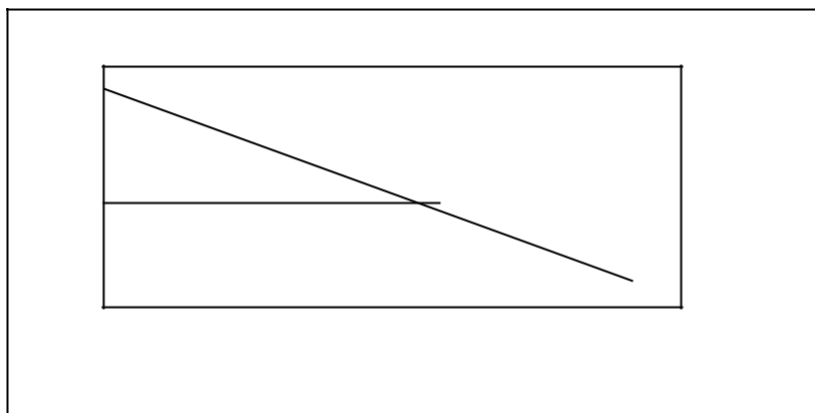
Market demand and consumers surplus.

Suppose that the market price of a cup of coffee is K£4 but the consumer was willing to pay £9 for the first unit, £8 for the second, £7 for the third, £6 for the fourth, £5 for the fifth and £4 for the sixth.

However, he pays the market price for all the six cups. The consumer thus earns a surplus on the first five units consumed i.e.

A measure of the difference between the value that consumers place on their total consumption of some commodity and the amount they actually pay for it.

For continuous demand curves, consumer's surplus can be measured by the area under the demand curve and above the price.



NB: The shaded area represents utility which the consumers received but did not pay for i.e. consumer surplus.

Mathematically it can be calculated as follows:

$$£5 + £4 + £3 + £2 + £1 = £15$$

*Weaknesses of cardinalist approach

(ii) Indifference Curve Analysis

In the 1930s a group of economists, including Sir John Hicks and sir Roy Allen, came to believe that cardinal measurement of utility was not necessary. They argued that demand behaviour could be explained with ordinal numbers (that is, first, second, third, and so on). This is because, it is argued, individuals are able to rank their preferences, saying that they would prefer this bundle of goods to that bundle of goods and so on. Finite measurement of utility therefore becomes unnecessary and it's sufficient simply to place in order consumers preference to investigate this we must investigate indifference curves.

Indifference curves

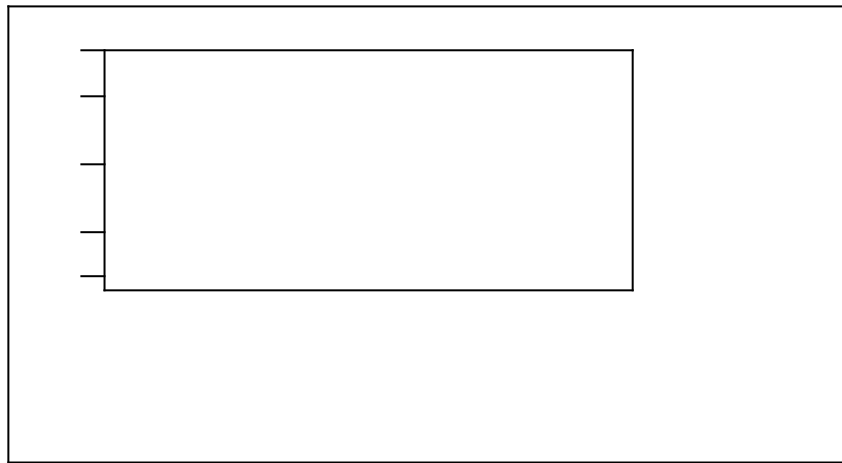
In order to explain indifference curves, we will again make the simplifying assumption that the consumer buys two goods, x and y.

The table below gives a number of combinations of x and y which the consumer considers to give the same satisfaction as for example, combination c of bx and 4y is thought to give the same satisfaction as D where 7x and 2y are consumed. The consumer is thus said to be indifferent as to which combination they have hence the name given to this type of analysis.

Table 2.3: An indifference schedule

Combination	Units of x	Units of y
A	1	12
B	4	7
C	6	4
D	7	2

Figure 2.3 gives a graphical representation of the figures in Table 2.3



Such a graph is called an indifference curve:

An indifference curve shows the lines of combinations of the amounts of two goods say x and y such that the individual is indifferent between all combinations on that curve.

At each point on the indifference curve the consumer believes that the same amount of utility is received.

Properties of Indifference Curves:

- An indifference curve is usually convex to the origin.
 - Indifference curves slope downwards from left to right.
 - A set of indifference curves with each successive curve lying outside the previous one in a North East direction is called an indifference map.
 - The curves do not cross as this would isolate the axiom of transitivity of preferences.
 - Each curve is a graphical representation of a utility function expressed as:

$$U = f(x,y)$$

Where: u is a predetermined level of utility.

x and y are two commodities to be consumed in combination to give u .

The slope of the indifference curve gives the rate at which a consumer is willing to exchange one unit of a product for units of another. This is called the **marginal rate of substitution**.

The Budget line and its economic interpretation

The indifference curve shows us consumer preferences but it does not show us the situation in the market place. Here the consumer is constrained by **income** and by the **prices** of X and Y. They can both be shown by a budget line. Suppose that product X costs K£2 per unit and product Y K£1 per unit and that the consumer's income is K£10.

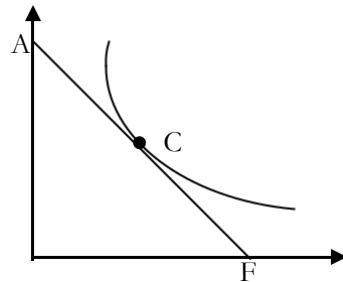


A budget line shows all the combinations of two products which can be purchased with a given level of income. The slope of the line shows the relative prices of the two commodities.

If the consumer is inside the budget line, e.g. at point E he is consuming less than the income. Thus he can consume more of X or more of Y or more of both. If he is on the budget line e.g. at point C he is spending the full budget. He is said to be consuming to budget constraint. To consume more of X e.g. moving from C to D, he must consume less of Y and vice versa. For a given budget and given price, he cannot be at a point off the budget line to the right, e.g. at point F.

The Consumer Equilibrium

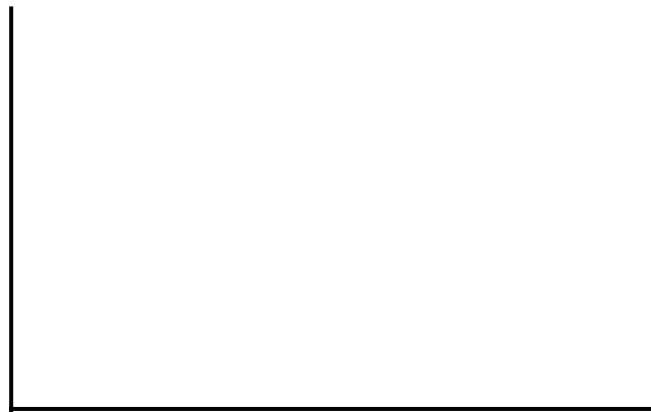
To demonstrate the consumer's equilibrium i.e. the point at which the consumer maximizes utility with a given budget, we need to combine the indifference map and the budget line.



The consumer obtains maximum utility from a budget of AF by choosing the combination of X and Y represented by C, where the marginal rate of substitution is equal to the relative prices of X and Y.

Income and Substitution Effects of Price Change

When the price of a commodity falls the consumer's equilibrium changes. The consumer can purchase the same quantity of X and Y as before the price change and still have some money to spare. Such money is like an extra income but arises from the all of the price of one commodity. The new purchasing power arising from the extra income is the income effect – and is the same as if income had increased without a change in prices and he would still have had to purchase more of each commodity shifting from budget line AB to DE in the diagram.



Due to the rise in purchasing power arising from a fall, in the price of one commodity, the consumer then decides how the increase in purchasing power is to be spread over X and Y. The consumer reallocates expenditure to purchase relatively more of the cheaper commodity. The substitution effect then arises from this decision implying change in the quantity of a commodity purchased due to the change in the relative prices.

In the diagram, the prices X and Y are £2 per unit respectively. The consumer's income is £10. The consumer is in equilibrium at point P. If the price of X falls from £2 to £1 per unit, the equilibrium point changes from P to P(1). The movement from P to P(1) results from two forces.

First the fall in price implies rise in purchasing power as if income went up and prices remained constant. At point P1 he derives more satisfaction than at point P.

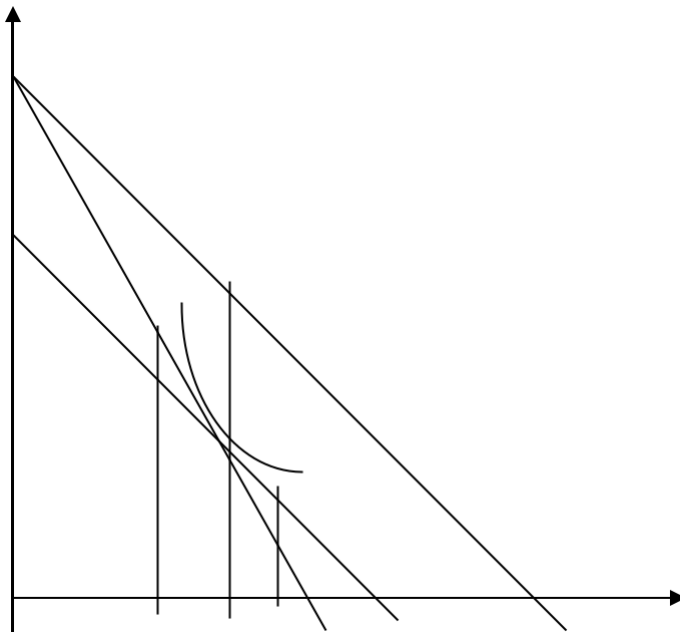
At point P, he purchases three units of X, at point T he purchases four units of X and at P1 purchases six units.

The Income Effect in this example is one unit of X and the substitution effect is two units of X. The price effect is the sum of income and substitution effects.

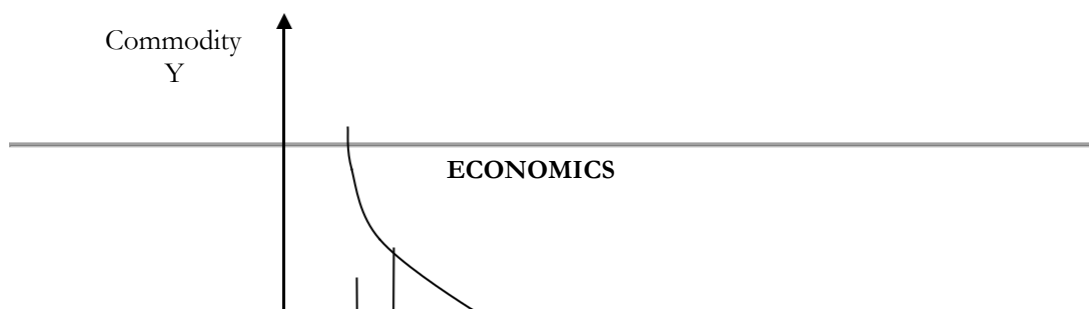
f) Inferior and Giffen Goods

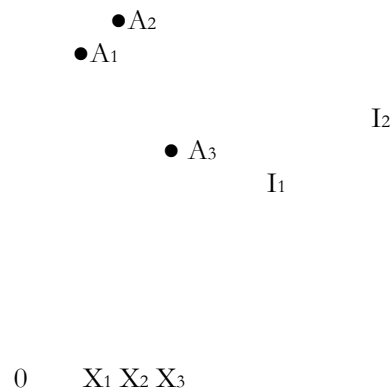
The substitution effect always acts in such a way that when the relative price of a good falls (real income remaining constant), more of its is purchased. The income effect, however, can work either way – when the consumer's real income rises more or less of good x may be bought.

If the less is bought, the good is said to be an **inferior good**. If the consumer buys less and the income effect is actually bigger than the substitution effect so that the overall effect of the price fall is a decrease in consumption, then the good is said to be a **Giffen Good**.



Inferior Good: The negative income effect is smaller than the substitution effect





Giffen Good: The negative income effect is bigger than the substitution effect so that the net effect of a fall in the price of x is a fall in quantity demanded

a) **Uses of Indifference Curve Analysis**

Indifference curve analysis is useful when studying welfare economics as follows:

- They are used to indicate the amount of income and leisure combination that can yield a given level of satisfaction allowing for the measure of trade off between leisure and income.
- Since each indifference curve represents a given level of welfare, in an indifference map, the curve to the right represents a higher level of welfare. This is useful in analysing the effect taxation on the standard of living in an economy. A tax level may reduce the economic standard of the people and vice versa.
- Employees use indifference curve analysis to decide whether to give employees housing facility in kind or in money allowance in a manner not to affect their welfare.

4. SUPPLY ANALYSIS

Supply is the quantity of goods/services per unit of time which suppliers/producers are willing and able to put on the market for sale at alternative prices other things held constant.

A. Definition and theoretical basis of supply

B. Industrial versus market supply curves

(i) Firm and industry supply schedules

The plan or table of possible quantities that will be offered for sale at different prices by individual firms for a commodity is called **supply schedule**.

Price Per Unit (KShs)	Quantity offered for Sales per month (in '000)
20	10
25	20
30	30
35	40
40	50
45	60
50	70

Table 2.3: The Firm Supply Schedule

Theoretically the supply schedules of all firms within the industry can be combined to form the market or industry supply schedule, representing the total supply for that commodity at various prices.

Price per unit (KShs)	Quantity offered for Sales per month (in '000)
20	80
25	120
30	160
35	200
40	240
45	285
50	320

Table 2.4: The Industry supply schedule

These prices are called the *supply prices*.

(ii) Individual firm and market supply curves

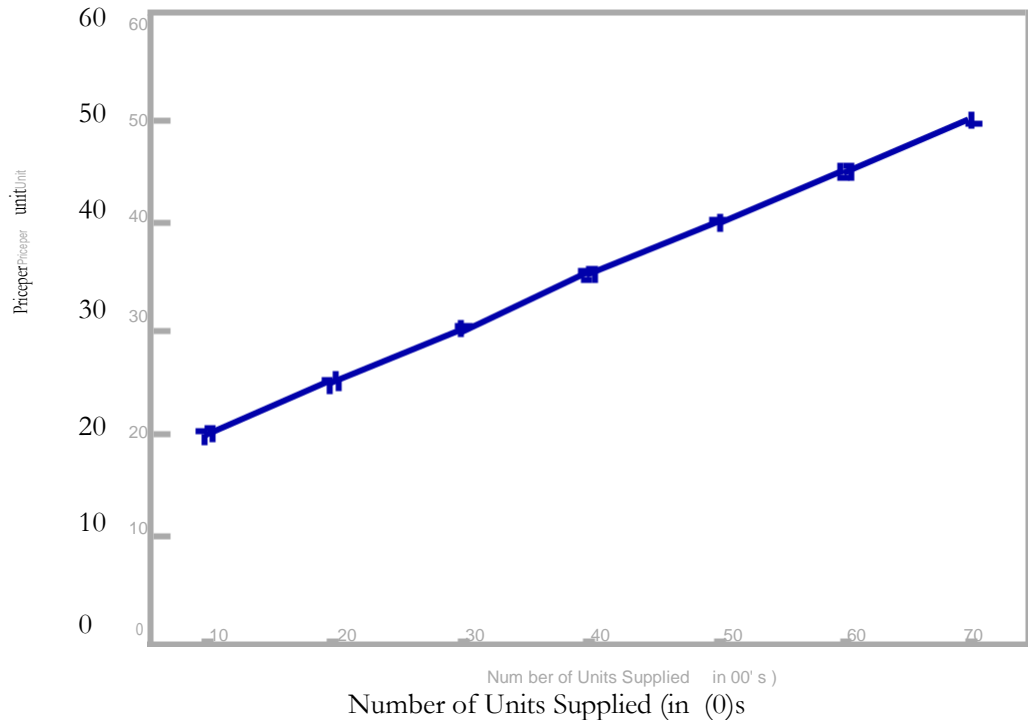
The quantities and prices in the supply schedule can be plotted on a graph. Such a graph is called the **firm supply curve**.

A firm supply curve is a graph relating the price and the quantities of a commodity a firm is prepared to supply at those prices.

The typical supply curve slopes upwards from left to right. This illustrates the second law of supply and demand “which states that the higher the price the greater the quantity that will be supplied”.

More is supplied by the firms which could not make a profit at the lower price.

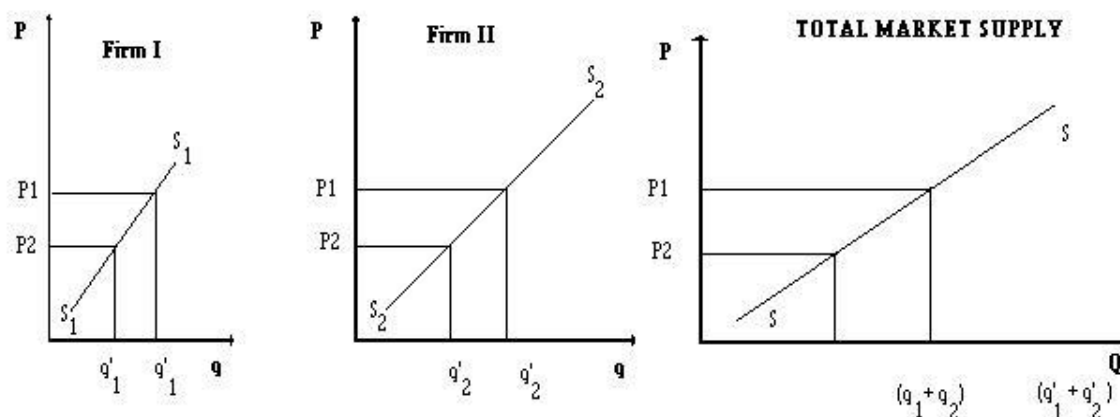
Fig 2.3: The firm supply curve



The market supply curve is obtained by horizontal summation of the individual firm supply curves i.e. taking the sum of the quantities supplied by the different firms at each price.

Consider, for the sake of exposition, an industry consisting of two firms. At price P_1 , firm I (diagram below) supplies quantity q_1 , firm II supplies quantity q_2 , and the total market supply is $q_1 + q_2$

At price P_2 , firm I supplies q'_1 , firm II supplies quantity q'_2 , and the total market supply is $q'_1 + q'_2$. SS is the total market supply curve.



Factors influencing the supply of a commodity:

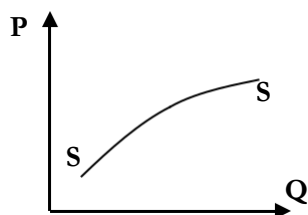
a) Own Price of the commodity

There is a direct relationship between quantity supplied and the price so that the higher the price, the more people shall bring forth to the market. Mathematically this can be illustrated as follows:

$$Q_s = -c + dp$$

Where: Q_s is the quantity supplied
 $-c$ is a constant
 d is the factor by which price changes
 P is the price

Thus the normal supply curve slopes upwards from left to right as follows:



The reason why a greater quantity is supplied at a higher price is because, as the price increases,

organisations which could not produce profitably at the lower price would find it possible to do so at a higher price. One way of looking at this is that as price goes up, less and less efficient firms are brought into the industry.

Exceptional supply curves

In have some situations the slope of the supply curve may be reversed.

i) **Regressive Supply.** In this case, the higher the price within a certain range, the smaller the amount offered to the market. This may occur for example in some labour markets where above certain level, higher wages have a disincentive effect as the leisure preference becomes high. This may also occur in undeveloped peasant economies where producers have a static view of the income they receive. Lastly regressive supply curves may occur with target workers.

ii) **Fixed Supply.** Where the commodity is rare e.g. the “Mona Lisa”, the supply remains the same regardless of price. This will be true in the short term of the supply of all things, particularly raw materials and agricultural products, since time must elapse before it is physically possible to increase output.

b) Prices of other related goods

i) **Substitutes:** If X and Y are substitutes, then if the price X increases, the quantity demanded of X falls. This will lead to increased demand for Y, and this way eventually lead to increased supply of Y.

ii) **Complements:** If two commodities, say A and B are used jointly, then an increase in the price of A shall lead to a fall in the demand for A, which will cause the demand for B to fall too.

c) Prices of the factors of production

As the prices of those factors of production used intensively by X producers rise, so do the firms' costs. This cause supply to fall as some firms reduce output and other, less efficient firms make losses and eventually leave the industry. Similarly, if the price of one factor of production would rise (say, land), some firms may be tempted to move out of the production of land intensive products, like wheat, into the production of a good which is intensive in some other factor of production.

d) Goals of the firm

How much is produced by a firm depends on its objectives. A firm which aims to maximise its sales revenue, for example, will generally supply a greater quantity than a firm aiming to maximise profits (see markets). Changes in these objectives will usually lead to changes in the quantity supplied.

e) State of technology

There is a direct relationship between supply and technology. Improved technology results in more supply as with technology there is mechanisation.

f) Natural events

Natural events like weather, pests, floods, etc also affect supply. These affect particularly the supply of agricultural products. If weather conditions are favourable, the supply of agricultural products will increase. Conversely, if weather conditions are unfavourable the supply of such products will fall.

g) Time

In the long run (with time), the supply of most products will increase with capital accumulation, technical progress and population growth so long as the last one takes place in step with the first two. This reflects economic growth.

h) Supply of Inputs

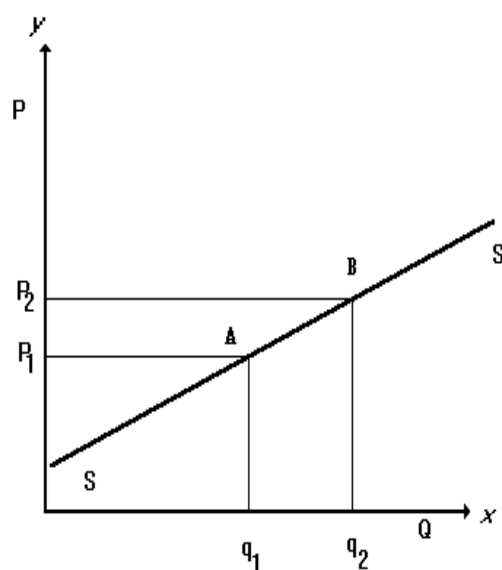
Changes in supply of inputs will affect the quantity supplied; if this falls, less shall be supplied and vice versa.

i) Changes in the supply of the product with which the product in question is in joint supply e.g. hides and skins.**j) Taxes and subsidies**

The imposition of a tax on a commodity by the government is equivalent to increasing the costs of production to the producer because the tax “eats” into the firm’s profits. Hence taxes tend to discourage production and hence reduce supply. Conversely, the granting of a subsidy is equivalent to covering the costs of production. Hence subsidies tend to encourage production and increase supply.

C. Movements in the supply curve**i) Movements along the supply curve:**

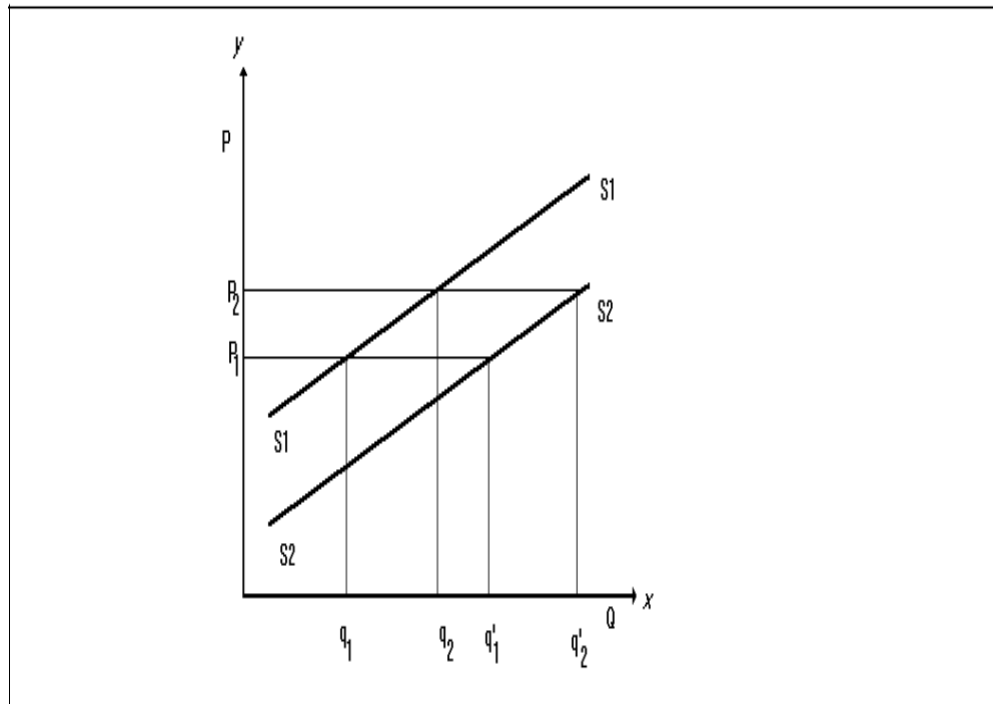
Movements along the supply curve are brought about by changes in the price of the commodity.



When price increases from P_1 to P_2 , quantity supplied increases from Q_1 to Q_2 and movement along the supply curve is from A to B. Conversely when price falls from P_2 to P_1 , quantity supplied falls from q_2 to q_1 and movement along the supply curve is from B to A.

ii) Shifts in the supply curve

Shifts in the supply curve are brought about by changes in factors other than the price of the commodity. A shift in supply is indicated by an entire movement (shift) of the supply curve to the right (downwards) or to the left (upwards) of the original curve.



When supply increases, the supply curve shifts to the right from S_1S_1 to S_2S_2 . At price P_1 , supply increases from q_1 to q'_1 and at price P_2 supply increases from q_2 to q'_2 . Conversely, a fall in supply is indicated by a shift to the left or upwards of the supply curve and less is supplied at all prices. Thus, when supply falls, the supply curve shifts to the left from position S_2S_2 to position S_1S_1 . At price p_1 , supply falls from q'_1 to q_1 and at price p_2 , supply falls from q'_2 to q_2 .

5. DETERMINATION OF EQUILIBRIUM PRICE

a) Interaction of supply and demand, equilibrium price and quantity

In perfectly competitive markets the market price is determined by the interaction of the forces of demand and supply. In such markets the price adjusts upwards or downwards to achieve a balance, or **equilibrium**, between the goods coming in for sale and those being requested by purchases. Demand and supply react on one

another until a position of stable equilibrium is reached where the quantities of goods demanded equal the quantities of goods supplied. The price at which goods are changing hands varies with supply and demand. If the supply exceeds demand at the start of the week, prices will fall. This may discourage some of the suppliers, who will withdraw from the market, and at the same time it will encourage consumers, who will increase their demands. This is known as **buyers market**.

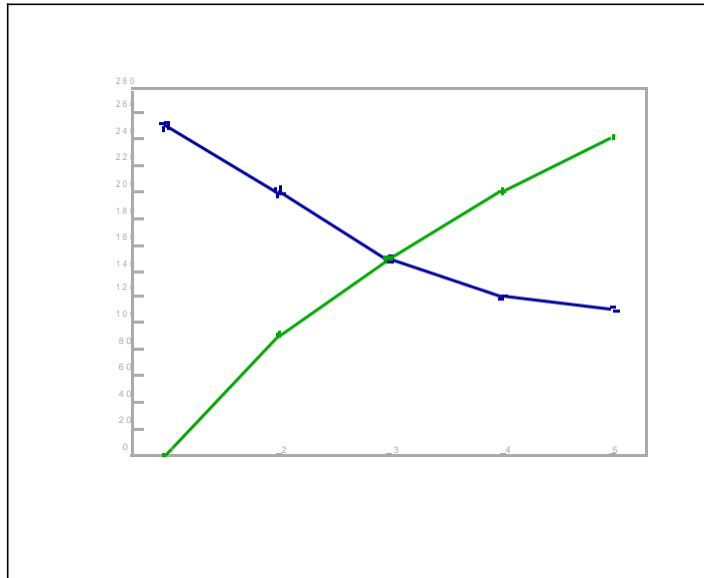
Conversely if we examine line D, where the price is £2 per kg, suppliers are only willing to supply 90kg per week but consumers are trying to buy 200 kg per week. There are therefore many disappointed customers, and producers realise that they can raise prices. This is known as sellers market. There is thus an upward pressure on price and it will rise. This may encourage some suppliers, who will enter the market, and at the same time it will discourage consumers, who will decrease their demand.

This can be shown by comparing the demand and supply schedule below.

	<i>Price of Commodity of X (£/kg)</i>	<i>Quantity Demanded of X (kg/week)</i>	<i>Quantity Supplied of X (kg/week)</i>	<i>Pressure on Price</i>
A	10	100	20	Upward
B	20	85	36	Upward
C	30	70	53	Upward
D	40	55	70	Downward
E	50	40	87	Downward
F	60	25	103	Downward
G	70	10	120	Downward

A Twin force is therefore always at work to achieve only one price where there is neither upward or downward pressure on price. This is termed the equilibrium or market price:

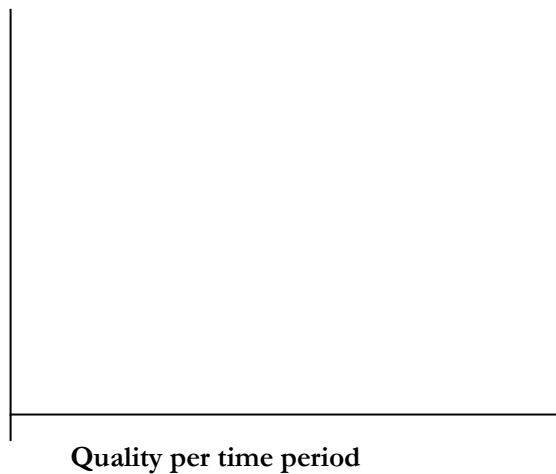
The equilibrium price is the market condition which once achieved tends to persist or at which the wishes of buyers and sellers coincide.



Any other price anywhere is called DISEQUILIBRIUM PRICE. As the price falls the quantity demanded increases, but the quantity offered by suppliers is reduced, since the least efficient suppliers cannot offer the goods at the lower prices. This illustrates the third “law” of demand and supply that **“Price adjusts to that level which equates demand and supply”**.

b) Stable and Unstable Equilibrium

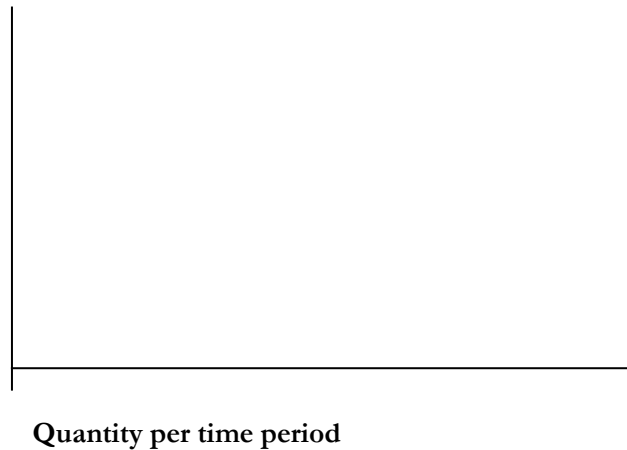
An equilibrium is said to be stable equilibrium when economic forces tend to push the market towards it. In other words, any divergence from the equilibrium position sets up forces, which tend to restore the equilibrium. This is the case in the market for good X illustrated in the figure below.



At prices above O_{pe} , there is an excess supply which pushes the price down. At prices below O_{pe} there is an excess demand which pushes the price up.

Unstable equilibrium on the other hand is one such that any divergence from the equilibrium sets up forces which push the price further away from the equilibrium price. Consider the

figure below which illustrates the market for good Y, which has a demand curve sloping upwards from left to right. Good Y might be an inferior good or a veblen good.

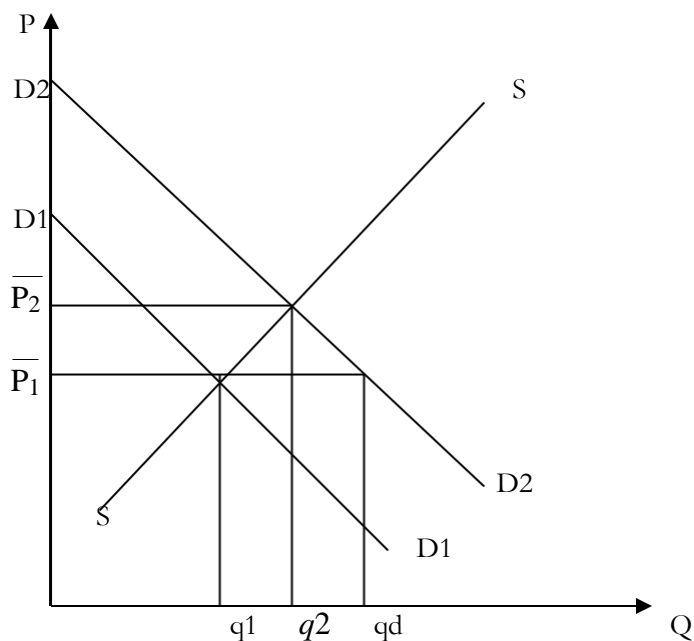


Price O_{pe} is the equilibrium price and quantity O_{qe} is the equilibrium quantity. The “abnormal” demand curve means that at prices above O_{pe} there is excess demand which pushes the price upwards and away from the equilibrium. Similarly, at prices below O_{pe} , there is excess supply which pushes the prices even further down.

Thus, although equilibrium are states of rest at which no economic forces exist to change the situation, it is important to remember that not all equilibria are stable. The equilibrium in the figure above is sometimes called a *knife edge* equilibrium because a small change in price sends the system well away from equilibrium.

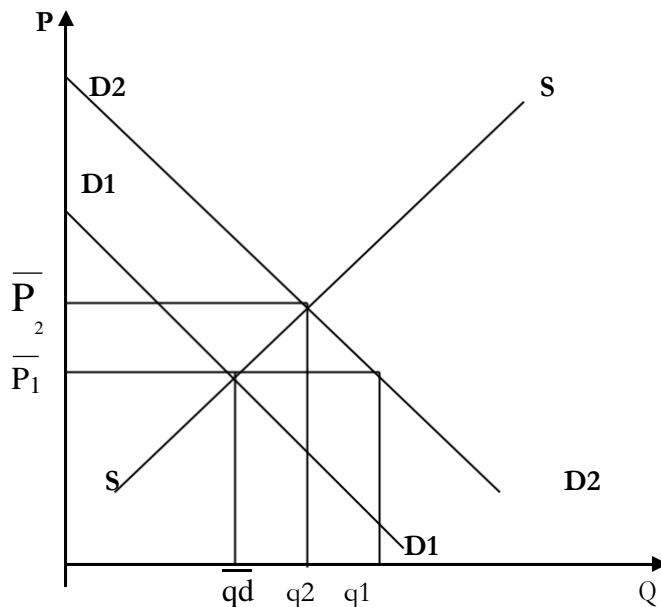
C) Effects of shifts in demand and supply on the equilibrium

price: i) Increase in demand



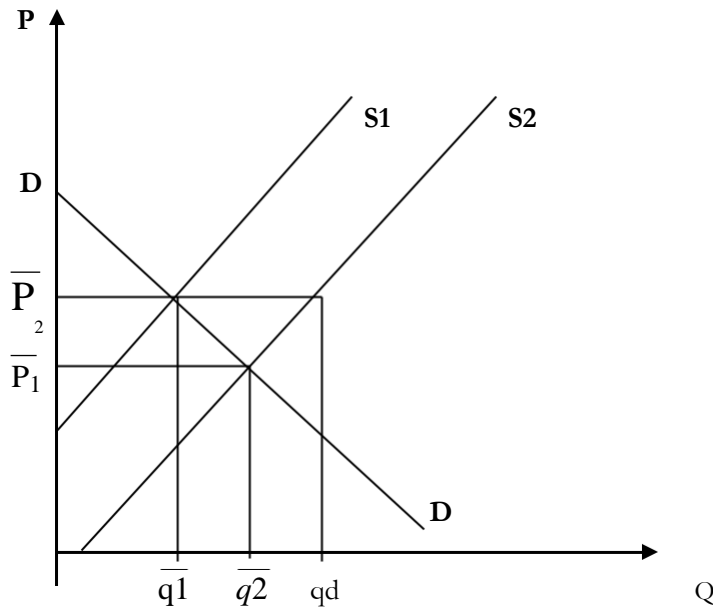
SS is the supply curve and D1D1 the initial demand curve shifts to the right, to position D2D2. P1 is the initial equilibrium price and q1 the initial equilibrium quantity. When demand increases to D2D2, then at price P1, the quantity demanded increases from q1 to qd. But the quantity supplied at that price is still q1. This leads to excess demand over supply ($q_d - q_1$). This causes prices to rise to a new equilibrium level P2 and the quantity supplied to rise to a new equilibrium level, q2.

ii) Decrease in Demand



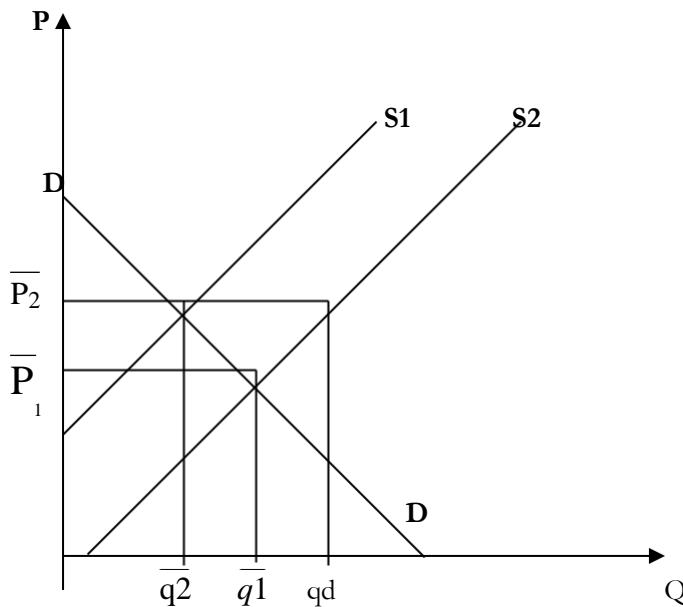
At the initial equilibrium price P1, quantity demanded falls from q1 to qd. But the quantity supplied is still q1 at this price. Hence, this creates excess of supply over demand, and this causes price to fall to a new equilibrium level P2 and quantity to fall to a new equilibrium level q2.

iii) Increase in Supply



DD is the demand curve and S1S1 the initial supply curve. If supply increases, the supply curve shifts to the right to position S2S2. At the initial equilibrium price P_1 , quantity supplied increase from q_1 to q_2 . This creates a glut in the market and this causes the price to the new P_2 and the quantity increases to a new equilibrium level q_2 .

iv) Fall in Supply



When the supply falls, the supply curve shifts to the left to position S1S1. At the initial equilibrium price P_1 , quantity supplied falls from q_1 to q_2 but the quantity demanded is still q_1 . This creates excess of demand over supply which causes price to rise to a new equilibrium level P_2 and quantity to fall to a new equilibrium level q_2 .

6. ELASTICITY OF DEMAND AND SUPPLY

a) Definition of Elasticity

Is defined as the ratio of the relative change of one (dependent) variable to changes in another (independent) variable, or it's a percentage change of one variable given a one percent change in another.

b) Elasticity of Demand

Measures the extent to which the quantity demanded of a good responds to changes in one of the factors affecting demand.

Types of Elasticity of Demand

The various types of the elasticity of demand are: Price Elasticity, Income elasticity and Cross Elasticity.

Price Elasticity of Demand

Is the responsiveness of the quantity demanded to changes in price; its co-efficient is

$$P_{ed} = \frac{\text{Proportionate change in quantity demanded}}{\text{Proportionate change in price}}$$

a) Point Elasticity:

This measures elasticity at a particular point and is only valid or based on small movements i.e.

$$P_{ed} = \frac{\frac{\Delta Q}{Q}}{\frac{\Delta P}{P}} = \frac{\Delta Q}{\Delta P} \cdot \frac{P}{Q}$$

	Price	Quantity
Point A:	Kshs 3.01	4.00
Point B:	Kshs 3.00	4.10

$$\Delta P = -0.01$$

$$\Delta Q = 0.1$$

$$\begin{aligned} \text{Point elasticity} &= \frac{0.1}{3.01} \cdot \frac{-0.01}{4.00} \\ &= \frac{0.1}{3.01} \cdot \frac{-0.01}{4.00} \\ &= -10 \times 0.7525 (-1) \end{aligned}$$

$$= 7.5$$

It is only valid in very small changes.

b) Arc Elasticity

Is the average elasticity between two given points on the curve, i.e.

$$\text{Arc Ed} = - \frac{Q}{P} \cdot \frac{\frac{(p_2 + p_1)}{2}}{\frac{(q_2 + q_1)}{2}}$$

$$= - \frac{Q}{(q_2 + q_1)} \cdot P \cdot (p_2 + p_1)$$

Because of the negative relationship between price and quantity demanded, price elasticity of demand is negative. We there take the absolute magnitude of the number.

Price Elasticity of Demand and the slope of the Demand Curve

Elasticity determines the shape of the demand curve.

From the formulas

$$\text{Ed} = \frac{\Delta Q^q}{\frac{\Delta p}{p}}$$

We can say

$$\text{Ed} = \frac{\Delta Q^q}{\frac{\Delta p}{p}}$$

$$= \frac{\Delta q \times P}{q \Delta p} = \frac{\Delta Q \times P}{\Delta p \times Q}$$

Therefore, for a straight line demand curve

1) Types of Price Elasticity of demand

a) Perfectly inelastic demand

Demand is said to be perfectly inelastic if changes in price have no effect on the quantity demanded so that the demand is infinitely price elastic. This is the case of an absolute necessity i.e. one which a consumer cannot do without and must have in fixed amount e.g. analysis, insulin etc.

b) Inelastic demand

This is where changes in price bring about changes in quantity demanded in less proportion so that elasticity is less than one. This is the case of a necessity or a habit forming commodity e.g. drinks or cigarettes.

c) Unit Elasticity of demand

Is where changes in price bring about changes in quantity demanded in the same proportion and the elasticity of demand is equal to one or unity. This is for commodities, which are between a necessity and a luxury, e.g. film going.

d) Elastic demand

Demand is said to be price elastic if changes in price bring about changes in quantity demanded in greater proportion so that elasticity is greater than one. This is the case of a luxury, i.e. one that can be done without or a commodity with close substitutes.

e) Perfectly Elastic demand

Demand is perfectly elastic when consumers are prepared to buy all they can obtain at some price and none at an even slightly higher price.

This is the case of perfectly competitive market i.e. where there are many producers producing the same product. Each of them is too insignificant to increase or reduce the market price.

Factors determining Elasticity of demand

- Ease of substitution.
- Nature of the commodity i.e. whether it is a necessity of life, luxury or addictive.
- Consumers income.
- The number of uses to which the good can be put.
- Time factor.
- The prices of other products.
- Advertisements especially the persuasive ones.
- Whether the use for the good can be postponed.
- Human and economic constraints.

Practical Importance of the knowledge of Price Elasticity of demand

The practical importance of the measures of elasticity of demand is to be appreciated in various ways:

- From the point of view of individual consumers who tend to spend limited income on commodities with less elastic demand.
- From the point of view of business person who need to know the effects that changes in price will have on the sales revenue. For instance, if they know that demand for their product is relatively inelastic then increasing prices might help them to increase revenue. If on the other hand they are aware that source of their products have a high price elasticity of demand they will be more cautious when considering price increases for fear of losing revenue.
- From the point of view of firms in who may attempt to change the price elasticity of demand for their product through advertising, packaging, better service and other services to improve or help maintain sales.
- From the point of view of business people who may also want to know the price elasticity of demand as purchasers of inputs for use in their business.
- From the point of view of governments in trying to estimate the yield of a prospective market tax.
- From the point of view of devaluation policy aimed at improving the balance of payments.
- From the point of view of the effectiveness of price control and deregulation of some industries.
- From the point of view of wage bargaining among workers and employers and the government when fixing minimum wage legislation.
- For purposes of regulating farm incomes and to predict consequences of bumper harvests of crops.

2) Income elasticity of demand

The income elasticity of demand measures the degree of responsiveness of the quantity demanded of a product to changes in income. Its co-efficient is as follows:

$$EY = \frac{\text{Percentage change in quantity demanded}}{\text{Percentage change in income}}$$

This we may write as:

$$EY = \frac{\Delta Q/Q}{\Delta Y/Y}$$

Which can be simplified as:

$$EY = \frac{\Delta Q}{Q} \cdot \frac{Y}{\Delta Y}$$

Where Y = Income

Types of Income Elasticity of demand

Depending upon the product, demand might increase or decrease in response to a rise in income. There are thus five types of income Elasticity of demand viz:

i) Negative Income Elasticity

This is where the demand decreases as income rises and rises when income falls. This is the case of inferior goods.

ii) Zero Income Elastic

In this case, the demand does not change as income rises or falls. In this case it is said to be zero income, elasticity. This is the case of a necessity.

iii) Income Inelastic

This is where demand rises by a smaller proportion than income or falls by a smaller proportion than income.

iv) Unit Income Elasticity

This is where demand rises or falls by exactly the same proportion as income.

v) Income Elastic

Demand rises or falls by a greater proportion than income. Since income elasticity of demand can be either positive or negative, it is therefore very important to include the sign (+ or -) when stating the value of the co-efficient.

Importance of Income Elasticity

If a country is experiencing economic growth, the income of the people will increase. However, for those engaged in the production of goods with negative income elasticities, this will mean a declining demand for their product. Even products with positive income elasticities, there is a great variability of response.

Income elasticity therefore has a most important effect upon resource allocation. As such, prosperous areas of any economy are often those associated with products which have a high income elasticity. In recession the opposite will be true.

c) Cross Elasticity

Cross elasticity of demand measures the degree of responsiveness of the quantity demanded of one good (B) to changes in the price of another good (A). It is measured as follows:

$$Ex = \frac{\text{Percentage change in quantity demanded of B}}{\text{Percentage change in Price of A.}}$$

This may be written mathematically as follows:

$$E_x = \frac{\Delta Q_B / Q_B}{\Delta P_A / P_A}$$

$$= \frac{\Delta Q_B}{\Delta P_A} \cdot \frac{P_A}{Q_B}$$

In the case of complementary goods, such as cars and petrol, a fall in the price of one will bring about an increase in the demand for the other. Thus we are considering a cut in price (-) bringing about a rise in demand (+). This therefore means that for complements, the E_x is negative.

Conversely, substitute goods such as butter and margarine might be expected to have a positive E_x because a rise in price of one (+) will bring about a rise in the demand for the other (+).

The value of E_x may vary from minus infinity to plus infinity. Goods which are close to complements or substitutes will tend to exhibit a high cross-elasticity of demand. Conversely, when there is little or no relationship between goods then the E_x will be near zero.

Importance of Cross Elasticity

Knowledge of cross elasticity is necessary when the government wants to impose a tariff on an imported commodity to protect a domestic industry.

Firms need to know the cross elasticity of their products and substitute products when contemplating price rises.

Firms also need to know the cross elasticity of the products and complements to plan their production.

PRICE ELASTICITY OF SUPPLY

Price Elasticity of supply measures the degree of responsiveness of quantity supplied to changes in price. The co-efficient of the elasticity of supply may be stated as:

$$E_s = \frac{\text{Percentage change in the quantity supplied}}{\text{Percentage change in price.}}$$

Mathematically, this can be written as: $E_s = \frac{\Delta Q_s / Q_s}{\Delta P / P}$

$$= \frac{\Delta Q_s}{\Delta P} \cdot \frac{P}{Q_s}$$

Symbolically it is given by the formula $E_s = \frac{\Delta q}{\Delta p} \cdot \frac{p}{q}$

Because of the positive relationship between price and quantity supplied, the price elasticity of supply ranges from zero to infinity.

PRICE ELASTICITY OF SUPPLY AND THE SLOPE OF THE SUPPLY CURVE

From the formula $s = \frac{\Delta q}{\Delta p} \times \frac{p}{q}$ we can write $E_s = \frac{\Delta q}{\Delta p} \times \frac{p}{q} = \frac{p}{q} \times \frac{\Delta q}{\Delta p}$

$$= p \times \frac{1}{q} \times \text{gradient}$$

For a straight line supply curve, the gradient is constant along the whole length of the curve, but elasticity is not necessarily constant. However, at any given point the steeper the supply curve, the more inelastic will be the supply. For this reason, steeply sloped supply curves are usually associated with inelastic supply and non-steeply sloped supply curves are usually associated with elastic supply.

In the first diagram, when price increases from P1 to P2, quantity supplied increases in less proportion from q1 to q2. Conversely, when price falls from P2 to P1, quantity supplied falls in less proportion from q2 to q1.

In the second diagram, when price rises from P11 to P21, quantity supplied rises in greater proportion from q11 to q21, and when price falls from P21 to P11, quantity supplied falls in greater proportion from q21 to q11.

TYPES OF ELASTICITY OF SUPPLY

i) Perfectly Inelastic (Zero Elastic) Supply:

Supply is said to be perfectly inelastic if the quantity supplied is constant at all prices. The supply curve is a vertical straight line and the elasticity of supply is equal to zero.

When price rises from P1 to P2, quantity supplied stays fixed at q, and when price falls from P2 to P1, quantity supplied stays fixed.

In the case of a price rise, this is the situation of the very **short-run** or **the momentary** period which is so short that the quantity supplied cannot be increased, e.g. food brought to the market in the morning. It is also the case where the commodity is fixed in supply e.g. land. In the case of a price fall, this is the case of a **highly perishable** commodity which cannot be stored, e.g. fresh fish.

ii) Inelastic Supply:

Supply is said to be price inelastic if changes in price bring about changes in quantity supplied in less proportion. Thus, when price increases quantity supplied increases in less proportion, and when price falls quantity supplied falls in less proportion. The supply curve is steeply sloped and the elasticity of supply is less than one.

When price increases from P1 to P2, quantity supplied increases in less proportion from q1 to q2. This is the case when there are **limited stocks** of the product or the product takes a **long time** to produce such that when price rises, quantity supplied cannot be increased substantially.

Conversely, if price falls from P2 to P1, quantity supplied falls in less proportion from q2 to q1. This is the case of a commodity which is perishable and cannot be easily stored, e.g. fresh foods like bananas and tomatoes. These are perishable but not so highly perishable as fresh fish. When price falls, quantity supplied cannot be drastically reduced.

iii) Unit Elasticity of Supply:

Supply is said to be of unit elasticity if changes in price bring about changes in quantity supplied in the same proportion. Thus, when price rises, quantity supplied increases in the same proportion, and when price falls, quantity supplied falls in the same proportion. The supply curve is a straight line through the origin, and the elasticity of supply is equal to **one** or **unity**.

When price rises from P1 to P2, quantity supplied increases in the same proportion from q1 to q2. This is the case of a commodity of which there is a fair amount of stocks or which can be produced within a fairly short period of time.

Conversely, when price falls from P2 to P1, quantity supplied falls in the same proportion from q2 to q1. This is the case of a commodity which is fairly easily stockable, e.g. dry foods, like dry beans and dry maize.

iv) Elastic Supply

Supply is said to be price elastic if changes in price bring about changes in quantity supplied in greater proportion. Thus, when price increases, quantity supplied increases in greater proportion. The supply curve is not steeply sloped and the elasticity of supply is greater than one.

When price rises from P1 to P2, quantity supplied rises in greater proportion from q1 to q2. This is the case when there are a **lot of stocks** of the commodity or the commodity can be produced within **fairly short period** of time so that when price rises, quantity supplied can be increased substantially.

Conversely, if price falls from P2 to P1, quantity supplied falls in greater proportion from q2 to q1. This is the case of a commodity which is **easily stockable** e.g. manufactured articles. When price falls, quantity supplied can be substantially reduced. The commodity is then stored instead of being sold at a loss or for very reduced profit.

v) Perfectly Elastic Supply

Supply is said to be perfectly or infinitely elastic if the price is fixed at all levels of demand. The demand curve has been shown in the above diagram for the sake of clarity.

If the supply is perfectly elastic, the supply curve is a horizontal straight line and the elasticity of supply is equal to infinity.

When demand increases from quantity supplied increases but price stays fixed. Conversely, if demand falls, quantity supplied falls but price stays fixed.

This is the case of Government price control.

IMPORTANCE OF THE PRICE ELASTICITY OF SUPPLY

- i) **If the supply of a commodity is elastic with respect to a price rise**, producers will benefit by prices not rising excessively. But if the supply is inelastic with respect to a price rise, there will tend to be overpricing of the commodity to the disadvantage of the

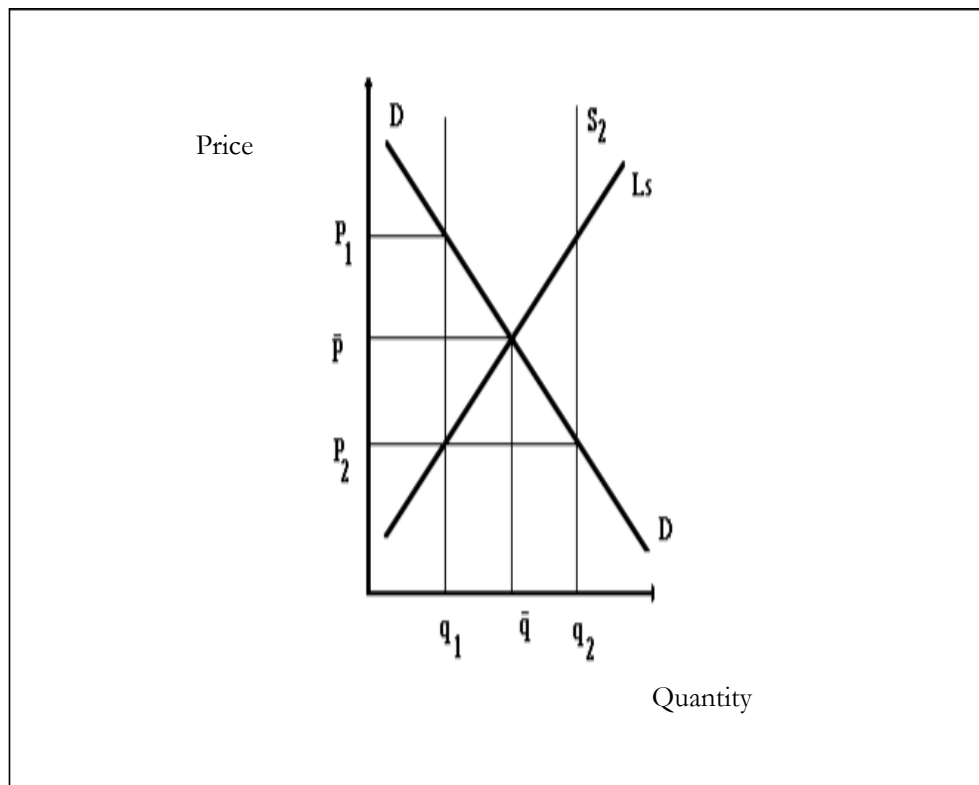
consumers. Even the producers will not benefit as much as they would if the supply was elastic because although they are charging high prices, the supply is limited.

- ii) **If the supply is inelastic with respect to a price fall:** This increases the risk of the business because it means that producers may be forced to sell the commodity at very low prices as the commodity cannot be easily stored. But if the supply is elastic with respect to a price fall, the business is less risky as the commodity can easily be stored, and producers will not be forced to sell at low prices.
- iii) **The price elasticity of supply is responsible for the fact** that the prices of agricultural products tend to fluctuate more than those of manufactured products.

REASONS FOR FLUCTUATIONS IN AGRICULTURAL PRICES

Production depends on factors beyond the control of the producers e.g. weather, disease and pests. Actual and planned output is often not the same and the price charged is usually different from the expected price.

- i) The production of these products depends on factors beyond the control of the producers e.g. weather, diseases and pests, consequently, actual output is often not the same as planned output and hence the actual price is usually different from the expected price. At any one time the supply of the commodity will be perfectly inelastic.



DD is the demand curve and Ls the long run supply curve indicating what producers will be willing to produce and sell at different prices if production was entirely under their control.

Thus, P is the expected equilibrium prices and q the planned equilibrium quantity. Depending on the external factors mentioned above, actual output may be than planned output e.g. at q_2 making the price p_2 or less than planned output e.g. at q_1 making the price P_1 .

The situation is made worse by the fact that these commodities are not easily stored, so that if the actual output falls short of planned output it cannot be supplemented from the stocks and if the actual output is greater than planned output it cannot be reduced which would prevent prices from being too low.

Besides the short run elasticity of supply is low, since once a given amount of the crop has been planted it is comparatively difficult to increase or decrease the resulting output. Hence high (or low) prices are likely to persist in the short term before additional supply can be made available

Furthermore the demand for these products is also price inelastic, for they are either foods or raw materials, and in the latter case they usually form a small proportion of the total inputs. Thus, if actual output is in excess of planned output, it is difficult to sell off the excess without depressing prices excessively.

Equilibrium prices may also be difficult to attain because of lagged responses by producers to respond to price changes. In this case it is assumed that though producers are continually disappointed they never become wiser as a result and thus precipitate the price movement and that stocks of the commodity are not stored by producers or middle men in periods of low prices to be resold in periods of, otherwise high prices thus ironing out the unevenness of supply and price. This leads to the **cobweb theorem** (A dynamic model of supply and demand in which adaptive (or non-rational) expectations lead to perpetual oscillations in prices)

GOVERNMENT ACTION TO STABILIZE FARM PRICES AND INCOMES.

i) Buffer stocks and stabilization funds

In this case the government buys up part of the supply when output is excessive, stores this surplus, and resells it to consumers in times of shortage or reduced supply. The amounts that the government must buy or sell to stabilize incomes will therefore depend on the elasticity of demand.

In practice this normally operates through a marketing board controlling the industry, with monopoly powers to fix prices to producers. The Board will usually guarantee a minimum price for the commodity and may make an initial payment to the grower followed by an additional payment if sales by the Board subsequently realize a price in excess of the minimum. Producers of the crop are thus encouraged by the knowledge that any decrease in price during the season will be moderated by Government action.

In the stabilization Funds, the Government fix the price. When the demand is high, the government shall retain the difference, and subsidize the price to producers when demand is low.

ii) The case of Diversification

This is done to reduce the uncertainty in the livelihood of the farmer.

A MATHEMATICAL APPROACH TO EQUILIBRIUM ANALYSIS

The demand and supply relationships explained earlier on can be expressed in mathematical form. The standard problem is one of finding a set of values which will satisfy the equilibrium condition of the market model.

Equilibrium in a single market model.

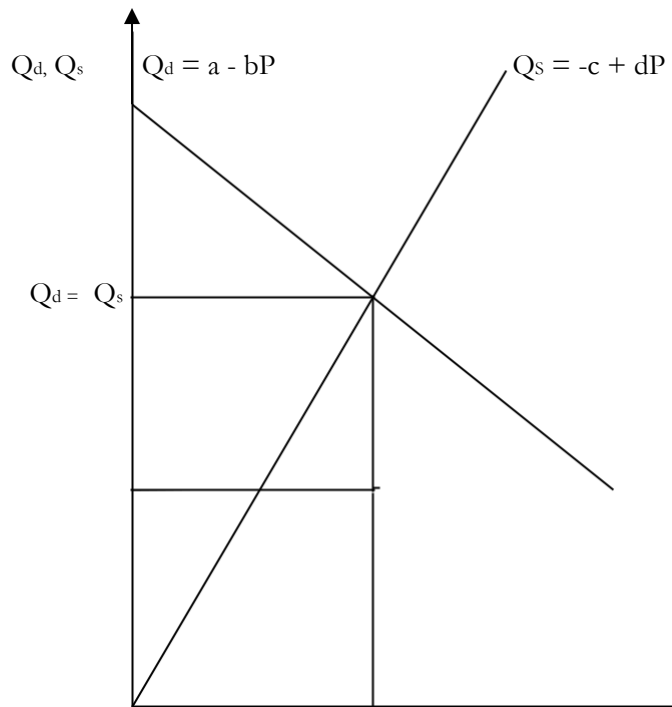
A single market model has three variables: the quantity demanded of the commodity (Q_d), the quantity supplied of the commodity (Q_s) and the price of the commodity (P). equilibrium is assumed to hold in the market when the quantity demanded (Q_d) = Quantity Supplied (Q_s). It is assumed that both Q_d and Q_s are functions. A function such as $y = f(x)$ expresses a relationship between two variables x and y such that for each value of x there exists one and only one value of y . Q_d is assumed to be a decreasing linear function of P which implies that as P increases, Q_d decreases and Vice Versa. Q_s on the other hand is assumed to be an increasing linear function of P which implies that as P increases, so does Q_s . Mathematically, this can be expressed as follows:

$$Q_d = Q_s$$

$$Q_d = a - bP \text{ where } a, b > 0. \dots\dots\dots(i)$$

$$Q_s = -c + dP \text{ where } c, d > 0. \dots\dots\dots(ii)$$

Both the Q_d and Q_s functions in this case are linear and can be expressed graphically as follows:



Once the model has been constructed it can be solved.

At equilibrium,

$$Q_d = Q_s$$

$$\therefore a - bP = -c + dP$$

$$\underline{P} = \frac{a + c}{b + d}$$

To find the equilibrium quantity \bar{Q} , we can substitute into either function (i) or (ii).

Substituting \bar{P} into equation (i) we obtain:

$$\bar{Q} = a - \frac{b(a+c)}{b+d} = a \frac{(b+d)}{b+d} - \frac{b(a+c)}{b+d} = \frac{ad-bc}{b+d}$$

Taking a numerical example, assume the following demand and supply functions:

$$\bar{P} = 100 - 2P$$

$$Q_s = 40 + 4P$$

At equilibrium, $Q_d = Q_s$

$$\therefore 100 - 2\bar{P} = 40 + 4\bar{P}$$

$$6\bar{P} = 60$$

$$\therefore \bar{P} = 10$$

Substituting $P = 10$, in either equation.

$$Q_d = 100 - 2(10) = 100 - 20 = 80 = Q_s$$

A single market model may contain a quadratic function instead of a linear function. A quadratic function is one which involves the square of a variable as the highest power. The key difference between a quadratic function and a linear one is that the quadratic function will yield two solution values.

In general, a quadratic equation takes the following form:

$$ax^2 + bx + c = 0 \text{ where } a \neq 0.$$

Its two roots can be obtained from the following quadratic formula:

$$X_1, X_2 = \frac{-b \pm \sqrt{(b^2 - 4ac)}}{2a}$$

Given the following market model:

$$Q_d = 3 - P^2$$

$$Q_s = 6P - 4$$

At equilibrium:

$$3 - P^2 = 6P - 4$$

$$P^2 + 6P - 7 = 0$$

Substituting in the quadratic formula:

$$a = 1, b = 6, c = -7$$

$$= \frac{-6 \pm \sqrt{6^2 - 4(1 \times -7)}}{2 \times 1}$$

$$= -6 \pm \sqrt{\frac{6^2 - 4(1 \times -7)}{2 \times 1}}$$

$P = 1$ or -7 (ignoring -7 since price cannot be negative)

$$\therefore \bar{P} = 1$$

Substituting $\bar{P} = 1$ into either equation:

$$Q_d = 3 - (1)^2 = 2 = Q_s$$

$$\therefore \bar{Q} = 2$$

Equilibrium in a two commodity market

Let us consider a two -commodity market model in which the two commodities are related to each other. Let us assume the functions for both commodities are linear. The two commodities are complementary commodities say (cars (c) and petrol (P). The functions representing the commodities are as follows:

$$Q_{dc} = 820 - 10 P_c - 4P_p \qquad Q_{dp} = 590 - 2P_c - 6P_p$$

$$Q_{sc} = -120 + 6P_c \qquad Q_{sp} = -240 + 4P_p$$

At equilibrium,

- 1) $Q_{dc} = Q_{sc}$
 $820 - 10P_c - 4P_p = -120 + 6P_c$
 $940 - 16P_c - 4P_p = 0$
- 2) $Q_{dp} = Q_{sp}$
 $590 - 2P_c - 6P_p = -240 + 4P_p$
 $830 - 2P_c - 10P_p = 0$

There are now therefore two equations:

$$940 - 16P_c - 4P_p = 0 \dots\dots\dots(i)$$

$$830 - 2P_c - 10P_p = 0 \dots\dots\dots(ii)$$

Multiply (ii) by 8 which gives (iii). Subtract (i) from (iii) to eliminate P_c and solve for P_p .

$$\begin{array}{r} 6,640 - 16 P_c - 80P_p = 0..(iii) \\ - (940 - 16P_c - 4P_p = 0 \dots\dots\dots(i)) \\ \hline 5,700 \qquad \qquad - 76P_p = 0 \end{array}$$

$$P_p = 75$$

Substituting $P_p = 75$ in (i) we obtain:

$$940 - 16P_c - 4(75) = 0$$

$$16p_c = 640$$

$$\therefore P_c = 40$$

Substituting $P_c = 40$ and $P_p = 75$ into Q_d or Q_s for each market.

$$\begin{aligned} 1) \quad Q_{dc} &= 820 - 10(40) - 4(75) \\ &= 820 - 400 - 300 \\ Q_{dc} &= 120 = Q_{sc} \end{aligned}$$

$$\begin{aligned} 2) \quad Q_{dp} &= 590 - 2(40) - 6(75) \\ &= 590 - 80 - 450 \\ Q_{dp} &= 60 = Q_{sp} \end{aligned}$$

REINFORCEMENT QUESTIONS**Question One**

Write short notes on the following:

- a) substitute and complementary goods
- b) price controls
- c) indifference curves
- d) inferior and giffen goods

Question Two

- a) Define the term cross price elasticity of demand and explain its value for substitutes and complementary commodities.
- b) Use the data in the table below to complete income elasticity through the arc elasticity method

Quantity	Income (Shs.)	Price (Shs.)
100	5,000	16
120	6,000	16

Question Three

Given the market model

$$\bar{P} = Q_s$$

$$Q_d = 48 - 4P$$

$$Q_s = -6 + 14P$$

Find \bar{P} and \bar{Q}

Check your answers with those given in Lesson 9 of the Study Pack

COMPREHENSIVE ASSIGNMENT No.1**TO BE SUBMITTED AFTER LESSON 2**

To be carried out under examination conditions and sent to the Distance Learning Administrator for marking by the University.

TIME ALLOWED: THREE HOURS.

ANSWER ANY FIVE QUESTIONS (ALL QUESTIONS CARRY EQUAL MARKS)

Question One

- a) State the economic circumstances under which a perfectly competitive market may arise.
- b) In what ways does a perfect market differ from a monopoly, oligopoly and monopolistic competition?

Question Two

- a) Distinguish between supply, demand and equilibrium price.
- b) Explain what is meant by elasticity of supply and state the factors that determine the supply of a good in the market.
- c) The table below shows the demand and supply schedules for a product:

<u>PRICE (KShs. per kg)</u>	<u>DEMAND (kg)</u>	<u>SUPPLY (kg)</u>
10	100	20
20	85	36
30	70	53
40	55	70
50	40	87
60	25	103
70	10	120

Draw the demand and supply curves and draw the equilibrium price and quantity.

Question Three

- a) Comment on the pattern of industrial motion either in Kenya or your country and give possible explanations for such a pattern.
- b) What policy changes would you recommend in order to improve industrial development in your country?

Question Four

- a) What are the main factors of production?
- b) What determines the supply of demand for the factors of production that you have identified in a) above?

Question Five

- a) Explain the term price control.
- b) In recent years many countries have abolished price controls. Discuss the short and long-term implications of decontrolled prices.

Question Six

Write short notes on the following::

- i) Scarcity and choices
- ii) Isoquants and isocost curves
- iii) Substitute and complementary goods
- iv) Opportunity cost

Question Seven

- a) Explain what the term indifference curve entails.
- b) By use of indifference curves diagrams, show and explain:
 - i) Consumers equilibrium
 - ii) Income and substitution effect of a fall in price of an inferior good

Question Eight

- a) What is a monopolist market?
- b) Write short explanatory notes on the following:
 - i) Positive and normative economics
 - ii) Price discrimination
 - iii) Marginal rate of technical substitution

END OF COMPREHENSIVE ASSIGNMENT No.1

NOW SEND TO THE DISTANCE LEARNING CENTRE FOR MARKING

LESSON THREE

THE THEORY OF PRODUCTION

LEARNING OBJECTIVES

At the end of the lesson the student should be able to:

- Identify and categorise the factors of production
- Analyse the relationship between the input of factors and the output of goods and services in the short-run and in the long-run
- Define fixed and variable costs and show, that in the short-run, average and marginal costs will eventually rise as ‘diminishing returns’ come into operation
- Explain the role of economics and diseconomics of scale in determining the shape of a firm’s long-run average cost curve
- Show that a firm’s profits will be maximised at the point where the marginal cost cuts the marginal revenue curve from below
- Outline the assumptions upon which the model of perfect competition is based
- Illustrate and explain the short-run and long-run equilibrium positions of a perfectly competitive firm and industry
- Show that in the absence of externalities, perfect competition will lead to a pareto optimal allocation of resources

CONTENTS

1. Factors of Production
2. Production Function
3. The Theory of Costs
4. Markets

ASSIGNED READINGS

Modern Economics by Robert Mudida Chapters 6,7,8

1. FACTORS OF PRODUCTION

The sum total of the economic resources which we have in order to provide for our economic wants are termed as *factors of production*. Traditionally economists have classified these under four headings. They are:

- | | | |
|----------------|---|-------------------|
| i) Labour | } | primary factors |
| ii) Land | | |
| iii) Capital | | |
| iv) Enterprise | } | secondary factors |

The first two are termed primary factors since they are not the result of the economic process; they are, so to speak, what we have to start with. The secondary factors, however are a consequences of an economic system.

i) Land

The term land is used in the widest sense to include all the free gifts of nature; farmlands, minerals wealth such as coal mines, fishing grounds, forests, rivers and lakes.

In practise it may be very difficult to separate land from other factors of production such as capital but, theoretically, it has two unique features which distinguish it.

Firstly, it is ***fixed in supply***. As land includes the sea in definition, then we are thus talking about the whole planet, and it is obvious that we cannot acquire more land in this sense.

Secondly, land has no cost of production. The ***individual*** who is trying to ***rent*** a piece of land may have to pay a great deal of money but it never cost ***society*** as a whole anything to produce land.

ii) Capital

Capital as a factor of production can be defined either as the stock of wealth existing at any one time and as such, capital consists of all the real ***physical*** assets of society. An alternative formulation of capital is that it refers to all those goods, which are used in the production of further wealth.

Capital can be divided into ***fixed capital***, which is such things as building, roads, machinery etc and ***working capital*** or ***circulating capital*** which consists of stocks of raw materials and semi-manufactured goods. The distinction is that fixed capital continues through many rounds of production while working capital is used up in one round; For example, a classroom would be fixed capital, while stocks of chalk to be used for writing would be circulating/working capital.

As stated previously, capital is a secondary factor of production, which means that results from the economics system. Capital has been created by individuals ***forgoing current consumption***, i.e. people have refrained from consuming all their wealth immediately and have saved resources which can then be used in the production of further wealth.

iii) Labour

Labour is the exercise of human, physical and mental effort directed to the production of goods and services. Included in this definition is all the labour which people undertake for reward, either in form of wages and salaries or incomes from self employment. We would not, therefore include housework or the efforts of do-it-yourself enthusiasts, even though these may be hard work.

Some aspects of labour

Labour is no doubt the most important of all factor or production, for the efficiency of any production will to a large extent depend on the *efficiency* and *supply* of the labour working in the process. Besides labour is also the end for which all production is undertaken.

Supply of labour

Supply of labour refers to the number of workers (or, more generally, the number of labour hours) available to an economy. The supply of labour will be determined by:

I. Population Size

In any given economy, the population size determines the upper limit of labour supply. Clearly there cannot be more labour than there is population.

II. Age Structure

The population is divided into three age groups. These are:

- The young age group usually below the age of 18, which is considered to be the minimum age of adulthood. People below this age are not in the labour supply, i.e. they are not supposed to be working or looking for work.
- The working age group, usually between 18 and 60, although the upper age limit for this group varies from country to country. In Kenya for example, for public servants, it is 55 years. It is the size of this group which determines the labour supply.
- The old age group, i.e. above 60 years are not in the labour force.

III. The Working Population

Not everybody in the working age group will be in the labour force. What is called the working population refers to the people who are in the working group, and are either working or are actively looking for work, i.e. would take up work if work was offered to them. These are sometimes called the actively active people. Hence this group excludes the sick, the aged, the disabled and (full time) housewives, as well as students. These are people who are working and are not willing or are not in a position to take up work was given to them.

IV. Education System

If the children are kept in school longer, then this will affect the size of the labour force of the country.

V. Length of the Working Week

This determines labour supply in terms of Man-hours. Hence the fewer the holidays there are, the higher will be the labour supply. This does not, however mean that if the number of working hours in the week are reduced, productivity if there is a high degree of automation.

VI Remuneration

The preceding five factors affect the supply of labour in totality. Remuneration affects the supply of labour to a particular industry. Thus, an industry which offers higher wages than other industries will attract labour from those other industries.

VII The Extent to Barriers to Entry into a Particular Occupation

If there are strong barriers to the occupation mobility of labour into a particular occupation, e.g. special talents required or long periods of training, the supply of labour to that occupation will be limited.

Efficiency of Labour

Efficiency of labour refers to the ability to achieve a greater output in a shorter time without any falling off in the quality of the work – that is to say, increase productivity per man employed. The efficiency of a country's labour force depends on a number of influences.

i. Climate

This can be an important influence on willingness to work, for extremes of temperatures or high, humidity are not conducive to concentration even on congenial tasks.

ii. Education and training

Education and training produce skills and therefore efficient labour. Education has three aspects: general education, technical education and training within industry. A high standard of general education is essential for developing intelligence and providing a foundation upon which more specialized vocational training can be based. Technical training provided in the universities, colleges and by industry itself. Training within industry is given by each firm to its employees.

iii. Working Conditions

Research has shown that if working conditions are safe and hygienic, the efficiency of labour will be higher than if the conditions were unsafe or unhygienic.

iv. Health of the worker

The efficiency of the worker is closely related to his state of health which depends on his being adequately fed, clothed, and housed.

v. Peace of Mind

Anxiety is detrimental to efficiency. People (workers) may be tempted to overwork themselves to save at the expense of health to provide for contingencies like times of sickness, unemployment and old age. Others may be worried about their work or their private problems.

vi. Efficiency of the Factors

The productivity of labour will be increased if the quality of the factors is high. The more fertile the land, the greater will be the output per mass, other things being equal. Similarly, the greater the amount and the better the quality of the capital employed, the greater will be the productivity of the labour.

Efficiency of the organisation is even more important since this determines whether the best use is being made of factors of production.

vii. Motivating factors

These are factors which boost the morale of the workers and hence increase the efficiency. They include such things as free or subsidised housing, free medical benefits, paid sick leave, allowing workers to buy shares in the company and incorporating workers' representatives in the decision-making of the firm. In this way the workers feel that they are part and parcel of the organisation and are not being used.

viii. The Extent of Specialisation and Division of Labour

The greater the amount of specialisation, the greater will be the output per man, Division of labour increases the efficiency of labour.

ix The Entrepreneur

Land, capital and labour are of no economic importance unless they are organised for production. The entrepreneur is responsible not only for deciding what method of production shall be adopted but for organising the work of others. He has to make many other important decisions such as what to produce and how much to produce.

Functions of the Entrepreneur

1. Uncertainty Bearing

Most production is undertaken in anticipation of demand. Firms will produce those things which they believe will yield profit. They do not know that they will do so because the future is unknown.

2. Management Control

This involves responsibility for broad decisions of policy and the ability to ensure that these decisions are carried out.

FACTOR MOBILITY

Factor mobility means the ease with which a factor can be moved from one form or area of employment to another. There are two aspects to mobility. Movement from one employment to another is called occupational mobility and movement from one place of employment to

another is called geographical mobility. The geographical sense of the movement from one place to another is geographical mobility.

Mobility of Land

Land is geographically immobile in that a given piece of land cannot be moved from one place to another. However, land can be occupationally mobile in that it can be put to different uses, e.g. farming, grazing and building. Some forms of land have limited occupational mobility in that they can be put to a limited number of uses e.g. arid or desert areas and mountainous land. The former may be used as grazing land by nomadic people, unless it is found to have mineral deposits, while the latter may be used as a tourist attraction or for pleasure in mountain climbing. Immobility geographically implies that it cannot be used to increase production of a particular product unless this is done at the expense of other products.

Mobility Capital

Some forms of capital are immobile in both geographical and occupational sense e.g. heavy machinery and railway networks. Usually once such equipment has been installed on land in a particular place, it becomes uneconomical to uproot it and move it to another place. Hence, because of the heavy costs that such an operation would involve, it is for all practical purposes geographically immobile. Also such equipment can usually be put to only the use for which it was intended and it is occupationally immobile.

Other forms of capital are geographically immobile but are occupationally mobile e.g. buildings. Once a building has been set up in a place, it cannot be moved intact to another place, but it can be converted to a hotel or bar. Other forms of capital are mobile both geographically and occupationally e.g. vehicles and hand tools which can be moved from place to place and can also be put to different uses.

Mobility geographically facilitates production. Immobility occupationally makes it difficult to increase output in the short run.

Mobility Of Labour

Labour is relatively mobile geographically, but less so occupationally in that people can be moved from one place to another but find it hard to change occupations if it is highly specialized. If a person moves from one occupation to another occupation on higher level, either in terms of remuneration or in terms of status or both, this is called Vertical occupational mobility, e.g. if an accountant becomes a manager. If movement is from one occupation to another on the same level, this is called horizontal occupational mobility. Also in this case the social status of two occupations is more-or-less the same.

Although labour is relatively mobile geographically, there are factors, which act as barriers to its mobility geographically.

Barriers to Geographical Mobility of Labour

i. Cost of Movement

The cost of movement from one place to another place can be a prohibitive factor in the geographical movement of labour.

ii. Shortage of Housing

This can be a prohibitive factor especially in urban areas. Thus if person is working in a rural area, he may be reluctant to move to an urban area, for example, if he is living in his own house or a cheaper house in the rural area, he may not be able to find a house for himself and his family in the urban area.

iii. Education of Children

A person may be reluctant to move from one area to another because he does not want to interrupt the education of his children either because it is late in the year and the children cannot find school places in the new area or because the new area has a different education system, e.g. it is a different state of the country or a different country altogether.

iv. Social and Family Ties

If a person has been living in a place for a long time, he may be reluctant to leave and go to another place because he does not want to leave his friends and relatives (especially the aged parents) behind.

v. Geographical and Economic Factors

Some areas are known to be hostile areas, i.e. they are too hot or too cold consequently people are reluctant to go to work in such areas. Also in addition to factors of shortages of housing in urban areas referred to earlier, people may be reluctant to leave their jobs in rural areas because of higher cost of living in urban areas.

i. Personal Talents

There are some occupations which require special talents which not everybody has e.g. the occupation of engineers, statisticians and surgeons.

ii. Length of Training

It requires a long period of training to acquire the necessary skills for a particular occupation; this can act as a discouragement to go into such occupations.

iii. Capital Limitations

In order for a person to go into such a business enterprise, he has to have the necessary capital. Hence lack of capital can act as a barrier to entry into commercial activities.

iv. Class Limitations

In societies, which operate a caste system, people belonging to a particular caste may not do certain jobs. This will also happen to countries, which practice racial discrimination. People belonging to a particular race may not be allowed to do certain jobs, which are reserved for other races. The Mobility geographically facilitates production while immobility occupationally discourages it. Immobility geographically and occupationally leads to structural unemployment and unemployment due to technological progress.

Mobility Of Entrepreneur

The most mobile of the factors of production is probably the entrepreneur. This is because the basic functions of the entrepreneur are common to all industries. Whatever the type of economic activity there will be a need to raise capital, to organise the factors of production and to take the fundamental decisions on where, what and how to produce.

FACTOR INCOMES

The various incomes which the factors receive can be termed **factor rewards** or **factor returns**. Labour receives wages and salaries, land earns rent, capital earns interest and enterprise earns profit.

2. THEORY OF THE FIRM

The Theory of the firm is that branch of economics which studies how firms combine various inputs to produce a stipulated output in an economically efficient manner given technology and the various costs that they must meet to produce the various levels of output.

The firm is an entity, which produces any economic good under one management with the aim of maximizing its profits. It differs from the plant in that the plant is the unit of production in an industry while the firm is the unit of ownership and control. An industry is all the firms concerned with a particular line of production.

PRODUCTION FUNCTION ANALYSIS

This deals with how firms combine various inputs to produce a stipulated output in an economically efficient manner, given technology.

a. Varying the proportions

In making a product, a firm does not have to combine the inputs in fixed proportions. Many farm crops can be grown by using relatively little labour and relatively large amounts of capital (machinery, fertilizers etc) or by combining relatively large amounts of labour with very little capital. In most cases a firm has the opportunity to vary the “input mix” However, before looking at how the firms combine the various factors we need to know some concepts which firms must take into account namely;

- i. **The short run:** The period of time in which at least one factor is fixed in supply i.e. cannot be varied.
- ii. **The long run:** The period, in which all factors may be varied, in which firms may enter or leave the industry.
- iii. **Variable (factor) Input:** This is a factor of production which varies with output in the short run and is one whose quantity may be changed when market conditions require immediate change in output.
- iv. **Fixed Input:** Is factor whose quantity in the short run cannot readily be changed when market conditions require an immediate change in output.
- v. **Total Physical Product (TPP):** This is the total output realized by combining factors of production.
- vi. **Average Physical Product (APP):** This is the average of the Total Physical product per unit of the variable factor of production in the short run. Thus, if the variable factor is labour, average physical product is output per unit of labour e.g.

$$\text{Total Physical Product} = \frac{\text{Total Physical Product}}{\text{Number of Workers}}$$

- vii. **Marginal Physical Product (MPP):** Is the addition to the total physical product attributed to the addition of one extra unit of the variable input to the production process, the fixed input remaining unchanged.

Factor combination in the short run

In the short run at least one of the factors of production will be fixed and changes in output will be caused by varying only one input.

The variations in output that can result from applying more or less of the variable factor to a given quantity of a fixed factor can be illustrated by the use of a simple numerical example.

Suppose the fixed factor of production is a farm (land), say 20 hectares. Labour will be the variable factor. Table 1 sets out some hypothetical results obtained by varying the amount of labour employed.

Non-proportional returns

Table 1

1	2	3	4
No. of workers	Total product	Average product	Marginal product
0	0	0	
1	8	8	8
2	24	12	16
3	54	18	30
4	82	20.5	28
5	95	19	13
6	100	16.7	5
7	100	14.3	0
8	96	12	-4

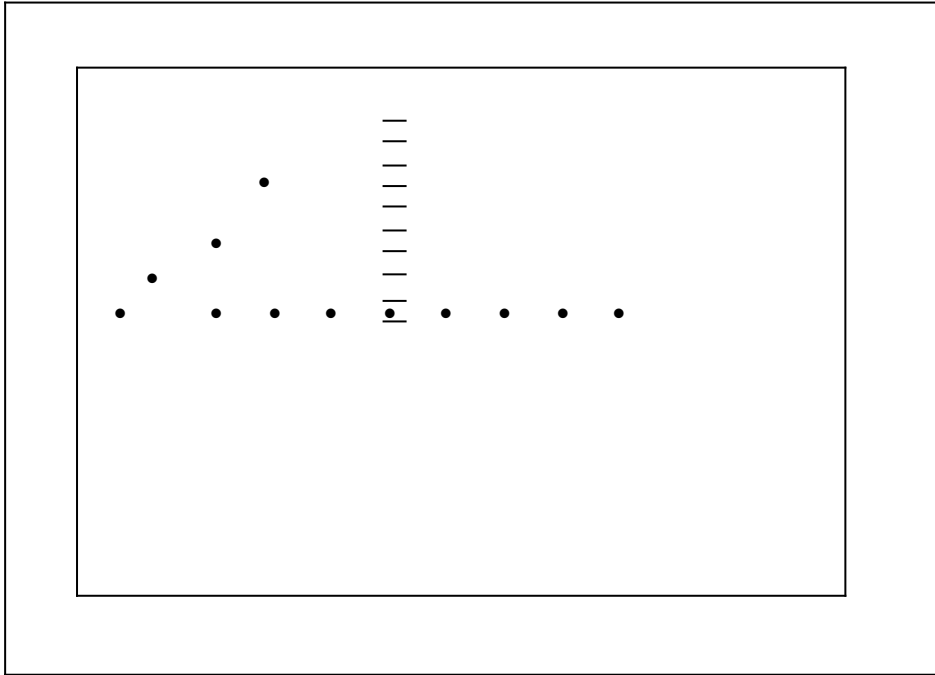
The above table illustrates some important relationships, but before we examine them we must state the assumptions on which the table is based;

1. The time period must be the short run i.e. there must be a fixed factor of production.
2. There must be a variable factor of production.
3. Successive units of the variable factors must be equally efficient.
4. There should be no changes in the production techniques

In the third column, Average Physical Product is obtained by dividing Total Physical Product by the number of workers. Thus for the first worker, the total output of 8 is divided by 1. For the second worker, the total output of 24 is divided by 2 to give 12 and so on.

In the fourth column, the marginal product for each worker is obtained by subtracting the previous Total physical Products from the Total Physical Product, when that extra worker is employed. Thus, for the first worker, Marginal Physical Product is 8. For the second worker, Marginal Physical Product is 16 and so on. These last three columns can be plotted on the graph as follows:

Table 2



Observations:

- i. It can be observed from the Total Physical Product graph that it begins by rising, reaches maximum and then falls.
- ii. Total Physical Product begins by increasing at increasing rate as shown by the slope of the curve up to the third worker, beyond this it increases at a decreasing rate then reaches a maximum and falls.

Table 3

Observations:

- i) MPP begins by rising, reaches a maximum and then falls.
- ii) When TPP is increasing at an increasing rate, MPP is raising
- iii) When TPP is at increasing at a decreasing rate, MPP is falling
- iv) When TPP is at the maximum i.e. increasing at a zero rate when MPP is equal to zero, when TPP is falling i.e. increasing at a negative rate, MPP is negative; hence MPP is the measure of the rate of change in TPP.
- v) APP begins by rising, reaches a maximum and then falls.
- vi) When APP is rising, MPP is above it, although MPP begins to fall earlier than APP, when APP is falling, MPP is below it. MPP is equal to APP when is at the maximum

THE LAW OF DIMINISHING RETURNS (LAW OF VARIABLE PROPORTIONS)

Table 3 illustrates one of the most important and fundamental principles involved in economics called **the law of diminishing returns or variable proportions**. We may state it thus:

The law of diminishing returns comes about because of several reasons:

1. The ability of labour to substitute for the fixed quantity of land.
2. The marginal physical output of labour increases for a time, as the benefits of specialization and division of labour make for greater efficiency.
3. Later all the advantages of specialization are exhausted.
4. The law of diminishing returns comes about because each successive unit of the variable factor has less of the fixed factor to work with. In fact, they therefore start getting in the way of others with the fixed factor with consequent decline in output.

From the figure we can see the law leads to three stages of production, namely, stage of:

1. Increasing returns
2. Diminishing returns
3. Negative returns

CHARACTERISTICS OF THE THREE STAGES

Stage I

Here the Total Physical Product, Average Physical Product and Marginal Physical Product are all increasing. However MPP later starts decreasing. The stage is called stage of increasing returns because either the APP or MPP is increasing.

Stage II

Is a stage of diminishing returns and we have:

Diminishing Average Physical Product

Diminishing MPP and

Increasing Total Physical Product

APP and MPP are declining but since the MPP is still positive, the TPP keeps on rising. The stage where MPP reaches zero, TPP reaches maximum.

Stage III

Marks a change in the direction of TPP curve. The APP continues to diminish the MPP continues to diminish too, but it is negative and is what distinguishes stage IV from II and I. This is the stage of negative returns.

Where does the firm Operate

The firm will avoid stages I, II and III and will instead choose stage II. It will avoid stage I because this shall involve using the fixed factor inefficiently because its MPP is increasing since the variable input is spread to scarcely (thinly) over the fixed input. Expansion of the variable input will permit specialization, hence increased output because of effective use of the variable input.

The firm shall avoid stage III because MPP for the variable input is negative.

Stage II is chosen because the marginal returns for both resources is diminishing. Here the MPP and APP are declining but the MPP of both resources is positive. With one factor fixed, and additional unit of the variable input increases total product. Therefore the firm which attempts to be economically efficient operates in stage II.

Relevance of The Law of Diminishing Returns

The law of diminishing returns is important in that it is seen to operate in practical situations where its conditions are fulfilled. Thus, in a number of developing countries with peasant agricultural economies populations are increasing rapidly on relatively fixed land, and with unchanging traditional methods of production. Consequently, productivity in terms of output per head is declining, and in some cases total productivity is falling.

Also the law of diminishing returns is important in the short run. The aim of the firm is to maximize profits. This happens when the firm is in a state of least-cost-factor-combination. This is achieved when the firm maximises the productivity of its most expensive factor of production. Productivity is measured in terms of output per unit of the factor. Thus, if the variable factor is the most expensive factor, the firm should employ the variable factor until APP is at the maximum. If the fixed factor is most expensive the firm should employ the variable factor up to the level when TPP is at maximum.

Factor combination in the long run

In the long run it is possible to vary all factors of production. The firm is therefore restricted in its activities by **the law of diminishing return to scale.**

The law states that successive proportionate increments in all inputs simultaneously will lead eventually to a less than proportionate increase in output.

Returns to scale refers to the rate at which output increases as all inputs are increased simultaneously. In the illustration below, labour and land are assumed to be the factors of production.

Land (units)	Labour (units)	Output (units)	
30	5	41	} Increasing returns
60	10	100	

90	15	168	} Constant returns
120	20	224	
150	25	275	} Decreasing returns
180	30	300	

When land increases from 30 units to 60 units and labour from 5 units to 10 units, each has doubled or increased by 100%. Output increases from 41 units to 100 units i.e. by more than 100. When land increases from 60 to 90 units, each has increased by 50%. Output increases from 100 to 168 i.e. by more than 50%. In each of these cases when the inputs are increased in a certain proportion, output increases in greater proportion. We say that the firm is in a stage of increasing returns to scale.

This should not be confused with the stage of increasing returns in the short run. In the short run. In the short run the increasing returns to the variable factor, and the scale of production fixed.

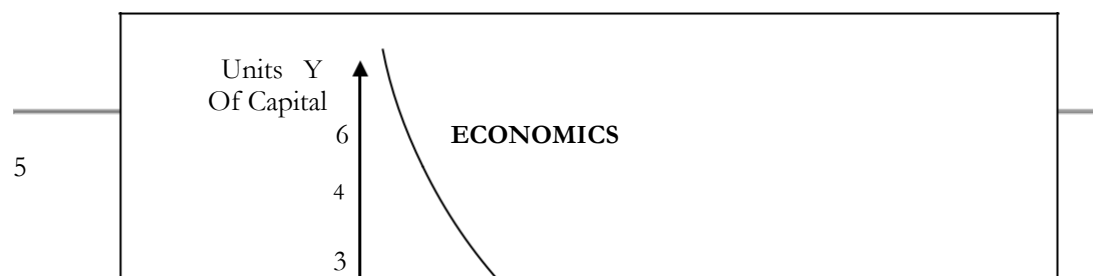
When land is increased from 90 to 120 units and labour from 12 to 16 units, each has increased by $\frac{1}{3}$ or 33 $\frac{1}{3}$ % output increases from 168 to 224, i.e. by $\frac{1}{3}$ or 33 $\frac{1}{3}$. Thus, when the input factors are increased in a certain proportion, output increases in the same proportion. This is a stage of constant returns to scale.

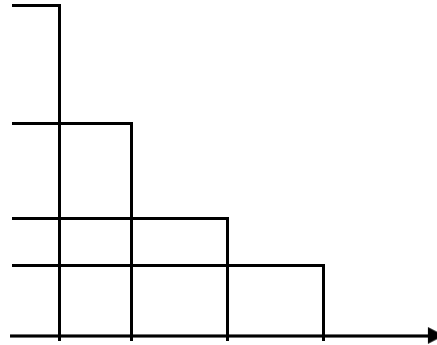
When land is increased from 120 to 150 units and labour from 20 to 25 units, each has increased by 25%. Output increases from 224 to 275 units i.e. by less than 25%. When land increases from 150 to 180 and labour from 25 to 30 units, each has increased by 20%, output increases from 275 to 300 i.e. by less than 20%. In both of these cases, when the inputs are increased in a certain proportion output increases in 20%. The firm is said to be in a stage of decreasing returns to scale not to be confused with diminishing returns to the variable factor in the short run.

ISOQUANT ANALYSIS

In the long run it is possible for a firm to produce the same output using different combinations of two factors of production. For instance if the two factors of production, are capital and labour, then labour may be substituted for capital or vice versa. Thus for instance an output of 69 units of X can be produced by using units of capital and one unit of labour or six units of labour and one unit of capital.

If the various combinations of factors of production which produce the same amount of output are plotted on a graph this produces an isoquant or equal product curve.





Theoretically, we can construct any number of isoquants on the graph to produce an isoquant map. They are downward sloping because although capital can be substituted for labour or vice versa they are not perfect substitutes. Therefore as we substitute capital for labour, for example, it takes more and more units of capital to replace labour, as capital becomes a less and less perfect substitute. Like indifference curves isoquants can never intersect. The slope of the isoquant shows the substitution ratios of the factors of production.

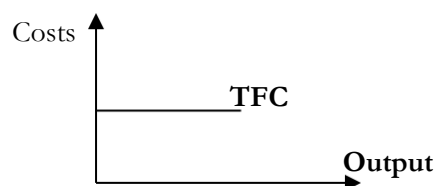
THE THEORY OF COSTS

Like in the theory of production or output, the theory of costs is concerned with the Short Run and the Long Run.

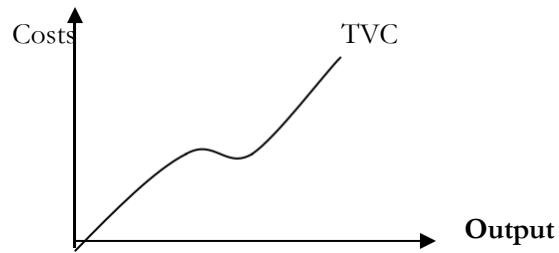
Short-run Production Costs

Definitions:

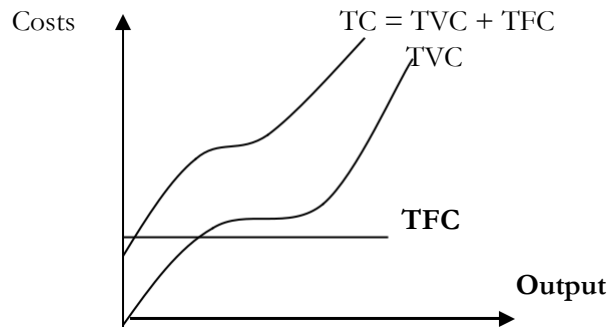
- a. **Fixed Costs (FC):** These are costs which do not vary with the level of production i.e. they are fixed at all levels of production. They are associated with fixed factors of production in the Short Run. Examples are rent or premises, interest on loans and insurance.



- b. **Variable Costs (VC):** These are costs, which vary with the level of production. The higher the level of production, the higher will be the variable costs. They are associated with variable factors of production in the Short Run. Examples are costs of materials, cost of fuels, labour costs and selling costs.



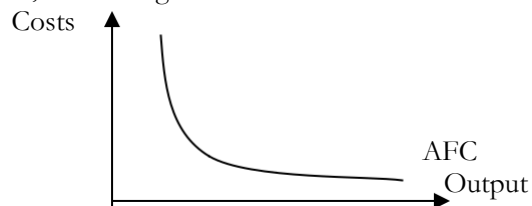
- c. **Total Cost (TC):** This is the sum of fixed costs and variable costs i.e. $TC = FC + VC$.



- d. **Average Fixed Cost (AFC):** This is fixed cost per unit of output, obtained by dividing fixed costs by total output i.e.

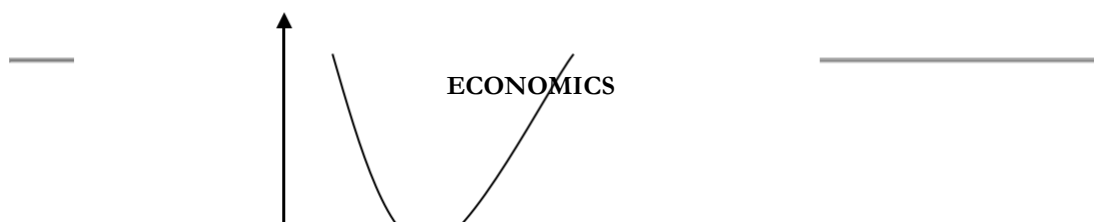
$$AFC = \frac{\text{Fixed Costs}}{\text{Total output}}$$

As the output increases, the Average Fixed Cost falls.



- e. **Average Variable Cost (AVC):** This is the average cost per unit of output, obtained by dividing variable costs by total output i.e.

$$AVC = \frac{\text{Variable Cost}}{\text{Total Output}}$$



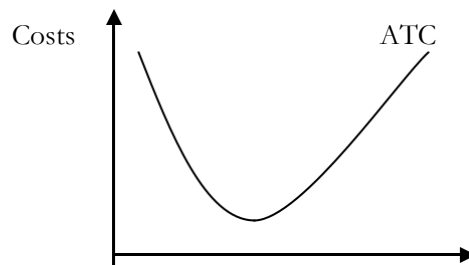
Costs

AVC

Output

- f. **Average Total Costs (ATC):** This is total cost per unit of output, obtained by dividing total cost by total output i.e.

$$ATC = \frac{\text{Total Cost}}{\text{Total Output}}$$



- g. **Marginal Cost:** This is the increase in total cost resulting from the production of an extra unit of output. Thus, if TC_n is the total cost of producing n units of output and TC_{n-1} is the total cost of producing $n-1$ units of output, then the marginal cost of producing the 'nth' of unit of output is calculated as:

$$\text{Marginal Cost} = TC_n - TC_{n-1}$$

It will be observed that since fixed costs are fixed, it follows that:

$$\text{Marginal Cost} = VC_n - VC_{n-1}$$

Marginal Cost intersects the Average Total Cost at its lowest. The MC is related to the AVC in the sense that when MC is below AVC, the AVC must be declining with output. When MC is equal to AVC, the AC is at its minimum. When MC is above AVC, the Average Cost must be rising. The AFC curve falls continuously and is asymptotic to both axes. The AVC curve falls, reaches a minimum, thereafter rises. At its minimum, it's equal to MC.

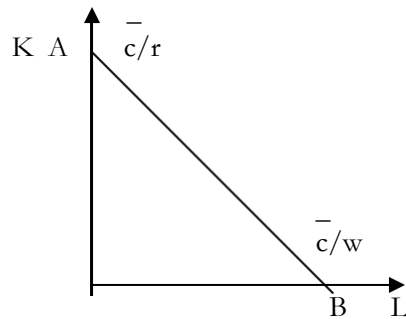
As the AFC curve approaches the horizontal axis asymptotically, the AVC approaches the ATC asymptotically. ATC first declines, reaches a minimum, then rises thereafter. At its minimum, it is equal to the MC.

Thus, the Short Run Equilibrium Output of the firm is defined as that output at which AC is at its minimum i.e. when the cost of both inputs per unit of a product is smallest. That level of output will be defined as the most efficient output of that particular plant because the plant is used efficiently.

The concept of isocost

In the use of resources, firms are faced with opportunity cost. For every addition of say capital, they must forego a unit of say labour.

Exposition:



Suppose the firm pays:

W for L (labour)

r for k (capital)

If C is the Total Cost (TC), then

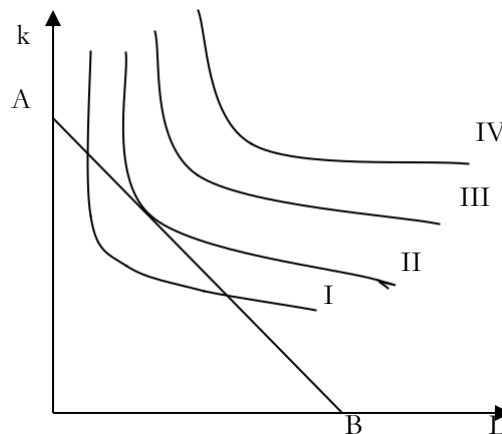
$C = rk + WL$. So if C is given as c, then the producer can choose among various combinations e.g.

$$k = \frac{C}{r} - \frac{WL}{r}$$

Thus if he spends all the money on k then he shall be at A and if he spends all the money on L then he shall be at B. At A he spends C while at B he shall also spend C. The line joining A and B is called Isocost line and is defined as locus of all different prices combinations of factors the firm can purchase given a stipulated money outlay and factor prices.

Optimum combination of resources

The firm can maximise output given costs. That is when the entrepreneur attains the highest isoquant given a particular Isocost.

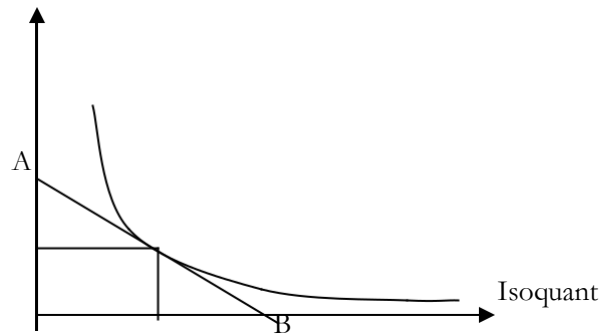


At the point of tangency the absolute slope of Isoquant will be equal to the slope of the Isocost. Two conditions should however prevail, namely:

i. The necessary condition is that

$$w/r = MPL/MPk \quad \text{or} \quad MPL/PL = MPk/Pk$$

- ii. The sufficient condition is that the Isoquant must be convex to the Isocost point of Tangency.



Long –run Cost Curves

In the Long –Run, all factors of production are variable. The firm is thus constrained by economies or diseconomies to scale.

Optimum size of the firm

This is the most efficient size of the firm, at which its costs of production per unit of output will be at a minimum, so that it has no motive either to expand or reduce its scale of production. Thus, as a firm expands towards the optimum size it will enjoy economies of scale, but if it goes beyond the optimum diseconomies will set in.

ECONOMIES OF SCALE

Economies of scale exist when the expansion of a firm or industry allows the product to be produced at a lower unit cost.

1. Internal Economies of Scale

Internal economies of scale are those obtained within the organisation as a result of the growth irrespective of what is happening outside. They take the following forms:

a) Technical Economies

- i. **Indivisibilities:** These may occur when a large firm is able to take advantage of an industrial process which cannot be reproduced on a small scale, for example, a blast furnace which cannot be reproduced on a small scale while retaining its efficiency.
- ii. **Increased Dimensions:** These occur when it is possible to increase the size of the firm's equipment and hence realize a higher volume of output without necessarily increasing the costs at the same rate. For example, a matatu and a bus each require one driver and conductor. The output from the bus is much higher than that from the matatu in any given period of time, and although the bus driver and conductor

will earn more than their matatu counterparts, they will not earn by as many times as the bus output exceeds the matatu output, i.e. if the bus output is 3 times that of the matatu counterparts.

- iii. **Economies of Linked Processes:** Technical economies are also sometimes gained by linking processes together, e.g. in the iron and steel industry, where iron and steel production is carried out in the same plant, thus saving both transport and fuel costs.
- iv. **Specialisation:** Specialisation of labour and machinery can lead to the production of better quality output and higher volume of output.
- v. **Research:** A large firm will be in a better financial position to devote funds to research and improvement of its product than a small firm.

b) Marketing Economies

- i. **The buying advantage:** A large-scale organisation may buy its materials in bulk and therefore get preferential treatment and buy at a discount more easily than a small firm.
 - ii. **The packaging advantage:** It is easier to pack in bulk than in small quantities and although for a large firm the packaging costs will be higher than for small firms, they will be spread over a large volume of output and the cost per unit will be lower.
 - iii. **The selling advantage:** A large-scale organisation may be able to make fuller use of sales and distribution facilities than a small-scale one. For example, a company with a large transport fleet will probably be able to ensure that they transport mainly full loads, whereas small business may have to hire transport or dispatch partloads.
- c) **Organisational:** As a firm becomes larger, the day-to-day organisation can be delegated to office staff, leaving managers free to concentrate on the important tasks. When a firm is large enough to have a management staff they will be able to specialise in different functions such as accounting, law and market research.
- d) **Financial Economies:** A large firm will have more assets than a small firm. Hence, it will find it cheaper and easier to borrow money from financial institutions like commercial banks than a small firm.
- e) **Risk-bearing Economies:** All firms run risks, but risks taken in large numbers become more predictable. In addition to this, if an organisation is so large as to be a monopoly, this considerably reduces its commercial risks.
- f) **Overhead Processes:** For some products, very large overhead costs or processes must be undertaken to develop a product, for example an airliner. Clearly these costs can only be justified if large numbers of units are subsequently produced.
- g) **Diversification:** As the firm becomes very large it may be able to safeguard its position by diversifying its products, process, markets and the location of the production.

2. External Economies

These are advantages enjoyed by a large size firm when a number of organisations group together in an area irrespective of what is happening within the firm. They include:

- a) **Economies of concentration:** when a number of firms in the same industry band together in an area they can derive a great deal of mutual advantages from one another. Advantages might include a pool of skilled workers, a better infrastructure (such as transport, specialised warehousing, banking, etc.) and the stimulation of improvements. The lack of such external economies is a serious handicap to less developed countries.

- b) **Economies of information:** Under this heading we could consider the setting up of specialist research facilities and the publication of specialist journals.
- c) **Economies of disintegration:** This refers to the splitting off or subcontracting of specialist processes. A simple example is to be seen in the high street of most towns where there are specialist research photocopying firms.

It should be stressed that what are external economies at one time may be internal in another. To use the last example, small firms may not be able to justify the cost of a sophisticated photocopier, but as they expand there may be enough work to allow them to purchase their own machine.

Diseconomies of scale

Diseconomies of scale occur when the size of a business becomes so large that, rather than decreasing, the unit cost of production actually becomes greater. Diseconomies of scale flow from administrative rather than technical problems.

- a) **Bureaucracy:** As an organisation becomes larger there is a tendency for it to become more bureaucratic. Decisions can no longer be made quickly at the local levels of management. This may lead to loss of flexibility.
- b) **Loss of control:** Large organisations often find it more difficult to monitor effectively the performance of their workers. Industrial relations can also deteriorate with a large workforce and a management, which seem remote and anonymous.

3. MARKETS

Definition: A Market may be defined as an area over which buyers and sellers meet to negotiate the exchange of a well-defined commodity. Markets may also mean the extent of the sale for a commodity as in the phrase, “there is a wide market for this or that commodity”. In a monetary economy, market means the business of buying and selling of goods and services of some kind.

Concepts to know:

- i. **Average Revenue (AR):** This is the revenue per unit of the commodity sold. It is obtained by dividing Total Revenue by total quantity sold. For a firm in a perfectly competitive market, the AR is the same as price. Therefore, if price is denoted by P, then we can say:

$$P=AR$$

Because of this, the demand curve which relates prices to quantities demanded at those prices is also called Average Revenue Curve. In economic theory, the demand curve or price line is often referred to as the revenue curve.

- ii. **Marginal Revenue (MR):** This is the increase in Total Revenue resulting from the sale of an extra unit of output. Thus, if TR_{n-1} is Total Revenue from the sale of (n-1) units and TR_n is total revenue from the sale of n units, then the marginal revenue of the nth unit is given as:

$$\frac{dTR}{dQ} = P(1 - 1/E_d) \quad \text{or} \quad TR_n - TR_{n-1}$$

- iii. **Total Revenue:** The money value of the total amount sold and is obtained by multiplying the price by the total quantity sold.

Market Structures: This refers to the nature and degree of competition within a particular market. Capitalist economies are characterised by a large range of different market structures. These include the following:

a) PERFECT COMPETITION

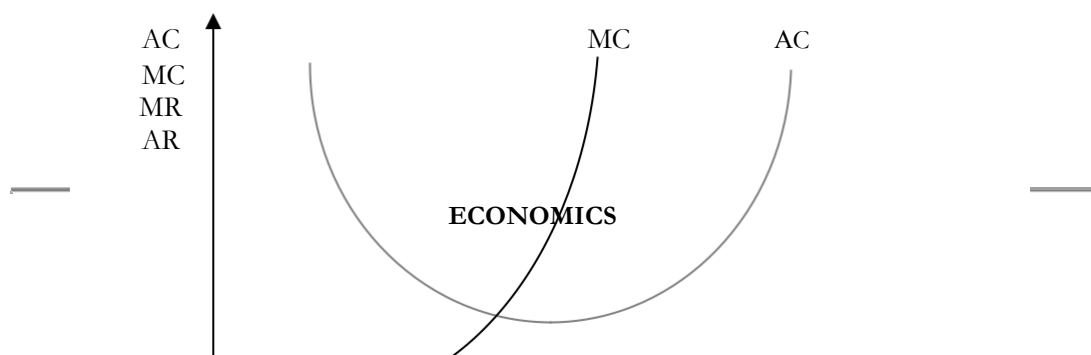
The model of perfect competition describes a market situation in which there are:

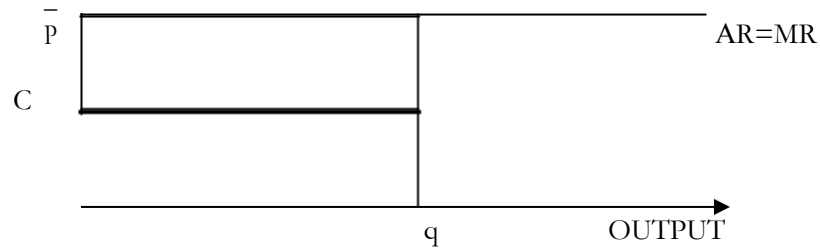
- i. Many buyers and sellers to the extent that the supply of one firm makes a very insignificant contribution on the total supply. Both the sellers and buyers take the price as given. This implies that a firm in a perfectly competitive market can sell any quantity at the market price of its product and so faces a perfectly price elastic demand curve.
- ii. The product sold is homogenous so that a consumer is indifferent as to whom to buy from.
- iii. There is free entry into the industry and exit out of the industry.
- iv. Each firm aims at maximising profit.
- v. There is free mobility of resources i.e. perfect market for the resources.
- vi. There is perfect knowledge about the market.
- vii. There is no government regulation and only the invisible hand of the price allocates the resources.
- viii. There are no transport costs, or if there are, they are the same for all the producers.

SHORT RUN EQUILIBRIUM OF THE FIRM

A firm is in equilibrium when it is maximizing its profits, and can't make bigger profits by altering the price and output level for its product or service.

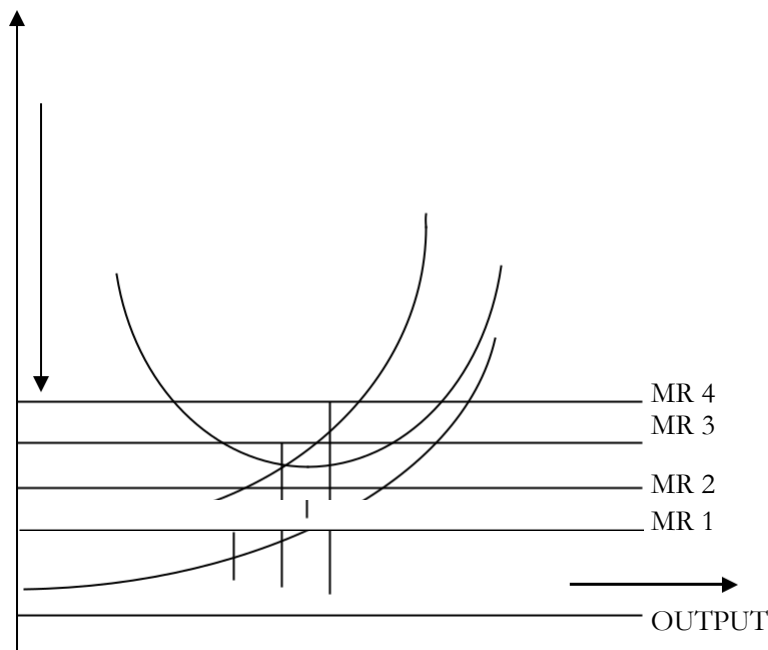
In Short-run the firm may make super-normal profits as shown below:





The firm will produce output q where Marginal Revenue is equal Marginal Cost. At this level of output, the average cost is C . Hence the firm will make *super-normal* profits shown by the shaded area.

In the Short -Run however the firm does not necessarily need to make profits or cover all its cost. It may only need to cover Total Variable Cost.



The firm's short-run supply curve will be represented by the part of the Marginal Cost curve that lie above the AVC. The firm shall not produce unless the price is equal to P_1 . Below the price P_1 the firm minimizes its cost by shutting down.

NORMAL AND SUPERNORMAL PROFITS

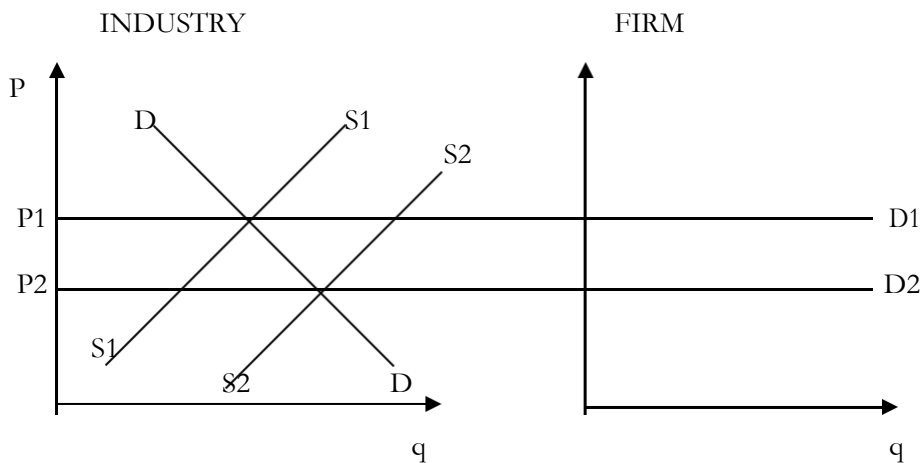
Normal profit refers to the payment necessary to keep an entrepreneur in a particular line of production.

In economics, it is generally believed that any capital invested in business has an opportunity cost. The business must offer the investor a prospective return on capital at least equal to the return available on the next best alternative.

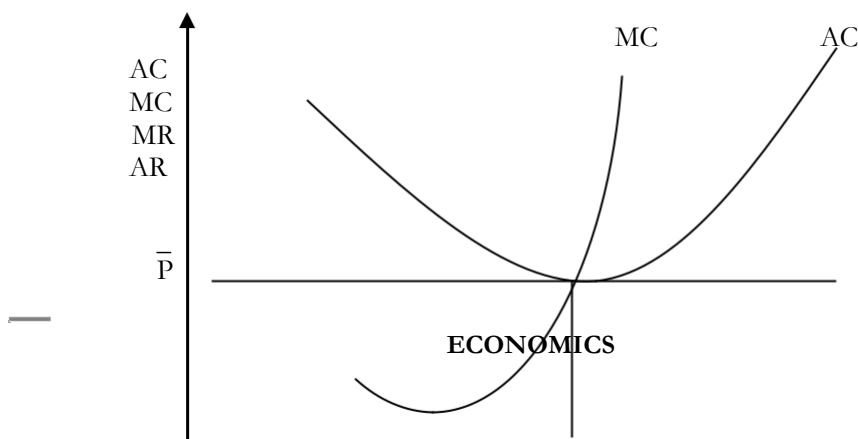
The minimum return required to keep an entrepreneur in a particular line of production is what economists call **Normal Profits**. Since it represents the opportunity cost of risk capital to the business it is treated as part of the firm's fixed cost which have to be paid if the firm is first to come into existence and then survive in the long run. Normal profits, therefore are included in the calculations which produce the AC curve. Therefore, when price exceeds average cost, the firm is said to be earning abnormal /supernormal profits – it is earning a surplus over and above what is necessary to keep it in that business (the surplus is often referred to in economics as Economic rent).

LONG RUN EQUILIBRIUM FOR THE FIRM

Since there is freedom of entry into the industry the surplus profits will attract new firms into the industry. As a result the supply of the product will increase and the price will fall. The individual firm will face a falling perfectly elastic demand curve, and the surplus profits will be reduced.



This will go on until the firm is no longer making surplus profits, i.e. when it is just covering its production costs. At this stage no more firms will be attracted to the industry. This will happen when the price is equal to the average cost and the demand curve is tangent to the average cost curve at the minimum point. The firm is said to be making normal profits.



$$P=AR=MR \\ =MC=AC$$

q

OUTPUT

Advantages of Perfect Market

- It achieves, subject to certain conditions, an allocation of resources which is: socially optimal” or “economically efficient” or “pareto efficient”.
- Perfectly competitive firms are technically efficient in the long run, in that they produce that level of output, which minimizes their average costs, given their small capacity.
- Perfect competition achieves an automatic allocation of resources in response to changes in demand.
- The consumer is not exploited. The price of goods, in the long run will be as low as possible. Producers can only earn a normal profit, which are the minimum levels of profits necessary to retain firms in the industry, due to the existence of free entry into the markets.

Disadvantages of Perfect Competition

- There is a great deal of duplication of production and distribution facilities amongst firms and consequent waste.
- Economies of scale cannot be taken advantage of because firms are operating on such a small scale. Therefore although the firms may be highly competitive and their prices may be as low as is possible, given their scale of production, nevertheless it is a higher price that could take advantage of economies of scale.
- There may be lack of innovation in a situation of perfect competition. Two reasons account for this:
 - i. The small size and low profits of the firm limit the availability of funds for research and development
 - ii The assumption of free flow of information, and no barriers to entry, implies that innovations, will immediately be copied by all competitors, so that ultimately individual firms will not find it worthwhile to innovate.

REALISM OF PERFECT COMPETITION

The assumptions of perfect competition are obviously at variance with the conditions which

actually exist in real world markets. Some markets approximately conform to individual assumptions, for example, the stock exchange is characterized by a fairly free-flow of information but the information requires expertise to grasp. However no markets exactly conform to the assumption of the model, with peasant agriculture probably the nearest to the mark.

We however study the model of perfect competition to enable us to see:

- How competition operates in the real world situation, within a highly simplified model.
- The advantageous features of perfect competition which governments may wish to encourage in real world markets.
- The disadvantageous features of perfect competition which the governments may wish to avoid.
- A standard against which to oil the degree of competition prevailing in a given market. We can discuss how closely a specific market resembles the perfectly competitive ideal
- For the student attempting a serious study of economics, a study of the perfect market is essential since no understanding of the literature of micro-economics over the century can be achieved without it.
- On a rather more mundane level, students will find themselves confronted with questions on perfect competition in examinations.

MONOPOLY

Definition: Monopoly in the market place indicates the existence of a sole seller. This may take the form of a unified business organization, or it may be association of separately controlled firms, which combine, or act together, for the purposes of marketing their products (e.g. they may charge common prices). The main point is that buyers are facing a single seller.

Sources of Monopoly:

1. Exclusive ownership and control of factors inputs.
2. Patent rights e.g. beer brands like Tusker, Soft drinks like Coca Cola etc.
3. Natural monopoly, which results from a minimum average cost of production. The firm could produce at the least cost possible and supply the market.
4. Market Franchise i.e. the exclusive right by law to supply the product or commodity e.g. Kenya Bus Service before the coming of the Matatu business in Nairobi.

PRICE AND OUTPUT LEVELS FOR A MONOPOLIST

A monopolist, being the sole (producer and) supplier of the commodity is a price maker rather than a price-taker as the price and quantity he will sell will be determined by the level of demand at that price, and if he decided on the quantity to sell, the price he will charge, will be determined by the level of demand.

The monopolist, because he is the sole seller faces a market demand curve which is downward sloping.

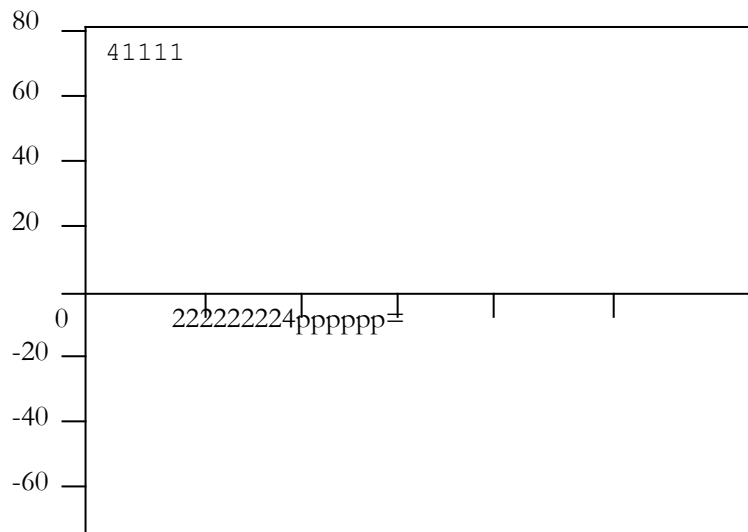
Numerical illustration:

Price (AR)	Total Demand	Total Revenue	Marginal Revenue
60	1	60	60

55	2	110	50
50	3	150	40
45	4	180	30
40	5	200	20
35	6	210	10
30	7	210	0
25	8	200	-10
20	9	180	-20
15	10	150	-30
10	11	110	-40

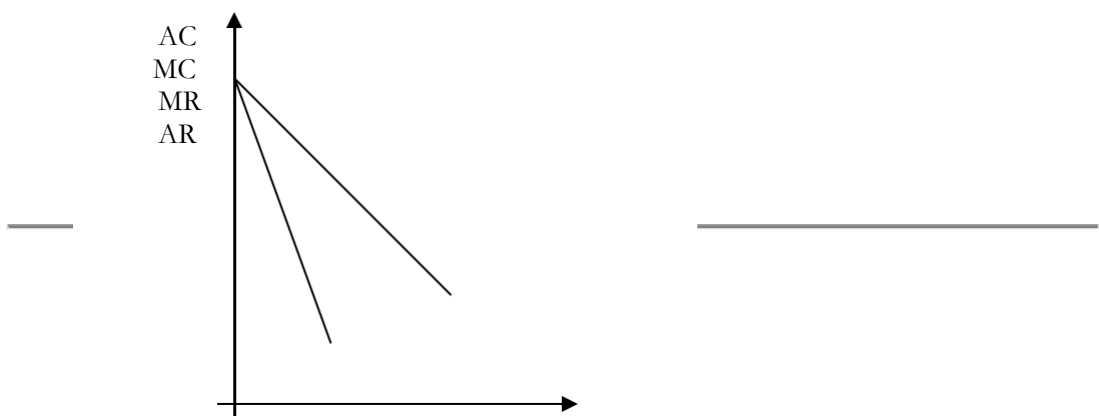
In this illustration, **total revenue** is obtained by multiplying price by quantity demanded or sold at that price. **Marginal revenue** is obtained by subtracting the previous total revenue from the next total revenue resulting from the sale of an extra unit of output. Thus, when the quantity demanded is one, the marginal revenue is 60 because the previous total revenue is zero. When 2 units of output are sold, the marginal revenue of the second unit of output is 50 obtained by subtracting 60 from 110. When 3 units of output are sold, the marginal revenue of the third unit of output is 40 obtained by subtracting 110 from 150 and so on.

The average revenue and marginal revenue are plotted together below.



It will be noted that average revenue values are plotted at quantities while marginal revenue values are plotted between quantities. Thus, 60 is plotted between 0 and 1. 50 is plotted between 1 and 2 because it is the increase from 1 to 2 and so on.

The graphs show that marginal revenue is below average revenue. For a straight line demand curve, the marginal revenue curve is twice as steeply sloped as the average revenue curve, and the two meet the vertical axis at the same point. Thus the monopolist's revenue is generally represented as follows:

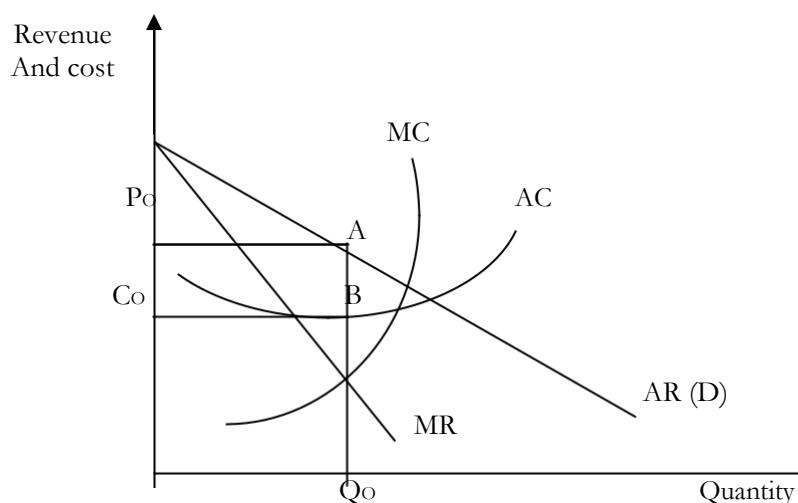


AR
MR
0 OUTPUT

SHORT-RUN EQUILIBRIUM

All firms are assumed to aim at maximizing profits or minimizing losses. The monopolist controls his output or price, but not both.

The monopoly maximizes profits where: $MR = MC$ (the necessary condition of profit maximisation)



He cannot produce at less than Q_o because MR will be greater than MC . The monopolist will determine his output at $Q \times o$ and set the price at P_o and his total Revenue is $OQ_o \times OP_o$ and the total cost will be $OQ_o \times Co$ and abnormal profits $P_o \times Co \times AB$

MONOPOLISTIC PRACTICES

The following practices may be said to characterize monopolies.

Exclusive dealing to supply and collective boycott

Producers agree to supply only to recognized dealers, normally only one dealer in each area, on condition that the dealer does not stock the products of any producer outside the group (or trade association). Should the dealer break the agreement, all members of the group agree to withhold supplies from the offender. This practice has proved a very effective restriction on competition for it ensures that any new firms would find it extremely difficult to secure market outlets for their products.

Barriers

The creation of barriers to ensure that there is no competition against them. E.g price undercutting, individual ensure that actual text printed collective boycott and exclusive holding of patent rights.

Resale Price Maintenance (PRM)

A monopolistic firm may dictate to wholesalers and retailers the price at which its products would be sold. This is another way of ensuring that other firms are not attracted into the industry, if such firms can sell their products at more competitive prices.

Consumer Exploitation

Perhaps the most notorious practice for which monopolists are known is that of exploiting consumers by overcharging their products. There are three ways in which the monopolist can overcharge his products.

i. Profit maximization:

The price charged by the monopolists in order to maximize his profits is higher than would be the case if competitive firm was also maximizing its profits because in the case of the monopolist, supply cannot exceed what he has produced.

ii. Cartels:

A cartel is a selling syndicate of producers of a particular product whose aim is to restrict output so that they can overcharge for the product. Thus, they collectively act as a monopoly and each producer is given his quota of output to produce.

iii. Price discrimination:

There are two forms of price discrimination:

- a) The practice employed by firms of charging different prices to different groups of buyers and
- b) That of charging the same consumer different prices for different units of the same good.

In the first case, each group of buyers has a different price elasticity of demand. The firm can by equalizing the marginal revenue generated by each group earn a higher level of profits than would be the case of a uniform price were charged.

The preconditions for the successful operation of this form of discrimination are

- i. Ability of the monopolistic firm to identify different segments of the market according to price elasticity of demand and
- ii. Prevention of resale by those customers who buy at a lower price.

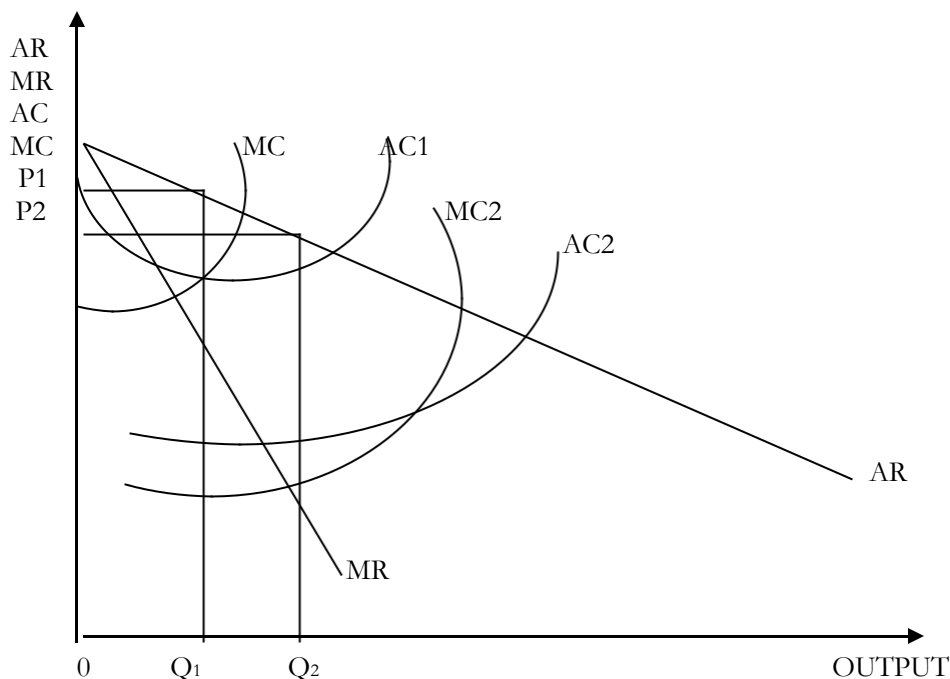
In the second case, the operation involves the firm appropriating all the consumer surplus that each consumer would have got if the price were constant. This can be achieved by setting the price of each unit equal to the maximum amount an individual would be willing to pay as given by the individual's demand curve and is therefore to be employed.

ARGUMENTS FOR AND AGAINST MONOPOLIES

Although monopolies are usually hated mainly because their practice of consumer exploitation, there are some aspects of monopolies which are favourable. The following arguments can be put forward in favour of monopolies:

1. Economies of Scale

As it has the whole market to itself, the monopolistic firm will grow to large size and exploit economies of large scale production. Hence its product is likely to be of higher quantity than product of a competitive firm that has less changes of expanding and lowering of the long run average cost (LRAC) of the firm. The price charged by the monopolistic firm may not be as high as is usually assumed to be the case.



When the MC and AC curves are MC1 and AC1, the price charged is P1 and the output is q_1 . When the cost curves are lower at MC2 and AC2 a lower price P2 is charged and the level of output is higher.

2. No wastage of resources

As there is no competition from other firms, the monopolistic firm does not waste resources in product differentiation and advertising in an effort to capture consumers from rival firms.

3. Price stability

Since the monopolist is price maker, prices under a monopoly tend to be more stable than in competition where they are bound to change due to changes in supply and demand beyond the control of the individual firm.

4. Research

A monopolistic firm is in a better financial position to carry out research and improve its products than a competitive firm.

However monopolies have been accused of the following weaknesses.

1. Diseconomies of scale

While the monopolistic firm can grow to large size and exploit economies of scale, there is danger that it eventually suffers from diseconomies of scale. This will raise its LRAC and hence also raise its price.

2. Inefficiency

Since there is no competition, the firm can be inefficient as it has no fear of losing customers to rival firms.

3. Lack of innovation

Although the firm is in a better financial position to carry out research and improve its product than a firm in a competitive market, it may NOT actually do so because of the absence of competition.

4. Exploitation

Exploitation of consumer is the most notorious practice for which monopolists are known as in over-pricing so as to maximize profits, and price discrimination.

IMPERFECT COMPETITION**Assumptions of Monopolistic Competition:**

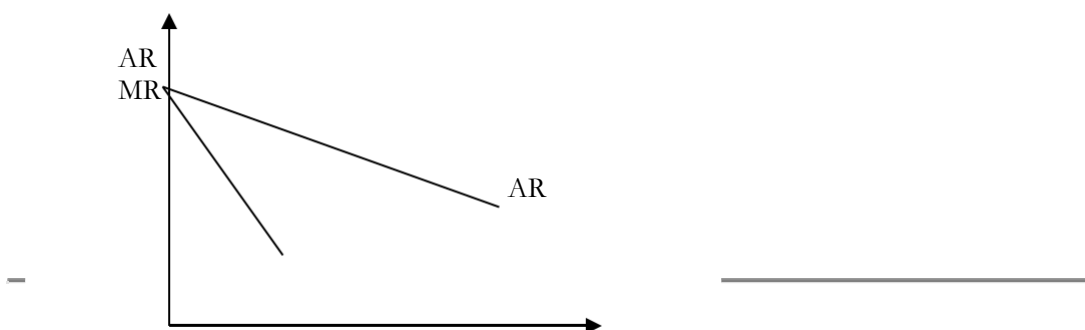
Monopolistic competition as the name implies, combines features from both perfect competition and monopoly. It has the following features from **perfect competition**.

- i. There are many producers and consumers. The producers produce differentiated substitutes. Hence there is competition between them. The difference from perfect competition is that the products are not homogeneous.
- ii. There is freedom of entry into the industry so that an individual firm can make surplus profits in the short-run but will make normal profits in the long-run as new firms enter the industry.

Monopolistic competition has the following features from **monopoly**:

As the products are differentiated substitutes, each brand or type has its own sole seller e.g. each brand of toilet soap is produced by only one firm.

If one firm raises its price it is likely to lose a substantial proportion of its customers to its rivals. If it lowers price it is likely to capture a proportion of customers from its rivals. But in the first case some of its customers will remain loyal to it and in the second case some customers will remain loyal to their traditional suppliers. Hence, as in monopoly the demand curve for the firm slopes downwards but it is more elastic than in monopoly. Thus the revenue for the firm in monopolistic competition is as follows:



MR

0

OUTPUT

SHORT RUN OUTPUT AND PRICE

In monopolistic competition, it's the product differentiation that permits its price without losing sales.

Due to brand loyalty consumers will continue buying a particular product as preferred to all other brands in spite of increases in the price of that product.

If one firm lowers its price it may capture a few more customers therefore expanding its sales over and above the traditional customers. Besides the product differentiation need not be physical, only the customers need to feel the products are different.

Generally the demand for one seller's product will be price elastic due to close substitutes. If one firm raises its prices, TR will go down. If the price is reduced there are possibilities of substantial increase in revenue because of capturing some customers from rivals.

The level of elasticity will depend on the strength of product differentiation.

PRODUCT DIFFERENTIATION

Product differentiation describes a situation in which there is a single product being manufactured by several suppliers, and the product of each supplier is basically the same. However, the suppliers try to create differences between their own product and the products of

their rivals. It can be achieved through quality of service, after sales service, delivery dates, performance, reliability, branding, packaging, advertising or in some cases the differences may be more in the minds of the customers rather than real differences, but a successful advertising can create a belief that a service or product is better than others and thus enable one firm to sell more and at higher price than its competitors.

Advantages of Product Differentiation

We can distinguish between those advantages for the firm itself and those for the consumer:

a. For the firm.

- i. The ability to increase prices without losing loyal consumers
- ii. The stability of sales, due to brand loyalty. The firm will not be subject to the risks and uncertainties of intense price competition.

b. For the Customer

- i. Consistent Product quality
- ii. Wide consumer choice, between differentiated products.

Disadvantages of product differentiation

- a) Product differentiation generally reduces the degree of competition in the market. It does this in two ways:
 - i. It reduces competition amongst existing firms because consumers are reluctant to substitute one product for another, since they have developed brand loyalty.
 - ii. It makes it more difficult for new firms to enter the industry in the long run if the consumers are already loyal to existing products.

- b) All the effort and expense that the firms put into product differentiation are wasteful. Too much is spent on packaging, advertising and design changes. The price of goods could have been reduced instead.
- c) Too many brands on the market, produced by large number of firms, could prevent the realization of full economies of scale in the production of goods.
- d) Since the firms cannot expand their output to the level of minimum average cost output without making a loss, the “excess capacity theorem” predicts that industries marked by monopolistic competition will always tend to have excess capacity i.e. output is at less than capacity and price is above the average cost.

LONG RUN OUTPUT

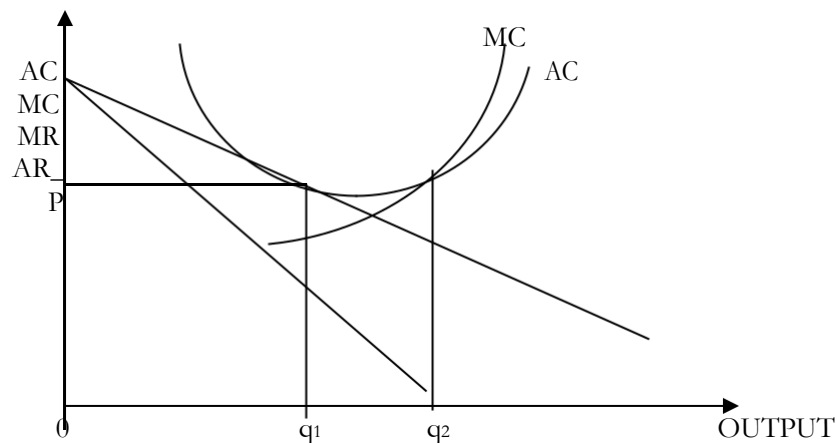
In the LR whether or not the firm makes profit will depend on the conditions of entry. For example, when surplus profits exist, there will be new entrants because they will make profit.

But as new firms enter, the market share enjoyed by each firm dwindles and their curves will shift to the Left. The costs will also be affected by the new entrants in three ways:

1. The new firms might make the cost resources to go up.
2. The cost curves might also be unaffected.
3. As new firms enter the cost curves might shift downwards because many sellers might force costs of resources downward.

But in the LR increasing costs are mostly likely. If there are increasing costs then existing profits will be squeezed. Because of the reduction in an individual firm's product, there will be a reduction in profits.

As long as there are profits in the industry, more firm's entry will stabilize when profits are ZERO. The losses might also cause exit of the firm's. The incentive to withdraw ceases when losses have been eliminated. Therefore the LR output and price of the firm looks like this:



Zero profits imply that $LRAC = LRAR$. Therefore LRAC is tangent to AR at Q_1 . But Q_2 is the LR optimum output for the firm but with a negatively sloped AR curve. Zero profits imply that each firm will utilize a scale of plant smaller than optimum. Hence free entry leads to EXCESS capacity for each plant.

WASTE IN IMPERFECT COMPETITION

Monopolistic competition involves some degree of waste in two aspects.

When new firms enter the industry and the demand for the individual firm's product falls it will be forced to reduce productions. This means that part of its plant equipment will be unused. It is said to be operating under conditions of excess of the demand or the market for its product.

In practice, the firm will not allow a situation where it is reduced to a state of lower than normal profits. It will try to maintain its customers against new firms through product differentiation and advertising in an effort to convince customers that its products are the best. This wastage of resources, which could be used to expand and exploit economies of scale.

b. OLIGOPOLY

Oligopoly in the market describes a situation in which:

- Firms are price makers
- Few but large firms exist
- There are close substitutes
- Non-price competition exist like the form of product differentiation
- Supernormal profits re earned both in the short run and long run.

Because the sellers are few, then the decisions of sellers re mutually inter-dependent and they cannot ignore each other because the actions of one will affect the others.

PRICING AND OUTPUT DECISIONS OF THE FIRM

The price and output shall depend on whether the firm operates in:

Pure oligopoly or
Differentiated oligopoly

a) PURE OLIGOPOLY

Oligopolists normally differentiate their products. But this differentiation might either be weak or strong. Pure oligopoly describes the situation where differentiation of the product is weak. Pricing and output in pure oligopoly can be collusive or non-collusive.

COLLUSIVE OLIGOPOLY

Collusive oligopoly refers to where there is co-operation among the sellers i.e. co-ordination of prices. Collusion can be Formal or Informal.

i. FORMAL COLLUSIVE OLIGOPOLY

This is where the firms come together to protect their interests e.g. cartels like OPEC. In this case the members enter into a formal agreement by which the market is shared among them. The single decision maker will set the market price and quantity offered for sale by the industry. There is a central agency which sets the price and quarters produce by the firms and all firms aside by the decisions of the central agency. The maximized joint profits are distributed among firms based on agreed formula.

ii. INFORMAL COLLUSIVE OLIGOPOLY

Informal collusive oligopoly can arise into two cases, namely:

- Where the cartel is not possible may be because it's illegal or some firms don't want to enter into an agreement or lose their freedom of action completely.
- Firms may find it mutually beneficial for them not to engage in price competition. When in outright cartel does not exist then firms will collude by covert gentlemanly agreement or by spontaneous co-ordination designed to avoid the effects of price war.
- One such means by which firms can agree is by price leadership. One firm sets the price and the others follow with or without understanding. When this policy is adopted firms enter into a tacit market sharing agreement.

There are two types of price leadership, namely:

By a low-cost firm

When there is a conflict of interests among oligopolists arising from cost differentials, the firms can explicitly or implicitly agree on how to share the market in which the low-cost firm sets the price. We can assume that the low cost firm takes the biggest share of the market.

Price leadership by a large firm

Some oligopolists consist of one large firm and a number of smaller ones. In this case the larger firm sets the price and allows the smaller firms to sell at that price and then supplies the rest of the quantity. Each smaller firm behaves as if in a purely competitive market where price is given and each firm sells without affecting the price because each will sell where $MC = P = MR = AR$

NON-COLLUSIVE OLIGOPOLY

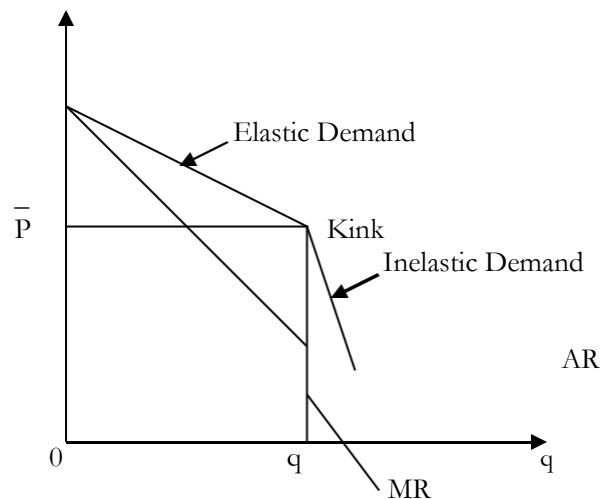
Operates in the absence of collusion and in a situation of great uncertainty. In this case if one firm raises price, it is likely to lose a substantial proportion of customers to its rivals. They will not raise price because it is in their interests to charge a price lower than that of their rivals.

If the firm lowers price it will attract a large proportion of customers from other firms. The other firms are likely to retaliate by lowering price either to the same extent or a large extent. The first firm will retaliate by lowering the price even further.

As the firms will always expect a counter-strategy from rival firms, each price and output decision the firms comes up with is a tactical move within the framework of a broader strategy.

This then leads to a price war. If it goes on there will come a time when the prices are so low that if one firm lowers price, the consumers will see no point in changing from their traditional suppliers. Thus, the demand for the product of the individual firm will start by being elastic and it will end by being inelastic. The demand curve for the product of the individual firm thus consists of two parts, the elastic part and the inelastic part. It is said to be "kinked" demand curve as shown below.

If the firm is on the inelastic part and it raises price, the others will not follow suit. But on this part prices are so low that it is likely to retain most of its customers. If it raises price beyond the kink, it will lose most of its customers to rivals. Hence the price p will be the stable price because above it prices are unstable in that rising price means substantial loss of customers and lowering price may lead to price war. Below p prices are considered to be too low.



Barriers to entry in pure oligopoly

The barriers to entry can be artificial or natural.

Artificial Barriers

This can be acquired through:

- State protection through issuance of exclusive market (franchise) licences and patent rights.
- Control of supply of raw materials
- Threat of price war, if financial resources can sustain losses temporarily the cartel or price leader can threaten the new entrant by threatening to lower prices sufficiently to scare new firms.

A MATHEMATICAL APPROACH TO REVENUE AND COST FUNCTIONS.

Recall that $TR = P \times Q$

This implies that $P(AR) = \frac{TR}{Q}$

For example, assuming that the AR function is given by:

$$AR = 20 - \frac{1}{3}Q$$

$$\therefore TR = P \times Q$$

$$= 20Q - \frac{1}{3}Q^2$$

Marginal revenue is measure of the instantaneous rate of change of total revenue with respect to output Q . (Refer to the basic rules of differentiation in Appendix 1 of Modern Economics by Mudida)

$$MR = \frac{dTR}{dQ}$$

Thus, for example, given the following TR function:

$$TR = 20Q - \frac{1}{3}Q^2$$

$$AR = 2 - \frac{1}{2}Q$$

$$\begin{aligned} MR &= \frac{dTR}{dQ} \\ &= 2 - Q \end{aligned}$$

The cost concepts studied earlier can also be expressed in functional form. Cubic functions are commonly used to represent cost functions. For example, a cost function may take the form:

$$TC = a + bQ + cQ^2 + dQ^3$$

Average cost refers to the cost per unit of output.

$$\begin{aligned} AC &= \frac{TC}{Q} \\ &= \frac{a}{Q} + b + cQ + dQ^2 \end{aligned}$$

Marginal cost refers to the instantaneous rate of change of the total cost function with respect to output.

$$MC = \frac{dTC}{dQ}$$

$$\text{Given } TC = a + bQ + cQ^2 + dQ^3$$

$$\begin{aligned} MC &= \frac{dTC}{dQ} \\ &= b + 2cQ + 3dQ^2 \end{aligned}$$

For example, given a total cost function

$$TC = Q^3 - 8Q^2 + 68Q + 4$$

$$MC = \frac{dTC}{dQ} = 3Q^2 - 16Q + 68$$

An application of revenue and cost concepts to profit maximisation.

The functional concepts relating to revenue and costs can in turn be applied to provide a mathematical approach to profit maximisation.

(Refer to Appendix 2 of Modern Economics by Mudida for a treatment of maxima and minima).

The first and necessary condition for profit maximisation is that the first derivative of the function to be maximised must be equal to zero.

Formally,

$$\frac{dy}{dx} = 0$$

Thus, for example, given the following profit function:

$$\Pi = -Q_2 + 12Q - 20$$

$$\frac{d\Pi}{dQ} = -2Q + 12 = 0$$

$$2Q = 12$$

$$Q = 6$$

The second and sufficient condition for a maximum is that the second derivative be negative for relative maximum.

Formally, $\frac{d^2y}{dx^2} < 0$

Thus for the profit function:

$$\pi = -Q_2 + 12Q - 20$$

$$\frac{d^2\pi}{dQ^2} = \frac{d}{dQ}(-2Q + 12) = -2 < 0$$

$\therefore Q = 6$ provides a relative maximum.

An application of profit maximisation to price discrimination.

An optimisation problem can arise when a monopolistic firm sells a product in two or more separate markets. This firm has to decide upon the quantities to be supplied to the respective markets in order to maximise profits.

Assume that a monopolist is faced with the following demand functions:

$$Q_1 = 48 - 0.4 P_1$$

$$Q_2 = 20 - 0.1 P_2$$

Where $TC = 70 + 80 Q$

We can compute the prices that the monopolist will charge in the different markets.

With $Q_1 = 48 - 0.4 P_1$

$$P_1 = 120 - 2.5 Q_1$$

$$TR_1 = (120 - 2.5 Q_1) Q_1$$

$$= 120 Q_1 - 2.5 Q_1^2$$

$$MR_1 = \frac{dTR_1}{dQ_1}$$

$$= 120 - 5 Q_1$$

The firm will maximize profits where $MC = MR_1 = MR_2$

Recall that $TRC = 70 + 80Q$

$$MC = \frac{dTRC}{dQ}$$

$$= 80$$

\therefore When $MC = MR_1$

$$80 = 120 - 5Q_1$$

$$Q_1 = 8$$

When $Q_1 = 8$

$$P_1 = 120 - 2.5(8)$$

$$= 120 - 20$$

$$= 100$$

In the second market with $Q_2 = 20 - 0.1P_2$

$$P_2 = 200 - 10Q_2$$

$$TR_2 = (200 - 10Q_2) Q_2$$

$$= 200Q_2 - 10Q_2^2$$

$$MR_2 = \frac{dTR_2}{dMR_2}$$

$$= 200 - 20Q_2$$

When $MR_2 = MC$

$$80 = 200 - 20Q_2$$

$$\therefore Q_2 = 6$$

When $Q_2 = 6$

$$P_2 = 200 - 10(6)$$

$$= 140$$

The producer therefore charges a higher P_2 in market 2.

REINFORCEMENT QUESTIONS:

1. What is monopolist market?
2. What is meant by an optimum size of a firm?
3. With the help of a well-labelled diagram, explain the relationship between the average fixed cost, average variable cost, total cost and marginal cost curves.
4. Discuss the necessary and sufficient conditions for profit maximization by a firm. Support your answer with appropriate illustrations.
5. (i) Maximize the following total profit function

$$\pi = -3Q^2 + 33Q - 72$$

(Determine that both the necessary and sufficient conditions for profit maximisation are satisfied)

- ii) Evaluate the function in (i) at the desired critical value.

Check your answers with those given in Lesson 9 of the Study Pack.

LESSON FOUR

NATIONAL INCOME ANALYSIS

LEARNING OBJECTIVES

At the end of the lesson the student should be able to:

- Explain fully the various concepts of national income.
- Appreciate the importance of compiling national income figures.
- Use national income figures to compare the standards of living over time and between countries and know the problems involved.
- Explain fully why national output and employment fluctuate around their long term trends
- Show how the country can manipulate its resources for faster growth using the relationship between income, consumption and savings.
- Define the terms marginal propensity to consume (and save) and average propensity to consume (and Save).
- Explain the “accelerator” theory of investment and discuss other possible influences on the level of aggregate investment.
- Show how the equilibrium level of national income is determined in the “simple” Keynesian model.

CONTENTS

1. Meaning
2. Different concepts of National Income
3. National Income Accounting
4. Approaches of Measuring National Income
5. Problems of Measurement
6. Uses of National Income Accounts and their Limitations
7. Analysis of Consumption, Saving and Investment and their Interaction in Simple Economic Models.
8. The Acceleration Principle
9. Determination of Equilibrium Income
10. Fluctuations in National Income and Business Cycle

ASSIGNED READINGS

Modern Economics by Robert Mudida Chapter 10

1. MEANING

National Income is a measure of the money value of goods and services becoming available to a nation from economic activities. It can also be defined as the total money value of all final goods and services produced by the nationals of a country during some specific period of time – usually a year – and to the total of all incomes earned over the same period of time by the nationals.

2. DIFFERENT CONCEPTS OF NATIONAL INCOME

Gross Domestic Product

The money value of all goods and services produced within the country but excluding net income from abroad.

Gross National Product

The sum of the values of all final goods and services produced by the nationals or citizens of a country during the year, both within and outside the country.

Net National Product

The money value of the total volume of production (that is, the gross national product) after allowance has been made for depreciation (capital consumption allowance).

Nominal Gross National Product

The value, at current market prices, of all final goods and services produced within some period by a nation without any deduction for depreciation of capital goods.

Real Gross National Product

This is the national output valued at the prices during some base year or nominal GNP corrected for inflation.

3. NATIONAL INCOME ACCOUNTING

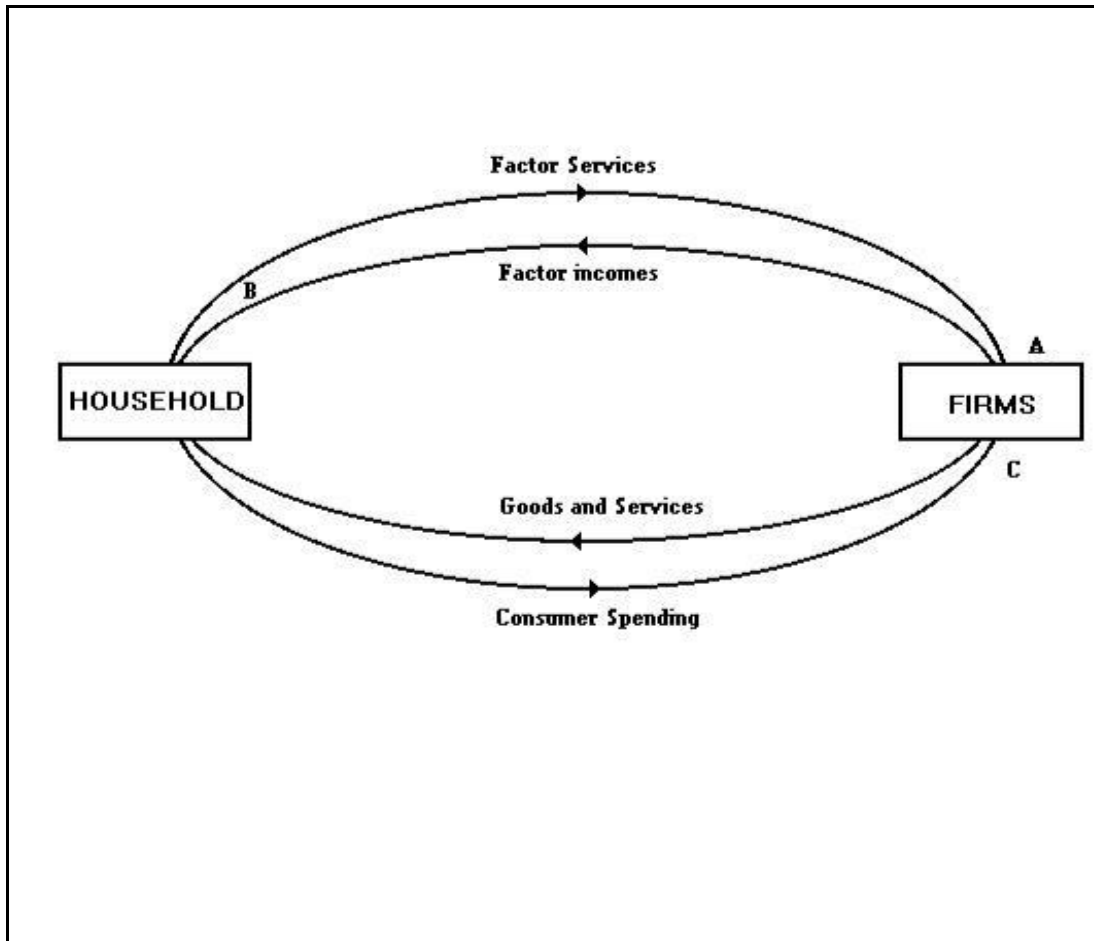
This refers to the measuring of the total flow of output (goods and services) and of the total flow of inputs (factors of production) that pass through all of the markets in the economy during the same period.

To see exactly what national income includes, how it is measured, and what it can tell us, we start with economic models: By economic models we mean:

A simplification of a real world or a practical situation aimed at explaining that situation within a set of assumptions.

The Circular Flow of Income and Expenditure

This is an economic model illustrating the flow of payments and receipts between domestic firms and domestic households. The households supply **factor services** to the firms. In return, they get **factor incomes**. With factor incomes, they buy **goods and services** from the firms. These flows can be illustrated diagrammatically as follows:



The points at which flows from one sector meet the other sector and generate other flows are called **critical points**. In the above diagram, the critical points are A, B and C. At A, the flow of factor services from the households sector meets the firm sector and generates the **flow of factors incomes** from the firms to the households. At B, the flow of factor incomes meets the household sector and generates the flow of **consumer spending**. At C, the flow of consumer spending meets the firms sector and generates the flow of **goods and services**.

4. APPROACHES TO MEASURING NATIONAL INCOME

The compilation of national income statistics is a very laborious task. The total wealth of a nation has to be added up and there are millions of nationals. Moreover, in order to double check and triple check the statistics, the national income statistician has to work out the figures out in three different ways, each way being based on a different aspect. The three aspects are:

- a. **The national output:** - The creation of wealth by the nation's industries. This is valued at factor cost, so it must be the same as b) below.
- b. **The national income:** - The incomes of all the citizens.
- c. **The national expenditure** because whatever we receive we spend, or lend to the banks to invest it, so that the addition of all the expenditure should come to the same as the other two figures.

Put in its simplest form we can express this as an identity:

National output \equiv National Income \equiv National Expenditure.

(i) Using Total Expenditure for Calculating National Income

The expenditure approach centres on the components of *final demand* which generate production. It thus measures GDP as the total sum of expenditure on *final goods and services* produced in an economy. It includes all consumers' expenditure on goods and services, except for the purchase of new houses which is included in gross *fixed capital formation*. Secondly we included all general *government final consumption*. This includes all current expenditure by *central and local* government on goods and services, including wages and salaries of government employees. To these we add *gross fixed capital formation or expenditure on fixed assets* (buildings, machinery, vehicles etc) either for replacing or adding to the stock of existing fixed assets. This is the major part of the investment which takes place in the economy. In addition we add the *value of physical increases in the stocks, or inventories*, during the course of the year. The total of all this gives us *Total domestic expenditure* (TDE). We then add expenditure on exports to the TDE and arrive at a measure known as *Total Final Expenditure*. It is so called because it represents the total of all spending on final goods. However, much of the final expenditure is on *imported goods* and we therefore *subtract spending on imports*. Having done this we arrive at a measure known as *gross domestic product at market prices*. To gross domestic product at market price we *subtract the taxes on expenditure* levied by the government and add on the amount of subsidy. When this has been done we arrive at a figure known as *Gross Domestic Product at factor cost*. National Income however is affected *by rent, profit interest* and dividends paid to, or received from, overseas. This is added to GDP as net property income from abroad. This figure may be either *positive or negative*. When this has been taken into account we arrive at the gross national product at factor cost. As production takes place, the capital stock of a country wears out. Part of the gross fixed capital formation is therefore, to replace worn out capital and is referred to as *Capital Consumption*. When this has been subtracted we arrive at a figure known as the *net national product*. Thus, summarising the above, we can say:

$$Y = C+I+G+(X-M)$$

Calculating National Income from Total Expenditure

Country Y National Expenditure (in £millions)	1999
<i>Expenditure of Consumers</i>	
Food	27,148
Alcoholic drink	13,372
Tobacco	6,208
Housing	27,326
Fuel and light	9,395
Clothing	12,114
Household goods and services	12,274
Transport and communications	31,475
Recreation	16,541
Other goods and services	<u>23,356</u>
Total	179,209
Less: Adjustment of non-profit making bodies	<u>(443)</u>
	178,766
	178,766
Add: Expenditure of non-profit making bodies	<u>3,661</u>
	182,427
Central Government expenditure	40,623

Local Government expenditure		25,236
Capital formation		49,559
Growth in stocks		<u>267</u>
Total Domestic expenditure at market prices		298,112
Deduct: Taxes on expenditure		<u>49,865</u>
		248,247
Add: Net result exports-imports	3,186	
Subsidies	6,056	
Net property income from abroad	<u>1,948</u>	<u>11,190</u>
		259,437
Less: Estimated depreciation on capital assets		<u>36,490</u>
		<u><u>222,947m</u></u>

(ii) Using Factor Incomes for Calculating National Income

A second method is to **sum up all the incomes** to individuals in the form of **wages, rents, interests** and **profits** to get domestic incomes. This is because each time something is produced and sold someone obtains income from producing it. It follows that if we add up all incomes we should get the value of total expenditure, or output. Incomes earned for purposes other than rewards for producing goods and services are ignored. Such incomes are **gifts, unemployment or relief benefits, lottery, pensions, grants** for students etc. These payments are known as **transfer income (payments)** and including them will lead to **double counting**. The test for inclusion in the national income calculation is therefore that there should be a **“quid pro quo”** that the money should have been paid against the exchange of a good or service. Alternatively, we can say that there should be a **“real”** flow in the opposite direction to the money flow. We must also include income obtained from **subsistence output**. This is the opposite case from transfer payments since there is a flow of real goods and services, but no corresponding money flow. It becomes necessary to “impute” values for the income that would have been received. Similarly workers may, in addition to cash income, receive **income in kind**; if employees are provided with **rent free housing**, the rent which they would have to pay for those houses on the open market should, in principle, be “imputed” as part of their income from employment. The sum of these incomes gives **gross domestic product GDP**. This includes incomes earned by foreigners at home and excludes incomes earned by nationals abroad. Thus, to **Gross Domestic Income** we add **Net property Income** from abroad. This gives **Gross National Income**. From this we deduct **depreciation** to give **Net National Income**.

Calculating National Income from Factors Incomes

Country Y National Income rewards to factors (in £ millions)		1999
<i>Incomes from employment</i>		
Wages and salaries		143,348
Pay in cash and kind of HM Forces		3,121
Employers' contribution to National Health Insurance		10,632
Employers' contribution to other funds		<u>12,971</u>
		170,072
Income from self-employment		23,123
<i>Other Incomes</i>		
Profits of companies		41,530
Surpluses of public corporations		9,661
<i>Surpluses of other public enterprises (-)</i>		
		(109)
Rent		17,424

Imputed charge for consumption of capital		<u>2,456</u>
		264,157
Less: Stock appreciation		<u>(4,326)</u>
		259,831
Add: net property income from abroad		<u>1,948</u>
		261,779
Less: Residual error	2,342	
Estimated depreciation on capital assets	<u>36,490</u>	<u>(38,832)</u>
		<u><u>222,947m</u></u>

Note: The residual error is a small error (about 1%) in the collection of these figures.

(iii) Using the National Output for Calculating National Income

A final method which is more direct is the “**output method**” or the **value added approach**. This involves adding up the total contributions made by the various sectors of the economy. “Value Added” is the **value added by each industry to the raw materials or processed products that it has bought from other industries before passing on the product to the next stage in the production process**. This approach therefore centres on **final products**. Final products will include **capital goods** as well as **consumer goods** since while **intermediate goods** are used up during the period in producing other goods, capital goods are not used up (apart from “wear and tear” or depreciation) during the period and may be thought of as consumer goods “**stored up**” for future periods. Final output will include “**subsistence output**”, which is simply **the output produced and consumed by households themselves**. Because subsistence output is not sold in the market, some assumption has to be made to value them at some price. We also take into account the **final output of government**, which provides services such as education, medical care and general administrative services. However, since state education and other governmental services are not sold on the market we shall not have market prices at which to value them. The only obvious means of doing this is to value public services at what it costs the government to supply them, that is, by the **wages bill spent on teachers, doctors, and the like**. When calculating the GDP in this matter it is necessary to avoid **double counting**.

Calculating National Income from National Output

<u>Country Y National Product by industry (£ millions)</u>		<u>1999</u>
Agriculture		5,535
Energy and water supply		29,645
Manufacturing		62,258
Construction		15,319
Distribution, hotels, catering, repairs		35,002
Transport		11,543
Communications		7,092
Insurance, banking and finance		31,067
Ownership of dwellings		15,761
Public administration, defence and social security		18,027
Public health and education services		24,021
Other services		16,415
Total domestic output		271,685
Deduct: Residual error	2,342	
Adjustment for financial services	11,854	
Estimated depreciation on capital assets	<u>36,490</u>	- 50,686
		220,990
Add: Net property income from abroad		<u>1,948</u>

Aggregate net national product

222,947 m

5. SOME DIFFICULTIES IN MEASURING NATIONAL INCOME

National Income Accounting is beset with several difficulties. These are:

a. What goods and services to include

Although the general principle is to take into account only those products which change hands for money, the application of this principle involves some arbitrary decisions and distortions. For example, unpaid services such as those performed by a housewife are not included but the same services if provided by a paid housekeeper would be.

Many farmers regularly consume part of their produce with no money changing hands. An imputed value is usually assigned to this income. Many durable consumer goods render services over a period of time. It would be impossible to estimate this value and hence these goods are included when they are first bought and subsequent services ignored. Furthermore, there are a number of governmental services such as medical care and education, which are provided either 'free' or for a small charge. All these provide a service and are included in the national income at cost. Finally, there are many illegal activities, which are ordinary business and produce goods and services that are sold on the market and generate factor incomes.

b. Danger of Double Counting

The problem of double counting arises because of the inter-relationships between industries and sectors. Thus we find that the output of one sector is the input of another. If the values of the outputs of all the sectors were added, some would be added more than once, giving an erroneously large figure of national income. This may be avoided either by only including the value of the final product or alternatively by summing the values added at each stage which will give the same result.

Some incomes such as social security benefits are received without any corresponding contribution to production. These are **transfer payments** from the taxpayer to the recipient and are not included. **Taxes** and **subsidies** on goods will distort the true value of goods. To give the correct figure, the former should not be counted as an increase in national income for it does not represent any growth in real output.

c. Inadequate Information

The sources from which information is obtained are not designed specifically to enable national income to be calculated. Income tax returns are likely to err on the side of understatement. There are also some incomes that have to be estimated. Also, some income is not recorded, as for example when a joiner, electrician or plumber does a job in his spare time for a friend or neighbour. Also information on foreign payments or receipts may not all be recorded.

Factors affecting the size of a National Income

The size of a nation's income depends upon the quantity and quality of the factor its endowments at its disposal. A nation will be rich if endowments of natural resources are

large, its people are skilled, and it has a useful accumulation of capital assets. The following points are of interest:

a) Natural Resources

These include the minerals of the earth; the timber, shrubs and pasturage available; the agricultural potential (fertile soil, regular rainfall, temperature or tropical climate); the fauna and flora; the fish; crustacea etc of the rivers and sea; the energy resources, including oil, gas, hydro-electric, geothermal, wind and wave power.

b) Human Resources

A country is likely to prosper if it has a large population; literate and numerate sophisticated and knowledgeable about wealth creating processes. It should be well educated and skilled, with a nice mixture of theory and practice. It should show enterprise, being inventive, energetic and determined in the pursuit of a better standard of living.

c) Capital Resources

A nation must create and then conserve capital resources. This includes not only tools, plant and machinery, factories, mines, domestic dwellings, schools, colleges, etc, but a widespread infrastructure of roads, railways, airports and ports. Transport creates the utility of space. It makes remote resources accessible and high-cost goods into low-cost goods by opening up remote areas and bringing them into production.

d) Self-sufficiency

A nation cannot enjoy a large national income if its citizens are not mainly self-supporting. If the majority of the enterprises are foreign –owned there will be a withdrawal of wealth in the form of profits or goods transferred to the investing nation.

e) Political Stability

6. USES OF NATIONAL INCOME FIGURES

- We need national income statistics to measure the size of the "National cake" of goods and services available for competing uses of private consumers, government, capital formation and exports (less imports).
- National Income statistics are also used in comparing the standard of living of a country over time
- And also the standards of living between countries.
- National Income Statistics provide information on the stability of performance of the economy over time e.g. a steadily increasing income would be indicative of increasing national income.
- If National Income Statistics are disaggregated it would enable us to assess the relative importance of the various sectors in the economy. This is done by considering the contribution of the various sectors to Gross National Product over time. Such information is crucial for planning purposes for it reveals to planners where constraints to economic development lie. It therefore becomes possible to design a development strategy that

eventually would overcome these problems. This central contribution could be in the form of employment or the production of goods and services.

- By assessing exports and imports as a percentage of Gross national Product i.e. using national statistics, it is possible to determine the extent to which a country depends on external trade.
- National Income Statistics also help in estimating the saving potential and hence investment potential of a country.

Real Vs Nominal GNP: “Deflating” by a price Index

One of the problems that confront economists when measuring GNP is that they have to use money as the measuring rod. These days however, inflation sends the general price level up and up clearly this means that the yardstick stretches in their hands everyday.

Economists repair most of the damage wrought by the elastic yardstick by using a price index. The price index used to remove inflation (or “deflate” the GNP) is called the GNP deflator. The GNP deflator is defined as the ratio of nominal GNP to real GNP. It is constructed as follows:

$$\text{GNP Deflator} = \frac{\text{Nominal GNP}}{\text{Real GNP}}$$

$$\text{Real GNP} = \frac{\text{Value at current Price}}{\text{CPI}}$$

Where CPI is Consumer Price Index

The GNP deflator is useful because it includes prices on all goods and services in GNP.

PER CAPITA INCOME

By National Income is meant the value of outputs produced within a year. Income per capita is simply the National Income divided by the population of the country in a year.

$$\text{INCOME PER CAPITA} = \frac{\text{National Income}}{\text{Population}}$$

It shows the standard of living a country can afford for its people. The level of income per capita is determined by the size of a country’s population. The higher is the rate of growth of population, the lower is the rate of growth of income per capita.

Per capita income is a theoretical rather than a factual concept. It shows what the share of each individual’s National Income would be if all citizens were treated as equal. In a real world situation there exists considerable inequality in the distribution of income especially in the third world countries

NATIONAL INCOME AND WELFARE

The relationship between National Income and Welfare is best explained in terms of economic growth (By economic growth is meant capacity expansion). The effect of economic growth is an increase in the National Income. This increase in National Income has several effects on a country’s citizens.

- 1) Assuming a fair distribution of income, the average citizen would be in a position to enjoy

a higher living standard.

- 2) The ordinary households or persons could be able to afford luxury commodities. NB: luxury differs in its definition from one country to another and the determining factor being the level of income. e.g. clothing can be a luxury for some people.
- 3) It enables the ordinary household to afford leisure which may be regarded as luxury i.e. reducing working hours.

Points 1, 2 and 3 are based on assumption that there exists a fair distribution of the National cake. This may not be the case in fact it is disastrous to rely on GNP, its growth rate and GNP per capita as indicators of economic well being. GNP per capita e.g. gives no indication of how National Income is actually distributed and who is benefiting most from the growth of production. A rising level of absolute and per capita GNP may camouflage the fact that the poor are not better than before. In fact the calculation of GNP, and especially its rate of growth is in reality largely a calculation of the rate of growth, of the incomes of upper 20% who receive a disproportionately large share of the National Product. It is, therefore, unrealistic to use GNP growth rates as an index of improved economic welfare for the general public.

Example: Assuming a 10 people economy and assuming 9 of them had no income and the 10th person receives 100 units of income the GNP for this economy would be 100 units of income and per capita income would be 10 units. Suppose everyone's income increases by 20% so that GNP rises to 120 units per capita income would rise to 12 units. However for the 9 people without income before and currently such a rise in per capita income provides no cause for rejoicing since the one rich individual still has the income. In this case we observe that GNP instead of being a welfare index of a society as a whole is merely increasing the welfare of a single individual.

This exchange though an extreme case is indicative of what happens in the real life situation where incomes are very unequally distributed.

Costs of Economic Growth (Increase in National Income)

1. People living in industrial towns suffer from the effects of a polluted atmosphere.
2. The manufacture of intoxicants together with urbanization and urban housing problems leads to an increase in crimes. This creates for the state the additional costs of the maintenance of prisons and a large police force to maintain law and order. Thus social welfare would be increased if the production and sale of intoxicants are curtailed.
3. While the expansion of the National Income owes a great deal to scientific research the application of research to new means of destruction add nothing to social welfare.
4. It leads to employment of women in industry leading to children being left without care or simply maternal care.

Arguments for and against Uneven Distribution of Income and Wealth

The basic economic argument to justify large income inequality was the assumption that high personal and corporate incomes were necessary conditions for saving which made possible **investments** and economic growth through mechanism such as the Harrod-Domar Model. In this argument it is maintained that the rich save and invests a significant proportion of their incomes while the poor spend all their incomes on consumer items, and since GNP growth is assumed to be directly related to the proportion of National Income saved then an economy characterised by highly unequal distribution of income would save more and grow faster than one with more equitable distribution of income. It was also assumed that eventually National per capita income would be high enough to allow for a sizeable distribution of income via

Taxes and subsidies but until such time is reached, any attempt to redistribute income significantly could only serve to lower growth rate and delay the time when a large income cake would be cut up into smaller sizes for all population group.

Limitations of the argument (Against)

Unlike the historical experience of the now developed countries, the rich in contemporary Third World Countries are not noted for the desire to save and invest substantial proportions of their income in the local economy. Instead businessmen, politicians and other elites are known to squander much of their income on imported goods, luxury houses, foreign travel and investment in gold, jewellery and foreign banking countries. Such savings and investments do not add to the National Productive resources. Instead they represent substantial drains on these resources in that the income so derived is extracted from the sweat and toil of common uneducated unskilled labourers thus the rich do not necessarily save and invest a significantly large proportion of their income than the poor.

A growth strategy based on sizeable and growing income inequalities may in reality be nothing more than an opportunistic myth designed to perpetuate the vested interests and maintain “status quo” of the economic and political elite of the 3rd world, often at the expense of the great majority of the general population.

- 1) The low income and low levels of living for the poor which are manifested in poor health, nutrition and education can lower their economic productivity and thereby lead directly and indirectly to a slower growing economy. Therefore strategies to lift the living standard and incomes of say the bottom 40% would contribute not only to their material well being, but also to the productivity and income of the economy as a whole.
- 2) Raising the income level of the poor will stimulate an overall increase in the demand for locally produced necessity products like food and clothing. Rising demand for local goods provided a greater stimulus for local production i.e. stimulates local production, employment and investment. This creates a broader popular participation in that growth. The rich, on the other hand, tend to spend more of their additional income on imported luxuries.
- 3) A more equitable distribution of income achieved through the reduction of mass poverty can stimulate healthy economic expansion by acting as a powerful material and psychological incentive to widespread public participation in the development process. Wide income disparities and substantial absolute poverty on the other hand can act as a powerful and psychological disincentive to economic progress. In the extreme, it may create conditions for its ultimate rejection by the masses of frustrated and politically

exploitive people notably the educated.

NATIONAL INCOME AND STANDARDS OF LIVING

Standard of living refers to the quantity of goods and services enjoyed by a person. These goods may be provided publicly, such as in the case of health care or education or they may be acquired by direct purchase. It also includes the less easily quantifiable aspects of living such as terms and conditions of employment and general living environment.

National Income figures can be used to measure the standard of living at a particular point of time and over time. This is done by working out the per capita income of the country. **By per capita**

income we mean: the value of goods and services received by the average man. Per capita income is obtained by dividing the National Income by the Total population. If the per capita income is high, it can be deduced that the standard of living is high.

PROBLEMS OF USING PER CAPITA INCOME TO COMPARE STANDARD OF LIVING OVER TIME

- 1) The composition of output may change. e.g. more defence-related goods may be produced and less spent on social services, more producer goods may be made and less consumer goods, and there may be a surplus of exports over imports representing investment overseas. Standards of living depend on the quantity of consumer goods enjoyed.
- 2) Over time prices will change. The index of retail prices may be used to express the GNP in real terms but there are well known problems in the use of such methods.
- 3) National Income may grow but this says nothing about the distribution of that income. A small group may be much better off. Other groups may have a static standard of living or be worse off.
- 4) Any increase in GNP per capita may be accompanied by a decline in the general quality of life. Working conditions may have deteriorated. The environment may have suffered from various forms of pollution. These non-monetary aspects are not taken into account in the estimates of the GNP.
- 5) Finally the national income increases when people pay for services which they previously carried out **themselves**. If a housewife takes an office job and pays someone to do her housework, national income will increase to the extent of both persons' wages. Similarly a reduction in national income would occur if a man painted his house rather than paying a professional painter to do the same. Changes of the above type mean that changes in the GNP per capita will only imperfectly reflect changes in the standard of living.

PER CAPITA INCOME AND INTERNATIONAL COMPARISONS

Per capita income figures can also be used to compare the standards of living of different countries. Thus if the per capita income of one country is higher than that of another country, the living standard in the first country can be said to be higher. Such comparisons are made by aid giving international agencies like the United Nations and they indicate the relevant aid requirements of different countries.

But there are major problems in using **real income per head** (per capita income) to measure the standard of living in different countries. First there is the whole set of **statistical problems** and,

secondly, there are a number of difficult **conceptual problems** or problems of interpretation.

- i. **Inaccurate estimates of population:** The first statistical problem in calculating income per head particularly in less developed countries is that we do not have very accurate population figures with which to divide total income.
- ii. **Specific items which are difficult to estimate:** Another data problem, as already mentioned, is that data for depreciation and for net factor income from abroad are generally unreliable. Hence although we should prefer figures for "the" national income, we are likely to fall back on GDP, which is much less meaningful figure for measuring income per head. Inventory investment and work-in-progress are also difficult items to calculate.
- iii. **Non-marketed subsistence output and output of government:** some output like

subsistence farming and output of government are not sold in the market. These are measured by taking the cost of the inputs. In one country, however, salary of doctors for instance, might be higher and their quality low compared to another country. Although the medical wage bill will be high, the "real consumption" of medical care in the former might be lower. Since "public consumption" is an important element in national income, this could affect comparisons considerably.

Also in making international comparisons it is assumed that the compiled national income figures of the countries being compared are equally accurate. This is not necessarily the case. If, for example, in one country there is a large subsistence sector, a lot of estimates have to be made for self-provided commodities. The national figures of such a country will, therefore, be less accurate than those of a country whose economy is largely monetary or cash economy.

- iv. **Different degrees of income distribution:** If the income of one country is evenly distributed, the per capita income of such a country may be higher than that of another country with a more evenly distributed income, but this does not necessarily mean that most of its people are at a higher living standard.
 - v. **Different Types of Production:** If one country devotes a large proportion of its resources in producing non-consumer goods e.g. military hardware, its per capita income may be higher than that of another country producing largely consumer goods, but the standard of living of its people will not necessarily be higher.
 - vi. **Different forms of Published National Income figures:** The per capita income figures used in international comparisons are calculated using the published figures of national income and population by each country. For meaningful comparisons, both sets of national income figures should be in the same form i.e. both in real terms or both in money terms, the latter may give higher per capita income figures due to inflation, and thus give the wrong picture of a higher living standard. On the other hand, if both sets are in money terms the countries being compared should have the same level of inflation. In practice, this is not necessarily the case.
 - vii. **Exchange Rates:** Every country records its national income figures in its own currency. To make international comparisons, therefore, the national income figures of different countries must have been converted into one uniform currency. Using the official exchange rates does this. Strictly speaking, these apply to internationally traded commodities, which normally form a small proportion of the national production. The difficulty is that these values may not be equivalent in terms of the goods they buy in their respective commodities i.e. the purchasing power of the currencies may not be the same as those reflected in the exchange rate.
 - viii. **Difference in Price Structures:** Differences in the relative prices of different kinds of goods, due to differences in their availability, mean that people can increase their welfare if they are willing to alter their consumption in the direction of cheaper goods. The people in poor countries probably are not nearly as badly off as national income statistics would suggest, because the basic foodstuffs, which form an important part of their total consumption, are actually priced very low.
 - ix. **Income in relation to Effort:** The first conceptual problem in calculating income per head is to look at goods and services produced in relation to the human effort that has gone into producing them. Obviously if people work harder, they will be able to get more goods; but they may prefer the extra leisure. Indeed, the amount of leisure that people want depends in part on their level of income. Strictly, therefore, we should take income per unit of labour applied. It is largely because this would be statistically awkward that economists prefer to take real income per head.
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- x. **Differences in size:** A problem which is both conceptual and statistical is due to the transport factor. If two countries are of different sizes, the large country may devote a large proportion of its resources in developing transport and communication facilities to connect the different parts of the country. This will be reflected in its national income, but the standard of living of its people will not necessarily be higher than that of smaller country, which does not need these facilities to the same extent.
- xi. **Differences in Taste:** Another formidable difficulty is that tastes are not the same in all countries. Also in different countries the society and the culture may be completely different thus complicating comparisons of material welfare in two countries. Expensive tastes are to some extent artificial and their absence in poor countries need not mean a corresponding lack of welfare. Tastes also differ as regards the emphasis on leisure as against the employment of the fruit of labour: if in some societies people prefer leisure and contemplation, who is to say this reduces their welfare as compared to those involved in the hurly-burly of life and labour in modern industry?
- xii. **Different climatic zones:** If one country is in a cold climate, it will devote a substantial proportion of its resources to providing warming facilities, e.g. warm clothing and central heating. These will be reflected in its national income, but this does not necessarily mean that its people are better off than those in a country with a warm climate.
- xiii. **Income per head as index of economic welfare:** We cannot measure material welfare on an arithmetic scale in the same way as we measure real income per head. For instance, if per capita income increases, material welfare will increase; but we cannot say by how much it has increased, and certainly that it has increased in proportion.

7. CONSUMPTION, SAVING AND INVESTMENT

AGGREGATE DEMAND

This refers to the total planned or desired spending in the economy as a whole in a given period. It is made up of consumption demand by individuals, planned investment demand, government demand and demand by foreigners of the nations output.

i. The Consumption Function

The consumption function is the relationship [expressed in mathematical or diagrammatic form] between planned consumption and other independent variables, particularly income. The consumption function is one of the most important relations in Macro-economics. Consumption is the largest single component of aggregate expenditure and if we are to predict the effects of income and employment of variations in private investment and in government spending, we must know how consumption varies in response to changes in income. Thus it is important to take a closer look at the consumption.

Other Determinants

1. Rate of Interest

Is contained in the argument of the classified economists who argued that rational consumers will save more and consume less if the rate of interest is high.

2. Relative Prices

Influences the aggregate consumption. If relative prices are high, the level of consumption will be low

3. Capital Gains

Keynes observed that there is a possibility of windfall gains or losses influencing consumption. He says consumption of the wealth owning group may be extremely susceptible to unforeseen changes in the money value of their wealth. This is true of the stock minded speculative economy.

4. Wealth

The possession of liquid assets influences the amount that you have to save. It stems from the Diminishing Marginal Utility of Wealth. The larger the stock of wealth, the lower its Marginal Utility and consequently the weaker the desire to add to future wealth by curtailing present consumption.

In this case, the more wealth an individual has, the weaker will be the desire to accumulate still more savings at that particular time.

5. Money Stock or Liquid Assets:

Possession of liquid assets boosts consumption in that they can be changed into cash and thus consumed.

6. Availability of Consumer Credit:

Normally influences spending of the consumer of durables.

7. Attitudes and Expectations of the Consumer

A change in the consumer attitudes will affect consumer behaviour. The expectations attained by the consumer about income increases will affect the consumer behaviour. If in the face of price increases they expect further price increases; they shall increase their purchases further. N.B. These things might be true of an individual, but not the [aggregate] society.

8. The money Illusion

Some people look at money at the face value. Consumption will be affected if customers are subject to money illusion. The phenomenon of Money illusion occurs when despite proportional changes in the prices of goods and services and then their money incomes which keeps real incomes unchanged, consumers make a change in their real consumption pattern. It is known as Pigou Effect which talks of real balance. With a change in nominal income, people behave in the same way as though their real income has gone up.

Suppose price and Money Income increases by 10%, for the families which regard their real income unchanged and do not suffer from money illusion they would take their real incomes as unchanged and would only increase their consumption by 10%.

9. Distribution of Income

If the Marginal Propensity to consume among the poor is high, then redistribution of wealth from the rich to the poor leads to higher consumption.

10. Composition of the Population:

In sex and age.

THE KEYNESIAN THEORY OF CONSUMPTION FUNCTION

The theory was developed during the Great Depression which plagued Europe and America. During this time, there was excess capacity and idle resources and no effective demand i.e. people were unemployed and had no purchasing power. The determination of aggregate demand, then, was of crucial significance in Keynes analysis.

DEFINITIONS

i. Average Propensity to Consume:

The average Propensity to Consume [APC] is defined as the fraction of aggregate national income which is devoted to consumption. If consumption is denoted by **C** and income by **Y**, then:

$$APC = \frac{C}{Y}$$

The Average Propensity to Consume decreases in Keynes model as income increases.

ii. Average Propensity to save

The Average Propensity to Save [APS] is defined as the fraction of aggregate national income which is devoted to savings. Thus if **S** denotes savings then,

$$APS = \frac{S}{Y}$$

In a closed uncontrolled economy, where income is spent or saved, $APC + APS = 1$

iii. Marginal Propensity to Save

The Marginal Propensity to Save is the fraction of an increase in income that is saved.

Thus, if **S** denoted changes in savings, and **Y** change in income, then,

$$MPC = \frac{\Delta C}{\Delta Y}$$

An increase in income is partly consumed and partly saved. Thus

$$\Delta C + \Delta S = \Delta Y$$

Dividing through by ΔY , we get

$$\frac{\Delta c}{\Delta Y} + \frac{\Delta S}{\Delta Y} = 1$$

Therefore $\Delta C + \Delta S = \Delta Y$, and

$$S = 1 - C$$

ii. Investment

Investment is the process of increasing the productive capital stock of a country, or can be defined as the production of goods not for immediate consumption. The investment

function is the relationship [expressed in mathematical or diagrammatic form] between planned investment and the real interest rate.

Definitions

Induced Expenditure

Also called endogenous Expenditure, is any expenditure that is determined by, and thus varies with, economic variables within our theory.

Autonomous Expenditure:

Also called Exogenous expenditure, is any expenditure that is taken as a constant or unaffected by any economic variables within our theory. For instance, in the simple theory of the determination of national income, investment is assumed to vary directly with national income.

Actual income and Full employment income:

Full employment income (Also called Potential National) is the national income that could be produced when the country's factors of production are fully employed. This concept is given the symbol Y_F . Actual national income, symbolized by Y , can be below or equal to Y_F and, by working resources overtime and otherwise harder than normal, it can occasionally rise above Y_F .

Intended or planned Investment:

Expenditure on investment depends on business expectations on the chance of making profits and on the availability of funds for the purchase of producer goods. Although business expectations are complex in nature, a rough approximation is that the expectations on profits rise or fall in direct response to movements in the GNP this year increases businessmen expect an increase in planned consumption expenditures, and hence profits to increase next year.

iii. The Multiplier

In his theory Keynes asserted that consumption is a function of income, and so it follows that a change in investment, which we may call ΔI , meaning an increment in I will change Y by more than ΔI . For while the initial increase in Y , ΔY , will equal ΔI , this change in Y itself produce a change in C , which will increase Y still further. The final increase in income thus exceeds the initial increase in investment expenditure which is therefore magnified or "multiplied". This process is called the **multiplier process**.

The Operation of the "Multiplier"

The multiplier can be defined as the coefficient (or ratio) relating a change in GDP to the change in autonomous expenditure that brought it about. This is because the Multiplier can be defined as the coefficient (or ratio) relating a change in GDP to the change in autonomous expenditure that brought it about. This is because a change in expenditure, whatever its source, will cause a change in national income that is greater than the initial change in expenditure.

For example, suppose there is an autonomous increase in investment which comes about as a result of decisions by businessmen in the construction industry to increase the rate of house building by, say, 100 houses, each costing £1,000 to build, investment will increase by £100,000. Now this will be paid out as income to workers of all kinds in the building industry, to workers in industries which supply materials to the building industry, and others who contribute labour or capital or enterprises to the building of the houses; these people will in turn wish to spend these incomes on a wide range of consumer goods, and so on. There will

thus be a series of further rounds of expenditure, or **Secondary Spending**, in addition to the initial **primary spending**, which constitutes further increases in GDP.

This is because those people whose incomes are increased by the primary increase in autonomous expenditure will, through their propensity to consume, spend part of their increase in their incomes. GDP increases through the Expenditure – Income – Expenditure cycle.

How and where does the Multiplier Stop?

The multiplier concept can erroneously give the impression that an initial increase in autonomous spending would lead to an indefinite increase in GDP. This does not happen because each secondary round of increased expenditure gets progressively smaller, which is explained by the fact that the Marginal Propensity to spend the national income is less than one. This is the ratio which scales down each successive round of expenditure and causes the GDP to converge to a new equilibrium level.

Suppose in our example, an average of three fifths of any increase in income is spent by the people receiving it:

The Marginal Propensity to consume or save will be $\frac{3}{5}$ or $\frac{2}{5}$ respectively. Since $\Delta I = 100,000$, the increase in Y converge at the level 250,000. This is because for any value z between 0 and 1, the series

$$1 + z + z^2 + z^3 + \dots$$

tends to the value $\frac{1}{1-z}$. In our example we have the series (in thousands)

$$100 + 60 + 36 + 21.6 + \dots$$

Or

$$100 \{ 1 + (\frac{3}{5}) + (\frac{3}{5})^2 + \dots \}$$

which thus equals:

$$100 = \frac{1}{1 - \frac{3}{5}} = 100 \frac{1}{\frac{2}{5}} = 250$$

This result can be generalized, using our notation, as

$$\Delta I \frac{1}{1 - \frac{\Delta c}{\Delta Y}} = \Delta I \frac{1}{\frac{\Delta s}{\Delta Y}} = \Delta Y$$

Dividing by ΔI , we obtain

$$\frac{\Delta Y}{\Delta I} = \frac{1}{1 - \frac{\Delta c}{\Delta Y}} = \frac{1}{\frac{\Delta s}{\Delta Y}}$$

The ratio, $\Delta Y/\Delta I$, of the total increase in income to the increase in investment which produce it, is known as the MULTIPLIER, K . If we write c for $\Delta C/\Delta Y$ and s for $\Delta S/\Delta Y$, we have

$$k = \frac{\Delta Y}{\Delta I} = \frac{1}{1 - c} = \frac{1}{s}$$

The multiplier is thus the reciprocal of the MPS (Marginal Propensity to Save).

Relevance of Multiplier

The Keynesian Model of the Multiplier however is a Short Run Model, which puts more emphasis on consumption than on savings. It is not a long run model of growth since savings are the source of investment funds for growth. It is appropriate for mature capitalist economies where there is excess capacity and idle resources, and it is aimed at solving the unemployment problem under those conditions – (i.e. problem of demand deficiency with the level of investment too low, because of lack of business confidence, to absorb the high level of savings at full employment incomes).

It is not a suitable model for a developing economy because:

- i. In less developed economies exports rather than investment are the key injections of autonomous spending.
- ii. The size of the export multiplier itself will be affected by the economies dependence on two or three export commodities.
- iii. In poor but open economies the savings leakage is likely to be very much smaller, and the import leakage much greater than in developed countries.
- iv. The difference, and a fundamental one, in less developed countries is in the impact of the multiplier on real output, employment and prices as a result of inelastic supply.

THE ACCELERATION PRINCIPLE

Suppose that there is a given ratio between the level of output Y_t at any **time t**, and the capital stock required to produce it K_t and that this ratio is equal to α , hence:

$$K_t = \alpha Y_t$$

The coefficient is the capital-output ratio, α , = κ/Y and is called the **accelerator co-efficient**. If there is an **autonomous** increase in investment, ΔI this through the multiplier process will lead to increased employment resulting in an overall increase in income, ΔY . This may lead to further investment called **Induced Investment** in the production of goods and services. This process is called **acceleration**.

The ratio of induced investment to the increase in income resulting from an initial autonomous increase in investment is called the **accelerator**. Thus, if the included investment is denoted by ΔI_1 , and the accelerator by β , then:

$$\frac{\Delta I_1}{\Delta Y} = \beta, \Delta I_1 = \beta \Delta Y$$

Thus another way of looking at the accelerator is as the factor by which the increase in income resulting from an initial autonomous increase in investment is multiplied by the induced investment.

From the Keynesian model $\Delta Y = \Delta I_1 / s$ we can write

$$\Delta I_1 = \beta, \Delta I_1 \cdot 1/s$$

Thus, the higher the multiplier and the higher the accelerator, the higher will be the level of induced investment from an initial autonomous increase.

9. THE DETERMINATION OF EQUILIBRIUM NATIONAL INCOME

National income is said to be in equilibrium when there is no tendency for it either to increase or for it to decrease. The actual National Income achieved at that point is referred to as the equilibrium National Income.

For there to be equilibrium, firm spending must be equal to firm's receipts. If this were not the case, the firms will receive less and lose money until there is no more money in the system. Hence, for there to be equilibrium:

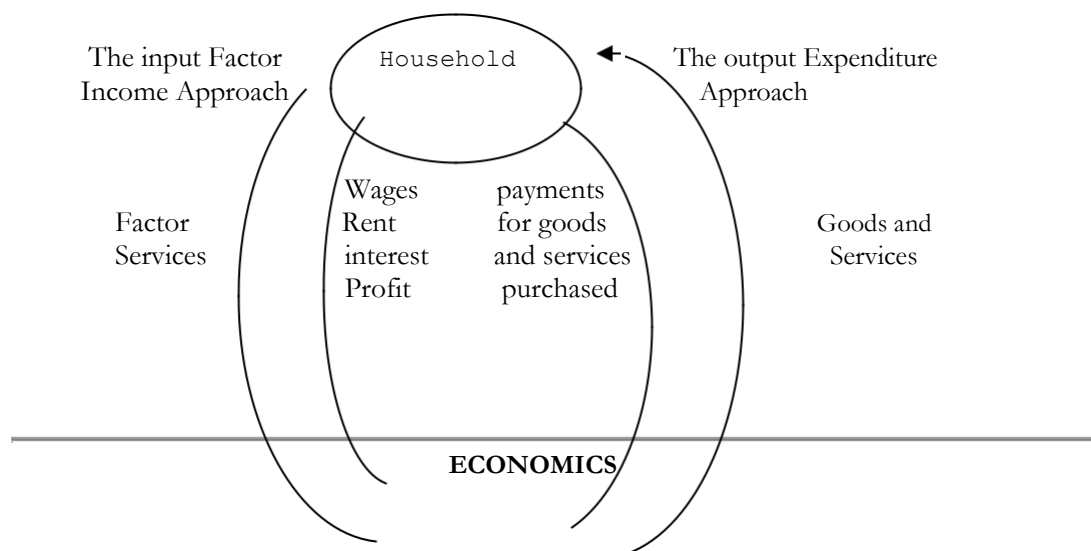
$$\text{Factor Incomes} = \text{Consumer Spending}$$

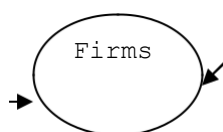
INCOME MODELS

1) The Spendthrift Economy:

This assumes a circular flow of income in a closed economy with no Government sector and no foreign trade. It also assumes the existence of **two sectors**, namely the sector of **households** and the sector of **firms**. Firms make the commodities that households consume. They purchase the services of factors of production from the household that own them, paying wages, rent, interest and profits in return, and then use the factors to make commodities.

It is assumed firms sell all of their output to households and receive money in return. All of the money received is in turn **paid out to households**. Part goes to households that sell factor services to firms, and the rest is profit paid out as Dividends to the owners of the firm. In short, neither households nor firms save anything in the spendthrift economy; everything that one group receives goes to buy goods and services from the other group. **Expenditure is the rule of the day!**





Now, suppose we wish to calculate the Total Value of the economy's output. We can do this based on either side of the circular flow shown in the figure above. The output -expenditure approach uses calculations based on the flows on the right hand side of the figure, while the input-factor income approach uses calculations based on the flows on the left-hand side of the figure.

2) The Frugal Economy:

In the Frugal economy, households and firms look to the future, and as a result undertake both Saving and **Investment**.

SAVING

Saving is income not spent on goods and services for current consumption. Both households and firms can save. Households save when they elect not to spend part of their current income on goods and services for consumption. Firms save when they elect not to pay out to their owners some of the profits that they have earned. **Distributed profits** are profits actually paid out to the owners of firms, and **undistributed profits** are profits held back by firms for their own uses.

INVESTMENT

Investment is defined as the production of goods not for immediate consumption. All such goods are called **investment goods**. They are produced by firms and they may be bought either by firms or by households. Most investment is done by firms, and firms can invest either in **capital goods**, such as plant and equipment, or **inventories**.

The total investment that occurs in the economy is called **Gross Investment**. The amount necessary for replacement is called the **Capital consumption Allowance** and is often loosely referred to as **Depreciation**. The remainder is called **NET Investment**.

The current production of final commodities in the frugal economy can be divided into two sorts of output. First, there are consumption goods and services actually sold to households. Second, there are investment goods that consist of capital goods plus inventories of semi-finished commodities still in the hands of firms. The symbols **C** and **I** can be used to stand for *currently produced consumption goods* and *currently produced investment goods respectively*.

In an economy that uses capital goods, as does the Frugal economy, it is helpful to distinguish between two concepts of National Income (or National Product).

GROSS NATIONAL INCOME (or Gross National Product, GNP); It is the sum of the values of all final goods produced for consumption and investment, and thus it is also the sum of all factor incomes earned in the process of producing the National output.

NET NATIONAL INCOME (or Net National Product, NNP) is GNP minus the capital consumption allowance. NNP is thus a measure of the Net output of the economy after deducting from gross output an amount necessary to maintain the existing stock of capital intact.

Equilibrium National Income in a Frugal Economy

Saving and investment are examples of two categories of expenditure called withdrawals and injections. A **WITHDRAWAL** is any income that is not passed on in the circular flow. Thus if households can earn income and not spend it on domestically produced goods and services, this is a

withdrawal from the circular flow. Similarly, if firms receive money from the sale of goods and do not distribute it as payments to factors, this is a withdrawal from the circular flow.

AN INJECTION is an addition to the incomes of domestic firms that does not arise from the expenditure of domestic households or arise from the spending of domestic firms.

The effects of withdrawals and injections is to interfere with Equilibrium income. Withdrawals by reducing expenditure exert a contractionary force on national income. If, for example, households decide to increase their savings and correspondingly reduce the amount they used to spend buying consumption goods from firms, this reduces the incomes of firms, and reduces the payments they will make to factors of production. Injections, by raising expenditure, exert an expansionary force on national income. If, for example, firms sell machines to other firms, their incomes and payments to household for factor services will rise without there having been an increase in household expenditure.

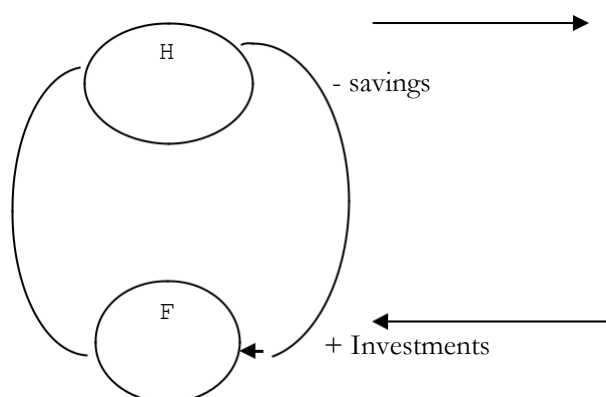
Thus for equilibrium National Income to exist, firm spending should be equal to firm receipts. Thus, denoting consumption by **C**, saving by **S** and Investment by **I**, there is equilibrium if:

$$C+S=C+I$$

Or

$$S = I$$

i.e. there is equilibrium when savings are equal to investments.



To measure the National Income in a frugal economy, through the output and Expenditure approach, the National Income Accountant includes production of goods for inventories as part of total expenditure since the firm certainly spends money on the factor services necessary to produce goods for its own inventories. The accountant calculates the economy's total output as the actual expenditure on final goods and services sold, plus the market value of final commodities currently produced and added inventories. This definition makes total expenditure the same thing as the value of all final commodities produced and thus ensures that the measured value of expenditure is identical with the value of total output in any economy.

3) THE GOVERNED ECONOMY:

The governed economy contains central authorities often simply called "the government" – who levy taxes on firms and households and which engages in numerous activities such as defending the country, making and enforcing the laws, building roads, running schools, and predicting weather.

When the government produces goods and services that households desire such as roads and air traffic control, it is obviously engaged in a useful activity and is obviously adding to the sum total of valuable output. The National Income Statistician count as part of the GNP every government

expenditure on goods and services, whether it is to build a **scud missile to promote police protection, or to pay a civil servant to file and re-file papers from a now defunct ministry.**

Definitions:

Transfer Payments:

Are any payments made to households by the government that are not made in return for the services of factors of production i.e. there is no *Quid pro Quo*. Such payments do not lead directly to any increase in output and for this reason they are not included in the nation GNP.

Disposable Income:

This is the income which households actually have available to spend or to save. To calculate disposal income, which is indicated by Y_d , the statistician must make several adjustments to GNP.

First, all those elements of the value of output that are not paid out to households must be **deducted**: business savings represent receipts by firms from the sale of output that are withheld by firms for their own uses, and corporation taxes are receipts by firms from the sale of output that are paid over to the government. Secondly, personal income taxes must be **deducted** from the income paid to households in order to obtain the amount households actually have available to spend or save. Finally, it is necessary to **add** government transfer payments to households. Although these are not themselves a part of GNP, they are made available to households to spend and save, and are thus a part of disposable Income. Thus disposal income is:

GNP minus any part of it that is not actually paid over to households, minus the personal income taxes paid by households, plus transfer payments received by households.

Real and nominal measures

Output, Expenditure and Income can be valued at current market price in which case we speak, for example, of **money** or **Nominal NNP, or NNP** valued at current prices. Changes from one year to another are then a compound of changes in physical quantities and prices. Output, Expenditure and Income can also be valued at the prices ruling in some base year. In this case,

each year's quantity is priced at its base-year prices and then summed. We then speak, for example, of GDP at constant prices, or REAL GDP. Changes in constant-price GDP give a measure of real or quantity changes in total output.

Equilibrium Income

In this model, aggregate desired expenditure has three components: Consumption, Investment and Government Expenditure:

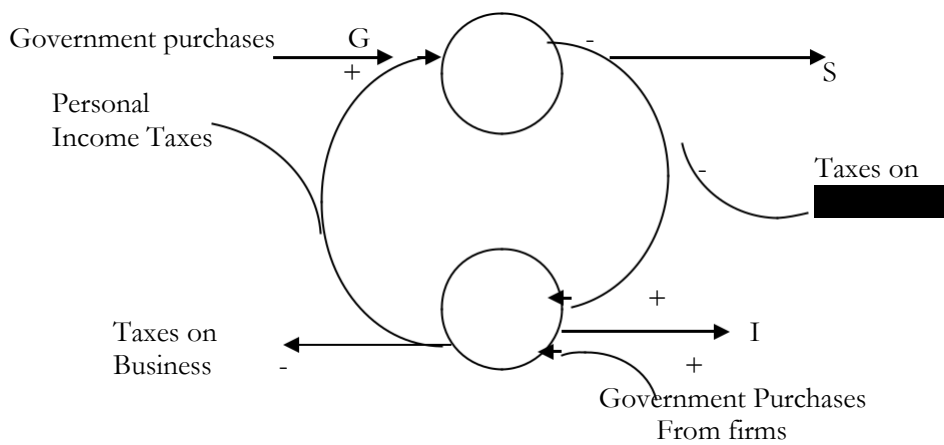
$$E = C + I + G$$

However, in the Governed Economy, taxes levied by the government are a second withdrawal. If the government taxes firms, some of what firms earn is not available to be passed on to households. If the government taxes households, some of what households earn is not available to be passed on firms. Whatever subsequently happens to money raised, taxes withdraw expenditure from the circular flow.

In the Governed Economy, however, government expenditure is a second injection. Such expenditure creates income for firms that does not arise from the spending of households, and it creates income for households that does not arise from the spending of firms. Whatever the source of funds, government spending injects expenditure into the circular flow.

Letting **G** stand for Government Expenditure, **T** for Taxes, **J** for injections and **W** for withdrawals, we can say the National Income is in equilibrium when total withdrawals, savings plus taxes, is equal to **total injections, investment plus government expenditure**. The equilibrium condition for national income can thus be written as:

$$W = J, \text{ or } S + T = G + I$$



Open Economy:

None of the three economies considered so far are engaged in trade with Foreign Countries. Such economies are often referred to as Closed Economies. In contrast, open economies engage in significant amounts of foreign trade, so that some of the goods produced at home are sold a

broad while some of the goods sold at home are produced abroad. The model is more applicable in real life.

A mathematical approach to national income equilibrium.

Equilibrium analysis also has applications in the area of national income. A simple Keynesian national income model may be expressed as follows:

$$Y = C + I_o + G_o \dots\dots\dots (i)$$

$$C = a + bY \dots\dots\dots (ii)$$

$$(a > 0, 0 < b < 1)$$

Y and C are both endogenous variables since they are determined within the model. I_o And G_o , on the other hand, represent exogenously determined investment and government expenditure respectively. Exogenously determined variables are those whose values are not determined within the model. $C = a + b Y$ represents a consumption function where a and b stand for autonomous consumption and the marginal propensity to consume, respectively.

If we substitute equation (ii) into (i) we obtain:

$$Y = a + bY + I_o + G_o$$

$$(1 - b) Y = a + I_o + G_o$$

Equilibrium national income is represented by \bar{Y} .

$$\bar{Y} = \frac{a + I_o + G_o}{1 - b} \dots\dots\dots (iii)$$

The equilibrium level of consumption can be obtained by substituting equation (iii) into equation (ii).

$$\begin{aligned} \bar{C} &= a + b\bar{Y} = a + \frac{b(a + I_o + G_o)}{1 - b} \\ &= \frac{a(1 - b) + b(a + I_o + G_o)}{1 - b} \end{aligned}$$

A Numerical Example

Assume a simple two sector model where $Y = C + I$ $C = a + bY$ and $I = I_o$. Assume in addition, that $a = 85$, $b = 0.45$ and $I_o = 55$. this implies that $Y = a + bY + I_o = 85 + 0.45Y + 55$

$$\begin{aligned} Y - 0.45Y &= 140 \\ 0.55Y &= 140 \\ Y &= 255 \end{aligned}$$

This simple model can be extended to include government expenditure and foreign trade. It may take the following general form:

$$Y = C + I + G + (X - M)$$

Where $C = a + bY$

And $M = m_o + mY$

M_o represents autonomous imports and m represents induced imports (imports dependent on the level of income). Equilibrium national income in this case is represented by

$$Y = \frac{a + I_o + G_o + X_o - M_o}{1 - b + m_o}$$

Numerical Example.

Assume that $I_o = 360$, $G_o = 260$, $X_o = 320$, $M_o = 120$, $a = 210$, $b = 0.8$ and $m = 0.2$

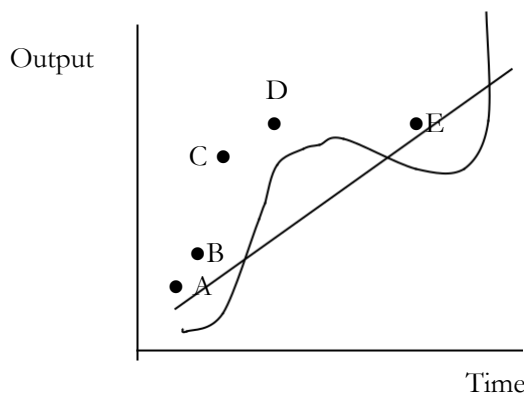
The equilibrium level of national income can be computed as follows:

$$Y = \frac{360 + 260 + 320 + 210 - 120}{1 - 0.8 + 0.2} = 2,575$$

10. FLUCTUATIONS IN NATIONAL INCOME AND THE BUSINESS CYCLES BUSINESS CYCLES

Meaning:

The business cycle is the tendency for output and employment to fluctuate around their long-term trends. The figure below presents a stylised description of the business cycle. The continuous line shows the steady growth in trend output over time, while the broken line indicates the actual output over the time period.



Point A represents a slump, the bottom of a business cycle while point B suggests the economy has entered the recovery phase of the cycle. As recovery proceeds the output rises to a point C above the trend path; we call this a boom. Then as the line dips via D towards the trend line with output growing less quickly during the recovery and least quickly (perhaps even falling), during a recession.

Causes:

There are a number of explanations of the business cycle but changes in the level of investment seem to be the most likely. In the simplest Keynesian model an increase in investment leads to a larger increase in income and output in the short run. Higher investment not only adds directly to aggregate demand but by increasing income adds indirectly to consumption demand. A process known as the multiplier. The reasons for change in investment may be explained as follows. Firms invest when their existing capital stock is smaller than the capital stock they would like to hold. When they are holding the optimal capital stock, the marginal cost of another unit of capital just equals its marginal benefit, this is the present operating profits to which it is expected to give rise over its lifetime. This present value can be increased either by a fall in interest rates at which the stream of expected profits is discounted or by an increase in the future profit expected. In practice, it is generally believed that changes in expectations about future profits are more important than interest rate changes. If real interest rates and real wages change only slowly, the most important source of short term changes in beliefs about future profits is likely to be beliefs about future levels of sales and real output. Other things being equal, higher expected future output is likely to raise expected future profits and increase the benefits from a marginal addition to the current capital stock. This kind of explanation is known as the **accelerator model of investment**. In this theory it is assumed that firms estimate future profits by **extrapolation** of past growth of output. While constant output growth leads to a constant rate of growth of capital stock, it takes accelerating output growth to increase the desired level of investment. Though the accelerator model is acknowledged to be a simplification of a complex process its usefulness has been confirmed by empirical research.

Just how firms respond to changes in output will depend on a number of things including the extent to which firms believe that current growth in output will be maintained in the future and the cost of quickly adjusting investment plans. The more costly it is to adjust quickly, the more likely are firms to spread investment over a long time period.

The underlying idea of the multiplier-accelerator model is that it takes an accelerating output growth to keep increasing investment, but it must be noted that once output growth settles to a constant level investment also becomes constant. Finally if output falls then the level of investment must fall also.

The limits of the fluctuations around the trend path of output are referred to as ceilings and floors. If we assume that the circular flow of income is in equilibrium at less than full employment and there is an increase in investment, the effect of this will be to raise national income by more than an equivalent amount because of the effect of the multiplier. This will in turn produce a more than proportionate increase in investment because of the effect of the accelerator which will produce a more than proportionate rise in incomes and so on. This cumulative growth of income will continue until the economy's full employment ceiling is reached. The process then goes into reverse with an accelerated decline in the absolute level of net investment, followed by a multiplied reduction in income and so on. The bottom of 'floor', of the recession will come when withdrawals once more equal the reduced level of injections.

It is argued that modern economies do not fluctuate as much as they did in the past because of ***built in stabilizers*** which operate automatically and the use of ***discretionary measures*** which are available to governments. ***The taxation system*** is said to act as a stabilizer that operates automatically and the use of discretionary measures which are available to governments. The taxation system is said to act as a stabilizer in the following way: As income rises a progressive taxation system takes larger and larger proportions of that increased income; when income falls revenue drops more than proportionately. Other built-in stabilizers are ***unemployment benefits*** and ***welfare payments*** because expenditures on these rise and fall with the unemployment rate. Despite these built-in stabilizers and the actions of government in their use of discretionary measures to stabilize the economy, the cycle is still with us as recent experience has demonstrated.

In conclusion, it must be added that the causation of business cycles is a complex matter and the above is only one of a number of possible explanations.

REINFORCING QUESTIONS:

1. A hypothetical closed economy has a national income model of the form $y = C + I + G$ where $C = 30 + 0.8Y$ and I and G and private investment and government expenditure are exogenously determined to 50 and 80 units respectively. Compute the national equilibrium level of income for this economy using aggregate income equals aggregate expenditure and withdrawals and equal injection methods.
2. What are some of the limitations using Gross National Product as a measure of economic performance?

Check your answers with those given in Lesson 9 of the Study Park.

COMPREHENSIVE ASSIGNMENT No. 2

TO BE SUBMITTED AFTER LESSON 4

To be carried out under examination conditions and sent to the Distance Learning Administrator for marking by the University

1. a) What are the main factors of production?
b) What determines the supply and demand for the factors of production that you have identified in a) above?
2. What is meant by mobility of factors of production? To what extent are these factors mobile and what is the significance of mobility of production?
3. Explain what is meant by diminishing returns and what is its relevance?
4. With the help of diagrams, explain the market price differential between a perfectly competitive and a monopolistic competitive market?
5. Outline the various factors which lead to monopoly power. Compare the advantages and disadvantages which consumers may derive from production by a monopolist. How far would your arguments be modified if monopolists were public enterprises?
6. a) Define the term National Income.
b) List and explain different methods of estimating national income of a country and state some of the problems which are being experienced in computing national income.
7. From the data below calculate the gross national product at factor cost:

	£ Million
Imports	42,000
Value of physical increase in stock	1,300
Exports	43,000
Capital formation	25,000
Government expenditure	29,000
Consumer expenditure	84,000
Taxes on expenditure	20,000
Subsidies	3,000
Net property income from abroad	400

8. a) With the help of a well labeled diagram, explain the relationship between the average fixed cost, average variable cost, total cost and marginal cost curves.

b) Discuss the necessary and sufficient conditions for profit maximization by a firm. Support your answer with appropriate illustrations.
-

9. a) Derive the equation for the equilibrium level of national income in an open economy with no taxes.
- b) Given $a = 675$, $b = 0.2$, $I_o = 375$, $G_o = 150$, $M_o = 200$ and $m = 0.4$, find the equilibrium level of national income.

END OF COMPREHENSIVE ASSIGNMENT NO. 2

NOW SEND YOUR ANSWERS TO THE DISTANCE LEARNING CENTRE FOR MARKING

LESSON FIVE

MONEY AND BANKING

LEARNING OBJECTIVES

At the end of the lesson the student should be able to:

- Explain why money is considered a dynamic force in modern economies.
- State clearly the functions of a central bank and commercial banks.
- Explain fully the process of credit creation by commercial banks.
- Explain fully the meaning of monetary policy and instruments of monetary policy.
- Explain the various theories that explain the demand for money.
- Explain the various theories of interest rate determination.

CONTENTS

11. Money
12. The Banking System
13. Money and Capital Markets

ASSIGNED READINGS:

Modern Economics by Robert Mudida **Chapter 11**

1. Money

A. The nature and function of money

The development of money was necessitated by specialization and exchange. Money was needed to overcome the shortcomings and frustrations of the barter system which is system where goods and services are exchanged for other goods and services.

Disadvantages of Barter Trade

- It is impossible to barter unless A has what B wants, and A wants what B has. This is called double **coincidence** of wants and is difficult to fulfill in practice.
- Even when each party wants what the other has, it does not follow they can agree on a fair exchange. A good deal of time can be wasted sorting out equations of value.
- The indivisibility of large items is another problem. For instance if a cow is worth two sacks of wheat, what is one sack of wheat worth? Once again we may need to carry over part of the transaction to a later period of time.
- It is possible to confuse the **use value** and **exchange value** of goods and services in a barter economy. Such a confusion precludes a rational allocation of resources and promotion of economic efficiency.
- When exchange takes place over time in an economy, it is necessary to store goods for future exchange. If such goods are perishable by nature, then the system will break down.
- The development of industrial economies usually depends on a division of labour, specialization and allocation of resources on the basis of choices and preferences. Economic efficiency is achieved by economizing on the use of the most scarce resources. Without a common medium of exchange and a common unit of account which is acceptable to both consumers and producers, it is very difficult to achieve an efficient allocation of resources to satisfy consumer preferences.

For these reasons the barter system is discarded by societies which develop beyond **autarky** to more specialized methods of production. For such peoples a money system is essential.

Money may be defined as anything generally acceptable in the settlement of debts.

The Historical development of money

For the early forms of money, the intrinsic value of the commodities provided the basis for general **acceptability**: For instance, corn, salt, tobacco, or cloth were widely used because they had obvious value themselves. These could be regarded as **commodity money**.

Commodity money had uses other than as a medium of exchange (e.g. salt could be used to preserve meat, as well as in exchange). But money commodities were not particularly convenient to use as money. Some were difficult to **transport**, some **deteriorated overtime**, some **could not be easily divided and some were valued differently by different cultures**.

As the trade developed between different cultures, many chose **precious metal's** mainly gold or silver as their commodity money. These had the advantage of being **easily recognizable, portable, indestructible and scarce** (which meant it preserved its value over time).

The value of the metal was in terms of weight. Thus each time a transaction was made, the metal was weighed and payment made. Due to the inconvenience of weighing each time a

transaction was made, this led to the development of coin money. The state took over the **minting** of coins by stamping each as being a particular weight and purity (e.g. one pound of silver). They were later given a rough edge so that people could guard against being cheated by an unscrupulous trade filling the edge down.

It became readily apparent, however, that what was important was public confidence in the “currency” of money, its ability to run from hand to hand and circulate freely, rather than its intrinsic value. As a result there was deliberately reduced below the face value of the coinage.

Any person receiving such a coin could afford not to mind, so long as he was confident that anyone to whom he passed on the coin would also “**not mind**”. Debasement represents an early form of fiduciary issue, i.e. issuing of money dependent on the “faith of the public” and was resorted to because it permitted the extension of the supply of money beyond the availability of gold and silver.

Paper Money

Due to the risk of theft, members of the public who owned such metal money would deposit them for safe keeping with **goldsmiths** and other **reliable merchants** who would issue a receipt to the depositor. The metal could not be withdrawn without production of the receipt signed by the depositor. Each time a transaction was made, the required amount of the metal would be withdrawn and payment made.

It was later discovered that as long as the person being paid was convinced the person paying had gold and the reputation of the goldsmith was sufficient to ensure acceptability of his promise to pay, it became convenient for the depositor to pass on the goldsmith’s receipt and the person being paid will withdraw the gold himself. Initially, the gold would be withdrawn immediately after the transaction was made. But eventually it was discovered that so long as each time a transaction was made the person being paid was convinced that there was gold, the signed receipt could change hands more than once. Eventually, the receipts were made payable to the bearer (rather than the depositor) and started to circulate as a means of payment themselves, without the coins having to leave the vaults. This led to the development of **paper money**, which had the added advantage of lightness.

Initially, paper money was backed by precious metal and convertible into precious metal on demand. However, the goldsmiths or early bankers discovered that not all the gold they held was claimed at the same time and that more gold kept on coming in (gold later became the only accepted form of money). Consequently they started to issue more bank notes than they had gold to back them, and the extra money created was lent out as loans on which interest was charged. This became lucrative business, so much so that in the 18th and 19th centuries there was a bank crisis in England when the banks failed to honour their obligations to their depositors, i.e. there were more demands than there was gold to meet them. This caused the government to intervene into the banking system so as to restore confidence. Initially each bank was allowed to issue its own currency and to issue more currency than it had gold to back it. This is called **fractional backing**, but the Bank of England put restrictions on how much money could be issued.

Eventually, the role of issuing currency was completely taken over by the Central Bank for effective control. Initially, the money issued by the Central Bank was backed by gold (fractionally), i.e. the holder had the right to claim gold from the Central Bank. However, since money is essentially needed for purchase of goods and services, present day money is not backed by gold, but it is based on the level of production, the higher the output, the higher is the money supply. Thus, present day money is called **TOKEN MONEY** i.e. money backed by the level of output.

Over time, therefore, it became clear that for an item to act as money it must possess the following characteristics.

- **Acceptability**

If money is to be used as medium of exchange for goods and services, then it must be generally accepted as having value in exchange. This was true of metallic money in the past because it was in high and stable demand for its ornamental value. It is true of paper money, due to the good name of the note-issuing authority.

- **Portability**

If an item is to be used as money, it must be easily portable, so that it is a convenient means of exchange.

- **Scarcity**

If money is to be used in exchange for scarce goods and services, then it is important that money is in scarce supply. For an item to be acceptable as money, it must be scarce.

- **Divisibility**

It is essential that any asset which is used as money is divisible into small units, so that it can be used in exchange for items of low value.

- **Durability**

Money has to pass through many different hands during its working life. Precious metals became popular because they do not deteriorate rapidly in use. Any asset which is to be used as money must be durable. It must not depreciate over time so that it can be used as a store of wealth.

- **Homogeneity**

It is desirable that money should be as uniform as possible.

Functions of money

- Medium of exchange:** Money facilitates the exchange of goods and services in the economy. Workers accept money for their wages because they know that money can be exchanged for all the different things they will need. Use of money as an intermediary in transactions therefore, removes the requirement for double coincidence of wants between transactions. Without money, the world's complicated economic systems which are based on specialization and the division of labour, would be impossible. The use of money enables a person who receives payment for services in money to obtain an exchange for it, the assortment of goods and services from the particular amount of expenditure which will give maximum satisfaction.
- Unit of account:** Money is a means by which the prices of goods and services are quoted and accounts kept. The use of money for accounting purposes makes possible the operation of the price system and automatically provides the basis for keeping accounts, calculating profit and loss, costing etc. It facilitates the evaluation of performance and forward planning. It also allows for the comparison of the relative values of goods and services even without an intention of actually spending (money) on them e.g. "window shopping".

- c. **Store of Wealth/value:** The use of money makes it possible to separate the act of sale from the act of purchase. Money is the most convenient way of keeping any form of property which is surplus to immediate use; thus in particular, money is a store of value of which all assets/property can be converted. By refraining from spending a portion of one's current income for some time, it becomes possible to set up a large sum of money to spend later (of course subject to the time value of money). Less durable or otherwise perishable goods tend to depreciate considerably over time, and owners of such goods avoid loss by converting them into money.
- d. **Standard of deferred payment:** Many transactions involve future payment, e.g. hire purchase, mortgages, long term construction works and bank credit facilities. Money thus provides the unit in which, given the stability in its value, loans are advanced/made and future contracts fixed. Borrowers never want money for its own sake, but only for the command it gives over real resources. The use of money again allows a firm to borrow for the payment of wages, purchase of raw materials or generally to offset outstanding debt obligations; with money borrowing and lending become much easier, convenient and satisfying. It's about making commerce and industry more viable.

Only money, of all possible assets, can be converted into other goods immediately and without cost.

B. The Determination of the Value Money

Since money is primarily a medium of exchange, the value of money means what money will buy. If at one time a certain amount of money buys fewer things than at a previous time, it can be said that the value of money has fallen. Since money itself is used as unit of account and a means of measuring the "value" of other things, its own value can be seen only through the prices of other things. Changes in the value of money, therefore, are shown through changes in prices.

The quantity theory of money

In the 17th Century it was noticed that there was a connection between the quantity of money and the general level of prices, and this led to the formulation of the Quantity Theory of Money. In its crudest form is stated that an increase in the quantity of money would bring about an appropriate rise in prices. If the quantity of money was doubled, prices would double and so on. Algebraically, this could be stated as:

$$P = a M$$

Where a is constant, P the price level, and M the supply of money. If the supply of money doubled, to $2M$, the new price level P will equal

$$a(2m) = 2(aM) = 2P$$

that is, double the old price level.

After being long discarded, the theory was revived in the 1920s by Professor Irving Fisher, who took into account the volume of transactions, that is to say, the amount of "work" that the money supply had to do as a medium of exchange. That is the velocity of circulation. Money circulated from hand to hand. If one unit of money is made to serve four transactions, this is equivalent to four units of money, each being used in only one transaction.

As modified by Irving Fisher, the quantity theory came to be expressed by the equation

of exchange.

$$MV=PT$$

The symbol M represents the total amount of money in existence – bank notes etc, and bank deposits.

The symbol V represents the velocity of circulation, i.e. the number of times during the period each unit of money passes from hand to hand in order to affect a transaction. Thus if the amount of money in the hands of the public during the year was an average \$1,000,000 and each dollar on average was used five times, the total value of transactions carried out during the year must have been \$5,000,000.

MV therefore represents the amount of money used in a period.

On another side of the equation, P stands for the general price level, a sort of average of the price of all kinds of commodities-producers' goods as well as consumer's goods and services. The symbol T is the total of all transactions that have taken place for money during the year.

The equation of exchange shows us that the price level, and, therefore, the value of money, can be influenced not only by the quantity of money but also by:

- i. the rate at which money circulates, and
- ii. the output of goods and services.

Thus prices may rise without any change taking place in the quantity of money if a rise occurred in the velocity of circulation. On the other hand, prices might remain stable in spite of an increase in the quantity of money if there was corresponding increase in the output of goods and services.

Even in its revised form, however, the Quantity Theory has been subjected to the following criticisms:

- a. It is not a theory at all, but simply a convenient method of showing that there is certain relationship between four variable quantities – M, V, P and T. It shows that only the total quantity of money, as determined by the actual amount of money in existence the velocity of circulation, is equal to the value of total trade transactions multiplied by their average price. As such it is obviously a truism, since the amount of money spent on purchases is obviously equal to the amount received from sales. Not only must MV be equal to PT, but MV is PT, since they are only two different ways of looking at the same thing.
- b. Even if the equation of exchange is only a truism, it would not be quite correct to say that it demonstrates nothing. For example, it shows that it is possible for there to be an increase in the quantity of money without a general rise in prices. It informs us, too, that if there is to be a change in one or more of the variables of the equation, there must be a change in one or more of the other variables. Clearly, it would be wrong to read into it more than this.
- c. The four variables, M, V, P and T, are not independent of one another as the equation of exchange implies. For example, a change in M is likely of itself to bring a change in V or T or both. It is probable that a rise in prices will follow an increase in the quantity of money, but this will most likely be brought about because the increase in the quantity of money stimulates demand and production.
- d. A serious defect is to allow the symbol P to represent the general price level. Price changes do not keep in step with one another. In its original form the equation was

criticized because it implied that an increase in the quantity would automatically bring about a proportionate increase in all prices. A study of price changes shows that some prices increased by many times while others by fewer times. Clearly, then, there is no general price level, but instead, as the index of Retail Price shows, a number of sectional price levels, one for food, another for clothing, another for fuel and light, and so on.

- e. The Quantity Theory only attempts to explain changes in the value of money, and does not show how the value of money is in the first place determined.
- f. The Quantity Theory approaches the question of the value of money entirely from the supply perspective.

C. The demand for and supply of money

i. Demand for money

The demand for money is a more difficult concept than the demand for goods and services. It refers to the desire to **hold one's assets as money rather than as income-earning assets (or stocks)**.

Holding money therefore involves a loss of the interest it might otherwise have earned. There are two schools of thought to explain the demand for money, namely the Keynesian Theory and the Monetarist Theory. (*See pp 18 – 26*)

The demand for money and saving

The demand for money and saving are quite different things. Saving is simply that part of income which is not spent. It adds to a person's wealth. Liquidity preference is concerned with the form in which that wealth is held. The motives for liquidity preference explain why there is desire to hold some wealth in the form of cash rather than in goods affording utility or in securities. (*See pp 18 – 26*)

ii. The supply of money

Refers to the total amount of money in the economy.

Most countries of the world have two measures of the money stock – **broad money supply** and **narrow money supply**. Narrow money supply consists of all the purchasing power that is immediately available for spending. Two narrow measures are recognized by many countries. The first, M_0 (or monetary base), consists of notes and coins in circulation and the commercial banks' deposits of cash with the central banks.

The other measure is M_2 which consists of notes and coins in circulation and the NIB (non-interest-bearing) bank deposits – particularly current accounts. Also in the M_2 definition are the other interest-bearing retail deposits of building societies. Retail deposits are the deposits of the private sector which can be withdrawn easily. Since all this money is readily available for spending it is sometimes referred to as the "transaction balance".

Any bank deposit which can be withdrawn without incurring (a loss of) interest penalty is referred to as a "sight deposit".

The broad measure of the money supply includes most of bank deposits (both sight and time), most building society deposits and some money-market deposits such as CDs (certificates of deposit).

Legal Tender

Legal tender is anything which must be by law accepted in settlement of a debt.

Determinants of the money supply

Two extreme situations are imaginable. In the first situation, the money supply can be determined at exactly the amount decided on by the Central Bank. In such a case, economists say that the money supply is exogenous and speak of **an exogenous money supply**.

In the other extreme situation, the money supply is completely determined by things that are happening in the economy such as the level of business activity and rates of interest and is wholly out of the control of the Central Bank. In such a case economists would say that there was an Endogenous money supply, which means that the size of the money supply is not imposed from outside by the decisions of the Central Bank, but is determined by what is happening within the economy.

In practice, the money supply is partly endogenous, because commercial banks are able to change it in response to economic incentives, and partly exogenous, because the Central Bank is able to set limits beyond which the commercial banks are unable to increase the money supply.

Measurement of changes in the value of money

Goods and services are valued in terms of money. Their prices indicate their relative value. When prices go up, the amount which can be bought with a given sum of money goes down; when prices fall, the value of money rises; and when prices rise, the value of money falls. The economist is interested in measuring these changes in the value of money.

The usual method adopted to measure changes in the value of money is by means of an index number of prices i.e. **a statistical device used to express price changes as percentage of prices in a base year or at a base date**.

Preparation of Index Numbers

A group of commodities is selected, their prices noted in some particular year which becomes the base year for the index number and to which the number 100 is given. If the prices of these commodities rise by 1 per cent during the ensuing twelve months the index number next year will be 101. Examples of Index Number are Cost-of Living-Index, Retail Price Index, Wholesale Price Index, Export Prices Index, etc.

Problems of Index Numbers

The construction of Index Numbers presents some very serious problems and, as they cannot be ideally solved, the index numbers by themselves are limited in their value and reliability as a measurement of changes in the level of prices. The problems are:

a) The problems of weighting

The greatest difficulty facing the compiler of index number is to decide on how much of each commodity to select. This is the problem of weighting. Different “weights” will yield different results, as the following example illustrates. Assume that there are only three commodities, A, B, C and the prices of which are Kshs.50/=, Kshs.20/= and Kshs.10/=, respectively. By taking one unit of each that is, without any weighting – the index number for the base year constructed as follows:-

Base Year

Commodity	Price Kshs.	Weight	Index
A		50	1 100
B	20		1 100
C	10		<u>1</u> <u>100</u>
		3	<u>300</u>

Assume that one year later the price of A is Kshs.45/=, B Kshs.25/= and C Kshs. 15/=.

Base Year

Commodity	Price Kshs.	Weight	Index
A	45	1	90
B	25	1	125
C	15	<u>1</u>	<u>150</u>
		3	<u>365</u>

index for all items = 121.6

The index number in the second year is 121.6, showing an increase in price of 21.6 per cent over the base year. If the commodities A, B, C are all differently weighted a different result will be obtained. For example, suppose that one will then be compiled as follows:-

Base Year

Commodity	Price Kshs.	Weight	Index
A		50	1 100
B	20	4	400
C	10	<u>20</u>	<u>2,000</u>
		25	<u>2,500</u>

Index for all items = 100

Second Year

Commodity	Price Kshs.	Weight	Index
A	50	1	90
B	20	4	500
C	10	<u>20</u>	<u>3,000</u>
		25	<u>3,590</u>

Index for all items 143

By weighting C heavily this index shows a rise in prices of 43.6 per cent, although individual prices show only the same change as before. By weighting commodity A more heavily, an index number can actually be compiled from the same date to show a fall in prices.

- b) The next problem is to decide what grades and quantities to take into account. By including more than one grade an attempt is made to make a representative selection. An even greater difficulty occurs when the prices of a commodity remain unchanged, although the quantity has declined.
- c) The choice of the base year. This would preferably be a year when prices are reasonably steady, and so years during periods either of severe inflation or deflation are to be avoided.
- d) Index numbers are of limited value for comparisons over long periods of time because:
- New commodities come on the market.
 - Changes in taste or fashion reduce the demand for some commodities and increase the demand for others.
 - The composition of the community is likely to change.
 - Changes may occur in the distribution of the population among the various age groups.
 - The rise in the Standard of living.
- e) Changes in the taxation of goods and services affect the index.

2. THE BANKING SYSTEM

Consists of all those institutions which determine the supply of money. The main element of the Banking System is the Commercial Bank (in Kenya). The second main element of Banking System is the Central Bank and finally most Banking Systems also have a variety of other specialized institutions often called Financial Intermediaries.

The Central Bank

These are usually owned and operated by governments and their functions are:

- i. **Government's banker:** Government's need to hold their funds in an account into which they can make deposits and against which they can draw cheques. Such accounts are usually held by the Central Bank
- ii **Banker's Bank:** Commercial banks need a place to deposit their funds; they need to be able to transfer their funds among themselves; and they need to be able to borrow money when they are short of cash. The Central Bank accepts deposits from the commercial banks and will on order transfer these deposits among the commercial banks. Consider any two banks A and B. On any given day, there will be cheques drawn on A for B and on B for A. If the person paying and the person being paid bank with the same bank, there will be a transfer of money from the account or deposit of the payee. If the two people do not bank with the same bank, such cheques end up in the central bank. In such cases, they cancel each other out. But if there is an outstanding balance, say in favour of A, then A's deposit with the central bank will go up, and B's deposit will go down. Thus the central bank acts as the Clearing House of commercial banks.
- iii. **Issue of notes and coins:** In most countries the central bank has the sole power to issue and control notes and coins. This is a function it took over from the commercial banks for effective control and to ensure maintenance of confidence in the banking system.
- iv. **Lender of last resort:** Commercial banks often have sudden needs for cash and one way of getting it is to borrow from the central bank. If all other sources failed, the central bank would lend money to commercial banks with good investments but in temporary need of cash. To discourage banks from over-lending, the central bank will normally lend

to the commercial banks at a high rate of interest which the commercial bank passes on to the borrowers at an even higher rate. For this reason, commercial banks borrow from the central bank as the lender of the last resort.

- v. **Managing national debt:** It is responsible for the sale of Government Securities or Treasury Bills, the payment of interests on them and their redeeming when they mature.
- vi. **Banking supervision:** In liberalized economy, central banks usually have a major role to play in policing the economy.
- vii **Operating monetary policy:** Monetary policy is the regulation of the economy through the control of the quantity of money available and through the price of money i.e. the rate of interest borrowers will have to pay. Expanding the quantity of money and lowering the rate of interest should stimulate spending in the economy and is thus expansionary, or inflationary. Conversely, restricting the quantity of money and raising the rate of interest should have a restraining, or deflationary effect upon the economy .
- a) **Open Market Operations:** The Central Bank holds government securities. It can sell some of these, or buy more, on the open market, buying or selling through a stock exchange or money market. When the bank sells securities to be bought by members of the public, the buyers will pay by writing cheques on their accounts with commercial banks. This means a cash drain for these banks to the central bank, represented by a fall in the item “bankers” deposits’ at the central bank, which forms part of the commercial banks’ reserve assets. Since the banks maintain a fixed liquidity (or cash) ratio, the loss of these reserves will bring about multiple contraction of bank loans and deposits.

By going into the market as a buyer of securities, the central bank can reverse the process, increasing the liquidity of commercial banks, causing them to expand bank credit, always assuming a ready supply of credit-worthy borrowers.

Conversely, if the central bank wanted to pursue an expansionary monetary policy by making more credit available to the public, it would buy bonds from the public. It would pay sellers by cheques drawn on itself, the sellers would then deposit these with commercial banks, who would deposit them again with the central bank. This increase in cash and reserve assets would permit them to carry out a multiple expansion of bank deposits, increasing advances and the money supply together.

- b) **Discount Rate (Bank Rate)** This is the rate on central bank advances and is also called official discount rate or “minimum lending rate”. When commercial banks find themselves short of cash they may, instead of contracting bank deposits, go to the central bank, which can make additional cash available in its capacity as “lender of last resort”, to help the banks out of their difficulties. The Central Bank can make cash available on a short-term basis in either of two ways; by lending cash directly, charging a rate of interest which is referred to as the official “discount rate”, or by buying approved short-term securities from the commercial banks. The central bank exercises regulatory powers as a lender of last resort by making this help both more expensive to get and more difficult to get. It can do the former by charging a very high “penal” rate of interest, well above other short-term rates ruling in the money market. Similarly, when it makes cash available by buying approved short-term securities, it can charge a high effective rate of interest by buying them at low prices. The effective rate of interest charged when central bank buys securities (supplying cash) is in fact a re-discount rate, since the bank is buying securities which are already on the market but at a discount.
-

The significance of this rate of interest charged by the central bank in one way or the other to commercial banks, as a lender of last resort, is that if this rate goes up the commercial banks, who find that their costs of borrowing have increased, are likely to raise the rates of interest on their lending to businessmen and other borrowers. Other interest rates such as those charged by building societies on house mortgages, are then also likely to be pulled up.

**c) Variable Reserve Requirement
(Cash and Liquidity Ratios)**

The Central Bank controls the creation of credit by commercial banks by dictating cash and liquidity ratios. The cash ratio is:

$$\frac{\text{Cash Reserves}}{\text{Deposits}}$$

The Central Bank might require the commercial banks to maintain a certain ratio, say 1/10. Hence:

$$\frac{\text{Cash Reserves}}{\text{Deposits}} = \frac{1}{10}$$

$$\text{Deposits} = 10 \times \text{Cash Reserves}$$

This means that the banks can create deposits exceeding 8 times the value of its liquid assets. The liquidity ratio can be rewritten as:

$$\frac{\text{Cash} + \text{Reserves Assets}}{\text{Deposits}} = \frac{\text{Cash}}{\text{Deposits}} + \frac{\text{Reserves Assets}}{\text{Deposits}}$$

$$= \text{Cash Ratio} + \text{Reserve Assets Ratio}$$

If the liquidity ratio is 12.5, then:

$$\frac{\text{Cash}}{\text{Deposits}} + \frac{\text{Reserved Assets}}{\text{Deposits}} = \frac{1}{8}$$

$$\text{Deposits} = 10 \times \text{cash} + 2.5 \times \text{Reserve Assets}.$$

In most countries the Central Bank requires that commercial banks maintain a certain level of Liquidity Ratio i.e. Cash reserves (in their own vaults and on deposit with the Central Bank) well in excess of what normal prudence would dictate. This level shall be varied by the Central Bank depending on whether they want to increase money supply or decrease it.

This is potentially the most effective instrument of monetary control in less developed countries because the method is direct rather than via sales of securities or holding bank loans and advances. The effects are immediate. This method moreover does not require the existence of a capital market and a variety of financial assets. However, increased liquidity requirements may still be offset in part if the banks have access to credit from their parent companies. A further problem is that a variable reserve asset ratio is likely to be much more useful in restricting the expansion of credit and of the money supply than in expanding it: if there is a chronic shortage of credit-worthy borrowers, the desirable investment projects, reducing the required liquidity. Ratio of the banks may simply leave them with surplus liquidity and not cause them to expand credit. Finally, if the banks have substantial cash reserves the change in the legal ratio required may have to be very large:

d) Supplementary Reserve, Requirements/Special Deposit

If the Central Bank feels that there is too much money in circulation, it can in addition require commercial banks to maintain over and above cash or liquid assets some additional reserves in the form of Special Deposits. The commercial banks are asked to maintain additional deposits in their accounts at the central bank, deposits which cease to count among their reserve assets as cover for their liabilities.

e) Direct control and Moral Suasion

Without actually using the above weapons, the central bank can attempt simply to use “moral suasion” to persuade the commercial banks to restrict credit when they wish to limit monetary expansion. Its effectiveness depends on the co-operation of the commercial banks.

f) General and Selective Credit Control

These are imposed with the full apparatus of the law or informally using specific instructions to banks and other institutions. For instance, the central bank can dictate a ceiling value to the amount of deposits the bank can create. This is more effective in controlling bank lending than the cash and liquidity ratio. It can also encourage banks to lend more to a certain sector of the economy (e.g. agriculture) than in another (estate building). Selective controls are especially useful in less developed investment away from less important sectors such as the construction of buildings, the commercial sector, or speculative purchase of land, towards more important areas.

(For more on Monetary Policy, see Lesson 7)

B. Commercial Banks

A Commercial Bank is a financial institution which undertakes all kinds of ordinary banking business like accepting deposits, advancing loans and is a member of the clearing house i.e. operates or has a current account with the Central Bank. They are sometimes known as Joint Stock Banks.

Functions of Commercial Banks

In modern economy, commercial banks have the following functions:

- i. They provide a safe deposit for money and other valuables.
 - ii. They lend money to borrowers partly because they charge interest on the loans, which is a source of income for them, and partly because they usually lend to commercial enterprises and help in bringing about development.
 - iii. They provide safe and non-inflationary means for debt settlements through the use of cheques, in that no cash is actually handled. This is particularly important where large amounts of money are involved.
 - iv. They act as agents of the central banks in dealings involving foreign exchange on behalf of the central bank and issue travellers’ cheques on instructions from the central bank.
-

- v. They offer management advisory services especially to enterprises which borrow from them to ensure that their loans are properly utilized.

Some commercial banks offer insurance services to their customers eg. The Standard Bank (Kenya) which offers insurance services to those who hold savings accounts with it.

Some commercial banks issue local travellers' cheques, e.g. the Barclays Bank (Kenya). This is useful in that it guards against loss and theft for if the cheques are lost or stolen, the lost or stolen numbers can be cancelled, which cannot easily be done with cash. This also safe if large amounts of money is involved.

Bank Deposit

Bank notes and coins together constitute the currency in circulation. But they form only a part of the total money supply. The larger part of the money supply in circulation today consists of bank deposits. Bank deposits can either be a current account or deposit account. These are created by commercial banks and the process is called credit creation.

Credit Creation

The ability of banks to create deposit money depends on the fact that bank deposits need to be only fractionally backed by notes and coins. Because the bank does not need to keep 100 per cent reserves, it can use some of the money deposited to purchase income-yielding investments.

Illustration

i. A Single Monopoly Bank

Consider first a country with only one bank (with as many physical branches as is necessary) and assume that the bank has found from experience that it needs only to hold 10% of cash as a proportion of total deposits – proportion of transactions that customers prefer to settle by means of cash, rather than cheque. Now imagine the balance sheet of the bank look like this:

Initial Position of single bank

Liabilities	£1,000	Assets	£1,000
Deposits	1,000	Cash	100
		Loans	900
Total	1,000	Total	1,000

Deposits are shown as liabilities, since the bank can be called up to repay in cash any amounts credited to customers in this way. Assets consist of cash held by the bank, plus loans, which represents the obligations of borrowers towards the bank. The cash ratio is the ratio of cash held (£100,000) to its liabilities (£1,000,000), and is 10 per cent in this case.

Suppose now a customer deposits (liabilities) in this initial position will be:

$$\frac{120}{1,020} \times 100 = 11.8\%$$

This is unnecessarily high, nearly 12 per cent compared to the conventional ratio of 10 per cent. The bank can therefore safely make additional interest-bearing loans. If it lends an extra £180,000, according deposits will rise from £1,020,000 to £1,200,000, so that the 10 per cent ratio of cash to deposit is restored. The final position is as shown below, and indicates that bank deposits have been created to the extent of ten times the new cash deposit.

Addition of cash deposit raises cash reserves and cash ratio

Liabilities	£1,000	Assets	£1,000
Deposits	1,020	Cash	120
		Loans	900
Total	1,020	Total	1,020

This is a stable position. Borrowers will make out cheques to other people in payment for goods and services supplied. But these others must be customers of the same bank, since there is only one bank. There will follow no more than a book transaction within one bank, the bank deposits being transferred from one customer to another. Total deposits, total cash, and the cash ratio will not be affected.

Comparing the initial position in the first table with the final position in the table below, we can see that the increase in bank deposits, which we can call ΔD is 200 and the increase in cash held by the banks, which we can write as ΔC , is 20. Thus ΔD is ten times ΔC , obviously because $1/r$, where r is the cash ratio used, is 10.

$$\text{Thus } \Delta D = \frac{\Delta C}{r}$$

Restoration of Conventional cash ratio by creation of additional bank deposits

Liabilities	£1,000	Assets	£1,000
Deposits	1,200	Cash	120
		Loans	1,080
Total	1,200	Total	1,200

ii. Many Banks

A single bank with a “monopoly” of credit creation is rarely found in real world. What is usually found is where the bank receiving the new deposit is one of several independent banks. In that case the bank will not seek immediately to expand deposits to the number of times the cash ratio, by extending loans. It will know that the borrowers will use the credit granted to them to pay for goods and services, or to repay debts; and that therefore they will be making cheques out to other individuals who by now have accounts in other banks. The bank can thus expect to lose cash to other banks. Either the borrowers will withdraw cash directly, with which to pay individuals who then deposit this cash with other banks, or if they pay by cheque these cheques will be deposited with other banks, and the other banks themselves will present them for cash at the first bank.

Suppose in our example above, (illustration 1), the bank made the extreme assumption that none of the borrowers’ cheques would be paid to its own customers. It will create only a relatively small amount of extra deposits, just sufficient to restore its cash ratio. It will, in fact, make £ 18,000 worth of additional loans and retain cash of £2,000. That will restore its cash ratio as shown below.

Initial round of credit creation by first bank**Liabilities (£1,000) Assets (£1,000) Cash ratio**

	Deposits	Cash	Loans	%
Original position	1,000	100	900	10.0
Add cash deposit	+20	+20	-	--
Second position	1,020	120	900	11.8
Increase loans	+18	-	+18	--
Cash drain by cheques	-18	-18	-	--
Final position	1,020	102	918	10.0
Net change	+20	+2	+18	--

However, the £18,000 lost in cash through cheques drawn by borrowers will be received by other banks who in turn will find themselves with excess cash reserves, and in turn create additional loans. There will thus be second generation of bank deposit creation, each bank again retaining only 10 per cent of the new cash received, and creating loans in the ratio of nine to one. This new drain of cash will generate more deposits, and so on, each new round being nine-tenths of the value of the previous one as follows (£'000s).

$$20 + 18 + 16.20 + 14.85 + 13.12 + \dots$$

which can be written as

$$\{1 + 9/10 + (9/10)^2 + (9/10)^3 + (9/10)^4 + \dots\}$$

Each successive round of deposit creation is smaller than the previous one, so that the series converges. Mathematically, the series will eventually add up to converge to 200. This is because for any value of z between 0 and 1 the series tends to the value $1/(1-z)$.

In an example $z = 9/10$, which is between 0 and 1, so on the formula applies. Hence

$$20\{1 + 9/10 + (9/10)^2 + (9/10)^3 + \dots\} = \left\{ \frac{1}{1 - 9/10} \right\} = 200$$

if we use ΔD to refer to the final increase or increment in bank deposits, ΔC to the initial increase in cash received, and " r " to the **cash ratio**, then $\Delta D = 200$, $\Delta C = 20$, $r = 1/10$.

Since $1 - r = 1 - 1/10 = 9/10$, we have

$$\Delta D = \Delta C \{1 + (1 - r) + (1 - r)^2 + (1 - r)^3 + \dots\}$$

$$\Delta D = \frac{\Delta C}{1 - (1 - r)} = \frac{\Delta C}{r}$$

Given the increase in cash received, the additional deposits created will depend on the fraction of cash retained as backing. The ratio $\Delta D/\Delta C$ of deposits created to increase in cash is referred to as the **bank deposit multiplier**.

Limits on the process of bank deposit creation

On the **demand side**, there may be a lack of demand for loans, or at least of borrowers who are **sufficiently credit worthy**. On the supply side, the volume of bank deposits will not in general rise and fall as a result of changes in the amount of cash held or deposited by the public, since the **public's currency requirements tends to be fairly stable**, and roughly proportional to the volume of transactions.

3. MONEY MARKETS

The expression “**money markets**” is used to refer to the set of institutions and individuals who are engaged in the borrowing and lending of large sums of money for short periods of time (overnight to three months). The money market is not located in a place – it is rather a network of brokers, buyers and sellers.

Most money market transactions are concerned with the sale and purchase of near money assets such as bills of exchange and certificates of deposit.

Function of Money Markets

The money markets are the place where money is “wholesaled”. As such the supply of money and interest rate which are of significance to the whole economy is determined there.

It is also used by the central bank to make its monetary policy effective.

CAPITAL MARKETS

Markets in which financial resources (money, bonds, stocks) are traded i.e. the provision of longer term finance – anything from bank loans to investment in permanent capital in the form of the purchase of shares. The capital market is very widespread.

It can also be defined as the institution through which, together with financial intermediaries, savings in the economy are transferred to investor.

Interest and the Keynesian Liquidity Preference Theory

Interest is a factor income in that it is considered to be payment to or return on capital in the sense that it is payment to those who provide **loanable funds**, which are used for the purchase of capital assets. The payment of interest to the providers of loanable funds may be justified on the following grounds:

- The lender postpones present consumption and enjoyment and interest is paid as **persuasion** for him/her to make this sacrifice.
- There is risk of default in that the borrower may fail to pay back and interest is paid as persuasion for the lender to undertake this risk.
- There is loss of purchasing power due to increases in prices over time, and interest is paid as compensation for this loss.
- The borrower earns income from the investment, and the lender can justifiably claim a share in that income.

THEORIES OF INTEREST RATES DETERMINATION

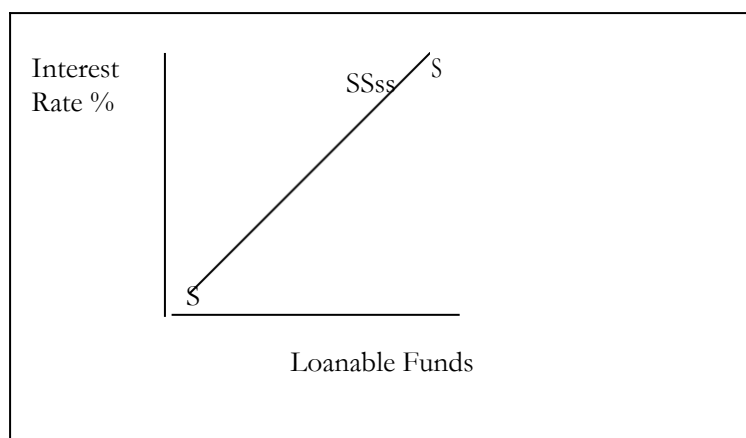
Interest rates, refers to payment, normally expressed as a percentage of the sum lent which is paid over a year, for the loan of money. There are many rates of interest depending on the **degree or risk involved, the term of the loan, and the costs of administration**, namely, real, nominal and pure rate of interest.

Pure rate of interest is one from which factors like **risk involved**, the **term of the loan** and the **cost of administration** has been removed. All rates of interest are related to each other and if one rate changes so will others.

There are two theories as to how the rate of interest is determined – the **loanable funds** and the **liquidity preference** theories.

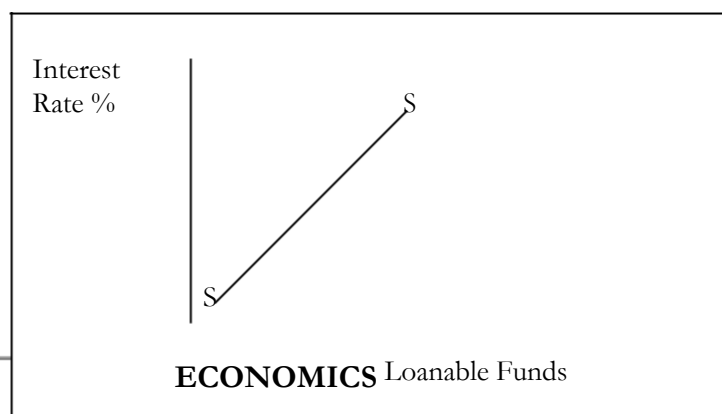
a. The Loanable Funds Theory

Also called the classical theory of interest, was developed at the time of classical economists like Adam Smith, David Ricardo and Thomas Malthus, who held the view that economic activities were guided by some kind of invisible hand i.e. through the self interest motive and the price mechanism, and that Government interference was unnecessary and should be kept at minimum.

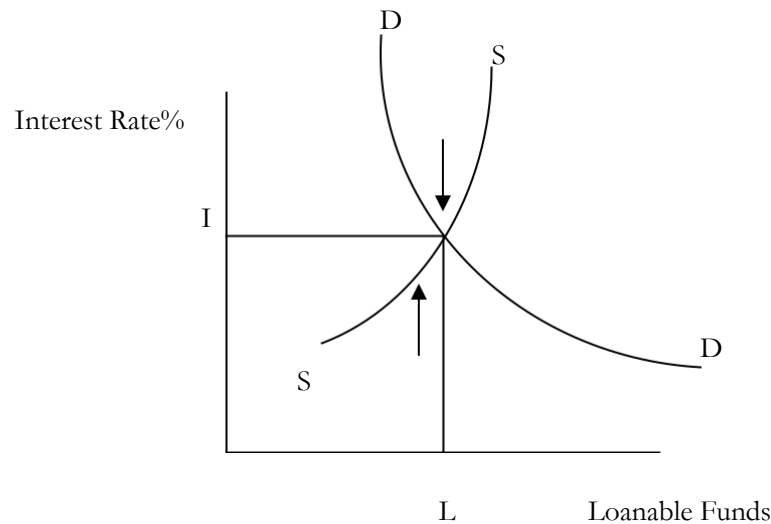


They therefore explained the rate of interest in terms of the **demand** for money and **supply of loanable funds**. The demand comes from firms wishing to invest. The lower the rate of interest the larger the number of projects which will be profitable. Thus, the demand curve for funds will slope downwards from left to right.

The supply of loanable funds comes from savings. If people are to save they will require a reward-interest – to compensate them for forgoing present consumption. If the interest rate is high, people will be encouraged to save and lend. If the interest rate is low, people will be discouraged from saving and lending. Hence, the supply curve of loanable funds slopes upwards.



The market rate of interest is therefore determined where the demand for and supply of **loanable funds** are equal. Geometrically this corresponds to the point of intersection between the supply curve and the demand curve for loanable funds.



i is the equilibrium market rate of interest and L the equilibrium level of **loanable funds**. Above i , there is excess of supply over demand, and interest rates will be forced downwards. Below i there is excess of demand over supply and interest rates will be forced upwards.

Changes in demand or supply will cause shifts in the relevant curves and changes in the equilibrium rate of interest.

Although this theory has a certain amount of **validity**, it has been criticized on the following grounds:

- i. It assumes that money is borrowed entirely for the purchase of capital assets. This is not true because money can be borrowed for the purchase of consumer goods (e.g. cars or houses)
- ii. It assumes that the decision to borrow and invest depends entirely on interest. This is not the case, for business expectations play more important role in the decision to invest. Thus if business expectations are high, investors will borrow and invest, even if the rate of interest is high and if business expectations are low investors will not borrow and invest even if the rate of interest is low.
- iii. It assumes that the decision to save depends entirely on the rate of interest. This is not true for people can save for purposes other than earning interest, e.g. as precaution against expected future events like illness or in order to meet a certain target (this is called target savings) or simply out of habit.

b. The Keynesian Theory

Also called the **Monetary Theory of Interest**, was put forward by the Lord John Maynard Keynes in 1936. In the theory, he stated that the rate of interest is determined by the supply of money and the desire to hold money. He thus viewed money as a liquid asset, interest being the payment for the loss of that liquidity.

Keynes formulated derived from three motives for holding money, namely:

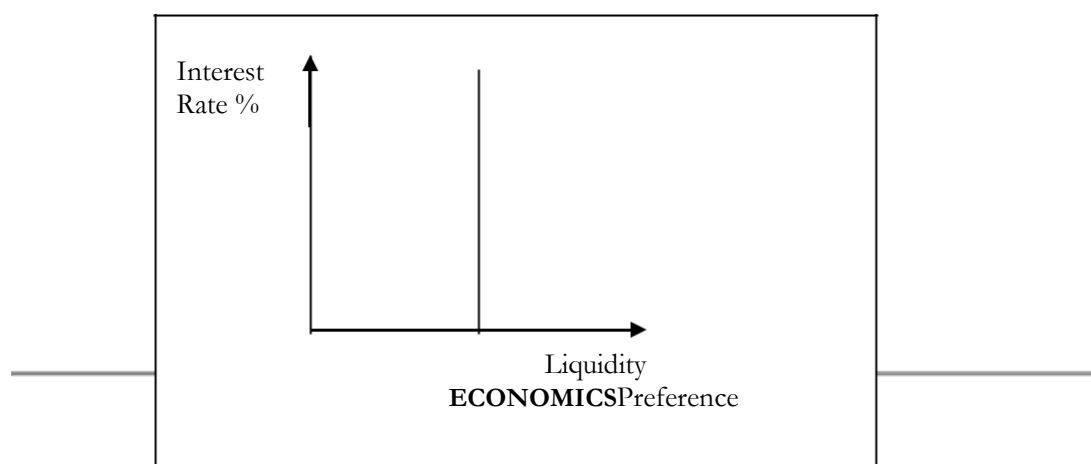
- Transactions;
- Precautionary; and
- Speculative.

Thus Keynes contended that an individual's aggregate demand for money in any given period will be the result of a single decision that would be a composite of those three motives.

a. Transactions demand for money

Keynes argued that holding money is a cost and the cost is equal to the interest rate foregone. People holding money as assets could also buy Government bonds to earn interest. But money's most important function is as medium of exchange. Consumers need money to purchase goods and services and firms need money to purchase raw materials and hire factor services. People therefore hold money because income and expenditure do not perfectly synchronize in time. People receive income either on monthly, weekly, or yearly basis but spend daily, therefore money is needed to bridge the time interval between **receipt of income** and its **disbursement over time**.

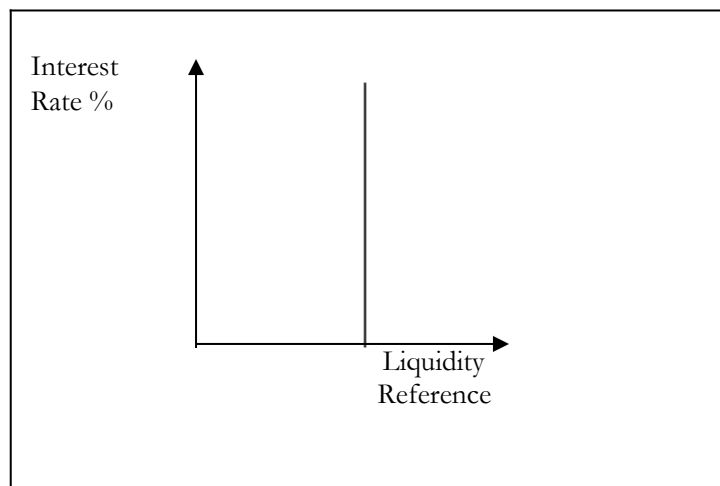
The amount of money that consumers need for transactions will depend on their **spending habits, time interval after which income is received** and **Income**. Therefore holding habit and Interval Constant, the higher the income level the more the money you hold for transactions. Keynes thus concluded that transactions demand for money is Interest Inelastic.



b. Precautionary Demand for Money

Individuals and businessmen require money for unseen contingencies, Keynes hypothesized that individuals' demand and institutional factors in society to be considered in the short run.

Money demanded for these two motives is called active balances, because it is demanded to be put to specific purposes. The demand for active balances is independent of the rate of interest. Hence the demand curve for active balances is perfectly inelastic.



c. Speculative Demand for Money

Finally, money is demanded for speculative motives. This looks at money as a store of value i.e. money is held as an asset in preference to an income yielding asset such as a government bond.

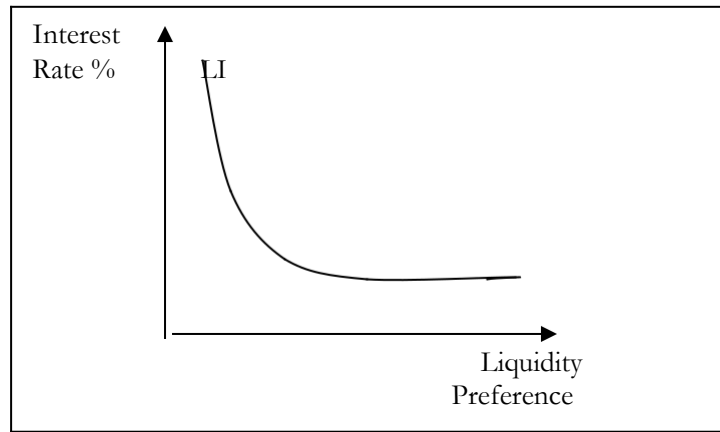
Keynes thus explained the Speculative motive in terms of the buying and selling of Government Securities or Treasury Bills on which the government pays a fixed rate of interest.

According to Keynes, securities can be bought and sold on the free market before the government redeems them, and the price at which they are sold does not have to be equal to their face value. It can be higher or lower than the face value depending on the level of demand for securities. He defined the market rate of interest as

$$\text{Market rate of Interest} = \frac{\text{fixed government rate of interest on securities}}{\text{Market price of securities}}$$

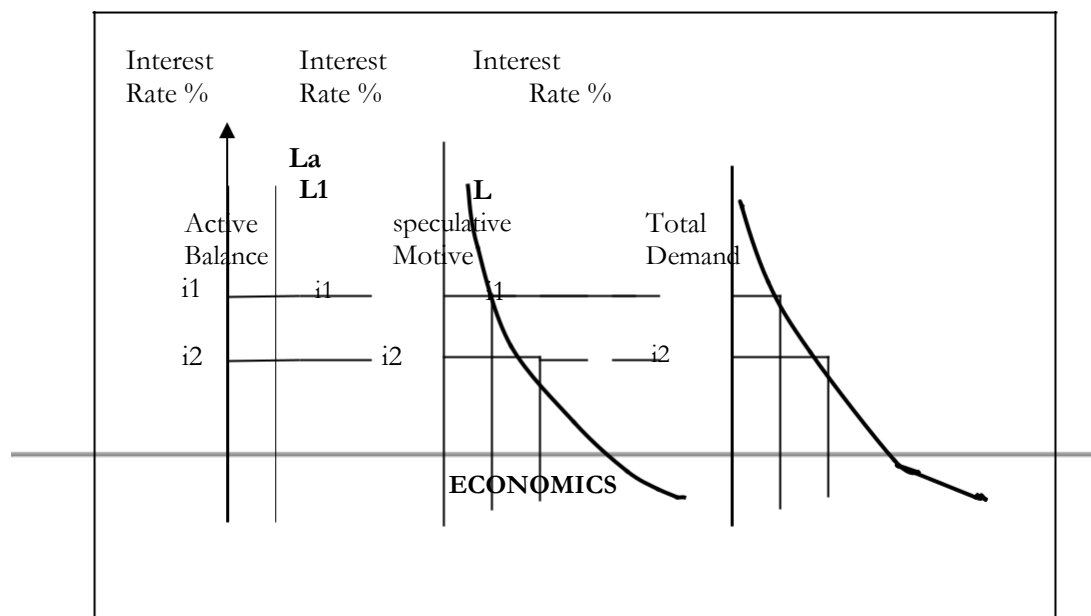
It follows therefore, that when the market price of securities is high the market interest rate will be low. Also if the market price of securities (high holders of securities) will sell them now and hold money. Hence the demand for money is high when the interest rate is low. On the

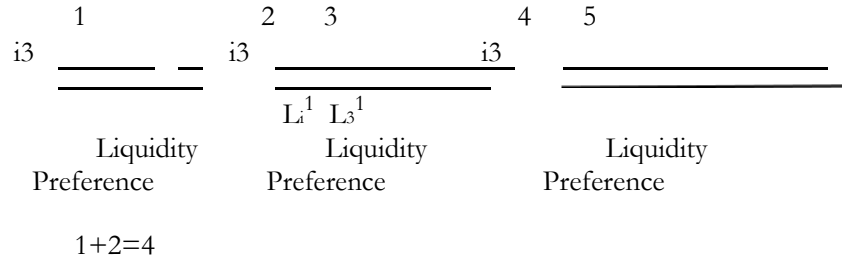
other hand when the market price of securities is low, the market rate of interest will be high. Also if the market price of securities is low, it can be expected to rise. Hence people will buy securities at a low price, hoping to sell them at higher prices. In buying securities, people part with money. Hence the demand for money is low when interest rate is high. It follows, therefore, that the demand curve for money for the speculative motive slopes downwards as shown on the next page.



It flattens out at the lower end because there must be a minimum rate of interest payable to the people to persuade them to part with money. This perfectly elastic part is called **LIQUIDITY TRAP**.

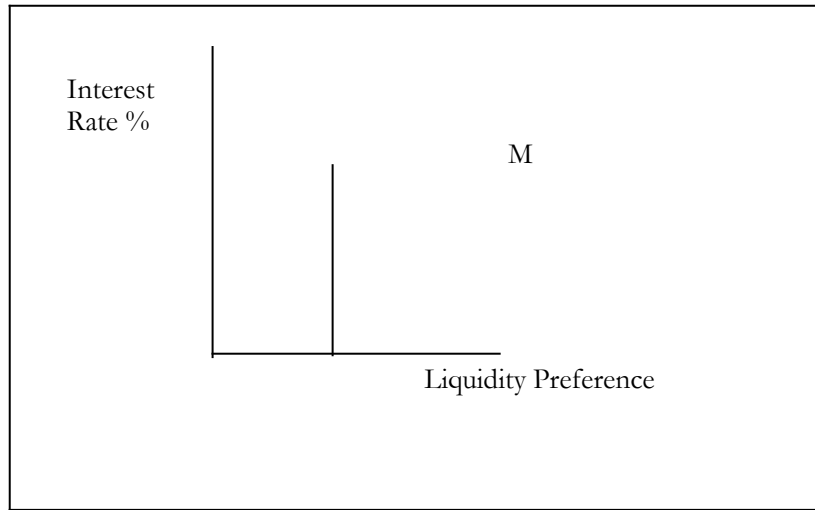
The total demand for money at any given interest rate is the sum of the demands for the active balances and the speculative motive. Thus, the total demand curve for money is obtained by the horizontal summation of the two demand curves.





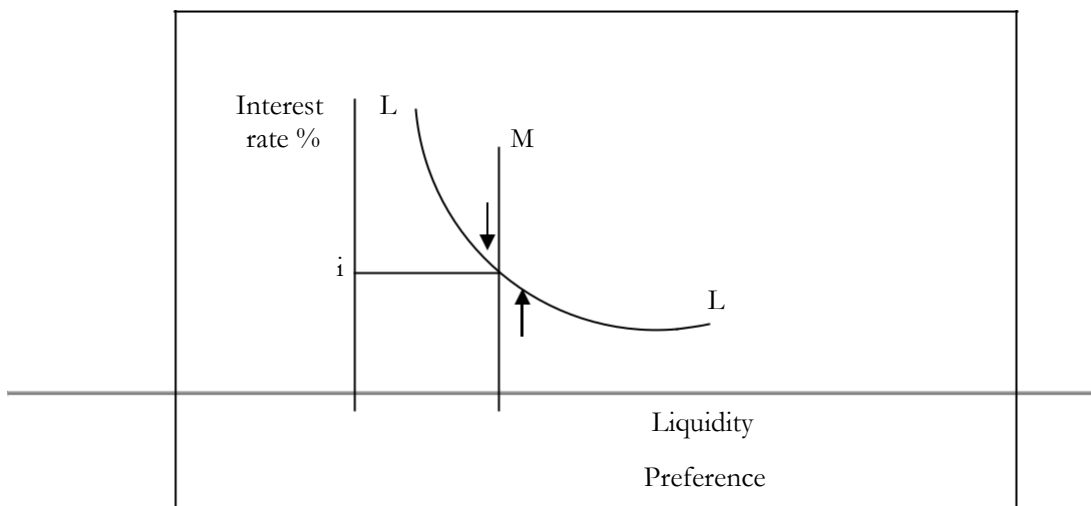
Note that the demand for money for active balances is constant at L_a at all rates of interest. At interest rate i_1 , the demand for speculative motive is L_{i1} . Hence total demand is $(L_a + L_{i1})$

At the interest rate i_2 and the total demand is $(L_a + L_{i2})$ and so on. This gives rise to the total demand curve LL.

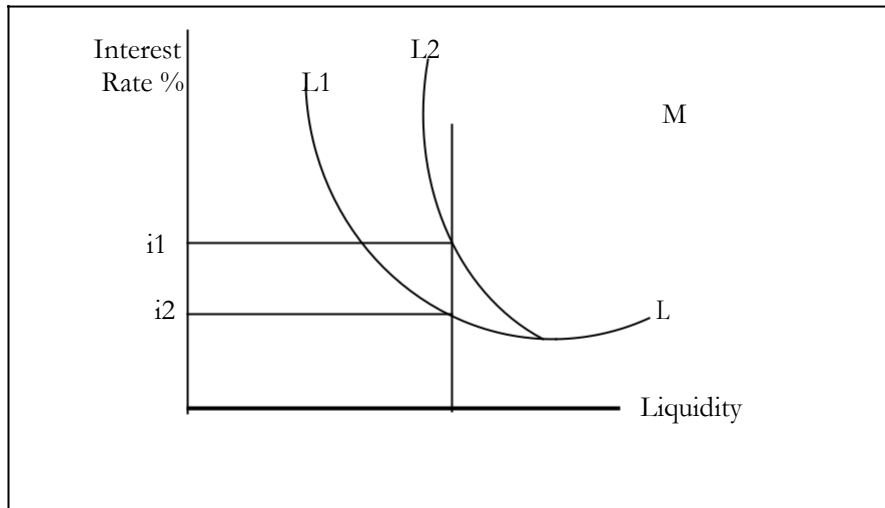


At any given time, the supply of the money is fixed, as determined by the monetary authorities. Hence the supply of money is independent of the rate of interest and the supply curve of money is perfectly inelastic as shown above.

The equilibrium rate of interest is determined by the interaction of demand and supply forces, and this corresponds to the point of intersection between the demand curve and the supply curve.

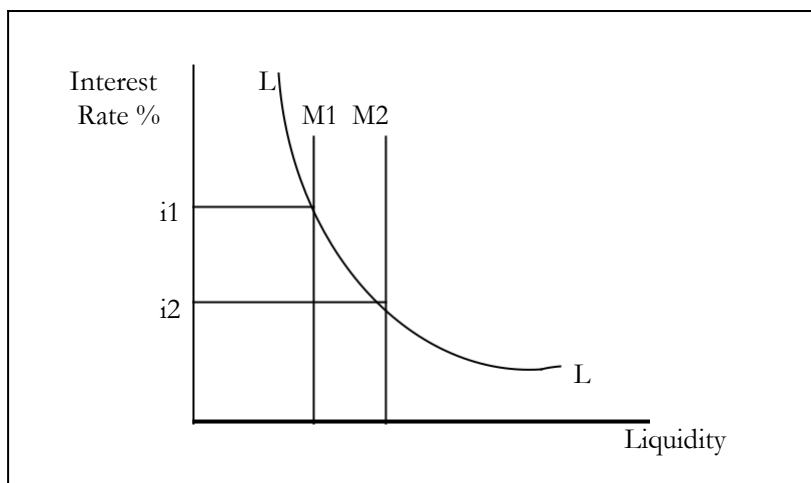


i is the equilibrium rate of interest. Above it there is excess supply over demand and the interest rates will be forced downwards. Below it there will be excess demand over supply and interest rates will be forced upwards. An increase in the supply of money will cause interest rates to fall down because people will need less persuasion to part with money. An increase in supply is indicated by a shift to the right of the supply curve.



When supply increases from M_1 to M_2 , interest rates falls from i_1 to i_2 . Conversely, fall in the supply of money (indicated by a shift to the left of the supply curve) causes interest rates to rise because people will need more persuasion to part with the money. Thus when supply falls from M_2 to M_1 , interest rate will rise from i_2 to i_1 .

An increase in the demand for money (indicated by an upward swing of the demand curve) will cause interest rate to rise.



An increase in demand from L1 to L2 causes interest rate to rise from i_2 to i_1 . This is because at the initial rate of interest the increase in demand creates excess of demand over supply which causes interest rates to rise.

Conversely, when demand falls (indicated by downward swing of the demand curve) interest rate falls as at the initial rate of interest there will be excess of supply over demand. Thus, when demand falls from L2 to L1, interest rate falls from i_1 to i_2 .

THE IS – LM MODEL

IS – LM analysis aims to find the level of income and rate of interest at which both the commodity market and money market will be in equilibrium.

The IS curve is locus of points representing all the different combinations of interest rates and income levels consistent with equilibrium in the goods or commodity market.

The IS curve is shown in the diagram below:

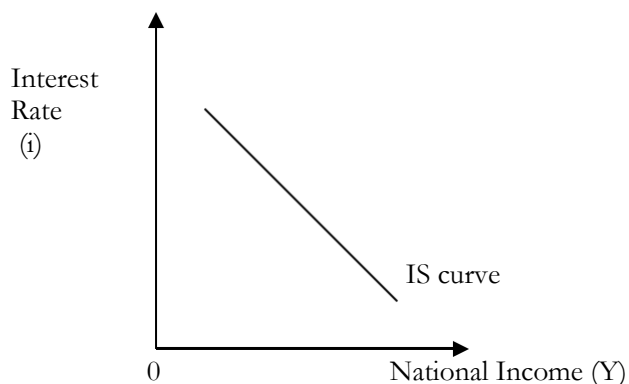


Figure: The IS curve

The IS curve is a linear function in the two variables Y and I.

The LM curve is a locus of points representing all the different combinations of interest rates and income levels consistent with equilibrium in the money market. The LM curve is shown in the following diagram.

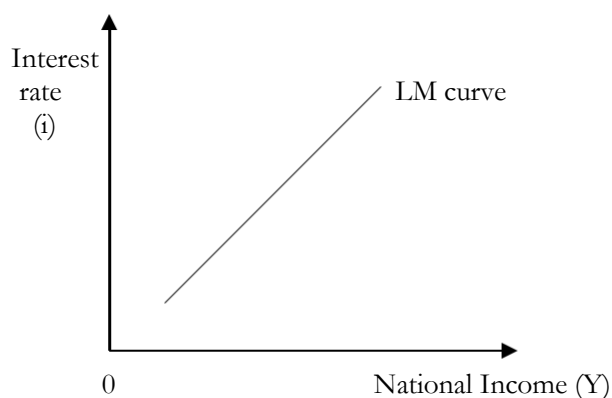
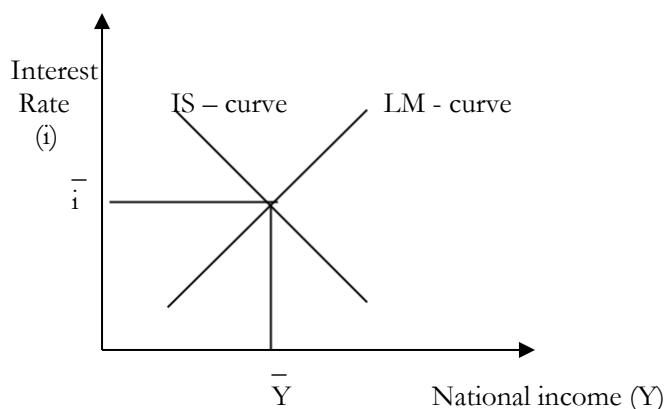


Figure: The LM Curve

The LM curve is also a function which is linear in the two variables I and Y .

IS – LM analysis aims at obtaining simultaneous equilibrium in both the commodity and the money markets. Graphically, this situation can be represented as follows:

**Figure: Equilibrium in both the commodity and money markets.**

The equilibrium in the two markets is represented graphically by the intersection of the IS and LM curves.

The commodity market for a simple two – sector economy is in equilibrium when $Y = C + I$. The money market, on the other hand, is in equilibrium when the supply of money (M_s) equals the demand for money (M_d). The demand for money is in turn made up of the transaction – precautionary demand (M_{DT}) and speculative demand for money (M_{DS}).

Numerical example.

Assume that:

$$C = 178 + 0.6Y$$

$$I = 240 - 300i$$

$$M_s = 550$$

$$M_{DT} = 0.2Y$$

$$M_{DS} = 480 - 500i$$

Commodity market equilibrium (IS) exists where;

$$Y = C + I$$

$$= 178 + 0.6Y + 240 - 300i$$

$$Y - 0.6Y = 418 - 300i$$

$$0.4Y + 300 i - 418 = 0$$

Monetary equilibrium (LM) exists where

$$M_s = M_{DT} + M_{Ds}$$

$$550 = 0.2y + 480 - 500 i$$

$$0.2Y - 500 i - 70 = 0$$

Simultaneous equilibrium in both markets requires that :

$$0.4Y + 300 i - 418 = 0 \dots\dots\dots (i)$$

$$0.2Y + 500i - 70 = 0 \dots\dots\dots (ii)$$

Multiply (i) by 5 and (ii) by 3 in order to eliminate i.

$$\begin{array}{r} 2 Y + 1500 i - 2,090 = 0 \\ \underline{0.6Y + 1500 i - 210 = 0} \\ 2.6Y \qquad \qquad \qquad = 2,300 \\ \qquad \qquad \qquad \underline{Y = 2,300} \\ \qquad \qquad \qquad = 885 \end{array}$$

substitute $\bar{Y} = 885$ into (i) or (ii)

$$0.4 (885) + 300i - 418 = 0$$

$$354 + 300i - 418 = 0$$

$$300 i = 64$$

$$i = 0.21$$

REINFORCING QUESTIONS:

1. State clearly the meaning of Liquidity Preference as applied to an individual and a commercial bank.
2. How does a commercial bank reconcile the need for security, liquidity and profitability in distribution of the assets?

Check your answers with those given in Lesson 9 of the Study Pack.

LESSON SIX

LABOUR AND UNEMPLOYMENT

LEARNING OBJECTIVES:

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

- Explain why demographic analyses and information should be of interest to economic planners of any country.
- Discuss the problems and opportunities which rapid population growth poses for an economy.
- Show how the demand for goods and services is different from the demand for factor services.
- Explain the various theories of wage determination.
- Explain the role of trade unions in the economy.
- Explain why unemployment is an issue of concern to development planners.
- Discuss exhaustively the various types and causes of unemployment.
- Prescribe some of the remedies for unemployment.
- Explain why it was believed that countries can only achieve full employment at the risk of inflation.

CONTENTS

1. Population size and demographic trends.
2. The demand for and supply of labour.
3. Wage determination, policy and theories.
4. Trade unions and employer associations.
5. Types and causes of unemployment.
6. Control measures of unemployment.
7. Relationship between unemployment and inflation.

ASSIGNED READINGS:

Modern Economics by Robert Mudida

chapter 9,13

1. POPULATION SIZE AND DEMOGRAPHIC TRENDS

a. Changes in Population

The people of a country are its consumers. They provide the labour force for production. A study of the population of any country, therefore will give a bird's eye view of the community for which the economic system must provide, and also of the size and nature of the available labour force. At any one time the structure of the population is largely the result of demographic factors prevailing some fifty years earlier. In Africa, the improvements in medical knowledge and increased application of that knowledge have been able to produce dramatic reductions in death rates, so that the average life expectancy in Africa may well have been doubled over the past half-century, application of the improvements in technical knowledge has not been able to produce equally dramatic changes in the supply of food.

b. Causes of changes in the Rate of Growth

Changes in population come about in two ways; (i) by movements in crude death rates, and (ii) by migration. The crude birth rate is usually expressed as the number of births per annum per thousand of the population and the crude death rate is the number of deaths per thousand of the population per annum. The natural growth rate will be the difference between these two rates,

Natural Growth Rate = Birth Rate – Death Rate

Thus if a country has a birth rate of 40 per 1000 and a death rate of 20 per 1000, its population has a natural growth rate of 2 per cent per annum. The actual rate of population growth is calculated by adjusting the natural growth rate by the extent of net immigration or emigration.

Movements in crude birth and crude death rates has been the most important factor in population development of East Africa countries. The factors which have led to high natural growth rates in East Africa can be summarized as:

- Declining mortality rates,
- High fertility levels,
- Low marriage age,
- Rapidly growing number of women who are in and about to enter the child bearing age because of young populations.

T.R. Malthus

The current trends in world population have revived interest in the population theories of Rev. Thomas Robert Malthus, whose **“Essays on the Principles of Population (1798)”** led to the first serious discussion of the problem. Malthus wrote at a time when the British population was increasing rapidly and the basis of his theory was that whereas population tended to grow at a geometric rate (by a constant and percentage each period, as for example, 4,6,16,24,32,40,48...), the food supply could only be expected to grow at an arithmetic rate (by constant amount each period, as for example 8, 16, 24, 32,40,48...). His observations seemed to confirm his views that increasing numbers could only increase the misery of the masses.

He declared that population has a persistent tendency to outstrip the means of subsistence. Any rise in the living standards of the masses of the people would lead to earlier marriages, more deaths, and more babies surviving. The increased numbers would simply lower living standards back to the bare subsistence level. His purpose was to demonstrate that the increase in population is necessarily limited by the means of subsistence. That population does not

invariably increase when the means of subsistence increase and that the superior power of population is repressed, and the actual population kept equal to the means of subsistence by misery and vice versa.

- The checks on population which Malthus summarized as misery and vice versa were famines, plagues, wars and infanticide. He was, off course concerned with the British problem and believed that agricultural output could not possibly increase at the rate at which population tends to grow. In this he was undoubtedly influenced by the Law of Diminishing Returns because he saw the supply of land as relatively fixed. He was proved wrong in the case of Britain for the population quadrupled during the nineteenth century. Malthus' predictions about population have not occurred because:
- He did not consider the tremendous improvements in agricultural and food technologies such use of chemical fertilizers, hybrid seeds an insecticides, and modern irrigation systems to increase land productivity. Famine such as occurred in Ethiopia, Mozambique and many African countries is explained by political instability or inadequate or lack of a clear food policy, not population explosion as suggested by Malthus.
- Malthus did not consider that industrialisation by its very nature would reduce population growth.
- He did not foresee the great improvements in transport and technology which enabled the British people to be fed from the vast lands of the new continents.
- Malthus did not consider that agricultural land area would be increased by reclaiming land from rivers, lakes and oceans.
- Finally he did not foresee that rising standards of living would bring falling birth rates as they did in most Western nations after 1870

Nevertheless the germs of truth in his doctrines are still important for an understanding of the population problems in much of Africa where as we said before, the balance between the numbers of people and the means of subsistence is often precarious. Where inexpensive science greatly reduces the death rate without increasing productivity Malthus still has some relevance.

John Stuart Mill

Mill developed and refined the “Malthusian “ theory in order to generalize the relationship between the supply of labour (population) and supply of food from land. This generalization is known as the “**Law of Diminishing Returns**, sometimes called the Law of Variable Factor Proportions”. (See lesson 2)

2. THE STRUCTURE OF POPULATION AND SUPPLY OF LABOUR

The structure (also called age distribution or composition) of population, or the number of people in the different age groups is of considerable economic significance; for not all individuals in the population contribute equally to production. Given the numbers of the population, the supply of labour depends on the proportion of people who are members of the workforce. The size of the economically active population is determined especially by:

i. Population Size

In any given economy, the population size determines the upper limit of labour supply. Clearly there cannot be more labour than there is population.

ii. Age Structure

The population is divided into three age groups. These are:-

The young age group usually below the age of 18, which is considered to be the minimum age of adulthood. People below this age are not in the labour supply, i.e. they are supposed to be working or looking for work.

The working age group, usually between 18 and 60, although the upper age limit for this group varies from country to country. In Kenya for example, for public servants, it is 55 years. It is the size of this group which determines the labour supply.

The age group, i.e. above 60 years are not in the labour force.

iii. The Working Population

Not everybody in the working age group will be in the labour force. What is called the working population refers to the people who are in the working group, and are either working or are actively looking for work i.e. would take up work if work was offered to them. These are sometimes called the active people. Hence this group excludes the sick, the aged, the disabled and (full time) housewives, as well as students. These are people who are not working and are willing or are not in a position to take up work if work was given to them.

iv. Education System

If the children are kept in school longer, then this will affect the size of labour force of the country.

v. Length of the Working Week

This determines labour supply in terms of Man-hours. Hence the fewer the holidays there are, the higher will be labour supply. This does not, however, mean that if the number of working hours in the week are reduced, productivity will fall if there is a high degree of automation.

vi Remuneration

The preceding five factors affect the supply of labour in totality. Remuneration affects the supply of labour to a particular industry. Thus, an industry which offers higher wages than other industries will attract labour from those other industries.

vii. The Extent to Barriers to Entry into a Particular Occupation

If there are strong barriers to the occupational mobility of labour into a particular occupation, e.g. special talents required or long periods of training, the supply of labor to that occupation will be limited.

The most popular way of presenting the age composition of the population of a country is in the form of a bar graph where the length of each indicates the number of people in that particular age group.

A country with a high birth and death rate will have a large proportion of young people in its population. This is the most significant feature of the structure of population in East Africa, as is the case throughout the low-income countries. Life expectancy is relatively low because the death rate is high in all the age groups. Thus between 40 per cent and 45 per cent of the population are below the age of 15 years and only about 4 per cent are older than 60 years.

The situation is however different in developed countries, which normally have a stationary population with low birth and death rates. Expectancy of life is high and most people survive into the older age groups. The percentage of young people in these societies is typically between 20 per cent and 25 per cent, about 15 per cent of the population is over 60 years of age.

The economist is interested in the age distribution of population because it reveals the proportions between the numbers in the working age groups and the numbers in the non-working age groups. This **dependency ratio**, as it is called, is measured in the following manner.

Dependency Ratio =

$$\frac{\text{Number below school leaving age} + \text{Numbers over retirement age}}{\text{Number between school leaving age and retirement age}}$$

The dependency ratio will be relatively high in the developing countries e.g. there is only one person of working age for every one that is too young or too old to work in East Africa.

The Economics of Population

Population issues became matters of economic concern when it became increasingly apparent that the problem of excess population may be a serious obstacle to development. This is because although it might seem to appear that given the appropriate conditions, sufficient foreign capital and technical assistance the poor countries could move along the same path of economic progress as the developed nations, often this is frustrated by growth of population which means that the expansion of output is outstripped by increased needs.

a) **An optimum Population**

Countries are often described as under populated or overpopulated. From the economist's viewpoint these terms do not refer to the population density (i.e. the number of persons per square kilometer), but to the relationship between the numbers of people and the supplies of land, capital and technical knowledge available to them.

“Under population” is an issue of concern because a thinly distributed population means relatively high transport costs. This in turn has two effects. First, trade and exchange are made more difficult; hence there is less specialization and more inclination to undertake subsistence production in agriculture and less specialized industry because of smaller market. Secondly, the amount of social capital required per head of population is increased, so that it may not be worth building roads, dams, bridges or even schools and hospitals, or spending money on general administration for the small number of people in each area.

Excess or overpopulation may also make it extremely difficult for a country to “get started” on the path towards economic growth. Because of excess population, there is poverty; because of poverty, people find it difficult to save and acquire capital equipment;

therefore agriculture stagnates, education is limited, and health poor; the lack of capital and technical progress keeps incomes low, we thus have a 'vicious circle'.

It is therefore argued that if "under population" and "over population" can exist, somewhere in between there must be an "optimum" or best of population i.e. that size of population which with the existence stock of land, capital and knowledge, would give rise to the maximum output per capita are subject to constant change. An increase in the national stock of capital, improvements in the techniques of production, and in the fertility of land will all tend to increase the size of the optimum population.

b) Problems of high population growth rates

Whether an increase in the size of a population brings economic advantages or disadvantages depends very much on the size of the existing population in relation to the other economic resources available to it; in other words whether it is above or below the optimum size. When population is growing fast and there is a large excess of births over deaths, the proportion of people in the younger age groups will be increasing. A large increase in the numbers of young dependants can be a serious barrier to economic growth. The economic resources needed to care for growing numbers of children and to educate them might have been devoted to industrial development and training. Alternatively, the same resources could have been used to give a small number of children a much better education.

An increase in the number of children now will bring about an increase in the number of workers in the future. New workers need capital, however, even if it is only a simple plough. Economic growth depends very much on increasing the amount of capital per worker.

When a country is heavily dependent on the world trade for a major part of its requirement of food and basic materials, a rapidly rising population might give rise to serious balance of payment problems. Quite apart from the need to import more food, creating work for the increasing numbers will require larger imports of raw materials and other capital goods. To pay for these additional imports, the country will have to achieve a substantial increase in its exports.

A country with a high birth rate and high death rate will have a larger proportion of young people in its population.

c) Beneficial effects of High Population Growth Rates

A number of influential economists have argued that population growth may either be harmless as far as real income growths is concerned or even beneficial.

An expanding population will create increased demands for goods and services and growing markets tend to stimulate investments and create employment. A growing population will be able to take more of specialized production and economies of scale. Comprehensive road and networks, power supplies and other public utilities can only be operated at relatively low average cost when there is a relatively larger population to ensure full utilization.

A country with growing a population and hence a young age structure will be more mobile. With increasing numbers entering the working population, expanding industries will have little trouble in recruiting labour. A more rapid rate of technical progress is possible when the population is expanding, because new industries, new factories and new techniques of production can come into operation alongside the older ones. With static or declining population these changes might have to wait for the redundancy of the other older equipment. It is also argued that pressure on the

standard of living due to land shortage may produce the necessary “shock” to the system leading peasant cultivators, for example, to look for new ways of increasing productivity. Once new methods have been adopted to stop income per head from falling, there might be continued interest in innovations for the purpose of raising incomes.

3. WAGE DETERMINATION, POLICY AND THEORIES

Wages and salaries are rewards to labour as a factor of production of goods and services. In ordinary speech a distinction is frequently made between wages and salaries. Some people might attempt to differentiate between them by saying that wages are payments for manual work; others may say that wages are paid weekly and salaries at longer intervals; yet others may say that wages are paid for a definite amount of work, as measured by time or price, so that if less than a full week is worked, a proportionate deduction from the weekly wage will be made whereas salaried workers suffer no such deductions. Only the last definition is of any economic importance. Wages are variable costs varying with output whereas salaries in the short run are a **fixed cost** since they do not vary with output.

Theories of wage determination

Early theories about wages

The earliest theories about wage determination were those put forward by **Thomas Malthus, David Ricardo and Karl Marx.**

- i. Thomas Robert Malthus (1766 – 1834) and the Subsistence Theory of Wages:

The germ of Malthus’ Theory does come from the French “physiocrats” who held that it was in the nature of things that wages could never rise above a bare subsistence level. When wages did for a time rise much above the bare necessities of life, the illusion of prosperity produced larger families, and the severe competition among workers was soon at work to reduce wages again. In a world where child labour was the rule it was only a few years before the children forced unemployment upon the parents, and all were again reduced to poverty. Such was the subsistence theory of wages.

- ii. Ricardo and the Wages Fund Theory:

Ricardo held that, like any other commodity, the price of labour depended on supply and demand. On the demand side, the capital available to entrepreneurs was the sole source of payment for the workers, and represented a wages fund from which they could be paid. On the supply side, labour supply depended upon Malthus’ arguments about population. The intense competition of labourers one with another, at a time when combinations of workers to withdraw their labour from the market were illegal, kept the price of labour low. The fraction:

$$\frac{\text{Total wages fund (capital available)}}{\text{Total population}}$$

Fixed the wages of working men.

- iii. Karl Marx (1818 – 83) and the ‘Full Fruits of Production’ Theory of Wages:
-

Karl Marx was a scholar, philosopher, journalist and revolutionary extraordinary who spent much of his life in dedicated poverty reading in the British Museum Library.

His **labour theory of value** held that a commodity's worth was directly proportional to the hours of work that had gone into making it, under the normal conditions of production and the worth the average degree of skill and intensity prevalent at that time. Because only labour created value, the worker was entitled to the full fruits of production. Those sums distributed as rent, interest and profits, which Marx called surplus values, were stolen from the worker by the capitalist class.

Modern theories of wage determination

i. Real and nominal wages

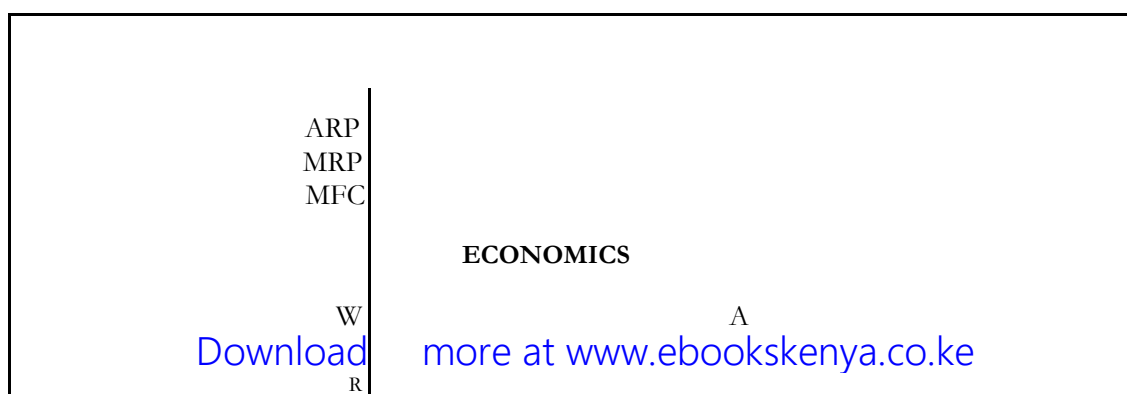
Wages are wanted only for what they will buy, **real wages** being wages in terms of the goods and services that can be bought with them. **Nominal wages** are wages in terms of money, and the term **money wages** is perhaps to be preferred. In determining nominal wages of people in different occupations; account must be taken of payments in kind, such as free uniform for policemen, railway workers and many others, free travel to and from work for those engaged in the passenger transport undertakings, the use of the car by some business executives, free board and lodging for some hotel workers and nurses.

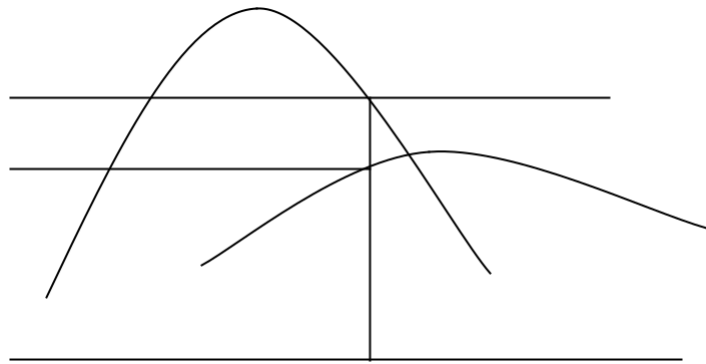
“The labourer”, say Adam Smith, “is rich or poor, is well or ill rewarded, in proportion to the real, not to the nominal price of his labour.”

ii. Marginal productivity theory of wages

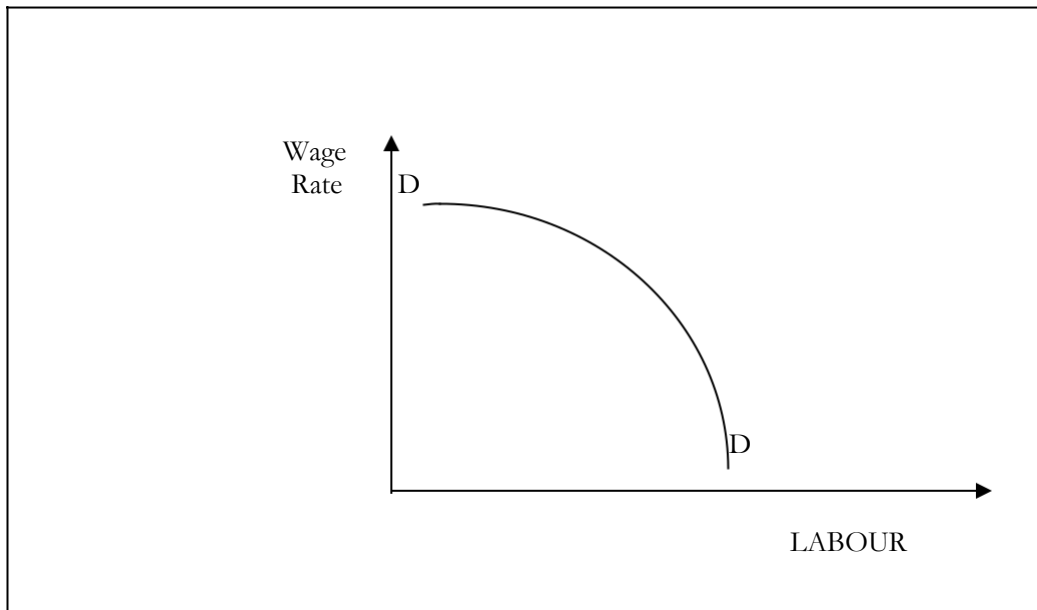
According to the Marginal theory of distribution, the producer will pay no more for any factor of production than the value of its marginal product, since to do so will raise his costs by a greater amount than his revenue. As applied to labour this provides us with the **Marginal Productivity** theory of wages.

Consider a wage rate w above the average revenue product curve.





At this wage rate the firm will employ L units of labour. At this level of employment, R is the average revenue product. Thus, the total revenue of the firm is represented by area $ORBL$, and Labour cost is represented by area $OWAL$. Thus, the firm makes loss (on labour above) represented by area $RWAB$. The firm will, therefore, not employ labour at wage rates above average revenue product. It follows, therefore, that the demand curve for labor is that part of the Marginal revenue product curve below the average revenue product curve, and is generally represented as follows:-



This theory has been criticized for following reasons:

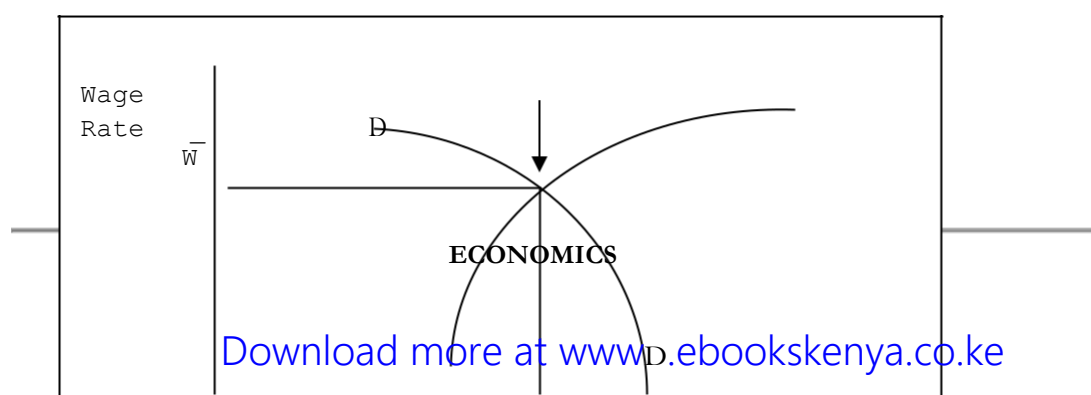
- a) It is too theoretical a concept, since it does not appear to agree with what actually takes place.

- b) In practice it is impossible to calculate the amount or the value of the marginal product of any factor of production.
- c) The employment of one man more or one man less may completely upset the method of production in use at the time. To employ an extra man may simply mean that there will be more labour than necessary; to take away a man may remove a vital link in the chain of production. For this reason a small rise or fall in wages is not likely to bring about an immediate change in the amount of labour employed.
- d) The productivity of labour does not depend entirely on its own effort and efficiency, but very largely on the quality of the other factors of production employed, especially capital.
- e) According to this theory, the higher the wage, the smaller the amount of labour the entrepreneur will employ. Surveys that have been taken appear to indicate that not all employers take account of the wage rate when considering how many men to employ, being influenced more by business prospects.
- f) Lord Keynes said the theory was valid only in static conditions, and therefore, to lower the wage rate in trade depression would not necessarily increase the demand for labour.

iii. Market theory of wages

Here the approach is to regard wages as a price – the price of labour – and, therefore, like all other prices determined by the interaction of the market forces of supply and demand. In terms of geometry, this corresponds to the point of intersection between the demand curve and the supply curve.

\bar{W} is the equilibrium wage rate and \bar{L} the equilibrium level of employment of labour. At wage rates above \bar{w} , there is excess of supply over demand, and hence wages will be forced downwards.





Below \bar{W} , there is excess of demand oversupply and hence wages will be forced upwards. The Market Theory of Wages, however, does not run counter to the Marginal Productivity Theory. In the same way that marginal utility forms the basis of individual demand, so marginal productivity forms the basis of demand for labour and other factors of production.

iv. The institutional intervention theories

Collective bargaining provides an example of what is sometimes called bi-lateral monopoly; the trade union being the monopolist supplier and the employers' association the monopolist buyer of a particular kind of labour.

Those who support the Bargaining strength of the trade union concerned, so that, differences in wages in different occupations are the result of the differences of the strength of the respective trade unions.

v. The comparability principle

Associations representing workers providing services – clerical, postal, teaching, etc. – have always attempted to apply the “principle of comparability” with wages of those in similar occupations, though it is often very difficult to compare workers in different occupations, since no two jobs are alike.

vi. The effect of inventions

In the long run, new inventions will have the effect of increasing output and lowering prices, with the result that real wages of workers rise and in consequence their demand for all kinds of goods and services.

4. TRADE UNIONS AND COLLECTIVE BARGAINING

Trade unions are workers' organizations whose objective is to protect the interests of their members.

Functions

- i. To bargain on behalf of their members for better pay and working conditions.
- ii. To persuade the government to pass legislation in favour of the working class.

Collective bargaining refers to the whole process by which trade unions and employers (or their representatives) arrive at an enforceable agreement. Trade unions therefore negotiate on behalf of all their members and if agreement is not reached then they may take action collectively to enforce their demands.

Kinds of Bargaining arrangements

Basically there are three kinds of bargaining arrangements, namely:

Open Shop:

In an open shop a union represents its members, but does not have an exclusive bargaining jurisdiction for all workers of one kind. Membership in the unions is not a condition of getting or keeping a job.

Closed Shop:

In this arrangement only union members may be employed and the union controls membership however it sees fit.

Union Shop:

The employer may hire anyone he chooses but every employee must join the union within a specified period.

The Basis of Wage Claims

The union's demand for higher wages is normally based on one or more of the following four arguments:

1. The cost of living argument

This is the commonest argument in that rising prices mean a fall in real incomes. Thus trade unions demand higher wages so that the workers can maintain their present living standards. It is important, however, that when trade unions use this argument they should also ensure that the productivity of the workers also increases. This is because if wages increase while productivity does not, this will mean higher costs of production for the firm and this will lead to higher prices and more wage demands leading to a wage price spiral. Thus, in addition to demanding higher wages, trade unions will also demand conditions, which go towards increasing the efficiency of labour. These are:

- a. Motivating factors which boost the morale of workers like free or subsidized housing, free medical benefits, paid maternity leave, and paid sick leave.
- b. Safe and hygienic working conditions
- c. In-Service training or study leave to up-date the skills of workers
- d. Efficient co-operating factors like efficient machinery and tools. Here, however, they must be careful because if the machinery is too efficient it may actually displace labour.

2. The productivity argument

Productivity is measured in terms of output per worker. If this increases, workers can claim higher wages with the argument that their efficiency has increased. This argument is justified if it can be proved that productivity has increased as a result of the increased efficiency of workers, e.g. through less absenteeism and less idle talking. However, if productivity increases as a result of the installation of new machinery, the benefits should go to the investor.

The argument of productivity can only be used in cases where the output of the firm can be measured. Where output cannot be used, e.g. it is difficult to measure the productivity of civil

servants. In some cases productivity can fall due to factors beyond the control of the workers, and salaries of the workers cannot be reduced e.g. the efficiency of traffic police can fall due to increased traffic, but this does not mean that police should have reduced salaries.

3. The profit argument

If firm profits increases, workers can claim to have a share in them on the basis that they contributed to the increase. This argument is justified if it can be proved that the increase in profits is due to increased efficiency of the workers. If, for example, it is due to increased investment in advertising by the firm, the benefits should go to the investor.

4. The differential argument

This argument is justified if the two firms have the same profit level and if the efficiencies of the workers in the two firms are the same. Otherwise it is not justified.

Weapons of Conflict

The trade unions and the employers (or their associations) have many ways of enforcing their demands on each other. They include:

Strikes: The strike is the union's ultimate weapon. It consists of the concerted refusal to work of the members of the union. It is the strike or the threat of a strike that backs up the union's demand in the bargaining process.

Picket lines: Are made up of striking workers who parade before the entrance to their plant or firm. Other union members will not cross a 'picket line'.

The lockout: Is the employer's equivalent of a strike. By closing his plant he locks out the workers until such a time the dispute is settled.

Black list: Is an employers' list of workers who have been discharged for unions' activities and who are not supposed to be given jobs by other employers.

Strike-breakers: Are workers who are used to operate the business when union members are on strike.

FACTORS AFFECTING THE ABILITY OF TRADE UNIONS TO GAIN LARGER WAGE INCREASES FOR ITS MEMBERS

The basic factor is elasticity of demand for the type of labour concerned. The elasticity of demand for any particular type of labour will vary according to four factors:

1. The physical possibility of substituting alternative factors of production for labour:

If wages rise, labour will be relatively more expensive than the factors which will tend to be substituted for it. The extent to which this is possible will depend on technical considerations. The more substitution is possible, the greater will be the elasticity of demand of labour.

2. The elasticity of supply of alternative factors:
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If substitution is technically possible, the demand for alternative factors will increase and this will result in a rise in their prices. The extent of the rise will depend on the elasticity of supply. The more elastic this is, the greater will be the increase in price, the smaller the substitution of factor for labour, hence the lower the elasticity of demand for labour itself.

3. The proportion of labour to total cost:

If the proportion is large, the demand for labour will tend to be elastic for two reasons.

First, as the percentage of total costs formed by labour is large, there will be considerable pressure to find substitutes for labour. Second, the effect of a rise in labour costs will result in a larger increase in total costs.

4. The elasticity of demand for the final product:

An increase in wages will raise the price of the final product. The extent of the price increase will be determined by the three factors above. If the demand for the good is elastic the quantity purchased will fall considerably and so will the demand for labour, which produces the good. The opposite will apply where the demand for the good is inelastic. There are some circumstances in which a wage increase need not result in a higher price for a good. Firms may be earning above-normal profits and the increase in wages may be paid out of these without raising the price of the final product. Alternatively, the increased wage may be paid out of increased productivity.

If the demand is elastic, employment will be sensitive to wage changes and this will be a basic constraint on trade union behaviour. If the demand is inelastic, a wage increase will have relatively little effect on employment and trade unions will be able to press for, and obtain, large increases in the pay of its members. Trade unions in different industries differ in terms of their strength (as, for example, measured by the extent of their membership), degree of militancy, general approach, whether in the private or public sector, and so on.

Effectiveness of Trade Unions in Developing Countries

Trade Unions in developing countries tend to be less effective in their wage negotiations with employers than their counterparts in developed countries. This can be attributed to the following factors:

- i. Incomes in developing countries are lower than in developed countries. Consequently, the contributions of workers to trade unions are less and the trade unions are therefore in financially weaker position to support the members while on strike.
- ii. As incomes in developing countries are lower, so are savings, and hence workers cannot support themselves for long periods while on strike.
- iii. In developing countries, there are no unemployment state benefits on which workers can depend if they are sacked for trade union activities.
- iv. There is more Government interference in industrial disputes in developing countries than in developed countries. This is partly because the developing countries the political structures are not strong and governments fear that too much trade union agitation may have negative political effects.

- v. Labour in developing countries is mostly unskilled and semi-skilled labour and is in abundant supply. Hence striking workers can easily be replaced. For this reason trade unions in developing countries are less able to persuade their members to go on strike for long periods than their counterparts in developed countries.

DIFFERENTIALS AND DISEQUILIBRIUM

In a free enterprise system, workers aim at maximizing their wages. Hence, it would be expected that workers would move from low-paying industries to high-paying industries and the low-paying industries would raise wages so as to retain labour until wage rates were uniform for all workers.

In practice, however, we observe differentials in wages both between occupations and even within the same occupations. Differentials arising from the characteristics of the occupations are called compensating or equalizing differentials, because they represent pay units made to equalize the net remuneration and compensate the workers for differences in their jobs.

FACTORS RESPONSIBLE FOR WAGE DIFFERENTIALS BETWEEN OCCUPATIONS

The major cause is demand and supply for the particular labour concerned, but other causes could be:

- i. **Differences in the cost of training:** Some occupations require large investments in training, while others require a much smaller expenditure for training. A physicist must spend eight years on undergraduate and graduate training. A surgeon may require ten or more years of training. During this period, income is foregone and heavy educational costs are incurred.
 - ii. **Differences in the cost of performing the job:** For example dentists, psychologists and doctors in general require expensive equipment and incur high expenditure for running their practice. In order for net compensation to be equalized, such 'workers' must be paid more than others.
 - iii. **Differences in the degree of difficulty or unpleasantness of the work:** For example, miners work under unpleasant conditions relative to farmers.
 - iv. **Differences in the risk of the occupation:** For example, a racing driver or an airplane pilot run more risks than a college teacher.
 - v. **Differences in the number of hours required for an "adequate" practice:** For example, doctors are required to put longer hours in practicing their professional than post office employees.
 - vi. **Differences in the stability of employment:** Construction work and athletic or football coaching are subject to frequent lay-offs and hence have little job security, whereas tenure University teachers have a high job security.
 - vii. **Differences in the length of employment:** For example boxers and football players have a short working-life.
 - viii. **Differences in the prestige of various jobs:** For example a white-collar worker has a more prestigious position in Society than a truck driver.
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- ix **Differences in sex:** In most cases occupations which are predominantly women's occupation tend to pay less than occupations which are predominantly men's occupations.
- x. **Effectiveness of Trade Unions:** If trade unions in one industry or firm are more effective in their wage negotiations with employers than those in another industry or firm, the workers in the industry or firm are likely to earn higher wages than those in the second.

FACTORS RESPONSIBLE FOR WAGE DIFFERENTIALS WITHIN THE SAME OCCUPATION

- i. **Differences in the environment:** For example a doctor sent to North Eastern Province must be paid more than a doctor working in Nairobi to persuade him to go.
- ii. **Differences in the cost of living in various areas:** Living costs generally are lower in small towns than in big cities.
- iii. **Differences in the price of commodities, which labour produces:** For example, consider two hunters, one hunting elephants and the other rhinos. Both hunters are equally skilled, but the value of their output differs because the price of elephant tusks is higher than that of rhino horns. In this case the difference in wages paid to the two individuals will equal the differences in the total value of their output.
- iv. **Biological and acquired quality differences:** Human beings are born with different abilities and in different environments, which define largely the opportunities to develop their inherent qualities. For example, not many people are born with the biological qualities required for becoming successful tennis players or surgeons, writers or artist. The marginal productivity of workers thus differs. These differences are called non-equalizing or non-compensating wage differentials because they are due to differences in the marginal production of individuals.
- v. **Job Security:** Two people may do the same kind of work for different employers and earn differently if the lower paid person feels safer with present employer. For example, a doctor may prefer to work in a Government hospital rather than a Private hospital because there is more job security in the civil service.
- vi. **Experience:** It is often assumed that if a person does the same job for a long time, he gets experienced and skilled at it. Hence he is likely to earn more than a person in the same profession who joined more recently.
- vii **Paid-by-results jobs:** There are some jobs which pay according to one's output, e.g. jobs of salesmen and insurance agents. Hence two people may do the same job, and earn differently if one of them works harder.

5. UNEMPLOYMENT

Unemployment generally refers to a state/situation where factors of production (resources) are readily available and capable of being utilized at the ruling market returns/rewards but they are either underemployed or completely unengaged.

When referring to labour, unemployment is considered to be a situation where there are people ready, willing and able to work at the going market wage rate but they cannot get jobs. This definition focuses only on those who are involuntarily not employed. It is noteworthy to mention here that all countries suffer unemployment but most developing countries experience it at relatively higher degree, and the following can be some of the causes.

Types and Causes of Unemployment

- i. **Transitional unemployment:** Transitional unemployment is that situation which prevails due to some temporary reasons. The main reason for this type of unemployment are:
 - **Turnover unemployment:** Some individuals leave their present jobs and make efforts to secure better ones and in this way, they remain unemployed for some time.
 - **Casual unemployment:** Casual workers are employed for a specific job and when the job is completed, such workers become eventually unemployed. E.g. shipping or building construction workers.
 - **Seasonal unemployment:** Some industries, for instance have seasonal demand and their produce is manufactured for a specific period of time (a specific period of the year). The workers of such industries remain unemployed for that time e.g. ice factories may remain closed during winter.

 - ii. **Structural unemployment:** Caused by structural changes such that there exist:
 - **Cyclical unemployment:** During depression, prices are too low and profit margins remain distinctively low. In this case, investment decreases and unemployment increases.
 - **Technological unemployment:** Due to inappropriate technology. Technology is not inappropriate per se but in relation to the environment in which it is applied. In most developing countries, most production structures tend to be labour saving (capital-intensive), which is not appropriate as these countries experience high labour supply. Capital – labour ratios tend to be high in these countries implying that less labour is absorbed compared to capital in production undertakings causing unemployment.
 - **Industrial change:** The establishment of new industries decreases the demand for the products of existing industries e.g. the rapid increase in the demand for Japanese industrial products is one reason for greater unemployment in some European countries.
 - **Keynesian unemployment:** According to Keynesian theory of income and employment, unemployment occurs due to lack of effective demand. If effective demand is less, production of goods and services will fall which will further result in the unemployment of labour. Another feature of Keynesian unemployment is that unemployment of labour is associated with unemployed capital such as plant and machinery which tend to be idle during depression.
 - **Urban unemployment:** Due to availability of more facilities in urban areas, more and more people tend to move to these areas. The employment opportunities are not sufficient to absorb all those people who settled in the urban areas. This kind of unemployment is therefore due to rural-urban migration.
 - **Disguised unemployment:** Situation where some people are employed apparently, but if they are withdrawn from this job, total production remains the same. In most developing countries this type of unemployment is estimated at 20 to 30% and measures should be taken to employ such people in other sectors of the economy.
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- iii **Insufficient Capital:** Shortage of capital is a hindrance in the establishment of more industries and other productive installations, and due to this reason, more employment opportunities are not created.
- iv. **Nature of education system:** Education systems for most developing countries are white-collar oriented, yet the nature of productive capacities of these economies are not sufficiently supportive. Moreover, inadequate education and training facilities render(s) most people unable to secure those job opportunities that require high skills and specialized training.
- v. **Rapidly increasing population:** The rate of growth in population exceeds the amount of job opportunities that the economy can generate.

Thus in summary, of the causes of unemployment in developing countries can be said to include:

- Rapidly increasing population
- Inappropriate technology
- Insufficient capital base
- Demand deficiency/structural changes
- Presence of expatriates
- Education Systems – white-collar orientation
- Rural-urban migration
- One person for more than one job
- Corruption and general mismanagement
- Inadequate knowledge on market opportunities

Cost of Unemployment

Unemployment is a problem because it imposes costs on society and the individual. The cost of unemployment to a nation can be categorized under three headings: the social costs, the cost to the exchequer and the economic cost.

The Social Cost of Unemployment

- i. For the individual, there is the demoralizing effect which can be devastating particularly when they are old. This is because as some job seekers become more and more pessimistic about their chances of finding a job, so their motivation is reduced and their chances of succeeding in finding jobs become even more remote.
- ii. Many of the longer-term unemployed become bored, idle, lose their friends and suffer from depression
- iii. There is also evidence of increased family tension leading in some cases to violence, infidelity, divorce and family breakups.
- iv. Unemployment may also lead to homelessness, as in some circumstances building societies may foreclose on a mortgage if the repayments are not kept up.
- v. Long-term unemployment may also lead to vandalism, football, hooliganism and increases in the crime rate and insecurity in general.

The cost to the exchequer (Ministry of Finance)

There is increasing dependency ratio on the few who are employed in the form of:

The loss of tax revenues which would otherwise have been received: This consists mostly of lost income tax but also includes lost indirect taxes because of the reduction in Spending.

The loss of national insurance contributions which would otherwise have been received.

The economic cost

Unemployment represents a terrible waste of resources and means that the economy is producing a lower rate of output than it could do if there were full employment. This leads to an output gap or the loss of the output of goods and services as a result of unemployment.

REMEDIES FOR UNEMPLOYMENT

The measures appropriate as remedies for unemployment will clearly depend on the type and cause of unemployment. Broadly they can be divided into:

- Demand management or demand side policies
- Supply side policies.

Demand management policies

These policies are intended to increase aggregate demand and, therefore the equilibrium level of national income. They are sometimes called fiscal and monetary policies. The principal policy instruments are:

- Supporting declining industries with public funds
- Instituting proper demand management policies that increase aggregate demand including exploiting foreign and regional export markets. This can be done by increasing government expenditure, cutting taxation or expanding the money supply.
- Promoting the location of new industries in rural areas which will require an improvement of rural infrastructure.

Supply-side policies

Supply-side policies are intended to increase the economy's potential rate of output by increasing the supply of factor inputs, such as labour inputs and capital inputs, and by increasing productivity. They include:

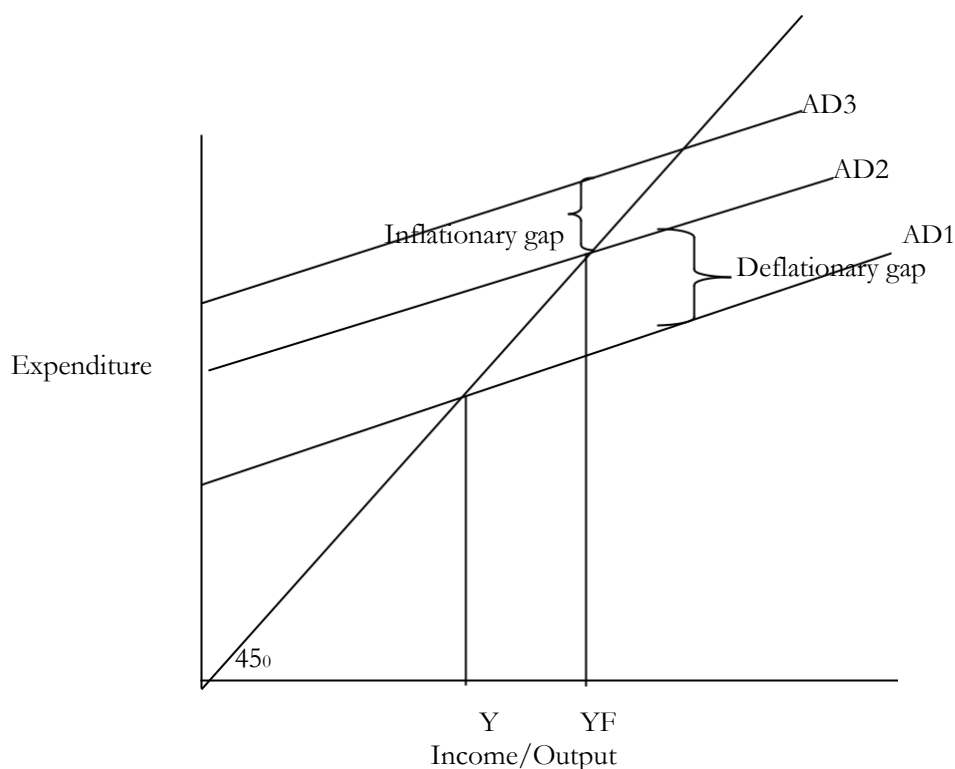
- Increasing information dissemination on market opportunities.
 - Reversing rural-urban migration by making rural areas more attractive and capable of providing jobs. This particularly is the case in developing countries where rural-non-farm opportunities offer the longest employment opportunities.
 - Changing attitude towards work i.e. eliminating the white-collar mentality and creating positive attitudes towards agriculture and other technical vocational jobs.
 - Provision of retraining schemes to keep workers who want to acquire new skills to improve their mobility.
 - Assistance with family relocation to reduce structural unemployment. This is done by giving recreational facilities, schools, and the quality of life in general in other parts
-

of the country even the provision of financial help to cover moving costs and assist with home purchase.

- Special employment assistance for teenagers many of them leave school without having studied work-related subjects and with little or no work experience.
- Subsidies to firms which reduce working hours rather than the size of the workforce.
- Reducing welfare payments to the unemployed. There are many economists who believe that welfare payments have artificially increased the level of unemployment.
- Reduction of employee and trade union rights.

7. INFLATION AND UNEMPLOYMENT

For many years it was believed that there was a trade-off between inflation and unemployment i.e. reducing inflation would cause more unemployment and vice versa. This relationship was explained using a simple Keynesian model using a diagram as follows:



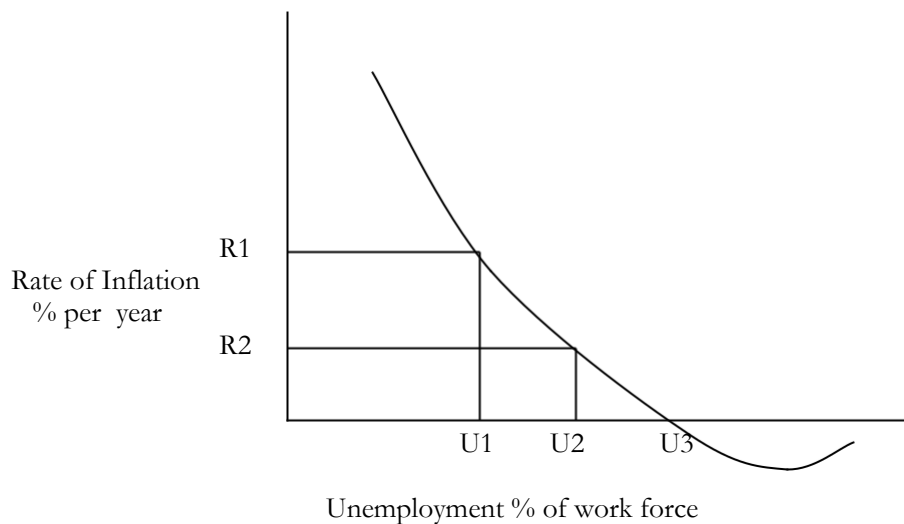
The model was developed in the 1930s when there was large-scale unemployment which led Keynes to focus on the problem of the “deflationary gap”. This situation in which aggregate spending is less than that required to employ all those who wish to work at the prevailing wage level. This is illustrated in the figure above by the aggregate demand function AD₁. Here the equilibrium level of national income is Y. If aggregate demand is increased by an additional injection or reduced by fewer withdrawals the aggregate demand function can be shifted upwards. This extra demand encourages investment and via the multiplier additional demand and hence employment until aggregate demand reaches AD₂ and helps to produce full employment Y_F.

Beyond the point of full employment where all resources are committed, any increase in aggregate demand to say AD₃ cannot increase real output and thus an inflationary gap occurs which can only be filled by using prices. In the simplified Keynesian model then, the relationship between inflation and unemployment is as follows.

If there are unemployed resources in the economy and aggregate demand increases then unemployment will be reduced and prices will remain steady. If whenever the economy is

already at the full employment level, any additional increase in aggregate demand will force up prices but have little effect on the level of real output and employment.

In the 1950s the nature of the relationship between inflation and unemployment was stated in more precise form by Prof. A. W. Philips. He studied the relationships between the variables over the period 1862 and 1958 for the UK. The statistical relationship he found can be represented in diagrammatic form as in the figures below.

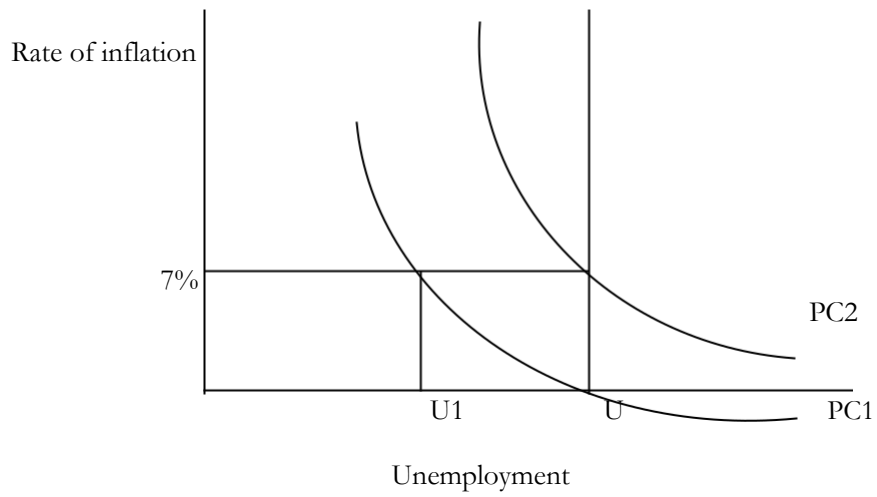


The negatively sloped curve indicates that the lower the rate of unemployment, the higher the rate of inflation. At a lower rate of unemployment like U_1 , when aggregate demand is high and there are inflationary pressures, the Philips curve suggests there will be a high rate of inflation R_1 . When unemployment rises to U_2 the inflation falls to R_2 . Finally when unemployment falls to U_3 the rate of inflation has fallen to zero and any further increase in unemployment is predicted by this model to give negative inflation/falling prices.

Because of the empirical evidence in support of this relationship over a long period, in most countries, politicians and their economic advisors felt confident during the 1950s and 1960s that they could by appropriate demand management exercise a degree of control over unemployment. They could then trade off lower unemployment for a little more inflation.

The behaviour of inflation and unemployment in the 1970s however, casts doubts on what had seemed to be a well established relationship. In contrast with previous experience both inflation and unemployment increased during the 1970s giving rise to the phenomena labeled "stagflation". Though inflation came down in many countries in the 1980s and 1990s, the level of unemployment remains alarmingly high. In brief, the relationship predicted by the Philips model no longer held. A new theory, or at least a significant amendment to the existing theory was required to explain the relationship between the variables. This was supplied by monetarists and the neo-classicals. This amended theory attributes a major role to expectations which various key groups within the economy have about future levels of inflation and redefines the concept of full employment from the Keynesian one of demand deficient or involuntary unemployment to the rate at which there exists no inflationary pressure on wages. This 'natural rate of unemployment' exists where the demand and supply of labour are in rough overall balance in the labour market. The magnitude of this natural rate of unemployment depends, it is claimed, on such factors as the effectiveness of the labour market, the strength of trade unions, the level of social security benefits and the extent of competition or monopoly.

The amended model of the relationships between inflation and unemployment can be elaborated upon more easily by the use of a diagram similar to that below and widely referred to as the 'expectations-augmented Philips curve'.



REINFORCING QUESTIONS:

1. What are likely to be the effects of increased technological change on employment?
2. Why should demographic analyses and information be of interest to Kenyan planners? Discuss the problems and opportunities which rapid population growth poses for the economy of Kenya.

Check your answers with those given in Lesson 9 of the Study Pack.

COMPREHENSIVE ASSIGNMENT NO. 3**TO BE SUBMITTED AFTER LESSON 6****To be carried out under examination conditions and sent to the Distance Learning Administrator for marking by the university.****EXAMINATION PAPER****TIME ALLOWED: THREE HOURS****ANSWER ANY FIVE QUESTIONS. (ALL QUESTIONS CARRY EQUAL MARKS.)**

1. a) Describe the traditional role of the Central Bank and thereafter consider its role in a changing and liberalized economy.
b) Describe the means which are available to the central bank for regulating the demand for, and the supply of money and credit.
2. How can the supply of money in a given economy be increased? What purpose can such an increase serve? What are the probable effects of such an increase on the economy's level of income and its prevailing rate of interest?
3. What is money? Why is money considered a "dynamic force" in modern economies?
4. The Quantity Theory of money states that $MV = PT$. While explaining this statement indicate the extent to which it represents the practical situation.
5. Discuss the factors that hinder the effectiveness of monetary policy in less developed countries.
6. "Unemployment is one of the major economic problems facing most developing countries". Explain the major causes and suggest some possible economic policies that these countries could adopt and implement in order to reduce it.
7. Write short notes on the following:
 - a) Monetary policy
 - b) Legal tender
 - c) Saving function
 - d) Index number of prices
8. a) Define the term rural-urban migration.
b) Explain the consequences of a high rate of rural – urban migration and give specific measures which could be given to contain the phenomena.

END OF COMPREHENSIVE ASSIGNMENT NO.3***NOW SEND YOUR ANSWERS TO THE DISTANCE LEARNING CENTRE FOR MARKING.***

LESSON SEVEN

PUBLIC FINANCE AND INFLATION

LEARNING OBJECTIVES:

At the end of the lesson the student should be able to:-

- State the various sources of government revenue
- State the various canons of a good tax system
- Discuss in detail the various functions of taxes
- Explain fully the various types of taxes and their merits and demerits
- See the effects of taxation on economic activities
- Explain how the tax system can be used to influence the direction the economy can take
- Explain why inflation should be of concern to national governments
- Discuss exhaustively the various types and causes of inflation
- Prescribe some of the remedies for inflation.

CONTENTS

14. Objectives of Government
15. The budget
16. Public Expenditure
17. National Debt
18. Fiscal Policy
19. Types and Causes of Inflation
20. Impact of Inflation and Control Measures of Inflation

ASSIGNED READINGS

Modern Economics by Robert Mudida Chapter 16 (Public Finance) and 13 (Inflation)

1. OBJECTIVES OF GOVERNMENT

Government policies are required in market economies to achieve certain goals. There are broadly two types of government policies viz;

Microeconomic policy objectives

And macroeconomic policy objectives.

a. The Microeconomic objectives of government

These are the policies which are concerned with the allocation and distribution of resources to maximize social welfare.

i. Allocation policies

The major objective of government is to achieve Pareto efficiency in resource allocation. An economy is said to be Pareto efficient when it must be impossible to increase the production of another, or to increase the consumption of one household without reducing the consumption of another. Such situation results when the following three conditions are satisfied:

- a) The given stock of resources must be allocated in the production of goods and services in such a way that no re-location can increase the output of one good without decreasing the output of any other.
- b) The combination of goods and the proportions in which they are produced must be in response to tastes and preferences of the community – i.e. the goods produced must be the ones that the community wants.
- c) The distribution of goods and services must be in conformity with consumers' preferences, given their tastes and incomes.

ii. The distribution function /policy

The overriding aim of the strategy is to promote equity – that is to achieve a “fair” distribution of income and wealth. For this purpose, budgets are usually designed to impose higher rates of taxation on higher incomes and to try and secure a fair distribution of tax burdens in the community.

On the expenditure side of the budget, spending can be channelled into areas (such as health, education, and social security benefits), which directly benefit the lower income groups.

b. Macro-economic policy objectives

The major macro-economic policy objectives which the governments strive to achieve are:

i. Full employment

One of the main objectives of all governments is the control of employment or full employment. However economists are not agreed on what constitutes full employment. But we can say full employment exists when everyone who wants a job and is capable of doing a job is able to find one.

ii. The control of inflation

Since most monetarists believe that inflation has a negative effect upon economic growth as it increases uncertainty and discourages savings, maintaining stable prices usually is a major objective of most governments.

These two foregoing objectives can be regarded as “good housekeeping”.

iii. High Growth rates

For most people, economic growth remains the prime objective of policy as it allows everyone to enjoy a better standard of living.

iv. Balance of payments equilibrium

Most governments like to have an equilibrium position in the BOP accounts as there are problems associated with both sides of disequilibrium.

v. Equitable distribution of income

2. THE BUDGET

The budget is a summary statement indicating the estimated amount of revenue that the government requires and hopes to raise. It also indicates the various sources from which the revenue will be raised and the projects on which the government intends to spend the revenue in a particular financial year. The budget in Kenya is presented to parliament by the Minister of Finance around mid June. In the budget the Minister reviews government revenue and expenditure in the previous financial year. The minister presents tax **proposals** i.e. how he intends to raise the proposed revenue from taxation for parliament to approve.

Functions of the Budget

The budget fulfils three main functions:

- **To raise revenue to meet government expenditure**

The government of a country provides certain services such as administration, defence, law and order, environmental services and economic services. Also it must meet the public debt. Sufficient revenue must be raised to pay for this.

- **It is a means of redistributing wealth**

In many countries, a situation has arisen where a small proportion of the population own a more than proportionate share of the nations wealth, while the majority of the population own only a small proportion of it. One method of redressing such inequalities of wealth is through a progressive system of taxation on income and capital. A progressive system is one whereby the wealthy people do not only pay more tax than the poor, but also pay a greater proportion of their income or wealth.

- **To control the level of economic activity**

The government uses the budget to implement fiscal policy, i.e. the regulation of the economy through governments expenditure and taxes.

TYPES OF BUDGETS

1. Deficit budget

If the proposed expenditure is greater than the planned revenue from taxation and miscellaneous receipts, this is a budget deficit. The excess of expenditure over revenue will be met through borrowing both internally through the sale of Treasury Bills and externally from other organisations.

2. Balanced budget

If the proposed expenditure is equal to the planned revenue from taxation and other miscellaneous receipts, this is a balanced budget. Usually, balanced budgets are not presented, unless the expenditure is very limited. It would mean the government would have to over-tax the population which can create disincentives. It is to avoid this that the tax revenue is supplemented by borrowing.

3. Surplus budgets

If the proposed expenditure is less than the planned revenue from taxation and other miscellaneous receipts, this is a surplus budget. Usually, surplus budgets are not presented for they are deflationary and can create unemployment as the government takes out of the economy more than it puts back.

TAXATION

Taxation is the process of imposing compulsory contribution on the private sector to meet the expenses which are incurred for a common good.

Functions or Purposes of Taxation

The functions of taxation can be discussed from the activities of the government it is meant to achieve.

These are:

a. Raise revenue

The revenue is required to pay for the goods and services which the government provides. These goods are of two types – public and merit goods. Public goods, such as defence and police are consumed collectively and no one can be prevented from enjoying them if he wishes to do so. These goods have to be provided by governments. Merit goods, such as education and medical care, could be, and often are, provided privately but not necessarily in the amounts considered socially desirable and hence governments may subsidize the production of certain goods. This may be done for a variety of reasons but mainly because the market may not reflect the real costs and benefits of the production of a good. Thus, the public may be subsidized because the market does not take account of all the costs and benefits of the public transport system.

b. Economic stability

These are imposed to maintain economic stability in the country. During inflation, the government imposes more taxes in order to discourage the unnecessary expenditure of the individuals. During deflation, taxes are reduced in order to enable the individuals to spend more money. In this way, the increase or decrease helps to check the big fluctuations in the prices and maintain economic stability.

c. Fair redistribution of income

A major function of taxation is to bring about some redistribution of income. First, tax revenue provides the lower income groups with benefits in cash and kind. Second, the higher income groups, through a system of progressive taxation, pay a higher proportion of their income in tax than the less well-off members of the society.

d. Pay interest on National debt

Taxes are also levied by the government to pay interest on national debt.

e. Optimum allocation of resources

Taxes are also imposed to allocate resources of the country for optimum use of these resources. The amounts collected by the Government from taxes are spent on more productive projects. It means the resources are allocated to achieve the maximum possible output in the given circumstances.

f. Protection policy

Taxes are also imposed to give protection to those commodities which are produced in the country. The government thus imposes heavy taxes on the import of such commodities from the other countries. In the view of these taxes, the individuals are induced to buy local products.

g. Social welfare

The government imposes taxes on the production of those commodities which are harmful to human health e.g. excise duty on wines, cigarettes, etc.

PRINCIPLES OF AN OPTIMAL TAX SYSTEM

When taxes are imposed certain conditions must be fulfilled. These conditions are known as Principles or canons of taxation. According to Adam Smith who first studied the principles of taxation, these are equity, certainty, economy and convenience.

CLASSIFICATION OF TAXES

Taxes can be classified on the basis of:

a. Impact of the taxes

It means on whom the tax is imposed. On the other hand, incidence of the tax refers to who had to bear the burden of the tax. In this case the taxes may be:

- Direct or
- Indirect

b. Rates of tax

The rate of tax is the percentage of the tax base to be taken in each situation. In this case the taxes may be:

- progressive or
- proportional or
- regressive or
- digestive

DIRECT TAXES

A direct tax is one where the **impact** and **incidence** of the Tax is on the same person e.g. Income Tax, death or estate duty, corporation taxes and capital gains taxes. It can also be defined as the tax paid by the person on whom it is legally imposed.

- **Impact of tax**

This means on whom the tax is imposed.

- **Incidence of tax**

This means who has to bear the burden of the tax, i.e. who finally pays the tax.

Merits of direct taxes

- a. They satisfy the principle of equity as they are easily matched to the tax payers capacity to pay once assessed.
- b. They satisfy the principles of certainty and convenience to tax payers as they know the time and manner of payment, and the amount to be paid in the case of these taxes. Similarly, the government is also certain as to the amount of money it shall receive from these taxes.
- c. They satisfy the Canon Simplicity as they are easy to understand.
- d. Because most of them are progressive, they tend to reduce income inequalities as the rich are taxed heavily through income tax, wealth tax, expenditure tax, excess profit, gift tax, etc. so long as they are alive; and through inheritance taxes or death duties when they die. The poor and the income groups which are below the minimum tax limit are exempted from these taxes. These taxes thus reduce income and wealth inequalities because of their progressive nature.
- e. Because the public are paying taxes to the government, they take an interest in the activities of the state as to whether the public expenditure is incurred on public welfare or not. Such civic **consciousness** puts a check on the wastage of the public expenditure in a democratic country.

Demerits of direct taxes

- a. Heavy direct taxation, especially when closely linked to current earnings, can act as a serious **check to productivity** by encouraging absenteeism and making men disinclined to work.
- b. Heavy direct taxation will clearly reduce people's ability to save since it leaves them with less money to spend. Taxation may, therefore, act as a deterrent to saving. Heavy taxation of profits makes it more difficult for business to build up reserves to cover replacement of obsolete or worn-out capital and thus **investment**.

- c. Direct taxes possess an element of arbitrariness in them. They leave much to the discretion of the taxation authorities in fixing the rates and in interpreting them.
- d. They are not imposed on all as incomes earned on **subsistence** and **non legal activities** are left out.
- e. Cost of collection is generally high.
- f. These taxes are **easily evaded** either by understating the source of income or by any other means. Such taxes thus cultivate **dishonesty** and there is loss of revenue to the state.

INDIRECT TAXES

These are imposed on an individual mostly producers or traders but they can be passed on to be borne by others usually the final consumers. They can also be defined as taxes where the incidence is not on the person on whom it's legally imposed. They include excise duties, sales tax, Value Added Tax and others.

Advantages

- a. They are **less costly** to administer because the producers and sellers themselves deposit them with the government.
- b. If levied on goods with inelastic demand with respect to price rises, it will result in high revenue collection.
- c. Indirect taxes **reach the pockets of all** income groups. Thus, they have a wide coverage, and every consumer pays to the state exchequer according to his ability to pay.
- d. They can check on the consumption of **harmful goods** like wine, cigarettes and other toxicants.
- e. Can be used as a **powerful tool for implementing economic policies** by the government. If the government wants to protect domestic industries from foreign competition, it can levy heavy import duties. This will help to develop domestic industries. If the government wants to encourage one industry on a priority basis, it may not levy any taxes on its products but continue the taxes imposed on other industries. The government may do so in order to encourage, a particular technology or employment in a particular industry.

Disadvantages

- a. Most indirect taxes are **regressive** as they are based are not based on ability to pay. The rich and the poor are required to pay the same amount of tax on such commodities as matches, kerosene, toilet soap, washing soap, toothpaste, blades, shoes, etc.
- b. They may lead to inflation as their imposition tends to raise the prices of commodities, thereby leading to higher costs, to higher wages, and again to higher prices. Thus a price-wage cost spiral sets in the economy
- c. They sometimes have adverse effects on production of commodities, and even employment. When the price of a commodity increases with the levy of a tax, its demand falls. As a result, its production falls, and so employment.
- d. The revenue from indirect taxes is uncertain because it is not possible to accurately estimate the effect of such taxes on the demand for products.

PROGRESSIVE TAX

A progressive income tax system is one where the higher the income, the greater the proportion paid in taxes. This is effected by dividing the taxpayers' incomes into bands (brackets) upon which different rates of tax are paid – the rates being higher and the band of income. For example, in Kenya, the bands are as follows:

Monthly Tax Rates

Income Bracket (K£ per month)	Tax (Kshs per Kshs 20)
1–325	2
326– 650	3
651– 975	4
976– 1300	7
1301– 1625	7
excess over 1625	7.50

Source: Income Tax Department, 1996

Examples of Progressive taxes in Kenya are Income Tax, Estate Duty, Wealth Tax and Gift Tax.

Advantages

- It is more equitable. The broader shoulders are asked to carry the heavier burden.
- It satisfies the canon of productivity as it yields much more than it would under proportional taxation.
- It satisfies the canon of equity as it brings about an equality of sacrifice among the taxpayers.
- To some extent it reduces inequalities of wealth distribution.

Disadvantages

- **The effect on incentives**
High progressive tax makes work and extra effort become less valuable.
- **The effect on the willingness to accept risk**
High marginal rates of tax are likely to make entrepreneurs less willing to undertake risks.
- **Effects on mobility**
Some financial inducement is usually required if people are to be asked to change their location, or undergo training, or accept promotion. Progressive taxation by reducing differentials is likely to have some effect on a person's willingness to any of the above.
- Encourages tax avoidance and evasion.
- Outflow of high achievers to other countries with lower Marginal tax rates.
- It can lead to fiscal-drag where wage and price inflation cause people to pay higher proportion of income as tax.

PROPORTIONAL TAX

Is where whatever the size of income, the same rate or same percentage is charged. Examples are commodity taxes like customs, excise duties and sales tax.

Its advantage is that it's much simpler than progressive taxation.

REGRESSIVE TAX

A tax is said to be regressive when its burden falls more heavily on the poor than on the rich. No civilized government imposes a tax like this.

DIGRESSIVE TAX

A tax is called digressive when the higher incomes do not make a due contribution or when the burden imposed on them is relatively less.

Another way in which digressive tax may occur is when the highest percentage is set for that given type of income one which it is intended to exert most pressure; and from this point onwards, the rate is applied proportionally on higher incomes and decreasing on lower incomes, falling to zero on the lowest incomes.

ECONOMIC EFFECTS OF TAXATION**a. A deterrent to work**

Heavy direct taxation, especially when closely linked to current earnings, can act as a serious check to production by encouraging absenteeism, and making men disinclined to work. However, indirect taxation may actually increase the incentive to work, since the more money is then required to satisfy the same wants, indirect taxes having made goods dearer than they were before.

b. A deterrent to saving

Taxation will clearly reduce people's ability to save since it leaves them with less money to spend. Taxation may, therefore, act as a deterrent to saving. However, this will not always be the case, as it will depend on the purpose for which people are saving.

c. A deterrent to enterprise

It is argued that entrepreneurs will embark upon risky undertakings only when there is a possibility of earning large profits if they are successful. Heavy taxation of profits, it is said, robs them of their possible reward without providing any compensation in the case of failure. As a result, production is checked and economic progress hindered. It may be, too, that full employment provides conditions under which even the less efficient firms cannot fail to make profits, and so there may be greater justification for taxation of profits, and so there may be greater justification for taxation of profits under such conditions.

d. Taxation may encourage inflation

Under full employment increased indirect taxation will lead to demand for higher wages, thereby encouraging inflation. A general increase in purchase taxes pushes up the Index of Retail Prices, and so brings in its train demands for wage increase.

e. Diversion of economic resources

Only if there are no hindrances to the free play of economic forces will resources be distributed among occupations in such a way as to yield that assortment of goods and services desired by consumers. Taxation of commodities is similar in effect to an increase in their cost of production. Thus, the influence of a change of supply has to be considered, effect depending on their elasticity of demand. In consequence of taxation, resources will move from heavily taxed to more lightly taxed forms of production. This result may, of course, be desired on Non-economic grounds.

3. PUBLIC EXPENDITURE

The accounts of the central government are centered on two funds, the Consolidated Fund, which handles the revenues from taxation and other miscellaneous receipts such as broadcasting license fees, interest and dividends, and the **National Loans Fund** which conducts the bulk of the government's domestic borrowing and lending.

Each government ministry works out how much money it wants to spend in the coming Financial Year which, in Kenya starts on 1st July in each year and ends on 30th June on the following year. This is known as **preparing estimates**. There are two types of estimates, - estimates of **Capital Expenditure** and estimates of **Recurrent Expenditure**.

Capital Expenditure refers to the money spent on government projects such as the construction of **roads, bridges, health facilities, educational institutions** and other **infrastructure facilities**. Recurrent expenditure refers to money spent by the government on a **regular** basis throughout the Financial Year e.g. the salaries of all civil servants, or the cost of lighting a government building.

Government departments also have to prepare estimates for the next financial year for presentation to parliament. Any department which earns revenue for sales of goods or services to the public shows this as an **appropriations-in aid**, which is deducted from its estimated gross expenditure to show net expenditure, that is, the actual amount required of the Exchequer.

The estimates also include **Grants-in aid** i.e. grants made by the central government to local authorities to supplement their revenue from their levying of rates.

4. NATIONAL DEBT

Taxation does not often raise sufficient revenue for the Government Expenditure. So, governments resort to borrowing. This government borrowing is called Public debt or National debt, it thus refers to the government total outstanding debt. This debt increases whenever the government runs a deficit for then it has to borrow to pay for the excess of expenditure over taxes and other receipts.

Public Debt is undertaken basically for two reasons:

- a. Given the scarcity of our resources, it is necessary for the government to borrow funds in order to speed up the process of economic development.
- b. Export earnings of foreign exchange usually fall short of the needed outlays for imports. In order to cover this foreign exchange deficit on transactions, it is necessary for the

government to borrow from abroad. In the short-run therefore, the external debt is incurred to finance balance of payment deficits. These deficits are incurred in the course of importing vital consumers and producer goods and services.

Types of Public Debt

Public debts can be classified according to the purpose for which the money was borrowed into;

- a. **Reproductive Debt:** where a loan has been obtained to enable a government to purchase some real assets, or Deadweight Debt where the debt is not covered by any real assets.
- b. **National Debt:** can also be classified into marketable and non-marketable debt. Marketable debt can be bought and sold on the money market or stock exchange. It can be divided into two types, short and long-term. The former consists of Treasury Bills and the latter of Government Bonds (Stocks). Non-marketable debt cannot be sold on the money market or stock exchange and includes such items as National Savings certificates, various types of Bonds, and deposits at the National Savings Bank.

Finally, National debt can also be classified into Domestic and external debt. Domestic public debt is owed by the state mainly to its citizens or to domestic institutions such as commercial companies, etc. It includes interest payments on domestic institutions such as commercial companies, etc. Interest payments on domestic debt are raised from the taxation of the community. Such interest payments are transfer payments since the total wealth is not affected, irrespective of the size of the debt. External debt is owed to foreign institutions and governments. Kenya's external debt is incurred with two types of lenders:

i. Bilateral Lenders

This is official lending between two governments. Chief among the lenders of Kenya in this category are the U. S. A., Britain and Japan.

ii. Multi-lateral Lenders

This is lending from organizations comprising of many governments. By far the leading lender is the World Bank (IBRD) – with two main lending affiliate bodies - the International Development Association (IDA) – the international Finance Corporation (IFC); and the International Monetary Fund, and since 1983, the African Development Bank (ABD).

Burden of the national debt

The extent of the burden on a nation of public debt, depends in the first place on whether it is an external or an internal debt. The burden of the national debt to the community can be approximated by the cost of serving it. The cost of servicing the public debt can be calculated:

- i. Per head of the population, or
- ii. As a percentage of government revenue, or
- iii. As a percentage of the national income.

Whichever method used, the National debt shall have the following burden on society:

- If higher taxation is required to service a debt which might have disincentive effects resulting in a lower level of output, then this is a burden.
 - If the debt is held by foreigners, goods will need to be exported to pay the interest and possible repayment of capital. This part of the debt will involve a great burden.
-

PUBLIC SECTOR BORROWING REQUIREMENT (PSBR)

Public Sector Borrowing Requirement (PSBR) is the amount which the government needs to borrow in any one year to finance an excess expenditure over income.

Effects of Government Borrowing on the Economy

If the government borrows from the general public, this may divert funds from more productive uses.

Firms also require finance and it may be that individuals and **financial institutions prefer to lend to the government** where the risk is less and possibly the returns are greater. Thus the public sector may “crowd out” the private sector. This is known as the “crowding out” effect.

A further harmful effect may occur. Government borrowing **will tend to raise the rate of interest**. This increase in interest rates will make certain capital investments less profitable **resulting in a fall in investment, slower economic growth and a reduction in the competitiveness of the industries**.

The increase in interest rates will also raise the cost of borrowing money for the purchase of houses and other goods hence an **increase in the cost of living** leading to **inflationary wage pressure**.

To avoid the above adverse effects, the government would **borrow from the banking system the use of Treasury Bills**; But this would raise eligible reserve assets in the banking system and thereby the money supply and the resultant inflation: This puts the government in a dilemma.

The above pattern could be alleviated if the size of the PSBR was reduced. This could be done by:

Reducing government expenditures and/or increasing taxation: The first option is the trend in recent years but increased taxation is said to have the effect of reducing initiative and incentives.

Of late, employment has been put in the control of PSBR and ensuring that the growth of money did not exceed the growth of output.

5. FISCAL POLICY

i. **Fiscal policy** refers to the manipulation of government revenue and expenditure to achieve policy objectives associated with:

- Moderating resources allocation and adjusting price mechanisms in favour of the satisfaction of public wants by encouraging socially optimal investments as well as increasing rate of investments;
- Redistributing wealth income;
- Guiding the national economy in terms of growth and stability;
- Increasing employment opportunities;
- Counteracting inflation; and
- Improving the balance of payments.

The usefulness of fiscal policies is often limited by:

- Structural constraints in the economies; and

- Observed conflicts of objectives between long term growth and short term stability; social welfare and economic growth; income distribution and growth and personal freedom and social control.

Basically, fiscal policy can be applied in many ways to influence the economy. For example the government can increase its own expenditure which it can influence by raising taxes, by borrowing from non bank members of the public and/or borrowing from the Central and Commercial bank. Borrowing from non - bank members of the public often raises interest rates and reduces availability of credit to the private sector forcing a reduction in the sectors of consumption and investment expenditures. Borrowing from the Central Bank increases money supply and may give rise to inflation and balance of payments problems.

Taxes can be used to change the consumption of demand in the economy and to affect consumption of certain commodities.

ii. Monetary policies

This is the direction of the economy through the variables of money supply and the price of money. Expanding the supply of money and lowering the rate of interest should have the effect of stimulating the economy, while a policy designed to reduce price and wage inflation by requesting voluntary restraint or by imposing statutory controls contracting the supply and raising the rate of interest should have a restraining effect upon the economy. (See Lesson 5)

iii. Direct intervention

The government can also intervene directly in the economy to see that its wishes are carried out. This can be achieved through:

a. Price and incomes policy

This is where the government takes measures to restrict the increase in wages (incomes) and prices thus can be statutory or voluntary.

b. Supply-side policies

These are policies to influence the economy by the productivity of the free market economy. For instance unemployment can be controlled through supply side measures such as skills training, reducing social security payments, lessening the disincentives presented by taxation, facilitating the easier flow of finance to firms, removing firms, removing restrictive practices etc.

c. Regional policies

These are policies designed to help the less prosperous regions.

Policy conflicts

In their attempts to achieve the policy objectives, governments often face what are called conflict of objectives. These arise partly because unlike private individuals, governments strive to achieve a multiplicity of objectives.

For instance, a more equal income distribution certainly conflicts with efficiency in the economic system (which reduces, the total output available for everyone).

Secondly, a fiscal policy which is meant to control unemployment may cause inflation if it achieves full employment or policies to combat inflation might call for a cut in public expenditure which in the short-run may lead to a higher rate of unemployment and a less equitable distribution of income

and wealth.

Also the policy of maintaining low council houses rents on equity grounds results in long waiting list; this may be undesirable on efficiency grounds as it acts as a barrier to labour mobility and this in turn may increase unemployment.

A fiscal policy meant to cure balance of payments may not just reduce demand for imports but also reduces demand for domestically produced goods. This in turn can have a knock on effect in the form of lower output and higher unemployment.

Difficulties in using fiscal policy

There are several problems involved in implementing fiscal policy. They include:

Theoretical problems

Monetarists and the Keynesians do not seem to agree on the efficacy of fiscal policy. Monetarists claim that budget deficits (or surpluses) will have little or no effect upon real national income while having adverse effect upon real national income while having adverse effects upon the interest rates and upon prices.

The net effects of the budget

Unlike the simple Keynesian view that various types of budgets have different effects, the empirical evidence is that the net effects of taxes and government expenditure are influenced by the marginal propensities to consume of those being taxed and governments expenditure.

The Inflexibility of government finances

Much of the government's finances are inflexible. One of the reasons for this is that the major portion of almost any departments budget is wages and salaries, and it is not possible to play around with these to suit the short-run needs of the government.

Discretionary and automatic changes

Discretionary changes are those which come about as a result of some conscious decision taken by the government, e.g. changes in tax rates or a change in the pattern of expenditure.

Automatic changes come about as a result of some changes in the economy, e.g. an increase in unemployment automatically increases government expenditure on unemployment benefits.

In fact it is the case that deficits tend to increase automatically in times of recession and decrease in times of recovery. (These fiscal weapons which automatically increase in times of recession and decrease in times of recovery are referred to as brick stabilizers). It is possible for a government to compound the effects of a recession by raising taxes in order to recover lost revenues. This, according to Keynesians, would cause a multiplier effect downwards on the level of economic activity.

Policy conflicts

When devising its fiscal policy, the government must attempt to reconcile conflicting objectives of policy. For example, there is commonly supposed to be a conflict between full employment and inflation, i.e. that the attainment of full employment may cause inflation. (See page 14)

Information

It is very difficult to assemble accurate information about the economy sufficiently quickly for it to be of use in the short-run management of the economy.

Time lag

It normally takes time for a government to appreciate the economic situation, to formulate a policy and then implement it. This leads to lagged responses some of which may be long and difficult to predict.

For instance, there is an inside lag which is the time interval between the recognition of an economic problem or the shock and the implementation of appropriate policy measures. This is the time it takes to recognize that the shock has taken place and then to formulate and implement an appropriate policy. In general, fiscal policy is thought to have a longer inside lag than monetary policy.

Finally, there is an outside lag when the time interval between the implementation of policy measures and the resultant effects on the intended targets.

The neo-classical view

The neo-classical view is that market forces are the best directors of the economy. Positive attempts by the government it is argued inevitably make things worse. The correct posture for fiscal policy, therefore, is simply to minimize the role of government, thus leaving the largest proportion of the economy possible to be run by the market forces.

Problems of prices and Incomes policy

i. Confrontation

The imposition of the prices and incomes policy, voluntary or statutory, risks the possibility of confrontation with trade unions.

ii. Discrimination

Incomes policies often tend to be more effective in the public sector, thus restricting incomes then more than in the private sector.

iii. Distortion of market forces

If all workers receive similar increases this will tend to distort market forces in the labour market.

Expanding sectors will find it hard to attract labour while contracting sectors will hang on to labour for too long.

iv. Differentials

Many incomes policies have been based on flat-rate increases, e.g. £4 per week maximum increases, this increases the wage rate of lower paid workers relatively more than those of the higher paid.

v. Wages drift

This refers to the tendency for earnings to rise faster than wage rates. This is because earnings are the compound of wages, overtime, bonuses, etc. Incomes policy tends to worsen wages drift in those industries which are trying to attract labour, i.e. industry will be tempted to comply with the incomes policy by raising wage rates by only the stipulates account but increasing bonuses, fringe benefits and so on.

Monetary policy

- The problems concerning the ability of monetary policy to influence the economy, as for instance the doubts about the ability of lower interest rates to stimulate investment, and employment.
- Mechanistic problems which may prevent the instruments from being effective, as for example the existence of excess liquidity in the system preventing open market operations from being effective.

Interest rates

- Decreasing the rate of interest may not encourage investment but increasing the interest rate tends to lock up liquidity in the financial system.
- Governments may also be unwilling to put up interest rates because, as so many voters are house buyers, this is extremely unpopular.
- With a large national debt to service, governments are less willing to raise interest rates as this will raise their own expenditure.
- Finally, with so many foreign deposits in their monetary system (sector), each percentage rise in interest rates means a drain of foreign currency on the balance of payments.

Liquidity and the multiple contraction of deposits

Many of the instruments of monetary policy depend upon limiting liquidity, which has a multiple effect upon bank deposits through their liquidity ratios. If however, banks keep surplus liquidity this will protect them against such measures as open market operations and special deposits.

The efficacy of open-market sales is also affected by who purchases the securities. For open-market sales to be effective it is necessary that sales be to the general public, if the securities are bought by the banks they will have little effect upon their liquidity since most of them count as liquid assets.

The velocity of circulation

Theoretically it is possible for decreases in the money stock (M) to be offset by rises in the velocity of circulation (V).

Other problems

Funding may be effective in controlling liquidity, but it is expensive since the rate of interest on long-term debt is usually much higher than on short-term debt. Considerable funding of the debt might therefore have the undesirable consequences of increasing long-term interest rates.

6. TYPES AND CAUSES OF

INFLATION Meaning

The word inflation has at least four meanings.

- A persistent rise in the general level of prices, or alternatively a persistent fall in the value of money.
- Any increase in the quantity of money, however small can be regarded as inflationary.
- Inflation can also be regarded to refer to a situation where the volume of purchasing power is persistently running ahead of the output of goods and services, so that there is a continuous tendency of prices – both of commodities and factors of production – to rise because the supply of goods and services and factors of production fails to keep pace with demand for them. This type of inflation can, therefore, be described as persistent/creeping inflation.
- Finally inflation can also mean runaway inflation or hyper-inflation or galloping inflation where a persistent inflation gets out of control and the value of money declines rapidly to a tiny fraction of its former value and eventually to almost nothing, so that a new currency has to be adopted.

Measurement of Inflation

The rate of inflation is measured using the Retail Price Index. A retail Price Index aims to measure the change in the average price of a basket of goods and services that represents the consumption pattern of a typical household. It estimates the change in the cost to consumers of a range of commodities that they typically buy. It is usually prepared for different classes of consumers and for different areas. The index is measured as follows:

$$I = \frac{\sum_{i=1}^n P_{1i} Q_{0i}}{\sum_{i=1}^n P_{0i} Q_{0i}}$$

Where: I is the cost of living index

\sum is the summation sign

n is the number of commodities in the representative basket.

P_{1i} is the price of the commodity in the basket in the current period

Q_{0i} is the weight of the commodity in the consumer's basket.

P_{0i} is the price of the commodity I in the base period

The calculation of the index requires:

- Selection of commodities to be included in the consumers basket
- Selection of the base period weights for each commodity
- Date on prices of the commodities in the current period and in the base period

Such an index then estimates the cost of living or the purchasing power of incomes. If the index increases by 10% in a given period, wages would need to rise by 10% for purchasing power to remain constant. It is in this regard that trade unions and workers demand that wages should increase **pari-passu** with the cost of living index.

Causes of Inflation

At present three main explanations are put forward: cost-push, demand-pull, and monetary.

Cost-push inflation occurs when the increasing costs of production push up the general level of prices. It is therefore inflation from the supply side of the economy. It occurs as a result of increase in:

- a. **Wage costs:** Powerful trade unions will demand higher wages without corresponding increases in productivity. Since wages are usually one of the most important costs of production, this has an important effect upon the price. The employers generally accede to these demands and pass the increased wage cost on to the consumer in terms of higher prices.
- b. **Import prices:** A country carrying out foreign trade with another is likely to import the inflation of that country in the form of intermediate goods.
- c. **Exchange rates:** It is estimated that each time a country devalues its currency by 4 per cent, this will lead to a rise of 1 per cent in domestic inflation.

- d. **Mark-up pricing:** Many large firms fix their prices on unit cost plus profit basis. This makes prices more sensitive to supply than to demand influences and can mean that they tend to go up automatically with rising costs, whatever the state of economy.
- e. **Structural rigidity:** The theory assumes that resources do not move quickly from one use to another and that wages and prices can increase but not decrease. Given these conditions, when patterns of demand and cost change, real adjustments occur only very slowly. Shortages appear in potentially expanding sectors and prices rise because slow movement of resources prevent the sector and prices rise because of slow sectors keep factors of production on part-time employment or even full time employment because mobility is low in the economy. Because their prices are rigid, there is no deflation in these potentially contracting sectors. Thus the process of expanding sectors leads to price rises, and prices in contracting sectors stay the same. On average, therefore, prices rise.
- f. **Expectational theory:** This depends on a general set of expectations of price and wage increases. Such expectations may have been generated by a continuing demand inflation. Wage contracts may be made on a cost plus basis.

Demand-pull inflation is when aggregate demand exceeds the value of output (measured in constant prices) at full employment. The excess demand of goods and services cannot be met in real terms and therefore is met by rises in the prices of goods. Demand-pull inflation could be caused by:

- **Increases in general level of demand of goods and services.** A rise in aggregate demand in a situation of nearly full employment will create excess demand in many individual markets, and prices will be bid upward. The rise in demand for goods and services will cause a rise in demand for factors and their prices will be bid upward as well. Thus, inflation in the prices of both consumer goods and factors of production is caused by a rise in aggregate demand.
- **General shortage of goods and services.** If there is a general shortage of commodities e.g. in times of disasters like earthquakes, floods or wars, the general level of prices will rise because of excess demand over supply.
- **Government spending:** Hyper-inflation certainly rises as a result of government action. Government may finance spending through budget deficits; either resorting to the printing press to print money with which to pay bills or, what amounts to the same thing, borrowing from the central bank for this purpose. Many economists believe that all inflation is caused by increases in money supply.

Monetarist economists believe that “inflation is always and everywhere a monetary phenomenon in the sense that it can only be produced by a more rapid increase in the quantity of money than in output” as Friedman wrote in 1970.

The monetarist’s theory is based upon the identity:

$$M \times V = P \times T$$

And thus this was turned into a theory by assuming that V and T are constant. Thus, we would obtain the formula

$$MV=PT$$

(See Lesson 5)

7. THE IMPACT OF INFLATION AND ITS CONTROL MEASURES

Inflation has different effects on different economic activities on both micro and macro levels. Some of these problems are considered below:

- i. During inflation money loses value. This implies that in the lending-borrowing process, lenders will be losing and borrowers will be gaining, at least to the extent of the time value of money. Cost of capital/credit will increase and the demand for funds is discouraged in the economy, limiting the availability of investable funds. Moreover, the limited funds available will be invested in physical facilities which appreciate in value over time. It's also impossible the diversion of investment portfolio into speculative activities away from directly productive ventures.
- ii. Other things constant, during inflation more disposable incomes will be allocated to consumption since prices will be high and real incomes very low. In this way, marginal propensity to save will decline culminating in inadequate saved funds. This hinders the process of capital formation and thus the economic prosperity to the country.
- iii. The effects of inflation on economic growth have inconclusive evidence. Some scholars and researchers have contended that inflation leads to an expansion in economic growth while others associate inflation to economic stagnation. Such kind of inflation if mild, will act as an incentive to producers to expand output and if the reverse happened, there will be a fall in production resulting into stagflation i.e. a situation where there is inflation and stagnation in production activities.
- iv. When inflation imply that domestic commodity prices are higher than the world market prices, a country's exports fall while the import bill expands. This basically due to the increased domestic demand for imports much more than the foreign demand for domestic produced goods (exports). The effect is a deficit in international trade account causing balance of payment problems for the country that suffers inflation.
- v. During inflation, income distribution in a country worsens. The low income strata get more affected especially where the basic line sustaining commodities' prices rise persistently. In fact such persistence accelerates the loss of purchasing power and the vicious cycle of poverty.
- vi. Increased production

It is argued that if inflation is of the demand-pull type, this can lead to increased production if the high demand stimulates further investment. This is a positive effect of inflation as it will lead to increased employment.

- vii. Political instability

When inflation progresses to hyper-inflation, the unit of currency is destroyed and with it basis of a free contractual society.

- viii. Inflation and Unemployment

For many years, it was believed that there was a trade-off between inflation and unemployment i.e. reducing inflation would cause more unemployment and vice versa.

Measures to control inflation

An inflationary situation can effectively be addressed/tackled if the cause is first and foremost identified. Governments have basically three policy measures to adopt in order to control inflation,

namely:

Fiscal Policy: This policy is based on demand management in terms of either raising or lowering the level of aggregate demand. The government could attempt to influence one of the components $C + I + G (X - M)$ of the aggregate demand by reducing government expenditure and raising taxes. This policy is effective only against demand-pull inflation.

Monetary Policy: For many years monetary policy was seen as only supplementary to fiscal policy. Neo-Keynesians contend that monetary policy works through the rate of interest while monetarists' viewpoint is to control money supply through setting targets for monetary growth. This could be achieved through what is known as medium term financial strategy (MTFs) which aims to gradually reducing the growth of money in line with the growth of real economy – the use of monetary policy instruments such as the bank rate, open market operations (OMO) and variable reserve requirement (cash & liquidity ratios).

Direct Intervention: Prices and incomes policy: Direct intervention involves fixing wages and prices to ensure there is almost equal rise in wages and other incomes alongside the improvements in productivity in the economy. Nevertheless, these policies become successful for a short period as they end up storing trouble further, once relaxed will lead to frequent price rises and wage fluctuations. Like direct intervention, fiscal and monetary policies may fail if they are relied upon as the only method of controlling inflation, and what is needed is a combination of policies.

REINFORCING QUESTIONS:

1. a) Outline the functions of taxation .
b) What are the possible disadvantages of a progressive income tax system?
2. State and explain Adam Smith's canons of taxation. Give local example as appropriate in each.
3. a) What is meant by inflation
b) What are the major causes of inflation?
c) Explain the economic problems that arise from a high rate of inflation.

Check answers with those given in Lesson 9 of the study park.

LESSON EIGHT

INTERNATIONAL TRADE AND FINANCE

LEARNING OBJECTIVES:

At the end of the lesson the student should be able to:-

- Explain why countries engage in **international trade**,
- Understand how the theory of comparative advantage attempts to explain why countries gain from international trade and its limitation,
- Explain the **problems encountered** by nations when they attempt to individually maximize gains from trade through specialization,
- Enumerate the **gains** that accrue to a country from participating in international trade,
- Explain the reasons why countries put **restrictions** on international trade,
- Know the various methods a country can use to **restrict** international trade,
- Argue the case for **free trade**,
- Distinguishing between **terms of trade** and **balance of payments**,
- State the various policies a country can use to cure a balance of payments deficit,
- Know the various forms of **international liquidity**,
- Explain the factors that determine the rate of **foreign exchange**,
- Be conversant with the various **international financial institutions**, their objectives and success in the implementation of the objectives,
- Know the meaning, advantages, problems and disadvantages of **regional integration** in Africa.

CONTENTS

1. International Trade
2. Theory of Comparative Advantage
3. Terms of Trade
4. International Trade Arrangements and Agreements. Regional Integral Organisations
5. Balance of Payments
6. International Liquidity
7. International Financial Institutions

ASSIGNED READINGS:

MODERN ECONOMICS by Robert Mudida Chapter 12

1. INTERNATIONAL TRADE

Definition: It is the exchange of goods and services between one country and another. International Trade can be in goods, termed visibles or in services, termed invisibles e.g. trade in services such as tourism, shipping and insurance.

Reasons for the Development of International Trade

- a. Some goods **cannot be produced** by the country at all. The country may simply not possess the raw materials that it requires; thus it has to buy them from other countries. The same would apply to many foodstuffs, where a different climate prevents their cultivation.
- b. Some goods cannot be produced as **efficiently** as elsewhere. In many cases, a country could produce a particular good, but it would be much less efficient at it than another country.
- c. It may be better for the country to give up the production of a good (and import it instead) in order to specialize in something else. This is in line with the **principle of comparative advantage**.
- d. In a free market economy, a consumer is free to choose which goods to buy. A foreign good may be more to his or her liking. This is in line with the **principle of competitive forces** and the exercise of **choice**.
- e. **Shortages:** At a time of high domestic demand for a particular good, production may not meet this demand. In such a situation, imports tend to be bought to overcome the shortage.

2. THEORY OF COMPARATIVE ADVANTAGE

In his theory put forward in a book published in 1817, David Ricardo argued that what was needed for two countries to engage in international trade was comparative advantage. He believed that 2 countries can still gain, even if one country is more productive than the other in all lines of production. Using the Labour Theory Value, Ricardo's contribution was to show that a sufficient basis for trade was a difference, not in absolute costs. He illustrated his theory with 2 countries and two commodities, I and II and A and B respectively.

COUNTRY	COST OF PRODUCING 1 UNIT (In Manhours)	
	A	B
I	8	9
II	12	10

We can observe that country I has complete absolute advantage in the production of both commodities since it can produce them with a lower level of resources. Country I is more efficient than country II.

Ricardo believed that even then there could still be a basis for trade, so long as country II is not equally less productive, in all lines of production. It still pays both countries to trade. What is important is the Comparative Advantage. A country is said to have comparative advantage in the production of a commodity if it can produce at relatively lower opportunity costs than another country. (The Law of **Comparative Advantage** states that a nation should specialize in producing and exporting those commodities which it can produce at **relatively** lower costs,

and that it should import those goods in which it is a relatively high cost producer). Ricardo demonstrated this by introducing the concept of **Opportunity Cost**.

The opportunity Cost of good A is the amount of other goods which have to be given up in order to produce one unit of the good. To produce a unit of good A in country I, you need 8 man hours and 9 man hours to produce good B in the same country. It is thus more expensive to produce good B than A. The opportunity costs of producing a unit of A is equivalent to 8/9 units of good B. One unit of B is equal to 9/8 units of A.

In country II, one unit of A is equal to 12/10 of B and one unit of B = 10/12 units of A. Therefore he felt that: -

Opportunity cost of producing one unit of:

	A	B
COUNTRY		
I	9/8 (1.25) B	8/9 (0.89) A
II	10/12 (0.83) B	12/10 (1.2) A

B is cheaper to produce in country II in terms of resources as opposed to producing it in country I. The opportunity costs are thus lower in country II than in country I.

Consider commodity A valued in terms of B. A cheaper in country I than country II.

A country has comparative advantage in producing commodity if the opportunity cost of producing it is lower than in other countries. Country I has a lower opportunity cost in producing A than B and II has a lower opportunity cost in the production of B than A. In country I, they should specialize in the production of A and Import B.

Limitations of Comparative advantage

This doctrine is valid in the case of a classical competitive market characterized by a large number of informed buyers and sellers and homogenous products in each market, with world market places serving as efficiency determinants for global allocation of resources to their most suitable uses. Unfortunately, world markets and their prices are largely inefficient showing influences of trade barriers, discrimination and market distortions.

Individual countries systematically aim at maximizing their potential gains from trade rather than with optimizing the allocation of world resources.

By pursuing gains from trade in the short run young nations may jeopardize long term development prospects because:

- i) It is important to protect infant industries to acquire new skills, technology and home markets that are necessary in the early years of industrial development;
- ii) Concentrating on short term comparative advantage may lead to internalizing wrong externalities e.g. promoting use of illiterate peasants and primary sector production;
- iii) Long term movements in commodity terms of trade disfavour primary commodities as their prices rise more slowly than those of industrial manufactures (income elasticity of demand for primary commodities is lower than for manufactures and as world incomes rise demand for the latter rises more rapidly affecting their relative world prices).

Gains From International Trade

The gains from International trade are to make the participating countries better off than they

would have otherwise been. This will be the result of a number of advantages which a country can derive from international trade, namely:

The vent-for-“surplus” product

Many countries have products which are surplus to their own requirements and it is only by exporting these that they have value at all. Thus, the plantations of coffee in Kenya are only of value because of the existence of international trade. Without it, the coffee would mainly be unused and remain unpicked.

Many of the primary products that are exported would be of no use to the country. Without trade, the land and the labour used for their production would be idle. Trade therefore gives the country the opportunity to sell these products and to make use of the available land and labour.

Importation of what cannot be produced

A country has to import what it cannot produce. Certain countries like Japan and Britain could not manufacture goods without the importation of most of the raw materials. There is thus necessity for international trade in respect of these essential materials.

Specialization according to absolute advantage

International trade allows a country to specialize in the production of commodities where it more efficient than other countries. For instance, if we take a situation in which each country in a simple two country model has an absolute advantage in producing either fruits or beef but is able to produce the other commodity only if required (for simplicity we assume constant returns to scale and full utilization of resources). Suppose that each country has equal resources and devotes half its limited resources to citrus fruit and half to beef and the production totals are:

	Units of Citrus fruits	Units of Beef
Country X	10	5
Country Y	<u>5</u>	<u>10</u>
World total	<u>15</u>	<u>15</u>

The relative or comparative costs of citrus production is lower in country X than in country Y, but the situation is reserved in the case of beef production. Country X has an absolute advantage in citrus fruit production and Y has an absolute advantage in beef production. If each country specializes in the production of the commodity in which it is most efficient and possesses absolute advantage, we get:

	Units of Citrus fruits	Units of Beef
Country X	20	0
Country Y	<u>0</u>	<u>20</u>
World total	<u>20</u>	<u>20</u>

The gains from trade are obvious with five units more of fruit and five more of beef – provided we assume that transport costs are not so enormous as to rule out gains made.

Specialization according to comparative advantage

Even if one country can produce the two goods more efficiently at a lower comparative cost than the other country, there could be gains to be made from International Trade. This possibility is explained by the theory of comparative advantage. Suppose that country X is

more efficient in both citrus fruit and beef production. If each country devoted half its resources to each, let us imagine the production totals are:

	Units of Citrus fruits	Units of Beef
Country X	30	60
Country Y	<u>20</u>	<u>10</u>
World total	<u>50</u>	<u>70</u>

Country X possesses an absolute advantage in both industries but whereas X is only 50% more efficient in the citrus fruit production, it is six times more efficient in beef production. Even so, if country Y produces an extra unit of citrus fruit it need give up only half a unit of beef. In contrast, country X must give up two units of beef to increase production of citrus fruits by one unit. It is evident from this example that although a country may have absolute advantage in the production of all products, it is possible for a country such as Y to produce some products relatively cheaply at lower opportunity cost than its trading partner X. When this occurs as in the simple example above then economists describe X as possessing a comparative advantage in the production of citrus fruit.

If each country specializes completely in the activity in which it possesses a comparative advantage, the production totals are:

	Units of Citrus fruits	Units of Beef
Country X	0	120
Country Y	<u>40</u>	<u>0</u>
World total	<u>40</u>	<u>120</u>

What is evident from these last calculations is that although the overall production of beef has increased, the output of citrus fruit has fallen by ten units. Thus we cannot be sure without some knowledge of demand and the value placed on the consumption of citrus fruit and beef that a welfare system gain will result from specialization.

Competition

Trade stimulates competition. If foreign goods are coming into a country, this puts home producers on their toes and will force them to become more efficient.

Introduction of new ideas

International trade can introduce new ideas into a participating country; it can stimulate entrepreneurship and generate social change. This is especially the case in developing countries where the development of expert industries can lead to the emergence of a commercial class desirous of change and opposed to any practice that hold back economic advancement.

Technological advances can also be introduced into a country as companies start to base their production in overseas countries.

Widening of choice to the consumer

It is undoubtedly a great benefit to be able to buy a wide range of goods that would not otherwise be available. International trade offers to the consumer a wider choice. This greater availability of goods may indeed prove to be of economic advantage. For in a country, producers may only be prepared to take risks and invest their time and money in a business if they can spend the resultant income on consumer goods. These may be imported, especially if

the country lacks consumer goods industries – as in many developing countries. Thus, these imports of consumer goods provide the incentive for productive effort within the country.

Creation and maintenance of employment

Once a pattern of international trade has developed, and countries specialize in the production of certain goods for export, it follows not only has that trade created employment in those sectors, but that the maintenance of that trade is necessary to preserve that employment. In the modern world with its high degree of interdependence, a vast number of jobs depend upon international trade.

Restrictions on International Trade

Despite the arguments of the “classical” theory of free trade, the twentieth century has seen the gradual movement away from free trade, with governments increasingly imposing restrictions on trade and capital flows. All have adopted, to varying extents, various forms of restrictions to protect some of their industries or agriculture.

Reasons for Protection

Cheap Labour

It is often argued that the economy must be protected from imports which are produced with cheap, or ‘sweated’, labour. Some people argue that buying foreign imports from low wage countries amounts not only to unfair competition, but continues to encourage the exploitation of cheap labour in those countries as well as undermining the standard of living of those in high wage economies.

Infant Industry Argument

Advocates of this maintain that if an industry is just developing, with a good chance of success once it is established and reaping economies of scale, then is it necessary to protect it from competition temporarily until it reaches levels of production and cost which allow it to compete with established industries elsewhere, until it can “stand on its own feet”. The argument is most commonly used to justify the high level of protection that surrounds the manufacturing industry in developing countries, as they attempt to replace foreign goods with those made in their own country (“import substitution”).

Structural Unemployment

The decline of the highly localized industry due to international trade causes great problems of regional (structural) unemployment. If it would take a long time to re-locate the labour to other jobs, then this can put the government, under considerable political and humanitarian pressure, to restrict the imports that are causing the industry to decline.

Dumping

If goods are sold on a foreign market below their cost of production this is referred to as dumping. This may be undertaken either by a foreign monopolist, using high profits at home to subsidize exports for political or strategic reasons. Countries in which such products are “dumped” feel justified in protecting themselves. This is because dumping could result in the elimination of the home industry, and the country then becomes dependent on foreign goods which are not as cheap as they had appeared.

Balance of Payments

Perhaps the most immediate reason for bringing in protection is a balance of payment deficit. If a country had a persistent deficit in its balance of payments, it is unlikely to be able to finance

these deficits from its limited reserves. If therefore becomes necessary for it adopt some form of restriction on imports (**e.g. tariffs, quotas, foreign exchange restrictions**) or some means of boosting its exports (**e.g. export subsidies**).

Danger of over-specialising

A country may feel that in its long-term interests it should not be too specialized.

A country may not wish to abandon production of certain key commodities even though the foreign product is more competitive, because it is then too dependent on imports of that good. In the future, its price or supplies may diminish. It is for this reason that countries wish to remain largely self-sufficient in food.

An exporting country may not wish to become overspecialized in a particular product. Such over specialization may make sense now, but in the future, demand may fall and the country will suffer disproportionately. It is for this reason that many developing countries choose not to rely solely on their comparative advantage; they wish to diversify into other goods as an "insurance policy".

Strategic Reasons

For political or strategic reasons, a country may not wish to be dependent upon imports and so may protect a home industry even if it is inefficient. Many countries maintain industries for strategic reasons. The steel industry, energy industries, shipping, agriculture and others have used this strategic defence argument.

Bargaining

Even when a country can see no economic benefit in protection, it may find it useful to have tariffs and restrictions bargaining gambits in negotiating better terms with other nations.

Ways of Restricting International Trade

The most common means of restricting international trade is through import restrictions. The main forms are:

Tariffs

This is a tax on each unit imported. The effect of the tax is to raise the price of imported varieties of a product in relation to the domestically produced, so that the consumers are discouraged from buying foreign goods by means of the price mechanism. Such a tax may be **ad valorem**, representing a certain percentage of the import price, or **specific** that is, an absolute charge on the physical amount imported as, for example, five shillings a ton.

Quotas

The most direct way of offering protection is by limiting the physical quantity of a good which may be imported. This can be done by giving only a limited number of import licenses and fixing a quota on the total amount which may be brought in during the period. The quota may be imposed in terms of physical quantities or in terms of the value of foreign currency, so that a maximum of so many "shillings-worth" may be imported.

Foreign exchange restriction

Exchange controls work much the same way as physical controls. Foreign exchange is not made available for all desired imports. It can be severely restricted to whatever the government decides it wants to see imported. Alternatively, the exchange rate may be fixed in such a way as

to “overprice” foreign currency (compared to what would have been the free market price), so that importers have to pay more for foreign currency (in terms of domestic currency). This makes all imports dearer and thus gives protection “across the board” to all domestic production for the home market.

Procurement policies by government

The government itself, together with state corporations, is an important purchaser of goods; in its “procurement” policies, therefore, it can either buy goods from the cheapest source, whether domestic or foreign, or it can give preference to domestic producers. This could amount to a substantial advantage, or protection.

Other restrictions

Governments can devise health or safety requirements that effectively discriminate against the foreign good. Also where the country has state import agencies they can choose not to import as much as their citizens would require. The government can also introduce cumbersome administrative procedures that make it almost impossible to import.

Arguments against protectionism

Most of the arguments for protectionism may be met with counter arguments, but underlying the economic arguments as opposed to the social, moral, political, strategic, etc, is the free trade argument.

Free trade argument

This, in brief, maintains that free trade allows all countries to specialize in producing commodities in which they have a comparative advantage. They can then produce and consume more of all commodities than would be available if specialization had not taken place. By implication, any quotas, tariffs, other forms of import control and/or export subsidies all interfere with the overall advantages from free trade and so make less efficient use of world resources than would otherwise be the case.

Reduced output argument

It has been said that import controls will protect jobs initially, but not in the longer run. If we in the home country limit imports, then other countries will have less of our currency with which to buy our exports.

This will lead to a decline in sales and a loss of jobs in export industries. The overall effect is likely to be a redistribution of jobs from those industries in which the country has a comparative advantage to those in which it has a comparative disadvantage. The net result will be that total employment is unchanged but total output is reduced.

The infant industries seldom grow up

The infant industry argument is sometimes met with the claim that infant industries seldom admit to growing up and cling to their protection when they are fully grown up. Most economists, however, appear to accept the infant industry argument as a valid case for protection provided it is temporary.

Gains from comparative advantage

The argument for protection against low wage foreign labour is partly a moral argument which is outside the scope of positive economics, but even the economic part of the argument that it will drag down the living standards of high wage economies can be shown to be invalid. It is true as noted above that the payment of low wages will allow a country to export their goods

cheaply and so possibly undercut those of high wage countries. However, it must be noted that countries importing these cheap goods gain by virtue of their low cost in terms of the goods required to be exported in return. This again is another use of the comparative advantage argument.

No Validity in economics

The other arguments such as the need to avoid over dependence on particular industries and the defence argument are really strategic arguments which are valid in their own terms and for which economic science is largely irrelevant.

Retaliation

Advocates of free trade also believe that if one country imposes import restrictions, then those countries adversely affected will impose retaliatory restrictions on its exports, so it will not end up any better off. This could lead to a “beggar-my-neighbour” tariff war, which no one can benefit from, and which contracts the volume of world trade on which every country’s international prosperity depends.

Inflation

If key foreign goods are not free to enter the country (or cost more), this will raise their prices and worsen the rate of inflation in the country.

Inefficiency

It is argued that if home industries are sheltered from foreign competition there is no guarantee that they will become more efficient and be able to compete in world markets.

3. TERMS OF TRADE

The relation between the prices of a country’s exports and the prices of its imports, represented arithmetically by taking the export index as a percentage of the import index. In the comparative cost model, terms of trade were, defined as the international exchange ratio between a country’s export good and its import good. This is the barter terms of trade which measures the quantity of exports which have to be sacrificed to obtain a unit of imports and is easily calculated when there are just two goods traded. But in practice, countries trade hundreds of different goods and services and the concept of the terms of trade becomes more complex. Estimates of the terms of trade are usually made by calculating an index of import prices; this gives an index of the term of trade:

$$\text{Terms of trade index} = \frac{\text{Export Price Index}}{\text{Import Price Index}} \times 100$$

Thus, the price indices are essentially weighted averages of export and import prices. If these are set at 100 in the same base year, say, 1990, then the terms of trade index is also 100. If, for instance, import prices fall relative to export prices, the terms of trade will rise above 100, the terms of trade then being said to be more favourable to the country concerned since it means that it can obtain more goods from abroad than before in exchange for a given quantity of exports. On the other hand, if the terms of trade become unfavourable, the terms of trade index will fall below 100.

A rise in terms of trade index is usually described as an “improvement” or as “favourable” on the grounds that a rise in export prices relative to import prices theoretically means that a country can now buy the same quantity of imports for the sacrifice of less export (or it can have more imports for the same volume of exports). Similarly, a fall in the terms of trade index is a

“deterioration” or is an “unfavourable” movement.

Factors affecting the long run trend of the Terms of Trade for developing countries

Most Third World countries have been faced by a fall in their terms of trade over the long run. There are a number of factors which contributed to this result, namely: -

The income-elasticity of demand for primary products

These countries export primary products like basic foodstuffs which may be considered to be “necessities” on which a decreasing proportion of income is likely to be spent as these incomes rise. Countries relying on basic foodstuffs and other primary product exports may therefore find their exports growing more slowly than those of individual countries exporting manufactured goods.

The discovery of synthetic materials

Over a whole range of items, the substitution of synthetic man-made products has reduced the market for particular primary products. The long term trend in the market shares of natural and synthetic products is likely to be influenced by a “ratchet” effect. When prices of natural products are high, due to cyclical fluctuations or temporary shortages, research into possible synthetic substitutes will be encouraged. When prices of natural products revert to more normal levels, these products may have permanently lost a further part of the market.

Raw material – saving innovations

This is likely to apply to technical change aimed at economizing the use of raw material’s in industry. Periodic high prices will stimulate the search for and application of raw material saving process. Technical change aimed at a progressive reduction in costs per unit of output directly by permitting industrial output (and thus income) to expand in greater proportion than the demand for materials.

Agricultural protection and import substitution in developed countries

The protectionist policies within the industrial countries which aim to raise the incomes of farmers and other primary producers like fishermen by placing tariffs or quotas on competing imports have also affected the terms of trade for developing countries. As a result, many industrial countries have become almost self-sufficient in producing grains, sugar (from beet), livestock products, and even tobacco and wines. Sometimes the policies have been directed at saving foreign exchange as well as maintaining domestic incomes and employment, and have not only been confined to primary products. Indeed, restrictions on access to markets for manufactured goods by developing countries at large, or potentially large, export industries like India’s textiles have forced developed countries to sell more primary products instead. Thus even without tariffs or quotas, therefore, the expansion in primary product exports is likely to result in a decline in their commodity terms of trade in the many cases where the exports are likely to result in a decline in their commodity terms of trade in the many cases where the price-elasticity of demand in industrial countries is very low. When in addition, these primary products face tariff or quota restrictions, the deterioration in the terms of trade will be greater.

Diminishing returns in agriculture and limited natural resources

Whatever the income-elasticity of demand for primary products, continuous expansion of industrial output means a continually increasing requirement of raw materials. If the supply of land suitable for various agricultural products is limited, the law of diminishing returns may apply, leading to increasing scarcity of such products, and a rise in their prices.

Technical progress in manufacturing

Although technical progress in the industrialized countries should, through the market mechanism, have been shared between the industrial producers and the producers of primary products, according to Raoul Presbich, this desirable development has been frustrated. On the one hand, industrial monopolistic practices and trade union action producing cost-push inflation in the developed countries have persistently raised money wages in these countries and, with these, the prices of manufactured goods. In contrast, competition among primary producers, and the ineffectiveness of trade unions in the agricultural sectors of these economies, has kept down the prices of raw materials. In fact the benefits of any cost-reducing innovation in these countries is likely to be passed on, as a result of competition, to industrial consumers in the form of reduced prices.

4. INTERNATIONAL TRADE ARRANGEMENTS AND

AGREEMENTS. International Commodity Agreements (ICAs)

International Commodity Agreements (ICAs) represents attempts to modify the operation of the commodity markets so as to achieve various objectives such as price stabilization of price enhancement. Support for such intervention stems from apparent weaknesses in the operation of market forces in achieving an efficient allocation of resources, appropriate levels of privately held stocks in some commodities and an equitable distribution of income from their export as between exporters and importing countries.

ICAs are to be distinguished from producers' or exporters' cartels by the feature of consumer agreement to the scheme and representation on the governing body.

Objectives of ICAs

Most schemes have as their main objective to stabilize and/or increase the world price of commodity, producers' incomes, foreign exchange earnings of exporting countries and governing revenues from taxes on the commodity. More stable prices are desired because wildly fluctuating prices may cause hardship and are likely to increase the costs of both producers and consumers through increasing uncertainty and producing exaggerated responses in production and consumption. Where these responses are lagged one or more seasons behind the price change they can be particularly damaging in producing 'cobweb' cycles. High current prices for coffee, for example, may stimulate planting of new coffee trees that will only

bear fruit five or more years hence when the prices may become, as a result very depressed. More stable earnings for producers becomes a particularly important objective when the producers are small farmers with low incomes and little or no reserves, though most countries have national measures such as marketing boards which try to stabilize producers' earnings. Greater stability in export revenues should reduce uncertainty in economic planning and where taxes are geared to export revenues, as is the case for many primary exports, this objective is reinforced.

The aim of raising prices, incomes or export earnings above the levels that would prevail without intervention has to be seen as a form of disguised economic aid or as compensation for declining terms of trade. The charters of several ICAs also include the aim of expanding the markets for their primary products by developing new uses, reducing trade barriers and increasing sales promotion.

As is often the case in economics, many of these objectives are mutually incompatible. A world price stabilized within narrow limits could cause greater instability in export earnings for some commodities, whereas a raised price may involve lower incomes and will certainly militate against expanded markets. Obviously these possibilities depend on assumptions about elasticities of demand and supply for specific commodities, but are in fact more than likely. For example, where demand shifts are the main cause of fluctuations but demand is price elastic, an export quota agreement will destabilize export earnings. Similarly, where supply variations are the basic cause, holding price stable though a buffer stock can destabilise income if the price elasticity of demand is greater than 0.5. a stable price can also involve lower total export earnings. But recently research shows these results are less likely than was previously considered to be the case, particularly if the bank within which a buffer stock seeks to confine price movements is fairly wide. In practice the conflict between price stabilization and stabilization of export earnings for most countries' export earnings is unlikely.

The UN's Integrated Programme for Commodities

Most of the political pressure for ICAs comes from spokesmen for the developing countries. This is reflected in countless resolutions in UNCTAD and in the grandiloquent mid -70s demands for 'A New International Economic Order', basically a collection of old ideas in a fashionable package. Stabilization and support for primary commodity prices remains the main objective and ICAs the main mechanism for achieving it. The only novel features in the UNCTAD proposals for an integrated programme were the suggestion for a Common Fund for financing international stocks and the simultaneous negotiation of a broad group of ICAs. The UNCTAD report stressed, 'That years of studies, discussions and consultations in various forums have succeeded in establishing international arrangements for only a few commodities, hardly any of which have proved to be effective or durable.' Instead of drawing the conclusions that such a dismal record might indicate basic flaws in these forms of market intervention UNCTAD demanded urgent negotiations for creating a package of up to eighteen ICAs with buffer stocks and a Common Fund without wasting further time in research or consultation.

But of these eighteen commodities three already had existing price control agreements (tin, coffee and cocoa); two had existing and successful producer price raising schemes (bauxite and

phosphates); four were unsuitable for buffer stocks scheme either because of the absence of organised markets or perishability (iron ore, bauxite, meats, bananas). Price enhancement for copper, cotton, iron ore, vegetable oils and oil seeds, sugar and meats was unlikely and inequitable because developed countries produced a large proportion of them, and for rubber, jute, hard fibres and cotton because of the ready availability of synthetic substitutes. A rather similar appraisal can be found in Rangarajan's book where he says, of the 18 commodities in the list, "the stock mechanism is suitable for four, of which two already have operating mechanisms and one does not need to be stocked in the near future... it is difficult to avoid the conclusion that the stock mechanism was first chosen as a saleable proposition and the Integrated Programme then fitted around it."

If it is accepted the ICAs are a good thing then there is a case for a simultaneous approach and for the creation of a common fund for stocks. The attraction of dealing with a large group of commodities simultaneously is that it can have something in it for everyone. Countries which have interests in some commodities as consumers but in other as producers can offset gains from one agreement against losses on another. Against this can be set the sheer complexity of the task and tremendous demands that would be created for the simultaneous price increase (since that is the most likely effect of the start of the large number of stockpiles recommended) in a wide range of important imports unlikely to raise much enthusiasm on their form for such proposals, it may be possible to give a little disguised aid in the form of an agreement on sugar or coffee without the electorate noticing what is afoot, but if similar transfers through raised prices are intended for ten or more commodities strong opposition from consumers is very likely.

A common fund for buffer stocks offers several advantages. First, if the market behaviour for some commodities is out of phase with movements in prices of others, some buffer stocks could be selling at the same time as others buying. These offsetting movements could reduce the overall size of the required fund as compared with the aggregate of individual commodity funds required to achieve the same policy objectives. If, however, the main cause of instability was cyclical – fluctuations in demand which caused all commodity prices to rise and fall together – this economy in funds would be zero or negligible.

A large single fund might obtain finance on better terms than would several smaller ones. Lending risks would be pooled and reduced, and dealing in large sums of money would yield some economies of scale. UNCTAD envisages the buffer stocks as representing investments which could attract funds on a near commercial basis from OPEC members, but this is a very doubtful proposition. It depends on either rather wide swings between purchase and sale prices or very accurate predictions on the part of the stock managers. The combination of administrative, brokerage, storage and deterioration costs in stocks tends to absorb a very large part the gross margins between purchase and sale prices making it unlikely that the fund could support high interest charges.

Negotiations for a Common Fund (CF) were eventually concluded in 1979. It was set up with 'two windows'. The first is intended to help finance international buffer stocks and international buffer stocks and internationally co-ordinated national stocks. Its second window will finance such measures as research and development, marketing and diversification. The financial structure of the CF is envisaged as government contributions of \$ 470 million of which \$400 million is for the first, and \$70 million for the second window. Of the \$400 million, \$150 million is to be contributed in cash, \$150 million on call and \$100 million as on call for backing the Fund's borrowing. UNCTAD's earlier estimate of \$6 billion for stocking the ten 'core' commodities (thought by many to be an underestimate) may be directly comparable to this because of differences in the financial arrangements, but the obvious disparity in size is so huge as to suggest that the CF is unlikely to have any significant impact upon commodity trade instability.

In any case it has often been marked that the main obstacle to ICAs has seldom been lack of

finance. Negotiations have almost always broken down over the issues of the target price and the allocation of quotas. Even if they could be set up it is not known whether ICAs could succeed in moderating fluctuations in the export prices and revenues of developing countries. Past experience does not justify optimism. Nor does the evidence of theoretical and empirical research, including simulation studies, suggest that the task of keeping actual prices within, say, plus or minus 15 per cent of a target price which keeps in touch with long-term trends in supply and demand, is anything but extremely difficult in technical terms, let alone in the real world of clashing interests between producers and consumers and among producing nations.

b. Compensatory Financing

Two other schemes for alleviating the effects of commodity trade instability have been operating for a number of years. These are the IMF's Compensatory Financing Facility (CFF) started in 1963 and the EEC's STABEX scheme which was established by the Lome convention between the Community and forty-six African, Caribbean and compensating countries for shortfalls in export earnings which result from fluctuations in commodity markets. No attempt is made to intervene in the markets to influence shortfall and the loans normally have to be repaid within a few years. The IMF's CFF defines a shortfall as the gap between the current year's and forecasts for the subsequent years. Initially drawings were limited to 25 per cent of the member's quota in the IMF, were not additional to ordinary drawings and required the member to co-operate with Fund in finding a solution to its balance - of- payments difficulties. Partly because of these limitations and partly because the 1960s were a period of relative stability the CFF was little used. Over the years the scheme was liberalized. Major changes were made in 1975 in the wake of the oil crisis. The limit on drawings was raised to 75 per cent of quota and could be additional to ordinary drawings. The permitted that the amount of outstanding drawings in any twelve-month period was raised from 25 to 50 per cent of quota. Because the calculation of the shortfall is necessarily delayed until after the end of the current year countries were permitted to draw on their ordinary quota in anticipation of a shortfall and then convert this to a CFF drawing at anytime up to eighteen months later. Up to eighteen months later. Shortfalls have to be for reasons outside the country's control and the member still has to co-operate with the IMF in finding a solution. A rule which prevented a country from borrowing if its current exports were 5 per cent or more than the average of the two previous years was eliminated. This proved crucial in the inflationary years of the 1970s.

After the 1975 reforms drawings shot up. In the subsequent sixteen months drawings by forty-nine member countries reached SDR2.4 billion or twice the amount in the previous thirteen years. By April 1980 the drawings by the non-oil Less Developed Countries (LDCs) had amounted to 4.6 billion SDRs and their net outstanding credits were 2.5 billion SDRs.

Nevertheless, it has been criticized for providing far too little assistance to the LDCs. UNCTAD secretariat calculations show that drawings against the CFF by the LDCs have on average not exceeded 12.5 per cent of shortfalls. Even in 1976 – the year of maximum drawings – it was only 12.7 per cent.

It may well be time for the CFF to meet a much larger proportion of export shortfalls, and most suggested reforms point that way, but several factors should be borne in mind. First, the IMF assumes that most countries will use their own reserves, borrowing from other official sources and commercial sources as well as drawing upon the CFF. Secondly, the 1976 drawings were in relation to the shortfalls of 1975 which was a quite exceptional year. Primary commodities hit their peak in 1974 and their trough in 1975, recovering substantially in 1976 and 1977. Many LDCs should have accumulated reserves from the preceding commodity boom in 1973/4 and the IMF had created several emergency funds to assist in this world crisis. For example the Oil Facility and the Trust Fund. The NOLDCs did draw on these.

The CFF scheme is, in principle, a much easier system to operate than ICAs. It is much more comprehensive in that it covers all merchandise exports (and could easily include invisibles as

well) and it is much less demanding of political necessity to obtain agreements. Or technical skill in forecasting future prices of individual commodities and designing optimal stocking policies than is the case for ICAs. CFF-type schemes emerge in favourable light from simulation exercises and, in practice, the IMF scheme seems to have worked in the right directions even if the amounts of compensation have seemed small in relation to the recent problems of the LDCs.

Increases the LDCs' Fund quotas, the inclusion of invisibles, and calculation of shortfalls in real terms (allowing for changes in the prices of imports) are all possible reforms which could increase the value the CFF to LDCs.

c. STABEX

The STABEX scheme was designed to stabilize earnings from exports of the African, Caribbean and Pacific (ACP) countries to the Community. It covered seventeen agricultural commodities and iron ore. The original forty-six ACP countries later rose to fifty-two so that it involves substantial number of developing countries, many of them rather small, poor and vulnerable. But the commodities whose earnings are intended to be stabilized amount to only 20 percent of the export earnings of the ACP countries. In 1976, its first year of operation, seventeen ACP countries drew SDDR 72 million. In the same year ACP countries drew SDR124 million from the IMF scheme and LDCs total drawings for 1976 were SDDR 1,575 million.

The total sum allocated to STABEX for the whole period 1976 – 80 was only about \$420 million and conditions for eligibility were quite stringent. The exports had to be crude or in very elementary processed form. Individually they had to account for at least 7.5 percent of the country's total merchandise exports to all destinations. The shortfalls, calculated in nominal terms, had to be at least 7.5 percent below the average earnings from the product the ECC over the previous four years. For the least developed, land-locked or island economies these two conditions are dropped to 2.5 per cent.

The terms for repayment are liberal. Compensation payments to the least developed countries are in the form of grants and for the others the loans are interest free and repayable as and when export earnings recover. The STABEX can be criticized for discriminating between ACP and other LDCs and for being too limited in coverage and funds. This has the effect of making it liable to political influence when decisions have to be made on rationing funds between intending borrowers. The idea of making compensation payments grants to the least developed countries is widely commended as an appropriate change for adoption by the IMF\CFF. But is it sensible to confuse transfers intended to promote development with assistance intended to deal with temporary financial imbalances? The criteria for allocating funds for each of these purposes should be quite different. Of course situations may arise where what was intended as a short-term loan has to be re-phased. Instead of exports rising in the next three years they may drop still further or there may be drop and still unforeseen events need special *ad hoc* arrangements and that basically is the attitude of the IMF.

d. A complementary facility for commodity-related shortfalls in export earnings

This is the most recent proposal of the Group of 77 at UNCTAD in June 1979. There they requested that the UNCTAD secretariat in consultation with the IMF staff carry out a detailed study for a complementary facility' to compensate for shortfalls in each commodity, taking account of its financial requirements, possible sources of financing, its financial feasibility, institutional arrangements and the modalities and considerations that would provide adequate compensation in real terms to developing countries ...' it is intended that this should be additional to improvements in the CFF to the IMF and other IFC arrangements. Most of the OECD nations voted against this resolution or abstained.

If the major worry of the LDCs is fluctuations in their export earnings (and this is what has usually been maintained) the CFF approach offers much greater prospects of success. There is scope for reforming and expanding it, but not in the direction of turning it into a mechanism for long-term transfers of resources to LDCs. The criteria for long-term assistance out to differ significantly from the relatively automatic provision of short-term finance to meet balance-of-payments problems induced by export instability.

e. Economic integration

It refers to the merging to various degrees of the economies and economic policies of two or more countries in a given region.

- **Free Trade Area:**

Exist when a number of countries agree to abolish tariffs, quotas and any other physical barriers to trade between them, while retaining the right to impose unilaterally their own level of customs duty, etc, on trade with the rest of the world.

- **Customs Market**

Exists where a number of countries decide to permit free trade among themselves without tariff or other trade barriers, while establishing a common external tariff against imports from the rest of the world.

- **Common Market**

Exists when the countries, in addition to forming a custom union, decide to permit factors of production full mobility between them, so that citizens of one country are free to take up employment in the other, and capitalist are free to invest and to move their capital from one country to another.

- **Economic union**

Is where the countries set up joint economic institutions, involving a degree of supranational economic decision-making.

- **Common Monetary System**

Is where countries share a common currency, or ensure that each national currency can be exchanged freely at a fixed rate of exchange, and agree to keep any separate monetary policies roughly in line, to make this possible.

Benefits of integration

The formation of an economic integration could be beneficial in the light of the following aspects:

- **Enlarged market size:** Regional economic blocks provide larger markets than individual countries. Such increase in size of the market permits economies of scale, resulting in lower production costs and expansion of output. In fact, member countries are better placed to bargaining for better terms of trade with non-member countries.
 - **Industrialization:** the size of the domestic market of one member country may not be
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sufficiently large to justify the setting up of an industry, whereas the market provided by many countries (regional market) is much more likely to be an incentive for establishment of new manufacturing industries, thus what economists consider as potentially derived industrial development.

- **Infrastructural facilities:** Jointly financed infrastructural facilities such as in the field of transport (e.g. railway systems, ports and harbours, and airlines. The East African Co-operation (EAC), for instance, would reduce costs by setting up one Development Bank to serve all the three countries rather than each country maintaining its own.
- **Specialisation:** Each member country concentrates on production of those goods which it can produce more efficiently. Surpluses are exchanged and resources utilisation is increased - comparative advantage.
- **Increased employment opportunities and subsequent reduction in income inequalities:** Free mobility of labour leads to people moving from areas where incomes are low to areas of high labour incomes. This becomes even more beneficial if such incomes are invested back in respective countries. Furthermore, firms will have to pay highly in order to retain factor services (economic rent), thereby enhancing productivity.
- **Improvement of balance of payments (BOP):** increased market implies more exports than before and given fairly low priced imports (from member countries) relative to imports from non-member countries, balance of payments position is most likely to improve. Foreign exchange savings also arise from this situation i.e. hard currencies such as the US dollar will only be required to import what cannot be produced from within the region.
- **Competitive business environment:** Absence of trade barriers allows for free flow of goods and services which develops an upward pressure on competition and the driving force for relatively lower prices for higher quality products. This helps reduce or even eliminate monopoly practices, since firms can only acquire and maintain a market base by producing as efficiently as possible. Overall, there is increased variety of goods and services their consumption of which enhances living standards/development.
- **Indigenisation of economies:** Regional governments play their part by creating the right incentives for the growth of the private sector which is the prime-mover of economic activities in liberalized situations. The private sector participation should not be limited to business activities but should extend to the formation of regional professional and business associations in order to advise on the influence future co-operation policies (e.g. the East African Business Council.) This creates more awareness among potential investors to take advantage of investment opportunities available within the region to create wealth. This way, over-reliance on private foreign investments and other forms of capital inflows (such as conditional Aid from IMF and World Banks) tends to be reduced.

The African continent regional integrations have not gone far in realizing the intended objectives due to:

Minimal or lack of practical commitment hence the low implementation of policies and agreements. Policy-induced factors such as inward looking policies of individual countries could result in the protection of less or uncompetitive domestic producers against imports irrespective of resources, and stringent trade and payments controls instituted to deal with the persistent balance of payments problems have adversely affected the volume of trade among African countries.

- **Indispensable high capital import content:** Most African countries are not in a position

to sufficiently produce capital goods and other inputs for the production of goods hence continued vulnerability to foreign influence and dominance. This is traced to widespread poverty and minimal technical progress.

- Neo-colonialism and dependence mentality: The psychological influence arising from massive and persuasive advertising by the developed world has largely role-modelled the consumption pattern (tastes and preferences) of the African People. Preference has been given to products which do not originate from within the region. This then forces regional member countries to import such products in order to meet their domestic demand.
- Trade-diversion: countries previously importing cheap goods from outside the region switch to importing the same goods from other member countries. This is brought about by the removal of tariffs and other trade restrictions on the movement of goods between member states, while the tariffs on goods from outside remain. Depending on price/cost difference(s) such expenditure –switching may increase production cost accompanied by negative welfare implications.
- Government loss of tax revenue: Removal of tariffs (import duties) leads to reduced tax revenue to the government. With free trade, in countries where import duties constituted a high proportion of tax revenue; the government’s spending programmes will be distorted.
- Unequal distribution of trade benefits/gains: Although all countries gain to a certain extent, one member country may benefit more than the others. This often arises due to high subsidization of production so that one country may succeed in attracting a more than proportionate share of new industrial development. In particular, incomes and employment opportunities will increase more than proportionately due to the multiplier effect.
- Product similarity and duplication: Because of product similarity (especially primary products), regional member countries have not lived to substantial benefits as would be required; what one country produces is equally produced by others so that the overall relative market share remains distinctively small.
- Widespread internal conflicts and general political instabilities: the most immediate result of such an atmosphere is suspicion and increase of protectionist strategies which no doubt hinders the free movement of goods and people. This then negates the intention of an economic integration. Owing to the current political and economic reforms sweeping across the economies of the developing world, it’s quite evident that much cannot be done without any form of collective effort. Economic integration aspect(s) could receive the seriousness deserved now or in the immediate future. In fact, some which had collapsed or remained insensitive are getting revived e.g. the East African Co-operation.

The disadvantages of economic integration

- i. The “trade-diversion” effect has already been mentioned. Countries previously importing cheap goods from outside the free trade area switch to importing the same goods from other member countries. This is brought about by the removal of tariffs on goods moving between member states, while the tariffs on goods from outside remain. The result is a less efficient use of resources. Further more, the goods produced in the other member states are often of inferior quality to those formerly imported from outside.
 - ii. Government suffer a loss of tax revenue from the setting up of a free trade area.
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Before a lot of tax revenue was received from import duties on goods brought into the country from overseas. If goods are imported from other member states when the free trade area is up, import duties are no longer payable and tax revenue, the effect on a government's spending programme will be substantial.

- iii. The benefits arising from a free trade area may be unequally distributed. Even though all countries gain to a certain extent, one may benefit more than the others. If one country succeeds in attracting a more than proportionate share of new industrial development, it will enjoy more than proportionate economic benefits. In particular, incomes and employment opportunities will increase more than proportionately because of the multiplier effect.

5. BALANCE OF PAYMENTS

The Balance of Payments of a country is a record of all financial transactions between residents of that country and residents of foreign countries. (Residents in this sense does not just refer to individuals, but would also include companies, corporations and the government). Thus all transactions are recorded whether they derive from trade in goods and services or transfer of capital.

Like all balance sheets, the balance of payments is bound to balance. For if the country has "overspent", then it must have acquired the finance for this "**overspending**" from somewhere (either by running up debts or using its reserves), and when this item is included in the accounts they will balance. It follows therefore that when reference is made to a balance of payments "deficit" or "surplus", this only looks at a part of the total transactions, e.g. that part involving trade in goods and services, which is termed the "Balance of Payments on the **current account**"

If the value of exports exceed the value of imports the balance of payments is said to be in **Trade Surplus**. This is regarded as a favourable position because a persistent trade surplus means lower international debts. Also, a trade surplus is regarded as a sign of success in the country's trade with other countries and is, therefore, politically desirable.

On the other hand, if the value of imports exceed the value of exports, the balance of payments is in **trade deficit**. This is an unfavourable position because a persistent balance of payment trade deficit means the country's foreign exchange reserves are being run down and so is its ability to pay for its imports and settle its international debt. Also persistent balance of payments trade deficit is regarded as a sign of failure in the country's trade with other countries and is therefore politically undesirable

Structure of the Balance of Payments

The balance of payments is divided into three accounts:

a. The Current Account

This records all transactions involving the exchange of currently produced goods and services and is subdivided into

i. Visibles:

A record of all receipts from abroad the export of goods and all expenditures abroad on the import of goods. When these are compared, this is known as the "**balance of trade**" (though it would be properly called the "balance of visible trade").

ii. Invisibles:

A record of all receipts from abroad in return for **services rendered** and all expenditure abroad for foreign services. It also includes receipts of **profits** and **interest** earned by investments abroad, and similarly profits and interest paid abroad to foreign owners of capital in the country are included in Expenditure. The comparison of all the debits (Expenditure abroad) and credits (receipts from abroad) arising from visibles and invisibles is known as the **“balance of payments on current account”** and is the best indicator of the country’s trading position.

If the value of exports exceeds the value of imports the balance of payments is said to be in **Trade Surplus**. This is regarded as a favourable position because a persistent trade surplus means the country’s foreign exchange reserves are rising and so its ability to pay for its imports and settle its international debts. Also a trade surplus is regarded as a sign of success in the country’s trade with other countries and is, therefore, politically desirable.

On the other hand, if the value of imports exceeds the value of exports, the balance of payments is in **trade deficit**. This is an unfavourable position because a persistent balance of payments trade deficit means that the country’s foreign exchange reserves are being run down and so is its ability to pay for its imports and settle its international debts. Also a persistent balance of payments trade deficit is regarded as a sign of failure in the country’s trade with other countries and is therefore politically undesirable.

b. CAPITAL ACCOUNT:

This records all transactions arising from capital movements into and out of the country. There are a variety of such capital flows recorded, namely:

i. Long term capital:

This consists of:

- a. Government to Government borrowing and lending
- b. Government borrowing from international organizations
- c. Investment by foreigners at home in such projects as factories, mines and plantations and by nationals abroad in similar projects.
- d. The buying of shares by foreigners in home companies and by nationals in foreign companies.

ii. Short term capital (“hot money”)

Refers to changes in bank balances held by foreigners in home banks and by nationals in foreign banks.

If money comes into the country (e.g. deliberate borrowing abroad by a domestic company or foreign investment in the country), it is recorded as a credit item, while investments abroad etc is recorded as a debit item.

When the current account and the capital account are combined, and we compare the total debits and credits, this is termed the balance for official financing (it used to be termed the “total currency flow”). This shows the final net outflow, or inflow arising from current and capital transactions.

c. THE MONETARY ACCOUNT

Also called official financing, this comprises the financial transactions of the government (handled by the central bank) needed to offset any net outflow of money on the current and capital accounts i.e. total currency flow. It comprises of:

- i. Use of the foreign exchange reserves, i.e. increasing or decreasing them.
- ii. Borrowing from the IMF i.e. borrowing or paying back.
- iii. Central bank transactions with other countries central banks i.e. borrowing or lending.

d. THE BALANCING ITEM

Since for every position entry in the current and capital accounts there is a corresponding negative entry in the monetary account, and for every negative entry in the first two accounts there is a corresponding positive entry in the monetary account, it follows that the balance of payments must balance i.e. the sum of the balances of all the three accounts must add up to zero.

In practice, this is usually not the case because there are so many transactions that take place, and due to human errors some may be recorded correctly in one account but incorrect in another account with the result that the sum of the three balances may not be zero. The actual discrepancy in the records can be calculated. The balancing item represents the sum of all errors and omissions. If it is positive, it means that there have been unrecorded net exports while a negative entry means that there have been unrecorded net imports.

Equilibrium and Disequilibrium in the Balance of Payments

If on the **current account**, the value of exports is equal to the value of imports, the balance of payments is said to be equilibrium. If the two values are not equal, the balance of payments is in disequilibrium. This could be due to a trade surplus with the value of exports exceeding that of imports or due to a trade deficit with the value of imports exceeding that of exports.

In either case, a balance of payments disequilibrium cannot last indefinitely. For if this is due to a trade deficit, the country will try and move it. This is because a persistent trade deficit i.e. a **fundamental disequilibrium** poses several problems for an economy, namely:

- In short run a deficit allows a country's peoples to enjoy higher standard of living from the additional imports that would not be possible from that country's output alone in the longer term the decline of the country's industries in the face of international competition will inevitably result in lower living standards.
- A persistent trade deficit means that the country's foreign exchange reserves are being run down and so it its ability to pay for its imports and settle international debts.
- Also, a persistent balance of payments trade deficit is regarded as a sign of failure in the country's trade with other countries, and is therefore not politically desirable.

Policies to cure Balance of Payment deficits

The measures available to tackle balance of payments deficits include short term measures such as **deflation, import controls, devaluation** of a fixed exchange rate or a managed downward float of the exchange rate in the short-run and foreign exchange controls and long term measures such as Export promotion and Import Substitution.

Short-Term Policies

Deflation is a policy of reducing expenditure with the intention of curing a deficit by reducing the demand for imports. This reduction of expenditure may be achieved by the use of either **fiscal** or **monetary** policy. In addition to reducing demand for imports however, deflationary measures may also have expenditure switching effect upon the balance of payments. The depression of demand may cause the domestic inflation rate to fall relative to that of competitor countries and thus increase the price competitiveness of exports. Consumers in other countries may then switch their demand towards the country's exports, whilst its own residents switch away from imports, preferring instead to buy home produced substitutes. The difficulty posed by deflation is that it not only reduces demand for imports but also reduces demand for domestically produced goods. This in turn can have a knock on effect in the form of lower output and higher unemployment.

Import controls have immediate effect on the balance of payments. **Quotas** and **embargos** directly prevent or reduce expenditure on imports, while import duties or tariffs discourage expenditure by raising the price of imports, while import duties or tariffs discourage expenditure by raising the price of imports. Import controls also have their limitations and problems. They do not tackle the underlying cause of this disequilibrium i.e. the lack of competitiveness of a country's industry and what is more they are likely to invite retaliation to the long-term detriment of themselves as well as their trading partners. It is also the case that trade agreements such as GATT limit the opportunities for member countries to make use of import controls and the use of subsidies to encourage exports.

A third option is that of **devaluation**. Devaluation of a fixed exchange rate or the downward float of a managed exchange rate is mainly expenditure switching in its effect. The cure works in a similar manner to the freely floating adjustment mechanism under a floating exchange rate system. In the case of a fixed exchange rate system devaluation consists of an administered reduction in the value of the currency against other currencies. In a managed system the authorities can engineer a downward float by temporarily reducing their support. In both cases the effect is to increase the price of imports relative to the price of exports and so switch domestic demand away from imports and towards home produced goods.

Certain conditions have to be met for devaluation to have this effect on boosting exports/curbing imports. They are:

- a. Competing countries must not devalue at the same time, otherwise there would be no competitive advantage gained (exports would not become any cheaper in comparison with products of those countries).
- b. The demand for exports (or for imports) must be price elastic, i.e. the sales must be affected by the change in price. Thus, when the domestic currency falls in value, the demand for exports should rise by a larger proportion in order to earn more foreign exchange.
- c. There must be appropriate domestic policy.
 - i. The extra exports must be available. If there were full employment in the economy, the home demand would have to be curbed to make room for the extra export production.
 - ii. Inflation must not be allowed to erode the competitive advantage secured by devaluation.

A devaluation of the currency is not a soft option. There are a number of problems that will be involved, and these must be outlined:

- a. To the extent that home demand has to be cured to make room for the extra exports, the domestic standard of living is reduced. This is only because, before it took place, the country was “living beyond its means”, but it does come as a shock to find the domestic “squeeze” accompanying devaluation. Yet if it does not take place, then the strategy will not have worked; the exports may not rise to meet the higher demand from abroad.
- b. The larger cost of importing goods raises the domestic cost of living. This is not just inflationary in itself, but can trigger off pay claims which if settled will further worsen inflation.
- c. It does not boost exports immediately. There is a period during which the balance of payments gets worse as the country faces a higher import bill. It is only when exports start rising (and there is a considerable time lag involved) that the situation improves.
- d. It does not tackle the long-run problem of why exports were not doing well. The problem may be more in inefficiency and other non-price factors than in the price of the exports themselves. In which case devaluation would make little difference to the basic problem.

A fourth option is to use **Exchange control**. When this is used to deny foreign exchange to would be importers, its effects are identical to those of the various import restrictions already discussed. There are various forms of exchange control that can be imposed by a government and enforced by legislation. They all involve restrictions on the actions of holders of its currencies and residents of the country who may hold foreign currency.

ii. Long-Term Policies

One long term option of tackling balance of payments deficit is **export promotion**. In the long run this is the best method of improving a balance of payments. If the general level of efficiency in an economy can be raised, then exports will benefit. Efficiency can be promoted by mergers in exporting firms (thereby reaping economies of scale), research and economic growth – for it is felt that once an economy is growing it is generating the necessary dynamism and technological improvement that will feed through into a better export performance.

A second long-term option is **Import Substitution**. The replacement of imports by home products can be achieved by economic planning. If the defects of home products can be analysed, and the likely future trends in demand can be forecast, then domestic firms can take the necessary action both to improve their product and to expand their capacity. Government support for certain industries can also be helpful here.

6. INTERNATIONAL LIQUIDITY

International liquidity is the name given to the **assets which central banks** use to influence the external value of their currencies. It can also be defined as the **means available for settling international indebtedness**. There are five main types of international liquidity:

- Gold
- Convertible national currencies
- Borrowing facilities
- International reserve assets
- Currency swaps

Gold

Although currently no country uses gold as its national currency, gold has a long history of use as commodity money and has almost universal acceptability. Gold is still regarded as money in international transactions and is an international reserve currency i.e. countries can hold their

foreign exchange reserves in terms of gold and it is acceptable in international payments and is convertible.

The great advantage of gold as an international currency is the confidence people have in its ability to maintain its exchange value. This stems mainly from the knowledge that world supplies of gold cannot easily and quickly be augmented.

Nevertheless, it is clearly wasteful to employ vast resources of men and capital to produce gold merely in order to store it away in central banks. Besides, it is scarce i.e. not each country has it.

Convertible National Currencies

Currencies are convertible when holders can freely exchange them for other currencies. There are several advantages in using a particular national currency as an international standard of value and as an international reserve asset. Unlike gold its costs of production and storage are negligible and the reserve asset is in the same form as the currency used by traders and investors. The supply can easily be increased or diminished to meet the needs of world trade.

The problem with this facility is that for the other countries to hold convertible currency, the country to which it belongs must be in constant trade deficit because it must import from other countries and pay them in its currency. But a prolonged deficit will cast doubt on the ability of that country to maintain the exchange value of its currency. Another problem is that if the country to which the currency belongs devalues the currency, the other countries holding it will lose purchasing power in international transactions.

Borrowing Facilities

If a country's currency is not convertible, it can borrow from countries whose currencies are convertible and use the convertible currencies to make its international payments. The difference from gold and national convertible currencies is that they are conditional – they have to be repaid. Borrowing facilities as a source of liquidity have the advantage that they can be expanded to meet the growing demands. However, the draw-back is that it makes the borrowing country indebted to the lending country, which is sometimes politically undesirable because of the “strings” which may be attached to the loans.

Special Drawing Rights (SDR)

These are international reserve currencies created by the International Monetary Fund (IMF) to overcome the problems of using gold and national currency reserve. These represent an entirely new form of reserve assets. The SDR are simply entries in the books of the IMF and do not require expenditure of resources to create them unlike gold. Also their use does not put any country under strain unlike the use of national reserve currencies. Initially, the unit of the SDR was pegged to the American dollar, but when the dollar was **floated** the unit of SDR became a weighted basket of 16 currencies of the world's major trading nations, the weight used in each case being the proportion of World Trade taken up by that country. Later the unit of SDR was reduced to a weighted basket of the exchange values of five major currencies (**the US dollar, the Deutschemark, the French franc the Japanese yen and the Pound sterling**). The value obtained is then expressed in dollars.

SDRs are issued by the IMF to member countries in proportion to their **quotas** and represent claims or rights which are honoured by other members and by the IMF itself. By joining the scheme, a member accepts an obligation to provide currency, when designated by the Fund, to other participants in exchange for SDRs. It cannot, however, be obliged to accept SDRs to a greater total value than three times its own allocation.

Participants whose holdings are less than their allocation **pay interest** on the difference between their allocation and their actual holdings, and members holding SDRs in excess of their allocation receive interest.

Each member of the IMF is entitled to an allocation of SDR, which it can use to pay for its imports or settle international debts. If both the paying country and the country being paid are members of the IMF, then in the books to IMF, the allocation of the paying country will go down and that of the country being paid will go up. If the country being paid is not a member of IMF, then the country paying can use its allocation of SDR to purchase gold or convertible currency from the IMF or another member of the IMF, whose allocation of SDR will correspondingly increase.

Currency Swaps

If the currency of one country is not convertible, the central banks of the two countries can exchange their currencies, and the country with the non-convertible currency can use the convertible currency of the other country. These are called currency swaps. The country with the non-convertible currency will later purchase back its own currency using gold or convertible currency.

Foreign Exchange Markets

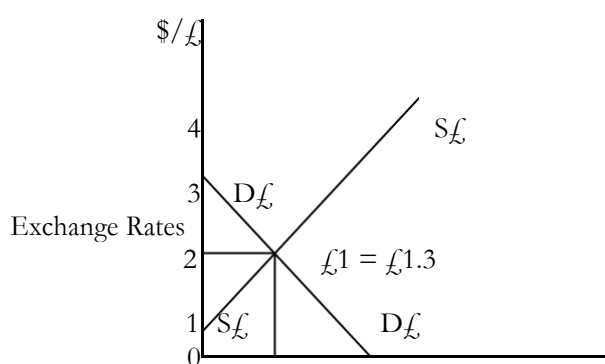
It is the place where buyers and sellers meet to negotiate the exchange of different currencies e.g. forex bureaus.

Exchange Rates

These are the rates at which one currency can be exchanged for another or the price of one currency in terms of another

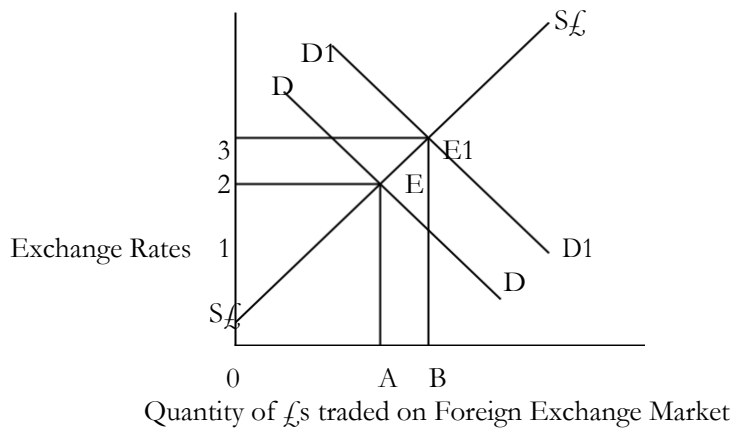
Factors determining the Exchange Rates

The exchange rate for any particular country is basically the result of the interaction of export demand and import supply.



Quantity of £s traded on Foreign Exchange Market

The demand curve lies has the USA desire to buy U.K. exports. Below the supply curve is the UK desire to buy USA's export. An increase in demand for UK exports will mean foreigners are now offering more money so that demand for increases. The price of foreign currency will decline and the pound will have to appreciate.



An appreciation in the exchange rate could be caused by either:-

- a. an increase in demand for exports
- b. a decrease in demand for imports

If foreign currency becomes more expensive, the domestic currency is said to have depreciated. A depreciation in the rate of exchange could be caused by;

- a. An increased demand for imports;
- b. A decreased foreign demand for exports

Other factors influencing Exchange Rates

- i. **Inflation:** Other things being equal, a country experiencing a high rate of inflation will experience a lower demand for its goods while its trading partners goods whose rate of inflation is low will now appear cheaper to citizens who will thus buy more. Thus demand for its currency will decrease while the demand for its trading partners' currencies will increase, and both the factors will cause a depreciation in the external value of its currency. If on the other hand, a domestic rate of inflation is lower than that of its trading partners these factors will be expected to work in reverse.
- ii. **Non-trading factors:** Exchange rates are also influenced by invisible trade, interest rates, capital movement speculation and government activities.
- iii. **Confidence:** A vital factor in determining the exchange rate is confidence that most large companies "buy forward" i.e. they buy foreign currency ahead of their needs. They are thus very sensitive to factors which may influence future acts such as inflation and government policy.

Thus, the exchange rate at any particular moment is more likely to reflect the anticipated situation on country rather than the present one.

Effects of Fluctuations in Exchange Rates

When a country's currency depreciates, exporting firms may have competitive advantage but businesses which rely on imports for raw materials or components will find costs rising. This may make them less competitive on both domestic and foreign markets.

If the domestic currency appreciates then imports will become cheaper to domestic customers and exports more expensive to foreign customers. This will result in a fall in demand for the businesses goods abroad and increase competition from imports in the home markets.

7. INTERNATIONAL FINANCIAL INSTITUTIONS

In July 1944, a conference took place at Bretton Woods in New Hampshire to try to establish the pattern of post-war international monetary transactions. The aim was to try to achieve free convertibility, improve international liquidity and avoid the economic nationalism which had characterized the inter war period.

The result was that two institutions were established: in 1946, the International Bank for Reconstruction and Development (IBRD); and in 1947 the International Monetary Fund.

The International Monetary Fund

The International Monetary Fund is a kind of an embryo World Central Bank. Its objectives are:

- i. To work towards the full convertibility of currencies by encouraging the growth of world trade.
- ii. To stabilize exchange rates between currencies.
- iii. To give short-term assistance to countries having balance of payments problems.

To achieve these objectives, the following conditions would have to be fulfilled: -

- i. Countries should not impose restrictions in their trade with each other. This should encourage the growth of world trade and lead to full convertibility of currencies.
- ii. Countries should adopt the **peg system** of exchange rates, in which each country quotes the exchange rate of its currency in gold and thus the exchange rates between currencies can be determined. The quoted exchanged rate is allowed to fluctuate to within 1% up and down, and the country can devalue or revalue its currency by up to 10%. This was meant to stabilize exchange rates between currencies.
- iii. Each member state of the I.M.F should contribute to a fund to enable the I.M.F to give short-term assistance to countries having balance of payments problems. The quota contribution of the member state depends on the size of its G.D.P and its share of world trade. The member state contributed 25% of its quota in gold or convertible currency and the remaining 75% in its own currency.
- iv. A member state in balance of payments problems can borrow from the I.M.F on a short-term basis. 25% of the country's quota contribution is automatically available to it as stand-by credits. Beyond this the country can borrow on terms dictated by the I. M. F. the country borrows by purchasing gold or convertible currency using its own currency. The country's borrowing facility expires when the I.M.F. holds the country's currency twice the value of its quota contribution. In paying back to the I.M.F. the country will repurchase back its currency using gold or convertible currency until the I.M.F holds 75% of the country's quota contribution in the country's currency.
- v. The I.M.F. reserves the right to dictate to the country borrowing from it how to govern its economy.

To what extent has the IMF achieved its objectives?

The objective of achieving full convertibility of currencies has not been achieved. In the first place countries impose restrictions in their trade with each other, and this has not helped the

growth of world trade. Secondly, the export capabilities of different countries are different and it is difficult for all currencies to be convertible in particular the range of exports for developing countries very limited and so is the demand for them. This makes their currencies weak and unconvertible.

The objective of stabilizing exchange rates has not been achieved. This is because outside the stated limits the adjustable peg system of exchange rates has the same limitations as the gold standard in that it is deflationary and can put strains on the country's foreign exchange reserves in times of a trade deficit and it is inflationary in times of a trade surplus.

While the IMF does give short-term assistance to member states in balance of payments problems, it is strictly on a short-term basis and it does not go to the root cause of the deficit. A more useful form of assistance would be one that would go into projects that would increase the productive potential of the country, making it less dependent on imports and increasing its export potential. Such assistance would have to be on long-term basis, but this is not within the objectives of the I.M.F., which gives assistance to finance a prevailing deficit.

External Debt Problem

External debt refers to debt owing by one country to another. External debt is a more serious problem than internal debt because the payment of interest and repayment of the capital sum form debit items in the balance of payments.

The cause of third world debt is the unwise borrowing and lending during the 1970s. The oil crisis made conditions extremely difficult for many third world countries. For the same reason the Euro currency markets were awash with money and real interest rates were low. Therefore poor countries need to borrow and banks were anxious to lend where they could get better return than on the domestic market. The bulk of this lending was by commercial banks and not by international institutions such as the IMF and World Bank. This has the consequence that, while the international institutions could write-off the debt, it is very difficult for commercial ones to do so.

The problem turned into a crisis in the early 1980s. As the world fell into recession this hit the debtor nations particularly hard. Many developing economies are highly dependent on the export of primary products and the price of these dropped dramatically. At the same time real interest rates rose sharply and most of the debt was at variable interest. The debtor nations were caught in a vice between falling income and rising costs. When this happened the banks which had been so anxious to lend in the 1970s were no longer willing to do so.

This meant that the debtor nations had to turn to international agencies for help. However, the international agencies do not have sufficient funds to substantially affect the situation. For such help as they were able to give, they demanded very stringent conditions. These deflationary conditions have often impoverished further the debtor nations.

Much of the money that was borrowed was not used for development purposes but simply balance the books for the nations' overseas payments. Little found its way into the sort of projects which development economies would suggest.

Many measures have been suggested for instance by the World Bank. Among them has been suggestion for reducing interest rates on non-concessional debt, rescheduling with longer grace periods and maturities or outright conversion of bilateral loans to grants. International Development Association (IDA) has converted its repayments to be used to reduce International Bank for Reconstruction and Development (IBRD) debt owed by low income third world countries.

REINFORCING QUESTIONS

1. What problems do African regional integration bodies /organizations face?
2. What factors affect the long-run trend of the terms of trade for developing countries?

Check your answers with those given in Lesson 9 of the study pack.

COMPREHENSIVE ASSIGNMENT NO. 4**TO BE SUBMITTED AFTER LESSON 8**

To be carried out under examination conditions and sent to the Distance Learning Administrator for marking by the University.

EXAMINATION PAPER**TIME ALLOWED: THREE HOURS****ANSWER ANY FIVE QUESTIONS**

1. What is a consumer price index? How does it relate to the implicit deflator of the gross international product? How are the two constructed? How far do they really measure the rate of price level change in an economy?
2. Clearly explain the processes which lead to deficits in the balance of payments and steps which may be taken to reserve such processes.
3. What is meant by an inflationary gap? Explain the causes of inflation and the possible tools for the management of a national economy?
4. Explain carefully the doctrine of comparative advantages based on the concept of specialization. What problems are often encountered when nations attempt to individually maximize gains from trade through specialization?
5. Argue the case for and against economic integration with the African continent.
6. Write short notes on the following:
 1. Free port
 2. Supply side economics
 3. Budget deficits
 4. Fiscal policies
7. Many developing countries are currently faced with an ever increasing external debt. Clearly describe the possible causes of this indebtedness and the measures that could be taken both the debtors and creditors in reducing the debt burden.
8. What is meant by devaluation? Under what circumstances does a country decide to devalue its currency and what are the expected consequences?

END OF COMPREHENSIVE ASSIGNMENT No. 4

NOW SEND YOUR ANSWERS TO THE DISTANCE LEARNING CENTRE FOR MARKING.

LESSON NINE

REVISION AID

INDEX

KASNEB SYLLABUS

MODEL ANSWERS TO REINFORCING QUESTIONS

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LESSON 8

SELECTED CPA PAST PAPERS

DECEMBER 2002
MAY 2002
DECEMBER 2001

ANSWERS TO PAST PAPERS

DECEMBER 2002
MAY 2002
DECEMBER 2001

MOCK EXAMINATION PAPER

NOTE: ALL MODEL ANSWERS HAVE BEEN PROVIDED BY THE STAFF OF THE DISTANCE LEARNING CENTRE.

KASNEB SYLLABUS**OBJECTIVE**

To develop the candidate's understanding and ability to apply, analyse, and interpret the fundamental principles of economics in relation to the business environment both in the domestic and global economics.

CONTENT**Introduction to Economics**

- Meaning and scope of economics
- The methodology of economics and its basic concepts
- Economic goals and problems
- Scarcity, choice, opportunity cost and production possibility frontiers and curves
- Economic systems
- Specialization and exchange

Elementary Theories of Demand and Supply

- Demand analysis
- Supply analysis
- Determination of equilibrium price
- Elasticity of demand and supply

The Theory of Customer Behaviour

- Approaches to the theory of consumer choice-cardinal versus ordinal approach
- Utility analysis, Marginal Utility (MU), Diminishing Marginal Utility (DMU)
- Indifference curve analysis
- Budget line and its economic interpretation
- Consumer equilibrium – effects of price change
- Substitution and income effects of price change
- Measurement and estimation of demand functions

The Theory of Production

- Factors of production
- Demand and supply of factors of production
- Production function analysis
- Short run analysis
- Total product, average and marginal products
- Stages of production and the law of variable proportions: long run analysis returns to scale, isoquants
- Technological change
- Measurement and estimation of production functions
- Production under conditions of perfect competition, monopolistic competition, monopoly, and oligopoly

The theory of Cost

The profit maximization and equilibrium of the firm

National Income

- Definition of national income
 - Circular flow of income
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- Concepts of national income; Gross Domestic Product (GDP), Net National Product (NPP) and disposable income
 - Approaches to measuring national income
 - Problems of measurement
 - Uses of national income accounts and their limitations
 - Analysis of consumption, saving and investment and their interaction in a simple economic model
 - Determination of equilibrium income
 - The multiplier and accelerator concepts
 - Fluctuations in national income and the business cycle

Money and Banking

Money

The banking system

Labour and Unemployment

- Population and size and demographic trends
- The demand for and supply of labour
- Wage determination, policy and theories
- Trade unions and employer associations
- Collective bargaining
- Types and causes of unemployment
- Control measures of unemployment
- Relationship between unemployment and inflation

Public Finance

- Public expenditure
- Budget surpluses and deficits – causes of budget deficit, implications on macro fundamentals
- Fiscal policy; definition, objective in a liberalized economy, tools of fiscal policy, national debt management, budgeting and planning, fiscal reforms
- Harmonization of fiscal and monetary policies: monetary-fiscal policy mix
- Economic governance and transparency
- Economic policy and inflation: types and causes of inflation, impact of inflation on the economy, control measures of inflation

International Trade and Finance

- Theory of comparative advantage
- Multilateral trade systems and WTO
- International trade arrangements and agreements. Regional integral organizations, commodity agreements and their relevance to Less Developed Countries (LDC)
- Balance of trade
- Balance of payments
- Terms of trade
- Exchange rates devaluation, currency depreciation and appreciation and other balance of payments adjustment processes
- International Financial Institutions: external debt problem, structure and functions of international financial institutions, Structural adjustment Programmes (SAPs), socio-economic-political impacts of SAPs in LDCs, borrowing mechanisms from World Bank, IMF and other multilateral agencies

MODEL ANSWERS TO REINFORCING QUESTIONS

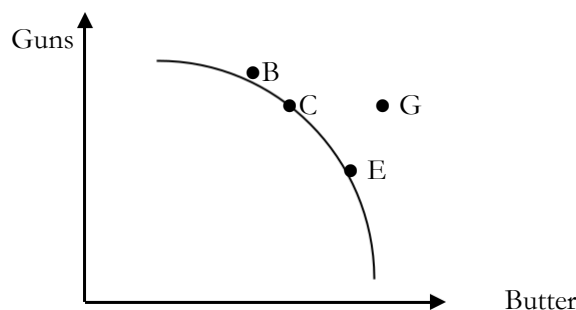
LESSON 1

1. (a) Scarcity as used in economics means that there are not enough resources to fill everyone's wants to the point of satisfaction. We have limited resources of Land, labour etc both in poor countries and rich countries.

Choice comes about because of scarcity of resources. Because there are not enough resources to produce everything we want, a choice must be made about which of the wants to satisfy and so what goods and services to produce.

- (b) Limitations of the total resources capable of producing different commodities Forces society to choose between relatively scarce commodities. Choice involves sacrifice. The cost of an item in terms of what is sacrificed to get it is called opportunity cost i.e. the alternative forgone.
- (c) The Production Possibility Frontier is a geometric representation of production possibilities of two commodities feasible within an economy, given a fixed quantity of available resources and constant technological conditions.

It is normally concave to the origin because of the assumption that resources are not perfectly occupationally mobile which leads to diminishing marginal returns. This can be illustrated with a simple case of guns and butter as follows:



Points outside the PP frontier (to the North East), say G are unattainable Under the present technical know-how.

Points inside it, say, A, it would be inefficient since resources are not being fully employed, resources are not being properly used, or outdated production techniques are utilized.

If production is on the frontier the resources are being fully utilized. Points on the PP curve such as B, C and E show the maximum possible output of the two commodities.

Output G will only become a possibility if the country's ability to produce increases and the production possibility curve moves outwards. This can happen when there are changes such as an increase in the labour force, increase in the stock of capital goods, factories, power stations, transport network, machinery and/or an increase in technical knowledge.

Positive economics is concerned with the objective statements about what does happen or what will happen. It is therefore concerned with description of facts, circumstances and relationships in the economy e.g. how does a higher level of unemployment affect inflation or how will a gasoline tax affect gasoline usage?

Normative Economics, on the other hand, is concerned with the expression of value judgments by economists of what they would like to happen. What sort of economic society they would like to see in operation. They can be argued about but they can never be settled by science or by appeal to facts e.g. should taxation soak the rich to help the poor? Or should the defence spending grow at 3 or 5 or 10 percent per year? They involve what ought to be and are settled by political choice.

2. Specialization is the concentration of a factor of production in one activity in the Production process. Labour likes to specialize because of the several benefits offered by specialization.

Firstly, specialization leads to greater skill of the worker as the constant repetition of a task makes its performance almost automatic. The worker thus acquires greater dexterity at their jobs. Secondly, specialization leads to a saving of time. A worker can accomplish a great deal more since he wastes less time between operations. Less time, too, is required in learning how to perform a single operation than to learn a complete trade.

Besides, specialization makes it possible for each worker to concentrate on the work for which they have the greatest aptitude and thus for the firm to employ specialists. Furthermore, with specialization it is possible to use some tools specific to a particular task, which makes the life of a workman that much easier. Lastly, it is sometimes claimed that the worker, habituated to the repetition of simple tasks, becomes less fatigued by his work

However, specialization also has its limitations such as monotony. Doing the same job every time leads to boredom, and this can offset the efficiency gained. If a person does the same kind of work repeatedly according to laid down routine, this can lead to a loss of job satisfaction because of not being able to identify with the final product.

Besides if a worker is highly specialized, he can be easily be unemployed if there is something wrong with the product of his industry e.g. if the product is found to have negative effects on health, and demand for it falls or if a machine is introduced to perform his work. Finally since each worker contributes only a small part of the final product, the efficiency and success of the whole process will depend on the efficiency and co-operation of all the workers. If some of the workers are inefficient, they can frustrate the whole system even if the rest of workers are doing their work properly.

LESSON 2

- 1 (a) Substitute goods are those which can be consumed/used instead of each other e.g. Tea can be drunk instead of coffee. Complementary goods are those used consumed jointly or together e.g. bread and margarine.
- (b) Price controls refers to government measures to modify the price Mechanism by artificially imposing a price to be charged for the commodity or service. This may take the form of a maximum price called a price ceiling or they can stipulate a minimum price control called a **price floor**.

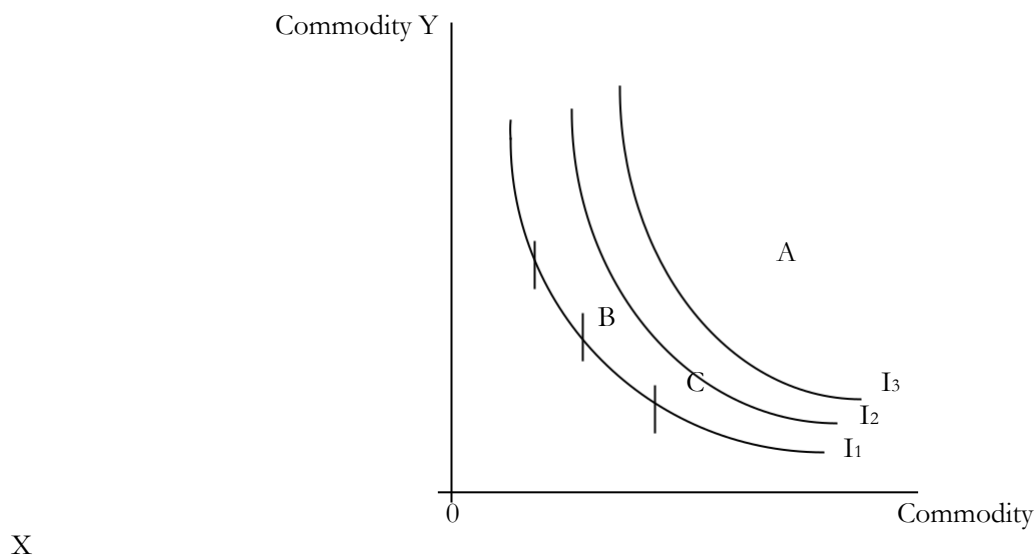
Price controls are necessary because of the defects of the price system in allocating scarce resources between different uses or consumers. Firstly, price controls will be necessary to facilitate income transfers between groups, for example, urban to rural or wealthy to poor, so that it in this case price controls have the effect of income redistribution. They may also be necessary to keep the price of a product at a level at which it can be afforded by most people and thus protect the purchasing power of low income consumers and wage earner.

Price controls are also necessary for the maintenance of incomes. The government may want to keep incomes of producers at a higher level than that which would be produced by market forces. This could also promote self-sufficiency in the domestic production of selected goods and services.

Price controls are also used when there is a need to control inflation during periods when aggregate demand exceeds aggregate supply for goods and services.

One can also say that price controls may be necessary to control exploitative practices by natural monopolies and/or those created by government policies which might use their market power to the detriment of the consumer. Finally, price controls are necessary to protect “infant industries” while restricting competition.

- c) An indifference curve shows the locus of combinations of the amounts of two goods say, X and Y such that the individual is indifferent between any combination on that curve. An indifference curve is usually convex to the origin.
- A set of indifferent curves with each successive curve lying outside the previous one in a northeast direction is illustrated below:
-



Higher indifference curves indicate higher levels of utility. The curves do not intersect as this would violate the axiom of transitivity of a utility function expressed as $U = F(X, Y)$ where U is a predetermined level of utility and X and Y are two commodities to be consumed in combination to yield U . Along I_1 , A, B, C are possible combinations of X and Y without altering the level of satisfaction of the consumer.

- (d) Inferior goods are basic foodstuffs consumed largely by the poor and on which they spend a large proportion of their incomes. When the price of such foodstuffs increases, the consumer may give up the less essential compliments in an effort to continue consuming the same amount of the foodstuff which will mean that he will spend more on it. He may find that there is some money left and this he spends on more of the foodstuff and thus ends up consuming more of it than before the price rise.

A giffen good is a highly inferior good named after Robert Giffen. These Goods have a reverse/abnormal demand curve.

2. a) Cross price elasticity of demand is a measure of the degree of responsiveness of the quantity demand of one good to changes in the price of a related good such as compliment or substitute. In the case of two goods, A and B, where the price changes, cross elasticity is measured as follows:

$$X_{ed} = \frac{\text{Percentage or proportionate change in the Demand of B}}{\text{Percentage or proportionate change in the price of A}}$$

Mathematically, this can be expressed as follows:

$$X_{ed} = \frac{\Delta QB}{QB} \div \frac{\Delta PA}{PA}$$

$$\frac{\Delta QB}{QB} \times \frac{PA}{\Delta PA}$$

$$\frac{\Delta QB}{\Delta PA} \times \frac{PA}{QB}$$

Where: ΔQ_A is the change in quantity demanded of A
 ΔQ_B is the change in the quantity demanded of B
 ΔQ_P is the change in price of A
 P_A is the original price of A

Cross price elasticity of demand is positive for substitutes and negative for Complements. If a firm is in a competitive industry it is not in its interests to raise the price of its product, but it may be in its interests to lower price. For in the former case it will lose a substantial proportion of its customers to its rivals while in the latter case, it may acquire a substantial proportion for its consumers from its rivals. For products which are close substitutes, a fall in the price of one e.g. due to an increase in supply will benefit the producers of the other because the demand for the other product will rise. On the other hand, a rise in the price of one e.g. due to taxation may be to the disadvantage of the producers of the other as the demand for the other product will fall. If in the case of a price fall, the fall in the price of the first product is due to fall in demand for its products this will not benefit the producers of the second products. Conversely, if the rise in price of the first product is due to an increase in demand for it, this will benefit the producers of the second product.

- b) Income Elasticity of demand is a measure of the degree of responsiveness of the demand of a good to changes in the consumers income. It is measured as follows:

$$\begin{aligned} Y_{ed} &= \frac{\Delta Q}{(Q_1 + Q_2) / 2} \div \frac{\Delta Y}{(Y_1 + Y_2) / 2} \\ &= \frac{\Delta Q}{(Q_1 + Q_2) / 2} \times \frac{(Y_1 + Y_2) / 2}{\Delta Y} \\ &= \frac{\Delta Q}{\Delta Y} \times \frac{(Y_1 + Y_2) / 2}{Q_1 + Q_2 / 2} \end{aligned}$$

Substitution as follows:

$$\begin{aligned} \Delta Q &= +20 \\ Q_1 &= 100, Q_2 = 120 \\ \Delta P &= 1000 \\ Y_1 &= 50000, Y_2 = 6000 \end{aligned}$$

$$\frac{20}{(100 + 120) / 2} \div \frac{1000}{(5000 + 6000) / 2}$$

$$\frac{20}{110} \div \frac{1000}{5500}$$

$$\frac{20}{110} \times \frac{5500}{1000}$$

$$\frac{20}{1000} \times \frac{5500}{110}$$

$$\frac{2}{1} \quad \times \quad \frac{55}{11}$$

$$\frac{2}{1} \quad \times \quad \frac{55}{110}$$

$$= \quad 0.5$$

$$Y_{ed} = 0.5$$

LESSON 3

1. A monopsonist market indicates the existence of a sole buyer. This may take the form a single organization or individual. It may be an association of separated buyers which combine, or act together, for the purpose of buying the product. The main point is that sellers are facing a single buyer.
2. This is the most efficient size of the firm at which its costs of production per unit of output will be at a minimum, so that it has no motive either to expand or reduce its scale of production. Thus, as a firm expands towards the optimum size it will enjoy increasing returns to scale, but if it goes beyond the optimum size, diminishing returns will set in.

However, there are several difficulties in reaching optimum size such as probability that the different divisions of the firm – finance administration, production, marketing etc,-will not all reach their individual optimum at the same time. For example, the optimum administrative division for a firm may be greater or less than the optimum technical unit, since in some be relatively small. Similarly, the optimum marketing unit may not suit either the optimum technical or the optimum administrative division. In such cases some sort of compromise will be necessary in order to reconcile the different optima.

3. (i) $\pi = -3Q^2 + 33Q - 72$

The necessary condition of profit maximization requires that:

$$\frac{d\pi}{dQ} = 0$$

$$\therefore -6Q + 33 = 0$$

$$Q = \frac{33}{6} = 5.5$$

The sufficient condition for profit maximization requires that the second derivative be negative for a relative maximum.

$$\frac{d^2\pi}{dQ^2} = \frac{d}{dQ} (-6Q + 33) = -6 < 0$$

(ii) This confirms that $Q = 5.5$ provides a relative maximum.

$$\begin{aligned} \pi &= -3Q^2 + 33Q - 72 \\ &= -3(5.5)^2 + 33(5.5) - 72 \\ &= -90.75 + 181.5 - 72 \\ &= \underline{18.75} \end{aligned}$$

LESSON 4

This question requires an understanding of the elementary Mathematics of substitution, the distinction between injection (j) and withdrawals (w) and how they affect National Income.

$$\begin{aligned} Y &= C+I+G \\ &= 30 + 0.8Y + 50 + 80 \\ G_0 &= 80 \end{aligned}$$

Aggregate Income = Aggregate expenditure method

$$\begin{aligned} Y &= C+I+G \\ Y &= 30 + 0.8Y + 50 + 80 \\ Y &= 30 + 0.8Y + 130 \\ Y &= 0.8Y + 160 \\ Y - 0.8Y &= 160 \\ Y(1 - 0.8) &= 160 \\ 0.2Y &= 160 \\ Y &= \frac{160}{0.2} = \frac{1600}{2} \end{aligned}$$

$$\text{Therefore } Y = 800$$

Withdrawals (w) = Injections (j) method

A withdrawal (w) is any part of income that is not passed on within circular flow e.g. savings (s).

An injection (j) is an addition to the circular flow of income which does not come from the expenditure of domestic households e.g. private investments (I) and government expenditure (G)

Income (Y) is either spent (c) or saved (s) such that:

$$\begin{aligned} Y &= C+S \\ Y - (30 + 0.8Y) &= S \\ Y - 30 - 0.8Y &= S \\ 0.2Y - 30 &= S \end{aligned}$$

$$\text{Given } W = J, S = I + G$$

Since corresponding injections and withdrawals don't necessarily have to be equal.

$$\begin{aligned} S &= 0.2Y - 30 \\ I + G &= 130 \end{aligned}$$

$$\begin{aligned} \text{Therefore } 0.2Y - 30 &= 130 \\ 0.2Y &= 160 \end{aligned}$$

$$Y = \frac{160}{0.2} = \frac{1600}{2}$$

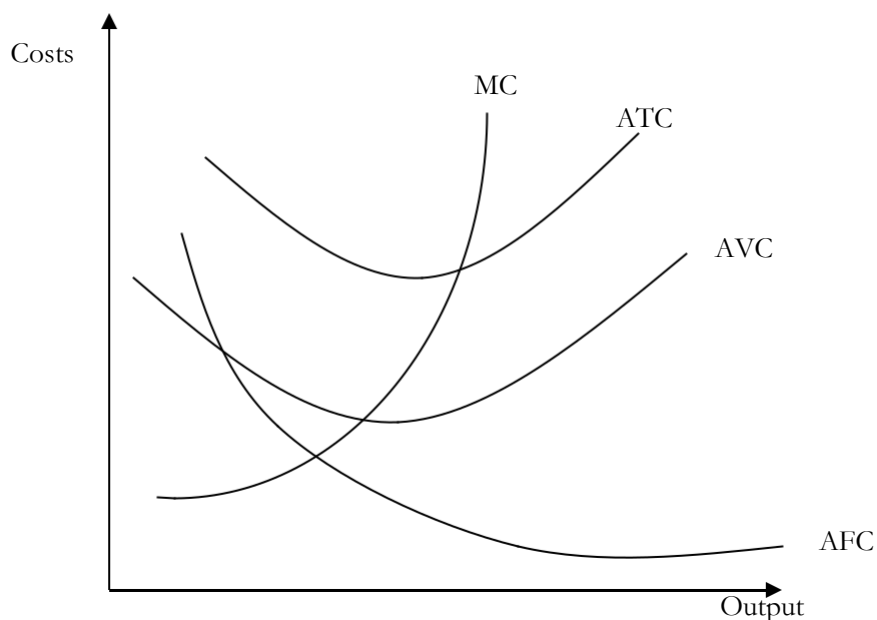
$$Y = 800$$

2. Gross National Product (GNP) – the sum of the money values of all final goods and services produced by nationals of a country during the year both within and outside the country.

The limitation of using GNP as a measure of economic performance are more central to the net property income from abroad which is often negative for most developing countries:

- Incomplete information on the level of income derived from investment by foreigners within the country and by nationals abroad.
 - The complexity that exists in joint-venture kind of investment – reliable ownership documentary evidence may not always be readily available especially in the event of grafts such as tax evasion.
 - The fact that GNP does not directly reflect changes in welfare/living standards; the distribution aspect of National Income should be taken into account for the purposes of equity.
 - GNP in national terms (at current market prices) is not representative of the actual economic performance since it falls short of the effect of change in the value of money (inflation).
 - GNP computation is based on estimates especially of the non-monetary deductions such as depreciation; the problem of inclusion could lead to double-counting. Illegal activities such as smuggling makes the level of output erroneously stated and the impact of all these renders the figure less realistic.
3. The answer to this question should begin with the definition of each of the cost concepts, to be followed by a well labeled diagram and subsequent explanation.
- i. Marginal cost (MC) – the change in total costs, per unit change in the level of output.
 - ii. Variable Costs (VC) – costs which vary directly with the level of output.
 - iii. Fixed Costs (FC) – Costs which remain constant for all possible levels of output.
 - iv. Average Variable Cost (AVC) – Variable cost per unit of output, and is obtained by dividing total variable cost (TVC) by output.
 - v. Average Fixed Cost (AFC) – fixed cost per unit of output, obtained by dividing total fixed cost (TFC) by the level of output.
 - vi. Average Total Cost (ATC) – cost per unit of output, which is arrived at by dividing total cost (both fixed and variable by the amount of output).
 - vii. Total costs can be expressed as $TC = AVC + AFC$. In the same way average total costs may be written as $ATC = AVC + AFC$.

A much more clear and useful: way of demonstrating these costs is by way of a diagram as shown below:



The average total costs indicated in the diagram represent the costs per unit of output. ATC being the sum of AFC and AVC by definition. The AFC curve is determined by the fact that as output increases the cost per unit falls. The shape of the AVC curve reflects first falling costs per unit as the benefits of division of labour and specialization make their impact in the form of increasing returns and rising costs as diminishing returns occur. The marginal cost curve representing the additional cost of the last unit produced falls initially with increasing efficiency but rises as diminishing returns sets in. The MC curve cuts the AVC and the ATC curves at their lowest points because of the mathematical relationship which, exists between any marginal variable and the average to which it is related. If the marginal cost is greater than the average, then the average will rise, if the marginal cost is less than the average, the average will fall.

- 4) This question can be approached differently depending on the level of study of the discipline of Economics. For the purpose of the scope required at this level, it would be clearer to discuss the distinction between the necessary and sufficient conditions for profit maximization from the perspective of a firm in a purely competitive market. Moreover, since revenue and cost functions are not given, it would be necessarily involving to try to establish. It's thus assumed that the appropriate illustrations that what the question requires is largely to do with diagrams.

The necessary condition for profit maximization is determined at the level of output for which the marginal revenue (MR) is equal to marginal cost (MC).

If $MR > MC$ total profit has been maximized and it pays the firm to expand necessitating the firm to cut its production. The firm is in equilibrium (maximizes its profit) at $MR = MC$ level of output.

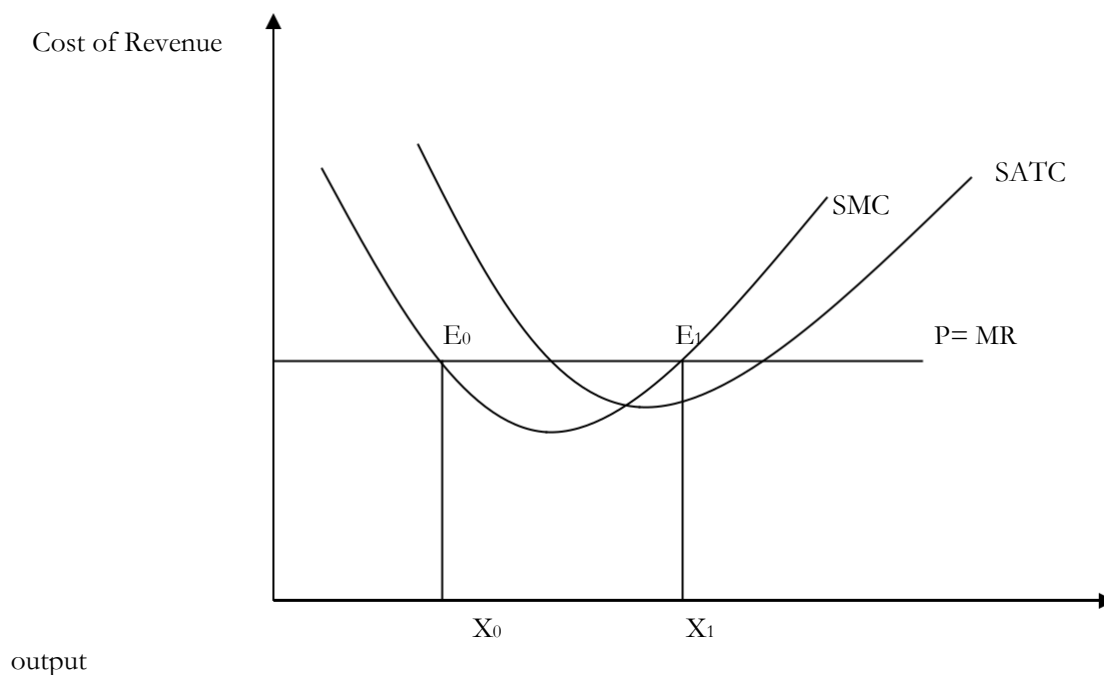


Figure 1.2 The profit-maximizing level of output

To the left of point E_1 profit has not been maximized because each unit of output to the left of X_1 costs more than the revenue earned by its sale, so that total profit is reduced.

Thus the first condition for the equilibrium of a firm (profit maximization) is that marginal cost be equal to marginal revenue. However, this condition is not sufficient, since it may be fulfilled and yet the firm may not maximize profit.

In the figure above it's observed that the condition $MC=MR$ is satisfied at point E_0 , yet clearly the firm is not in equilibrium;

The second (sufficient) condition for equilibrium (profit maximization) requires that the MC be rising at the point of its intersection with the MR curve. This means that the slope of the MC curve is greater than the slope of the MR curve.

In figure 1.2 the slope of MC is positive at E_1 , while the slope of the MR curve is zero at all levels of output. Thus at E_1 , both conditions for profit maximization (equilibrium) are satisfied: $MC=MR$ and $(\text{slope of } MC) > (\text{slope of } MR)$.

It should be noted that the MC is always positive, because the firm must spend some money in order to produce an additional unit of output. Thus MR is also positive at equilibrium. Economically, if the rate of change of MR is less than the rate of change of MC at the output where $MC=MR$, then output will maximize profit.

LESSON 5

1. Liquidity preference as applied to an individual refers to the desire to hold one's assets as money rather than as income-earning assets. Liquidity preference therefore involves a loss of the income that might otherwise have been earned. There are two schools of thought to explain liquidity preferences, namely the Keynesian Theory and the Monetarist Theory.

According to Lord John Maynard Keynes, a British economist there are three motives for holding money:

The Transaction Motive

A certain amount of money is needed for everyday requirements, the purchase of food and clothing and other ordinary expenses. How much is necessary to hold for these purposes will depend mainly on 3 factors.

- a person's income
- the interval between one pay-day and the next
- habit

Generally, the higher the income, the more money will be held. The weekly wage -earner will need to hold less than a person who receives his salary monthly, for in the first case, a sufficient amount has to be held to cover expenses for only one week, whereas the other man has to make provision for four weeks.

The Precautionary Motive

People hold money in reserve to cover unanticipated contingencies which might arise in the period of a sudden purchase of an opportune advantage. The amount held will depend mainly on the **outlook of the individual, how optimistic** he is, both as regards events and the **possibility of borrowing at short notice** should the need arise. But, taking the community as a whole, the amount set aside for the precautionary motive is, in normal times, likely to be tied fairly closely to the level of national income.

The Speculative Motive

Another major reason for holding money is in order to speculate on the course of future events. If one thinks prices are now very low and will soon rise, the tendency is to buy now and to put off selling until prices rise. If one thinks prices are high now and will soon fall, the tendency is to sell now and to postpone buying until prices have fallen.

This emphasizes the role of money as a store of wealth. Speculative Balances are wealth held in the form of money rather than interest earning assets because of expectations that the prices of those assets may change.

When households decide how much of their monetary assets they will hold as money rather than as bonds (and other interest earning assets), they are said to be exercising their **Preference for Liquidity**.

In contrast with the above view, monetarists tend to deny the importance of the speculative factor, claiming instead that the main factor is the transactions demand. They argue that the demand for money is interest inelastic and that people hold money largely to finance spending on goods and services. Any increase in the quantity of money can, they agree, produce some changes in interest rates but the main effect is not on investment and output, but on prices as people spend their increased money holding mainly on goods and services. The effect of this additional spending is to bid up the price of goods. Monetarists explain this effect by reference to some version of the quantity theory of money summarized in the basic equation $MV = PT$,

where M stands for stock of money, V is its velocity of circulation; P is the average price and T is the number of transactions taking place in a given period. Assuming V is relatively constant because the institutional features of an economy change only slowly and that T is fixed at its maximum, once a situation of full employment is reached, then it is argued any change in the quantity of money M can only be accommodated by variations in prices.

Modern monetarists following the work of Milton Friedman have refined the quantity theory, pointing out that the demand for money depends on several factors such as total wealth, expected rates of return on wealth, the rate of inflation, the ratio of human to non-human wealth and tastes and preferences.

RECONCILING THE NEED FOR LIQUIDITY, PROFITABILITY AND SECURITY

- A commercial bank's assets represent the use which has been found for the money put at its disposal mainly by depositors. The **distribution of these assets** shows how the bank reconciles the need for security, liquidity and profitability.

A part from cash and buildings, the assets consists solely of various types of loans. **In arranging these assets, the bank's aim is to earn profits.** However, in doing so, it must bear in mind liquidity and security for the funds it is using belong to its depositors and the bulk of its depositors are payable on demand.

Liquidity and profitability pull in opposite directions. The shorter the period of the loan, the greater the liquidity but the lower the rate of interest hence profitability.

Security and liquidity tend to go together, for if a loan is not secure it cannot in any sense be liquid. The role of the different types of assets in reconciling profitability and liquidity can be seen by looking at the items in detail.

- The following are the main assets held by a commercial bank.
 1. **Cash:** Partly in the bank tills, partly in the bank's account with the Central Bank. Required for day-to-day needs and earns no interest and hence the bank seeks to minimize the holdings.
 2. **Money at call:** Lent to the Money Market for very short periods. Low rate of interest. Very liquid and secure.
 3. **Bills:** Treasury, Local Authority and some commercial bills. Higher rate of interest than money at call but not quite liquid.
 4. **Investment:** in gilt-edged securities: More profitable but least liquid. Generally loans for up to six months.

The banks seek to balance liquidity and profitability in its operation but this will be constrained by regulatory reserve requirements issued by the Central Bank.

LESSON 6

Put simply technological change is change in the ways in which goods and services are produced. In recent years considerable technological change has taken place, and this will undoubtedly continue into the foreseeable future. These changes are based on the microprocessor which is a small computer in a silicon chip. The potential scope for the use of such a device is enormous, covering all stages of manufacture from the production of industrial raw materials, through the manufacture of parts of machines to the assembly of final products. A well publicized example of the employment of micro-processor is the use of robots in the motor industry to weld car bodies automatically. As robots become equipped with vision and touch sensors, then they will take over large areas of assembly work. Apart from the use of the new technology in manufacturing industry, there is possibly been more scope in the service industries. Technological change has occurred in the past, but the new technology has two features not found in previous periods of change. The scope for the use of microprocessor is very wide indeed, extending to every sector of the economy; and second, it represents the substitution of capital for labour on a scale which has probably never before taken place.

The effects of this increased technological change on employment will depend mainly on three factors:

- On the speed of development within the field of microelectronics and related areas. Thus far this has been extremely rapid. The size of the devices has fallen; reliability has increased; the range of applications has widened and prices have fallen. Simple illustrations of these trends are the pocket calculators and the small computer.
- The effect on employment will depend on how quickly the new technology is brought into use. There will be inevitably a time lag between the development of a new state of demand; whether firms are re-equipping or not; the receptiveness and general attitude of management; the reaction of workers; the skills required, and so on. It is the unpredictability of these factors, which partly explains the differences in estimates of what the effect of the new technology is likely to be.
- The new technology whilst destroying some jobs will create others. The application of micro-processors will lower costs and prices, resulting in increased demand and hence employment. More workers will be required to manufacture the devices themselves. The new techniques have already encouraged the development of new products and will continue to do so - for example, TV games, automatic cash transfer, and electronic mail.

The overall impact of the increased technological change on employment will depend on the balance between the job-destroying and the job-creating effects of the new technology. In previous periods of technological change, although employment was reduced this proved to be only temporary, and in the long run demand increased and employment rose again. However, there are reasons to think that this period of technological change differs from those in the past. The change is much more rapid. Capital is capable of replacing labour to an unprecedented degree, and the change potentially affects all sectors of the economy. There must therefore be serious doubt, as to whether the jobs lost, will be replaced by those created. Even apart from this, there are likely to be time-lags between the falls in employment in some industries and the subsequent employment of the displaced labour in expanding industries. Overall, it seems likely that the effect of increased technological change will be to reduce total employment even though the distribution of labour between sectors will change.

2. A large increase in the numbers of young dependants can be a serious barrier to economic growth. The economic resources needed to care for the growing numbers of children and to educate them might have been devoted to industrial development and

training. Alternatively, the same resources could have been used to give a smaller number of children a much better education.

- A country with high birth rate and high death rate will have a large proportion of young people in its population.
- As the country depends heavily on world trade for a major part of its requirements of food and basic materials, a rapidly rising population might give rise to serious balance of payments problems.
- Creating work for the increased numbers will require larger imports of raw materials and other capital goods. To pay for these additional imports, the country will have to achieve a substantial increase in its exports.

A rapid population growth presents several problems to the country.

- Rapid population growth makes the choice more difficult between higher consumption now and the investment needed to achieve higher consumption in the future. Economic development depends upon investment. If the resources available for investment are limited, rapid population growth retards investment needed for higher future consumption.
- Rapid population growth tends to over use the country's natural resources. This is particularly the case where the majority of people are dependent on agriculture for their livelihood. With rapidly rising population, agricultural holdings become smaller and unremunerative to cultivate. There is no possibility of increasing farm production through the use of new land (extensive cultivation). Consequently, many households continue to live in poverty. In fact, rapid population growth leads to the over use of the land thereby jeopardizing the welfare of future generations.
- With rapidly growing population, it becomes difficult to manage the adjustments that accompany economic and social change. Urbanization in LDCs creates such problems as housing, power, water, transport, etc. In addition, a growing population threatens permanent environmental damage through urbanization in some rural areas.

The growth of population tends to retard the per capita income in three ways:

- It increases the pressure of population on land;
- It leads to a rise in costs of consumption goods because of the scarcity of the cooperating factors needed to increase their supplies; and
- It leads to a decline in the accumulation of capital because with the increase in family members, expenses increase. These adverse effects of population growth on per capita income operate more severely if the percentage of the children in the total population is high, as is actually the case in all the LDCs of the world. Children involve economic costs in the form of time and money spent in bringing them up. But they are also a form of investment if they work during childhood as is the case in the case with majority of families, and if they support parents in old age which is rare in the case of the majority of children. As the economic gains from having many children are uncertain, therefore a large number of children in the population entails a heavy burden on the economy, for these children simply consume and do not add anything to the underdeveloped countries it means that there are more children to support and fewer adults to earn thereby bringing down the per capita income. Whatever increases in national income takes place that is nullified by the increase in population. Thus the effect of population growth is to lower the per capita income.

A rapidly increasing population leads to an increased demand for food products, clothes, houses, etc. But their supplies cannot be increased in the short run due to lack of cooperating factors, like raw materials, skilled labour, capital, etc. Consequently, their costs and prices rise which raise the cost of living of the masses. This brings down further the already low standard

of living. Poverty breeds large numbers of children which increases poverty further and the vicious circle of poverty, more children and low standard of living countries.

Continuing rapid population growth on an already large population base means a lower quality of life for the masses. The main cost of such population growth is borne by the poor in the form of high mortality and lost opportunities for improving living standards. Thus the consequence of population growth is to lower the standard of living.

As people mostly live in rural areas agricultural is their occupation. So with population growth the land-man ratio is distributed. Pressure of population on land increases because the supply of land is inelastic. It adds to disguised unemployment and reduces per capita productivity further. As the number of landless workers increases, their wages fall. Thus low per capita productivity reduces the propensity to save and invest. As a result, the use of improved techniques and other improvements on land are not possible. Capital formation in agriculture suffers and the economy is bogged down to the subsistence level. The problem of feeding the additional population becomes serious due to acute shortage of food products. These have to be imported which accentuate the balance of payments difficulties. Thus the growth of population retards agriculture development and creates a number of other problems discussed above.

A rapidly increasing population plunges the economy into mass unemployment and underemployment. As population increases the proportion of workers to total population rises. But in the absence of complementary resources, it is not possible to expand jobs. The result is that with the increase in labour force, unemployment and underemployment increase. A rapidly increasing population reduces incomes, savings and investment. Thus capital formation is retarded and job opportunities are reduced, thereby increasing unemployment. Moreover, as the labor force increases in relation to land, capital and other resources, complementary factors available per worker decline, and as a result unemployment increases. LDCs have a backlog of unemployment which keeps growing with a rapidly increasing population. This tends to raise the level of unemployment manifold as compared with the actual increase in labour force.

Rapidly growing population necessitates large investment in social infrastructure and diverts resources from directly productive assets. Due to scarcity of resources, it is not possible to provide education, health, medical, transport and housing facilities to the entire population. There is over-crowding everywhere. As a result, the quality of these services goes down.

The rapid increase in school-age population and the expanding number of labour force entrants put ever-greater pressure on educational and training facilities and retards improvement in the quality of education. Similarly, too dense a population or a rapid rate of increase of population aggravates the problem of improving the health of population.

The labour force tends to increase with the increase in population. It will grow even faster, if more women seek paid employment. Since it is not possible to increase capital per worker (i.e., capital deepening) with a growing labour force, each worker will produce less than before. This will reduce productivity and incomes. Wages will fall in relation to profits and rents, thereby increasing income inequalities. Besides, rapid growth in the labour force increases both open employment and underemployment in urban and rural areas.

Population growth retards capital formation. As population increases, per capita incomes available declines. People are required to feed more children with the same income. It means more expenditure on consumption and a further fall in the already low savings and consequently in the level of investment.

Rapid population growth leads to environmental damage. Scarcity of land due to rapidly increasing population pushes large numbers of people to ecologically sensitive areas such as hillsides and tropical forests. It leads to overgrazing and cutting of forests for cultivation leading to severe environmental damage. Moreover, the pressures of rapid growth of

population force people to obtain more food for themselves and their livestock. As a result, they over cultivate the semi-arid areas. This leads to desertification over the long run, where land stops yielding anything. Besides, rapid population growth leads to the migration of large numbers to urban areas with industrialization. This results in severe air, water and noise pollution in cities and towns.

Beneficial Effects of High Population Growth Rates

A number of influential economists have argued that population growth may either be harmless as far as real income growth is concerned, or even beneficial.

An expanding population will create increased demands for goods and services and growing markets tend to stimulate investment and create employment. A growing population will be able to take more of specialized production and economies of scale. Comprehensive road rail networks, power supplies and other public utilities can only be operated at relatively low cost when there is a relatively larger population to ensure full utilization.

A country with growing population and hence a young age structure will be more mobile. With increasing numbers entering the working population, expanding industries will have little trouble in recruiting labour. A more rapid rate of technical progress is possible when the population is expanding, because new industries, new factories and new techniques of production can come into operation alongside the older ones. With static or declining population these changes might have to wait for the redundancy of the older equipment.

It is also argued that pressure on the standard of living due to land shortage may produce the necessary “shock” to the system leading peasant cultivators, for example, to look for new ways of increasing productivity. Once new methods have been adopted to stop income per head from falling, there might be continued interest in innovations for the purpose of raising incomes.

LESSON 7

1. a) The overall function of taxation is to provide funds to finance the activities of government and can be discussed in the following terms:
 - Tax revenue is required to pay for **goods and services which government provides:**
These could be public such as defence or merit goods such as education and medical services respectively.
 - A major function of taxation is to bring about some **redistribution of income of income** – progressive tax system.
 - Tax revenue may be used to **pay interest** on national debt.
 - Taxation may be used as a fiscal policy instrument to influence full employment levels.
 - Social welfare function: is the use of tax to **discourage the production of harmful commodities.**
 - Protection policy – **Protect infant industries.**
 - **To achieve economic stability by discouraging** unnecessary expenditure.

- b) A progressive income tax system is one where the higher the income, the greater the proportion paid in tax. The taxpayer's income is divided into bands upon which different taxes are paid, the possible disadvantages of this system are:
 1. **The effect of incentives:** The consequences of high progressive taxes is work and extra effort becomes less valuable hence people prefer leisure to work. Those who must maintain a given standard of living may even work harder on the other hand.
 2. **The effect on the willingness to accept risk:** High marginal tax rates are likely to make entrepreneurs less willing to undertake risks.
 2. **Effects on mobility:** some financial inducement is usually required if people are to be asked to change their location, to undergo training, or accept promotion. Progressive taxation by reducing differentials is likely to have some effect on a person's willingness to do any of the above.
 3. **The growth of evasion and avoidance:** high rates of tax may lead to an increase in tax evasion defined as an illegal means of not paying taxes.

2. Adam Smith was the first economist to study the principles of taxation. He came to believe that when a tax is imposed certain conditions must be fulfilled. These conditions are what he called canons of taxation. These are:

The Canon of Equity

This refers to the fairness of a tax system. It's borne out of the feeling that "the subjects of every state ought to contribute towards the support of the government, as nearly as possible, in the proportion to the revenue which they respectively enjoy under the protection of the state". This means that every person should pay the tax according to his ability and not the same amount. There are three approaches of achieving equity, namely:

The Benefit Principle: Under this approach, benefits derived from the consumption of goods and services are used as the basis for taxation. Thus people should be taxed according to the benefits they derive from the consumption of public goods.

The disadvantage here is to determine the benefits and expenditure of each tax payer.

The ability to pay: Here the argument is that citizens of a given country are differently endowed in wealth and earnings. Besides the government cannot raise enough funds to finance public expenditure if each and everyone was asked to pay the same amount of tax. So ability to pay should be the basis for taxation because the tax burden is distributed equitably. However, ability to pay is very difficult to effect because of the difficulty of measuring the ability itself.

Equal sacrifice: Here the state should take into consideration the sacrifice entailed by the taxpayer. This is achieved by introducing principle of progression in the tax system.

The Canon of Certainty

According to Smith, there should be certainty in taxation because uncertainty breed **corruption**. The tax which the individual is bound to pay ought to be certain, and not arbitrary. The **time** of payment, the **manner** of payment, the **quantity** to be paid ought all to be clear and plain to the **contributor** and to **every other person**. Certainty also means that the state should be certain about the mount of Tax Revenue and the time when it's expected to flow into the **exchequer**.

The Canon of Convenience

Here both the **time** and the **manner** of payment should be convenient to the contributor.

The Canon of Economy

Every tax should be **economical for the state** to collect. If the cost of collection in the form of salaries of tax officials is more than what the tax brings as revenue, such a tax is uneconomical. Secondly, it should be **economical to the taxpayer**, i.e.. He should have sufficient money left with him after paying the tax, a very heavy tax, on income will **discourage saving and investment** and thus adversely affect the productive capacity of the community.

- 3 a) Inflation may be defined as a persistent rise in the general level of prices or alternatively as a fall in the value of money over a given period of time. Any increase in the quantity of money, however small can be regarded as inflationary.

Inflation can also mean runaway or hyper-inflation or galloping inflation where a persistent inflation gets out of control and the value eventually falls to almost nothing, so that a new currency has to be adopted.

Because of its impact on the general economic performance, inflation is indeed one of the most unstable macro-economic variables that has drawn extensive concern in many economies, especially in the developing world.

- b) Inflation is caused by factors arising from different situations. However, there are basically three types of inflation:
- cost-push
 - demand-pull
 - monetary
- Cost-push inflation occurs from the supply side of an economy when the increasing costs of production push up the general level of prices. It's largely as a result of the following factors:

Wage costs arising from institutional intervention: Powerful trade unions, for instance will bargain for higher wages without corresponding increased in productivity. Since wages constitute production costs, employers will usually pass the increased wage costs on to the consumer in terms of higher prices.

Structural rigidity: Slow mobility of resources between the various sectors of an economy has an effect of increasing prices. This is an example of most developing countries especially those which are predominantly agricultural, since such sectors are subject to natural and other factors which cause shortages and hoarding, hence frequent price increases.

Import goods at relatively inflated prices: Import prices could also be high depending on the import duty imposed on imported goods, capital goods in this case, increases the cost of production and thus the final product prices.

Exchange rates: The determination of exchange rates at any given time depends on whether or not an economy has been liberalized. Any time a currency depreciates or is otherwise devalued, domestic prices of goods and services tend to increase.

Mark-up pricing decisions: Many large firms set their prices on a unit costs plus profit basis. This makes prices more sensitive to supply than demand influences, and may tend to increase with rising costs, whatever the state of economy.

Uncertainty and expectation/speculation: In the event of uncertainty and general expectation of prices to rise, demand increases and the overall effect is inflation. This is exactly an example of a financial market (e.g. foreign exchange market) instability such as Kenya's (1997).

- **Demand-pull** inflation is the excess of aggregate demand over the value of output (measured constant prices) at full employment which will create excess demand in many individual markets, and prices will be bid upwards. The rise in demand for goods and services will cause a rise in demand for factors, and their prices will increase as well. Thus, inflation in the prices of both consumer goods and factors of production is caused by a rise in aggregate demand.

General shortage of goods and services: Whenever there is supply deficiency of goods and services in times of, say, disasters like earthquakes, floods, wars or drought, the general level of prices will rise because excess demand over supply.

Government spending: this certainly arises as a result of government action. Governments may finance spending through budget deficits; either resorting to print money with which to pay bills or what amounts to the same thing, borrowing from the Central bank for this purpose. Many economists believe this is especially so due to the fiscal indiscipline of most governments.

Monetary type of inflation stems from the policy orientation/frameworks of the monetary authority (central bank) which may be in form of sale of treasury bills (TB's) at relatively high interest rates (return), and thus creating a tendency for commercial banks to increase their base lending rates; the overall effect is an upward pressure on the general level of prices. This argument is relatively close to the quantity theory of money which states that a disproportionately large increase in money supply cause the general level or prices to rise faster.

- c) Inflation has different effects on different economic activities on both micro and macro levels. Some of these problems are considered below:

During inflation, money loses value. This implies that in the lending-borrowing prices, lenders will be losing and borrowers will be gaining, at least to the extent of the time value of money. Cost of capital/credit will increase and the demand for funds is discouraged in the economy, limiting the

- i. availability of investible funds. Moreover, the limited funds available will be invested in physical facilities which appreciate in value over time. It's also possible for the diversion of

the investment portfolio into speculative activities to occur away from directly productive ventures.

- ii. Other things constant, during inflation more disposable incomes will be allocated to consumption since prices will be high and real income very low. In this way, marginal propensity to save will decline culminating in inadequate saved funds. This hinders the process of capital formation and thus the economic prosperity of the country.
 - iii. The effects of inflation on economic growth are associated with inconclusive evidence. Some scholars and researchers have contended that inflation leads to an expansion in economic growth while others associate inflation with economic stagnation. However, if commodity prices rise faster and earlier than will a have a positive impact on economic growth. Such kind of inflation if mild, will act as an incentive to producers to expand output and if the reverse happened, there would be a fall in production resulting in stagflation i.e. a situation where there is inflation and stagnation in production activities.
 - iv. There is always a trade-off between the inflation rate and the unemployment rate. Policy makers may undertake an inflationary measure to solve unemployment. Creating more job opportunities raises peoples' income and their purchasing power which may eventually cause inflationary tendencies in the economy. However, if inflation reduces the level of aggregate demand to the effect of excess production capacities, unemployment will no doubt occur.
 - v. When inflation implies that domestic commodity prices are higher than the world market prices, a country's export fall while the import bill expands. This is basically due to the increased domestic demand for imports much more than the foreign demand for domestic produced goods (exports). The effect is a deficit international trade account causing balance of payment problems for the country that suffers inflation.
 - vi. During inflation, income distribution in a country worsens. The low income strata get more affected especially where the basic sustaining commodities' prices rise persistently. In fact such persistence accelerates the loss of purchasing power and the vicious cycle of poverty.
-

LESSON 8

1. The principal set of problems which are interrelated and common to all groupings include:

- Parochialism.

In most countries cooperation does not go far beyond the signing of treaties and protocols. The objectives of the treaties are not integrated in national development plans or in the sectoral programmes of appropriate substantive ministries. The officials and ministers who participate at intergovernmental meetings on the implementation of the treaties of cooperation generally come to the meetings without the mandate of their cabinet colleagues and, on returning to their respective capitals, they do not brief their cabinet colleagues on the proceedings and decisions taken at the meetings.

Moreover, the governments do not send officials to the meetings who have the appropriate expertise on the issues to be discussed.

- Another inhibiting factor is **lack of grass root support** at the national level, due to the manner in which the cooperation arrangement are launched. In many countries the idea of forming or joining an economic corporation arrangement sprang less from the wishes of the people in response to their felt needs than from the leadership; and sometimes the idea may be instigated by a donor country which may be a previous colonial power or is the main provider of aid and technical assistance. The donor country/countries would, of course, give priority to their interests.
- **The economic dependency status of many African countries** is another factor that works against the viability and strength of sub-regional economic cooperation groupings in Africa. Many African countries still depend excessively on supplies and manufactured products originating from developed countries, even where comparable products are available within a sub-regional preferential arrangement.
- There are also problems arising from the fact that the **transport infrastructure for inter-African trade is not adequate**. Experience shows that even when tariffs have been reduced and intra-country transport links are open, the cost of transport between countries forming a cooperation arrangement tend to be high and a very high external tariff would be required to make a customs union, shift the advantage in favour of intra-sub-regional trade.
- There are a number of problems of an **operational and institutional nature** which make inter-African cooperation difficult. Some of the critical ones related to banking arrangements, information, language, costs of promotion, prices of goods to be traded and non-physical barriers to cross-border movement of goods and services.

Banking relations between various African countries are weak, particularly between French-speaking and English-speaking African countries.

Trade documents in different languages make it difficult to integrate different language-speaking countries financially and economically, and it becomes difficult to exchange trade information among such countries.

- Lack of information is another important factor that has hindered the development of intra-regional trade. Most African countries are traditionally linked with the countries of their former colonial masters and have very few trade relationships with other African countries.

The lack of information is compounded by the costing and pricing of African products. A significant number of industries in African countries costs and price their products in such a way that they price themselves out of the African market. The lack of price competitiveness of African products is also due to the fact that most of the industries produce well below capacity either because of lack of the foreign exchange needed for the importation of necessary raw materials and intermediate inputs or because the plant sizes or scales are too large for the markets for which they were established.

- **Policy-induced factors** make cooperation difficult. Inward-looking policies of individual countries resulting in the protection of uncompetitive domestic producers against imports irrespective of sources, and stringent trade and payments controls instituted to deal with the persistent balance of payments problems have adversely affected the volume of trade among African countries. As international transactions must satisfy various trade and exchange regulations, business transactions are invariably subject to excessively long and costly regulations, and administrative procedures which are further disincentives to sub-regional trade and economic links.

Some aspects of monetary and fiscal policies of countries also hinder cooperation. These include the different exchange rate policies, exchange control regimes and over-valuation of the exchange rate.

- There are also problems pertaining to the clearing house. The clearing and payments mechanism was established in some cooperation arrangements to promote the use of local currencies in intra sub-regional trade to ease the foreign exchange constraint. A critical problem is that of the accumulation of payments arrears.
- Another problem that weakens integration is the multiplicity of organizations/agencies in one sub-region. A possible explanation might lie in the colonial heritage of African countries and their economic dependency status. During the period immediately before or after independence, the formation of many intra sub-regional groupings was based on linguistic ties and historical links or on personal relationships between the African elite, or between African leaders and leaders in metropolitan or donor countries. The multiplicity problem within the sub-regional arrangements weakens the integration process. It leads to costly competition, conflict, inconsistencies, duplication of efforts, fragmentation of markets and restrictions in the growth potential of the sub-regional arrangement.

The ninth set of problems is **those that are inherent in the very nature of multinational economic cooperation**. These are not peculiarly African. They plague integration movements in other regions, including the developed world. However, it should be recognized that in view of the weakness of African economies their negative impact will be more acute in African and could produce stresses and strains among the participating countries that not only might slow down an integration process but might cause its suspension or break-up. The problems in question are a package of issues relating to tariff barriers, customs duties and costs and benefits.

The economic weakness and relative stagnation of African economies are a major obstacle to integration because of their negative impact of the government policies.

Sub-Saharan Africa entered the 1990s poorer than it was in the 1970s and 1980s. African countries are faced with mounting economic problems, minimal or zero growth rates, low domestic savings and investment, scarcity of foreign exchange, balance-of-payments difficulties and a heavy debt burden. A period of economic weakness is not a favourable time to formulate long-term plans to promote intra-sub-regional/regional trade, liberalize national markets and embark on medium-term and long-term plans to establish multinational project sectoral linkages, and to programme the sub regional harmonization of macroeconomic policies. Pressures are such that governments will give priority to

domestic crisis management and take protective measures against other countries including the regulation of the domestic economy in sensitive sectors and the imposition of restrictions on imports and on the use of foreign exchange.

Finally, there are problems that lie in the running and management of the secretariats of the economic cooperation institutions. The problems are administrative in nature, but arise from policies pursued by governments. The following could be cited:

- Reluctance by member states to give chief executives independence in staff recruitment and the management of the secretariats, and the tendency of some countries to force candidates on the secretariat and to listen to complaints from staff members who are their nationals about the management of the secretariats.
- Lack of clarity as to the tasks and objectives of the institutions to reconcile national and multinational interests in the implementation of programmes.
- Failure on the part of the secretariat to articulate the balance of advantages and disadvantages of economic cooperation.

Abridged from The Courier no 142 (by Bax Nomvette)

2. There are a number of factors which affect the long-run trend of the terms of trade for developing countries, namely:
 - **The income-elasticity of demand for primary products**
These countries export primary products like basic foodstuffs which may be considered to be “necessities” on which a decreasing proportion of incomes is likely to be spent as these incomes rise. Countries relying on basic foodstuffs and other primary product exports may therefore find their exports growing more slowly than those of individual countries exporting manufactured goods.
 - **The discovery of synthetic materials**
Over a whole range of items, the substitution of synthetic man-made products has reduced the market for particular primary products. The long-term trend in the market shares of natural and synthetic products is likely to be influenced by a “ratchet” effect. When prices of natural products are high, due to cyclical fluctuations or temporary shortages, research into possible synthetic substitutes will be encouraged. When prices of natural products revert to more normal levels, these products may have permanently lost of further part of the market.
 - **Raw material – saving innovations**
This is likely to apply to technical changes aimed at economizing the use of raw materials in industry. Periodic high prices will stimulate the search for and application of raw material saving process. Technical change aimed at a progressive reduction in costs per unit of output directly by permitting industrial output (and thus income) to expand in greater proportion than the demand for materials.
 - **Agricultural protection and import substitution in developed countries**
The protectionist policies within the industrial countries which aim to raise the incomes of farmers and other primary producers like fishermen by placing tariffs or quotas on competing imports has also affected the terms of trade for developing countries. As a result, many industrial countries have become almost self-sufficient in producing grains, sugar from beet, livestock products, and even tobacco and wines. Sometimes the policies have been directed at saving foreign exchange as well as maintaining domestic incomes and employment, and have not only been confined to primary products. Indeed, restrictions on access to markets for manufactured goods by developing countries with large or potentially large, export industries like India’s textiles have forced developed countries to sell more primary products

instead. Thus even without tariffs or quotas, therefore, the expansion in primary product exports is likely to result in a decline in their commodity terms of trade in the many cases where the price-elasticity of demand in industrial countries is very low. When in addition, these primary products face tariff or quota restrictions, the deterioration in the terms of trade will be greater.

- **Diminishing returns in agriculture and limited natural resources**
Whatever the income-elasticity of demand for primary products, continuous expansion of industrial output means a continually increasing requirement of raw materials. If the supply of land suitable for various agricultural products is limited, the law of diminishing returns may apply, leading to increasing scarcity of such products, and a rise in their prices.
 - **Technical progress in manufacturing**
Although technical progress in the industrialized countries should, through the market mechanism, have been shared between the industrial producers and the producers of primary products, according to Raoul Presbich this desirable development has been frustrated. On the other hand, industrial monopolistic practices and trade union action producing cost-push inflation in the developed countries have persistently raised money wages in these countries and, with these, the prices of manufactured goods. In contrast, competition among primary producers, and the ineffectiveness of trade unions in the agricultural sectors of these economies, has kept down the prices of raw materials. In fact the benefits of any cost-reducing innovation in these countries is likely to be passed on, as a result of competition, to industrial consumers in the form of reduced prices.
 - **Price fixing agreements among primary producers**
The ability of the primary producers to come together and to raise the price of their products could eventually reverse the competitive marketing situation.
-

PAST CPA EXAMINATION PAPERS

KENYA ACCOUNTANTS AND SECRETARIES NATIONAL EXAMINATION BOARD

CPA PART 1

CPS PART I

ECONOMICS

MONDAY: 2 DECEMBER 2002

Time Allowed: 3 hours

Answer any FIVE questions.

ALL questions carry equal marks.

QUESTION ONE

- (a) Distinguish between money, near money and money substitutes. (6 marks)
- (b) Identify and explain the functions of money. (6 marks)
- (c) Explain the reasons for liquidity preference for money. (4 marks)
- (d) Explain any four qualities of money. (4 marks)
- (Total: 20 marks)**

QUESTION TWO

- (a) Define the concept of “national income”. (2 marks)
- (b) Briefly explain how national income is measured. (6 marks)
- (c) Give reasons why it is difficult to compare the national income of one country with the national income of another country. (6 marks)
- (d) Outline the factors that determine the level of national income of a country. (6 marks)
- (Total: 20 marks)**

QUESTION THREE

- (a) Citing practical examples, explain the differences between the following types of unemployment listed below and how each affects economic growth.
- (i) Seasonal and casual unemployment. (7 marks)
- (ii) Disguised and unproductive unemployment. (7 marks)
- (b) Outline policies which if implemented would alleviate the problem of unemployment. (6 marks)
- (Total: 20 marks)**

QUESTION FOUR

- (a) (i) Distinguish between price floors and price ceilings. (4 marks)
- (ii) Explain the consequences of each situation in (a) (i) above. (8 marks)
- (b) Illustrate the determinants of equilibrium market price. (4 marks)

- (c) Outline the reasons why agricultural prices are more unstable compared to prices of industrial products. (4 marks)
- (Total 20 marks)**

QUESTION FIVE

- (a) There are 10,000 identical consumers in the market for commodity x, each with a demand function given by $Q_{dx} = 12 - 2P_x$ and 1,000 identical producers of commodity x, each with a function given by $Q_{sx} = 20P_x$.

where: Q_{dx} is the quantity demanded of commodity x.

Q_{sx} is the quantity supplied of commodity x.

P_x is the price of commodity x.

Required:

- (i) Obtain the market demand and the market supply functions of commodity x. (3 marks)
- (ii) Obtain market demand and market supply schedules of commodity x and determine the equilibrium price and equilibrium quantity. (4 marks)
- (b) Illustrate with a diagram and explain the concept of the circular flow of income. (8 marks)
- (Total: 20 marks)**

QUESTION SIX

- (a) (i) Define the term “economic integration”. (2 marks)
- (ii) Discuss factors which are favourable for economic integration. (6 marks)
- (b) Discuss the advantages of regional economic integration among African countries. (12 marks)
- (Total: 20 marks)**

marks)

QUESTION SEVEN

Write brief notes on the following:

- (a) Scarcity and choice. (4 marks)
- (b) Diminishing marginal utility. (4 marks)
- (c) Price elasticity of demand. (4 marks)
- (d) Income elasticity of demand. (4 marks)
- (e) Substitution and income effects of a price change. (4 marks)
- (Total: 20 marks)**

QUESTION EIGHT

- (a) Identify and explain options available for raising funds to finance government activities. (4 marks)
- (b) With regard to fiscal policies, discuss short-run measures a government of a developing country may adopt to ensure sustainable economic growth. (10 marks)

- (c) Outline the reasons for slow economic growth of a developing country. (6 marks)
(Total: 20 marks)

**KENYA ACCOUNTANTS AND SECRETARIES NATIONAL EXAMINATIONS
BOARD**

CPA PART 1

CPS PART 1

ECONOMICS

TUESDAY: MAY 2002
Answer **FIVE** questions.

TIME ALLOWED: 3 hours
All questions carry equal marks.

QUESTION I

The following table represents a production function of a hypothetical firm in the short-run.

Output (units)	Total cost (sh)
0	150
10	210
20	260
30	410
40	455
50	560
60	680
70	750
80	920

- (i) Define marginal cost and give an estimate of the marginal cost of producing the 20th unit of capital. (4 marks)
- (ii) Find the average fixed cost and average variable cost when the firm produces 50 units of output. (4 marks)
- (b) Supposing the marginal propensity to consume (MPC) in an economy is 0.8. If the level of investment in this economy increases by twenty million shillings while holding other factors constant; calculate:
- (i) The change in the equilibrium level of income. (3 marks)
- (ii) Autonomous change in spending. (3 marks)
- (iii) Induced change in consumption. (2 marks)
- (c) Highlight the factors that influence the decision to invest. (4 marks)

(Total: 20 marks)

QUESTION TWO

- (a) Define elasticity of supply and briefly explain any five factors that influence the elasticity of supply. (10 marks)
- (b) Explain why elasticity of supply for agricultural commodities is low. (6 marks)
- (c) The demand for a commodity is twenty units when the prevailing market price equals eighty shillings per unit. However, when the price rises to one hundred shillings, quantity demanded rises to thirty units.

Calculate both arc and point elasticities of this commodity. (4 marks)

(Total: 20 marks)

QUESTION THREE

- (a) To what extent does the prevailing market rate of interest influence the performance of an economy? (6 marks)
- (b) Argue for and against interest rate decontrols. (6 marks)
- (c) In a given economy, the nominal rate of interest is ten per cent while inflation is twelve per cent. Determine the real rate of interest. (2 marks)
- (d) Explain the factors that have caused banking crises in developing economies. (6 marks)
- (Total: 20 marks)**

QUESTION FOUR

- (a) Briefly discuss the theoretical relationship between money supply and Inflation. (6 marks)
- (b) Discuss the main limitations of applying credit control instruments in a developing economy. (6 marks)
- (c) What role do non-bank financial institutions play in economic growth and development? (8 marks)
- (Total: 20 marks)**

QUESTION FIVE

- (a) In a perfectly competitive market, a firm's average revenue and cost functions are given as follows:

$AR = \alpha Q - \beta$ where α, β are constants and Q is the output

$AC = \alpha - \frac{\beta}{Q}$ AR is the average revenue and AC is the average cost.

on the basis of the functions given above, determine:

- (i) Total revenue function. (2 marks)
- (ii) Total cost function. (2 marks)
- (iii) Total break-even output level. (2 marks)
- (b) With the help of a well-illustrated diagram, explain how the long-run equilibrium of a perfect competitive model is achieved in an industry. (6 marks)
- (c) Using an appropriate diagram, illustrate the profit maximizing output for a monopolistic firm. (5 marks)
- (d) Explain three advantages of economies of scale to the firm. (3 marks)

QUESTION SIX

- (a) (i) What is meant by the term "production function"? (2 marks)
- (ii) Giving appropriate examples, explain the term "fixed factors of production" (3 marks)
- (b) Explain and illustrate the resultant hypothetical total and marginal product curves in an economy with only two factors of production, one of which is fixed. (8 marks)
- (c) (i) What is a "production possibility frontier? (3 marks)

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

QUESTION SEVEN

- (a) What are the main objectives of minimum wage legislation? (2 marks)
- (b) Discuss the effects of imposing a minimum wage rate above the market rate:
- (i) In a competitive market. (3 marks)
 - (ii) Under conditions of monopsony. (3 marks)
- (c) What reasons limit the bargaining power of trade unions in developing countries? (8 marks)
- (d) Distinguish between the “substitution effect” and “output effect” on the member employed by a firm following a change in wage rate. (4 marks)

QUESTION EIGHT

- (a) What is credit inflation? (3 marks)
- (b) (i) Distinguish between “excess demand” and “cost-push” causes of inflation. (4 marks)
- (ii) What policy measures can a country use to control inflation? (8 marks)
- (c) Illustrate and explain the phenomenon of liquidity trap. (5 marks)

(Total: 20 marks)

**KENYA ACCOUNTANTS AND SECRETARIES NATIONAL EXAMINATION
BOARD**

**CPA PART 1
CPS PART 1**

ECONOMICS

MONDAY: 3 DECEMBER 2001

Time Allowed: 3 hours

Answer any FIVE questions.

ALL questions carry equal marks.

QUESTION ONE

(a) In a certain economy the marginal propensity to save is 0.2 and the autonomous consumption equals 400.

(i) Formulate the consumption function. (3 marks)

(ii) If the Government's expenditures were increased by 50% what would be resultant change in National Income. (3 marks)

(b) The demand and supply schedules for carrots in a certain market are given below:

Price per ton Sh. '000	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)

(c) Explain how the concept of elasticity guides decisions in the following situations:

(i) Government's tax policy on household consumption. (2 marks)

(ii) Devaluation policy to encourage exports and discourage imports. (2 marks)

(iii) Price discrimination by monopolist. (2 marks)

(Total: 20 marks)

QUESTION TWO

(a) Using indifferent curve analysis demonstrate how a household's equilibrium point is attained. (5 marks)

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

(c) Based on the analysis in (b) above, distinguish between an inferior good and a giffen good. (5 marks)

(Total: 20 marks)

QUESTION THREE

- (a) Explain the terms “absolute and comparative advantage” in the context of international trade. (6 marks)
- (b) Discuss the possible gains that may be generated by international trade. (6 marks)
- (c) Explain the ways in which countries could place barriers against international trade. (6 marks)
- (Total: 20 marks)**

(4 marks)

QUESTION FOUR

- (a) Distinguish between economic growth and economic development. in most developing (8 marks)
- (b) Explain factors which contribute to the low economic growth rates countries.
- (c) Suggest policy measures that may be implemented in an attempt to combat poverty in developing countries. (8 marks)
- (Total: 20 marks)**

QUESTION FIVE

- (a) State the law of diminishing returns as applied to production functions. (3 marks)
- (b) Illustrate and explain the three stages associated with the law of variable proportions. (9 marks)
- (c) The table below represents a production function for a commodity x where capital is fixed and labour is variable.

Quantity of labour	Total Physical product (tons of x)
0	0
1	15
2	34
3	48
4	60
5	62

Using the data in the table, plot the marginal product for labour. (8 marks)

(Total: 20 marks)

QUESTION SIX

You have been hired as a consultant by a firm producing bread to advise on a price strategy that would enable the firm to maximize profits. The firm is a monopolist which sells in two distinct markets, one of which is completely sealed off from the other.

As part of the analysis, you establish that the total demand for the firm’s output is given by the following equation:

$$Q = 50 - 5.0P$$

And the demand for the firm’s output in the two markets is given by the following equations:

$$Q_1 = 32 - 0.4P_1 \text{ and}$$

$$Q_2 = 18 - 0.1P_2$$

Where Q = total output

P = Price

Q₁ = Output sold in market 1

Q_2 = Output sold in market 2

Q_1 = Price charged in market 1

Q_2 = Price charged in market 2

The total cost of production is given by $C = 50 + 40Q$

Where C = total cost of producing a unit of bread.

Required:

- (a) The total output that the firm must produce in order to maximize profits. (4 marks)
- (b) What price must be charged in each market in order to maximize profits. (2 marks)
- (c) How much profit would the firm earn if it sold the output at a single price, and if the discriminates? (5 marks)
- (d) (i) The price elasticity of demand for the two markets at the equilibrium price quantity. (5 marks)
- (ii) Comment on how the price elasticity of demand may be used in making economic decisions. (3 marks)
- (e) Under what conditions is price discrimination possible? (2 marks)
- (Total: 20 marks)**

QUESTION SEVEN

- (a) Assume the following information represents the National Income model of an 'Utopian' economy.

$$Y = C + I + G$$

$$C = a + b(Y - T)$$

$$T = d + tY$$

$$I = I_0$$

$$G = G_0$$

$$\text{Where } a > 0; 0 < b < 1$$

$$d > 0; 0 < t < 1$$

$$T = \text{Taxes}$$

$$I = \text{Investment}$$

$$G = \text{Government Expenditure}$$

- (i) Explain the economic interpretation of the parameters a , b , d , and t . (4 marks)
- (ii) Find the equilibrium values of income consumption and taxes. (8 marks)
- (b) Discuss the three approaches used in measuring the national income of a country and show why they give the same estimates. (8 marks)

(Total: 20 marks)

QUESTION EIGHT

- (a) Explain how both fiscal and monetary policies are used to influence the performance of an economy. (8 marks)
- (b) Discuss the factors which limit the effectiveness of monetary and fiscal policies in developing countries. (6 marks)
- (c) List and briefly explain the main determinants of the size of the economically active population of a country. (6 marks)

(Total: 20 marks)

MODEL ANSWERS TO PAST CPA EXAMINATION PAPERS**MODEL ANSWERS TO CPA 1 EXAMINATION SET ON 2 DECEMBER 2002.****ANSWER ONE**

- (a) Money refers to anything which is widely acceptable in exchange for commodities, or in settling debts not for itself but because it can be similarly passed on.

Near money refers to wealth held in a form that may be quickly and easily changed into money. Building society deposits may be considered as being in this category. Near money does not possess the medium of exchange property since it has to be converted into money to be used to make payments.

Money – substitutes refer to claims to money which are convertible at face value on demand. They relate to anything generally known to be freely and readily exchangeable into money proper (money in the narrower sense) whether or not a legal requirement to do so exists. Money substitutes include token money, money-certificates and fiduciary media.

- (b) The following are the main functions of money:

(i) Medium of exchange

Money facilitates the exchange of commodities in the economy. Its use greatly eases the carrying out of everyday transactions. Individuals accept money as payment for their wages because money can be exchanged for all the commodities they need.

(ii) Unit of account

Money provides a means by which one can measure the different items which make up the economy. Money therefore provides a common measure which enables one to compare different commodities and aggregate their value. Money is also the unit used in the accounts of all businesses.

(iii) Store of value

Money enables individuals to postpone their purchases to a convenient future time by providing them with a means of storing their purchasing power. Money held for this purpose is a perfectly liquid asset given that individuals can convert it at will to goods and services.

(iv) Standard of deferred payment

In this case, money facilitates the extension of credit by specifying the unit for future payment. The debt can therefore be expressed in money terms. Examples of contracts that involve future payment include hire purchase and mortgages.

- (c) Liquidity preference refers to the desire to hold money rather than other forms of wealth such as stocks and bonds. Liquidity preference can be thought of as stemming from the following sources:

- (i) This relates to the holding of cash by people or firms in order to finance foreseeable expenditures. The amount of money held for this purpose depends on the individual's money income, and institutional arrangements such as how frequently the individual is paid.
-

-
- (ii) The precautionary motive: This relates to the factor that causes people or firms to hold a stock of money in order to finance unforeseen expenditures such as illness or a car breakdown. These aspects of demand for money is also likely to depend on the level of money income. It may, in addition, be influenced by the rate of interest.
- (iii) The speculative motive: This relates to the reason which causes people or firms to hold money in the belief that a capital gain or the avoidance of a loss can be achieved by doing so. Thus, for example, when the price of a bond falls, the attraction of holding them increases since people will expect their price to rise again such that anyone owning them can make a capital gain. When the price of bonds is high, on the other hand, they will believe that their price could fall and will therefore hold more money.
- (d) The following are the qualities that an asset should have in order to function as money:
- (i) Acceptability: Money should be readily acceptable.
 - (ii) Durability: Money should possess the quality that it does not wear out quickly. This may to some extent be a problem with paper money.
 - (iii) Homogeneity: Money should be uniform as far possible. This factor relates to money of the same denomination.
 - (iv) Divisibility: It should be possible to divide money into smaller units so as to facilitate a variety of transactions.
 - (v) Portability: Money should be easy to transport. In modern banking systems deposits can be transmitted electronically even between very distant places.
 - (vi) Stability of Value: Money should be able to retain its value. This may be especially difficult to achieve during times of high inflation.

ANSWER TWO

- (a) National income is a measure of the total monetary value of the flow of final goods and services arising from the productive activities of a nation in one year.
- (b) National income may be measured in three ways:
- (i) **The expenditure method.**
Through this method national income is arrived at by adding together expenditure on all final goods and services in the economy. This expenditure can be sub-divided into the categories of consumer expenditure, government expenditure, private investment expenditure, exports and imports. The basis of this method is that the value of the commodity is equal to the purchases.
 - (ii) **The income method.**
This approach considers the national income as the sum of all incomes earned by factors of production in the economy. Examples of incomes include personal incomes, incomes as benefits, gross trading profits of companies and public corporations and so on. The basis of this method is that the same sum of money will be received as income by the different individuals who contributed to the production of the commodity at some stage.
 - (iii) **The product or value added method.**
This is the most direct method of measurement and using this approach national income is found by adding up the value of all final goods and services produced by firms during the year. The basis of this approach is that the value of a given

commodity that is sold will have resulted from the value added to it by successive stages of production.

- (c) It is difficult to compare the national income of one country with that of another country for the following reasons:
- (i) Different countries use different currencies and the exchange rate may not accurately reflect the internal purchasing power of a given currency. In addition, exchange rates in many countries fluctuate considerably especially since floating exchange rate systems are widely used.
 - (ii) Different countries have different definitions of what is to be included in national income and comparisons should take into account these different definitions. For example, many developed countries exclude the subsistence sector in their measurement of national income but to do so in developing countries would significantly undervalue their national incomes.
 - (iii) Even though income per capita may be similar among different countries, standards of living may differ considerably because of substantial differences in income distribution. A high national income may, for example, not be well distributed among the population of a given country.
 - (iv) Different countries have different needs and tastes and so commodities that are valuable in one country may not be valuable in another country. For example, northern countries spend considerably higher sums of money on heating which is unnecessary in tropical countries.
 - (v) An increase in national income may have come about because of longer working hours or inferior working conditions which may be associated with a decline in the standard of living.
 - (vi) Differing levels of unemployment among countries make it difficult to establish the net effect on the standard of living.
- (d) The level of national income in a country is influenced by demand-side and supply-side considerations. The level of national income of a country is influenced fundamentally by the level of injections and withdrawals. Injections refer to an exogenous addition to the income of firms or households, for example, in the form of investment, government expenditure and exports. Injections exert an expansionary pressure on national income and they are magnified through the actions of the multiplier. The value of the multiplier therefore considerably influences the level of national income. Withdrawals or leakages refer to any income that is not passed on in the circular flow of income for example, savings, taxation and imports. Withdrawals are also magnified by the actions of the multiplier and they exert a contractionary pressure on the level of national income. Injections and withdrawals influence the level of national income through their effect on aggregate demand and therefore deal with demand side considerations that influence the level of national income.

The level of national income of a country is, however also influenced by supply-side factors. A vital consideration in this case is the quantity and quality of factors of production available. For example, the existence of a highly skilled labour force will have a positive effect on the level of national income. The existence of vast natural resources such as petroleum and the capacity to exploit them will also have a positive effect on the level of national income. The ability to properly utilize resources also depends on the level of technology available and the institutional framework in a given country.

ANSWER THREE

- (a) (i) Seasonal unemployment is caused by annual variations of seasons. This implies that at any given time of the year there are likely to be workers who are laid off because of a seasonal fall in the demand for the services they offer. This type of unemployment is common in sectors such as agriculture and tourism which are characterized by seasonal variations. This type of unemployment leads to fluctuations in economic growth with growth being higher during the peak seasons.

Casual unemployment arises because workers are employed for a specific job and when the job is completed, such workers become eventually unemployed, for example, construction workers. The effect of casual unemployment on economic growth is that economic growth is lower during times of high casual unemployment.

- (ii) Disguised or hidden unemployment arises where individuals normally have jobs for which they are paid but they could be withdrawn without reducing output. This could arise because their efforts actually contributed nothing to output (in which case their marginal product is zero) or since others already engaged in a particular authority would increase their own productivity if some workers migrated to other sectors of the economy. Disguised unemployment is common in developing countries especially in the civil service and in the agricultural sector in rural areas. Labour which is in disguised unemployment contributes nothing to national product and economic growth.

Unproductive or open unemployment arises when a person is willing to work at the prevailing wage rate but is not able to secure a job. This type of unemployment is especially common in the urban modern sector in many developing countries. Thus, for example, the employment opportunities in urban areas may be insufficient to absorb all the people settled in urban areas. Unproductive unemployment represents a waste of productive resources and economic growth is lower when there is unproductive employment than it would have been the case had the labour been productively employed.

- (b) The following policies if implemented could alleviate the problem of unemployment:
- (i) Employment creation depends on the ability of countries to achieve sustained economic growth. Thus, internal constraints to economic growth which are to some extent within the control of the government should be addressed. For example, if the government provides an enabling macroeconomic environment foreign investment will be encouraged which in turn will contribute to employment creation.
 - (ii) Considerable emphasis for employment creation should be placed on the informal sector given that the possibilities for employment creation in the formal sector are limited in many developing countries. The availability of cheap finance is fundamental factor in this context.
 - (iii) Government policies should aim at removing factor price distortions such that as the price of labour relative to capital falls, labor-intensive production technologies are encouraged.
 - (iv) In order to deal with seasonal unemployment a diversification of economic activities especially during seasons of low demand can be introduced.
 - (v) Intensive rural development can help to curb urban unemployment which arises from high levels of rural-urban migration. This development can, for example, take the form of improving social amenities with a view to making rural areas more attractive.

- (vi) Governments in developing countries should not simply focus on job creation but also an enhanced productivity of workers in order to address the problem of disguised unemployment. Increasing the quantity and quality of co-operating factors of production such as land and machinery is vital in this regard.

ANSWER FOUR

- (a) (i) Price floors or minimum price controls set a price below which a good or service cannot be sold. An example is minimum producer prices aimed at guaranteeing producers a certain return on their sales.

Price ceilings or maximum prices set a price above which a good or service cannot be sold. They are commonly set on basic commodities to stop the price of a particular good rising to what the government considers as an unacceptable level.

- (ii) Price floors or minimum price controls are set above the equilibrium price since the government considers that the price as determined by the forces of demand and supply is too low. The effects of price floors can be shown in Figure 4.1

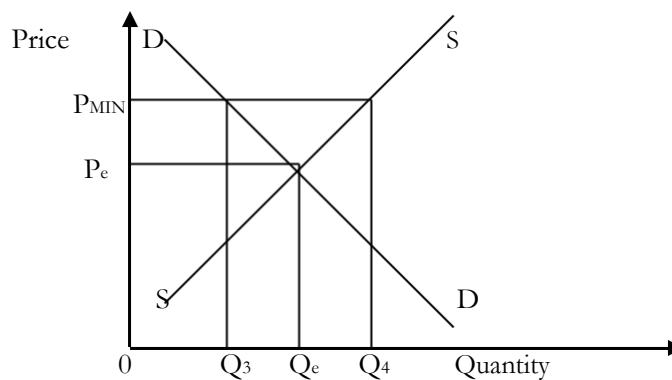


Fig 4.1 The effects of minimum price controls or price floors

In figure 4.1 the price as determined by the forces of demand and supply is considered to be too low and the government then fixes a minimum price P_{MIN} above the equilibrium Price. In the case of minimum producer prices, a positive effect will be to stabilize Producers' incomes. Minimum price controls or price floors will, however, lead to a situation of excess supply given by $(Q_4 - Q_3)$ in cases where the product is not perishable it may be stored. Where the product is perishable, however, it may have to be disposed of by authorities at prices below the minimum.

Price ceilings or maximum price controls are set below the equilibrium price which is considered by the government as too high. The effects of price floors can be shown in Figure 4.2

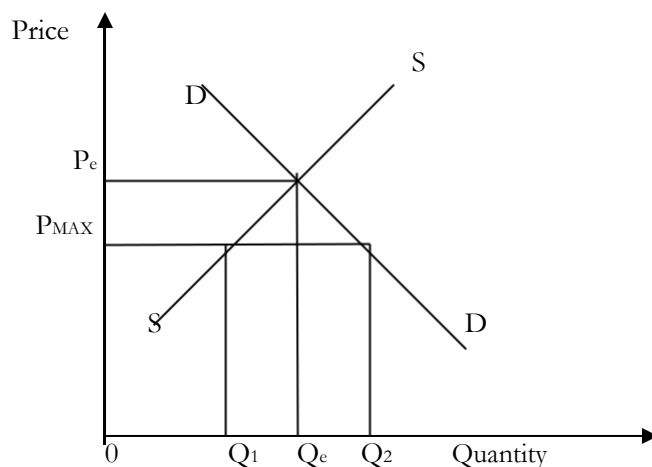


Figure 4.2 The effects of maximum price controls or price ceilings.

In figure 4.2 the government fixes a maximum price P_{MAX} below the equilibrium price P_e . The price ceiling may benefit low income consumers and may, therefore, be used as a non-inflationary measure. The price ceiling P_{MAX} will, however, lead to a shortage of the commodity given by $(Q_2 - Q_1)$. This will lead to longer queues and also a black market is likely to develop where goods and services are sold at prices above the maximum price. Maximum price controls or price ceilings are also likely to give rise to a demand for a system of rationing. Rationing involves restricting quantity as well as price whereby ration coupons are issued to enable the recipients to buy a limited quantity of the commodity at the maximum price.

- (b) The equilibrium market price is the price which equates the quantity demanded of a given commodity to the quantity supplied. This concept can be illustrated in Figure 4.3

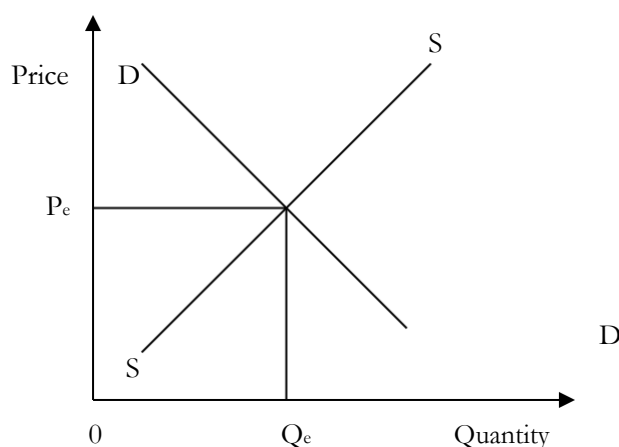


Figure 4.3 The equilibrium market price

In figure 4.3 equilibrium market price is illustrated by P_e . The equilibrium price is influenced by changes in demand and supply.

The effects of changes in demand on the equilibrium price can be stated as follows:

- (i) *Ceteris Paribus* (all other things remaining constant) an increase in demand will raise the equilibrium price. This factor can be illustrated as follows in figure 4.4.

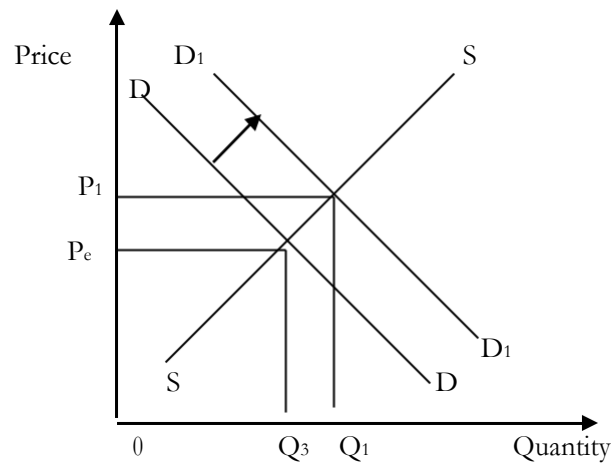


Figure 4.4 The effect of an increase in demand on the equilibrium price

In the figure 4.4 an increase in demand illustrated by the shift of the demand curve from DD to D_1D_1 leads to an increase in the equilibrium price from P_e to P_1 .

- (ii) Ceteris Paribus, a decrease in demand will lower the equilibrium price. This is illustrated in Figure 4.5

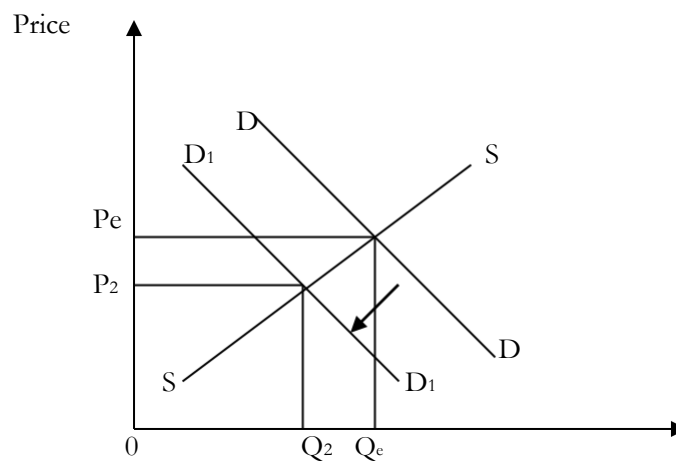


Figure 4.5 The effect of a decrease in demand on the equilibrium price.

In figure 4.5 a decrease in demand illustrated by a leftward shift of the demand curve From DD to D_1D_1 leads to a fall in the equilibrium price from P_e to P_2 .

- (iii) Ceteris Paribus, an increase in supply will lower the equilibrium price. This is illustrated by Figure 4.6

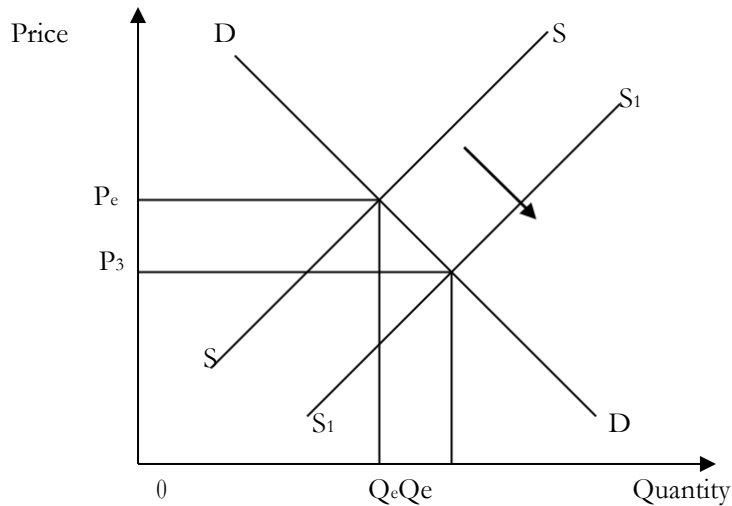


Figure 4.6 The effect of an increase in supply on the equilibrium price.

In the figure 4.6 an increase in supply illustrated by a rightward shift of the supply curve from SS to S_1S_1 leads to a fall in the equilibrium price from P_e to P_3 .

- (iv) Ceteris Paribus, a decrease in supply will raise the equilibrium price. This is illustrated in Figure 4.7

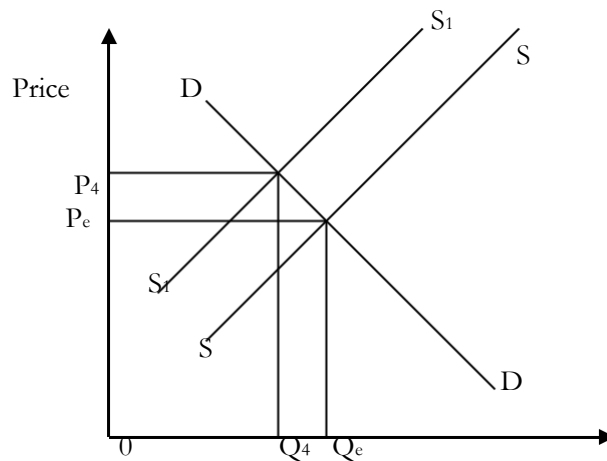


Figure 4.7 The effect of a decrease in supply on the equilibrium price

In figure 4.7 a decrease in supply as illustrated by a shift in the supply curve from SS to S_1S_1 leads to a rise in the equilibrium price from P_e to P_4 .

- (c) Agricultural prices are more unstable compared to industrial products for the following reasons:

Firstly, agricultural products are more directly influenced by natural factors such as weather or pests than industrial products which implies a greater likelihood of divergence between planned and actual output.

Secondly, the short run elasticity of supply for agricultural products is low because it is comparatively difficult to alter output once a crop has been planted. The elasticity of supply is influenced by the gestation period of the crop which is longer for crops such as coffee. In contrast, industrial products do not usually have long gestation periods or rigidly determined ones.

Thirdly, agricultural products such as foodstuffs tend to be absorbed with difficulty even at significantly lower prices and their demand tends to be particularly inelastic. In addition, it is difficult to substitute one agricultural product for another whereas industrial products provide for a wide range of needs.

Fourthly, many agricultural products are perishable compared to industrial products and therefore cannot be stored which also contributes to their low elasticity of supply. Industrial products, on the other hand, do not usually have considerable problems of storage or perishability.

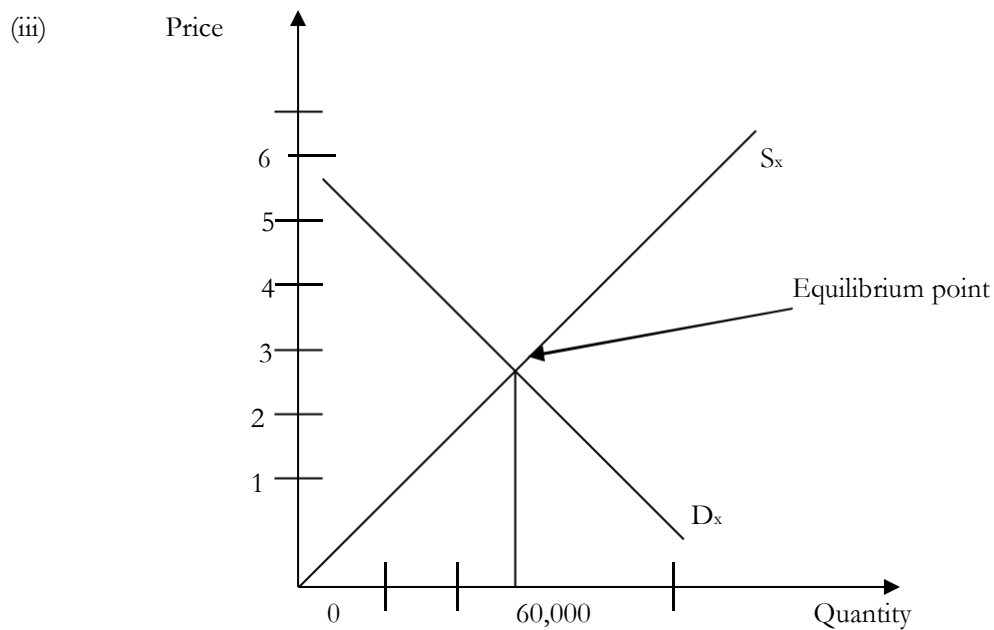
QUESTION FIVE

- (i) $Q_{dx} = 10,000 (12 - 2 P_x)$ ceteris paribus
 $= 120,000 - 20,000 P_x$ ceteris paribus
 $= 1,000 (20 P_x)$
 $= 20,000 P_x$ ceteris paribus

- (ii) **Market Demand and Supply schedules of commodity X**

	P_x	Q_{Dx}	Q_{Sx}
6		0	120,000
5		20,000	100,000
4		40,000	80,000
3		60,000	60,000
2		80,000	40,000
1		100,000	20,000
0		120,000	0

← Equilibrium



The circular flow of income refers to the flow of payments and receipts between firms and households. It represents a simple model of the workings of an economy which depicts the movement of resources between producers and consumers. The simple circular flow of income can be shown in Figure 5.1

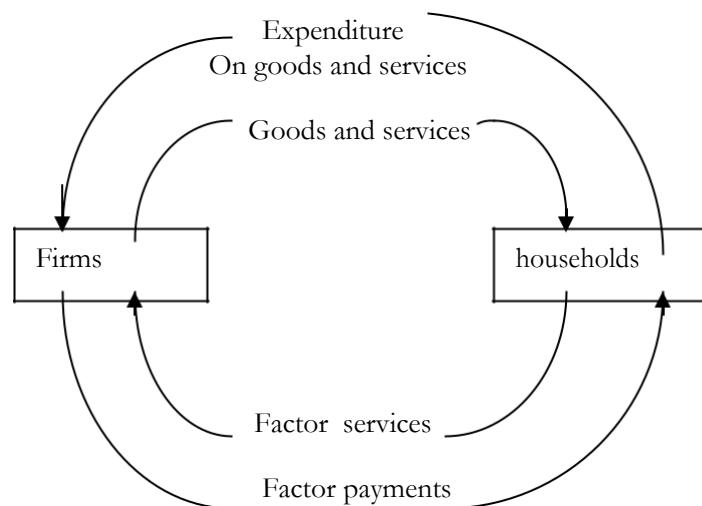


Figure 5.1 the Circular flow of income

In the diagram Figure 5.1 money passes from households to firms in return for commodities produced by firms and money passes from firms to households in return for factor services provided by households. The notion that the money value of the income of households must equal the money value of output of firms and the money value of households expenditures provides the basis for the measurement of national income. The same cash is spent by one sector and then the other continuously.

In reality, however, there are leakages from the circular flow such as savings, imports and taxation. Three are, however, corresponding injections in the formed investment, exports and government spending.

QUESTION SIX

- (a) (i) Economic integration refers to the merging to various degrees of the economies and economic policies of two or more countries in a given region. There are various levels of economic integration, for example, a common market, customs unions, free trade area and economic union.

- (ii) The following factors are favourable for economic integration:

Firstly, comparable levels of economic development. This factor is important so that some countries do not feel that other member countries are gaining much more from the regional integration. For example, in Eastern Africa Kenya, Uganda and Tanzania have comparable levels of economic development which though not identical should be such that the disparities should not be too considerable.

Secondly, there should be complementary production and demand among the countries participating in the economic integration. This factor ensures that the commodities produced by one nation are beneficial to the citizens of another nation.

Thirdly, the countries participating in the economic integration should have a strong interest in co-ordinating or rationalizing their joint growth patterns. The progression from lower to higher levels of regional integration entails a higher degree of policy co-ordination and countries should be willing to achieve such co-ordination.

Fourthly, the benefits of economic integration such as economies of scale should exceed the costs of economic integration such as loss of revenue because of tariff reduction. This will motivate countries to join the integration bloc and persist in it.

Fifthly, the region undertaking the economic integration should be politically stable. Conflicts among neighbouring countries can considerably reduce the efficiency of regional integration. Internal conflicts such as civil war can also reduce political stability. Political stability is therefore vital in successful regional integration.

- (b) The advantages of regional integration among African countries are as follows:

Firstly, integration provides the opportunity for industries that have not yet been established, as well those, which have, to take advantage of the economies of large-scale production made possible through expanded markets.

Secondly, by removing barriers to trade among member states the possibility of co-ordinated industrial planning is created. Co-ordinated planning of industrial expansion enables all member states to increase their industrial growth by assigning given industries to different members.

Thirdly, economic integration can lead to trade creation. Trade creation is said to occur when common external barriers and internal free trade contribute to a shift in production from high to low cost member states.

Fourthly, regional integration encourages a greater degree of competition which promotes economic efficiency. Firms have to develop a higher level of economic efficiency to enable them to compete in foreign markets.

Fifthly, economic integration may also be beneficial in terms of factor mobility and income redistribution. Free trade permits the exports of commodities which are produced cheaply in a particular country and thereby raises the returns to abundant labour factors used in their production.

Sixthly, economic integration is likely to contribute to a reduced incidence of conflict among African countries given that member countries participating in economic integration efforts are mutually dependent in economic terms. This mutual economic interdependence reduces the likelihood of political conflict and contributes to peaceful relations among states.

ANSWER SEVEN

- (a) Scarcity refers to a situation whereby the resources available to individuals are insufficient to satisfy all their wants. The concept of relative scarcity in relation to wants is widely held to justify the study of economics since otherwise there would be no need to think about the optimal allocation of resources. Scarcity is faced at the level of individual consumers and producers. It also faced at the level of society as a whole. In the presence of scarcity, choices have to be made between those wants which can be satisfied and those which cannot be. In the absence of scarcity, no difficult choices would need to be made, no prices would need to be attached to anything and the study of economics would be rendered unnecessary. Scarcity is present in any society where there is anyone whose desires are not completely satisfied and it is therefore a concept which is relevant to both developed and developing countries. Choices, for example, have to be made by consumers with a limited income and many wants to satisfy. Producers have to determine the range of goods and services to produce with their limited resources.
- (b) Diminishing marginal utility implies that as extra units of a commodity are consumed by an individual, the satisfaction gained from each additional unit falls. For example, although for every glass of orange juice that one drinks they derive extra satisfaction, the more glasses of orange juice that one drinks, the less the satisfaction which will be gained from each additional one. Eventually, as illness strikes, subsequently consumed glasses of juice will yield disutility. Diminishing marginal utility can be illustrated in Figure 7.1 below.

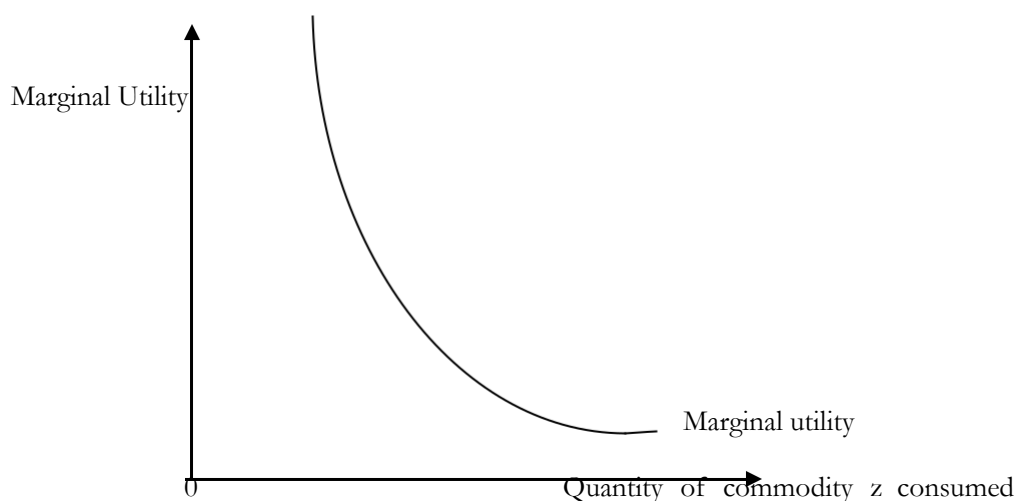


Figure 7.1 Diminishing Marginal Utility

Figure 7.1 illustrates diminishing marginal utility. The law of diminishing marginal utility states that:

“Other things being constant, as more and more units of a given commodity are consumed, the additional satisfaction derived from the consumption of each successive unit will decline”.

- (c) Price elasticity of demand is a measure of the degree of responsiveness of the quantity demanded of a commodity to changes in its own price. It is measured by the following formula:

$$\text{Price elasticity of demand (PED)} = \frac{\text{Proportionate change in quantity demanded}}{\text{Proportionate change in price}}$$

If the coefficient of the above ratio is greater than 1, the quantity demanded of the given commodity is said to be elastic. If the coefficient of the above ratio is less than 1, the quantity demanded of the given commodity is said to be inelastic. Where the coefficient is equal to 1, quantity demanded is said to possess unitary price elasticity of demand.

In order to avoid the measure of elasticity being sensitive to units in which quantities and prices are measured, the price elasticity of demand is expressed as a proportionate change in quantity demanded that occurs in response to a proportionate change in price.

- (d) Income elasticity of demand is a measure of the degree of responsiveness of the demand of a product to changes in income. Its coefficient is expressed by the following formula:

$$\text{Income elasticity of demand (E}_y\text{)} = \frac{\text{Proportionate change in demand}}{\text{Proportionate change in income}}$$

Income elasticity of demand is positive for normal goods and negative for inferior goods. Where the coefficient of income elasticity of demand is greater than one, this implies that the demand is income elastic. Where the coefficient is less than one, this implies that demand is income inelastic and a given change in income leads to a less than proportionate change in demand. Where the coefficient is equal to one, income demand rises or falls in the same proportion as income and is said to be unitary income elasticity.

- (e) The substitution and income effects of a price change are two **analytically** different effects that come into play when the price of a given commodity changes.

The substitution effect of a price change refers to the change in the quantity demanded of a given commodity resulting from a price change when the level of real income is held constant.

The income effect of a change in the price of a given commodity is the change in the quantity demanded resulting exclusively from a change in real income, all other prices and money income being held constant.

The notion of substitution and income effects is useful because it demonstrates that a price change affects the quantity demanded of a given commodity in two conceptually different ways. The substitution effect implies that the quantity demanded varies inversely with the price. The income effect, on the other hand, is positive for normal goods and negative for inferior and Giffen goods.

ANSWER EIGHT

- (a) Funds can be raised to finance government activities in the following ways:

Firstly, from direct taxes. Examples include income tax on individuals and corporation tax.

Secondly, from indirect taxes. An example is Value Added Tax (V.A.T).

Thirdly, from various fees obtained by the government for example fees charged for licensing.

Fourthly, government earnings from parastatals where such parastatals make a surplus.

Fifthly, from domestic borrowing. This option usually entails borrowing from domestic financial markets, for example, through the issue of treasury bills.

Sixthly, from external borrowing. This option may entail borrowing from bilateral donors which include individual country governments. Alternatively, it may entail borrowing from multilateral institutions like the World Bank and the International Monetary Fund.

- (b) Fiscal policy refers to the use of taxation and government expenditure to regulate the aggregate level of economic activity.

If a country is experiencing a low rate of economic growth fiscal policy may be used to stimulate the level of aggregate demand and hence economic growth in the short run. Taxation levels may be lowered for this purpose. The overall effect on economic growth will depend on the size of the tax reduction and the value of the multiplier.

Increasing the rate of government expenditure may also increase the rate of economic growth, although the actual increase will depend on the value of the government expenditure multiplier.

The use of fiscal policy entails changes in government's budget including the possibility of budget deficits. According to the Keynesian perspective a budget deficit may be justifiable in order to stimulate the economy. This view has, however, been challenged by monetarists who emphasize the inflationary consequences of budget deficits.

Fiscal policies in developing countries are limited to some extent by the absence of modern, monetised economies and the prevalence of the subsistence sector. The predominance of the agricultural sector in many developing countries also limits the effectiveness of fiscal policy since this sector is often characterized by poor accounting practices. The effect of government expenditure on economic growth is sometimes limited by inadequate appraisal of public projects which are then difficult to implement effectively. In order for fiscal policy to be effective in stimulating economic growth the choice of the policy mix should be such as to appropriately address the problem at hand.

- (c) Economic growth refers to a steady increase in the productive capacity of a country which is identifiable by a sustained increase in the real output of goods and services in a country. The following are the reasons for slow growth of a developing country:

Firstly, many developing countries are subject to a vicious circle of poverty whereby low levels of savings which in turn lead to lack of capital and low levels of productivity. These low levels of productivity contribute to a low rate of economic growth. The vicious circle can be illustrated in the diagram below:

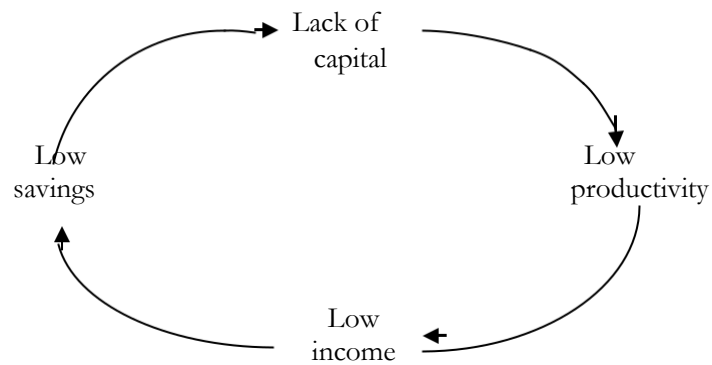


Figure 8.1 The vicious circle of poverty.

Secondly, economic growth in many developing countries is limited by the prevalence of corruption and the mismanagement of resources. Thus, for example, public funds aimed at development projects have often been mismanaged.

Thirdly, a lack of adequate skilled human resources which contribute to low labour productivity levels that hamper economic growth.

Fourthly, foreign exchange constraints which may reduce the ability to import vital inputs. Many developing countries produce primary products which are subject to declining terms of trade compared to manufactured goods.

Fifthly, the pursuit of inappropriate industrialization strategies such as import substitution which have proved ineffective in their stated objectives of creating employment opportunities, conserving foreign exchange and reducing excessive dependence on primary production.

Sixthly, a lack of implementation of policies even where the policies are appropriate. Thus, in many developing countries elaborate policy documents have been drawn up which are hardly implemented.

MODEL ANSWERS TO CPA 1 EXAMINATION SET ON 28TH MAY 2002
ANSWER ONE

- (a) (i) Marginal cost refers to the change in total cost per unit change in output.

Algebraically, it is written as $\frac{\Delta TC}{\Delta Q}$

Where TC is the total cost and Q is output.

The marginal cost of producing the 20th unit = $\frac{50}{10}$ = sh 5.

- (ii) Fixed cost is equal to the total cost when output = 0

∴ Fixed cost = Shs.150

Average fixed cost when the firm produces 50 units of output:

$$AFC = \frac{\text{Fixed cost}}{\text{Output}} = \frac{150}{50} = 3\text{sh.}$$

Variable cost when output is 50 = 560 – 150 = 410sh

Since Variable cost + Fixed cost = Total cost

$$\text{Average Variable Cost} = \frac{\text{Variable Cost}}{\text{Output}}$$

$$= \frac{410}{50} = 8.2\text{sh}$$

- (b) (i) The multiplier =
- $\frac{\Delta Y}{I}$
-
- (k) I

where Y is Income and I is investment. The multiplier can also be expressed as:

$$\text{The multiplier} = \frac{1}{1 - \text{M.P.C}}$$

where M.P.C is the marginal propensity to consume.

Given M.P.C = 0.8

$$\text{The multiplier} = \frac{1}{1 - 0.8}$$

$$= \frac{1}{0.2}$$

$$= 5$$

since $k = \frac{\Delta Y}{I}$

$$\therefore \Delta Y = k \times I$$

$$\therefore \Delta Y = 5 \times 20,000,000$$

$$= 100 \text{ million shillings}$$

- (ii) At equilibrium the value of output equals planned aggregate spending.
This implies that $Y = C + I$

Assuming that C is given by $C = a + bY$ where a is autonomous consumption and bY is induced consumption this implies that:

$$\bar{Y} = a + b \bar{Y} + I$$

$$\therefore \text{autonomous consumption (a)} = \bar{Y} - b \bar{Y} - I$$

$$= 100,000,000 - 0.8(100,000,000) - (20,000,000)$$

ANSWER TWO

- (a) Elasticity of supply refers to a measure of the degree of responsiveness of supply to any of the factors that influence supply.

The following factors influence the elasticity of supply:

Firstly, the length of adjustment time. The longer the adjustment time the greater the elasticity of supply. During the momentary period the supply is limited to the quantities available on the market. In the short run the supply can be increased by a greater use of variable factors. In the long run all factors of production are variable.

Secondly, the availability of spare capacity. When unemployed resources exist supply will be elastic. On the other hand, supply will be inelastic if fixed factors are being used to the fullest extent.

Thirdly, the level of unsold stocks. The greater the level of unsold stocks, the more elastic will supply be given that demand can be met by running down stock.

Fourthly, the availability of variable factors of production. Supply will be inelastic if variable factors are not easily available. Examples of variable factors include labour and raw materials.

Fifthly, the ease of substitution also influences the elasticity of supply. The easier it is to substitute one factor of production, say labour for another factor, say capital, the greater the elasticity of supply.

- iii) Autonomous consumption = 0

$$\begin{aligned} \text{Induced change in consumption} &= b \bar{Y} \\ &= 0.8 \times 100,000,000 \\ &= 80,000,000\text{sh} \end{aligned}$$

- (c) The following factors influence the decision to invest:

Firstly, the rate of interest. There is usually an inverse relationship between the rate of interest and the rate of investment. High interest rates tend to discourage investment since the rate of interest constitutes the cost of borrowing.

Secondly, businessmen's expectations. If businessmen are optimistic about the performance of the economy in general and the performance of specific sectors, they are more likely to invest. Key variables about which businessmen form expectations are economic growth rates, exchange rate stability, general macroeconomic stability and political stability.

Thirdly, the expected rate of return on a specific project which the investor is considering. The higher the expected rate of return on the project the more likely the investment will take place.

Fourthly, in the case of foreign investment the decision to invest will be influenced by the rules and regulations pertaining to the entry and operations of foreign investors. In addition, foreign investors consider the existence of business facilitation measures such as investment promotion, incentives and improvements in amenities. Restrictions, if any, on repatriating earnings or profits also influence foreign investment.

- (b) The elasticity of supply for agricultural commodities is low for the following reasons:

Firstly, once a given crop has been planted it is comparatively difficult to increase or decrease the resulting output. The degree of supply inelasticity depends on the gestation period. The longer the gestation period the lower the elasticity of supply. Thus for example, crops like tea and coffee tend to have long gestation periods and supply is relatively inelastic.

Secondly, many agricultural commodities are perishable and hence it is relatively difficult to store them and accumulate stocks. The difficulty of storing agricultural commodities therefore decreases the elasticity of supply of agricultural commodities.

Thirdly, the supply of agricultural products is more directly affected by natural factors such as weather and the supply will therefore be inelastic since the amount put on the market will depend on the size of the harvest.

$$\begin{aligned}
 \text{(c) Arc elasticity of demand} &= \frac{-\Delta Q \times (P_1 + P_2)/2}{\Delta P \times (Q_1 + Q_2)/2} \\
 &= \frac{30 - 20}{100 - 80} \times \frac{(100 + 80)}{(30 + 20)} \div 2 \\
 &= \frac{-1}{2} \times \frac{90}{25} = -1.8
 \end{aligned}$$

The commodity in question is a giffen good with price elastic demand.

$$\text{Point elasticity of demand} = \frac{\Delta Q}{Q} \times \frac{P}{\Delta P}$$

Point elasticity when the price is Ksh100:

$$= \frac{-1}{2} \times \frac{100}{25} = -1.67$$

2 30

Point elasticity when the price is ksh.80

$$= \frac{-1}{2} \times \frac{80}{20} = -2$$

ANSWER THREE

- a) Prevailing market rate of interest influences the performance of an economy because it affects the cost of borrowing for firms and individuals. For example, if the prevailing market rate of interest is low this implies that the cost of borrowing is also low and firms can invest in plant and equipment at a low cost thereby boosting capital expenditure and ultimately production. In addition, the cost of borrowing is also low for individuals thereby leaving more disposable income for discretionary spending and thus boosting consumer demand. On the other hand, if the prevailing rate of interest is high the cost of borrowing is also high for firms and individuals, which is likely to have an adverse effect on investment. For example, high interest rates in Kenya in the last few years have had an adverse effect on domestic borrowing and investment.

The inverse relationship between interest rates and investment can be illustrated in the following diagram;

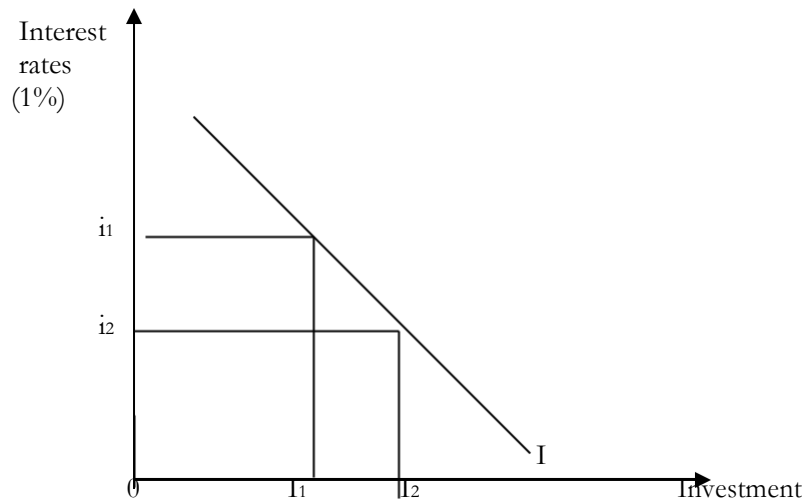
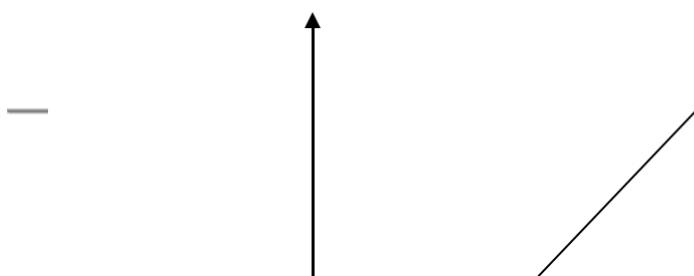


Figure 3.1 The relationship between interest rates and investment.

In figure 3.1 a fall in the interest rate from i_1 to i_2 leads to an increase in investment from I_1 to I_2 . It is, however, sometimes argued that the interest elasticity of investment in developing countries may be low because investment decisions are influenced more fundamentally by businessmen’s expectations and also because high rates of inflation may mean that real interest rates are negative. In addition, a significant amount of investment in many countries is carried out by the government whose investment projects may be influenced by political and social considerations.

- (b) The decontrol of interest rates implies the movement towards an interest rate regime which is free from controls. This implies that the interest rate is determined by the free interaction of the forces of demand and supply. The determination of interest rates through the forces of demand and supply can be illustrated in the following diagram:



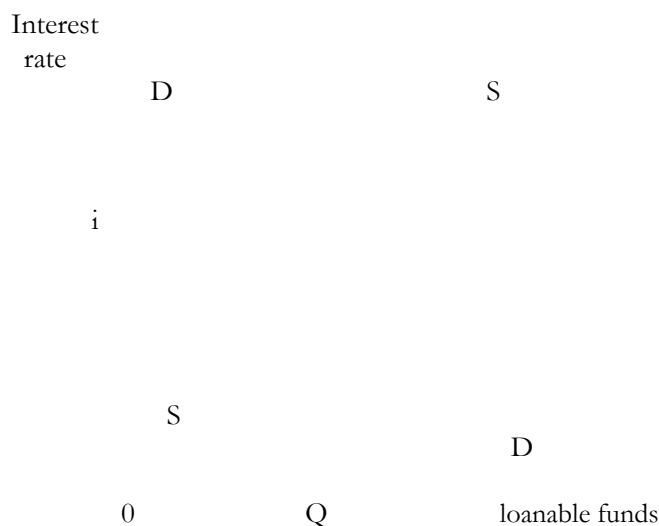


Figure 3.2 The determination of interest rates by the forces of demand and supply.

In the diagram above, the interest rate i is determined by the interaction of the forces of demand and supply. The firms' demand and supply of capital is aggregated. The equilibrium rate of interest i is determined where the demand and supply curves intersect.

Interest decontrols may have both positive and negative effects. The interest rate reflects the true scarcity value of loanable funds. This is because under a decontrolled system the interest rate is determined by the interaction of the forces of demand and supply. Interest rate decontrols may therefore introduce greater efficiency in resource allocation since excess demand or excess supply of loanable funds will be eliminated.

Interest rates decontrols may also enable financial institutions to operate more profitably and may therefore contribute to an expansion of the financial sector, as more firms are attracted into the financial sector by the possibility of higher profits. Under a decontrolled system banks are given the freedom to charge interest rates depending upon their perception of the credit risk of the borrowers.

Interest decontrols may have a number of negative effects. Decontrol of interest rates, will also be associated with greater fluctuations in interest rates as the demand and supply of loanable funds fluctuates. This fluctuation of interest rates may make it more difficult for firms to plan especially where they are heavily dependent on borrowing.

The decontrol of interest rates may lead to a substantial increase in interest rates especially in situations where interest rates were previously kept at artificially low levels through government controls. A substantial increase in interest rates may adversely affect investment and hence economic growth in a country.

The decontrol of interest rates implies that the monetary authorities have less of an ability to directly influence the interest rate and hence they to some extent lose control over an important policy instrument. This could have the effect of making the conduct of economic policy less predictable than under a system where interest rates are controlled.

$$\begin{aligned}
 \text{(C) Real rate of interest} &= \text{Nominal rate of interest} - \text{Rate of inflation} \\
 &= 10\% - 12\% \\
 &= -2\%
 \end{aligned}$$

(d) The following factors have caused banking crises in developing countries:

Firstly, the macroeconomic environment plays a fundamental role in causing banking crises. Banking crises are often triggered by a slow down in economic activity as, for example, manifested by low GDP growth. The subsequent occurrence of a banking crisis may prolong the slowdown. A high rate of inflation may also increase the risk of banking sector problems since high and uncertain nominal rates make it difficult for banks to perform maturity transformation.

Secondly, financial sector liberalization may lead to high real interest rates which may contribute to banking sector fragility. A number of developing countries have undertaken expensive financial liberalization without developing the accompanying capacity to supervise financial systems.

Thirdly, many financial institutions in developing countries suffer from political interference whereby politicians sometimes obtain huge loans from banks and do not repay them. The level of bad debts in banks in many developing countries is therefore very substantial and can contribute to a banking crisis in the event that many banks are affected. The high level of non-performing loans are often accompanied by the published accounts of banks being inadequate in disclosing their true financial condition.

Fourthly, the currencies in some developing countries are excessively overvalued which may consequently attract international currency and other financial assets speculators. Such speculative activity may de-stabilize the exchange rates of these countries if it is massive.

Fifthly, banking crises in developing countries are also associated with vulnerability to sudden capital outflows. For example, in the financial crisis of South East Asia, foreign investors in the region panicked and fled the economies of the sub-region. The rush and panic of foreign investors itself brought down many banks in the region.

Sixthly, the banking authorities in some developing countries have pursued the inappropriate policy of directing bank credit to preferred sectors of the economy. This has sometimes provided an avenue for inefficient investment and capital flight.

QUESTION FOUR

- (a) The theoretical relationship between money supply and inflation is developed in the classical quantity theory of money. According to this theory the identity of the quantity theory of money can be expressed as follows:

$$MV = PT$$

Where:

P refers to the price level of goods and services bought

T is the number of transactions

M is the money supply

V is the velocity of circulation

MV must be equal to PT since these represent two different ways of measuring the same transactions. M times V represents the monetary payments made to firms while P times T represents the firm's receipts from the sale of commodities.

This quantity theory of money can be developed into a theory of price levels.

Since $MV = PT$

This implies that:

$$P = \frac{MV}{T}$$

If V and T are assumed to be roughly constant values, P will then vary directly with increases or decreases in M which is the money supply. Any growth in the money supply M over and above the potential of the economy to increase (I) will cause inflation. A policy implication of this theory is that the government should allow some growth in money supply as part of its monetary policy, provided the economy is also growing.

- (b) The following are the main limitations of applying credit control instruments in developing countries:

Firstly financial markets and institutions in many developing countries are disorganized with many developing countries operating under a dual monetary policy system whereby an organized money market co-exists with a large disorganized money market. This is accompanied by a limited quantity and range of financial assets.

Secondly, the scarcity of viable projects and creditworthy borrowers implies that commercial banks in developing countries are less sensitive to changes in their cash bases, for example, arising from a change in the liquidity ratio. If for example, commercial banks have a higher level of liquidity than the legal minimum liquidity ratio, a reduction in reserve assets may not lead to a reduction in credit.

Thirdly, in developing countries investment may not be very sensitive to changes in interest rates because factors such as businessmen's expectations may be more critical in determining investment. In addition, many developing countries often experience high rates of inflation which could imply that real rates of interest are negative.

Fourthly, people in developing countries often do not deposit their money in financial institutions such as commercial banks. This factor makes it more difficult for the monetary authorities to use instruments of credit control effectively.

Fifthly, many of the commercial banks in developing countries are merely overseas branches of private banking institutions in developed countries. This factor provides them with the possibility of turning to their parent organizations for funds in the event of a credit squeeze by local authorities.

Sixthly, the prevalence of corruption and resource mismanagement in many developing countries hinders the effective application of credit control instruments such as selective credit control.

- (c) Non-bank financial institutions operate in both money and capital markets but they tend to concentrate their borrowing and investment operations in instruments that are distinct from those used by commercial banks. Examples include building and life insurance companies. The role of non-banking financial institutions in economic growth and development institutions in economic growth and development is as follows:

Firstly, non-banking financial institutions foster efficiency by encouraging competition with commercial banks in the financial markets which benefits both savers and borrowers in terms of improved services. Greater efficiency has a positive effect on economic growth and development.

Secondly, non-bank financial institutions have considerably enhanced the development of the financial market since they have been associated with the introduction of a considerable variety of financial instruments such as building societies members' accounts, mortgage deposit

accounts and investment deposit accounts. This variety of financial instruments has enhanced the development of financial markets which are vital in the economic growth and development process.

Thirdly, non-bank financial institutions often lend to the long-term more risky borrow market which is inadequately catered for by commercial banks which focus on short-term lending. The ability to finance risky projects is vital for economic growth and development since it encourages innovation and technological progress.

Fourthly, non-banking financial institutions provide an additional vehicle for the implementation of a country's monetary policy. Monetary policy refers to the regulation of economic activity through instruments that affect interest rates and money supply. Monetary policy can be used to boost economic growth and development.

Fifthly, non-banking financial institutions may provide services which are beyond the scope of commercial banks such as, for example, chattel mortgage loans.

- (d) Economies of scale refer to aspects of increasing size that result in falling long run average costs. Economies of scale can be divided into internal and external economies of scale. Internal economies of scale result in a reduction in long run average costs as the scale of production of the individual firm increases, independently of what is happening to other firms in the industry. External economies of scale result from a growth in the size of the industry. The following are advantages of economies of scale to a firm:

Firstly, increased specialization for which there is greater scope when the scale of production increases. This greater specialization can be realized in the case of both labour and machinery and is likely to contribute to substantial increases in output.

Secondly, financial economies whereby large firms are able to obtain finance at lower rates of interest than small firms and large firms also have access to more sources of finance than small firms.

Thirdly, marketing economies such as bulk buying which enables an enterprise to obtain discounts which in turn lower unit costs of production.

ANSWER FIVE

- (a) (i) $TR = AR \times Q$
 if $AR = \alpha Q - B$
 \therefore TR function is given by :
 $TR = (\alpha Q - B)Q$
 $TR = \alpha Q^2 - \beta Q$

- (ii) $TC = AC \times Q$
 if $AC = \left[\begin{array}{c} \alpha - \beta \\ Q \end{array} \right]$
 $TC = \alpha \left[\begin{array}{c} \beta Q \\ Q \end{array} \right]$
 $= \alpha - \beta Q$

- (iii) At the breakeven level of output, profits are equal to zero and total revenue is equal to total cost.

$$TR = TC \text{ at the breakeven level of output}$$

$$\therefore \alpha Q_2 - \beta Q = \alpha - \beta Q$$

$$\alpha Q_2 = \alpha$$

$$\frac{\alpha Q_2}{\alpha} = \frac{\alpha}{\alpha}$$

$$Q_2 = 1$$

$$Q = \sqrt[1]{1} = 1$$

- (b) In the long-run firms in perfect competition earn normal profits. The characteristic of perfect competition whereby there is freedom of entry and exit to and from an industry implies that the entry of new firms bids away any supernormal profits that could have been earned in the short run. The entry of new firms leaves the equilibrium price until only normal profits are earned. Firms in perfect competition are price takers and they adopt the price determined at the level of the industry. The long run equilibrium position in perfect competition can be illustrated in the following diagram:

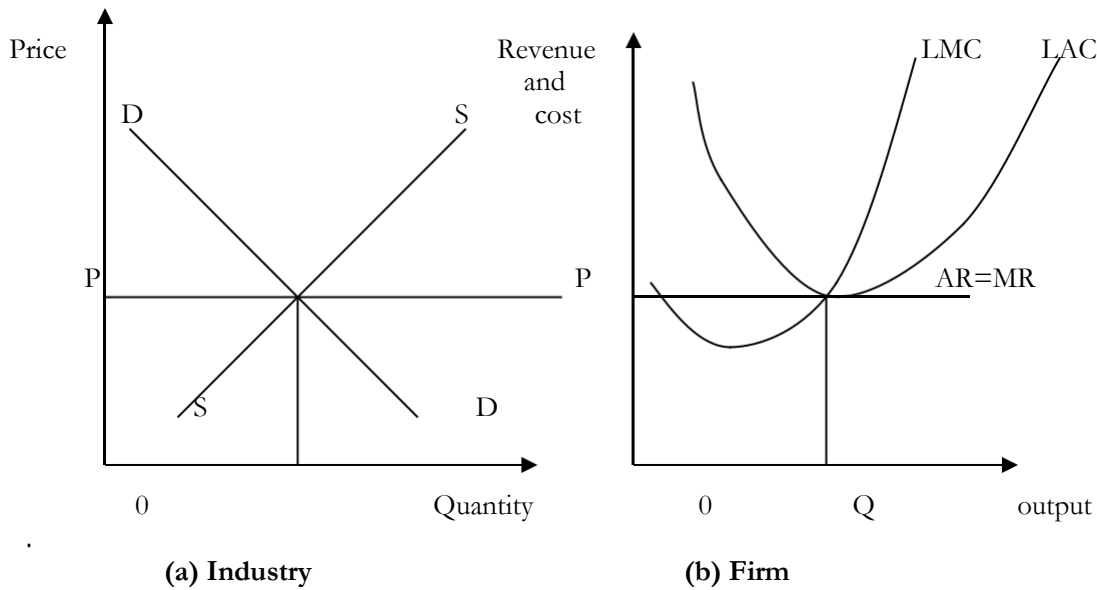


Figure 5.1 The long run equilibrium position in perfect competition.

Figure 5.1 shows the long run equilibrium position in perfect competition. Since $AC = AR$ the firm is only earning normal profits. The firm takes the price P as determined by the industry. Normal profits represent the minimum level of return necessary for the firm to continue in operation. In the long run firms in perfect competition produce at the lowest point of the long run average cost curve when average cost is at a minimum. The profit maximizing level of output is represented by the output level Q in Figure 5.1

- (c) A monopoly is a market structure where the supply of a given commodity is under the control of a single firm. A monopoly market structure is often characterized by barriers to entry such as legal barriers or where a single firm controls the source of raw materials. The existence of barriers to entry enables a monopolistic firm to earn supernormal profits both in the short run and long run. Figure 5.2 illustrates the profit maximizing output for a monopolistic firm.

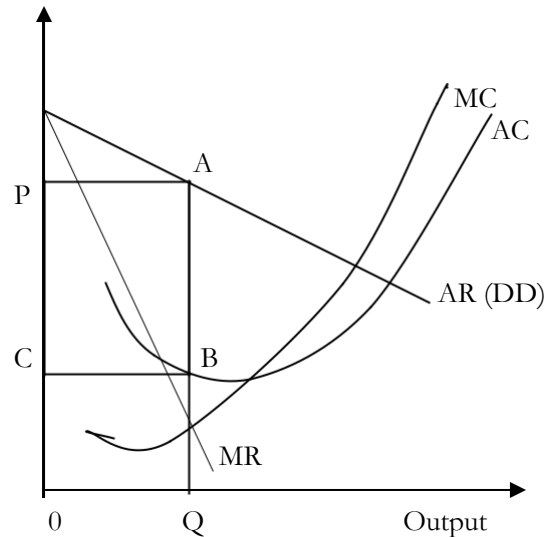


Figure 5.2 The profit maximizing output for a monopolistic firm

Figure 5.2 represents the profit maximizing output for a monopolistic firm where marginal cost = marginal revenue and where the MC curve cuts the MR curve from below. The monopolist therefore maximizes profits at output level Q. At this level of output the monopolist earns supernormal profits represented by the shaded area PCAB and charges a price for P for its products.

ANSWER SIX

- (a) (i) A production function refers to the relationship between the output of a commodity and the inputs required to make that commodity.

Formally, a production function has the following general form:-
 $Q = f(L, K, T, \text{etc})$

Where:

Q is output

L is labour

K is capital

T is technical progress etc. refers to the fact that other inputs may also be relevant. A production function is typically used in the content of the theory of the firm.

- (ii) Fixed factors of production are those factors of production which cannot be changed in quantity.

Fixed factors of production exist in the short run when it is not possible to vary the quantity of at least one factor of production. Examples of factor of production that may be fixed in the short run include land and factories.

- (b) Assume a simple agricultural production function can be obtained by using alternative quantities of labour to farm a fixed amount of land and that the resulting outputs of the commodity per unit of time are recorded. Labour is the variable factor of production. This situation where at least one factor of production is fixed is known as the short run. The total product refers to the total output produced by alternative

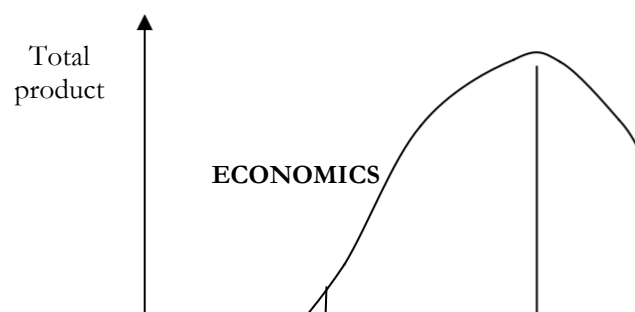
quantities of the variable factor combined with the fixed factor. The marginal product of labour (MP_L) refers to the change in TP per unit. It can be expressed as follows:

$$\frac{\Delta TP}{\Delta L}$$

A hypothetical short run table for total and marginal product can be obtained as follows:

Land (Areas)	Labour	Total Product	Marginal Product
1	0	0	-
1	1	6	6
1	2	16	10
1	3	24	8
1	4	30	6

When the total and marginal product curves in an economy with two factors of product are plotted they usually take the following shapes.



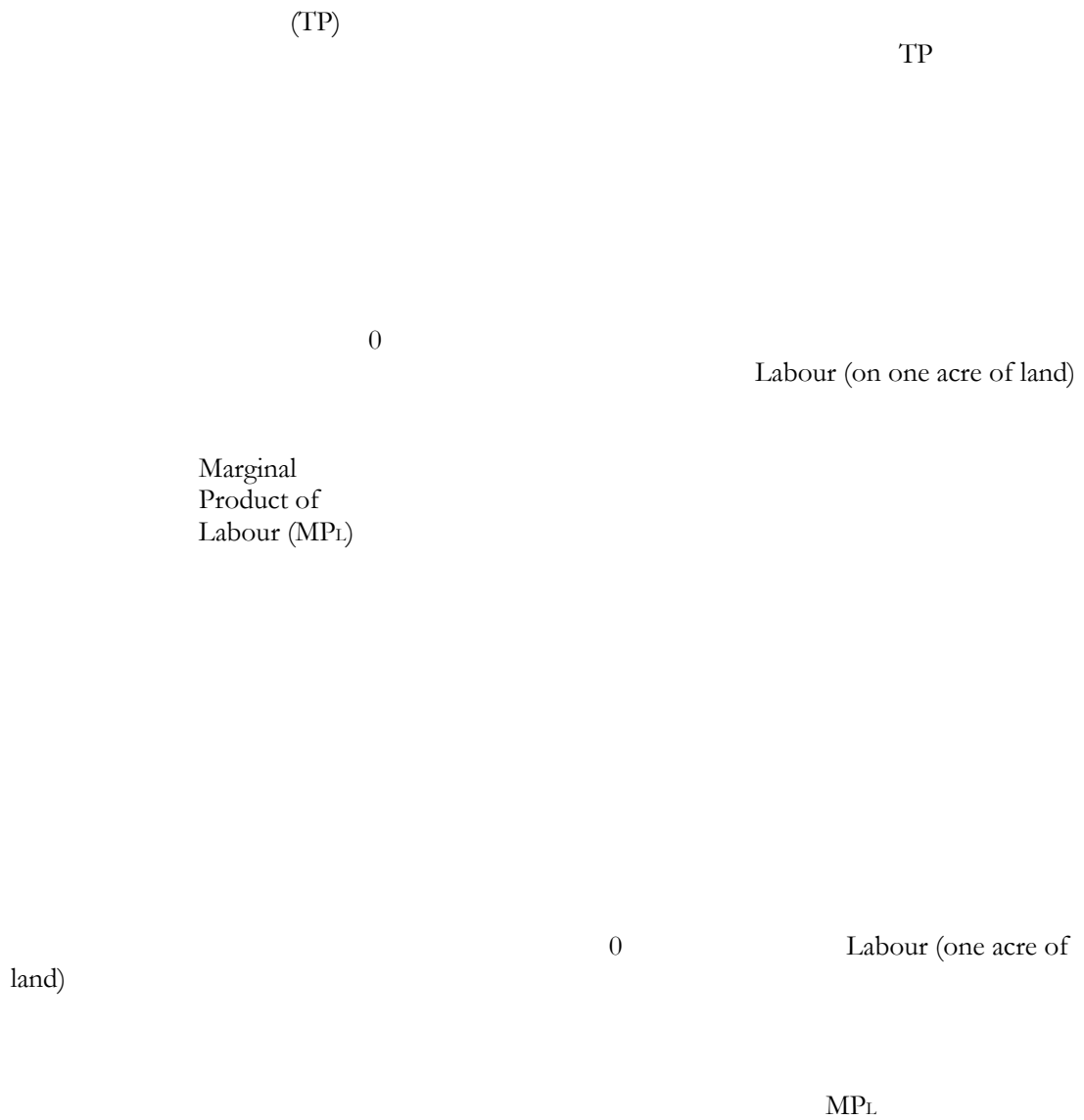
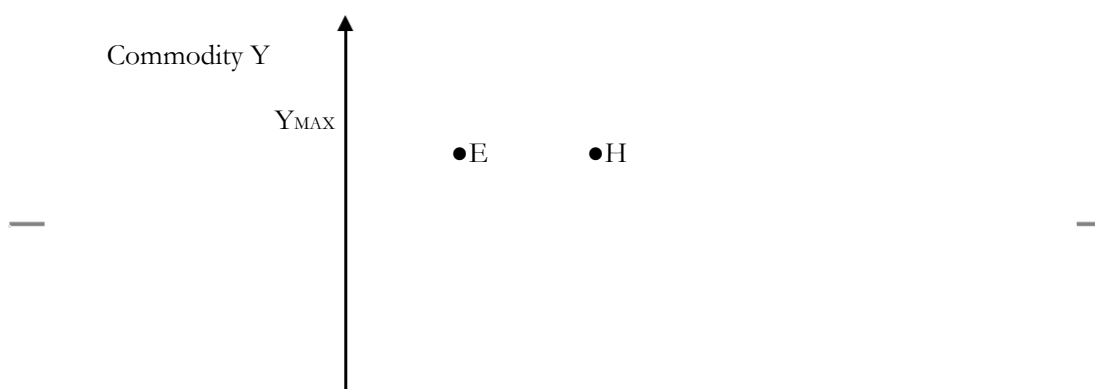


Figure 6.1 The relationship between product and marginal product curves.

In figure 6.1 the total product curve at first increases at an increasing rate but after a certain point begins to increase at a decreasing rate. The total product curve reaches a maximum and begins to decline. The MP_L curve also rises at first, reaches a maximum and then declines. The MP_L become zero when the total product is maximum and negative when the TP begins to decline. The falling portion of the MP_L curve shows the operation of the law of diminishing returns.

- (c) (i) A production possibility frontier or curve shows the possibilities open for increasing the output of one commodity by reducing the output of another commodity. It can be illustrated in the following diagrams:



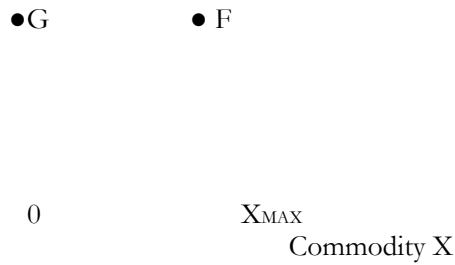


Figure 6.2 The production possibility frontier

In figure 6.2 resources are assumed to be limited such that if they are all devoted to the production of commodity Y an amount Y_{MAX} could be produced. If they are all devoted to the production of commodity X an amount X_{MAX} could be produced. Point G inside the frontier could be achieved but is not efficient. Points E and F represent the mixing of the allocation of resources to commodities X and Y. Point H outside the frontier is not attainable with the current level of resources.

- (ii) A new more efficient mode of production implies an improvement in production technology. A more efficient mode of production will imply an increase in a country's productive potential. This can be illustrated by a rightward shift in the production possibility frontier in the diagram that follows:

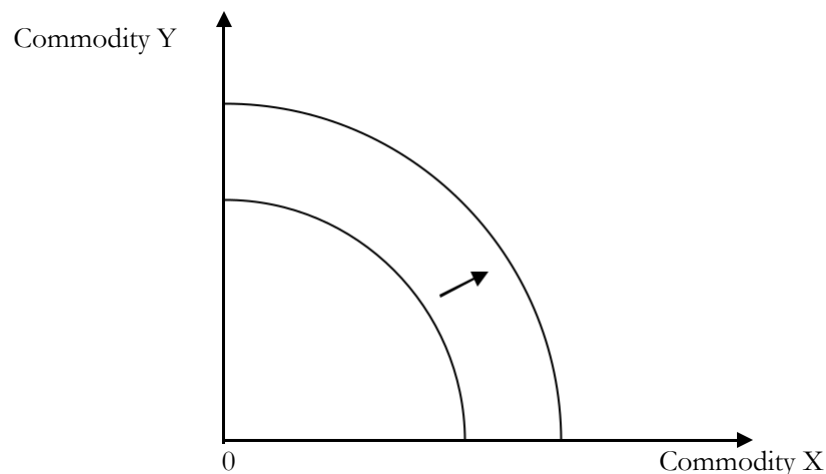


Figure 6.3 An improvement in the mode of production and its effects illustrated using the production possibility frontier.

In the figure 6.3 an improvement in the mode of production leads to a rightward shift in the production possibility frontier such that a higher range of combinations of commodity Y and X can be attained which were previously unattainable.

ANSWER SEVEN

- (a) Minimum wage legislation represents an attempt to improve the standard of living of workers by setting a floor on the wage rate that can be paid by firms. The aim of

minimum wage legislation is to boost the incomes of the low -paid workers in the economy. Minimum wage legislation normally takes into account the cost of living and aims at enabling workers to meet their basic necessities. With higher wages the health and vigour of these workers may increase and result in greater productivity.

- (b) (i) In a perfectly competitive labour market, the wage rate is determined by the forces of demand and supply. The effect of the imposition of a minimum wage is shown in the diagram below:

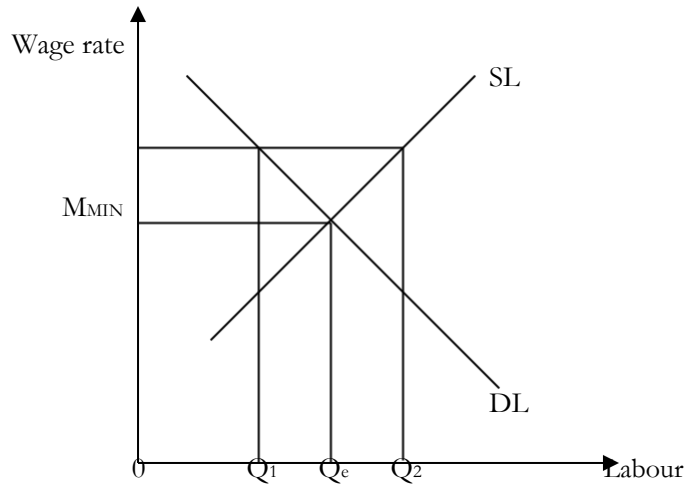
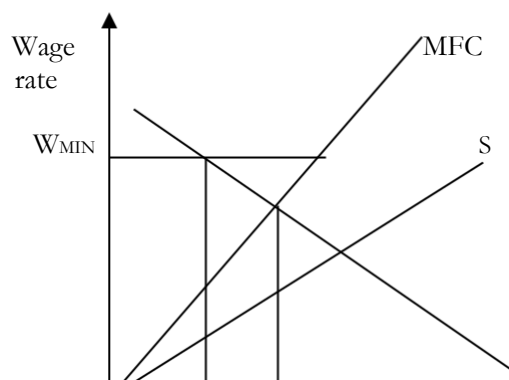


Figure 7.1 The effect of imposing a minimum wage in a perfectly competitive market

In the figure 7.1 the equilibrium wage rate as determined by the forces of demand. The imposition of a minimum rate above the market rate at say W_{MIN} has the effect of creating an excess supply of labour given by $(Q_2 - Q_1)$. Employment is reduced from Q_e to Q_1 as a result of the imposition of the minimum wage.

- (ii) Monopsony refers to the form of market organization where there is a single buyer of a particular factor of production. The effect of imposing a minimum wage above the market rate under conditions of monopony is shown in the following diagram.



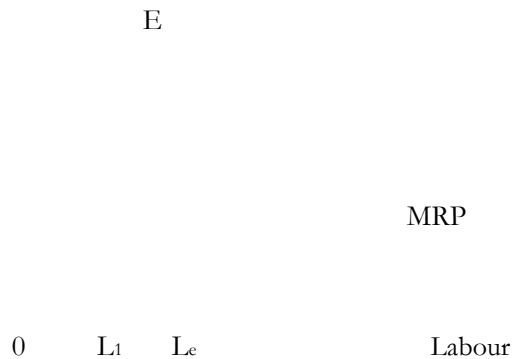


Figure 7.2 The effect of imposing a minimum wage above the equilibrium under conditions of monopony.

The monoponistic firm is in equilibrium when it equates the marginal factor cost to its marginal revenue product which is shown by point E in Figure 7.2. If a minimum wage say W_{MIN} is imposed above the equilibrium rate monoponistic exploitation will be completely eliminated but the firm will reduce the amount of labour it hires from L_e to L_1 .

- (c) The following factors limit the bargaining power of trade unions in developing countries:

Firstly, the abundance of unskilled labour in developing countries implies that striking workers can easily be replaced and this factor acts as a disincentive for workers to strike.

Secondly, the majority of developing countries do not have unemployment benefits on which workers can depend while on strike. This factor contributes to worker reluctance to join strikes and limits the effectiveness of trade unions.

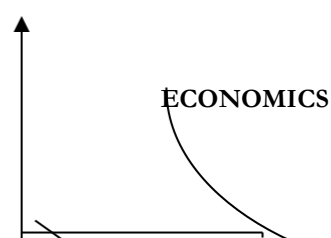
Thirdly, government interference in trade union authorities is prevalent in many developing countries owing to the fear that prolonged strikes may adversely affect the weak unstable political structures.

Fourthly, many developing countries experience a high rate of job turnover. This implies that trade unions experience frequent changes in leadership and membership which can adversely affect their operations and hinder their effectiveness.

Fifthly, corruption and mismanagement are prevalent in many trade unions in developing countries. These aspects imply that resources intended for trade union activities are often misused.

- (d) A change in wage rate has a substitution effect and an output effect. These concepts are analogous to the income and substitution effect of demand theory. For example, when the wage rate falls the quantity purchased by the producer increases. This total effect is the combined result of a substitution effect and an output effect. The substitution effect measures the degree of substitutability of, say, labour for capital in production resulting exclusively from the change in relative factor prices. The substitution effect is given by the movement along the same isoquant. The output effect results because when the wage rate falls the producer could produce a greater output with a given total outlay.

These effects can be illustrated graphically in Figure 7.3



Capital

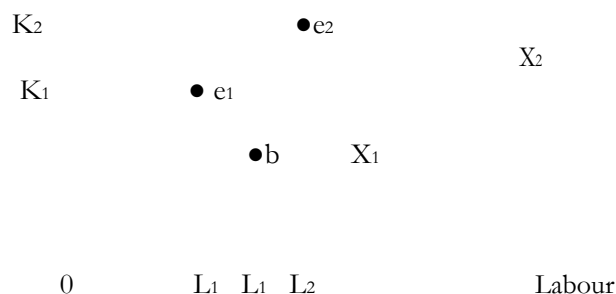


Figure 7.3 The substitution and output effects of a change in the wage rate

In the figure 7.3 the movement from e_1 to e_2 can be split into a substitution effect and an output effect. The movement from e_1 to b constitutes the substitution effect since the firm will substitute cheaper labour for relatively more expensive capital even if it were to produce at the original level of output X_1 . The output effect is represented by the movement from b to e_2 . The output effect arises because when the wage rate falls the firm can with the same total expenditure buy more of labour, more of capital, or of both factors of production. The movement from e_1 to e_2 is therefore the total effect.

ANSWER EIGHT

- (a) Inflation refers to a persistent rise in the general price level. Credit inflation arises because of an expansion of credit that exceeds growth in production. Credit expansion leads to an increase in the money supply which may lead to inflation where there is no accompanying economic growth. Credit inflation may arise when the government has easy access to Central Bank Credit. The government may choose to finance a budget deficit by borrowing directly from the Central Bank with inflationary consequences. On the other hand, excessive credit may be extended by commercial banks to the private sector which increases the money supply beyond increases in economic growth and therefore generates inflation.
- (b) (i) Demand-pull inflation arises when the aggregate demand exceeds the value of output at full employment. The excess demand for commodities cannot be met in real terms and is therefore met by rises in the prices of commodities. The excess demand may persist owing to a growth in the quantity of money either through the creation of money by the government to finance a budget deficit or because the quantity of money is allowed to expand to accommodate the rise in prices.

Cost-push inflation arises when the increasing cost of production push up the general price level. This type of inflation is therefore generated from the supply side of the economy. It may, for example, arise because of an increase in wage costs without corresponding increases in productivity. Alternatively, cost -push inflation could be caused by an increase in import prices for commodities such as oil.

- (ii) Demand-pull inflation can be combated through the following measures: Firstly, through contractionary monetary policy. This may take the form of restriction of direct lending to the government, an increase in the cash or liquidity ratio or raising interest rates.

Secondly, contractionary fiscal policy which may entail raising taxes or lowering government expenditure. An increase in taxation reduces the disposable income of consumers and hence their expenditure. Lowering government expenditure should be aimed at achieving a balanced budget.

Cost-push inflation can be controlled by controlling increases in the cost of production which give rise to inflation. Thus, for example, wage increases should be controlled or only granted where they are associated increases in productivity. Imported inflation can to some extent be dealt with by seeking alternative and cheaper sources of imported inputs.

- (c) The liquidity trap refers to a situation whereby the interest rate is so low that no one wants to hold bonds, and individuals only want to hold cash. This is because the interest rate can sometimes fall to a level where everybody expects it to rise. If it rises, bond prices will fall and since no one wants to hold an asset whose price will fall, everyone would rather hold cash rather than bonds. In this situation where interest rates can fall no further the liquidity preference is said to be absolute. Should the government expand the money supply there is no effect at all on interest rates. This situation can be illustrated in figure 8.1

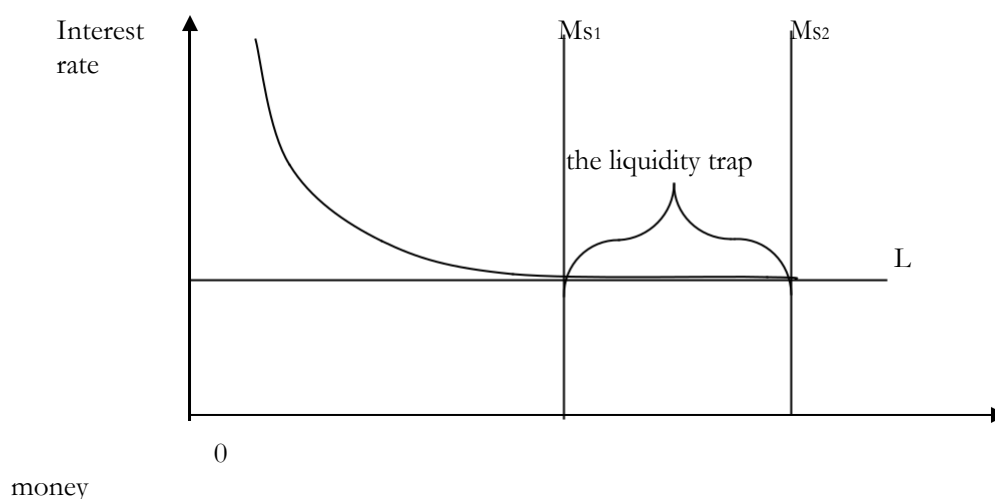


Figure 8.1 The liquidity trap

In figure 8.1 the horizontal part of the total demand for money represents the liquidity form MS_1 to MS_2 in this horizontal region has no effect on interest rates. The demand for money in the liquidity trap is perfectly interest-inelastic.

MODEL ANSWERS TO PAST CPA EXAMINATION PAPERS
MODEL ANSWERS TO CPA 1 EXAMINATION SET ON DECEMBER 2001
ANSWER ONE

(a) (i) A typical consumption function takes the form:

$$C = a + b Y$$

Where:

C is consumption

a is autonomous consumption

b is the marginal propensity to consume

Y is income

$$\begin{array}{l} \text{Marginal propensity to save} + \text{marginal propensity to consume} = 1 \\ \text{(M. P. S)} \qquad \qquad \qquad \text{(M. P. C)} \end{array}$$

\therefore given marginal propensity to save = 0.2

$$\begin{aligned} \text{Marginal Propensity to Save} &= 1 - 0.2 \\ &= 0.8 \end{aligned}$$

where autonomous consumption = 400 and marginal propensity to consume = 0.8, the consumption function is

$$C = 400 + 0.8Y$$

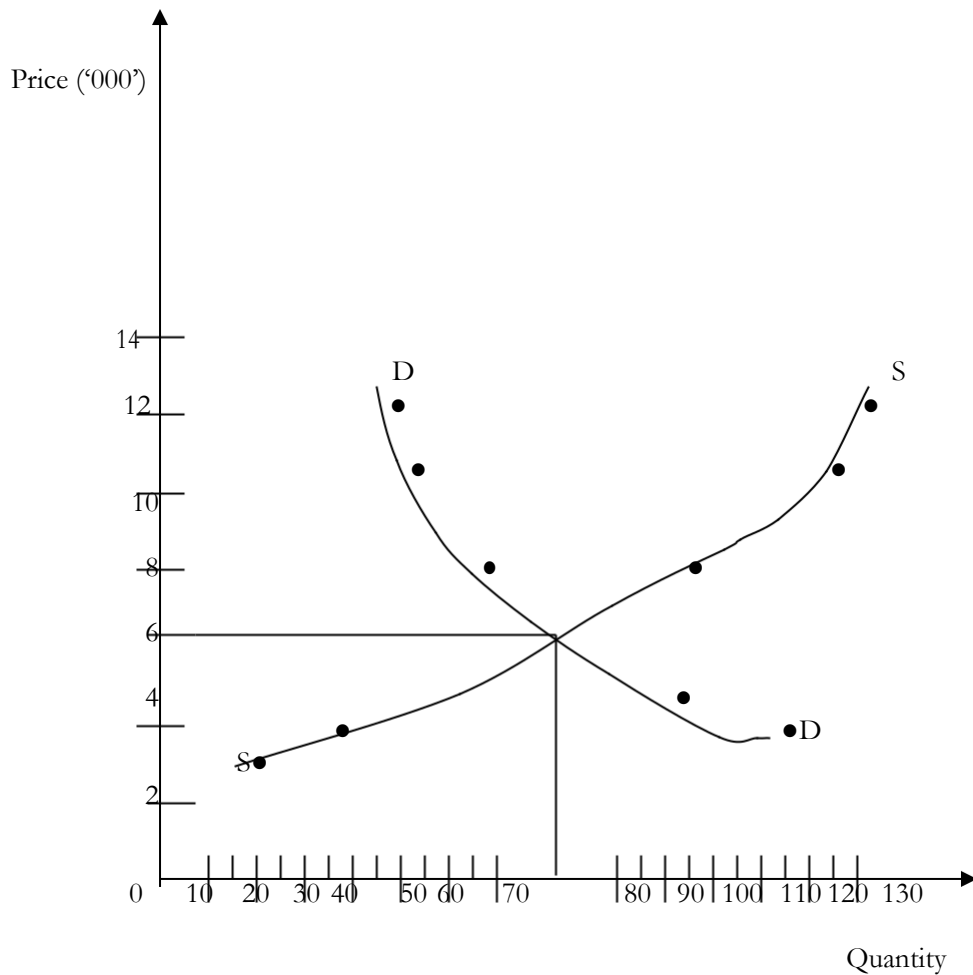
(ii) In a simple closed economy the value of the multiplier is given by:

$$\frac{1}{1 - \text{M.P.C}} = \frac{1}{1 - 0.8} = \frac{1}{0.2} = 5$$

The value of the multiplier = 5 which implies that national income changes 5 times more than any initial change in expenditure that brought it about.

This implies that if government expenditure changes by 50%, national income would change by: $5 \times 50\% = 250\%$ of the initial change in government expenditure.

b)



Equilibrium price = 6,000shs.

Equilibrium = 76,000 tons

- (c) (i) Price elasticity of demand can guide the government's tax policy on household consumption since the government tends to tax commodities with inelastic demand such as cigarettes more heavily in an attempt to increase its tax revenue. Commodities with elastic demand are generally taxed less heavily since their quantity demanded is very responsive to changes in price that could arise because of an increase in taxation.
- (ii) Devaluation refers to a cheapening of the domestic currency in terms of a foreign currency. Devaluation has the effect of lowering the price of exports and increasing the price of imports and is therefore used by some governments with a view to correcting a balance of payments deficit. Devaluation is only likely to be successful if the price elasticities of demand for imports and exports are high. This would imply that a devaluation has the effect of stimulating exports and discouraging imports and therefore helping to correct the balance of payments deficit. If the price elasticities of demand for exports and imports are low the devaluation is not likely to be successful.

- (iii) Price discrimination refers to the practice of charging different prices for the same commodity. It is usually undertaken by a monopolist. For price discrimination to be effective the price elasticities of demand in the markets where different prices are charged should be different. The price elasticity of demand should be different. The price elasticity of demand should be lower in the market where the monopolist charges a higher price implying that consumers are less responsive to price changes in that market. On the other hand, the discriminating monopolist charges a lower price in the market where price elasticity of demand is higher since consumer demand is more responsive to price changes in this market.

ANSWER TWO

- (a) Consumer equilibrium refers to a situation where the consumer maximizes utility subject to a given budget constraint. In terms of indifference curve analysis this situation is achieved when the consumer reaches the highest possible indifference curve given the limitations imposed by his or her budget line. This situation can be illustrated in Figure 2.1

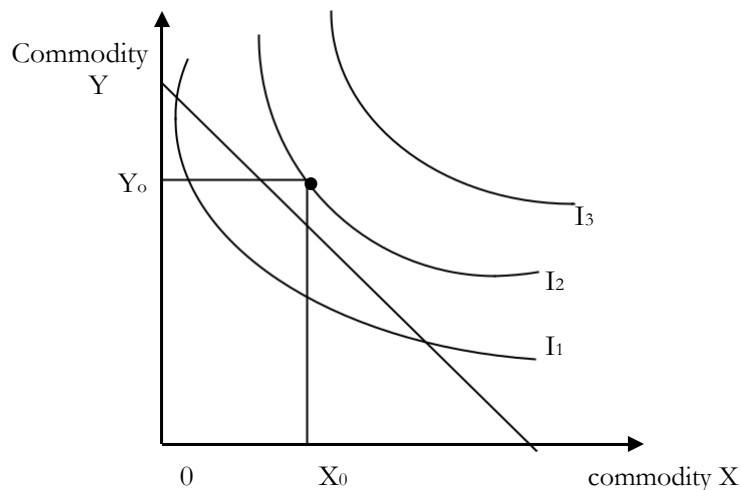


Figure 2.1 The concept of a household's equilibrium

In the figure 2.1 the consumer reaches an equilibrium when the budget line is just tangent to the indifference curve. This point represented by combination $X_0 Y_0$. The higher indifference curve is unattainable given the consumer's budget constraint.

- (b) The substitution effect refers to a change in the quantity demanded of a given commodity which results from a change in the relative price when the level of real income is held constant.

The income effect, on the other hand, refers to a change in the quantity demanded resulting from a change in real income.

The substitution effect always acts in a way in which a fall in the relative price of a commodity gives rise to more of the commodity being purchased. The income effect, on the other hand, can work either way. In the case of an inferior good, the substitution effect is positive but the income effect is negative. This can be illustrated in Figure 2.2

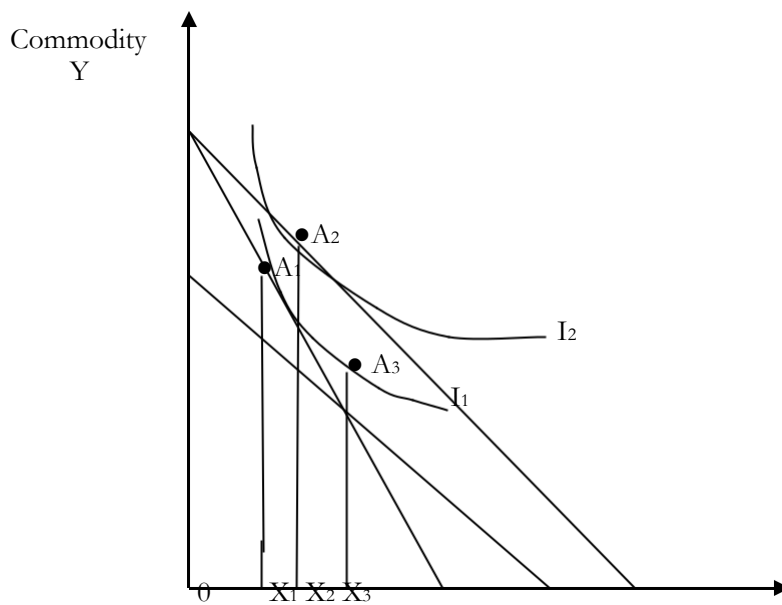


Figure 2.2 An inferior good

Figure 2.2 illustrates the substitution and income effects for an inferior good. The movement for A_1 to A_3 is the positive substitution effect. However, the movement from A_3 to A_2 is the negative income effect. In case of an inferior good, however, the substitution effect is still greater than the income effect.

- (c) In the case of an inferior good the substitution effect is positive and the income effect is negative. However, the substitution effect is greater than the income effect.

In the case of a giffen good the income effect is actually greater than the substitution effect such that the overall effect of a price fall is a decrease in consumption. A giffen good can be illustrated in Figure 2.3

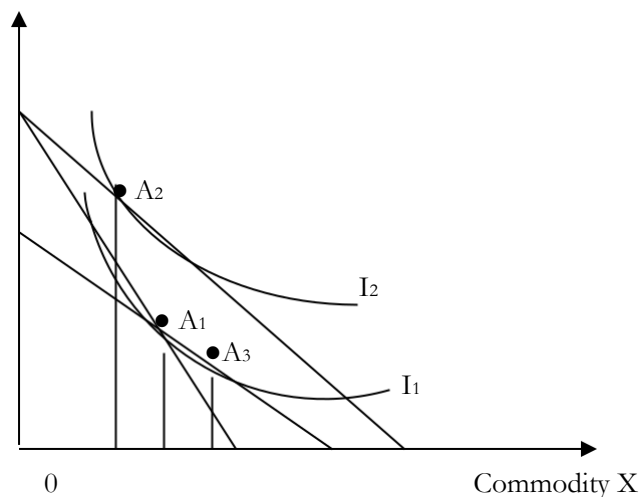


Figure 2.3 A giffen good

Figure 2.3 illustrates a giffen good where negative income effect (A_3 to A_2) is greater than the substitution effect A_1 to A_3 .

ANSWER THREE

- (a) A country is said to have an absolute advantage in the production of a given commodity if with a given level of resources it can produce more of that commodity than any other country using the same quantities of resources. Thus, for example, if China can produce a greater quantity of rice than Tanzania with a given level of resources, say 100 manhours China is said to have an absolute advantage over Tanzania in the production of rice.

A country is said to have a comparative advantage in the production of a given commodity if it can produce that commodity at a lower opportunity cost than another country. The opportunity cost of producing a given commodity is the value of the best forgone alternative. For example, Kenya is said to have a comparative advantage over Ethiopia in the production of tea if it can produce tea at a relatively lower opportunity cost than Ethiopia. The law of comparative advantage advocates that countries specialize in areas of production where they have a comparative advantage over other countries.

- (b) The following gains may be generated by international trade:

Firstly, countries can specialize in areas of production where they have a comparative advantage. They can then export these commodities and use the earnings to import commodities in which they have a comparative disadvantage.

Secondly, international trade provides a wider market for a country's commodities and hence enables a country to benefit from economies of scale in production. Countries can, therefore, more fully utilize their productive capacities and benefit from lower long run costs of production.

Thirdly, international trade encourages efficiency because of exposure to international competition. Domestic producers have to compete with foreign producers and as such they have to be more cost efficient in order to compete effectively. Consumers may benefit from this greater efficiency in the form of lower prices.

Fourthly, international trade enables consumers to benefit through access to a wider variety of goods and services. This enhances consumer choice and hence consumer sovereignty and utility.

Fifthly, international trade fosters peaceful relations among countries since they are less likely to engage in conflict owing to their mutual interdependence.

- (c) Countries could place barriers against international trade in the following ways:

Firstly, through tariffs which refers to taxes on imports. Tariffs can be specific or ad valorem. A specific tariff is a fixed tax per unit of commodities. An ad valorem tariff is applied as a percentage of the value of the imported commodities.

Secondly, through quotas which refer to quantitative restrictions placed on the importation of specific commodities. An extreme form of quotas are known as embargoes and represent a complete ban on a certain commodity.

Thirdly, through exchange controls. Exchange controls imply that the state exercises control over foreign currency transactions. For example, importers who require foreign currencies may have to apply to the central bank for an allocation of foreign currencies

Fourthly, bureaucratic import-export procedures which may be time consuming and costly thereby discouraging international trade.

Fifthly, product standard specifications such as health and safety regulations. These specifications may entail considerable increases in an exporter's costs and imports may be limited on the basis that quality standards have not been met.

Sixthly, subsidies may also constitute a barrier to international trade because they could provide protection from overseas producers by increasing the attractiveness of domestic products in relation to imports. Subsidies make domestic products cheaper relative to foreign substitutes and therefore make it difficult for foreign producers to compete in the domestic market.

ANSWER FOUR

- (a) Economic growth refers to an increase in a country's productive capacity as evidenced by an increase in real national product. Economic growth may result from an increase in the quantity of factors of production in a country, for example, capital or labour. Alternatively, economic growth may occur because of an improvement in the efficiency with which factors of production are combined. This may, for example arise because of the introduction of a new mode of production.

Economic development on the other hand, refers to an increase in country's productive capacity accompanied by an improvement in the indicators of the quality of life such as infant mortality, the literacy rate and population per doctor. It is therefore possible to have economic growth without economic development. There have been several attempts to develop an index of human development, for example, the United Nations Human Development index.

- (b) The following factors have contributed to low economic growth rates in developing countries:

Firstly, most developing countries are subject to a vicious circle of poverty. This can be illustrated in the following diagram.

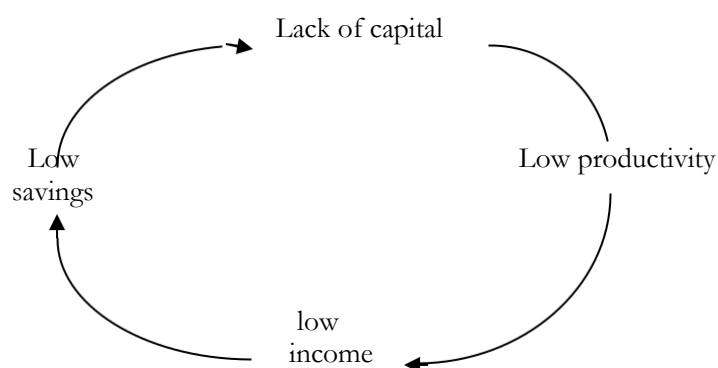


Figure 4.1 The vicious circle of poverty

Figure 4.1 illustrates that economic growth is low in many developing countries because low productivity implies low incomes which in turn imply low savings and low levels investment. Low income investment implies a deficiency of capital which is associated with low levels of economic growth.

Secondly, many developing countries have a high level of corruption and resource mismanagement. Thus, for example, donor funds intended for specific projects are sometimes diverted to private use. Resources are also sometimes mismanaged because of improper evaluation of projects leading to frequent investment in non-viable projects.

Thirdly, many developing countries experience foreign exchange constraints. This is partly because many developing countries experience substantial balance of payment deficits on the current account. These foreign exchange constraints may limit the ability to import inputs which are vital for economic growth.

Fourthly, many developing countries have pursued the inappropriate industrialization strategy of import substitution. This strategy entails producing products that were previously imported. Import substitution industrialization, however, had many shortcomings such as its association with overvalued exchange rates, continued excessive dependence on imported inputs and concentration on the production of consumer goods.

Fifthly, socio-cultural constraints are prevalent in many developing countries. These are often manifested in ethnic distinctions and regional loyalties which may stifle economic growth.

Sixthly, many developing countries lack adequate entrepreneurial skills which are vital in economic growth since they are necessary to ensuring the risk-taking function and also that of combining factors of production.

- (c) The following policy measures may be implemented to combat poverty in developing countries.

Firstly, the establishment of institutions which can contribute to an improvement in economic governance and hence reduced levels of corruption. Thus, for example, many developing countries are attempting to combat corruption by setting anti-corruption authorities. To be effective, however, such authorities should be independent and should have powers to prosecute corrupt individuals.

Secondly, developing countries should aim to provide an enabling macroeconomic environment as a means to encouraging domestic and foreign investment. This implies that stability should be achieved in variables such as inflation and exchange rates. An attempt should also be made to reduce budget deficits and prevalence of balance of payments deficits. An enabling macroeconomic environment will boost investment and bring associated benefits such as employment creation and technology transfer.

Thirdly, developing countries should enhance their capacities for policy analysis such that appropriate policies are developed which take into account the individual circumstances of different countries. Once appropriate policies for poverty alleviation have been developed it is vital that such policies are implemented by the respective countries.

Fourthly, developing countries should aim to diversify their economies in the long run since many of them are excessively dependent on primary production which is associated with price and output fluctuations. Diversification should mainly be into the industrial and service sectors. However, even within agricultural production it is often possible to diversify into non-traditional products such as horticulture which has been accomplished relatively successfully by Kenya.

Fifthly, a key policy in alleviating poverty in many developing countries is encouraging the development of the informal sector such as, for example, small scale artisans. This sector is vital in employment creation and poverty alleviation since opportunities for employment creation in the urban modern sector for formal employment are relatively limited. A key element in promoting the informal sector is providing cheap finance to individuals and firms in the informal sector.

ANSWER FIVE

- (a) The law of diminishing returns states that “ceteris paribus, as additional units of a variable factor are added to a given quantity of a fixed factor, total output will initially increase at an increasing rate, but after a certain level of output total output will increase at a diminishing rate, and will eventually decline. The law of diminishing returns is also referred to as the law of variable proportions.
- (b) The three stages associated with the law of variable proportions can be illustrated in the following diagram.

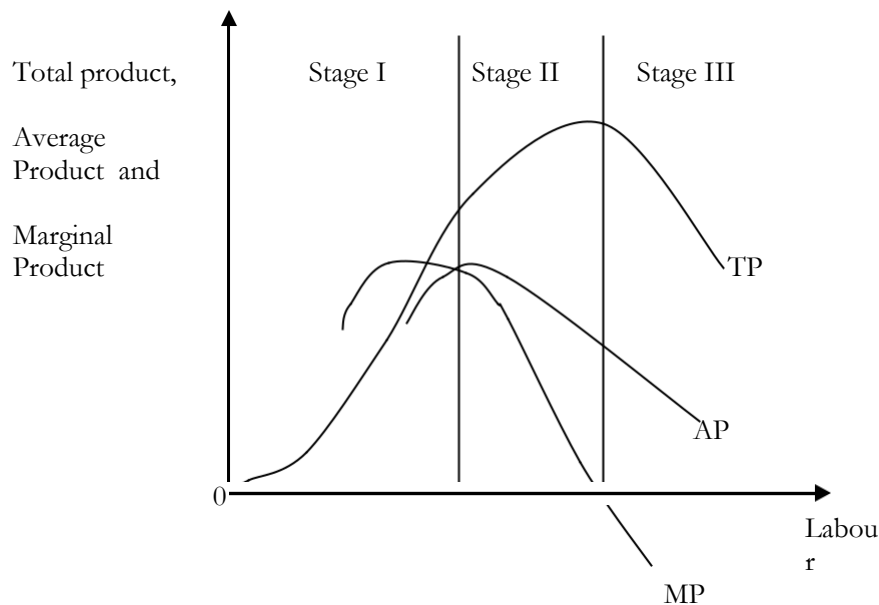


Figure 5.1 The stages of Production

Stage 1

Stage 1 represents increasing returns to the variable factor, say, labour. Total product is increasing during this stage and marginal and average product also increase up to a certain point. Marginal product begins to decline towards the end of this stage. This stage mostly indicates an increasing efficiency of proportion in which fixed factors of production are combined. Fixed factors are still underutilized during this stage.

Stage 2

Stage 2 represents decreasing returns to the variable factor with both marginal and average product falling. Total product is increasing at a decreasing rate throughout this stage. At the end of stage 2 marginal product of variable factor is zero.

Stage 3

Stage 3 is the stage of negative returns to the variable factor. During this stage marginal product is negative and the total product is declining. This is a stage of extreme inefficiency and producers would not operate in this stage even with free labour.

(c) Quantity of labour	Total Physical Product	Marginal Product
0	0	-
1	15	15
2	34	19
3	48	14
4	60	12
5	62	2

Marginal product of labour is given by $\frac{\Delta TP}{\Delta L}$

Where: TP is total product

L is labour

The marginal product for labour can be plotted in the following diagram.

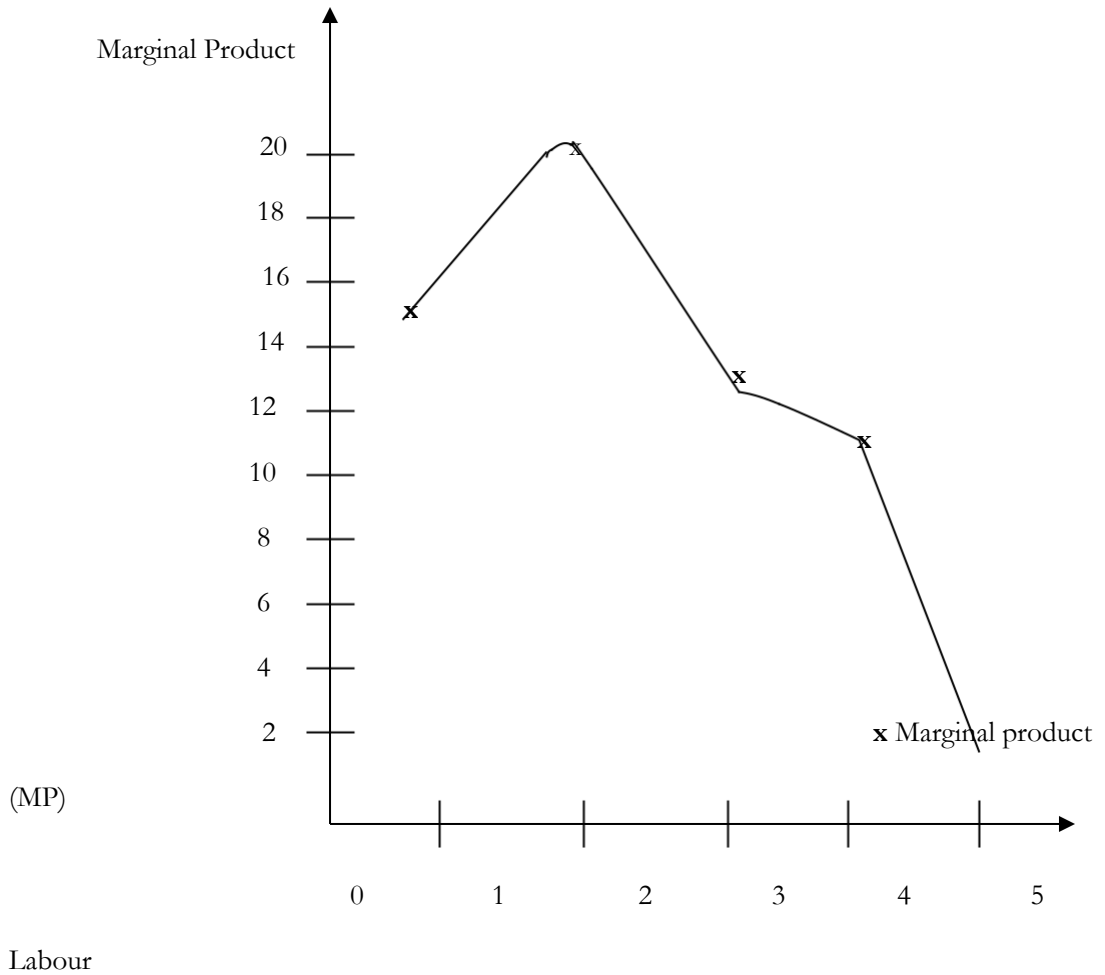


Figure 5.2 The marginal product for labour

ANSWER SIX

The firm will maximize profits where:

$$MC - MR_1 = MR_2$$

$$\text{With } TC = 50 + 40 Q$$

$$MC = \frac{dT C}{dQ} = 40$$

Hence MC will be the same at all levels of output.

$$MR_1 = \frac{dTR_1}{dQ_1}$$

$$\text{given } Q_1 = 32 - 0.4 P_1$$

$$\therefore P_1 = 80 - 2.5 Q_1$$

$$TR_1 = (80 - 2.5 Q_1) Q_1 = 80 Q_1 - 2.5 Q_1^2$$

$$\therefore MR_1 = 80 - 5 Q_1$$

When $MC = MR_1$

$$40 = 80 - 5 Q_1$$

$$5 Q_1 = 40$$

$$\therefore Q_1 = 8$$

In the second market with $Q_2 = 18 - 0.1 P_2$

$$\therefore P_2 = 180 - 10 Q_2$$

$$TR_2 = (180 - 10 Q_2) Q_2 = 180 Q_2 - 10 Q_2^2$$

$$MR_2 = \frac{dTR_2}{dQ_2} = 180 - 20 Q_2$$

When $MC = MR_2$

$$40 = 180 - 20 Q_2$$

$$\therefore Q_2 = 7$$

Therefore the total output which the firm must produce in order to maximize profits

$$= Q_1 + Q_2$$

$$= 8 + 7 = 15 \text{ units}$$

(b) When $Q_1 = 8$

$$P_1 = 80 - 2.5 (8)$$

$$= 80 - 20$$

$$= 60$$

A price of 60 should be charged in market 1 in order to maximize profits.

$$\begin{aligned} \text{When } Q_2 &= 7 \\ P_2 &= 180 - 10(7) \\ &= 180 - 70 \\ &= 110 \end{aligned}$$

A price of 110 should be charged in market 2 in order to maximize profits.

- (c) If the producer does not discriminate $P_1 = P_2 = P$ and the two demand functions can be combined as follows:

$$\begin{aligned} Q &= Q_1 + Q_2 = 32 - 0.4P + 18 - 0.1P \\ &= 32 + 18 - 0.5P \\ &= 50 - 0.5P \end{aligned}$$

$$P = 100 - 2Q$$

$$TR = (100 - 2Q)Q = 100Q - 2Q^2$$

$$MR = 100 - 4Q$$

At the profit maximizing level of output, $MC = MR$

$$40 = 100 - 4Q$$

$$4Q = 60$$

$$Q = 15$$

When $Q = 15$

$$\begin{aligned} \text{Profit} &= TR - TC \\ &= 100(15) - (15)^2 - (50 + 6000) \\ &= 1,500 - 450 - 650 \\ &= 400 \end{aligned}$$

the firm would earn 400 units of profit if it charges a single price.

With discrimination:

$$\begin{aligned} TR &= TR_1 + TR_2 = P_1 Q_1 + P_2 Q_2 = 60(8) + 110(7) \\ &= 480 + 770 \\ &= 1,250 \end{aligned}$$

$$TC = 50 + 40Q \text{ Where } Q = Q_1 + Q_2$$

$$\therefore TC = 50 + 40(8 + 7)$$

$$= 50 + 600$$

$$= 650$$

Thus, profit = TR – TC = 1,250- 650 =600 units

Thus, when the monopolist discriminates he earns 600 units of profits.

- (d) (i) A firm is said to be in equilibrium when it maximizes profits. Profits are maximized in the two markets when:

In market 1

$$P_1 = 60$$

$$Q_2 = 8$$

In market 2

$$P_2 = 110$$

$$Q_2 = 7$$

Recall that point elasticity of demand is given by $-\frac{dQ}{dP} \times \frac{P}{Q}$

In market 1 point elasticity of demand when the firm is in equilibrium:

$$\text{Given } Q_1 = 32 - 0.4P_1$$

$$\frac{dQ}{dP} = -0.4$$

$$\text{Point elasticity of demand} = - \left[-0.4 \times \frac{60}{8} \right] = 3$$

In the market 2 point elasticity of demand when the firm is in equilibrium:

$$\text{Given } Q_2 = 18 - 0.1P_2$$

$$\frac{dQ}{dP} = -0.1$$

$$\text{Point elasticity of demand} = - \left[-0.1 \times \frac{110}{7} \right] = 1.57$$

The above result confirms that a higher price is charged in market 2 which has a lower price elasticity of demand.

- (ii) The price elasticity of demand can be used by a discriminating monopolist to determine in which market to charge a higher price so as to maximize profits. The discriminating monopolist will charge a higher price in the market with less elastic demand.

Price elasticity of demand can also be useful to business firms which are not discriminating monopolists. If the price elasticity of demand is inelastic then it will be

possible to increase the total revenue by raising the price. If, however, price elasticity of demand is greater than one then a rise in price will lead to a reduction in total revenue.

Governments also utilize the concept of price elasticity of demand in their taxation policy and they tend to tax commodities within inelastic demand more heavily, for example, cigarettes.

Price elasticity of demand is also useful for a government in making devaluation decisions with a view to improving the balance of payments position of a country. A devaluation is likely to assist in improving the balance of payments position if the elasticities of demand for imports and exports are high.

- (e) Price discrimination is possible under the following conditions:

Firstly, where the monopolist is able to keep the various sub-markets separate such that it is not easy to transfer commodities from one sub-market to another. Markets may be separated by distance, for example.

Secondly, different groups of consumers should have different elasticities of demand so that a lower price can be charged to consumers with relatively elastic demand and a lower price charged to those with relative elastic demand.

Thirdly, price discrimination can only be practiced under conditions of imperfect competition since under competitive conditions perfect knowledge of the market inhibits the charging different prices.

ANSWER SEVEN

- (a) (i) The parameters a, b, d and t can be given the following economic interpretation:

a refers to autonomous consumption and does not depend on the level of national income.

b refers to the marginal propensity to consume which is the change in consumption that arises from an additional unit of income.

d refers to autonomous tax which is that proportion of tax which does not depend on national income.

t is the tax rate

- (ii) The equilibrium value of income, is obtained by simultaneously solving the system of equations in terms of a, b, d, t and I_o and G_o .

$$\begin{aligned}\bar{Y} &= C + I + G \\ &= a + b + (Y - T) + I_o + G_o \\ &= a + b(Y - d - tY) + I_o + G_o \\ &= a + bY - bd - bty + I_o + G_o\end{aligned}$$

$$Y - bY + btY = a + I_o + G_o - bd$$

$$Y(1 - b + bt) = a + I_o + G_o - bd$$

$$\bar{Y} = \frac{a + I_0 + G_0 - bd}{1 - b + bt}$$

$$\bar{C} = a + b(1-t) \quad \bar{Y} = a + b(1-t) \left[\frac{a + I_0 + G_0 - bd}{1 - b + bt} \right]$$

$$\bar{T} = d + t\bar{Y}$$

$$= \left[\frac{d + t(a + I_0 + G_0) - bd}{1 - b + bt} \right]$$

- (b) National income refers to the total monetary value of the flow of final goods and services arising from the production of a nation in 1 (one) year. National income may be measured by the following approaches:

Firstly, the income method whereby national income is taken to be sum of all incomes earned by factors of production. Categories of income included are for example, personal incomes, gross trading profits of companies, trading surpluses of public corporations and the government and an estimation of income from subsistence production.

Secondly, the value added approach whereby national income is found by adding together the value of all commodities produced by firms during the year. National income is the sum of value added to output by all the enterprises in the economy. National income is the difference between the total revenue of a firm and the cost of raw materials and components.

Thirdly, national income can be measured by the expenditure approach whereby expenditure is subdivided into consumer expenditure, government spending, private investment spending, imports and exports. Expenditure can be represented by the following identity:

$$\text{Expenditure} = C + G + I + X - M$$

Where:

C is consumer expenditure

G is Government expenditure

I is investment expenditure

X is Exports

M is imports

These approaches all give the same estimate because the value of a commodity is equal to the purchasers' expenditure on it. The same sum of money will be received as income by individuals who contributed to its production. The value of the commodity sold will have arisen from the value added by successive stages of production. Thus the income, value added and expenditure approaches are alternative ways of arriving at the same total.

ANSWER EIGHT

- a) Fiscal policy refers to the use government expenditure and taxation to regulate the level of economic activity. If an economy is in recession, for example, the government can apply

an expansionary fiscal policy aimed at boosting the economy. This may involve increasing government expenditure and reducing taxation. Alternatively the government may adopt a contractionary fiscal policy during times of inflation which entails reducing government expenditure and raising taxes.

Monetary policy refers to the regulation of economic activity through the use of interest rates and money supply. During recession the government may, for example, pursue an expansionary monetary policy aimed at boosting economic growth. This may, for example, take the form of reducing interest rates with a view to boosting investment or lowering the cash ratio in order to encourage lending by commercial banks. This may take the form of an increase in interest rates or an increase in the cash ratio. Open market operations may sometimes be used in this regard with the government increasing its sale of treasury bills to mop up excessive liquidity.

- (b) The effectiveness of monetary policies in developing countries are limited by the following factors:

Firstly, the lack of developed and organized money and capital markets. Financial markets in many developing countries are highly disorganized and there is a lack of variety of financial instruments which hinder the effectiveness of monetary policy.

Secondly, the prevalence of corruption in many developing countries make the use of instruments such as selective credit control ineffective.

Thirdly, many commercial banks in developing countries are subsidiaries of overseas banks. This implies that in the event of their credit base being squeezed by domestic monetary authorities these commercial banks can turn to their parent organizations abroad for funds.

Fourthly, many banks in developing countries find themselves with excess liquidity because of the scarcity of viable projects and creditworthy borrowers.

Fiscal policy effectiveness in developing countries may be limited by:

Firstly, the dominance of the agricultural sector which is more difficult to tax owing to poor accounting practices and potential disincentive effects.

Secondly, the high level of tax evasion in developing countries because tax systems often have many loopholes and some tax collections may be incompetent.

- (c) The economically active population in a given country is the total number of people who are either employed or capable of employment. The size of the economically active population is determined by the following factors:

Firstly, the rate of growth of the population. The higher the rate of growth of population, the higher the economically active population since there will be more people entering the labour force.

Secondly, the average age at which people begin employment. The lower this age, the higher the economically active population in a given country.

Thirdly, the average retirement age in a given country. The higher the retirement age the higher the size of the economically active population. This factor may be influenced by government policy which sometimes sets a mandatory retirement age in the public sector.

Fourthly, the life expectancy in a given country. The higher the life expectancy the higher

the economically active population in general.

MOCK EXAMINATION

To be carried out under examination conditions and sent to the Distance Learning Administrator for marking by Strathmore University.

TIME ALLOWED: 3 HOURS
Answer Any Five Questions

ATTEMPT ANY FIVE QUESTIONS
Time Allowed: 3 hours

QUESTION ONE

The last decade was very dramatic. The international community set itself a daunting task – to halve the number of extremely people in the world by the year 2015. Kenya on its part already has Poverty Reduction Strategy Paper (PRSP) and Poverty Eradication Commission.

Clearly give an analytical context of the nature and scope of poverty in developing countries, and suggest some of the key policy measures aimed at addressing this problem.

(Total: 20 marks)

QUESTION TWO

The managing Director of Kenya Movie Theatre Ltd. Has hired you as a consultant to advise on the ticket-pricing strategy. As a basis for our recommendations you consider historical ticket-sales data which seems to suggest the following ticket sales elasticities:

Own-price elasticity	= -0.5
Refreshment price elasticity	=0.12
Nairobi population elasticity	= +0.65
Advertising elasticity	= +0.70

- The managing director is contemplating a moderate increase in ticket prices in order to increase revenue. Explain whether this is a good idea. (5 marks)
- The managing director is also contemplating a moderate increase in the advertising budget in order to increase revenue. Is this a good idea? Explain (5 marks)
- How would you characterize the relationship between tickets and refreshments? (5 marks)
- If the population of Nairobi increase from 120,000 to 122,400 people in the next one year, what would be the resulting impact on the ticket demand? Assume all other factors are held constant. (5 marks)

(Total: 20

marks)

QUESTION THREE

Kenya is planning to be a newly industrialized country by the year 2020 A.D. What obstacles are likely to impede the achievement of this objective and what steps must be taken to overcome such obstacles? **(Total: 20 marks)**

QUESTION FOUR

- Define the term cross price elasticity of demand and clearly explain its value for substitutes and complementary commodities. (5 marks)
 - Use data in the table below to compute income elasticity through the arc elasticity method:

Quantity	Income (sh.)	Price (sh.)
100	5000	16
120	6000	16

- (2 marks)
- (b) Discuss any three practical applications of the concept of elasticity of demand in Management and economic policy decision making. (6 marks)
- (c) (i) The demand for a commodity is five units when the price is sh.1,000 per unit. When price per unit falls to sh.600, the demand rises to six units. Compute the point and arc elasticity. (4 marks)
- (3 marks)
- (Total: 20 marks)**
- (ii) State the main determinants of elasticity of demand.

QUESTION FIVE

- (a) Why is it important to estimate National Income of a country? What difficulties do economists encounter while carrying out such a task particularly in developing countries? (10 marks)
- (b) The table below represents economic transactions for country XYZ in billions of shillings:

	Total Output	Intermediate purchases
Agriculture	30	10
Manufacturing	70	45
Services	55	25

Required:

- (i) Calculate the Gross Domestic Product of this economy using the value added approach. (3 marks)
- (ii) If depreciation and indirect taxes equal 8 billion and 7 billion shillings respectively, determine the Net Domestic Product both at market prices and at factor costs. (7 marks)
- (Total: 20 marks)**

QUESTION SIX

- (a)
- (i) Define an indifference curve and briefly explain the nature of indifference curves for perfect substitutes and complementary goods. (7 marks)
- (ii) Using separate diagrams, illustrate and explain the income and substitution effects of a price rise for both inferior and giffen goods. (10 marks)
- (b) (i) Why does marginal rate of substitution decline from left to right along an indifference curve? (1 mark)
- (iii) Define the term marginal propensity to save and show its influence on the multiplier (2 marks)
- (Total: 20 marks)**

QUESTION SEVEN

The Kenya Power Supplies Company Ltd. Is the role of electricity in Kenya. This commodity is purchased by two separate consumers, namely (i) commercial users and (ii) domestic users, to whom the company is able to charge different prices or tariffs. Assuming that the major goal of the company is to maximize profits:

- (a) How should the company allocate its total output of electricity between the two groups of consumers? (12 marks)

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- (b) Which group is likely to be charged a higher price? Explain clearly the reasons for your answer. (4 marks)
- (c) What conditions make it possible for the company to charge different prices for the same product? (4 marks)
- (Total: 20 marks)**

QUESTION EIGHT

Write explanatory notes on the following concepts”:

- (a) Consumer sovereignty (4 marks)
- (b) Cobweb model (4 marks)
- (c) Marginal efficiency of capital (4 marks)
- (d) Substitutes in production and substitutes in consumption (4 marks)
- (e) Export-led growth (4 marks)
- (Total: 20 marks)**

END OF MOCK EXAMINATION

NOW SEND YOUR ANSWERS TO THE DISTANCE LEARNING CENTRE FOR MARKING
