

Chapter 1

Introduction to economics: scarcity, choice, and opportunity cost

1.0 Introduction

A lot of statements have been said about economics as a subject. The following are some of the statements.

- a. 'Economics is the painful elaboration of the obvious.'
- b. 'Economics is everything we know in a language we don't understand'
- c. A Swedish contribution: "Economics is like red wine - you shouldn't smell it but drink it, but if you drink too much on one occasion, there is a risk for dizziness"

This introductory chapter will define economics and discuss the central economic problem which is a problem of scarcity.

1.1 Defining economics

It is quite difficult to define economics as such. According to one standard definition, economics is concerned with the way in which resources are allocated among alternative uses to satisfy human wants. Economics therefore can be defined as a social science that studies how society allocates its scarce resources amongst competing alternatives.

From the above definition, economics is described as a 'social science'. 'Social' in that the subject matter is the human being. 'Science' because the approach used has much in common with that of the natural sciences because economics use scientific methodologies in its formulation of policies.

1.2 Microeconomics and macroeconomics

It is customary to divide economics into two parts: microeconomics, and macroeconomics. Microeconomics deals with the economic behaviour of individual units such as consumers, firms and households; while macroeconomics deals with the behaviour of economic aggregates such as national income and the level of employment. In simple words, it is like in microeconomics, we examine the trees not the forest while in macroeconomics we examine the forest and not the trees.

1.3 Positive and normative economics

Positive economics refers to that part of economic analysis based on established facts. Positive economics states 'what is in existence' and hence it is descriptive. It seeks to explain real economic events. For example, it explains that if the price of a normal good increase, the quantity demanded for that good decrease.

Normative economics refers to that part of economic analysis which deals with opinions or value judgments about what economic events should be like. Normative economics goes beyond the descriptions of particular economic situations and pass judgment. As a result, normative economics is prescriptive. An example of normative economics is welfare economics.

1.4 The basic economic problem

The science of economics centers upon two basic facts: first, human material wants are virtually unlimited, second, economic resources are scarce. As a result, the economic problem is a problem of scarcity and can be described in terms of scarce resources in relation to unlimited wants.

1.4.1 Scarce resources

Resources are the things or services used to produce goods or services which can be used to satisfy wants. Economic resources may be classified as property resources - land and capital - or as human resources - labour and entrepreneurial ability. These resources are limited in supply and yet society desires more of them than is available. Thus it can be said that resources are

scarce because they are limited in supply. However scarcity is a relative concept. It relates to the extent of the people's wants to their ability to satisfy those wants.

Table 1.1 Different types of resources

Type	Description	Reward
Land	All gifts of nature	Rent
Labour	The physical and mental effort of people	Wages
Capital	All goods used to produce other goods	Interest
Enterprise	All managers and organisers	Profit

These resources are scarce because they are limited in supply and yet society desires more of them than is available.

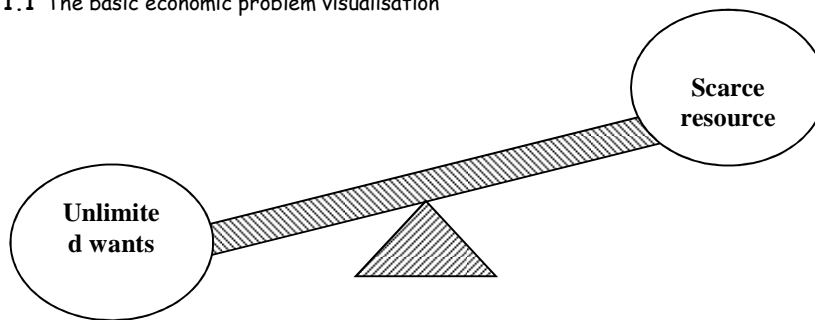
1.4.2 Unlimited wants

Material wants refer to the desires of consumers to obtain and use various goods and services which provide satisfaction. Desire for material wants is insatiable. The ends of human beings are without end. The fulfillment of some of the wants on the list seems to do little more than raise people's expectations of something even better.

There are three reasons why wants are virtually unlimited:

- Goods eventually wear out and need to be replaced.
- People get fed up with what they already own.
- New or improved products become available.

Fig 1.1 The basic economic problem visualisation



The economic problem of scarcity applies to every society whether rich or poor. McKenna P.J (1958:2) writes in his book Intermediate Economic Theory, "whatever the cause, we find ourselves in a situation of scarcity where we can not have all the things we want, because the resources we have at any time are limited in supply while our wants appear to be unlimited." As a result, societies have to make choices. Economics can also be defined as the study of the ways in which choices are made.

1.5 Economic choices - The requirement of making a choice is a consequence of the problem of scarcity. Resources are limited in supply relative to demand for goods and services produced from the available resources. As a result society and individuals

should make choices. This can be referred to as 'economising' - making the little available best be used to satisfy our wants and needs.

1.5.1 **The basic economic problem of choice**

The basic economic problem is universal. Any society (rich or poor) faces the problem of scarcity since resources are limited in supply. No society can produce all the goods wanted by its people. Society has to decide which commodities to make. For example, should we produce sugar cane or maize? We have to decide how to make these commodities. Do we employ more capital or labour? Who is going to use the goods that are eventually made?

Societies must make difficult choices of: -

- What to produce and in what quantities?
- How to produce?
- For whom to produce?

The way in which different societies answer these questions give rise to different economic systems. These fundamental economic questions can best be examined using a production possibilities curve.

1.6 **The production possibilities curve (PPC)**

A production possibilities curve or frontier shows what the society could produce with its existing resources at any moment in time. That is, the PPC shows the maximum output that a society can produce given its existing supplies of land, labour, capital and technical knowledge. The PPC works on the society's technical knowledge because another society with greater technical knowledge may be able to produce more given the same quantities of resources.

1.6.1 **An example**

Let's assume the following sample conditions for our illustration: -

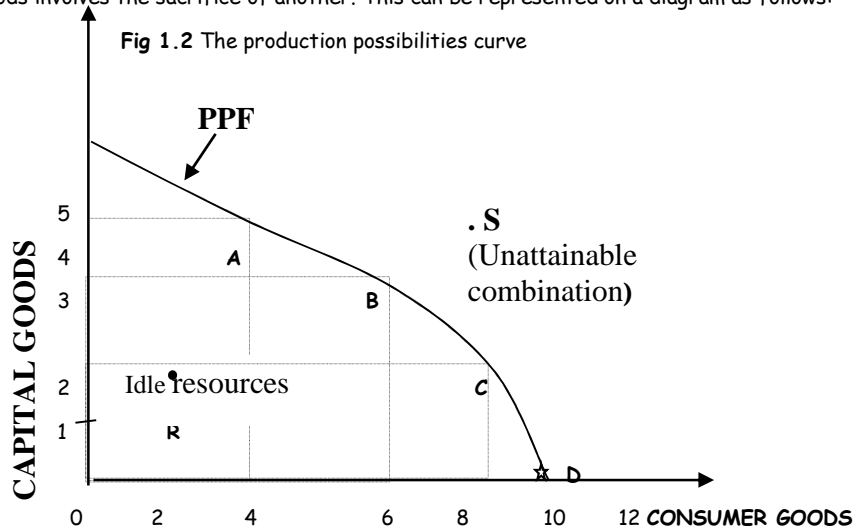
- a) The society can only produce two types of goods, say **consumer goods** which are those goods which directly satisfy our wants and **capital goods** which are those goods which satisfy our wants indirectly by permitting further production of consumer goods.
- b) The available supply of resources is fixed both in quality and quantity.
- c) The level of technology is fixed, that is, technology does not change during the course of our analysis.
- d) The economy is operating at full employment and is achieving full production.
- e) It's a closed economy, that is, there is no international trade.

With its limited supplies of resources, our society could produce varying combination of consumer and capital goods. The extreme possibilities are that either all resources are devoted towards producing consumer goods or the resources are devoted to the production of capital goods. These are unrealistic possibilities since the society can not survive on consumer nor capital goods alone and so, some combination is essential.

Table 1.2 The production possibilities table

Type of Product	Production alternatives				
	A	B	C	D	E
Consumer Goods	0	4	7	9	10
Capital Goods	4	3	2	1	0

From the production possibilities table it can be concluded that economic resources are scarce hence the production of one type of goods involves the sacrifice of another. This can be represented on a diagram as follows:



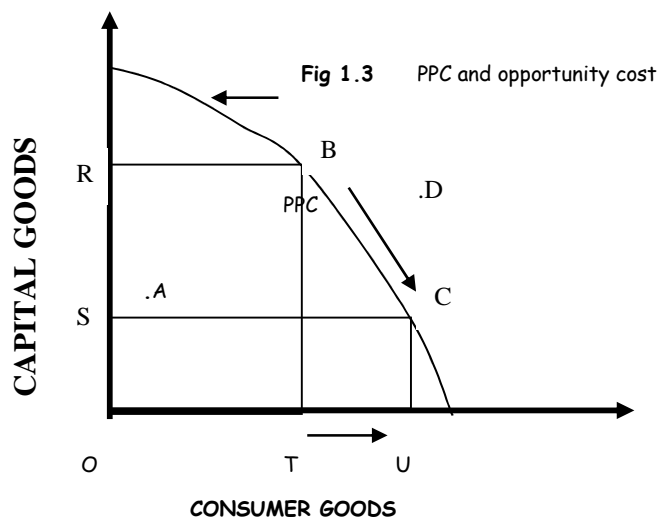
All points on the frontier (e.g. point C) show the maximum possible combined outputs of the two commodities. The society then must choose the product-mix it desires: more consumer goods mean less capital goods, and vice versa.

It is possible to produce a combination inside the curve (e.g. point R) but this would mean that resources are underutilized, that is, not fully employed. In such a case, it is possible to produce more of both goods by moving to a point on the boundary.

However, the limited supplies of resources make any combination of consumer and capital goods, lying outside the production possibilities curve, such as point S, unattainable. Hence product-mix represented by point S will only be possible when the productive capacity increase. Thus, the curve moves outwards.

1.6.2 Application: The PPC and the economic concepts of scarcity, choice and opportunity cost

A production possibility curve shows that maximum output that a society can produce with its existing resources at any moment in time. It is often referred to as the 'transformation curve' because in moving from one alternative or product-mix to another, say, from point B to point C, we are in effect transforming capital goods into consumer goods, by shifting resources from the production of the latter. Assuming that the society is producing only two goods, consumer and capital goods using its available resources and level of technical knowledge, its production possibilities can be represented by the following boundary.



Points on the curve represent points at which the economy is operating at full productive capacity, that is, full employment of all available resources. Points lying outside the production possibilities curve, such as point D, would be superior to any point in the curve, but such points are unattainable given the current supplies of resources and level of technology. Conversely, points inside the curve, say, point A are attainable but imply under utilization of resources, that is, point A mean that some resources are idle or not fully employed.

The production possibilities curve can be used to explain three economic concepts, namely choice, scarcity and opportunity cost. Choice is explained by the attainable combinations on the boundary, for example points B or C. the society has to choose its desired product mix from amongst the attainable points on the curve. For instance it can choose optimal mix B and have more capital goods than consumer goods or optimal mix C where consumer goods are preferred to capital goods. The economic problem of scarcity is implied by the unattainable combinations beyond the boundary. Such combinations are superior to those on the curve. However, because resources available are limited in supply or scarce, the society can not produce the combination represented by point D.

On the other hand, the scarcity of resources implies that we can only have more of consumer goods by having less of capital goods. This described an element of sacrifice in making choices. The next most desired alternative sacrifice is referred to as the opportunity cost. Thus the concept of opportunity cost can be illustrated by the negative slope of the boundary from the diagram of the production possibilities curve. Assume a society currently producing OR units of capital goods and OT units of consumer goods. Now if OU units of consumer goods are required, the maximum amount of capital goods that can be produced is OS. Thus, additional units of consumer goods (TU) can be produced only at the expense of RS units of capital goods. Therefore RS units of capital goods are the opportunity cost of TU units of consumer goods.

In conclusion, the analysis of the production possibility curve is very important because it illustrates the concepts of choice, scarcity and opportunity cost. On the other hand the PPC helps to show how economies provide answers to the basic economic questions of what, how and for whom to produce.

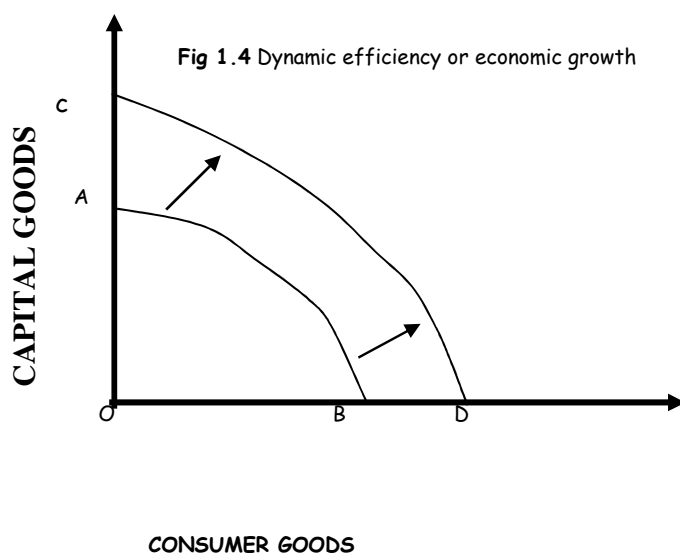
1.6.3 Application: The PPC and the law of increasing opportunity cost -What is the rationale for a production possibility curve that is concave or bowed out from the origin? The answer to this question is rather complex. But, simply stated, it amounts to this: Economic

resources are not completely adaptable to alternative uses. Thus, say, we attempt to increase the production of consumer goods, resources which are less suitable to the production of consumer goods must be induced or 'pushed' into that line of production. It will obviously take more and more of such resources - and an increasing great sacrifice of capital goods - to achieve a given increase of one unit in the production of consumer goods. Thus, a concave production possibility curve represents increasing opportunity cost. Therefore under the unrealistic assumption of perfect adaptability of resources the production, possibility curve would be a straight line, implying constant opportunity cost.

1.6.4 **Application: The PPC and economic efficiency**

Points on the production possibility curve represent points at which the society is operating at full employment and full productive capacity. By full employment we mean that all the available resources are employed. On the other hand, full production means that the employed resources are used to make their most valued contributions to output. This involves two kinds of efficiency - productive and allocative efficiency.

- **Productive efficiency or X-efficiency** refers to a situation in which the existing resources are used in the best way in the production process. It implies that goods should be produced at the least cost. By definition, points on boundary of the production possibility curve are productive efficient while points inside are inefficient.
- **Allocative efficiency** implies that resources are devoted to the production of products most wanted by society (consumers). It refers to the actual position on the production possibility curve, and depends on the society preferences. Of importance is to note that any point that lies on the boundary is productive efficient while not all points on the boundary are allocative efficient. An example is when people desire more health services than defence services but yet more of the country's resources are devoted to producing defence services, such as combination though productive efficient is not allocative efficient.
- **Dynamic efficiency or economic growth** which is the ability to produce a larger total output - is reflected in a rightward shift of the production possibilities curve, as indicated by movement from boundary AB to CD on the following diagram.



An expanding resource supplies: labour force, stock of capital goods, and/or an increase in technical knowledge which characterize a growing economy will move the production possibilities curve outward and to the right. This permits more of both consumer and capital goods to be produced. Thus the economy will consume an increased quantity of the goods produced over time and hence standards of living will improve. Precisely, economic growth or dynamic efficiency makes the problem of scarcity less acute.

1.7 Opportunity cost - Making of choices imply foregoing other alternatives. That is, sacrificing the other alternative uses for resources. Opportunity cost refers to the next best alternative foregone when a choice is made. The opportunity cost principle states the cost of making a choice in terms of the next best alternative foregone. Therefore it's the real cost and not monetary cost. For example, if a gardener decides to grow carrots on his allotment, the opportunity cost of his carrot harvest is the alternative crop that might have been grown instead (e.g. potatoes).

Chapter 2

Economic systems

2.0 Introduction

While the nature of choices facing all societies are the same, societies sometimes adopt different methods of dealing with them. One method of answering these questions is through a market economy where choices are resolved by the free play of market forces of demand and supply. That is, resources are allocated through the price mechanism, which simply means that individuals as consumers freely choose what they want to purchase and producers freely decide on what they want to provide. Because of this free play of purchase and production, market economies are often referred to as free enterprise or laissez faire ("leave-well-alone") economies. An alternative method of allocating resources is through the centrally planned economy in which the government issues directives or instructions indicating "what?", "how?", and "for whom?" to produce.

2.1 The market economy

The framework of market economies embodies the following institutions and assumptions:

- a) Private ownership of property,
- b) Freedom of enterprise and choice,
- c) Self-interest as the dominant motive,
- d) Competition,
- e) Reliance upon the price system, and
- f) A limited role for the government.

Laissez faire means "leave-well alone" hence market economies are characterized by an almost total lack of government intervention.

2.1.1 Advantages

- a) There is consumer sovereignty, that is, a market economy allocates scarce resources according to consumers' wants. "The consumer is king". P. Samuelson
- b) Producers have an incentive through profit to respond quickly to changes in consumer demand
- c) Competition forces producers to produce high quality products at low cost.
- d) Resources are allocated to their most efficient use through the price mechanism.

2.1.2 Disadvantages

- a) There is elimination of the poor from consumption. That is, people with no money to pay for certain goods will be eliminated from the consumption of those goods and even basic goods.
- b) Self interest may lead to great inequalities in the distribution of income and wealth.
- c) There is likely to be exploitation of consumers through overcharging, short weighing and misleading advertising.
- d) Production is for profit, therefore there will be non-production of public goods and under-production of merit goods.

2.2 The centrally planned economy - Centrally planned economies are characterised by

- a) Government ownership of the means of production.
- b) Government provision of goods and services.

- c) Production is for use rather than for profits.
- d) Non-price rationing mechanisms, that is, goods are distributed according to need and not ability to pay.
- e) Government control and planning is through a central planning board credited to control coordinate and plan all economic activities.

2.2.1 Advantages

- a) It is sometimes suggested that centrally planned economies are likely to have greater equality in the distribution of income and wealth.
- b) There is provision of public and merit goods.
- c) It is claimed that centrally planned economies are likely to be far more stable than market economies
- d) The production and consumption of demerit goods which impose relatively large social costs on society can be eliminated or prevented.

2.2.2 Disadvantages

- a) There is nobody who has power over the government such that even if it fails, it is answerable to nobody.
- b) Where there are no incentives, people are not motivated to work.
- c) Without competition producers will be inefficient and produce poor quality goods. As result, resources will be utilized inefficiently.
- d) Complications in planning for the whole economy arise, that is, planning is a difficult task and there are too many stages of decision making - bureaucracy or red tape.

2.3 The mixed economy

Neither pure market economy nor pure centrally planned economy exists in the real world. This is because political authorities in most countries exercise economic functions e.g. controlling prices. However, it is useful to study the economic systems in their extremes such that by making them as models we can approach the realistic situations step by step.

When we use the term mixed economy, it is usually applied to economies where there is a significant component of both market and central planning features of production. The economy allows private ownership of property by allowing a private sector to exist and provide private goods and services for profit. The public sector provides public and merit goods.

2.3.1 Reasons for government intervention in a market economy

The government should intervene in the market economy and play the following roles:

- a) Distributive role, that is, to ensure a fair or equitable distribution of income between the poor and the rich.
- b) Allocative role, that is, to allocate some of the economy's resources to the production of public and merit goods otherwise not provided in a market economy.
- c) Stabilisation role, that is, to control fluctuations in economic activity such as stabilising prices and reducing unemployment.
- d) Regulatory role, that is, to maintain law and order which create an environment conducive for business.

The above reasons of government intervention are rooted in the concept of market failure. **Market failure** refers to those situations in which the conditions necessary to achieve efficiency in the allocation of resources in the market economy fail to exist. It is believed that the market left to itself is very unlikely to operate efficiently. There is a tendency to over produce some goods and under produce others. Factors that bring about the failure of markets include: -

- a) The existence of public goods and externalities.
 - b) Imperfect competition e.g. monopolies.
 - c) Imperfect information and uncertainty.
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Chapter 3

Demand and supply

3.0 Introduction

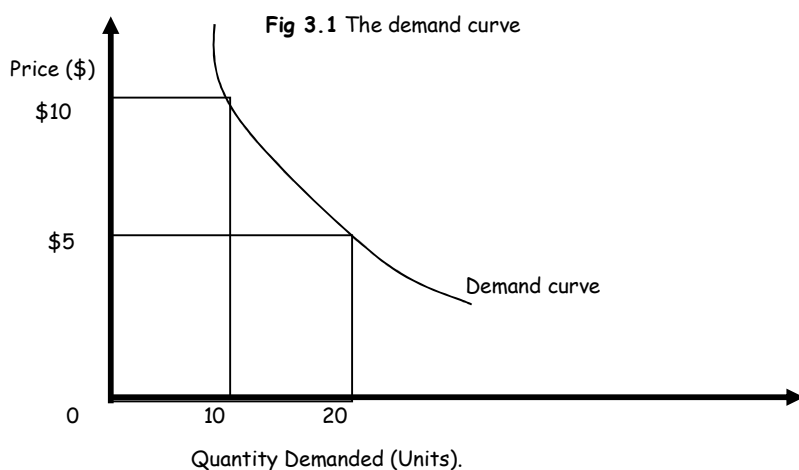
According to Carlyle T "it is easy to train an economist; teach a parrot to say, demand and supply". This could be an understatement of an economics education. However there is something to be learnt from Thomas Carlyle's statement on the central role played by demand and supply in economics.

3.1. Theory of demand

Demand is not the same as desire, willingness or want. Economists are interested in effective demand which can be described in terms of willingness or desire coupled by the ability to purchase a product or service. **Demand** is the amount of a good that consumers are willing and able to buy at a given price. Effective demand = Willingness + Ability. Willingness only = Latent demand. Ability only = Potential demand.

3.1.1 The law of demand

It states that, "other things being equal, more will be demanded at a lower price than at a higher price". This describes a negative or inverse relationship between price and quantity demanded. As price falls, the quantity demanded rises. Conversely, as price increases the corresponding quantity demanded falls. In other words, the demand curve is downward sloping from left to right indicating that as price falls, more will be demanded.



The downward sloping demand curve implies that a fall in price from \$10 to \$5 will lead to an increase in the number of units demanded from 10 units to 20 units.

3.1.2 Why the demand curve is downward sloping

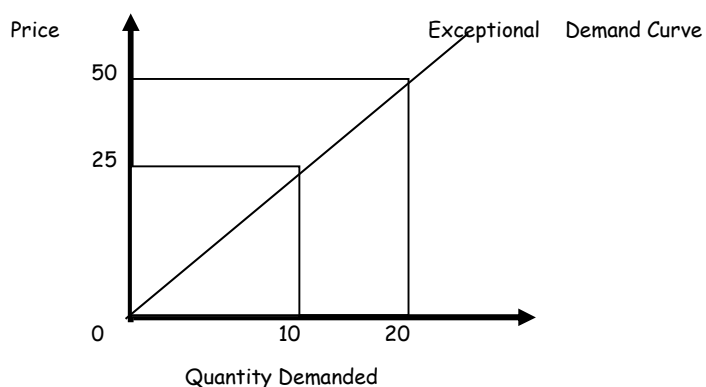
More is demanded at a lower price than a higher price because: -

- a) Common sense and ordinary observations tells us that consumers prefer cheaper products to dearer one. This is because price is often an obstacle which deters people from buying hence the higher the obstacle, the less will be bought.
- b) At a lower price, a given amount of money will buy more goods than at a higher price. For instance, \$100 can buy 10 mangoes at \$10 each while the same \$100 can buy 20 mangoes at a reduced price of \$5. Thus the purchasing power of money (buying power) increases as price decreases. This increased purchasing power can be equated to an increase in real income and hence is seen as the 'income effect of a price fall'.
- c) Consumers tend to substitute cheap products for dear products. For example, a fall in the price of butter will provide consumers an incentive to substitute butter for margarine which is now relatively expensive. Purchases of butter will increase as a result and this is referred to as the 'substitution effect of a price fall'.
- d) Utility is the satisfaction derived from the consumption or use of a product as a consumer consumes successive units of a product, the additional satisfaction derived from that consumption declines. Thus consumption is subject to diminishing marginal utility hence consumers will only buy additional units of price is reduced.

3.1.3 Exceptional demand curves

Exceptional demand curve do not confirm with the law of demand. They have a positive slope, that is, the curve slopes upwards from left to right as follows:

Fig 3.2 Exceptional demand curve



The demand curve slopes upward indicating that as the price rises, quantity demanded will also increase. Examples include: -

i) Ostentatious Goods of Goods with a "Snob - appeal"

Some people buy expensive goods simply because they are expensive. The ownership of such goods put them in a rather exclusive class. Where goods are bought for snobbish reasons, a fall in price might cause them to lose their appeal and hence demand decreases with decreasing price and increases with increasing price.

ii) Speculation or expectations.

If a price increases in the short term while they are expected to further increase in the near future, consumers may demand more at the current increased price in order to beat future price increases. Such is the behaviour of buyers in the stock exchange market where falling share prices will lead to a decline in demand because people expect the trend to continue that is, they expect to buy at even lower prices. An increasing share prices will lead to an increase in demand with people expecting the bull-run to continue, that is, they expect to sell at a much higher price.

3.1.4 The determinants of demand

The amount of a good demanded depend on:

- The price of the good (PX) - the higher the price the lower the quantity demanded and vice-versa.
- The price of other goods (substitutes and complements) (Py). Substitute goods serve the same purpose and are competitive in demand e.g. tea and coffee, while complementary goods are jointly demanded e.g. camera and film. An increase in the price of tea will increase demand for coffee while an increase in the price of cameras will lead to a reduced demand for films. Thus, the price of one affects the demand for the other.
- The income of consumers (Y) - a rise in income increases demand for superior or normal goods while demand for inferior goods will decrease.
- Consumer tastes and preferences (T) - changes in fashion may reduce demand.
- Advertising (A) - its purpose is to increase sales by increasing demand
- Availability of hire purchase finances (H) - e.g. 0% deposit scheme increases demand for durable goods such as TV sets.
- Population size and composition (N).
- Expectations on future price increases or shortages (E) raise current demand, as people want to beat the expected shortage or price increase.

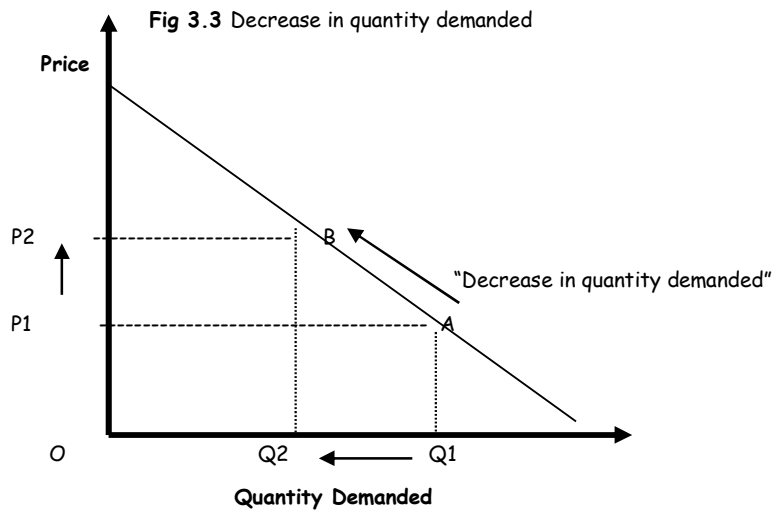
****All this can be summarised in the demand function:

$$Q_d = f(P_x, P_y, Y, T, A, H, N, E)$$

3.1.5 Changes in the quantity demanded

For any product a change in quantity demanded is always caused by a change in its price. A change in quantity demanded therefore refers to a movement along an existing demand curve. That is it refers to the nature of the demand curve's slope. For example movement from point A to B along the same demand curve is described as a change in quantity demanded.

A change in price never shifts the demand curve for that good. It results in a movement up or down the demand curve and is referred to as a change in quantity demanded.



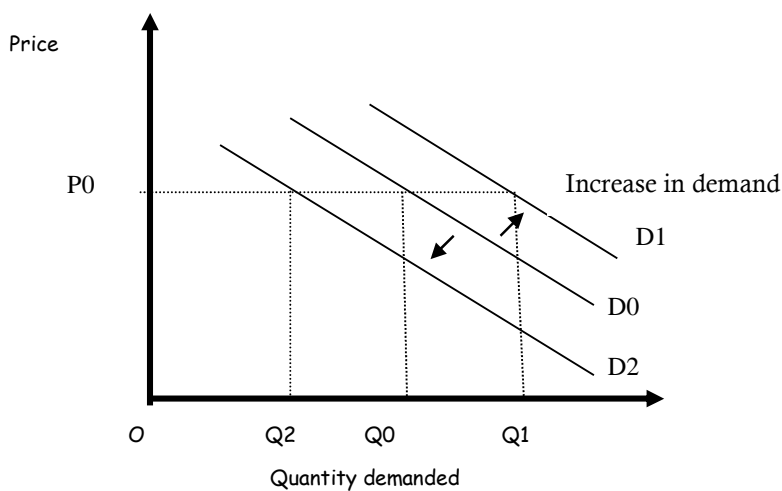
Price reinforces the law of demand. A movement down the demand curve is an increase in quantity demanded, while a movement up the demand curve is a decrease in quantity demanded

3.1.6 Changes in demanded

This does not refer to the nature of the demand curve's slope but to the movement of the curve either to the right - meaning an increase in demand or to the left - implying a decrease in demand. An increase in demand means that more is now demanded at each and every price than before while a fall in demand means that less is demanded at each and every price than before.

A demand curve shifts only if there is a change in factors influencing demand other than the price of the commodity. For example, changes in consumer income, consumer tastes and preferences, prices other goods, advertising etc. A shift to the right implies an increase in demand while a shift to the left is a decrease in demand.

Fig 3.4 Changes in demand



A change in demand is always caused by a change in at least one of the conditions of demand, which are: -

i) Changes in household disposable income (Y)

The level of income determines the demand for most commodities. If income rises, demand for normal goods will increase while demand for inferior goods will decrease. However, disposable income is what is important. It refers to the actual amount that a household has to spend on purchasing goods. Changes in government policy on taxation can cause changes in demand since it influences disposable income.

ii) Changes in prices of other goods

Goods are related as substitutes or complements. Substitute goods are competitively demanded that is they serve the same purpose and therefore can be used interchangeably for example beef and chicken. Complementary goods are those goods used or consumed jointly such as cameras and films. When two products are substitutes, the price of one product and the demand for the other are directly related. For example, an increase in the price of beef will force consumers to buy less beef and this will increase the demand for chicken.

When two products are complements, the price of one product and the demand for the other are inversely related. For example if the price of cameras falls, demand for cameras will increase and as a result demand for films will also increase with people wanting to use their cameras.

iii) Advertising

A successful advertising campaign will move the demand curve to the right because advertising aims at increasing consumption by the regular customers as well as to more in more new customers.

iv) Changes in tastes and fashion

For certain goods such as clothing, changes in fashion can bring about marked demand changes. The more fashionable a good becomes the more demand for it will increase and vice versa.

v) The availability of hire purchase finance

The demand for most durable commodities such as television sets depend very much on the availability of hire purchase facilities. Any changes in the terms in which this type of finance is obtained will have a marked effect on demand for such goods as TV sets.

vi) Changes in population

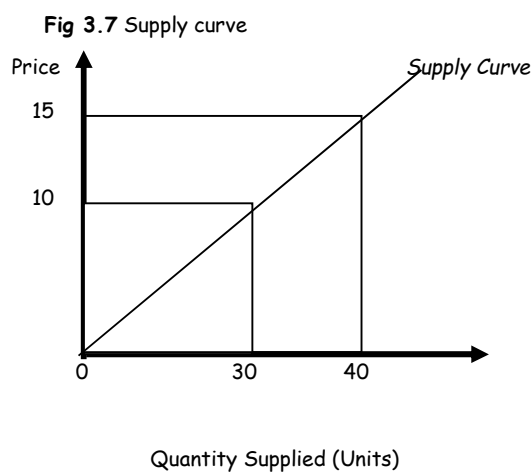
This has a long term effect and changes in the size and age distribution will affect both the total demand of goods and the composition of demand. For example if the proportion of children increase in a society, more education will be demanded.

3.2 Theory of supply

We now look at what quantity is going to be supplied at any given price during a period of time. The producer is out interest. It does not mean that one offers all that has been produced for sale. Supply is the amount of a product a producer is willing and able to produce and make available for sale at a given price during a specified period.

3.2.1 The law of supply

It states that, "Other things being equal, more is supplied at a higher price than at a lower price". This implies a positive or direct relationship between price and quantity supplied. As a result the supply curve is upward sloping from left to right.



A price increase from \$10 to \$15 will lead to an increase in quantity supplied from 30 units to 40 units.

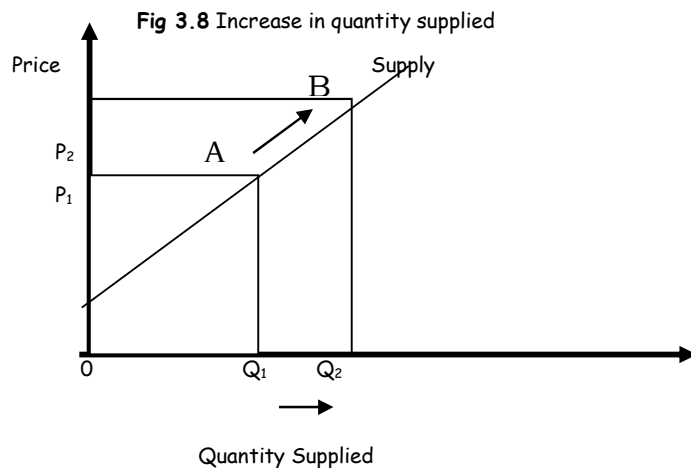
3.3.1 Why the supply curve is upward sloping

- a) It is assumed that firms produce for profit and other things being equal, at higher prices it becomes more profitable to expand and supply more.
- b) At higher prices, it becomes profitable for marginal firms, that is, firms which can not cover their costs at lower prices, to undertake production. Therefore as price rises more firms will enter the industry and market supply will increase.

3.3.1. Determinants of supply - Supply is influenced by (a) price of the commodity and (b) conditions of supply. Price determines the shape of the curve that is, its upward slope from left to right. Conditions of supply determine the position of the curve within the axes.

(a) Price of the commodity.

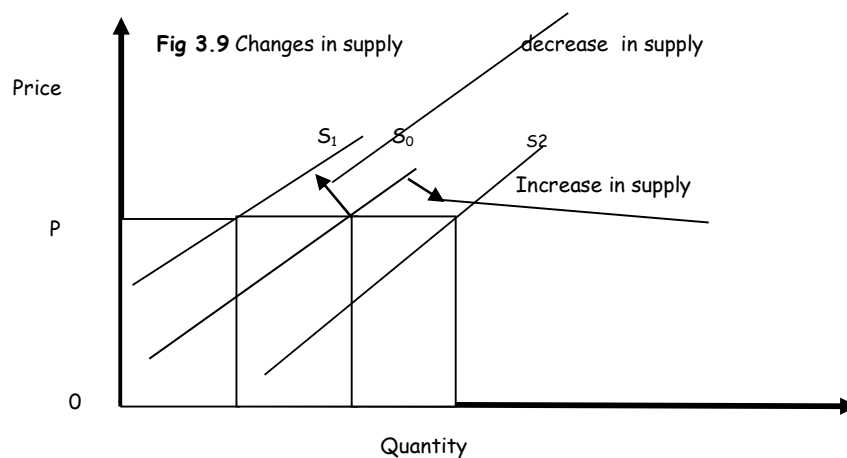
This factor reinforces the law of supply normally more of a commodity is supplied the higher its price. A change in a commodity's price will lead to a contraction or extension of supply that is a movement along the existing supply curve. Therefore price is a determinant of quantity supplied.



If the price increases from P_1 to P_2 , quantity supplied will increase from Q_1 to Q_2 . This is termed an extension of quantity supplied. Conversely, a change in quantity supplied from Q_2 to Q_1 is a contraction in quantity supplied.

(b) Conditions of supply

When conditions of supply change, then supply will either increase or decrease. An increase in supply means that more is supplied at each and every price than before while a decrease in supply would mean that less is supplied at each every price.



Note that in the case of a change in supply, price does not change but it is the supply curve which either shifts to the left or to the right. A leftward shift from S_0 to S_1 is a decrease in supply while a rightward shift from S_0 to S_2 represents an increase in supply. Changes which bring about changes in supply include: -

(i) Change in the level of technology

Improvements in the level of technology reduces the cost of production and increases productivity hence more will be produced so that more is likely to be supplied at any price.

(ii) Change in the price of factors of production (cost of production)

Other things being equal, a change in costs will change the level of profit available from producing any particular commodity specifically a rise in costs will reduce profits and cause some firms to cut back on output while other firms will stop producing altogether. Thus, a rise in the price of factors of production will lead to a decrease in supply. (a shift to the left). Conversely a fall in costs will lead to higher profits at any given price leading to an increase in supply (a shift to the right).

(iii) Entry by new firms into the industry

As new firms start producing a particular product, market supply will increase. If firms leave the industry, e.g. during a recession when some firms may close down, the supply curve will shift to the left.

(iv) Government policy

Taxation can be regarded as an increase in the cost of production and hence shifts the supply curve to the left. On the other hand, subsidies are seen as a reduction of the cost of production thereby they shift the supply curve to the right.

(v) Weather and other changes resulting from nature

Agricultural commodities are subject to the weather prevailing during production. Production will fluctuate because of drought years and good year and supply will change following these fluctuations. Thus changes from nature such as floods, droughts etc. cause the shifting of the supply curve of agriculture produce to the left. Human conditions such as war, fire and political unsuitability also affect supply.

(vi) Prices of other goods

When the price of a commodity does not change while that of another commodity increases, it means that its now profitable to produce the commodity whose price has gone up. Resources will be shifted from the production of the commodity whose price remains unchanged to the production of the more profitable commodity. This shifts the supply curve of the static-price commodity to the left.

3.3 Determination of equilibrium price and quantity

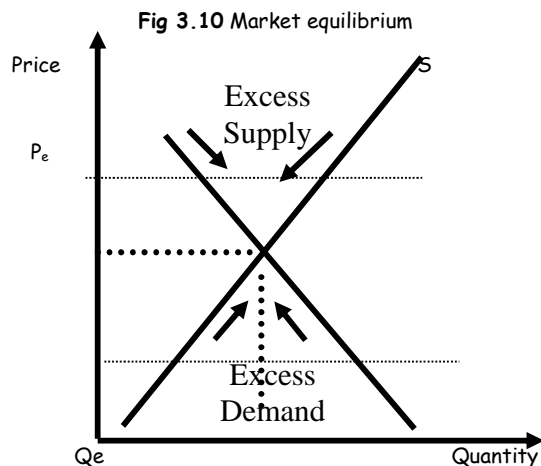
Price is not the same as value because value is relative from one individual to another. In economics the price of a commodity or service is measured in terms of what is offered in exchange for it (price = value in exchange). Economists view the value of exchange as the price.

Within markets, prices serve the important functions of: -

- Signalling the information that allows all the traders in the market to plan and co-ordinate their economic activities.
- Creating incentives for buyers and sellers to behave in a manner which allows the market to operate in an orderly and efficient manner and;
- Rationing and allocating scarce resources between competing uses.

3.3.1. Market equilibrium price and quantity

The price where the amount consumers want to buy equals the amount producers are prepared to sell, or where quantity demanded equals quantity supplied ($Q^d = Q^s$) is the **market price**. Graphically the intersection of the demand curve and the supply curve for a product will indicate the equilibrium price and quantity.

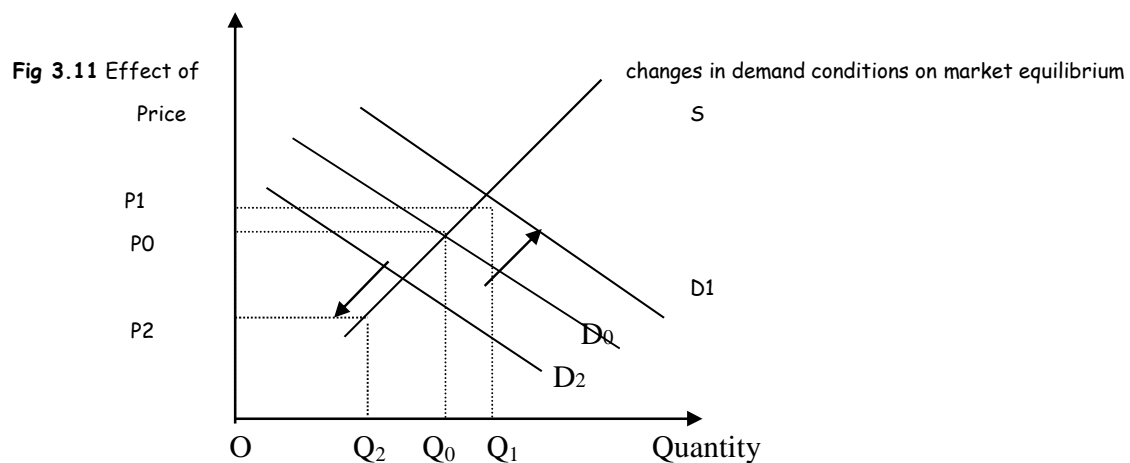


At prices above the equilibrium (P_e) there is excess supply while at prices below the equilibrium (P_e) there is excess demand. The effect of excess supply is to force the price down, while excess demand creates shortages and forces the price up. The equilibrium price (P_e) is unique in that it is the only price that can be maintained for long.

3.3.2. Changes in market equilibrium conditions - The market equilibrium condition can only be disturbed if there are changes in either the conditions of demand or the conditions of supply. In which case the demand curve or supply curve will shift to the left or to the right, changing the equilibrium price and quantity in the process.

a) Changes in Demand Conditions

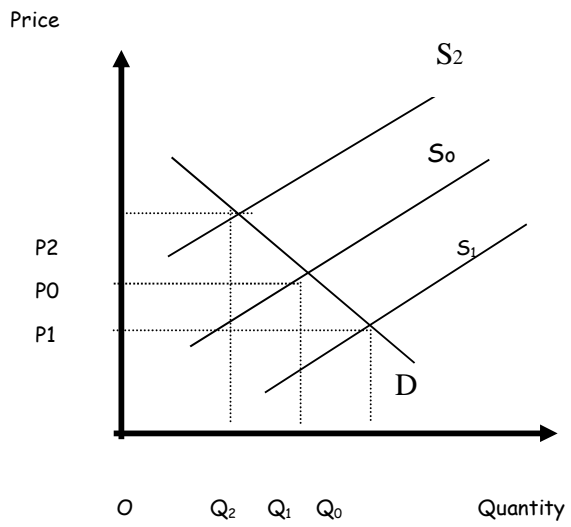
If the demand curve shifts to the right, for example, due to a rise in consumer income, the equilibrium price and quantity will increase while a shift of the demand curve to the left will result in a decrease in equilibrium price and quantity.



b) Changes in Supply Conditions

A shift of the supply curve to the right, for example, as a result of an improvement in the level of technology will reduce equilibrium price and increase the quantity while a shift to the left increases the price and reduces the equilibrium quantity

Fig 3.12 Effect of changes in supply conditions on market equilibrium



The government can offset movements towards the market equilibrium price by imposing price controls or regulations.

Chapter 4

Demand and supply: policy analysis and elasticity

4.0 Introduction

In the last chapter, we learnt that demand and supply are powerful tools in the determination of price. Prices fulfill an allocative function in distributing scarce goods between different users or consumers. The present chapter applies demand and supply analysis to a number of practical cases, which are chosen to illustrate the use of price theory and to give practice using it.

4.1 Price controls

Price control or regulations refers to the setting of an upper or lower limit on the price at which a particular product can be bought or sold. An upper limit is a price ceiling and a lower limit is referred to as a price floor.

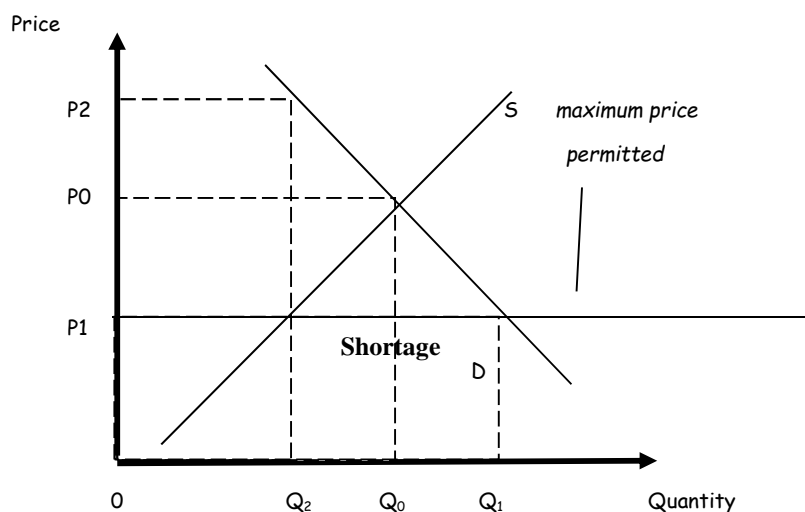
The objectives of price controls include:

- (i) To keep the prices of products at levels which can be afforded by most people especially prices of basic goods such as cooking oil.
- (ii) The maintenance of incomes of producers at higher levels than that which would be produced by market forces, e.g. incomes of farmers.
- (iii) To stabilize prices that is to control the persistent increase in the general level of prices.

4.1.1 Price ceiling or maximum price

In October 2001, the government brought back price controls (ceilings) on basic commodities such as bread, mealie-meal, cooking oil, soap and sugar. Those in support of price ceilings argue that they ensure a minimum standard of living to the majority poor who would afford to buy the basic commodities at the controlled price than the market price. However those who oppose the policy argue that it causes shortages.

Fig 4.1 The effect of a price ceiling



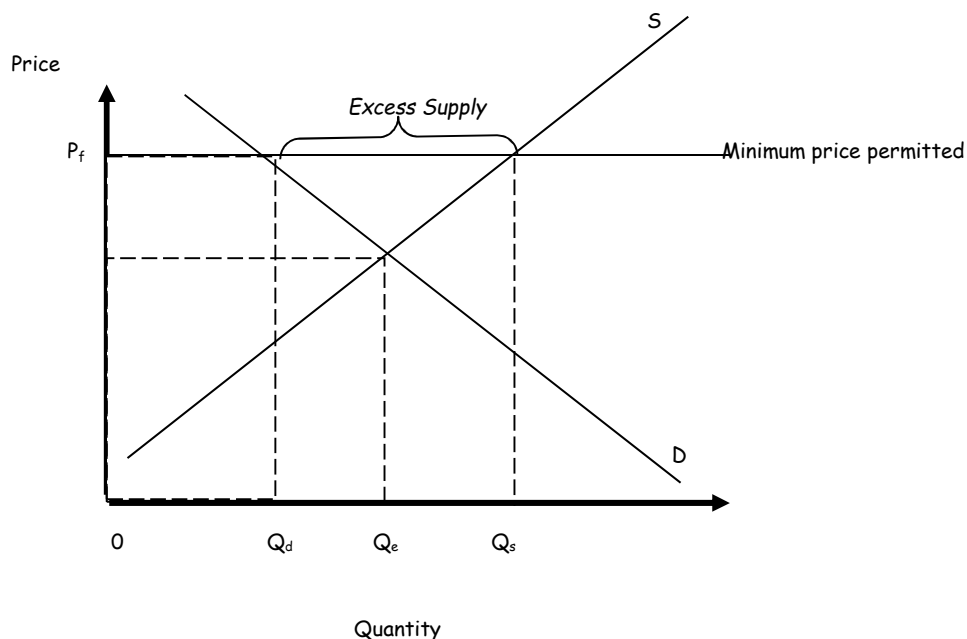
Although the equilibrium price is OP_0 , the government sets a maximum price of OP_1 . At the maximum price OP_1 , the quantity demanded (OQ_1) exceeds the quantity supplied (OQ_2) in other words, there is a shortage of the commodity. Since the price is not allowed to rise above OP_1 , there is no incentive to increase quantity so as to reduce the shortage. Some suppliers may exit the industry causing the supply curve to shift to the left thus the shortages might be even worse. On the demand side, more of the commodity is consumed than if market prices were charged.

To allocate the limited supply among the many buyers who want to purchase the good, the government may resort to some form of rationing e.g. issuing ration coupons. Frequently, black markets develop under these circumstances, and the commodity is sold illegally at a price higher than the legal maximum. Black marketers would buy OQ_2 at the controlled price of OP_1 . They would sell at the price OP_2 which is even higher than the market price OP_0 .

4.1.2. Price floor or minimum price

A price floor has an opposite effect to that of a price ceiling. It is set at a level above the equilibrium price below which it may not fall. The most common reason for imposing a price floor is to guarantee some minimum income to the supplier of the product. This is the reason why the government imposed price floors on agriculture produce. Similarly, supporters of minimum wage legislation argue that incomes of the poor are raised by introducing a floor below which wages may not fall.

Fig 4.2 The effect of a price floor



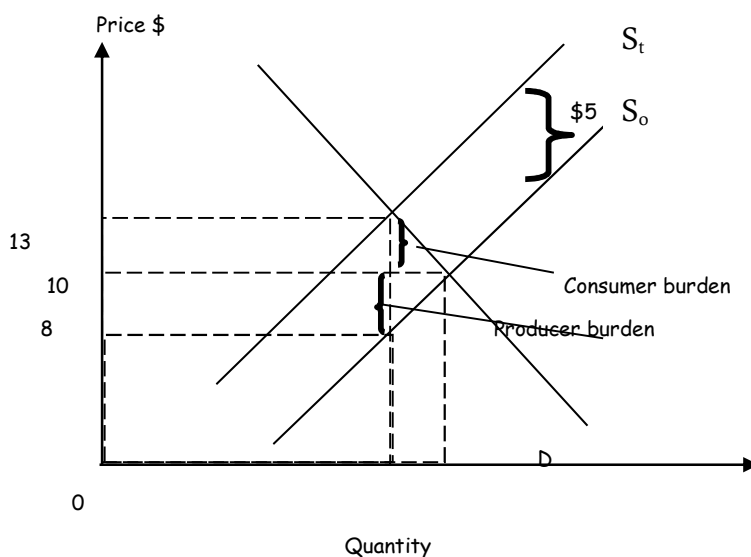
As is evident, the equilibrium price of the commodity is OP_2 . Nonetheless, the government sets a minimum price of OP_f . At the minimum price, the quantity supplied (OQ_s) exceeds the quantity demanded (OQ_d); in other words excess supply will result. Consider a minimum wage policy as an example of the minimum price. At the market wage rate OP_e , the level of employment is OQ_e . With the introduction of

the minimum wage at P_f , the demand for labour and the level of employment will fall to OQ_d . The number of workers who are involuntarily unemployed is Q_dQ_s , that is people who are willing to work in the industry but are not employed.

4.2 Excise tax

Excise tax is a tax levied on expenditure hence it's a type of indirect taxes. It is levied on goods such as alcohol, spirits and cigarettes. In this case, we will use demand and supply analysis to demonstrate the incidence of such a tax as excise tax. The term 'incidence of taxation' means the individual where the tax falls upon, that is who is legally responsible for paying it. In the case of cigarettes, for example, it can be shared between the producer and the consumer. Consumers usually pay for the tax in the form of a higher price while producers pay in the form of receiving a lower price. The distribution of the tax burden between the consumer and the producer can be determined using demand and supply curves.

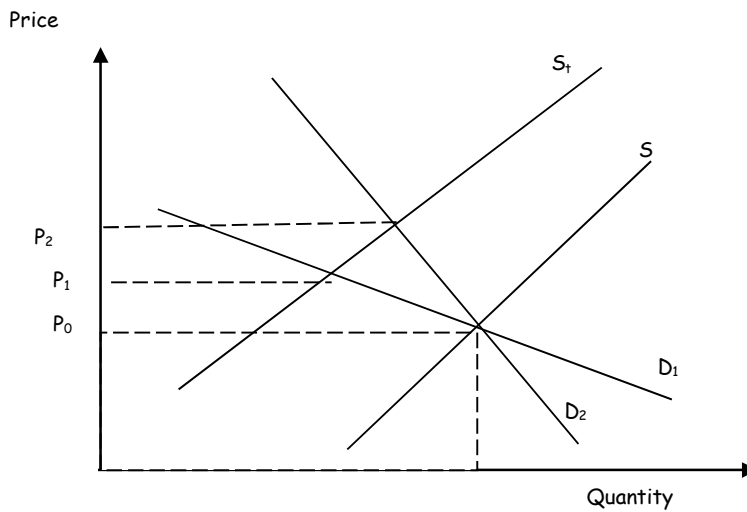
Fig 4.3. The incidence of an excise tax



Suppose that the market demand and supply curves for cigarettes are D and S_0 respectively, the equilibrium price will be \$10 per packet. If the government were to impose an excise tax of \$5 per packet, this tax will be collected from the producer hence the cost of production would increase by the same margin. The supply curve will be shifted upward by the amount of the tax, from S_0 to S_t . The post-tax price will be \$13 per packet - an increase of \$3 over its pretax level. Consequently, in this case, \$3 of the tax is passed on to consumers, who pay \$3 more for a packet of cigarettes. And \$2 of the tax is swallowed by the producer, who receives \$8 per packet after paying the tax. Therefore the incidence of this tax is such that consumers pay \$3 per packet while producers pay \$2 per packet of cigarettes.

But, is it always true that producers pass part of the tax on to consumers and absorb the rest themselves? On the contrary, in some cases, consumers may bear almost none of the tax (and producers may bear practically all of it). The result will depend on how sensitive the quantity demanded and the quantity supplied are to the price of the commodity - For example, holding the supply curve constant, the less sensitive the quantity demanded is to the price of the good, the bigger the portion of the tax that is shifted to consumers.

Fig 4.4 Elasticity of demand and the incidence of a tax



Before tax the price is OP_0 regardless of whether D_1 or D_2 is the demand curve. After the tax, the equilibrium price is OP_1 if the demand curve is D_1 , or OP_2 if the demand curve is D_2 . Clearly the increase in the price to the consumer is greater if the quantity demanded is less sensitive to price (D_2) than if it is more sensitive (D_1).

On the other hand, holding the demand curve constant, the less sensitive the quantity supplied is to the price of the good, the bigger the portion of the tax that is absorbed by producers.

4.3. Elasticity of demand

From the analysis of the effects on price of an excise tax, we noted that market demand curves vary in the sensitivity or responsiveness of quantity demanded to price. The sensitivity or responsiveness to change is what is generally termed elasticity. Elasticity of demand refers to the responsiveness or sensitivity of quantity demanded to changes in:

- a) price of the commodity,
- b) household disposable income and,
- c) prices of other related commodities.

It is from this description that we have the following distinct types of elasticity of demand.

4.3.1. Price Elasticity of Demand (PED)

Price elasticity of demand (PED) measures the degree of responsiveness of the quantity demanded of a commodity to changes in its price. PED is designed to be the percentage change in quantity demanded resulting from one percent change in price. Economists measure PED by the coefficient E_d in this price elasticity formula.

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

$$= \frac{(Q_1 - Q_0)}{(P_1 - P_0)} \times \frac{P_0}{Q_0}$$

We know from the down sloping demand curve that price and quantity demanded are inversely related. This means that the price elasticity coefficient of demand will always be negative for normal goods. Economists usually ignore the minus sign and simply present the absolute value of the coefficient.

Example

Calculate the price elasticity of demand when a change in price from \$400 to \$350 lead to an increase in quantity demanded from 800 to 1000 units.

The original P = \$400 and change in P = 350 - 400 = -50

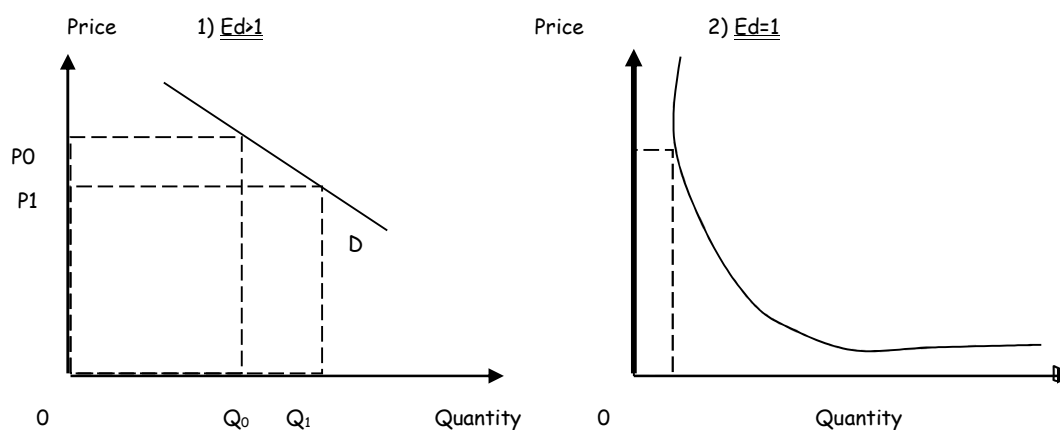
The original Q = 800 and change in Q = 1000 - 800 = 200

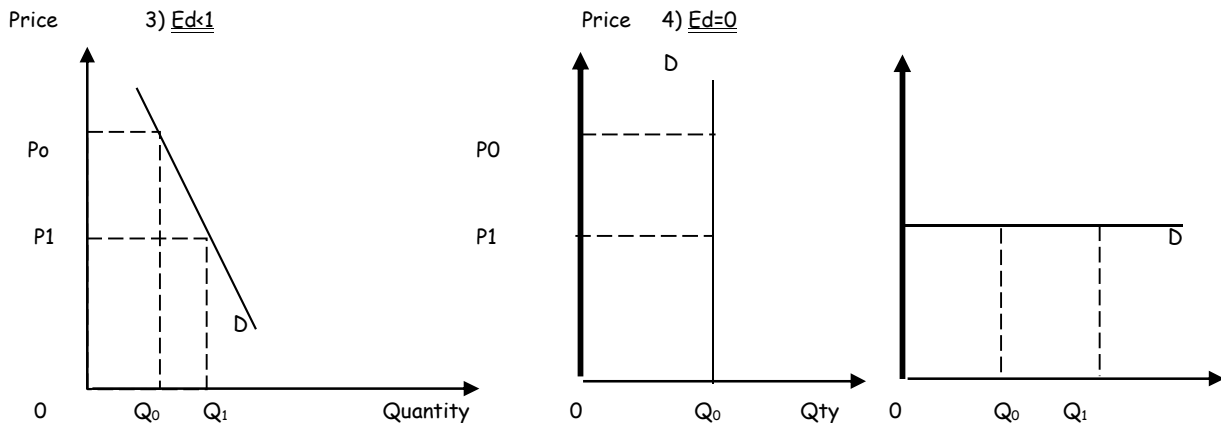
$$\begin{aligned} E_d &= \frac{200}{-50} \times \frac{400}{800} \\ &= \underline{-2} \end{aligned}$$

However the coefficient of elasticity is a ratio and the following are important concerning its implications. If:-

1. Ratio is greater than 1, demand is elastic ($E_d > 1$)
 2. Ratio is equal to 1 ($E_d = 1$) demand has unit elasticity (unitary elasticity)
 3. Ratio is less than 1 ($0 < E_d < 1$) demand is inelastic.
 4. Ratio is 0 ($E_d = 0$) demand is perfectly inelastic.
 5. Ratio is infinite demand is perfectly elastic.
- These ratios can be represented on diagrams as follows: -

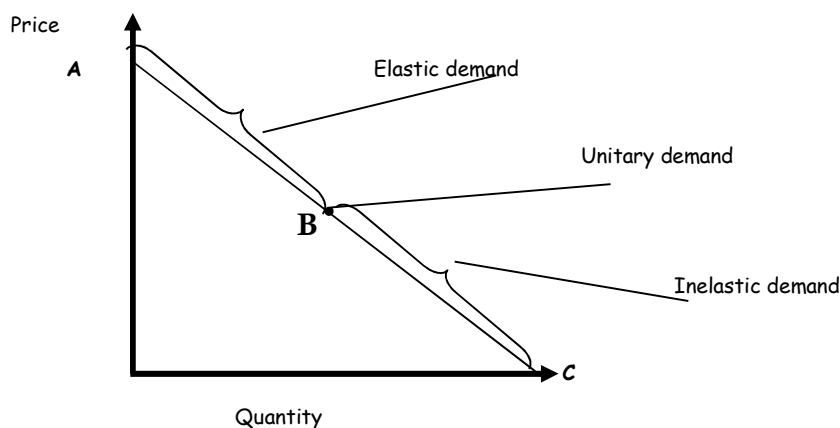
Fig 4.5 Representations of the different elasticities of demand





Demand curves are unlikely to have the same elasticity throughout except where demand curves have unit elasticity, perfectly inelastic or perfectly elastic. Normally, on any demand curve, elasticity of demand will be different at different prices as follows

Fig 4.6 Elasticity along a demand curve



The value of elasticity decreases from infinite at point A through unitary at point B to zero at point C. Whether demand for a product is elastic or not will depend on:

(a) Availability of substitutes at the ruling price

The greater the number of substitutes available for a product, the greater will be its elasticity of demand. Also the closer the substitutes are, the greater the elasticity of demand. For example, demand for products like salt and insulin which has no close substitutes is relatively inelastic while demand for margarine which has butter or jam as substitutes tend to be elastic.

(b) The proportion of income spent on the product

Demand for goods on which a small proportion of income is spent e.g. match boxes tend to be inelastic while demand for those goods where a larger proportion of income is spent tend to be elastic. Thus the greater the proportion of income which the price of the product represents, the more elastic the demand will tend to be.

(c) Addiction or habit forming

Where a product is habit forming e.g. alcohol or cigarettes, this will tend to reduce its elasticity of demand. In extreme cases of addiction demand may become perfectly inelastic.

(d) Necessities and luxuries

Demand for luxuries tends to be elastic while that for necessities tend to be inelastic. Necessities are those goods which people can not do without and at the same time can not increase consumption even if price falls. For example, a family which eats three loaves of bread every morning will have to get the same amount in both the event of a price rise and a price fall. Luxuries are goods that people can do without and hence a rise in price may mean that people cut consumption.

4.3.2. Income Elasticity of Demand (YED)

Income elasticity of demand (YED) measures the degree of responsiveness of the quantity demanded of a product to changes in consumer disposable income. The value of income elasticity can be calculated by the following formula.

$$\begin{aligned} \text{YED} &= \frac{\% \text{ change in quantity demanded}}{\% \text{ change in income}} \\ &= \frac{(Q_1 - Q_0)}{(Y_1 - Y_0)} \times \frac{Y}{Q} \end{aligned}$$

Categories of income elasticity of demand

These depend on whether goods are normal or inferior.

(a) Positive Income Elasticity (YED > 0)

As income increases, demand also increases while decreasing income lead to a decreasing demand. This positive relationship shows that the commodity under consideration is a normal or superior good.

(b) Zero or near zero income elasticity (YED = 0)

In this case, the quantity demanded of a commodity remains constant as income changes. This is typical of basic goods such as salt and cooking oil.

(c) Negative income elasticity (YED < 0)

In this case demand falls with a rise in income. The inverse relationship between income and quantity demanded shows that the good in question is an inferior good e.g. black and white TV.

4.3.3. Cross Elasticity of Demand (CED)

Cross elasticity of demand measures the degree of responsiveness of the quantity demanded of one good A to changes in the price of another good B. It is given by the formula.

$$\text{CED} = \frac{\% \text{ change in quantity demanded of A}}{\% \text{ change in price of B}}$$

A positive value shows that the demand for good A rises with a rise in the price of B and indicates that the two goods are substitutes. A negative value indicates that the two goods are complements. A zero value indicates that a change in the price of commodity B will not affect the quantity demanded of commodity A showing that the goods are not related.

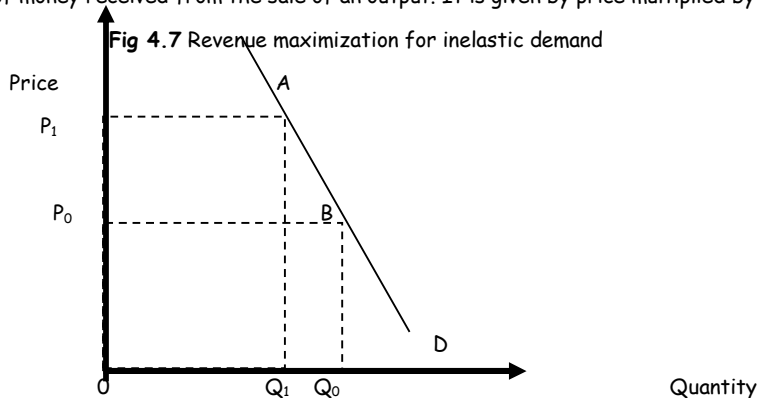
Table 4.1 Summary of the coefficients of elasticity

Terminology	Value	Verbal description
Price elasticity of demand		
Perfectly inelastic	Zero	Quantity demanded does not change as price changes
Inelastic	Greater than zero but less than one	Quantity demanded changes by a smaller percentage than does price
Unit elasticity	$PED = 1$	Quantity demanded changes by the same percentage as price
Elastic	$1 < PED < \infty$	Quantity demanded changes by larger percentage than does price
Perfectly elastic	$PED = \infty$	Buyers are prepared to buy all they can at some price none at any other price.
Income elasticity of demand		
Inferior good	$YED < 0$	Quantity demanded decreases as income increases
Normal good	$YED > 0$	Quantity demanded increases as income increases
Cross elasticity of demand		
Substitute	Positive	
Complement	Negative	

4.3.4 Application of elasticity of demand concepts

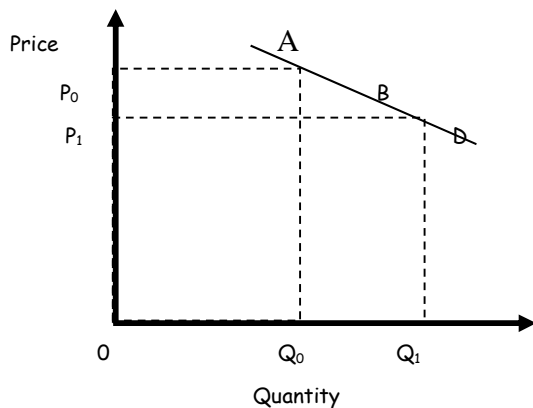
a) Price elasticity of demand and the business person

If a firm faces an inelastic demand curve, then pushing up price will always increase total revenue. Total revenue (TR) or total sales is the amount of money received from the sale of an output. It is given by price multiplied by quantity ($TR = P \times Q$).



If price is increased from P_0 to P_1 , rectangle B shows the revenue that has been given up by increasing the price and rectangle A is the revenue gained. Rectangle A greatly outweighs rectangle B, therefore if demand is inelastic a higher price must be charged in order to maximise the total revenue. Conversely, if demand is elastic, then lowering the price will increase total revenue.

Fig 4.8 Revenue maximization for elastic demand



If demand is elastic, total revenue increases as price falls. Rectangle A will be given up and rectangle B will be gained if price is reduced from P_0 to P_1 . Thus if demand is elastic, reduce the price in order to maximise total revenue.

b) Price elasticity of demand and government policy

Government levies indirect taxes such as value added tax (VAT) and excise duty on expenditure in order to raise revenue. To maximize on revenue collected the government should levy a low tax on goods with elastic demand while laying a high tax on goods with inelastic demand such as alcohol and cigarettes.

c) Price elasticity of demand and monopoly price discrimination

A discriminating monopolist will maximise total revenue by charging high price in the market where demand is inelastic and a low price in the market where demand is elastic. For instance, ZESA tariffs in high and low density residential areas or cell phone peak and off peak call charges.

d) Importance of income elasticity of demand

Income elasticity is used when firms are producing or stocking during business cycles. Business cycles refer to the fluctuations in economic activities through periods of peak, recession, depression, recovery, peak and so on. Superior goods will be produced during recovery and peak periods when real incomes rise while inferior goods are produced during recession and depression periods when real incomes will be decreasing.

4.5 Price elasticity of supply

Elasticity of supply measures the degree of responsiveness of quantity supplied to changes in price. It is the relationship between the proportionate change in price and the associated proportionate change in price and the associated proportionate change in quantity supplied.

The value of elasticity of supply can be calculated by the formula.

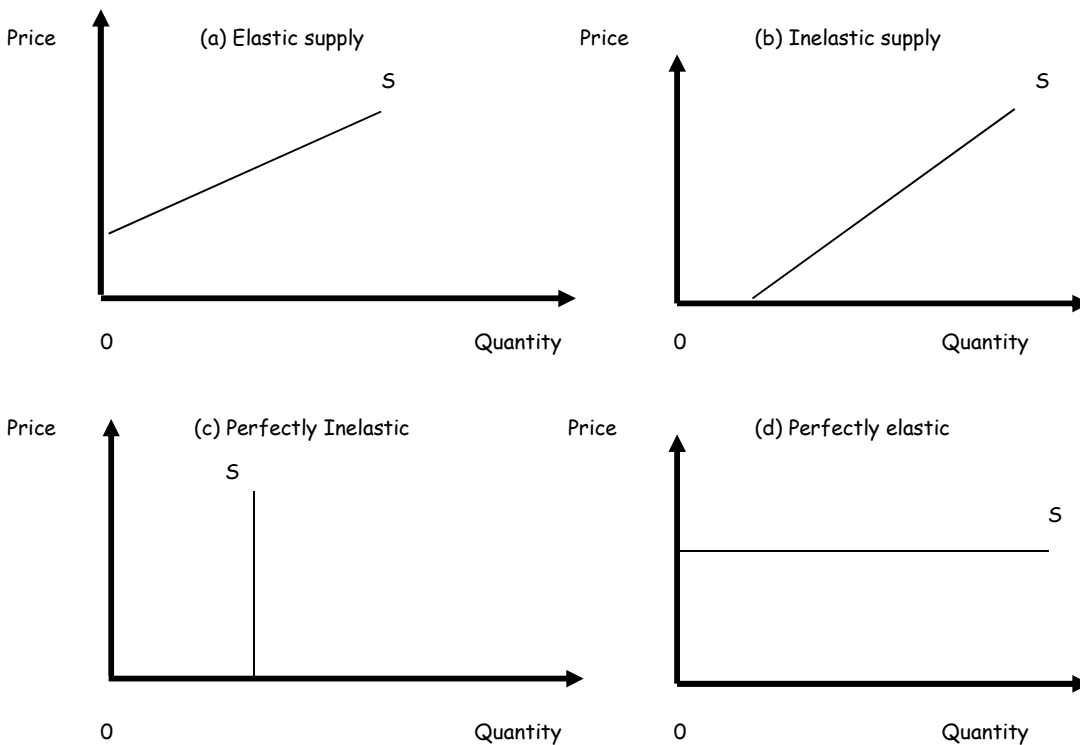
$$E_s = \frac{\% \text{change in the quantity supplied}}{\% \text{change in price}}$$

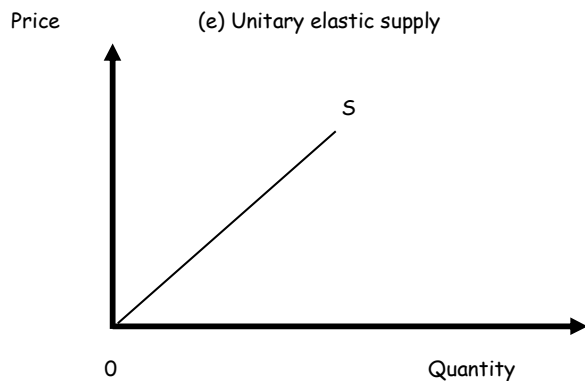
4.4.1. Classification of the coefficient of elasticity of supply

- (a) Where the proportionate change in quantity supplied is greater than the proportionate change in price, then supply is elastic.
- (b) Where the proportionate change in quantity supplied is less than the proportionate change in price, then, supply is inelastic.
- (c) Where the quantity supplied does not change as price changes, supply is perfectly inelastic.
- (d) Where the quantity supplied is infinity then supply is perfectly elastic.
- (e) Where the quantity supplied changes by the same proportionate as does proportionate change in price, then supply has unitary elasticity.

Graphically, any straight-line supply curve that meets the vertical axis will be elastic and its coefficient of elasticity value will be between one and infinity. A straight-line supply curve that meets the horizontal axis will be inelastic and its coefficient of elasticity value will lie between zero and one. Any straight-line supply curve through the origin will have unitary elasticity.

Fig 4.9 Diagrammatic representations of elasticity of supply





4.4.2. Determinants of elasticity of supply

- Elasticity of supply tends to increase with time. In the immediate market period or momentary period, there is insufficient time to change output and so supply is perfectly inelastic. In the short-run, plant capacity is fixed but output can be altered by adding increasing amounts of variable factors. Therefore supply is elastic. In the long run, all desired adjustments including changes in plant capacity can be made and supply becomes still more elastic.
- The higher the factor mobility, the greater will be the elasticity of supply. That is the ease at which factors or production can be moved from one use to another affect elasticity of supply.
- The more willing entrepreneurs are to take risks, the greater will be the elasticity of supply.
- Where suppliers are holding large stocks supply will be elastic.
- Natural constraints such as drought place restrictions on the elasticity of supply.

4.5 Consumer and producer surplus

Consumer surplus is the difference between what a consumer is willing to pay for a bundle of goods and what he actually pays, which is less. In other words, it is a saving for the consumer. Consider the following example that shows the price a consumer is willing to pay for each successive unit of a good.

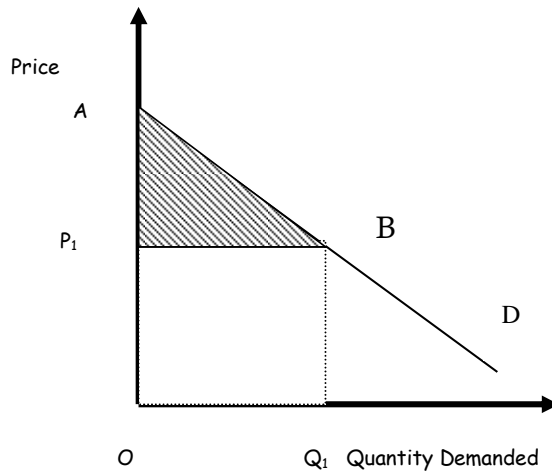
Table 4.2 Price schedule

Unit	1 st	2 nd	3 rd	4 th	5 th
Price	\$10	\$8	\$6	\$5	\$2

Suppose he buys 4 units. He is willing to pay \$10 for the first, \$8 for the second, \$6 for the third and \$5 for the fourth. In total he is willing to pay \$29. But when he buys all units at once, he pays only \$5 for each unit. This comes to \$20. The difference of \$9, which he does not pay, is consumer surplus.

Consumer surplus represents welfare gain for consumers because it represents satisfaction gained without having to pay for it. Refer to the following diagram:

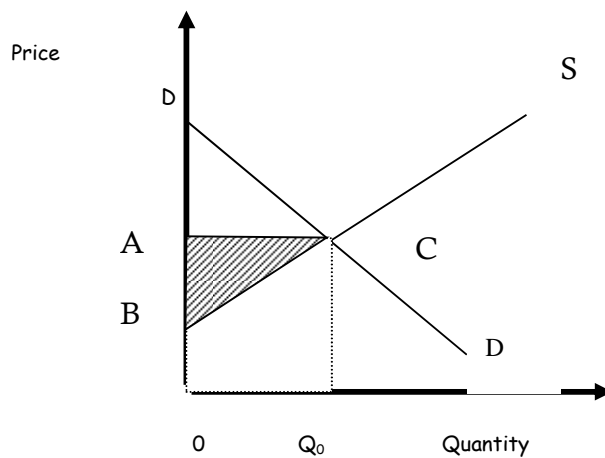
Fig 4.10 Consumer surplus



For the quantity OQ_1 , the consumer was willing to pay ABQ_1O . But he pays only P_1BQ_1O . Therefore he saves paying ABP_1 . When demand for a good is inelastic, the consumer surplus becomes greater.

The producer surplus is the payment made for any product over and above that, which is necessary for the supplier to supply the product.

Fig 4.11 Producer surplus



The producer surplus is represented by the shaded triangle ABC.

Maximum prices increase the consumer surplus while minimum prices increase the producer surplus. Thus maximum prices benefit consumers while minimum prices benefit producers.

Chapter 5

Theory of consumer behaviour

5.0 Introduction

Consumer behaviour is concerned with the way individuals or consumers behave when faced with the problem of scarcity. That is, it assesses how individuals try to maximise their levels of satisfaction using limited resources that they have at their disposal. The theory is the basis of explaining the law of demand, that is, why the demand curve is downward sloping or why people buy more at a lower price than a higher price. In this chapter we are going to outline the two approaches to consumer behaviour, namely cardinalist approach (marginal utility theory) and the ordinalist approach (indifference curve analysis). A downward sloping demand curve will be constructed using each approach as an illustration of why the demand curve slopes downward from left to right.

5.1 The marginal utility theory of demand

5.1.1. Assumptions

- a) Utility can be measured using cardinal numbers. A consumer can be said to derive 10 utils of satisfaction from the first drink, 8 utils from the second and so on. As a result the theory is also referred to as the cardinalist approach to consumer behaviour.
- b) The consumer is rational, that is, the consumer would want to maximise total utility, given the level of prices and income. This eliminates monomania which is behaviour when a consumer spends all his income on one product. A rational consumer will seek to spread his income over a variety of products in a manner that gives him the greatest amount of satisfaction.

5.1.2. Definitions

Utility is the satisfaction people get from consuming (using) a good or a service. It is subjective that is it depends on the consumer. For example, one consumer may derive satisfaction from smoking a cigarette while another person can develop a headache from cigarette smoke. Utility also differs with situations. An ice cold glass of water can be more satisfying when it is very hot but the same glass of water may yield less satisfaction when it is very cold.

- **Total utility** is the sum of the utilities derived from all units consumed.
- **Marginal utility** is the additional satisfaction people get from consuming an extra unit of a good. Marginal utility declines as more and more units of the same commodity are consumed. This is the **law of diminishing marginal utility**. The law of diminishing marginal utility states that as more and more units of the same commodity are consumed, a consumer derives less satisfaction from an additional unit of the commodity consumed than the previous unit.

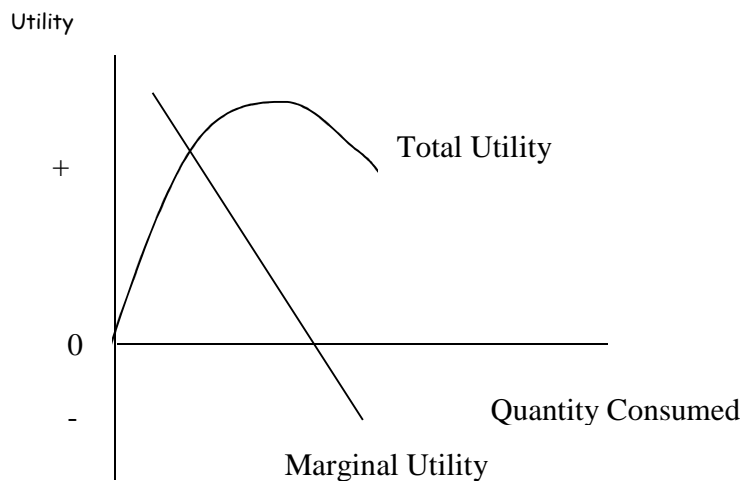
Following is a table and graph of the utilities an individual derives from drinking Coca-Cola at a birthday party.

Table 5.1 Total utility and marginal utility

Quantity Consumed	Total Utility	Marginal Utility
0	0	-
1	10	10
2	16	6
3	20	4
4	22	2
5	22	0
6	20	-2

The relationship between total utility and marginal utility as consumption increases can be reflected on the following diagram.

Fig 5.1 The relationship between total utility and marginal utility



5.1.3. The Utility Maximising Combination of Goods

The consumer who aims to maximise his utility will arrange his expenditure so that he derives the same utility from the last dollar spent on each good. This is ordinarily referred to as "value for money" in everyday language. This is achieved when ratio of the MU of the last unit consumed to the price of one good is equal to the same ratio of another good.

$$\frac{MU_A}{P_A} = \frac{MU_B}{P_B}$$

This is the principle of equi-marginal utility

Example

Consider a woman with a budget of \$100 and wants to spend it on apples (A) and bananas (B). The price of an apple is \$20 and that of a banana is \$10. If the woman's preferences are given in the table, the utility maximising combination of apples and bananas that exhaust her budget can be obtained as follows:

Table 5.2 Utilities derived from the consumption of bananas and apples

Quantity of Apples	MU_A	$\frac{MU_A}{P_A=20}$	$\frac{MU_A}{P_A=10}$	Quantity of Bananas	MU_B	$\frac{MU_B}{P_B=10}$
1	100	5	10	4	40	4
2	60	3	6	5	35	3.5
3	40	2	4	6	30	3
4	30	1.5	3	7	20	2
5	20	1	2	8	10	1
6	10	0.5	1	9	0	0

The woman would consume **2 apples and 6 bananas** if the price of an apple is \$20 and that of a banana is \$10. If the price of an apple is reduced to \$10, the woman would increase her consumption of apples from **2 apples to 4 apples**, while her expenditure on bananas is constant.

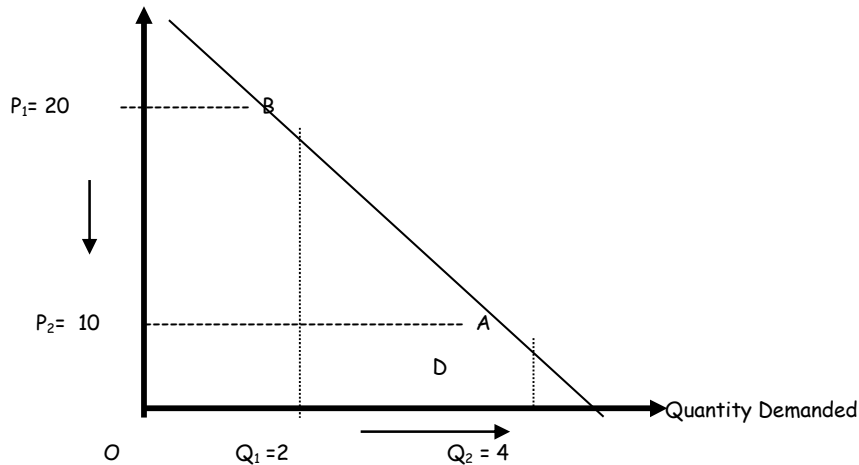
The woman's expenditure on apples at the two prices can be represented on the demand schedule and curve.

Table 5.3 Demand schedule for the woman

Price of Apples	Quantity Demanded
20	2
10	4

Fig 5.2 Demand curve for the woman

Price of apple



The demand schedule and curve shows the amount of a good one or more consumers are willing and able to buy at different prices.

5.2. The indifference curve analysis

In the 1930's, a group of economists came to believe that cardinal measurement of utility was not necessary. Consumer behaviour could be explained using ordinal numbers. This is because individuals are able to rank their preferences into first, second, third and so on. They preferred an ordinalist approach to measurement of satisfaction. As a result, this theory of consumer behaviour is also referred to as the ordinalist approach to consumer behaviour.

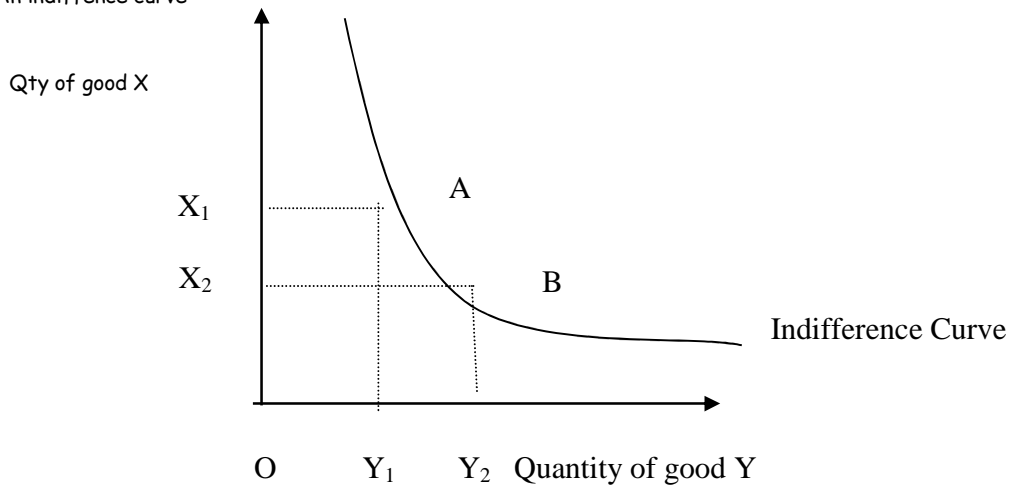
5.2.1 Indifference curves: What is preferred.

An indifferent curve represents all combinations or bundles of two commodities that yield the same amount of satisfaction to the consumer. The consumer derives the same amount of satisfaction from combinations of the two commodities along an indifference curve. In this way, the consumer will be 'indifferent' between these combinations. That is, the consumer can not prefer one combination to another simply because he gets the same amount of satisfaction. He can have any of those combinations on the curve.

Assumptions

- The consumer buys only two goods, X and Y.
- The consumer is rational, that is, given an income and a set of prices the consumer would aim to maximise total utility.
- The consumer is consistent and transitive in his choice. Given three bundles of commodities X and Y and the consumer prefers bundle A to B, there will be no time when the same consumer will prefer B to A (consistency). If the consumer prefers bundle A to B and B to C, the same consumer will prefer bundle A to C (transitivity).
- The consumer always prefer more of a commodity to less (more is better).

Fig 5.3 An indifference curve



The consumer derives the same utility from consuming bundle A or B. As a result he is indifferent between the two bundles A and B. Indifference curves have the following characteristics:

- They slope downward from left to right.
- They are convex to the origin.
- The slope of an indifference curve measures the rate of exchange of X for Y along the curve (marginal rate of substitution). As more units of good X are exchanged for additional units of good Y the consumer will prefer to have a greater amount of good Y to compensate for each unit of good X traded.
- Different indifference curves constructed on the same plane gives what is known as an indifference map. On an indifference map, indifference curves to the right entails a higher level of utility and are preferable. They represent higher combinations of the two goods and hence more is better.
- Indifference curves do not cross each other.

5.2.2 The Budget line: What Is Attainable

A budget line shows all the combinations of two commodities which can be purchased with a given money income. Assuming that a consumer must spend all of his income on one or two goods X and Y, it will be evident that

$$Q_x P_x + Q_y P_y = \text{Income} \quad \text{where: -}$$

Q_x = amount of good X the consumer buys

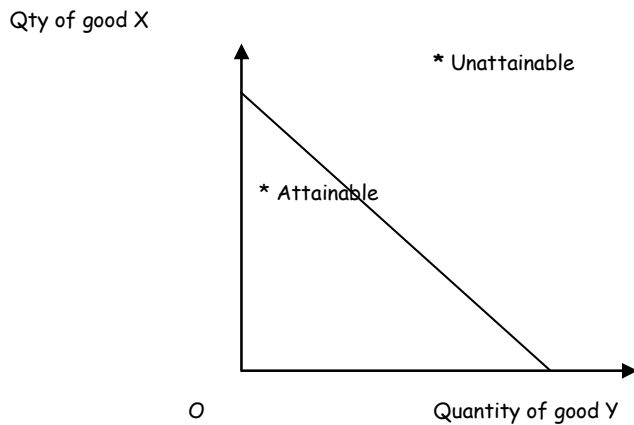
Q_y = amount of good Y the consumer buys

P_x = price of good X

P_y = price of good Y

This is an equation of a straight line, which can be represented by the following graph.

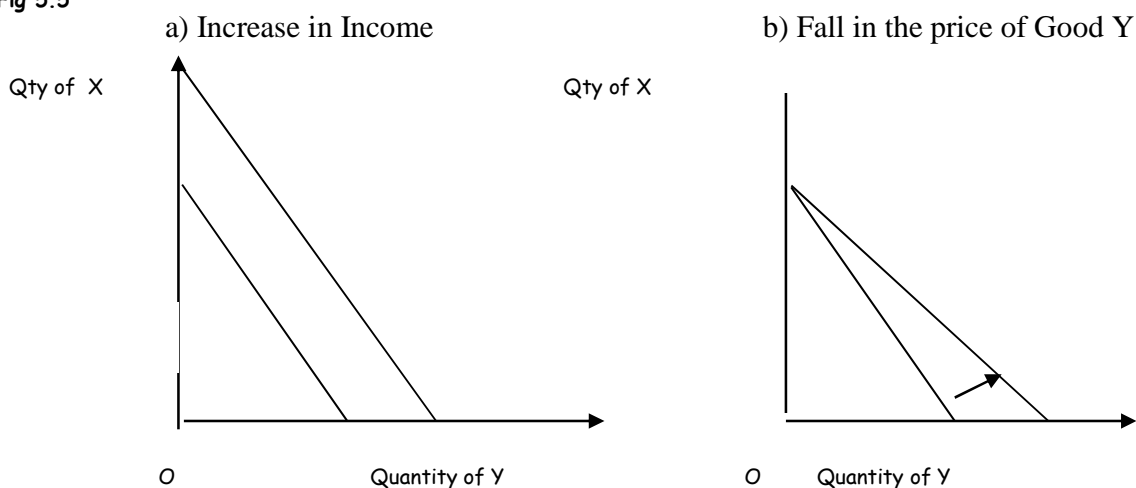
Fig 5.4 The budget line



Points outside the budget line, that is, points to the right of the boundary represent combinations of the two goods that are not affordable given the consumer's income. On the other hand, points inside the boundary are attainable but the consumer will not be spending all his income. Only points along the boundary represent combinations of the two goods when the consumer is spending all his income. Thus the location of the budget line varies with money income and price levels. Any changes in money income and or prices will change the position of the budget line.

A change in money income will shift the budget line while a change in price of one good will pivot the budget line while it remains anchored on the axis of the good whose price is held constant as illustrated below.

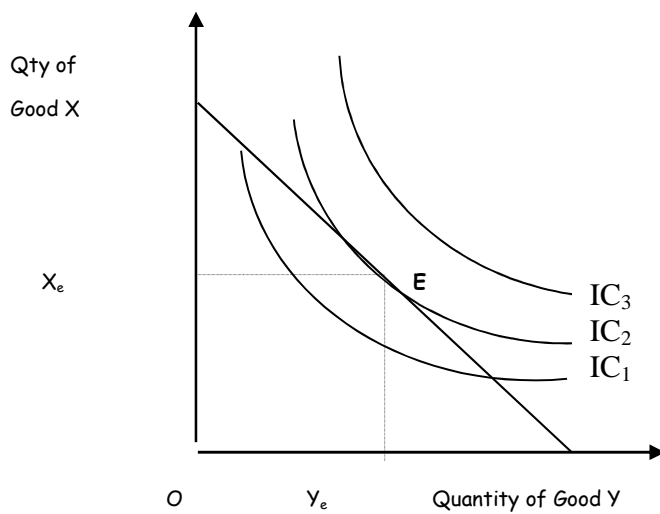
Fig 5.5



5.2.3. The Equilibrium of the Consumer

Not all preferred bundles are attainable. Equilibrium will be at the point where the budget line is tangent to the highest attainable indifference curve

Fig 5.6 Consumer equilibrium

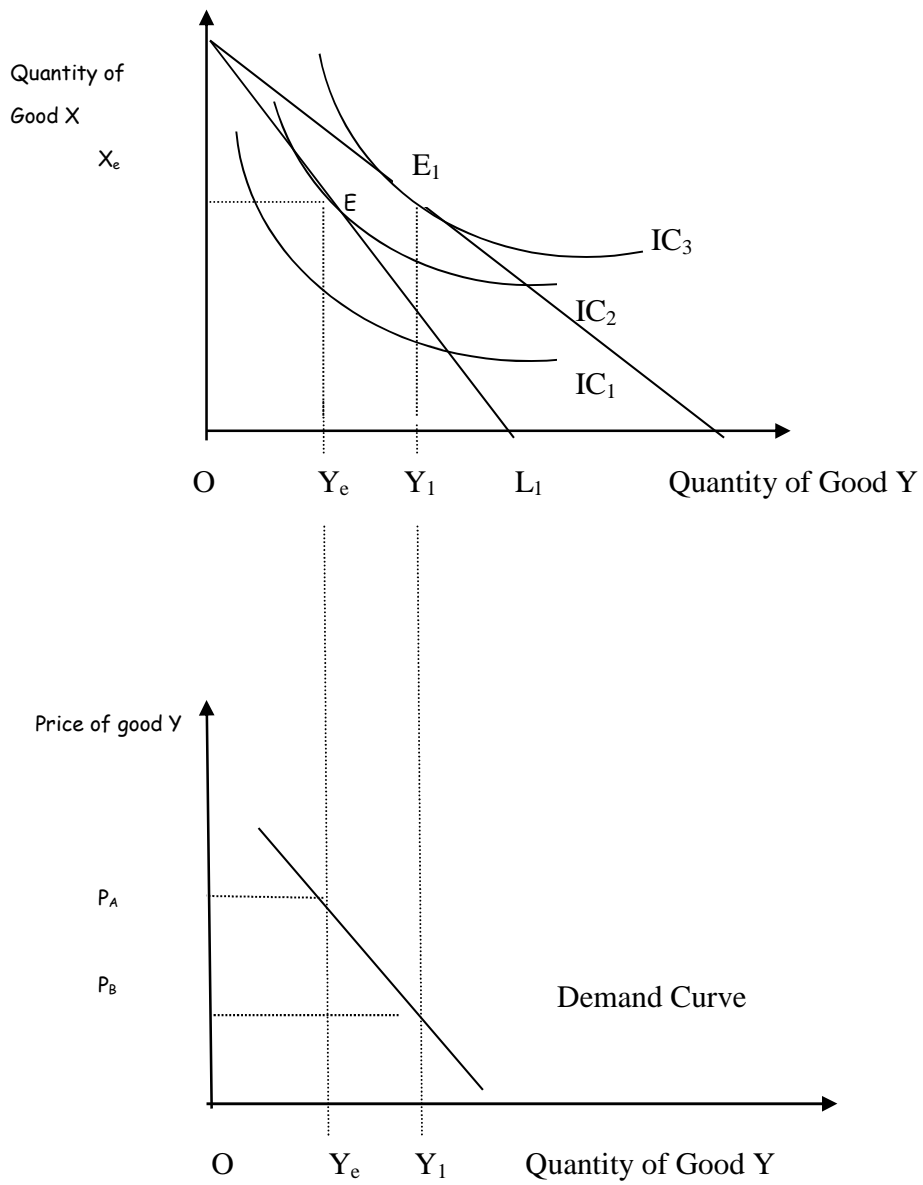


Consumer equilibrium is at point E where Y_e units of good Y and X_e units of good X are consumed. At point E the budget line is tangent to the indifference curve IC_2

5.6.3. The derivation of the demand curve

A fall in the price of good Y from P_A to P_B will cause the budget line to pivot outward (to the right). Tangency of the budget line will change from being tangent to indifference curve IC_2 to tangent to indifference curve IC_3 . Consumer equilibrium will change from point E to E_1 indicating that quantity demanded of good Y will increase from Y_e to Y_1 .

Fig 5.7 Derivation of a downward sloping demand curve



Following the fall in the price of good Y, the quantity demanded of good Y has increased from Y_e to Y_1 . This implies an inverse relationship between price and quantity demanded.

Chapter 6

Theory of production

6.0 Introduction

In these remaining sections of microeconomics we are going to examine the behaviour of firms when allocating their scarce resources towards alternative uses. What is a firm? Put briefly, a firm is a unit that produce a good or service for sale. Economists generally assume that firms attempt to maximize profits. However, firms may have alternative objectives such as sales maximization; the provision of a service e.g. sports clubs and, establishing a status quo.

6.1 Production defined

Production is the process during which factors of production are combined and transformed into goods and services. It is the result of making use of the resources (always in relatively limited supply) available to man for the purpose of supplying him with goods and services for the satisfaction of his needs and wants.

6.2 Factors of production

Anything, which plays a part in production and makes a contribution to the final product, is a factor of production. Factors of production are:

- (a) Land which refers to all the resources of nature or anything that if God given. "By land is mean the material and the forces which nature gives freely for man's aid, in land and water, air and light and heat", Alfred Marshall.
- (b) Labour is all human effort whether of hand or mind, which is undertaken for a reward.
- (c) Capital is all goods, other than land which is used in the production of other goods. Capital is a result of past labour and for this reason; it is sometimes referred to as "crystallized labour".
- (d) Organisation or entrepreneurship involves the skill and effort put into the running of a firm. It embodies the acceptance of risks that arise because of uncertainty.

6.3 Variable and fixed factor inputs

In production, factors of production are the inputs. Input is defined as anything that a firm uses in its production process. Inputs can be divided into two categories: fixed inputs and variable inputs. A fixed input is an input whose quantity cannot be changed during the period of time under consideration. The firm's plant and equipment are examples of fixed inputs. On the other hand, a variable input is an input whose quantity can be changed during the relevant period e.g. raw materials, labour and energy.

6.4 Short run and long run production periods

Whether or not an input is regarded as variable or fixed depends on the length of the period under consideration. The longer the period, the more inputs are variable, not fixed. Economists focus on two time period: the short run and the long run. The short run is defined to be that period of time which some of the firm's inputs are fixed. More specifically, it is the period of time in which a firm must consider some inputs absolutely fixed in making its decisions. Therefore in the short run, firms can only increase output by increasing the input of variable factors. On the other hand, the long run is that period of time in which all inputs are variable. In the long run, the firm can make

a complete adjustment to any change in its environment. Thus in the long run, a firm can consider all of its inputs to be variable when making its decisions.

6.5 Production in the short run

In the short run, the production decision is constrained by the fact that at least one input is fixed in supply while the other inputs can be varied. By definition, in the short run, the firm can change its output by adding variable resources to a fixed plant. But how does output change as more and more variable inputs are added to a fixed factor? The answer is provided by the law of diminishing marginal returns.

6.5.1 The law of diminishing marginal returns

The law describes what happens to total output when more units of the variable factors are added to a given quantity of the fixed factor. It states that 'if increasing quantities of one factor of production which is variable are used in conjunction with a quantity of other factors which are fixed, after a certain point is reached each successive unit of the variable factor added to the whole will make a smaller and smaller contribution to the total product'. Put very briefly, this law simply states that 'as successive units of a variable resource e.g. labour are added to a fixed resource e.g. land, beyond some point, the extra or additional product (output) contributed by each additional unit of the variable resource will decline, that is, the marginal product will diminish.

Example

The following table summarises the output from the employment of labour on a fixed piece of land. It illustrates that beyond 3 units of labour, the marginal product of labour decreases, that is, diminishing marginal returns set in after the third unit of labour is employed.

Table 6.1 TP, AP and MP

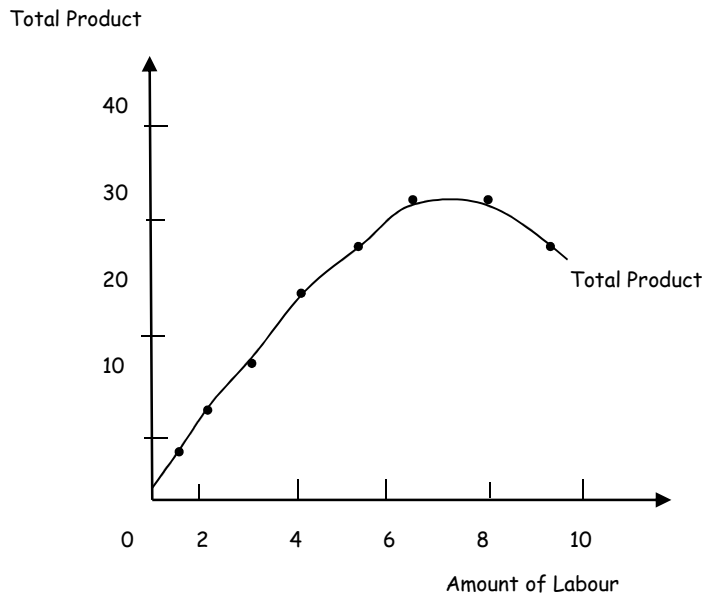
Inputs of variable factor - (Labour)	Total Product (TP)	Average Product (AP)	Marginal Product (MP)
0	0.00	-	-
1	6.00	6.00	6.00
2	13.50	6.75	7.50
3	21.00	7.00	7.50
4	28.00	7.00	7.00
5	34.00	6.80	6.00
6	38.00	6.30	4.00
7	38.00	5.40	0.00
8	37.00	4.60	-1.00

The average product (AP) of an input is total product divided by the amount of the input used to produce this amount of output. That is average product is output per unit of the variable factor (in this case, called labour productivity).

The marginal product of an input is the addition to total output due to the addition of the last unit of the input, when the amounts of other inputs used are held constant. Marginal product shows the change in total output associated with each additional input of labour.

The relationship between total product and amount of labour used on a piece of land in the above table can be shown on the following graph.

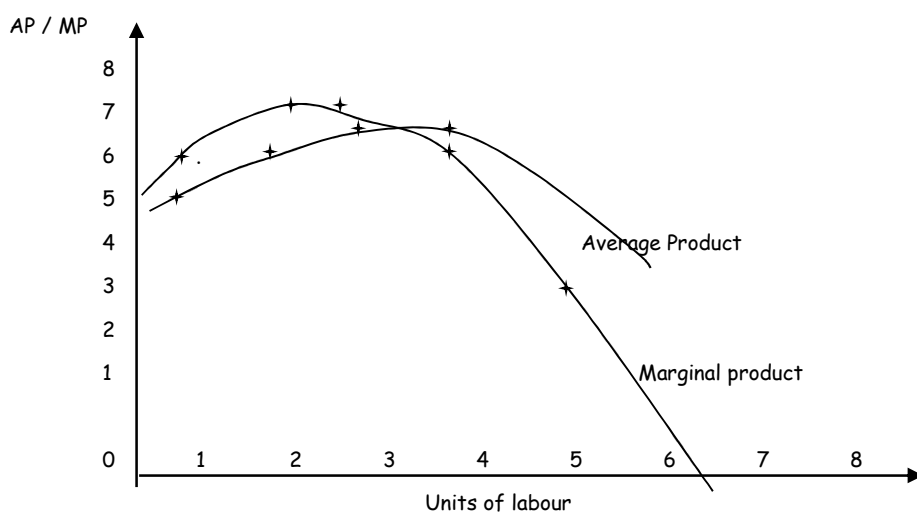
Fig 6.1 The total product curve



The diagram shows that, as a variable factor (labour) is added to fixed amounts of the fixed factor (land) the resulting total product will eventually increase by diminishing amounts, reach a maximum and then decline.

From the previous table, it can be noted that marginal product exceeds average product when the latter is increasing, equals average product when the latter reaches a maximum, and is less than average product when the latter is decreasing. This is simply a matter of arithmetic: If the addition to a total is greater (less) than the average, the average is bound to increase (decrease). This relationship can be illustrated in the following graph.

Fig 6.2 The relationship between AP and MP



The marginal product intersects average product at the maximum average product. When average product is increasing, marginal product is greater than average product. When average is decreasing, marginal product is less than average. When average product is at a maximum, marginal product equals average product.

"If diminishing returns do not occur, the world could be fed out of a flowerpot" McConnel and Brue. Several things should be noted concerning the law of diminishing marginal returns.

- (a) The law is an empirical generalization, not a deduction from physical or biological laws.
- (b) It is assumed that technology remains fixed. The law of diminishing marginal returns cannot predict the effect of an additional unit of input when technology is allowed to change.
- (c) It is assumed that there is at least one input whose quantity is being held constant. The law of diminishing marginal returns does not apply to cases where there is a proportional increase in all inputs. That is it only applies in the short run.
- (d) The law assumes that all units of variable inputs are of equal quality. Therefore marginal product ultimately diminishes not because successive units of the variable input are incompetent but because more of the variable input is being used relative to the amount of fixed inputs available.

6.6 Production in the long run

We now consider the long run situation in which all inputs are variable. By definition long run is a variable plant time period. What will happen to output if the firm increases the amount of all input by the same proportion? This is an important question, the answer to which help to determine whether firms of certain sizes can survive in the industry. In other words, long run decisions are important because today's variable factors are tomorrow's equipped plant will have many alternatives from which to choose, but once installed the capital is fixed for a long time. If the firm errs now, its very survival may be threatened.

6.6.1 Returns to scale

To repeat, what will happen to output if the firm increases the amount of all inputs by the same proportion? Clearly, there are three possibilities: -

- (a) Output may increase by a larger proportion than each of the inputs. For example, a doubling of all inputs may lead to more than a doubling of output. This is a case of increasing returns to scale.
- (b) Output may increase by a smaller proportion than each of the inputs. For example a doubling of all inputs may lead to less than a doubling of output. This is the case of decreasing returns to scale.
- (c) Output may increase by exactly the same proportion as the inputs. For example a doubling of all inputs may lead to a doubling of output. This is the case of constant returns to scale.

6.6.2 Economies and diseconomies of scale

The returns to scale can sometimes be identified as economies and diseconomies of scale. When a firm is experiencing increasing returns to scale, it is said to be enjoying economies of scale. While a firm experiencing decreasing returns to scale will be enjoying diseconomies of scale.

- (a) Economies of scale

Economies of scale refer to the advantages of an increased plant size or benefits of producing on a larger scale. They exist when the expansion of a firm or industry allows the product to be produced at a lower average cost. Economies of scale occur within a firm

(internal) or outside the firm as a result its location (external). Internal economies are those benefits obtained within a firm when it expands its capacity. On the other hand, external economies are those benefits gained when the industry as a whole expand.

i. Internal economies of scale

These are made within a firm as a result of its expansion in production. As the firm produces more and more units of output, so average cost begin to fall because of:

- Technical economies made in the actual production of the good e.g. large firms can use expensive machinery intensively.
- Managerial economies made in the administration of a large firm by splitting up management jobs and employing specialist accountants, salesmen etc.
- Financial economies made by borrowing money at lower rates of interest than smaller firms borrow.
- Marketing economies made by spreading the high cost of advertising on television and in national newspapers, across a large level of output.
- Commercial economies made when buying supplies in bulk and therefore receiving quantity discounts.
- Research and development economies made when developing new and better products.
- Risk bearing economies made when diversifying into different products and markets.

ii. External economies of scale

These are economies made outside the firm as a result of its location and occur when:

- A local skilled labour force locates in the area.
- An area develop good infrastructure e.g. roads and communications network.
- Ancillary services can be provided e.g. banking, food courts etc
- Subcontracting of specialist services e.g. photocopying
- By-products can be used as inputs by other firms

b) Diseconomies of scale

There is an optimal level of expansion in the size of a firm or industry beyond which the firm will suffer diseconomies of scale as represented by a rise in its long run average costs. Diseconomies of scale refer to the increase in average cost that comes as a result of the firm producing on a large scale.

i. Internal diseconomies of scale

These occur when the firm has become too large and inefficient. As the firm increases production, eventually average costs begin to rise because: -

- The disadvantages of the division of labour and specialisation such as increased boredom from repeating the same task may start to take effect.
- Management becomes out of touch with the shop floor because of the enlarged work force and some machinery becomes over-manned.
- Decisions are not taken quickly due to consulting and there is too much form filling.
- Lack of communication or double communication in a large firm means that management tasks sometimes get done twice.

- Poor labour relations may develop in large companies (low morale of workers , that is, workers not feeling to be part of the organisation)
- Dissatisfied customers due to poor customer service

ii. External Diseconomies of Scale

These occur when too many firms have located in one area. Unit costs begin to rise because: -

- Skilled labour becomes scarcer and firms have to offer higher wages to attract new workers.
- Local roads become congested and so transport costs begin to rise (externalities).
- High input prices as firms compete for the scarce inputs.

6.6.3. Economies of scale and returns to scale

In our discussion, we associated economies of scale to returns to scale. An advanced analysis would however make a distinction between the two. Economies of scale reduce the unit cost of production as the scale of production increases. Returns to scale are concerned with physical input and output relationships. Generally, increasing returns to scale should result in decreasing costs and decreasing returns to scale should result in increasing costs. Returns to scale refer to the long run physical output of factors of production or inputs. Conversely economies of scale refer to long run money costs of production. If physical output increases more than proportionately as the scale of all the inputs is changed, increasing returns to scale occur. Increasing returns to scale contribute to economies of scale (in the form of technical economies) but some economies of scale are not explained by increasing returns to scale e.g. commercial economies of scale.

6.7. Size and growth of firms

It is the objective of many firms to grow and expand their size or scale of operations. The major reason for this growth is the expansion of the market share which is directly related to profitability.

6.7.1. Ways of measuring the size of a firm

The size of a firm can be measured using at least one of the following indicators

- a. Number of workers employed.
- b. Capital employed.
- c. Value of assets.
- d. Market share.
- e. Profit before tax.
- f. Turnover or sales.

6.7.2. Reasons for the growth of firms

Large size leads to economies of scale which makes a firm more competitive and have better chances of survival through: -

- a. A large market share.
- b. The firm can borrow money cheaply.
- c. Goodwill.
- d. Spreading risks.

- e. Diversification.
- f. Influencing government on issues relating to business through advocacy.
- g. Directors may seek power and status that come from being in charge of a large firm.

6.7.3. Methods of growth of firms

Firms can either grow through internal expansion or external expansion

i. Internal expansion

Through internal expansion, a firm can grow through: -

- a. Producing and selling more of its current products in its existing market.
- b. Selling current products to new markets.
- c. Making and selling new products.

However it may be important to note that internal expansion allows firms to grow rather slowly.

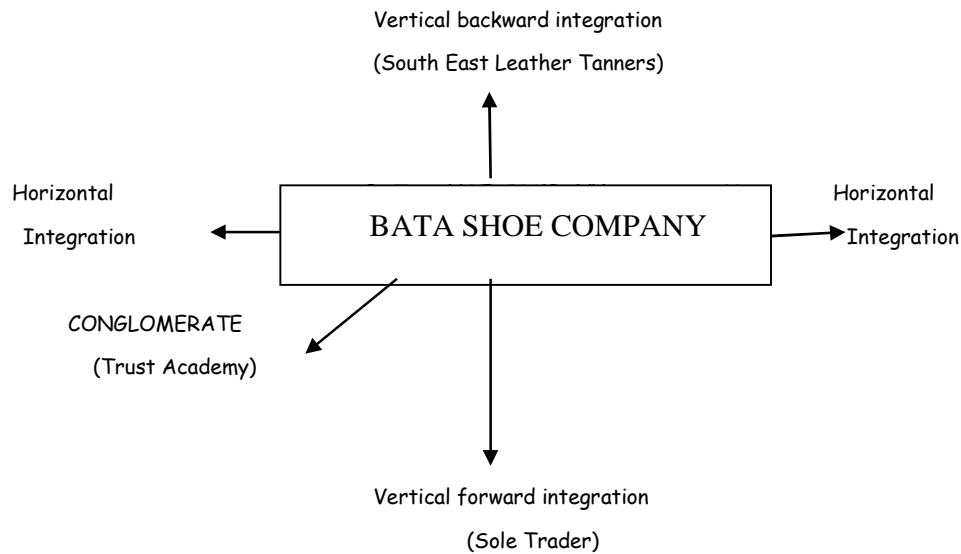
ii. External expansion or integration

Integration occurs when two firms join together to form one new company. Integration can be voluntary (a merger) or forced (a take-over). A merger takes place between companies through their agreement where they form a joint venture and benefit from shared production, research and development etc. On the other hand a take-over occurs when one company buys enough shares of voting to allow it to take control of the other company.

There are three types of integration namely vertical integration, horizontal integration and lateral integration.

- a. Horizontal integration occurs between two firms in the same industry that are at the same stage of production e.g. the merger of First Merchant Bank, Bard Holdings and UDC into African Banking Corporation (ABC). The advantages are that the new company will enjoy economies of scale and have a larger market share.
- b. Vertical integration occurs between companies in the same industry but which are at different stages of production. Vertical integration can either be backward or forward integration. Vertical backward integration occurs when a company starts to control firms supplying it with its raw materials, that is, moving back down the chain of production. For example, if BATA Shoe Company integrates with South East Leather Tanners, a leather tanning company in the Lowveld. Conversely, vertical forward integration occurs where a company merges or take-over firms further along the chain of production for example if BATA Shoe Company merges with Sole Trader, a shoe retail shop.
- c. Lateral Integration or conglomerate occurs when firms in different industries merge. For example if BATA Shoe Company merges with Trust Academy, an educational institution. Conglomerates have advantages in reduced risks through diversification, good reputation and advocacy.

The three main types of integration: horizontal, vertical and lateral (conglomerate) are illustrated below



6.7.4. Motives for integration

Recently in Zimbabwe particularly in the banking sector most firms has horizontal integrated or at least made advances towards integration. There are a number of reasons why firms may decide to integrate. Among them:

- Integration increases the size and market share of the firm e.g. First Bank Corporation and Zimbabwe Building Society into FBC Holdings.
 - One firm may need fewer workers, managers, or premises (rationalisation).
 - Reduce competition by removing rivals e.g. United Bottlers and Punch Bowl, which was producing RC Cola.
 - Integration allows firms to increase the range of products they manufacture (diversification) e.g. First Bank Corporation and Zimbabwe Reinsurance (ZIMRE) that led to the provision of banking and insurance products.
 - Reducing risk, that is, if the firm is diversified it no longer has "all its eggs in one basket".
-

Chapter 7

Theory of costs

7.0 Introduction

In this chapter, we shall confine our attention to costs. We are going to discover how costs are related to output. The theory of costs is concerned with all expenses that a firm incurs during the production process and how these expenses are related. We will consider costs under three main headings: total costs; average costs and marginal costs.

7.1. Total Costs (TC)

During the production process, the firm combines fixed and variable factors to produce its output. By definition fixed factor input remains constant as output is increased while variable factor input changes in direct proportion to output. The amount spent on producing a given amount of a product is called total cost (TC). Total costs are found by adding together total variable costs (TVC) and total fixed costs (TFC)

$$TC = TVC + TFC$$

7.1.1. Total Variable Costs (TVC)

Variable costs are incurred by the firm on the variable factor inputs such as raw materials and labour. Larger volumes of output require larger variable factor input. Thus variable costs vary in direct proportion to output. They are zero when output is zero and rise directly with output e.g. wages paid to shop floor workers and the cost of buying raw materials.

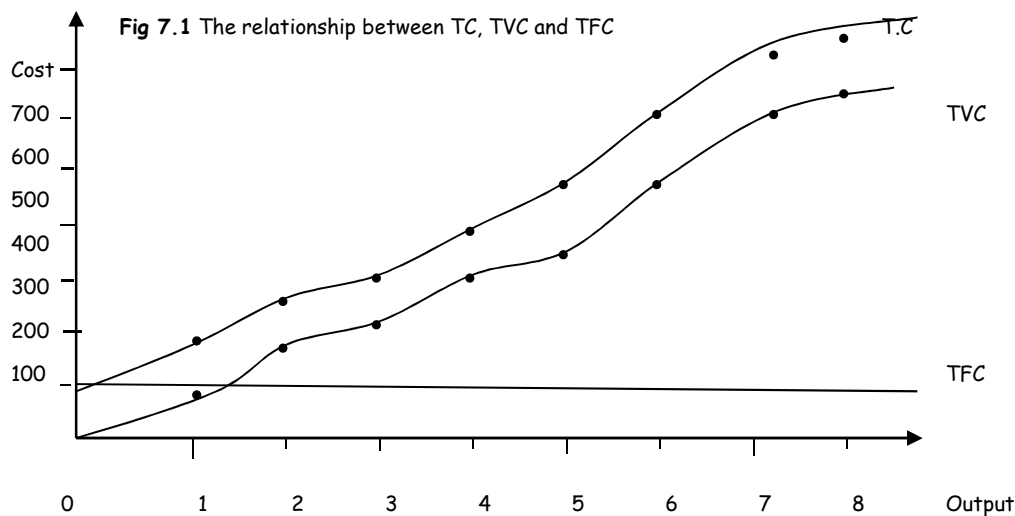
7.1.2 Total Fixed Costs (TFC)

Fixed costs are totally independent of output, that is, they do not vary with output. Fixed costs have to be paid out even if the factory stops production; hence they are the firm's overheads. Fixed costs include rent paid for the use of premises and interest paid on loans.

The relationship between TC, TVC and TFC can be illustrated using the following hypothetical table and graph

Table 7.1 The relationship between TC, TVC and TFC

Units of output	Total Fixed Costs	Total Variable Costs	Total Costs
0	100	0	100
1	100	90	190
2	100	170	270
3	100	240	340
4	100	300	400
5	100	370	470
6	100	450	550
7	100	540	640
8	100	650	750



The total cost curve and the total variable cost curve have the same shape, since they differ by only a constant amount. Thus the total cost curve is simply the total variable cost curve that has been shifted upward by the amount of the total fixed costs.

7.2 Average Costs (AC)

Average cost refers to cost per unit of output, that is, total cost divided by output. There are three average cost concepts corresponding to the three total cost concepts: average fixed cost, average variable cost and average total cost.

7.2.1 Average Fixed Cost (AFC)

An average fixed cost is total fixed cost divided by output. The average fixed cost declines with increases in output. Mathematically, the average fixed cost curve is a rectangular hyperbola, that is, it is asymptotic to the output axis (it approaches the output axis without ever cutting the axis). This is due to total fixed cost which is held constant when output is increasing.

7.2.2 Average Variable Cost (AVC)

Average variable cost is total variable cost divided by output. At first, increases in output result in decreases in average variable cost, beyond a point, they result in higher average variable cost. Thus average variable costs declines initially, reaches a minimum, and then increases again, giving them a graphical U-shape.

7.2.3 Average Total Cost (ATC)

The average total cost is total cost divided by output. The average total cost equals the sum of average fixed cost and average variable cost. This we can state as: -

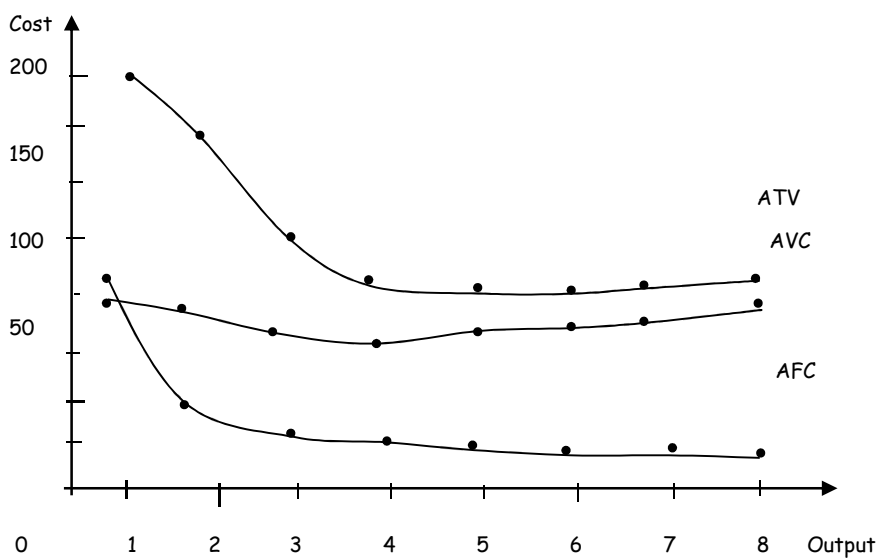
$$ATC = AFC + AVC$$

The relationship between ATC, AVC and AFC can be illustrated on the following table and graph derived from hypothetical data on costs given above.

Table 7.2 The relationship between ATC, AVC and AFC

Output	TFC	TVC	TC	AFC	AVC	ATC
0	100	0	100	-	-	-
1	100	90	190	100	90	190
2	100	170	270	50	85	135
3	100	240	340	33	80	113
4	100	300	400	25	75	100
5	100	370	470	20	74	94
6	100	450	550	17	75	92
7	100	540	640	14	77	91
8	100	650	750	13	81	94

Fig 7.2 The relationship between ATC, AVC and AFC



ATC is the vertical sum of AVC and AFC. AFC declines indefinitely since a given amount of fixed costs is apportioned over a larger and larger output. AVC initially falls because of increasing marginal returns but then rises because of diminishing marginal returns.

7.3 Marginal Costs (MC)

The marginal cost is the addition to total cost resulting from the production of an additional unit of output. In other words, marginal cost is the additional cost of producing one more unit of output. It refers to the change in total cost that results from a change in output by one unit. Algebraically: $MC = TC_n - TC_{n-1}$, that is, change in total cost divided by change in output.

$$MC = \frac{\text{Change in TVC} + \text{Change in TFC}}{\text{Change in Q}} \quad \text{---- (i)}$$

But since change in TFC is zero (fixed costs being fixed)

$$\text{Therefore } MC = \frac{\text{Change in TVC}}{\text{Change in Q}} \quad \text{---- (ii)}$$

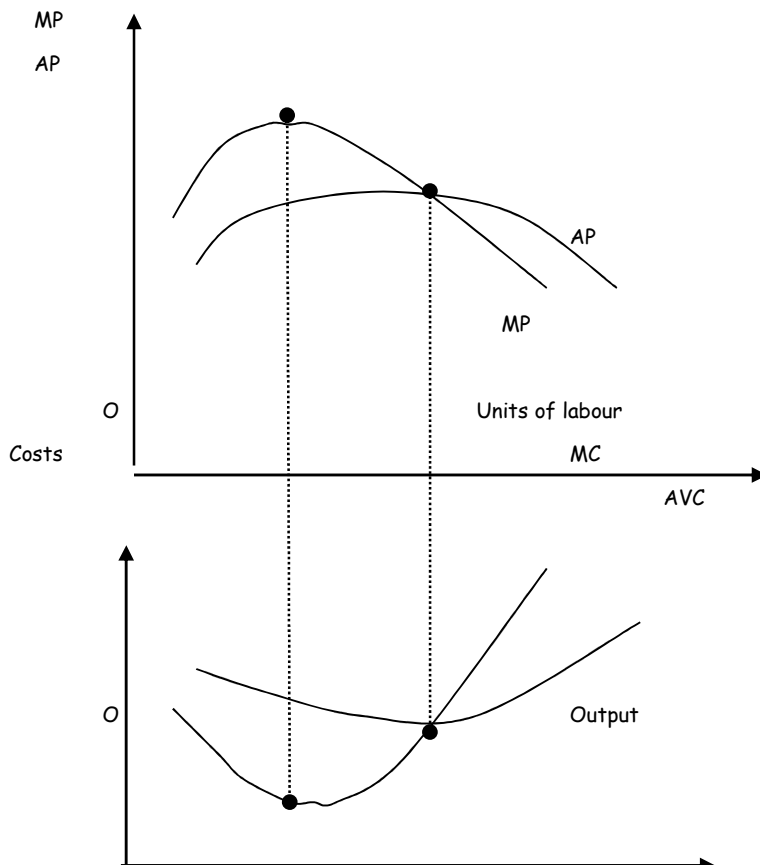
Moreover, if the price of the variable input is taken as given by the firm, change in TVC = P (Change in V). Where change in V is the change in the quantity of the variable input resulting from the increase of change in Q. Thus the marginal cost equals.

$$MC = P \left(\frac{\text{Change in V}}{\text{Change in Q}} \right) = P \frac{1}{MP} \quad \text{---- (iii)}$$

$$\text{Thus, } MC = \frac{P}{MP} \quad \text{----- (iv) where}$$

MP is the marginal product of the variable input. Since MP generally increases, attains a maximum and declines with increase in output, it follows then that marginal cost normally decreases, attains a minimum, and then increases. This explains the fact that the marginal costs curve is a mirror reflection of the marginal product curve.

Fig 7.3 The relationship between cost curves and productivity curves

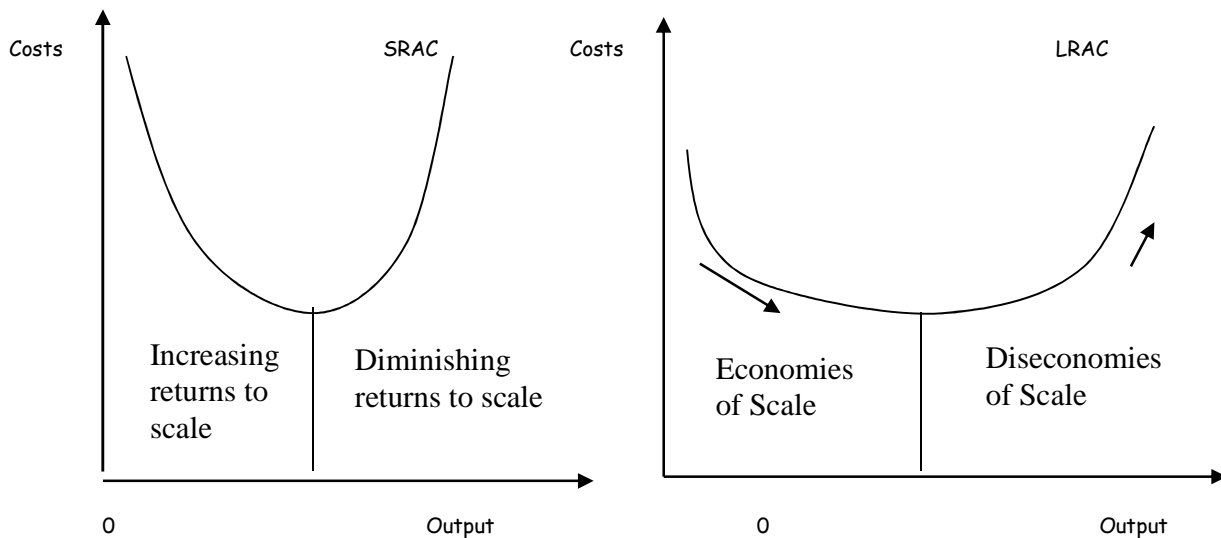


The marginal cost (MC) and average variables cost (AVC) curves are mirror images of the marginal product (MP) and average product (AP) curves respectively)

7.4 Short Run Average Costs (SRAC) and Long Run Average Costs (LRAC)

Average costs can be divided into short run and long run average costs. Both SRAC and LRAC are U-shaped. However the SRAC are narrow than the LRAC which are open U-shaped. The SRAC is U-shaped due to the influence of the law of diminishing marginal returns. While the LRAC is open U-shaped due to economic and diseconomies of scale.

Fig 7.4 A comparison between SRAC and LRAC

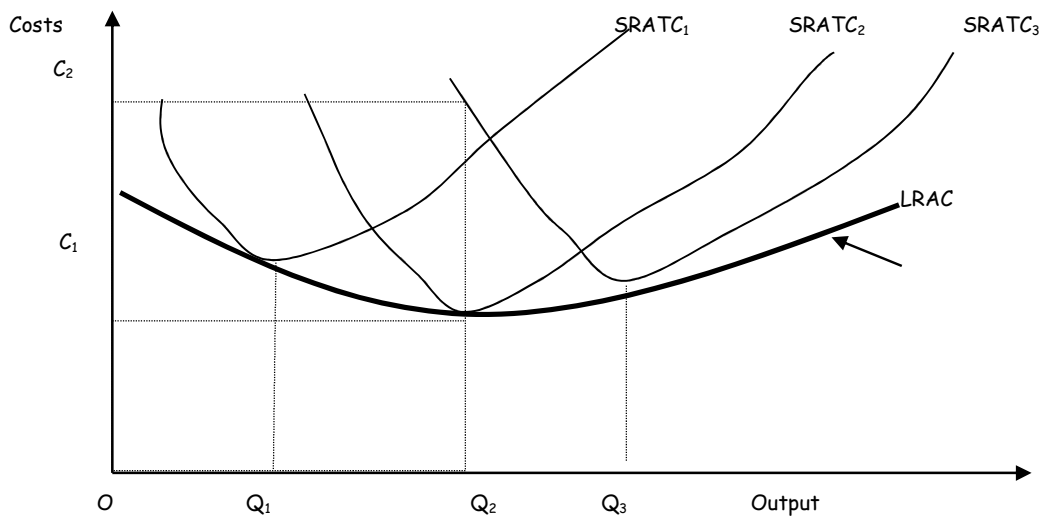


The LRAC curve is downward sloping as a result of economies of scale and upward sloping due to diseconomies of scale while increasing returns to scale contribute to the falling portion of the SRAC and diminishing returns to scale contribute to the upward sloping portion.

7.4.1 Derivation of the LRAC

The LRAC is a planning curve which envelopes various SRATC curves. It is derived from the SRATC in the following way: - Assume three plant sizes to which a firm can adjust in the long run to meet its production requirements, that is, small medium and large plant as represented by their short-run average total costs demoted by $SRATC_1$, $SRATC_2$ and $SRATC_3$ respectively. These can be shown on the following diagram.

Fig 7.5 The LRAC curve



The produce output Q_1 , the firm should use a small plant so as to incur minimum cost. The plant size is represented by $SRATC_1$. To produce output Q_2 , the optimum plant size is given on $SRATC_2$. However it can use small plant to produce the same output but will mean higher costs of production (C_2) than if it uses the medium plant ($SRATC_2$) where it incurs costs C_1 . The optimum plant size for Q_3 is $SRATC_3$. Joining all these optimal points will give the LRAC curve.

It is important to note that long run is a planning horizon. While operating in the short-run, the firm must continually be planning ahead and deciding its strategy in the long run. Its decisions concerning the long run determine the sort of short run position the firm will occupy in the future. Once a decision on the plant size is made, the firm is confronted with a short run situation, since the type and size of equipment is, to a considerable extent, frozen.

7.4.2 Technical progress

While we focus on the shape of the SRAC and the LRAC curves, it is also important to consider the factors that may cause the shifting of the cost curves. The major cause is changes in productivity. The productivity of workers depends upon their innate abilities, cultural background, and levels of education and training among other factors. Technology in the form of new machines and new production techniques plays a pivotal role in utilizing existing skills. Technology enables a firm to produce the same output with fewer inputs or a larger output with the same inputs - which is another way of saying that it lowers production costs.

Chapter 8

Market structures

8.0 Introduction

In this chapter we will describe a structure or model as a simplified representation of reality. A model abstracts from reality. A model abstracts from reality by ignoring the finer details which are not essential to the purpose at hand. An example is a scale model, which is a miniature of the actual structure of an object being represented. Scale models are usually used in buildings e.g. architectural models and maps. Models play a pedagogical role in that they are used as a device for teaching individuals about the operation of complex systems. On the other hand, they are an explanatory device since they are a vehicle for relating separate objects and events in a logical manner. Market models seek to explain how firms behave in terms of their pricing, output and other forms of non-price competition. That is, the way in which various firms behave in either their output or pricing decisions gives rise to different market models. Economists envision four relatively distinct market situations: perfect competition, monopoly, monopolistic competition and oligopoly. This classification is based largely on the number of firms in the industry that supplies the product.

8.1 Objectives of firms

A firm is an entity that produces and sells a product or service to consumers. Firm's objectives help to develop theoretical generalisation about how firms behave. Below are some of the objectives that firms may pursue:

- a) To maximize profits where profit is what remains from the firm's total revenue (TR) after it has covered all its costs (TC) that is $\pi = TR - TC$.
- b) Sales revenue maximization especially as viewed by managers who receive incentives related to their sales performance e.g. sales managers paid on commission
- c) To provide a service e.g. non governmental organisations (NGO)
- d) To establish a status quo e.g. some politicians or retirees who may want to keep themselves doing something.
- e) To increase the market share or achieve a certain growth rate.

There are various theories on the above objectives of firms which can be outlined briefly as follows:

8.1.1 The traditional theory

The theory was based on the assumption that firms will seek to maximise their profit, that is, they not only attempt to make a profit but attempt to make the last dollar of profit possible.

8.1.2 The managerial theory

The theory takes as its starting point the split between shareholders as owners and managers as decision-makers in large modern business corporations. It is argued that managers aim to maximise managerial objectives such as sales, growth and managerial career prospects rather than shareholders profits. This often results in agency problems, that is conflict between shareholder interests and management interests

8.1.3 Organisational theory

The firm is viewed as an organisation or coalition of different groups such as managers, shareholders, employees, customers and suppliers. The firm is a satisfier rather than a maximiser, attempting to satisfy the aspirations of the groups that make up the coalition. It ensures a satisfactory level of sales, profits, wages or quality of products sought.

8.2 Competitive versus imperfectly competitive markets

The distinction between perfectly competitive and imperfectly competitive markets can be made on the basis of;

- The number of competitors participating in the market.
- The ability of new firms to enter the market (or the presence of entry barriers).
- The type of product being produced.
- Information and knowledge on the conditions of the market.

On these four features, the four distinct market structures can be distinguished as summarised in the following table:

Table 8.1 Characteristics of the different market structures

FEATURE	MARKET STRUCTURE			
	Perfect Competition	Monopolistic Competition	Oligopoly	Monopoly
Number of firms	A very large number	Many but less than in perfect competition	Few	One
Type of product	Homogenous	Differentiated	Either homogeneous or differentiated	Unique that is no close substitutes
Conditions of entry	Free entry	Relatively easy	Significant obstacles	Barriers to entry
Control of product	None: firms are price takers	Some but within limits	Made possible by collusion	Either price or output but not both
Information and knowledge	Perfect	Imperfect	Imperfect	Imperfect
Non-price competition	None	Emphasis is on advertising brand names	Typically a great deal with product differentiation	Mostly public relations
Examples	Market for agric produce. e.g. Mbare Msika	Retail trade, clothing shops	Market for motor vehicles or bathing soap	Local utilities such as NRZ

8.3 Revenue and profit concepts

It is important to define the various revenue and profit concepts before looking at the individual market models.

8.3.1 Revenue concepts

(a) Total Revenue (TR)

This refers to the total amount of money that the firm receives from the sale of its output. It is given by: $TR = \text{Price} \times \text{Quantity}$.

(b) Average Revenue (AR)

This is the total revenue divided by the number of units sold, that is, $AR = PQ / Q$. Quite obvious, AR is the price of the commodity, that is, $AR = P$.

(c) Marginal Revenue (MR)

This is the change in total revenue resulting from an increase of one unit in the rate of sales. That is, the extra revenue which results from selling one more unit of output. The marginal revenue resulting from the sale of the n^{th} unit of a commodity is thus the change in total revenue when sales rise from the rate $n-1$ to n units. $MR_n = TR_n - TR_{n-1}$

8.3.2 Profit concepts

With the costs and revenue concepts we can be able to study how firms behave if they wish to maximise their profits. Profit is the difference between total revenue and total cost. It can also be calculated by subtracting average costs from average revenue. That is, $\text{Profit} = TR - TC$ or $= AR - AC$.

(a) Normal profit

Normal profit is the minimum amount of profit which is necessary to keep a firm in the industry. It can be referred to as transfer earnings, that is, the payment which is necessary to keep a factor in its present use. If TR is equal to TC or $AR = AC$, the firm will be earning normal profit.

(b) Abnormal profit.

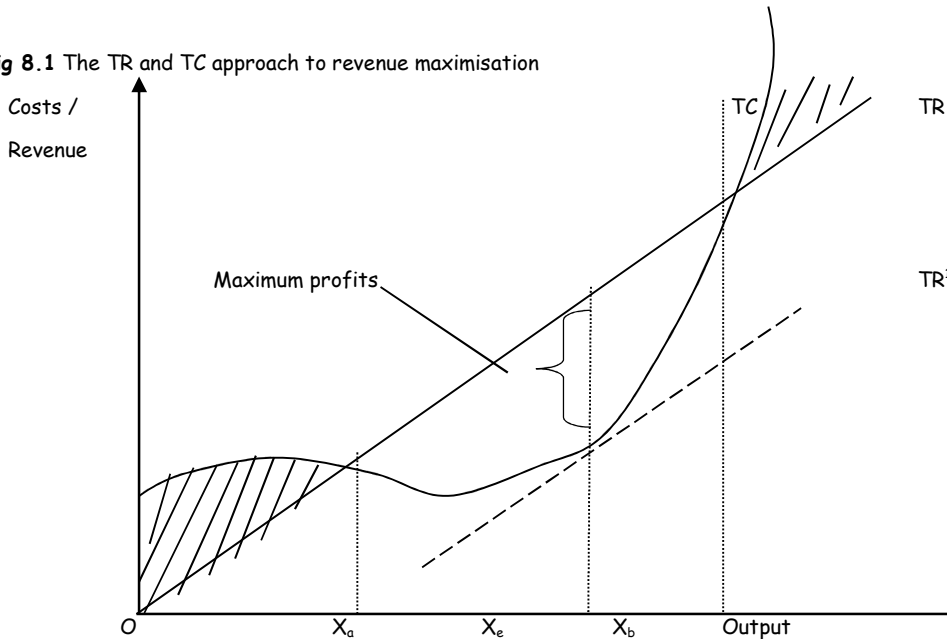
Also known as supernormal profit or economic profit. If TR is more than TC or $AR > AC$, the firm will be earning abnormal profits. Abnormal profit represent economic rent which is any payment made to any factor of production over and above that which is necessary to keep the factor in its present use.

8.4 Profit maximization conditions

Profit maximization remains the key objective of the firm. To arrive at the profit maximization conditions, we apply the concepts of total revenue and total costs. The firm maximizes profit when it is in equilibrium. At equilibrium, the firm would produce an output that maximizes the difference between total revenue and total costs. The equilibrium of the firm may be shown graphically in two ways. Either by using the TR and TC curves or the MR and MC curves.

8.4.1 Total Revenue and Total Cost approach

Fig 8.1 The TR and TC approach to revenue maximisation



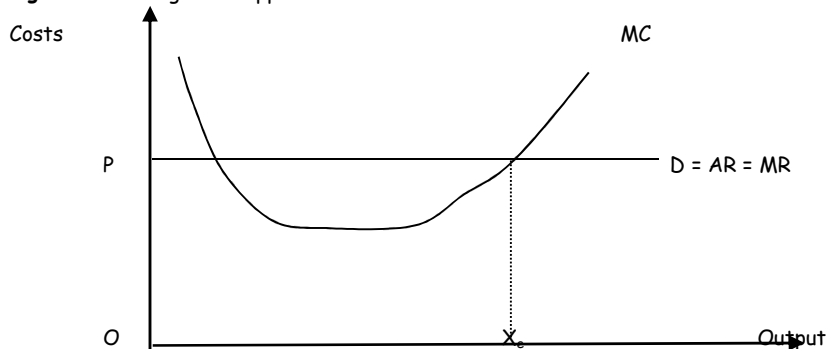
According to the diagram above, the total revenue curve is a straight line from the origin showing that the price is constant at all levels of output. Thus the firm is a price taker and can sell any amount of output at the going market price with its total revenue increasing proportionately with its sales. The slope of TR curve is the marginal revenue (MR). MR is constant and equal to the prevailing market price since all units are sold at the same price. Thus $MR = AR = P$.

The shape of the total cost curve reflects the law of diminishing marginal returns or variable proportions. The firm maximizes its profits at output X_e , where the distance between TR and TC curves is greater. At the lower and higher levels of output, total profit is not maximized. At output level below X_a and above X_b the firm makes losses as shown by the shaded areas.

8.4.2 Marginal Revenue and Marginal Cost approach

From the previous diagram, at output level X_e the slopes of TR and TC curves are equal as indicated by the tangent TR^1 . The slope of TR is the MR while the slope of TC is the MC. Thus at output X_e , $MR = MC$. Therefore the firm maximize its profits by producing output X_e where $MR = MC$.

Fig 8.2 The marginalist approach to revenue maximisation



If $MR > MC$, it implies that an additional unit of output produced adds more to revenue than to cost and hence the firm will increase its output. Conversely, where $MR < MC$ it pays the firm to reduce output because the extra unit adds more to cost than it does to revenue. Thus profits are maximized at an output where $MR = MC$. This is the necessary condition. The sufficient condition is that the MC curve must cut the MR curve from below. Thus the profit maximisation conditions are:

- a. The **necessary condition** is that $MR = MC$.
- b. The **sufficient condition** is that the MC curve must cut the MR curve from below.

What is left is to apply these conditions as we investigate how price and output are determined in different market models.

8.5 Perfect competition

A market is considered to be perfectly competitive when it fulfils the following conditions:

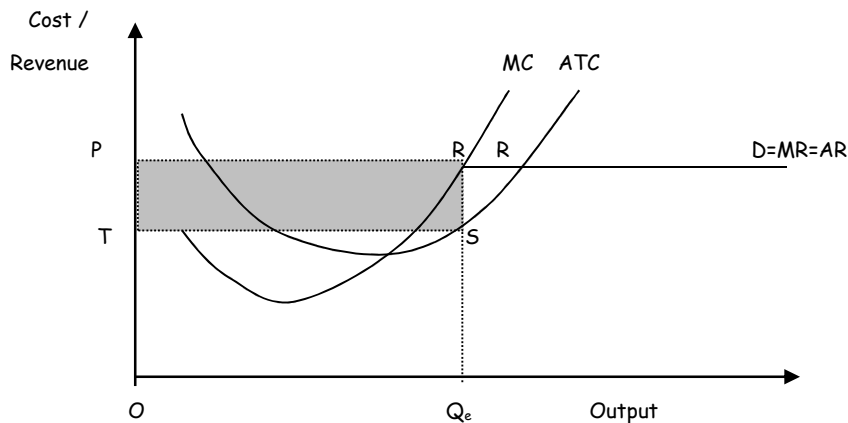
- a. Perfect competition requires large numbers of sellers and buyers such that each participant in the market, whether buyer or seller, is so small in relation to the entire market, that he or she cannot effect the product's price. As a result firms under perfect competition are price takers.
- b. Perfect competition requires that the product of any one seller be the same as the product of any other seller. That is products sold are homogeneous or perfectly identical and there is no need for non-price competition.
- c. Perfect competition requires that firms should be free to enter or leave the market depending on whether the market is profitable or not.
- d. Perfect competition requires that consumers firms and resource owners have perfect knowledge of the relevant economic and technological information.
- e. Perfect competition requires that factors of production be completely mobile.

8.5.1 The output of a firm under perfect competition in the short run

Firms operating in a perfectly competitive market are price takers, that is, individual firms take price as given by the market. As a result they face a perfectly elastic demand curve. This horizontal demand curve is also equal to the average and marginal revenue curves: $D = MR = AR = P$.

As observed under the MR and MC approach to the derivation of the profit maximizing conditions, profit is maximized by adjusting output to the point where $MR = MC$. In the short run price is likely to be greater than average total cost hence firms will be earning abnormal profits as represented by the shaded rectangle on the following diagram.

Fig 8.3 Short run equilibrium of a perfectly competitive firm.

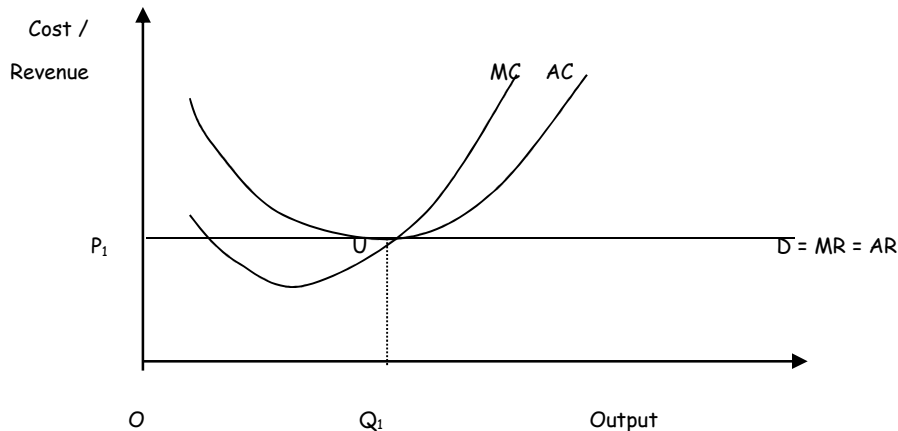


Given the price and cost shown in the diagram, the firm's equilibrium output is OQ_e because this is the output level which equates MR with MC. Details of MR and MC enables us to determine the firm's profit maximizing output but not the actual level of profit. It is the total revenue and total cost which can tell us the actual level of profit. With details shown in the diagram; price OP and output OQ_e , total revenue is equal to $OP \times OQ_e = \text{rectangle } OPRQ_e$ while total cost is equal to $OT \times OQ_e = \text{rectangle } OTSQ_e$. Total revenue minus total cost gives total abnormal profit equal to shaded rectangle $PRST$. Thus in the short run the firm will produce output OQ_e and charge price OP , making an abnormal profit of rectangle $PRST$ in the process.

8.5.2 The output of a firm under perfect competition in the long run

The existence of abnormal profit in the short run will in the long run attract other firms into the industry. Perfect knowledge of market conditions will ensure that firms outside the industry are aware of the level of profits earned and the absence of barriers to entry will ensure they are able to enter the industry and undertake production. The entry of new firms in the industry will increase total supply and as a result prices fall. This may continue until the abnormal profits have been completed away and firm will earn only normal profit.

Fig 8.4 Long run equilibrium of a perfectly competitive firm

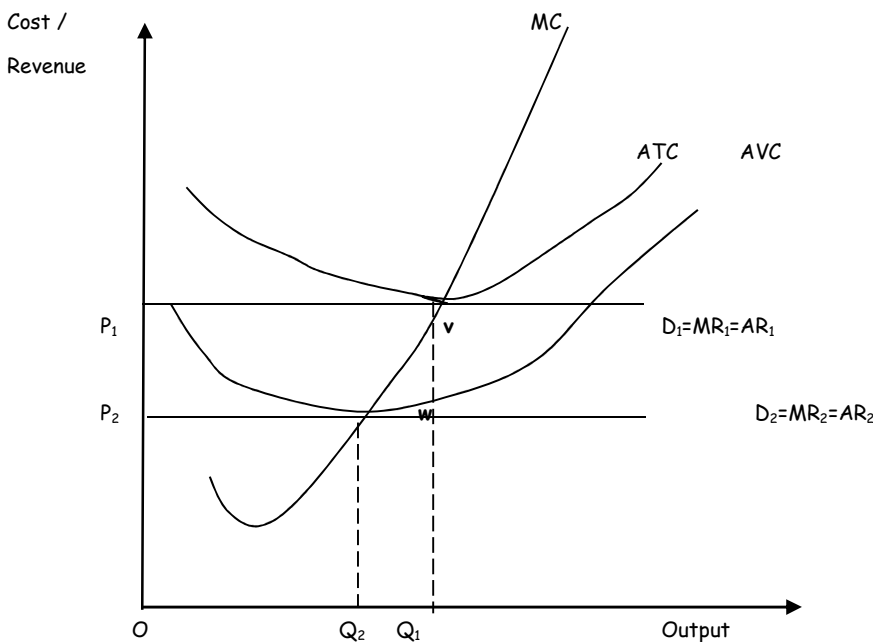


In the diagram, long run equilibrium is established when output OQ_1 is produced. Total revenue is equal to $OP_1 \times OQ_1 = OP_1UQ_1$. Since profit equals TR minus TC zero profits are being earned. That is the firm is only earning normal profit. Normal profit is insufficient to attract additional firms into the industry but just sufficient to dissuade those firms already in the industry from leaving. Should supply continue to increase, the price may fall below AC and firms will run at a loss and may leave the industry, thus bringing the situation under control.

8.5.3 Short run losses and the firm's shut-down position

The short run equilibrium might have losses if price is less than average total cost. These losses can be minimized by producing an output level where $MR = MC$. However, if the price is less than the average variable price (AVC), the firm will minimise its loss by producing no output.

Fig 8.5 The firm's shut-down position



If price is between OP_1 and OP_2 the firm's AR will be less than ATC. However the firm will be earning enough to cover all its variable costs and part of the fixed costs. To cease production would leave the firm with a loss equal to its fixed costs whereas if the firm undertakes production, it will at least have a surplus over variable costs to set off part of its fixed costs.

If price falls to below OP_2 , AR will be less than AVC and the firm will be better off by ceasing production altogether. If it produces nothing the firm's total loss is equal to its fixed costs. This compares with a loss equal to the deficit on variable cost added to the fixed cost if it undertakes production.

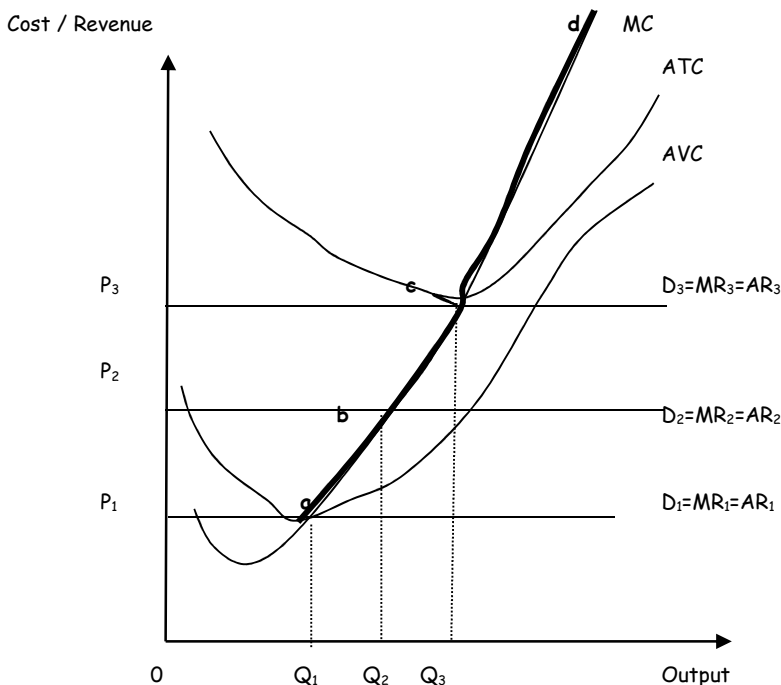
It can therefore be concluded that the minimum acceptable price if the firm is to undertake production is that price which exactly equals the minimum short average variable cost of production. It is for this reason that the minimum AVC is sometimes referred to as the "shut-down" price.

Thus if price falls to levels below W , the firm will shut down the plant or stop producing. This does not mean that the firm goes out of business, but simply that the plant remains idle. However, no firm can sustain losses indefinitely and thus in the long run, loss-making firms will leave the industry.

8.5.4 The short run supply curve of the firm

From the above discussion, we can state that as long as price is equal to or greater than AVC , the perfectly competitive firm will adjust its output by moving along that part of its marginal cost curve that lies above its AVC . This part of MC curve coincides exactly with the definition of a supply curve since the supply curve indicates the amount of a good that the producer is willing and able to provide to the market at different prices.

Fig8.6 Derivation of a perfectly competitive firm's supply curve



As price rises from OP_1 to OP_2 to OP_3 so the firm expands output from OQ_1 to OQ_2 to OQ_3 in each case equating MC with MR . the part of the MC curve which lies above its average variable cost curve is the firm's supply curve.

8.5.5 Perfect competition and resource allocation

Firms that are perfectly competitive allocate scarce resources efficiently between uses. This is because of the triple equality condition found in the long run, that is, $P (=MR) = AC = MC$. Efficiency is achieved when two conditions are satisfied.

(a) $P = \text{Minimum } AC$ (Productive Efficiency). In the long run competition forces firms to produce at the point of minimum AC of productions and charge that price which is just consistent with these costs.

(b) $P = MC$ (Allocative Efficiency). Again, the price charged in the long run is equal to marginal cost, a condition that is known as allocative efficiency.

8.5.6 Critique of perfect competition theory

- Perfect competition assumes perfect information and knowledge. As a result, a firm can not expect to gain much competitive advantage over other firms by developing new technology. There is little incentive to develop new technologies since other firms can adopt the new technique. Since technological innovation is considered essential for economic growth, a perfectly competitive world, while promoting allocative efficiency, may well retard growth.
- Perfect competition assumes perfect information about technology. As a result a firm cannot expect to grow much competitively over other firms by developing new technology. Thus there is little incentive to develop new technology in perfectly competitive markets.
- Competitive markets values are based on the private costs and benefits associate with the actions of individual consumers and producers. External costs and benefits of production and consumption are not captured. This is referred to as market failure.

8.5.7 Market failure and the role of the government

Market failure refers to the failure by the market or price mechanism to allocate resources efficiently. The common belief is that if left alone market forces may not allocate resources efficiently, for example, public goods such as roads may not be produced. Market failures arise from the existence of externalities and public good among others.

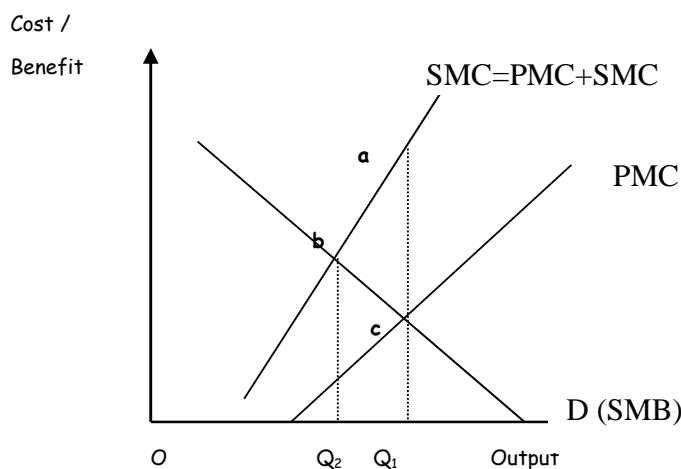
a. Externalities

Externalities refer to costs and benefits to society that arise from production or consumption that are not accounted for by the market. Externalities are said to exist when the action of producers or consumers affects not only themselves but also third parties, other than through the normal of the price mechanism. Externalities are referred to as external costs when they are harmful e.g. air pollution and external benefits when they are beneficial e.g. the reduced chance of spreading a communicable disease when an individual is inoculated against it.

i. Negative Externalities

The existence of negative or bad externalities suggest an over production or over consumption of a certain good.

Fig 8.7 Effect of negative externalities

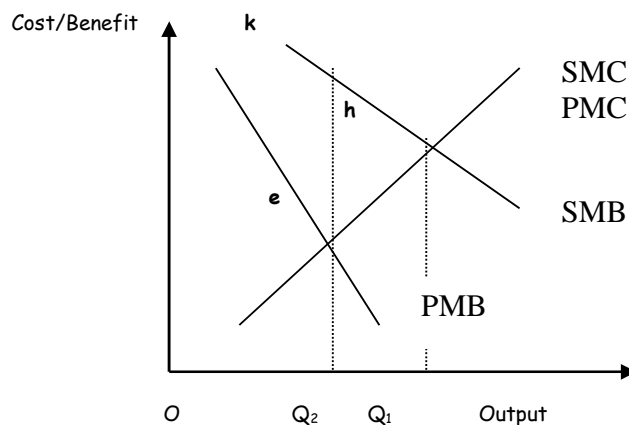


The firm will produce at Q_1 where PMC (Private Marginal Cost) equals the $D = PMB$ (Private Marginal Benefit). The firm considers only costs like cost of raw materials, labour, rent and utilities. It does not consider external costs such as pollution, noise and congestion. If forced to do so, that is, if social marginal cost is considered instead, produced will be Q_2 . The triangle **abc** represent the welfare loss to society at the profit maximizing equilibrium Q_1 .

ii. Positive Externalities

In the case of positive externalities, there would be under production or under consumption of the goods because firms would consider private benefits only.

Fig 8.8 The effect of positive externalities



Private output will be at Q_2 . However the optimum social output is at Q_1 , where SMB (social marginal benefit) equals the SMC (social marginal cost). The gap $Q_1 - Q_2$ is the under consumption or under production. The shaded area **ehk** shows the welfare loss brought about by under production. This represents the society's loss due to the missed opportunity of not having the additional output.

b. Public goods

Public goods are defined as products whose consumption is non-exclusive and non-exhaustive. Non-exclusive means that a producer or seller can not separate non-payers from benefiting from the good. Non-exhaustive implies that the use by one person does not reduce the amount available to another. As a result, there is no rivalry in consumption.

8.6 Monopoly

A monopoly exist when the market is dominated by a single supplier of a product for which there are no close substitute and in which it is very difficult or impossible for another firm to exist. Thus, for monopoly to exist the following conditions must be fulfilled.

- (i) The firm must be the only supplier
- (ii) No close substitute for the firm's products must be in existence
- (iii) There must be restrictions or barriers to entry which make the survival of potential rivals extremely unlikely.

8.6.1 Reasons for monopoly

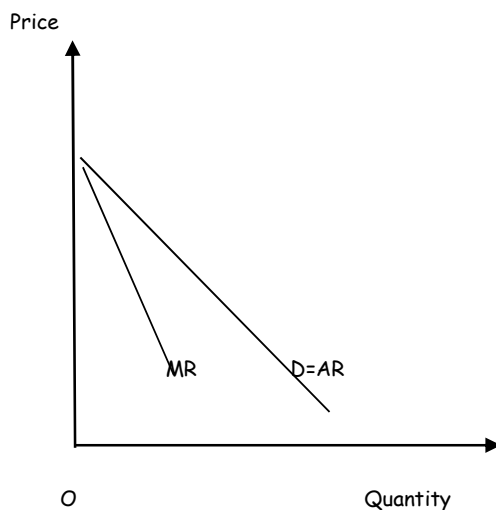
Why do monopolies arise? There are many reasons which often are discussed as barriers to entry. Barriers to entry are obstacles to entry that protect the firm within a market from the threat of competition by potential entrants

- (a) A Single firm may control the entire supply of a basic input that is required to manufacture a given product. in this case the firm becomes a natural monopoly for example DeBeers in South Africa which control almost every piece of land on which diamonds are mined.
- (b) A firm may acquire a monopoly over the production of a good by having patents on the product or on certain basic processes that are used in the production. The patent laws to make a certain product as a way to encourage invention.
- (c) A firm may become a monopolist because it is protected by an Act of the Parliament for example government corporations such as ZBH.
- (d) When a firm is enjoying economies of scale, it may supply the market effectively at lowest possible cost making the entry of other firms extremely difficult.
- (e) If production requires an initial large capital requirement for example laying of rail tracks, a firm that will be able to source the capital may become a monopoly e.g. NRZ.

8.6.2 The demand curve for the monopolist

Since the monopolist is the only firm in the industry, it faces the industry market demand curve which is downward sloping. Thus, to sell an additional unit of output, the firm has to reduce its price.

Fig 8.9 Monopoly firm's demand curve



The MR curve is also downward sloping because the addition to total revenue from the sale of additional units becomes progressively smaller and smaller with price being reduced in order to sell on extra unit. Another point to note is that the MR is less than AR at every level of output except for the first unit. This can be illustrated by the following example. Assume a monopolist sells 100 units at a price of \$2.50 each. In order to raise sales to 101 units, the price should be reduced \$2.48. Thus average revenue falls to \$2.48 but marginal revenue which is the difference in total revenue resulting from the increase in sales from 100 to 101 units can be calculated as:

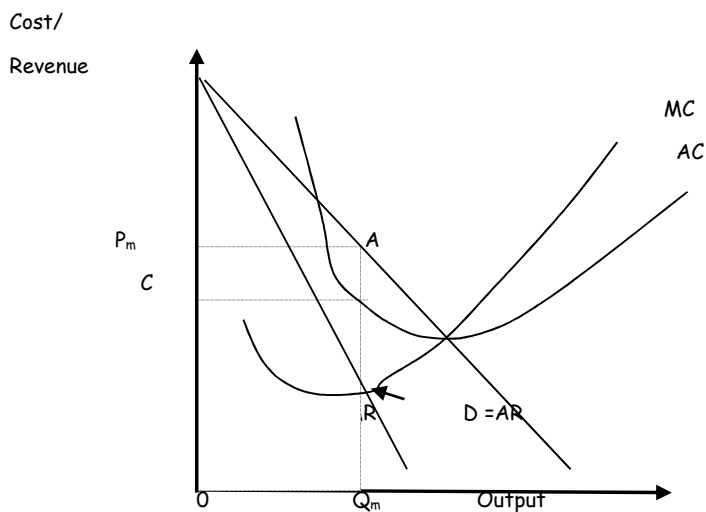
TR1	=	100	@2.50	\$250
TR2	=	101	@2.48	\$250.48

Therefore the increase in TR = 48c. Thus MR = \$0.48 is less than AR = \$2.48.

8.6.3 Monopoly output and price determination

A profit maximizing monopolist will employ the same rationale as a perfectly competitive firm, that is, it will produce an output level where $MR=MC$. In the short run, a monopolist can earn abnormal profits due to the fact that it will be charging very high prices since it faces no competition.

Fig 8.10 Short run monopoly output and price

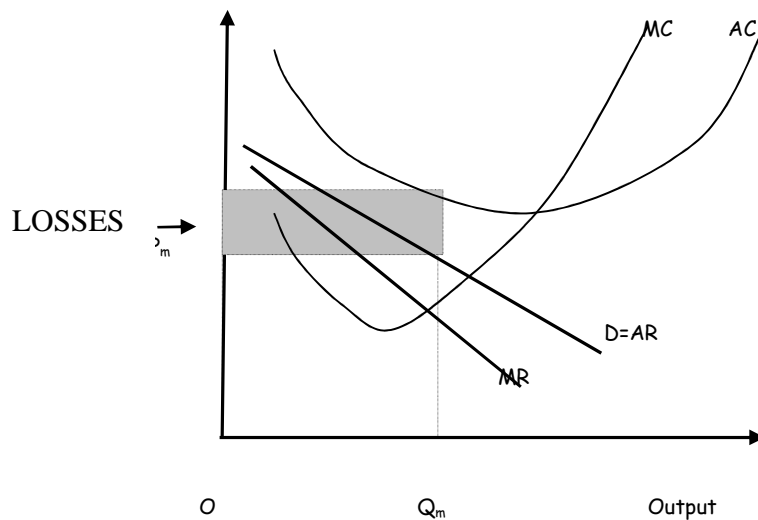


A monopolist has the power to determine either the price at which to sell his product or the quantity he wishes to sell. He can not determine both because he can not control demand. If he decides on output level OQ_m using the $MR = MC$ rule, the unique price at which OQ_m can be sold is found by extending a vertical line up from the profit maximizing output and then at right angle from the point at which it hits the demand curve to the price axis. The indicated price is OP_m . At output level OQ_m , average costs per unit equals OC . Total revenue equals rectangle OP_mAQ_m and total cost equals rectangle $OCBQ_m$. Therefore the monopolist is making abnormal profits represented by CP_mAB .

NB: Abnormal profits will continue in the long run because of the assumption of barriers to entry which exist. As a result the long run equilibrium is the same as the short run equilibrium. However, monopolists may earn losses in the short run, in which case they would strive to minimise their losses.

Fig 8.11 Monopoly loss

Revenue / Cost



The absence of a unique price associated with each output level makes it difficult for use to define the supply curve for a monopolist,

8.6.4 Monopoly and resource allocation

Given the same costs, a monopolist will produce much less desirable results than a perfectly competitive firm. The monopolists will find it profitable to sell a smaller output and to charge a higher price than would a competitive producer. Therefore monopolists are allocative inefficient in the sense that they charge a price which is above marginal costs, that is $P > MC$. They are also productive inefficient because they produce less output at a high cost of production than producing at the minimum of average cost curve.

8.6.5 Monopoly price discrimination

Price discrimination is a situation where a firm charges different prices for the same product in different markets when there are no cost differences to justify this. The different prices are charged for reasons not associated with costs of production, for example, cell phone peak and off-peak call charges.

The conditions necessary for price discrimination to be successful are that

- (i) Buyers fall into classes with considerable differences in the price elasticity of demand for the product.
- (ii) These classes can be identified and segregated at moderate cost and
- (iii) Buyers must be unable to transfer the commodity easily from one class to another, since otherwise it would be possible for persons to make money by buying the product from the low-price market and selling it to the high price market, thus making it difficult to maintain the price differentials between classes.

The discriminating monopolist will proceed to charge a high price in the market where demand is inelastic and a low price where demand is elastic in order to exploit the consumers' surplus.

8.7 Monopolistic competition

Perfect competition and monopoly are two polar extremes. There are an extremely large number of firms in a perfectly competitive industry but only one firm in monopoly. During the late 1920s and early 1930s, economists began to stress the need to develop models that will handle the important middle ground between perfect competition and monopoly, in which feel practically all of the empirically relevant cases.

One of the most noteworthy achievements that were then produced was the theory of monopolistic competition, put forth by Harvard's Edward Chamberlin - The Theory of Monopolistic Competition (1933)

8.7.1 Assumptions

The basic idea behind Chamberlin's theory is that most firms face relatively close substitute products and that most products are not completely homogenous from one seller to another. The assumptions underlying Chamberlin's theory are as follows: -

- (i) He assumes that the product which is produced is differentiated, with each firm's product being a fairly close substitute for the products of the other firms in the product group. Product differentiation refers to a situation where similar products are made distinct through packaging, branding, after sales services etc. for example, bathing soaps like Geisha, Jade and Image.
- (ii) He assumes that the number of firms in the product group is sufficiently large so that each firm expects its actions to go unheeded by its rivals and to be unimpeded by any retaliatory measures on their part. Therefore, firms are price setters in respect of their individual products.
- (iii) There are no barriers to entry hence entry or exit in the industry is relatively easy.
- (iv) He assumes that both demand and cost curves are the same for all of the firms in the group. This, of course, is a very restrictive assumption since if the products are differentiated; one would ordinarily expect their demand and cost curves to be different too.

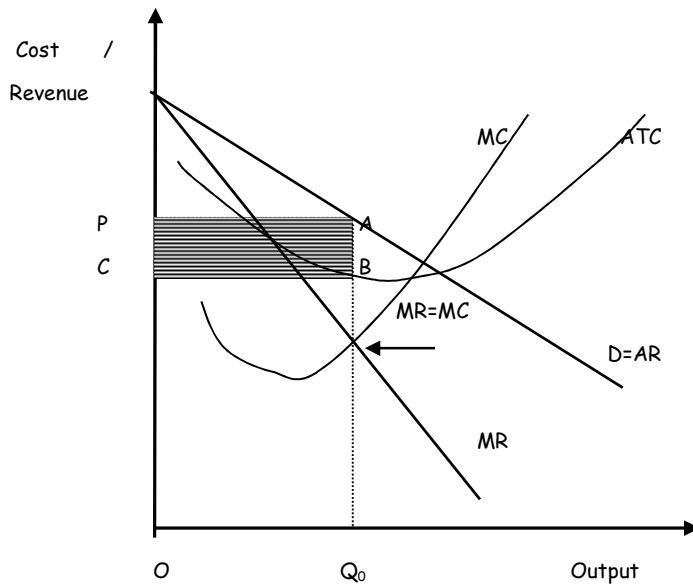
8.7.2 Product differentiation and the firm's demand curve

Product differentiation plays a very important role in Chamberlin's theory in that it defines the scope of the firm's demand curve. If a product is well differentiated, it becomes unique and hence would have less close substitutes thus demand curve will approximate the monopoly's demand curve. On the other hand if products are less differentiated they tend to be substitutes hence the demand curve will approximate a perfectly competitive firm's demand curve. Thus the precise degree of elasticity embodied in the monopolistically competitive firm's demand curve will depend on the exact number of rivals and the degree of product differentiation. The larger the number of rivals and the weaker the product differentiation the greater will be the elasticity of each seller's demand curve that is the closer the situation will be to perfect competition.

8.7.3 Price and output determination

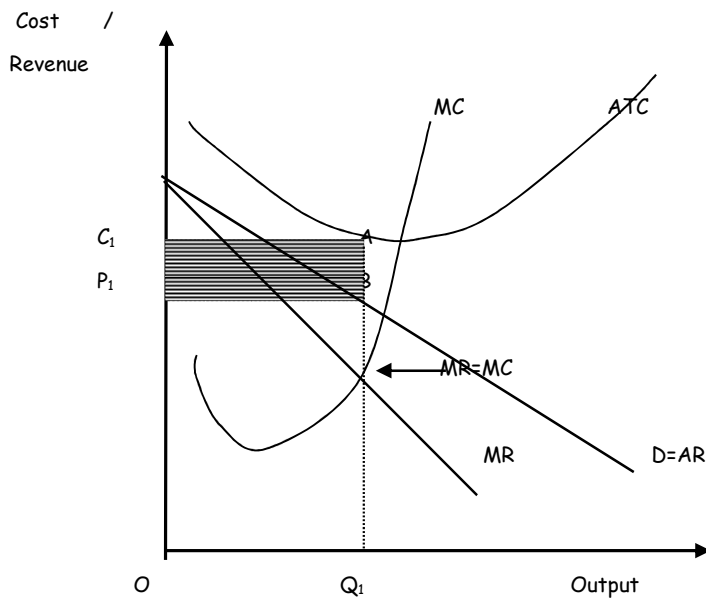
The firm will maximise profits by producing that output level where $MR=MC$

Fig 8.12 Short run equilibrium of a monopolistically competitive firm



On the above diagram the firm produces an output OQ_0 and charges a price OP and realises a total abnormal profit of the size of the shaded rectangle $CPAB$. A less favorable cost and demand situation may exist, putting the monopolistically competitive firm in the position of realizing losses in the short run. This is illustrated by the shaded rectangle in the following diagram.

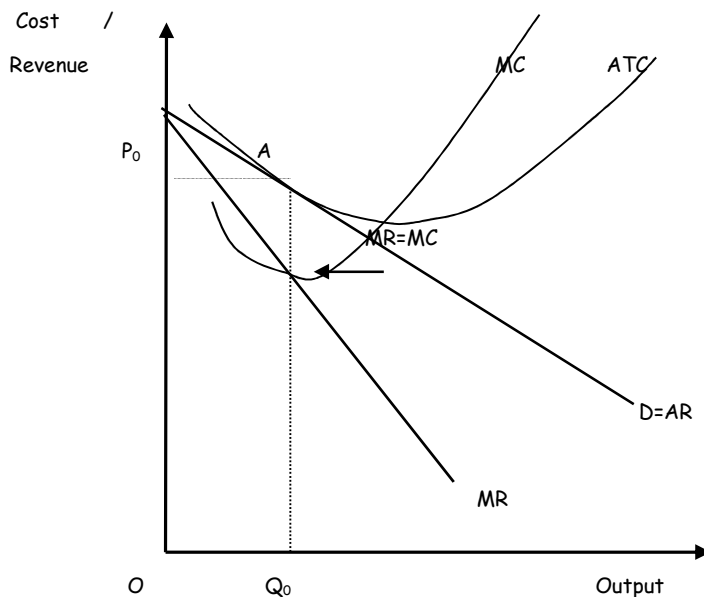
Fig 8.13 Short run loss under monopolistic competition



Total costs are represented by the rectangle OC_1AQ_1 and total revenue by rectangle OP_1BQ_1 . The firm is making losses as represented by the shaded rectangle P_1C_1AB .

Thus in the short run, the firm may either realise an economic profit or loss. Abnormal profits will attract new rivals. Since entry is relatively easy, new firms will enter. As the number of rivals increase, the demand curve will become more elastic and each firm's market share becomes very small. Thus in the long run, the short run abnormal profits will disappear and firms earn normal profits.

Fig 8.14 Normal profit for a monopolistically competitive firm



When the demand curve is tangent to the average costs curve at the profit maximizing output as shown in the diagram above, the firm is earning normal profit. Losses in the short run will lead to an exodus of firms in the long run. Faced with few substitutes and blessed with an expanded market share, surviving firms will find that their losses disappear and gradually give way to approximately normal profit.

8.7.4 Criticisms of the theory of monopolistic competition

A number of important criticisms have been made of the theory.

- (i) University of Chicago's George Stigler and others have argued that the definition of the large group of firms included in the product group is extremely ambiguous. It may contain only one firm or all of the firms in the economy. In other words the model assumes a large number of sellers but it does not define the actual number. How many firms should there be in an industry in order to classify it as monopolistic competition rather than as oligopoly? What is the crucial number that determines whether firms act independently or recognize interdependence? Such problems are not discussed in the model.
- (ii) The assumption of product differentiation is incompatible with the assumption of free entry. Some forms may achieve a measure of product differentiation which can not be duplicated by rivals even over a long span of time. Thus product differentiation can create a barrier to entry for new firms

- (iii) The assumption of independent action by the competitors is inconsistent with reality. In reality firms are continuously aware of the actions of competitors whose product is close substitute to their own product.
- (iv) The assumption of myopic behaviour of business owners is unrealistic. In reality firms do learn from past behaviour. Those that do not, get competed out of business.

8.8 Oligopoly

Oligopoly is a market model characterized by a small number of firms and a great deal of interdependence, actual and perceived among them. Each firm formulates its policies with an eye to their effect on its rivals. Thus one firm's price decision is likely to cause a response which often leads to price wars. The interdependence of firms in oligopoly markets makes them not to depend on market forces. They worry about prices, spent fortunes on advertising and try to understand the behaviour of their rivals. Oligopolies may produce homogenous or differentiated. If the firms produce a homogenous producer, the industry is called a perfect or pure oligopoly. If the firms produce a differentiated product the industry is called an imperfect or differentiated oligopoly. It is easier to deal with the case of perfect or pure oligopoly. When two firms dominate the market as what used to exist when Circle Cement used to serve the northern part of the country while Portland Cement was serving the southern part, this is known as duopoly.

The interdependence of firms in oligopoly markets lead to a range of behaviour patterns bordering on one extreme, firms being engaging in fierce competition and on another, firms explicitly co-operating. As a result there is no single model of oligopoly behaviour. Here, we will examine three rather distinct models.

8.8.1 Oligopoly with price leadership

This model of oligopoly behaviour is based on the assumption that one of the firms in the industry is the price leader. The price leader will set the price and the rest follow its lead, that is, the followers will adopt this price. Thus the followers behave like firms in perfect competition while the price leader behaves like a monopolist in the sense that it has freedom to set price.

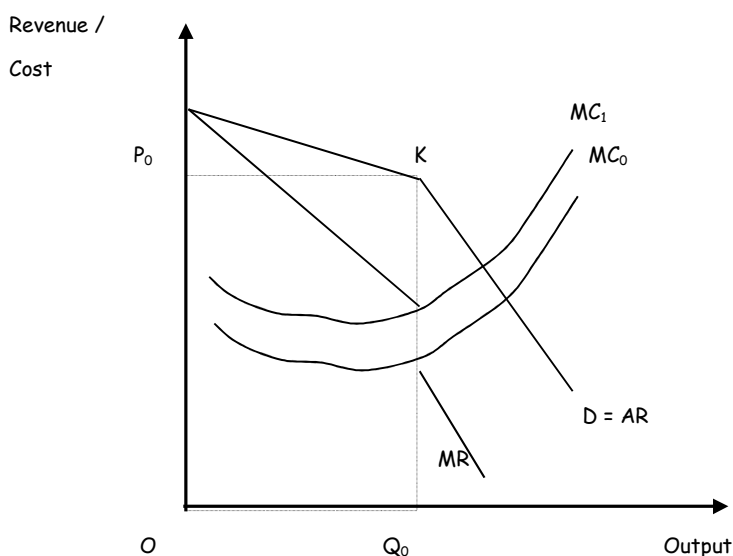
Two forms of price leadership can be discussed: the dominant firm and the barometric - firm. The dominant firm leadership applies to industries in which there is a single large dominant firm in the industry and a number of minor firms. The dominant firm sets the price for the industry probably using the marginalist rule for profit maximization ($MR = MC$), but the assumption is that it lets the minor firms sell all they want at that price. Whatever amount the minor firms do not supply at that price is supplied by the dominant firm.

The barometric firm leadership applies to the industry in which one firm usually is the first to make changes in price that are generally accepted by other firms in the industry. The barometric firm may not be the largest or most powerful firm but a reasonable accurate interpreter of changes in basic cost and demand conditions in the industry. According to Kaplan, Dirlan and Lanilotti, a firm may emerge as a barometric firm through experienced stability during a period of violent price fluctuations and cutthroat competition in the industry during which many other firms suffer.

8.8.2 The kinked demand curve model

This well known model designed to explain the rigidity of prices in oligopoly markets was advanced by Paul Sweezy (1939) "Demand under Conditions of Oligopoly", Journal of Political Economy, August 1939. In his theory he stated that if an oligopolist cuts its price, it can be pretty sure that its rivals will meet the reduction. On the other hand, if an oligopolist increases its price, it is likely to find that its rivals will not change their prices. In such a case, the demand curve for the oligopolist's product would be much more elastic for price increases than for price decreases.

Fig 8.14 The kinked demand curve



The kinked demand curve is a combination of two types of demand curves with different elasticities. Because of the 'kink' in the demand curve, the marginal revenue curve is not continuous. Given that the firm's marginal cost curve is MC_0 marginal cost does not equal marginal revenue at any level of output. However output OQ_0 remains the most profitable output and OP_0 the most profitable price even if the marginal cost curve shifts to MC_1 . Thus under these circumstances, one might expect price to be quite rigid at the level of the kink.

Although this model may be useful under some circumstances in explaining why price tends to remain at a certain level (OP_0), it is of no use in explaining why this level, rather than another currently prevails. In other words, the theory does not explain how the going price gets to be at OP_0 in the first place.

8.8.3 Collusion and cartels

Collusion occurs when the few firms composing an oligopolistic industry reach an explicit or unspoken agreement to fix prices, divide a market, or otherwise restrict competition among themselves. The advantages to the firms of collusion seem obvious: increased profits, decreased uncertainty, and a better opportunity to prevent entry. Conversely, collusive arrangements are often hard to maintain, since once a collusive agreement is made, any of the firms can increase its profit by cheating on the agreement. As a result, cartels are very unstable.

When a collusive arrangement is made openly and formally, it is called a cartel. A cartel is a group of sellers of a product who have joined together to control its production, sale and price in hope of obtaining the advantages of monopoly. Thus when a cartel is successful it may end up more of a monopoly, but because they do not combine to produce together, they do not enjoy economies of scale. An example of a cartel is the Organisation of Petroleum Exporting Countries (OPEC). OPEC was formed in 1960 with the objective of controlling crude oil production. In 1973, members restricted output and prices of crude oil tripled. However, the cartel failed to keep prices high by the mid 1980s because the OPEC never established barriers to entry. As a result, when prices rose, non cartel members increased output and putting a downward pressure on prices. On the other hand, close substitutes for oil and energy efficient technologies were developed. Thus demand for oil became more elastic.

Members of the cartel have been in disagreement over quotas. By 1989, cheating among members became rampant, and production exceeded the total quota, putting pressure downward on prices. This destroyed the cartel's ability to maintain high prices.

Chapter 9

National income measurement

9.0 Introduction

During the course of the year economic agents engage in activities that produce various goods and service or national output. National output and national income are synonymous. In this chapter, we are going to explore how an economy can attach a monetary value to its output and outline some of the alternative uses of the obtained statistic or GDP. The aim of national income measurement or accounting is to place a monetary value on this year's output. National income measurement is important in that it provides us with a basic indicator of the performance of the economy in the production of goods and services over a given period, usually a year.

9.1 Methods of measuring national income

There are three methods of measuring national income, namely income method, output method and expenditure method. These methods must arrive at the same national income figure because they are measuring the same output in different ways.

9.1.1 Income method

The income method adds together income earnings in the form in which they are received, that is, income from employment and self-employment (wages and salaries), rent, interest, profits and dividends. Note that only incomes earned from supplying factor services are counted. Transfer payments are ignored and incomes are recorded gross hence the result is national income at factor cost.

9.1.2 Output method

The economy is broken up into different sectors (e.g. manufacturing, agriculture, mining etc.). The output method adds together the total value of all final goods and services produced in each sector or adding the value added at each stage of production to avoid double counting.

9.1.3 Expenditure method

The method adds together all the money spent in buying this year's output. National income will be the total of consumption, investment, government expenditure and net exports (exports less imports). The result is total expenditure at market prices hence deduct indirect taxes and add subsidies to get national income at factor cost.

9.2 National income statistics

Gross Domestic Product (GDP) is the primary statistic of national income measurement and other measures or statistics can be derived from GDP.

9.2.1 Gross Domestic Product (GDP)

GDP is the total value of all the final goods and services produced from all the resources within Zimbabwe. Final goods refer to goods produced for consumption unlike intermediate goods which are goods used as inputs to produce other goods and hence intermediate goods are excluded in the measurement of GDP. GDP measures the performance of the domestic economy because of its focus on output from resources located in the domestic economy regardless of their ownership.

9.2.2 Gross National Product (GNP)

GNP is a measure of the total value of all final goods and services produced from resources owned by Zimbabweans regardless of where they are operating from. GNP measures the performance of a nation. Resource ownership is important because it determines the flow on factor income. Foreign ownership implies income flowing to abroad (factor income to abroad) while Zimbabwean citizens who own factors of production abroad will remit their incomes aback home (factor inflow from abroad).

$GNP = GDP + \text{Net factor income from abroad}$

$\text{Net factor income form abroad} = \text{Factor income from abroad} - \text{Factor income to abroad}$

9.2.3 Net National Product (NNP)

The word 'gross' implies that the costs of producing that output are included. The cost is depreciation. Depreciation or capital consumption refers to that part of the year's output needed to replace obsolete and worn-out capital. Depreciation is a cost of production and must be deducted from the GNP in order to arrive at the net national income.

$NNP = GNP - \text{Depreciation}$

The NNP figure will be at market price. That is, it is obtained using the prevailing market prices for the final goods and services which often are inclusive of indirect taxes such as VAT while being exclusive of any subsidies. To measure the amount of income paid to the factors of production for the services rendered in producing the output (NNP at factor cost), we deduct indirect taxes and add subsidies to NNP at market prices.

$NNP \text{ at factor cost} = NNP \text{ at market price} - \text{indirect taxes} + \text{subsidies}$

9.2.4 Personal Income (PY)

Personal income refers to income actually received by households and unincorporated business (personal sector). $PY = NNP \text{ at factor cost}$ less company tax, retained profits and social security payments plus transfer payments.

9.2.5 Personal Disposable Income (PDY)

Personal disposable income is that part of personal income which is finally available for spending by households.

$PDY = PY - \text{Income tax (PAYE) and Property taxes (e.g. rates)}$.

9.3 Problems likely to be encountered when measuring national income

Estimation of the country's GDP is the responsibility of the Central statistics Office (CSO). To obtain the GDP statistic the department conduct national income surveys through which representative samples of the population (households or firms in different sectors) make contributions that are then generalised on the economy. In this process of estimating national income, there are three sets of problems that are likely to be encountered.

9.3.1 Data Reliability

National income accounts are as good as the data on which they are based. If the data is inaccurate, the resulting statistic will also be inaccurate. Data can be inaccurate due to:

- a. Sampling technique problems e.g. sampling bias or even bad luck.
- b. Individuals giving incomplete or inaccurate information.

- c. Guess work, especially in developing countries where there are no means of gathering the correct data e.g. output from subsistence farming is difficult to measure in Zimbabwe, resulting in conflicting reports on the contribution of communal farming to national agricultural output.

9.3.2 Valuation

Final goods and services are measured in various physical units such as kilograms, hours, dollars etc. As a result, there is need to convert all these measures to monetary terms in order to come up with a monetary value of the year's output. However, when making these valuations the following problems are likely to be encountered.

- a. Double counting which arises when adding the value of intermediate goods instead of final goods or 'value added' at each stage of production. For example, the value of wheat (\$200mln) + value of flour (\$500mln) + the value of bread (\$800mln) giving a wrong national income of \$1500mln instead of the correct \$800mln which is the value of the final product (bread). In this case wheat and flour are intermediate goods.
- b. Public goods and services (e.g. defence) make a contribution to national income but they do not have a market value. As a result, it will be difficult to attach a monetary market value to public goods and services. However, the contribution of public goods and services should be measured 'at cost,' that is, add the salaries of soldiers as the value of defence's contribution to national output.

9.3.3 Omissions

When national income data is collected, several significant contributions to that income are likely to be omitted partly because of difficulties in measurement and non-availability of reliable data. The following are some notable omissions which are usually represented on national income figures by an imputed 10% of the value of GDP.

- a. Self provided goods and services e.g. Do-It-Yourself kits or self provided services such as a meal prepared at home which is not included in national income statistics while a meal at a restaurant such as the Silver Spar at Holiday Inn will be included.
- b. Output from subsistence or communal farming which is excluded while output from the commercial farms is included.
- c. Informal sector activities.
- d. Black market or illegal activities for example individuals have managed to built houses and castles from dealing in foreign currency but the same individuals can not declare this source for fear of prosecution.

It may be important to note that these activities contribute substantially to the economy's activities. In Zimbabwe the informal sector employs more than half of the country's working population. An imputed 10% will grossly lead to the underestimation of the country's GDP.

9.4 National income and standards of living

The standards of living refer to the quality of life in a country or the wellbeing of a country's citizens. One reason of measuring national income is that of wanting to make inference into the standards of living. That is, investigating whether the people are better off than they were in the previous year or to make comparisons of standards of living between different countries. Apart from indicating the standards of living, national income statistics are used for planning purposes.

9.4.1 Measurement of the standard of Living

The value of this year's national income is a useful measure of how well-off a country is in material terms. That is, the standard of living can be measured by the volume of goods and services consumed.

- a. According to Alfred Marshall, national income gives a measure of economic prosperity. A real increase in national income is an essential prerequisite to a rise in the general standard of living of people.
- b. A second method of measuring living standards is to count the percentage of people owning consumer durables such as cars, televisions, radio and so on. An increase in ownership indicates an improved standard of living.
- c. A third method of calculating living standards is by noting how long an average person has to work to earn money to buy certain goods. If people have to work less time to buy goods, then, there has been an increase in the standard of living.

9.4.2 Using GDP to interpret standards of living in a country over a period

"Economic statistics are like a bikini, what they reveal is important, what they conceal is vital" - Attributed to Professor Sir Frank Holmes, Victoria University, Wellington, New Zealand, 1967.

A real increase in national income can, *ceteris paribus*, be interpreted as representing an improvement in the people's standard of living. If real GDP increases over a given period, this may imply that the volume of goods and services produced and consumed had increased which is interpreted as an improvement in the quality of life for the people. On the other hand, it is not automatic that an increase in national income results in an improvement in the standards of living for the majority. Increased GDP may not mean a better life style for the majority of people if:

- a. Income is unequally distributed that is, if there is a wide gap between the rich and the poor. The increased GDP will be in the hands of a few minorities leaving the majority worse off. Only a small minority of wealthy people consumes the extra goods.
- b. Increased output of certain goods results in more noise, congestion and pollution (externalities). The quality of life will be reduced by these negative externalities.
- c. Leisure time is reduced to achieve the production increase. That is, if the increased output was produced as a result of people working over time, travelling long journeys to work etc, all which reduces leisure which is an important aspect of the quality of life.
- d. Population is growing at a faster rate than the real GDP (population explosion). In this case, the cake of real GDP will have to be shared among a large population making the real GDP per head or per capita income small.
- e. Increased output is due to production of producer goods instead of consumer goods. Producer goods such as machines are used to produce consumer goods. As a result producer goods contribute to the future welfare and not the present welfare which largely depends on the volume of consumer goods produced and consumed.
- f. There is an increase in the amount of stress and anxiety in society. Increased output has its own fare share of social health problems which reduce the quality of life.

9.4.3 Comparing standards of living between different countries.

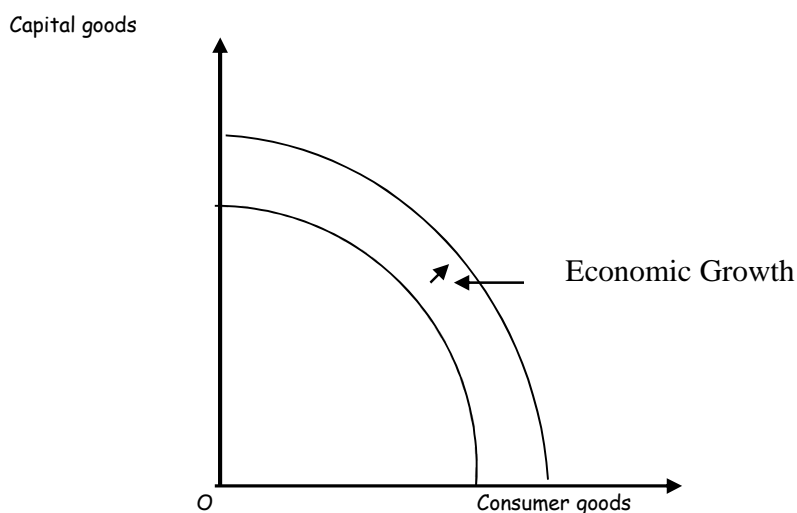
Fairly accurate comparison of the national income statistics can be carried to compare the standard of living between different countries. For example a country with a higher per capita income can be concluded to have better standards of living. However, the following qualifications need to be made before such a comparison is made.

- a. Income may be fairly distributed in one country than the other. If a country has a higher per capita income but at the same time the income is unequally distributed, then the income will be in the hands of a few minorities leaving the majority worse off.
- b. The country with a higher income may be producing producer goods while the other country is producing consumer goods. The country with a low per capita income but producing consumer goods will have improved present standards of living than the country with a high per capita income.
- c. Citizens of one country may be working long hours resulting in a high real GDP per head. An example is the Japanese people who usually work long hours in shifts e.g. retail shops that open 24 hours a day. By working long hours, they forego leisure which is an important indicator of welfare.
- d. When make international comparisons there is need to first convert the national income s of the different countries to a convertible currency such as the United States dollar. The problem is that of the exchange rate to use since different countries use different exchange rate systems. For example which exchange rate will be used in Zimbabwe? The auction rate, the parallel market rate or the official fixed exchange rate?

9.5 Economic growth

Economic growth can be defined as a sustained increase in the level of real national income (real GDP per head or per capita income). Economic growth implies an increased ability to produce goods and services. Thus with economic growth, the quantity of goods and services produced overtime increases hence the people's standards of living will improve. Economic growth can be represented by an outward shifting of the PPC.

Fig 9.1 Balanced economic growth



A complete outward shift of the PPC to the right represents balanced economic growth. This means that the economy can now produce more of both consumer and capital goods than before. Imbalanced economic growth can be represented by the pivot of the PPC in favour of the expanding sector while anchored on the sector with no expansion.

9.5.1 Causes of economic growth

a. Supply factors

Economic growth primarily results from an increase in the quantity of the available resources and an increase in the productivity of the existing resources. These are the supply factors. Supply factors that define an economy's potential to expand include:

- i. An increase in the quantity and quality of an economy's resources e.g. discovery of new resources.
- ii. Improvement in the quantity and quality of the economy's human resources. (Human capital investment).
- iii. An increase in the economy's stock of capital (capital accumulation).
- iv. Improvement in the level of technology.
- v. Research and development.

b. Demand factors

The supply factors only present an economy with the potential to grow. To realise growth, the nation must provide for the increased production through a growing level of aggregate demand in order to clear the production lines, thus facilitating further production and expansion.

c. Allocative factors

The available resources must be fully employed. Underutilisation of resources retards economic growth.

d. Government policy

The objective of government policy should be to promote economic growth e.g. The Growth Point Policy.

9.5.2 Is economic growth desirable or not?

The following arguments can be forwarded in favour of and against economic growth. The benefits are that economic growth,

- a. Is a path to material abundance hence the standards of living will improve where an economy experiences growth. In other words, economic growth is a prerequisite to an improvement in the standards of living.
- b. Reduces poverty. If developed countries do not experience growth, no excess income will result and hence there would be no means by which to provide funding in order to reduce poverty.
- c. Decreases unemployment. As the economy expands through increased economic activity, more job opportunities will be created.
- d. Increases ability to support a growing population. As the population increases the only feasible way to feed the increased population will be through economic growth. Without economic growth the population will be doomed according to Thomas Malthus.
- e. Is a catalyst to changing life styles or civilisation. TVs, DVDs, movies, mobile phones and other modern life items result from economic growth
- f. Widens the tax base hence tax rates will fall. That is, as the economy expands, other players come into production and the government stand to easily collect its tax revenue requirement which may culminate into lower individual taxation rates.

On the other hand the case against economic growth is that:

- a. If economic growth is caused by an improvement in technology, labour may become obsolete (technological unemployment). That is, machines will end up doing the jobs that people used to do. This may increase the levels of unemployment in the economy.

- b. Economic growth implies an increased use of the available resources some of which are non-renewable. Thus economic growth results in the depletion or exhaustion of natural resources.
- c. Growth results in serious problems of noise, ugly cities and other disamenities of modern life (externalities).
- d. Growth permits us to make a living but does not give us a good life. Economic growth gives us a bed but does not give us sleep. Good life is not measured in terms of wealth or riches or material things but other social elements including having a peace of mind or lack of anxiety. Sometimes poor people are the happiest persons in life.
- e. Economic growth is a catalyst to civilisation which may results in the destruction of the moral fibre.
- f. Increased anxiety hence health problems e.g. stress, ulcers, diabetes and high blood pressure.

9.6 Economic development

Economic development is a multidimensional phenomenon that captures various aspects of improvement which are economic, social and political. Development includes improvement in the living standards, sanitary conditions and other welfare indicators in the economy. Thus, economic growth, which refers to a sustained increase in real GDP, is only a branch of economic development.

9.6.1 Developed and less developed countries

World economies can be classified into developed countries (DCs) and less developed countries (LDCs). Developed countries are those that have taken significant steps towards developmental expectations such as achieving an economic growth rate above population growth rate, a high level of industrialisation and reducing poverty, unemployment and inequality. It is however, impossible to eradicate unemployment, poverty or inequality, but the developed countries have surpassed minimum expectations. Developing countries are those that are still striving to record positive changes towards development and have not met the minimum expectations.

9.6.2 Characteristics of developing countries

Developing countries are characterised by

- a. High unemployment levels.
- b. Poor standards of living.
- c. Low levels of industrialisation.
- d. Poor infrastructures such as roads and communication networks.
- e. Poverty, the majority of the people live below the poverty datum line.
- f. Population explosion, that is, population growing at a rate faster than growth in national income.
- g. Poor sanitary conditions (decaying health sector and over-crowding).
- h. Poor export base, that is, they export raw materials and other primary products instead of processed or manufactured goods. Primary products tend to have huge volumes but being of little value.
- i. High budget deficits and BOP deficits.
- j. Inappropriate economic reform programmes and sometimes lack of implementation of these programmes.

9.6.3 Possible solutions to LDCs developmental problems

- a. Encourage foreign direct investment (FDI).
 - b. Export promotions e.g. through trade exhibitions.
 - c. Import substitution, that is, producing products that are close substitutes of the imported products.
 - d. Stabilising the political situation and increasing investor confidence.
 - e. Stabilising the exchange rate or removal of exchange controls.
 - f. Expanding the manufacturing sector.
 - g. Moral and infrastructure support to the growing informal sector.
 - h. Promoting investment e.g. through policies such as growth point policy.
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Chapter 10

National income determination

10.0 Introduction

In chapter 9 we discussed how to attach a monetary value to the year's output of final goods and services. In this way the economy will be measuring its GDP. Once the figure is arrived at, it can be manipulated into various other statistics such as GNP. These statistics will then be used to indicate whether the standards of living in a country are improving or not. The question now is what determines the value of national income? In other words, how did the economy achieve GDP equivalent to \$10bln instead of \$15bln? What determines the size of our national income? This chapter will help us answer these questions. In addition the chapter gives a historic account of the development of macroeconomics.

10.1 Keynes and the classical school

The term macroeconomics is a fairly recent addition to economics vocabulary. Macroeconomics is largely associated with the works of John M Keynes (1883-1946). Before Keynes, most economists belonged to a school of thought now known as the classical school. Classical economists were largely concerned with microeconomics. They believed in the dictum or Say's law named after the 19th century French economist Jean Baptiste Say who stated that "supply creates its own demand". The classical school believed that market forces operating in competitive markets would provide a self-adjusting mechanism that, in the long run, would automatically ensure full employment and economic growth. Unemployment, when it exists was considered not only temporary in nature but also largely voluntary.

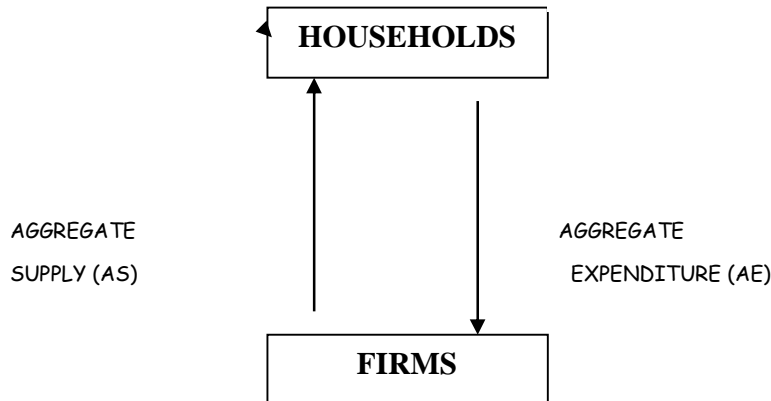
Opposing these classicals Keynes believed that "demand creates its own supply". Keynes argued that although forces of supply and demand work very well to establish equilibrium in individual markets, the economy as whole could experience periods of severe instability. Thus Keynes rejected the idea of an automatic adjustment process, believing that without government intervention, an unregulated market economy can quite easily settle into an under full employment equilibrium. Thus the debate between the classicals and Keynes was whether, if left alone the economy can achieve full productive capacity.

The great depreciation which started in 1929 and lasted until the onset of World War II seems to have settled the debate. Given the circumstances of the time e.g. In USA, GNP fell by 30% between 1929 -1933, agricultural prices fell by 60% and unemployment approached $\frac{1}{3}$ of the working population. The so-called classical view was simply not sustainable. The publication of Keynes' great and influential book The General Theory of Unemployment, Interest and Money (1936), brought in a new era of macro economics. Indeed until the development of monetarism in the 1970's and supply side economies around the end of the 1980's, macroeconomics and Keynesian economics was much the same thing.

The debate between the Keynesians and the classicals can best be summarised by a simplified version of the circular flow model where the terminology has been changed to suit our purpose.

CLASSICAL DICTUM:
“Supply creates its own demand”

KEYNESIAN DICTUM:
“Demand creates its own supply”.



The income flow is called *AGGREGATE SUPPLY (AS)* in the sense that income is generated during the production of goods and services. The expenditure flow is referred to as *AGGREGATE EXPENDITURE (AE)*. The question is which of the two happens first and how can the government stimulate or slow down economic activity? The classical school believes that the supply side of the production process is the most important feature of the macro economy. Supply creates its own demand in the sense that production gives rise to consumption. The policies which emerged from this basic view are those that stimulate production such as deregulation and privatisation.

Keynesians, on the other hand argued that demand is more important than supply. Thus if aggregate demand can be stimulated by means of appropriate policy interventions, it can be expected that supply, income and employment all be stimulated (increased). The policies that emerged under this view are changes in government expenditure and the level of taxation.

10.2 The Keynesian model

The Keynesian model is based upon the following simplifying assumptions:

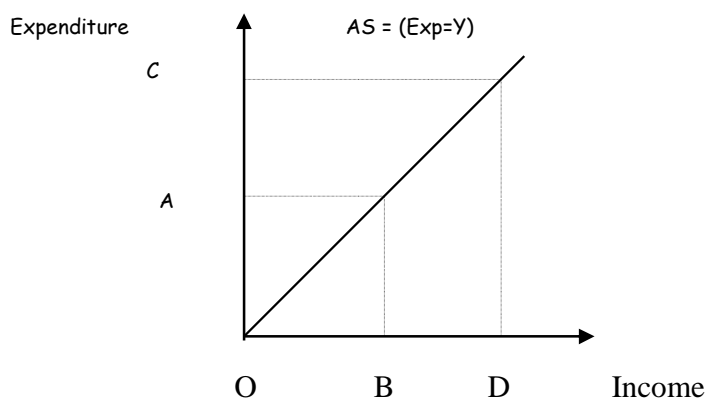
- Prices are constant.* This implies that the model is a short run model and this assumption means that, in the short run, producers will respond to changes in demand by changing the quantity they produce rather than price.
- Producers attempt to keep a constant level of stocks.* Should stock level fall, production will increase and if they increase, production will be reduced. This implies that the economy is at less than full employment.
- Where people receive income most of it is spent on goods and services produced locally but some will leave the circular flow in the form of savings, taxes and expenditure of imports.* These are withdrawals from the circular flow of income.
- Changes in investment, exports and government expenditure are assumed to be autonomous (independent), that is, these are not related to changes in national income.* This means that investment (I), government expenditure (G) and exports (X) are independent of income changes. Government spending is determined by government policy, investment depends to

some extent on the rate of interest and business expectation, exports depend on such factors as income from other countries and the exchange rate.

10.2.1 Aggregate supply (AS)

The Keynesian model is developed by using the income and expenditure variables. Expenditure is presented along the vertical axis of the graph while income is measured on the horizontal axis. If we assume that the economy is at less than full capacity as implied in the model, then if there is an increase in expenditure, there would be sufficient resources available to produce goods and services to satisfy the increased demand. Thus the aggregate supply function is a 45° line drawn from the origin implying that at all points along this AS function, income is equal to expenditure ($\text{Exp} = Y$).

Fig 10.1 The aggregate supply function



When the level of national income is OB aggregate expenditure will be OA. If expenditure increases to OC the level of national income will increase to OD. According to Keynes an increase in aggregate expenditure leads to an increase in the production of goods and services and increase in income generated from production.

10.2.2 Aggregate expenditure (AE)

Aggregate expenditure refers to total expenditure by all spending units in the economy. It records expenditure by household (C), Government (G), firms (I), and foreign sector (X-M). There are four components of aggregate expenditure, $AE = C + G + I + (X - M)$.

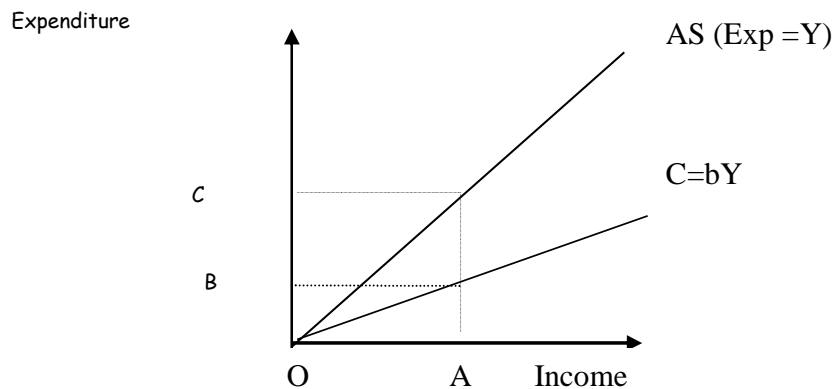
a. Consumption (C)

There are many theories that attempt to explain consumption patterns. Of these theories we will adopt the income hypothesis which outlines that consumption depends on the level of income. To show the relationship we will define the long-term consumption function and the short-term consumption function.

i. Long term consumption function

The long-term consumption function is plotted on the income and expenditure axis. It shows that assumption is an increasing function of income, that is, if income rises, consumption will increase. However, if the consumption function lies below the aggregate supply function, that is, its slope is less than that of the aggregate supplies function.

Fig 10.2 The long term consumption function



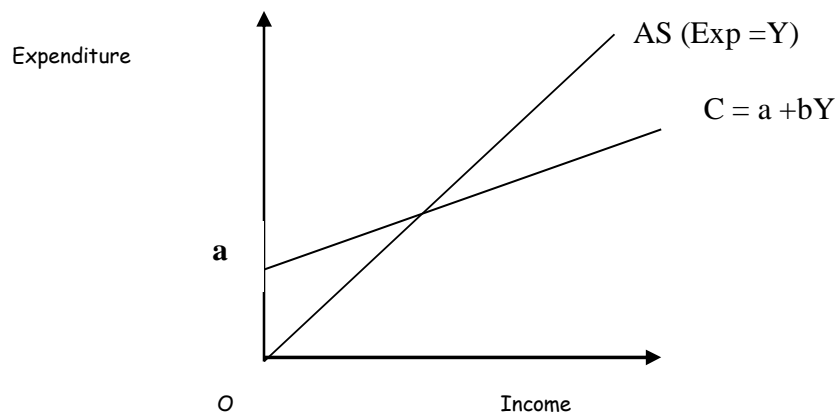
Not all income is spent in the form of consumption. Part of our income goes to taxation, savings and expenditure on imports. For example, a level of income equal to OA can be divided into OB consumption and BC withdrawal in the form of savings, taxes and imports. The portion of income OA that goes to financing expenditure OB depends on the marginal propensity to consume (MPC). MPC refers to the proportion out of an additional \$1 that is spent. MPC refers to the proportion out of an additional \$1 that is spent. MPC measures the slope of the consumption function. It can be defined as the change in consumption resulting from a small change in income.

$$MPC = \frac{\Delta C}{\Delta Y}$$

ii. Short term consumption function

In the short term it is possible that consumption exceeds income. This implies that a consumer will be consuming from past savings. This consumption which is independent of changes in income is called autonomous consumption. The short-term consumption function does not start at the origin but at the level of autonomous consumption.

Fig 10.3 The short term consumption function

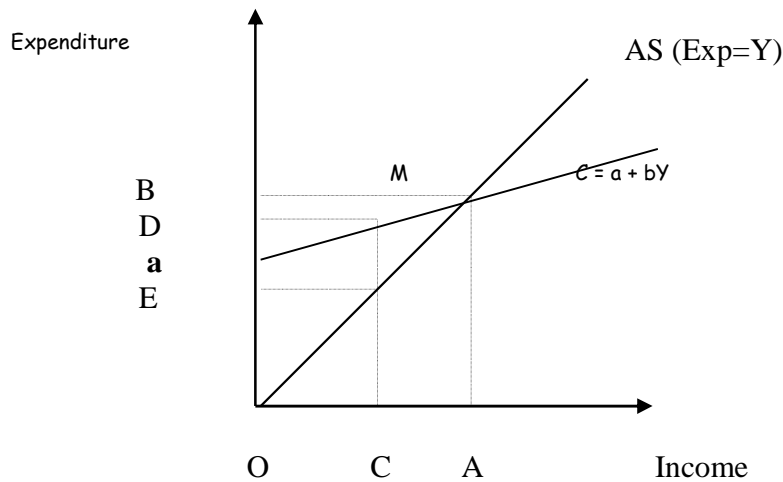


The short-term consumption function does not start at the origin but at the level of autonomous consumption. This means that if income is zero the level of consumption will be equal to **a**. The slope of the consumption function (MPC) = b .

iii. The relationship between income and savings

The short term consumption function can be used to show the relationship between the level of income and savings.

Fig 10.4 The relationship between income and savings

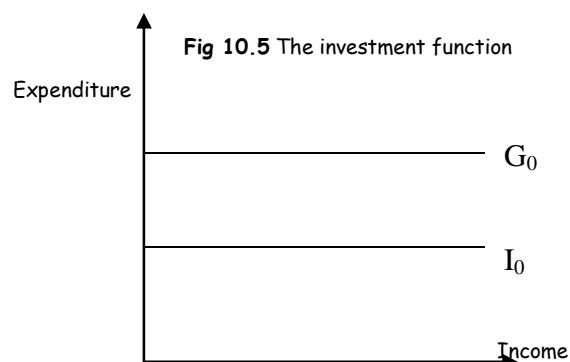


At point M where income is OA and expenditure is OB, there are no savings because income is equal to expenditure. To the left point M e.g. when income is OC, expenditure is greater than income ($OD > OE$) thus expenditure ED has to come from past savings, thus it represents the level of dissavings (negative savings). Points to the right of point M are points where income is greater than expenditure, hence there are positive savings.

NB* Consumption is the largest component of aggregate expenditure therefore it is very significant (more important). The slope of the consumption function significantly contributes to the slope of the aggregate expenditure function.

b. Investment (I)

According to simplifying assumption number (d), investment is not related to changes in income. It is determined outside the model, therefore it is exogenous. Investment depends to some extent on the rate of interest and the firm's expectation of the future. If plotted against income on a graph, investment will be represented by the horizontal straight line equal to OI.



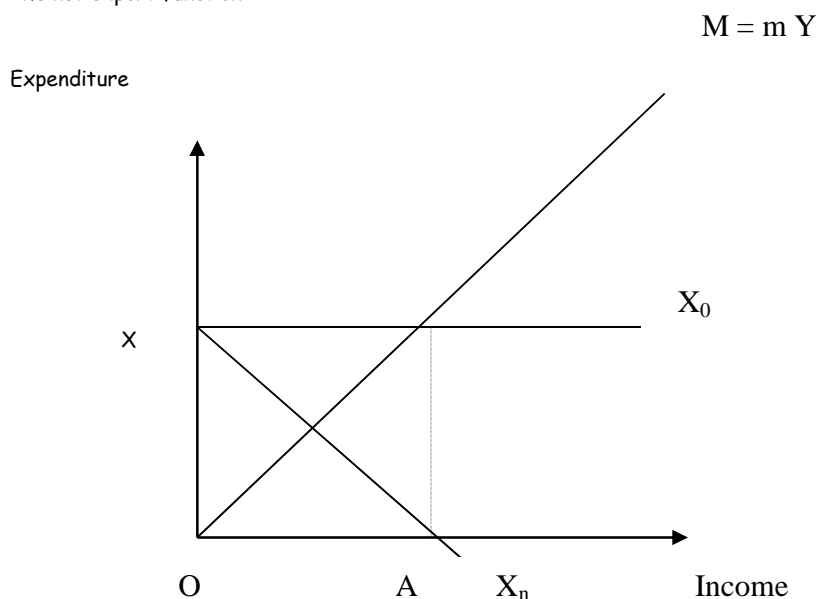
c. Government expenditure (G)

As with investment, government expenditure is assumed to be independent of changes in national income. It is determined by government policy and can be represented by a horizontal line equal to OG .

d. Net exports ($X_n = X - M$)

The export function is also horizontal due to the fact that exports depend on the changes in national income of other nations and not our own income. It is equal to OX . Imports depend on Y inside the country. As our income increases our expenditure on imports will tend to increase thus the import function can be expressed as $M = m Y$ where $m = MP$.

Fig 10.6 The net export function



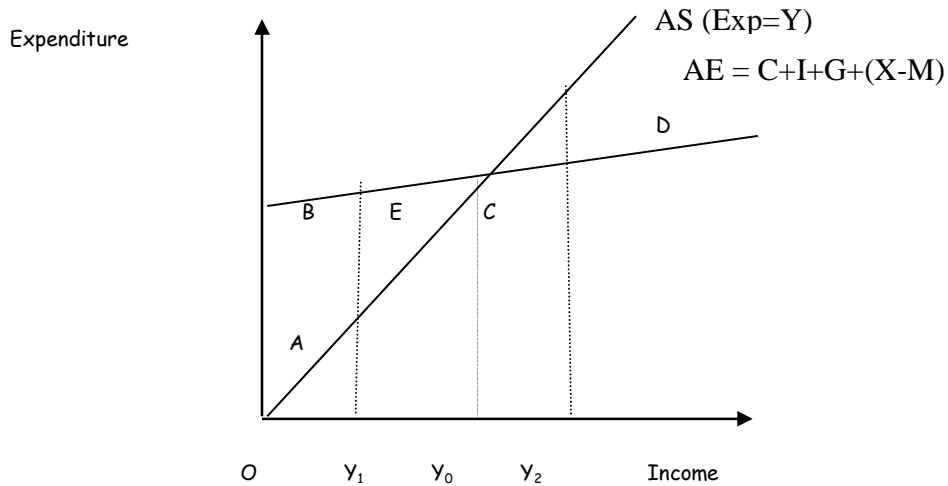
The net export function is the difference between exports and imports. It has a negative slope. X_n is equal to total exports when income is zero and declines as income increases. At level of income OA , $X = M$ thus net exports is equal to zero.

NB* The total aggregate expenditure function is defined as $AE = C + I + G + (X - M)$. Where national income is zero, aggregate expenditure will be equal to autonomous consumption expenditure (a), investment expenditure (I), government expenditure (G), and exports (X) that is $AE = a + I + G + X$. The slope of the aggregate expenditure function is equal to $(b - m)$.

10.2.3 Keynesian equilibrium

Equilibrium is a state of no change. It is a condition that can be maintained over time. In the simple Keynesian model equilibrium occurs when aggregate supply (AS) is equal to aggregate expenditure (AE). That is $Y = C + G + I + X - M$

Fig 10.7 Determination of the equilibrium national income

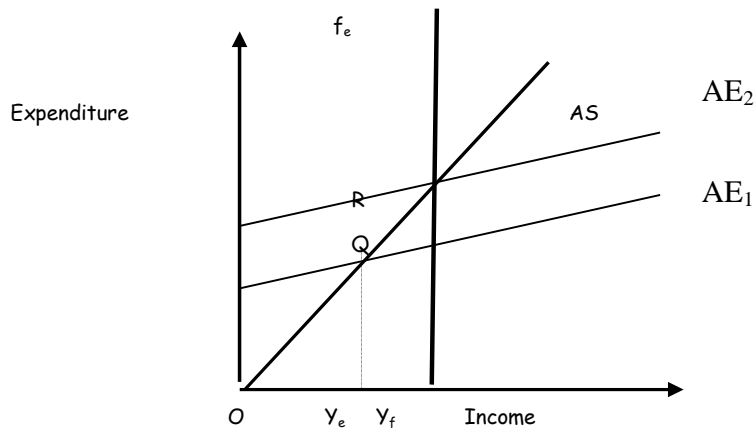


Aggregate expenditure is equal to aggregate supply when national income is valued at OY_0 . To the left of point E aggregate supply is less than aggregate expenditure. That is expenditure exceeds supply. As a result the level of stocks will be depleted. The distance AB is to extend to where stocks are being depleted (inflationary gap). As a result producers must respond by producing more goods and services, thus they will demand more factors of production and therefore generate more income. As production increases AS also increases and producers move from A to E. Conversely points to the right of the point E represent points at which AS is greater than AE (deflationary gap).

10.2.4 Equilibrium and Keynesian unemployment

According to the classical school unemployment when it existed was viewed as frictional (temporary) or voluntary. It was believed that voluntary unemployment would force down wages and retain the labour market to full employment. Keynes suggested that it is possible for an economy that is at equilibrium to experience levels of unemployment. In his explanation of unemployment Keynes introduced the concept of full employment which can be represented by a full employment line (f_e) which is similar to the PPF. OY_f will be generated if all the resources or factors of production in the economy are employed.

Fig 10.8 Keynesian unemployment

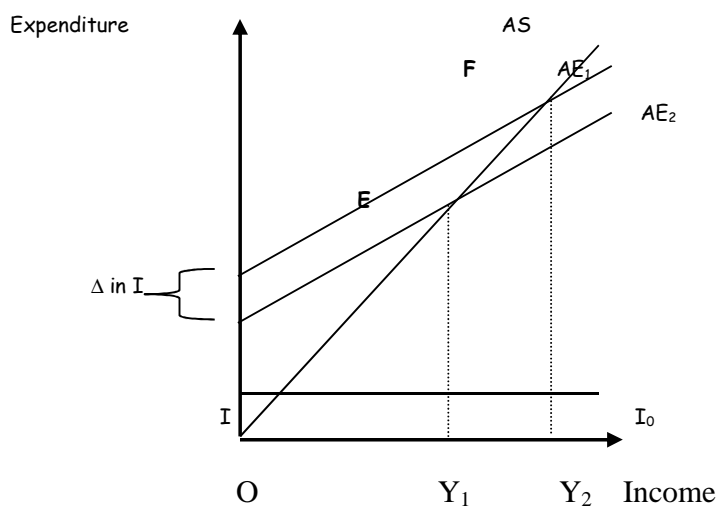


OY_e is the equilibrium value national income which is less than the full employment level implying that there are idle factors of production, that is, there is unemployment. (The fact that the economy is operating below full employment indicates that there is unemployment). This was the situation during the great depression. Keynes suggested that demand management policies such as increasing government expenditure, reducing the level of taxation, and reducing the rates of interest, could be the only appropriate policy measure. If any of these policies is implemented e.g. if government expenditure is increased, the aggregate expenditure function will shift from AE_1 to AE_2 thus increasing national income from OY_e to OY_f and eradicating unemployment since equilibrium national income will equal the full employment level of income, there will be no unemployment.

10.3 The concept of the multiplier

The multiplier exists whenever a change in one variable induces or causes multiple and successive stages of change in a second variable. The multiplier process arises because the expenditure of one firm is the income of another. The additional income is used to boost expenditure that fuels the increases in national income. The multiplier analysis indicates that the change in expenditure and a change in investment will give rise to a change in national income greater than the initial change in expenditure that brought it about.

Fig 10.9 The Keynesian multiplier



If the economy is at equilibrium with an initial aggregate expenditure function of AE_1 and national income OY_1 , that is, an initial equilibrium at point E . Suppose also that at point E private investment is zero. If new investment equal to OI is introduced to AE the function will shift to AE_2 . Equilibrium will change from E to point F . It can be observed that a relatively small change in investment (ΔI) has led to an increase in national income ($Y_1 - Y_2$) which is many times greater than the initial change in investment. So we can say we have multiplied change in investment to get a change in income ($\Delta Y = k\Delta I$)

10.3.1 How the multiplier works

Let us now use a mathematical example to illustrate how the multiplier works. Assume that an economy is at equilibrium. The economy receives an autonomous investment expenditure of \$1000m. The marginal propensity to consume (MPC) is 0.9 and the marginal propensity to import MPM is 0.1. Assuming that taxes are paid in lump sum and that the marginal propensity to

withdraw (MPW) is 0.2, what will be the change in national income generated by the initial change in investment expenditure of \$1000m?

$$\frac{\Delta Y}{\Delta I} = \frac{1}{MPW} = \frac{1}{MPS + MPM} = \text{Multiplier}$$

Since the investment expenditure of one firm becomes the income of another firm, the multiplier process can be summarised by the following table.

$$\Delta I = \$1000m$$

$$MPC = 0.9. \text{ Therefore } MPS = 0.1$$

$$MPM = 0.1$$

$$MPW = MPS + MPM = 0.2$$

Stage	ΔI	ΔY	ΔE	ΔW
1	1000m	1000m	800m	200m
2		800m	640m	160m
3		640	512m	128m
4		512m	409.6m	102.4
5		409.6	327.68	-
6		327.68	262.144	-
7		262.144	209.7152	-
8		-	-	-
9		-	-	-
10		-	-	-
TOTALS	1000m	5000m	4000m	1000m

Each succeeding stage of change is usually smaller than the previous one so that the total change induced in the multiplier process comes effectively to an end when further stages approach zero. The total income can be calculated as follows:-

$$\begin{aligned} \Delta Y &= 1000 + 800 + 640 + 512 + \dots \\ &= 1000 + (0.8) 1000 + (0.8)^2 1000 + (0.8)^3 1000 + (0.8)^4 1000 + \dots \\ &= 1000[1 + 0.8 + 0.8^2 + 0.8^3 + 0.8^4 + 0.8^5 + 0.8^6 + 0.8^7 + \dots] \end{aligned}$$

This is an infinite series whose summation is given by:-

$$\Delta Y = a \left(\frac{1}{1-r} \right)$$

Where $a =$ initial change in investment
 $r =$ common ratio (0.8)

$$\begin{aligned} \text{Therefore } \Delta Y &= 1000 \left(\frac{1}{1-0.8} \right) \\ \Delta Y &= 1000 \left(\frac{1}{0.2} \right) \end{aligned}$$

$$\begin{aligned} \Delta Y &= 1000 \times 5 \\ &= \underline{\$5000m} \end{aligned}$$

$$\text{Thus, } \Delta Y = 5 \times \Delta I$$

$$\frac{\Delta Y}{\Delta I} = 5$$

$$\begin{aligned} \text{Therefore multiplier} &= \frac{1}{MPM + MPS} \\ &= \frac{1}{MPW} \end{aligned}$$

EXAMPLE

In a closed economy with no government interventions MPC is 0.7. If the economy receives an injection in investment expenditure equal to \$1000 what will be the result and ΔY ?

$$\Delta I = \$1000$$

MPC = 0.7. Therefore MPS = 0.3

$$\begin{aligned} \Delta Y &= a \left(\frac{1}{1-r} \right) \\ &= 1000 \left(\frac{1}{1-0.7} \right) \\ &= 1000 \left(\frac{1}{0.3} \right) \\ &= \underline{\underline{3.33}} \end{aligned}$$

NB* The multiplier comes into operation for any autonomous change in expenditure. So, autonomous changes in investment, government expenditure, exports and consumption will have the same multiplier effect on an economy's national income. A multiplier equal to $1 / (MPS + MPM)$ is derived on the assumption that taxes are lump sum only.

10.3.2 The multiplier in an open economy

In an open economy, the size of the multiplier depends on:

- The marginal propensity to save (MPS) – you should also be aware of factors
- The marginal propensity to import (MPM)
- Tax rates, because taxes reduce the ability of people to consume and so are likely to affect the marginal propensity to consume and the marginal propensity to save.

Thus for the open economy:

$$\text{Multiplier} = \frac{1}{s + m + t}$$

Where, s is the marginal propensity to save

m is the marginal propensity to import

t is the marginal propensity to tax, that is, the amount of an increase in income that will be paid in taxes.

Whereas the multiplier in a closed economy is the reciprocal of the MPS, the multiplier in an open economy, taking into account government spending and taxation, and imports and exports, will be less. This is because government taxation and spending on imports reduces the multiplier effect on a country's economy.

10.3.3 The importance of the multiplier

The importance of the multiplier is that an increase in one of the components of aggregate demand will increase national income by more than the initial increase itself. Therefore if the government takes any action to increase expenditure (for example by raising government current expenditure, or lowering interest rates to raise investment) it will set off a general expansionary process, and the eventual rise in national income will exceed the initial increase in aggregate demand. This can have important implications for a government when it is planning for growth in national income. By an initial increase in expenditure, a government can 'engineer' an even greater increase in national income, (provided that the country's industries can increase their output capacity), depending on the size of the multiplier.

10.3.4 Limitations of the multiplier

Keynes developed the concept of the multiplier in order to argue that extra government spending on public works, financed by a budget deficit, would have a 'pump-priming' effect on a demand deficient economy so that demand would be increased and national income would increase by more than the amount of the initial injection into the economy of the extra government spending and because demand would be increased, unemployment would be reduced. However, there are several important factors that limit the significance of the multiplier for economic management

- The multiplier is of more relevance to a demand deficient economy with high unemployment of resources than to an economy where there is full employment. If there is full employment, any increase in demand will be inflationary.

- b. The leakages from the circular flow of income might make the value of the multiplier very low, and so 'pump-priming' measures to inject extra spending in the economy would have little effect. This is relevant to Zimbabwe where there is a high marginal propensity to import.
- c. There may be a long period of adjustment before the benefits of the multiplier are felt. If the government wants immediate action to improve the economy, relying on demand management and the multiplier could be too slow.

10.4 Investment

The process of gross investment is the acquisition of new stock of capital by firms. Gross investment can be classified into replacement investment (depreciation or capital consumption allowance) and net investment. Replacement investment refers to a situation where firms buy new stock of capital to replace worn-out existing stock. Conversely, net investment or additional investment refers to the addition to the real capital stock of the economy and this addition is measured as a flow of expenditure over time.

10.4.1 The importance of investment in Zimbabwe.

There are two reasons why investment is very important in Zimbabwe:

- a. The act of investment represents consumption forgone now in order to increase the capacity to produce and therefore to consume in the future. It is through investment (or lack of it) that the future shape and pattern of economic activity is pre-determined.
- b. The growth rate of the economy is determined not only by the technological progress or the increase in the size and quality of the labour force but also by the rate at which the capital stock is increased or replaced. Investment represents an addition to the existing capital stock. If that addition is greater than the amount by which capital stock depreciates, then the capital stock of the economy is growing and so is the capacity of the economy to produce more goods and services. Hence investment is an important determinant of the long-term growth rate of an economy.

10.4.2 Factors that influence the level of investment in an economy

The total value of desired investment in the economy depends on factors similar to those influencing 'micro-level' investment decisions by firms:

- a. *The rate of interest on capital* - high interest rates should make firms less willing to invest because the marginal efficiency of capital will have to be higher to justify the higher interest cost. Lower interest rates should have the opposite effect.
- b. *Expectations about the future and business confidence* - if businessmen hold a pessimistic view of the future they will be reluctant to invest.
- c. *The levels of profits* - if the level of profits is high firms are able to invest more from retained profits. Retained profits are an important source of funds for investment especially when interest charges are very high.
- d. *The strength of consumer demand for goods* - strong consumer demand should result in higher business profits and a greater willingness by firms to invest in more plant and equipment (etc) to meet the demand.

- e. *Technological developments* - when new technology emerges which changes methods of production (such as robotics) or provide opportunities to produce new types of good, there will be a boost to investment. Firms will be forced to acquire the new technology for them to remain competitive.
- f. *Government policy* - the government can influence the level of investment in several ways, for example, controlling of interest rates, or providing tax incentives to investors in the form of capital allowances or tax holidays, or the government can spend money itself and higher government spending might stimulate investment by the private sector etc.
- g. *Political stability* - political instability drive away foreign direct investment.

10.5 The accelerator principle

The accelerator principle is concerned with the size of changes in investment pending. The accelerator effect on investment comes into effect as a consequence of changes in the rate of consumer demand. The accelerator principle states that if there is a small change in the production output of consumer goods, there will be a much greater change in the production output of capital goods required to make those consumer goods. This change in production of capital goods (investment spending) speeds up the rate of economic growth.

A numerical example might help to illustrate this principle. Suppose that a firm bakes bread and has 100 ovens in operation. If the life of each oven is 5 years, 20 ovens must be replaced each year. Assuming a constant capital-output ratio:

- a. If the demand for the consumer good (bread) is constant, 20 items of the capital good (ovens) will be made each year.
- b. If the demand for bread now increases by, say, 10% the firm will need 110 ovens in operation. During the first year of the increase, the demand for ovens will be 30 units consisting of ;
 - i. Replacement of 20 ovens, and
 - ii. Extra requirement of 10 ovens to bring the total to 110 ovens.

Thus a 10% rise in demand for consumer goods resulted in a 50% rise in demand for capital goods - in the short term. The accelerator principle indicates how, when the demand for consumer goods rises, there will be an even greater proportional increase in the demand for capital goods. This speeds up growth in national income.

Chapter 11

Public finance

11.0 Introduction

Governments play significant roles in the economy. As outlined in Chapter 2 the government allocate some of the society's resources towards the production of public and merit goods, regulates the economy and make it conducive for business, formulate economic policies that are meant to improve the welfare of the society, levy a tax on incomes of the rich and distribute income to the poor through social services to ensure an equitable distribution of income in the economy among other functions. This chapter discuss how the government can raise revenue much needed to finance its activities as well as the formulation and implementation of fiscal policy. By government, we refer to the central government (ministries and government departments), local government (municipalities and town councils) and government corporations (parastatals).

11.1 National budgets

The Ministry of Finance is in charge of the Treasury. The minister announces how much the government is going to spend over the next twelve months, sometime in November through the presentation of the national budget. A national budget is an outline of government expenditure and how it is going to raise the money to pay for its expenditure. It is used to influence economic activity. The level of economic activity depends on the level of aggregate demand. The government can hence influence the level of economic activity by varying its expenditure. There are three types of national budgets

11.1.1 Reflationary or deficit budget

A reflationary or deficit budget refers to a situation where government expenditure is greater than revenue before borrowing. The government will be planning to spend more than what it intends to collect in the form of revenue. This is very normal for all governments including the governments of United States, United Kingdom and other rich nations. The reason to plan for a deficit budget is because a deficit budget increases total demand within the economy, that is, it is expansionary or it boosts the level of economic activity in the economy. In addition, the government can over spend while investing in capital e.g. the construction of schools or universities. The idea is that the government will benefit from a future stream of tax revenue paid by those students who would have benefited from the school or university. Thus these students will help the government to repay the amount borrowed to finance the capital expenditure.

On the other hand, a deficit budget leads to crowding out of private investment which is interest sensitive when compared to government borrowing. That is by borrowing on the market, the government increases demand for funds thereby pushing the level of interest rates up. The cost of borrowing or interest rate will end up being pushed to levels that are uneconomic to the private borrower especially when it becomes impossible to increase the mark up on prices. The private will withdraw from the market leaving the government as the sole borrower because the government can repay the loan by printing of new notes.

11.1.2 Deflationary or surplus budget

A deflationary or surplus budget refers to a situation where government expenditure is less than revenue. A surplus budget reduces total demand within the economy and hence reducing economic activity (deflates economic activity). It is very rare for a government to achieve a deficit budget with the exception of Botswana, United States and United Kingdom all of whom experienced a surplus budget only but once.

11.1.3 Neutral budget

A neutral budget refers to a situation where government expenditure and revenue are the same and total demand in the economy remains constant.

11.2 National debt

An accumulation of budget deficits over the years is called a national debt or public debt. The national debt is the total amount owed by the government to the Zimbabwean citizens and foreigners at a particular moment in time (domestic and foreign debt, respectively). Interest has to be paid on the debt.

11.2.1 Problems of national debts

A large national debt is a problem if: -

- a. Interest has to be paid to overseas citizens, so that the balance of payments suffers.
- b. Taxes have to be increased to meet interest payments.
- c. The concern is that with budget deficit, we will be consuming now while passing the responsibility to pay to future generations.

11.2.2 Composition of the national debt

The national debt can be classified into domestic debt (internal) and foreign debt (external).

a. Domestic debt

The domestic debt is the amount of money the government owes the local citizens of that country. It is expressed and repaid in the local currency. The advantages of the government borrowing from local sources include:

- i. Domestic debt is relatively easier to source.
- ii. The terms of repayment are relatively easier since repayment doesn't necessarily have to be made in foreign currency.

On the other hand borrowing from local sources is discouraged because:

- i. It could be inflationary especially if the government borrows from the banking sector. Borrowing from the banking sector fuels money or credit creation by the financial institutions and hence increasing the level of money supply in the economy.
- ii. It can push out private sector borrowing by increasing interest rates in the market to beyond sustainable levels (crowding out effect). Government borrowing is interest insensitive while private sector borrowing is interest sensitive.
- iii. The availability of local funds makes local borrowing a big source of blowing government budget deficit. The government will continue to borrow without restraint basing on the misconception that the government can not be broke and that it can always repay.

b. External debt

The total amount of money the government owes to foreigners is the external or foreign debt. External debt is expressed in foreign currency especially the United States dollar which is the most convertible currency. Borrowing from foreign individuals, governments and financial institutions has the following benefits:

- i. It's a source of funds to correct balance of payment deficit. That is, if the country is importing more than its export it can repay for the extra imports using funds borrowed externally.
- ii. Foreign debt is a source of finance to buy items that require use of foreign currency e.g. Zimbabwe is known to borrow from countries such as Libya in order for the country to use the foreign currency to import fuel.

On the other hand an external debt has the following disadvantages:

- i. A huge external debt could seriously strain the government in repayment because repayment has to be made in foreign currency. This may drive the country into a debt trap, that is, a situation where the government has to borrow money to service interest on debt.
- ii. State sovereignty could be mortgaged where the indebtedness is too heavy for the country to meet the repayment commitment.

11.3 Government borrowing

There are various sources of government revenue. Among them is taxation, national insurance contributions, borrowing, charging for services, selling-off state owned assets (privatisation), profits from public corporations, donations and grants.

11.3.1 The public sector borrowing requirement

If the government spends more than its collected revenue, it will have to borrow the difference. The amount the government needs to borrow in a given time period is called the Public Sector Borrowing Requirement (PSBR). Since government consists of three sections, the PSBR consists of: -

- a. The Central Government Borrowing Requirement which is the amount of money to be borrowed by the central government (ministries and government departments).
- b. Local Authorities Borrowing Requirement which is the amount of money to be borrowed by local authorities (city councils, rural districts and town councils).
- c. The Public Corporation Borrowing Requirement which is the amount of money government companies or parastatals requires borrowing.

11.3.2 How the government can borrow

The government can borrow through: -

- a. Selling National Savings Certificates.
- b. Selling Treasury Bills, which usually mature in 90 days.
- c. Selling Securities which earn interest and will be bought back sometime in the future. Securities are sometimes called gilts, stocks or bonds. Government securities are risk free, that is, there is no chance that the government will fail to repay. As a result government securities are referred to as gilt-edged.

11.4 Taxation

A tax is a compulsory contribution to government and this contribution is made without any reference to potential benefits received by the taxpayer.

11.4.1 Reasons for paying taxes

Taxpayers view taxes as bad, in the sense that they do not enjoy paying them. Surely no one enjoys paying taxes especially income tax (pay as you earn). The government still has to collect taxes in order:

- To raise money to pay for government spending (taxes are a major source of government revenue especially in developing countries like Zimbabwe where taxes contribute more than 80% of the revenue..
- To discourage people from buying harmful goods like cigarettes that is, it tries to change consumption patterns by making the harmful commodity or demerit good expensive.
- To influence the level of total demand in the economy e.g. to reduce the level of total demand in the economy the government can increase the level of income tax. This will in turn reduce disposable income where disposable income (Y_d) is obtained by deducting taxes (T) from the gross income (Y). $Y_d = Y - T$. Taxation is one of the fiscal policy tools.
- To redistribute income from the rich to the poor especially progressive taxation that taxes heavily the high income earner and lightly the low income earner. This way the gap between the rich and the poor is reduced.
- To modify the price mechanism e.g. correcting market failures such as externalities that can be reduced by levying a pigovian tax paid on the polluter of the environment.

11.4.2 Principles of taxation

Taxpayers view taxes as bad, in the sense that they do not enjoy paying them. However, the government can make tax payment tolerable to the tax payer by ensuring that the tax system conforms to the following principles or canons.

- A tax should be certain so that everyone knows the amount, method and when to make the tax payment
- A tax should be convenient so that tax collection is at a time and in a form suitable to the taxpayer. Income tax (PAYE) which is deducted before salaries are paid score highest.
- A tax should be economical with the cost of collection being less than revenue and something being left out to offset the vexation caused. That is, it should be easy to administer and cheap to collect.
- A tax should be equitable (fair) that is it must be based on the ability to pay so that wealthy people pay more than poor people (vertical equality) and people under the same circumstances pay equally (horizontal equality).
- A tax should be efficient by achieving its intended objective without acting as a disincentive and stop people from working.
- A tax should be flexible so that it is capable of variation and must complement other government policies.

11.4.3 Methods of collection

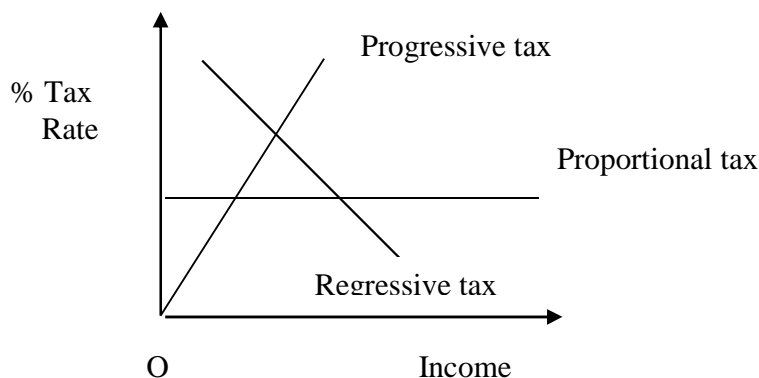
Tax collection can either be direct or indirect. Direct taxes are paid straight to the Zimbabwe Revenue Authority. They are therefore taxes on income or wealth and the transfer of capital. For example, income tax (P.A.Y.E), capital gains tax, company tax etc. Each individual's tax liability is assessed separately. Conversely indirect taxes are first collected by the seller and then passed on to the revenue authority. For example VAT which is paid to the seller such as the retail shop before the retail shop submits the revenue to ZIMRA. Direct taxes are therefore taxes on expenditure.

11.4.4 The burden of taxation

Some taxes are fairer than others. However, taxpayers view taxes as bad, in the sense that they do not enjoy paying them. A tax can be described as a:-

- Progressive tax where the percentage of income taken in tax rises as income rises. The rich pay more than the poor. It is based on the ability to pay principle. Income tax (PAYE) is an example of progressive taxation.
- Regressive tax where the percentage of income taken in tax falls as income rises. It results in the richer people paying a smaller proportion of their income in tax. Rates are an example of regressive taxation.
- Proportional tax where the percentage of income taken in tax is constant as income rises. Sales tax is an example of proportional taxation. It takes the same proportion of income at all levels of income.

Fig 11.1 The classification of taxes according to the burden of the tax



11.4.5 Tax incidence and tax shifting

Tax incidence refers to the final resting place of the tax. It can be divided into statutory incidence which refers to the individual who is legally liable to paying the tax and economic incidence which is the final resting place of the tax. When there is a difference between economic and statutory incidence, it implies that the tax burden has been shifted. Tax shifting occurs through a change in prices of economic goods. There are two types of tax shifting:

- Forward shifting which refers to the passing of the tax burden to consumers from the producers in the form of higher prices and,
- Backward shifting which refers to when consumers pass the tax burden back to the supplier. This leads to a fall in the price of a factor of production e.g. P.A.Y.E where the supplier of labour eventually receives less from the consumer of labour (employer).

The ability to shift the burden of tax forward or backwards depends on three factors, namely:

- The price elasticities of demand and supply.
- Market structure e.g. it is difficult in perfect competition than in monopoly.
- Nature of the tax for example direct taxes are difficult to shift as compared to indirect taxes.

11.4.6 Structure of taxation

Taxes are structured along the method of payment into direct and indirect taxes.

a. Direct taxes

Direct taxes are paid straight to ZIMRA and therefore are taxes on income, wealth and transfer of capital. Examples include income tax (PAYE), capital gains tax, corporation tax and inheritance tax. Direct taxes have the following advantages:

- i. They are progressive in nature and hence there is equality of sacrifice.
- ii. Direct taxes collect more revenue especially income tax which raise more than half of the Zimbabwean government's revenue.
- iii. Direct taxes are convenient, that is, tax collection is at the time and in a form suitable to the tax payer.
- iv. They act as built in stabilisers, that is, during an inflationary period the higher income group automatically move into the highest tax bracket and pay a higher rate of tax which reduces their disposable income. As a result of a fall in the disposable income the level of aggregate demand in the economy decreases leading to a reduction in the inflationary pressure in the economy. Thus the inflationary period will automatically be curbed.

Conversely, direct taxes have their own disadvantages which can be outlined as follows;

- i. Direct taxes are a disincentive to work, saving and investment especially where the tax rate is very high..
- ii. They are very unpopular as their impact on income is direct.
- iii. Direct taxes are deflationary that is they reduce the level of aggregate demand in the economy.

b. Indirect taxes

Indirect taxes are first collected by the seller and then passed on to the revenue authority. They are taxes on expenditure.

Examples include sales tax, VAT, excise duty and customs duty. The advantages of direct taxes include;

- i. Indirect taxes are easy to administer and to collect because they are collected by the seller from numerous consumers and the seller will make one bulk remittance to ZIMRA. Thus the seller will collect at their expense and capital outlay hence direct taxes are economical to the tax authority.
- ii. They are based on the benefit principal, that is, one who consumes more pays more. As a result they can be avoided by not consuming the product.

On the other hand, indirect taxes have disadvantages in that;

- i. They raise the final price of the product and hence they are inflationary.
- ii. They discourage the consumption of certain goods such as demerit goods, thus affecting consumption patterns.

11.4.7 Effects of taxation

Taxes have various economic and welfare effects: -

- a. Taxes especially indirect taxes raise the final price of products and hence they are inflationary.
- b. Indirect taxes on demerit goods affect consumption patterns.
- c. High rates on direct taxes such as income tax are a disincentive to work, effort, saving and investment.
- d. Taxation reduces aggregate demand in the economy.
- e. Taxation may fall heavily on some households than others thus altering the distribution of income.

- f. Some households may be pushed into a poverty trap, that is, with higher income a family faces both a rising tax bill and the withdrawal of its social security benefits.
- g. Since taxation may be a disincentive to investment it may contribute to a reduced output and level of employment.

11.5 Privatisation

Privatisation involves an attempt to increase reliance on the market forces and on private sector initiative. It encompasses three processes;

- a. The selling of some state owned assets such as the disposal of government shareholding in COTTCO and DZL.
- b. All the different means by which the disciplines of the free market in the provision of goods and services can be applied to the public sector e.g. commercialisation which happens when a government corporation is structured to operate just like any private corporation. The former PTC was disbanded into three business units namely; Net-One, Tel-One and ZIMPOST).
- c. Subcontracting of government services e.g. catering and security at government institutions.

There are various reasons why the government may want to privatise some of its enterprises. Among them are the following benefits:

- i. The government revenue much needed to finance its activities such as capital expenditure when constructing schools and hospitals..
- ii. Privatisation of loss making parastatals reduces the burden on the public purse since loss-making public corporations are financed from public funds.
- iii. If a public corporation is privatised its given freedom from detailed political interference. For once the corporation will be expected to operate on a commercial basis without politicians interfering in its operations e.g. no political appointments to office will be made.
- iv. Commercialisation improves the efficiency of the corporation through competition in the market.
- v. The privatised corporation stands a high chance of making a profit and hence the tax base is widened in addition to that as a public corporation the company was previously exempted from taxes.
- vi. Operating for profit motive will urge innovation in the privatised corporation.
- vii. Privatisation policy can be used to empower the indigenous people e.g. through the 'employee share ownership scheme' where priority will be given to the employees to buy shares in the new privatised corporation.

On the other hand the privatisation may be considered as an unnecessary evil. For example the process which was being carried out by the Privatisation Agency of Zimbabwe (PAZ) was halted in 2002 for the following reasons;

- i. Once the corporation is privatised it will charge economic or market prices for its products a situation which is likely to see the poor not being able to buy the product. This is a major drawback especially where the product is essential e.g. ZESA Holdings will end up charging electricity tariffs that are beyond the reach of most rural consumers and small scale farmers.
- ii. Privatisation has been likened to a farmer selling a heifer which is about deliver. Through privatisation, potential blue chips are sold off to individuals for example COTTCO which emerged as blue chip companies soon after privatisation.

11.6 Fiscal policy

Fiscal policy refers to attempts to influence aggregate demand by altering government expenditure and/or revenue in order to bring about desired changes in the economy. This is deliberate manipulation and hence it is discretionary. Discretionary fiscal policy can be expansionary if it aims to raise aggregate demand in the economy and contractionary if it aims to reduce the level aggregate demand. Fiscal policy is outlined through the presentation of the national budget by the Ministry of Finance.

11.6.1 Tools of fiscal policy

There are three tools of fiscal policy

i. Taxation

The government can manipulate the level of taxation in order to change the level of aggregate demand in the economy. An increase in taxation will reduce aggregate demand while a reduction in taxation will increase aggregate demand. This is because people consume from disposable income (Y_d) where $Y_d = \text{Gross Income (Y)} - \text{Taxes (T)}$.

$$(Y_d = Y - T).$$

ii. Government expenditure

Government spending is a direct component of aggregate demand (AD). AD is given by the equation $AD = C + I + G + X - M$. An increase in government spending directly increases the level of aggregate demand while a reduction in government expenditure reduces demand.

iii. Borrowing

If the government budgets for a deficit (budget deficit) it will have to borrow the extra expenditure over and above its revenue. The government can borrow from the non-bank sector which is not inflationary. Alternatively it can borrow from the banking sector which is inflationary and is equivalent to printing new notes and coins.

11.6.2 Problems of discretionary fiscal policy

Compared to monetary policy, fiscal policy is less flexible and requires the approval of parliament before it becomes effective. In addition the effectiveness of fiscal policy in addressing macroeconomic problems is affected by the following problems.

i. Timing

Fiscal policy can only become operational when approved by the parliament. As a result it is not flexible and is affected by time lags. There can be considerable time delays between the beginning of an economic disturbance and the impact of the change in fiscal policy. Economists distinguish between several kinds of delays.

- Recognition lags occur when there are delays between changes in economic disturbances and the actual recognition of these changes, especially due to delays in reporting procedures.
- Administration lags refer to the time delay that can occur between an economic problem being recognised and administrative actions taken to correct the problem. Correcting the problem is usually through the national budget that is an annual event.
- Implementation lags refer to the delay between action taken to correct some economic disturbance (e.g. an economic downturn) and the impact of the action on the economy.

ii. Business uncertainty

Sudden and unexpected changes of fiscal policy either on expenditure or revenue side may create uncertainty among businesspersons causing them to revise their plans.

iii. Expenditure inflexibility

Government expenditure is sticky downwards. That is government expenditure can easily be increased but can be reduced with great difficulty.

Chapter 12

International trade

12.0 Introduction

No country is an island. The world is more and more becoming one global village. The actions of one nation affect others, not just near neighbours but countries across the globe. International trade refers to a situation when two or more countries trade with each other. The term 'international trade' can loosely be translated to 'trade between nations'. In this chapter we are going to discuss the reasons why countries engage in international trade, trade protectionism, the balance of payments accounts and the various exchange rate regimes.

12.1 Reasons for international trade

Countries trade with each other for the following reasons: -

- a. To gain access to those products which are not found naturally within their geographical boundaries e.g. Zimbabwe need to import fuel from countries that are richly endowed in petroleum deposits.
- b. To share cultural heritage and historical experiences e.g. tourists will love to visit the Great Zimbabwe ruins in Masvingo for them to appreciate the life of the great Rozvi Empire.
- c. To foster political relations, that is, countries trading with each other consider themselves to be partners and hence will be less likely to engage each other in a war situation. This explains why upon signing political agreements countries proceed to sign trade agreements.
- d. To introduce new technology and ideas, for example, developing countries have to import modern technology from the developed countries.
- e. Trade stimulates competition that may lead to reduction in prices and improvement in the quality of goods produced.
- f. The volume of goods consumed in a country will increase hence the standard of living of the people will improve.

12.2 Gains from trade theories

International trade makes the problem of scarcity less acute or less severe. The following theories illustrate how countries may gain from specialisation and international trade. They are also used to illustrate situations when countries should trade with each other. In other words, countries should trade with each other if there is an absolute advantage or a comparative advantage.

12.2.1 Simplifying assumptions

For the purpose of our discussion, we assume that:

- a. There are only two countries in the world, Country A and Country B.
- b. Each of these two countries produces two goods, Good X and Good Y.
- c. In each of the two countries, there are only two factors of production available, Labour and Capital.
- d. There are no barriers to trade and no transport cost that is goods are free to move from one country into another country without for example being charged customs duty or transport cost.

- e. Factors of production within each country are perfectly occupationally mobile but can not move from one country to another.

Basing upon these simplifying assumptions we can illustrate absolute and comparative advantages analysis.

12.2.2 The absolute advantage theory

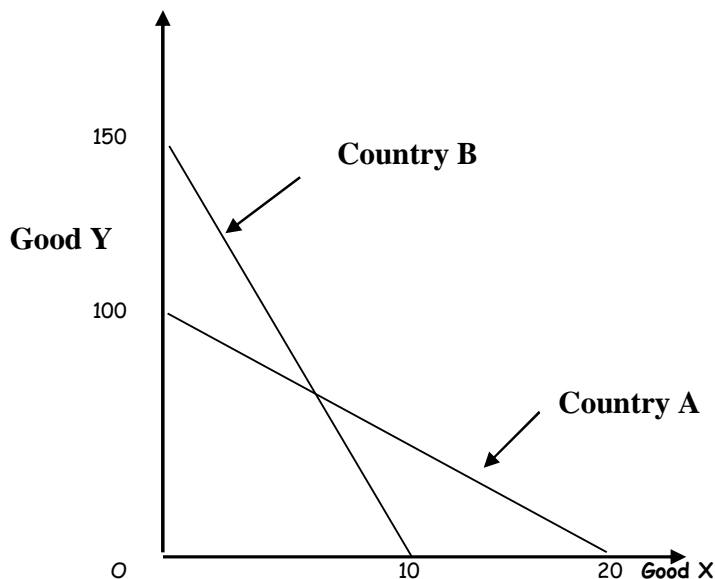
An absolute advantage exists when a country is more efficient than the other in the production of one of the commodities. For example, if with two units of resources, country A produces 20 units of good X and 100 units of good Y, while country B produces 10 units of good X and 150 units of good Y as summarised by the following production possibilities table and frontier.

Table 12.1 Production possibilities before specialisation

Output per unit resources

Country	Unit of Good X	Units of Good Y
A	20	100
B	10	150
Total World Output	30	250

Fig 12.1 The production possibilities frontiers before specialisation



The diagram shows that with one unit of resources, country A is more efficient in the production of good X, while with the same quantity of resources, country B is more efficient in the production of good Y. Thus country A has an absolute advantage in good X production while country B has absolute advantage in good Y production. Country A must specialise in good X production while country B specialises in good Y production. Each country will move its two units into the production of the good it has

absolute advantage in producing. The changes in total world production would be represented by the following production possibilities table.

Table 12.2 The production possibilities table after specialisation

Output per unit resources

Country	Unit of Good X	Units of Good Y
A	40	0
B	0	300
Total World Output	40	300
Net Gain	+10	+50

By allowing for specialisation the world total output of both goods has increased. The two countries can trade with each other with each country exporting its surplus in exchange for that commodity it does not produce. For example country A will export surplus units of good X in exchange for units of good Y from country B.

12.2.3 The comparative advantage theory

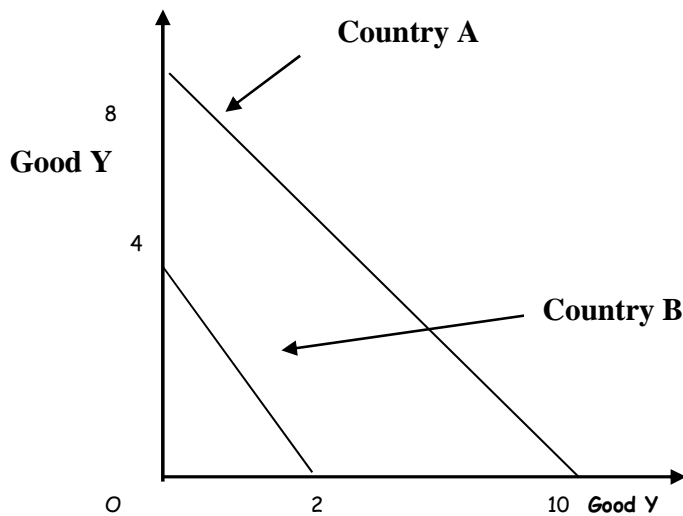
Comparative advantage analysis arises from a situation when one country has absolute advantage in the production of both commodities. A comparative advantage exists when a country can produce a certain good at a lower opportunity cost than the other country. For example if with its units of resources country A produces 10 units of good X and 8 units of good Y while with the same amount of resources country B produces 2 units of good X and 4 units of good Y as represented by the following production possibilities table and frontier.

Table 12.2 The production possibilities table before specialisation

Output per unit resources

Country	Unit of Good X	Units of Good Y
A	10	8
B	2	4

Fig 12.2 The production possibilities frontier before specialisation



The diagram shows that country A has an absolute advantage in the production of both goods. To determine the basis for trade we look at the opportunity cost of one good in terms of units of the other in each country. The opportunity cost of one unit of good X in terms of good Y and that of one unit of good Y in terms of good X, in each country is as follows: -

Opportunity cost table

In country A:	1X	=	0.8Y	and	1Y	=	1.3X
In country B:	1X	=	2.0Y	and	1Y	=	0.5X

Country A has a comparative advantage in the production of good X while country B has comparative advantage in the production of good Y. Therefore country A specialises in good X and country B in good Y production.

12.2.4 Causes of cost differences

There are mainly two reasons why the cost of producing one commodity differs from one country to another.

- Some countries are endowed in certain natural resources or climate conducive to the production of certain commodities than the others. For example Zimbabwean climate is favourable to the production of tobacco than Botswana's climate.
- Some people have innate qualities of manual dexterity, scientific ability, and enterprise and which give them advantages over other countries e.g. the Japanese.

12.2.5 Limitations of the gains from trade theories

- The theories are simplistic. They assume the existence of two countries producing two goods using two factors of productions. In practice there are more than two goods, two factors and trade is multilateral rather than bilateral.
- Goods are assumed to be of the same quality, that is, they are homogenous. This is unrealistic because the quality of goods differs from one country to another.
- The theories assume that there are no transport costs and there is free trade. In reality, the advantages of specialisation can be cancelled by trade restrictions and transport costs.

12.3 Terms of Trade (TOT)

Terms of trade refers to the quantity of exports that must be exchanged for a unit of imports. It is the rate at which a country exchanges its exports for imports and it can be expressed as an index as follows:

$$\text{Terms of trade} = \frac{\text{Index of export prices}}{\text{Index of import prices}} \times 100$$

If the index is less than 100 it is unfavourable terms of trade while if the index is greater than 100 it is favourable terms of trade. Terms of trade reflect the opportunity cost of one good measured in terms of the other. From the previous opportunity cost table, good X and Y can be exchanged for:

$$\begin{array}{lclcl} 0.8Y & < & 1X & < & 2.0Y \\ 0.5X & < & 1Y & < & 1.3X \end{array}$$

12.4 Trade protectionism

Trade protectionism is where a country erect trade barriers with the purpose of hampering the free movement of goods into an economy from the rest of the world. These barriers interfere with the gains from free trade. In other words the gains from trade theories illustrated how countries stand to benefit if they allow for specialisation and trade. In practice, these benefits are eroded by the various tariffs, embargos, etc that are imposed on goods from other countries.

12.4.1 Methods of trade protectionism

The methods that could be used reduce or prevent entry of goods from other countries into a country include:

a. Tariffs

A tariff is a tax or customs duties levied on imported or exported goods. The tariff can either be expressed as percentage of value (ad valorem) or per unit of the imported or exported commodity. The effect of a tariff is that it increases the final price of the imported or exported commodity. For example a vehicle imported for US\$5 000 may end up costing US\$10 000 to a local importer if an 80% customs duty and 20% surtax is added to the import price. Thus tariffs make imports more expensive.

b. Quota

A quota is a quantitative restriction on imports or exports. Once the quota is satisfied or met no additional quantity will be imported or exported.

c. Embargo

An embargo is a complete ban prohibition on trade for example trade in hard drugs such as cocaine.

d. Import controls

Import controls refer to a situation where the government puts in place legislation or measures that regulates the importation of certain products. For example agricultural products such as maize and live animals can only be imported upon

receiving the authority in the form of import licenses from the Ministry of Agriculture and Ministry of Health and the Department of Veterinary Services.

e. Exchange controls - Exchange controls refer to when the availability of foreign currency is restricted in order to control the volume of imports. If people do not have the foreign currency they can not import.

f. Subsidies

A subsidy is the opposite of a tax. A subsidy refers to a situation where the government pays a part of the production costs for a domestic commodity. If domestic goods are subsidised, they become cheaper as compared to imports.

12.4.2 Reasons for trade protectionism

Various arguments have been forwarded in favour of the imposition of barriers to trade. Among them are:

a. Infant industry argument

The argument is that infant industries need to be protected from foreign competition until growth is attained. An infant industry is a new or emerging industry that usually face high average costs of production because it will not be enjoying economies of scale. Because of its high average costs, the firm will be charging high and uncompetitive prices and can not compete with long established international firms that will be enjoying economies of scale. Infant firms need to be protected from such foreign competition until they are able to compete. However the argument against such protection is that from experience, firms that enjoy such protection prefer to remain small and continue to enjoy the protection than to grow and face the competition.

b. Strategic industry argument

Industries which are vital or strategic for the integrity of the country such as the Zimbabwe Defence Industries or the agricultural industry requires protection from foreign competition. The idea is to reduce dependence on foreign supplies which tends to compromise a country's sovereignty.

c. Revenue argument

Most governments in developing countries raise revenue needed to finance their expenditure from tariffs such as customs duty. In addition these tariffs earn the government foreign currency.

d. Anti-dumping argument

Dumping refers to the sale of goods in a foreign country at prices lower than that in the home country. Rich countries may dump goods which may be harmful such genetically modified food or untested medical drugs. By imposing trade barriers such goods may not find their way into the country.

e. Balance of payment argument

A country faced with a BOP deficit can either correct the situation by reducing the volume of imports through the imposition of tariffs or increase the volume of exports through export promotions. Thus trade protectionism may be a way to discourage expenditure on imports and thus correcting a BOP deficit.

f. Employment argument

Trade barriers may seek to switch expenditure from imports to domestically produced goods. This will increase demand for domestic goods and domestic production will increase. Thus the level of employment in the country will increase.

12.5 Economic integration

Economic integration refers to a situation when different countries in different parts of the world are organising themselves into economic and political blocs. It can be described as "encompassing measures which are designed to abolish discrimination between economic units belonging to different national states." Economic integration aims at liberalising trade between countries - either generally or with specific countries.

12.5.1 Criteria for successful integration

A number of common factors stand out as necessary for successful economic integration. Among them is that,

- a. Member countries should be at roughly similar levels of economic development.
- b. Each member country must be satisfied that it is benefiting from the arrangements.
- c. Governments must be prepared to cede some sovereignty to a supranational institution.
- d. Political conflict between members must be containable.

12.5.2 Advantages of economic integration

- a. Increased specialisation.
- b. Promotes peace, security and political stability.
- c. Expanded markets both to sellers and buyers.
- d. Improved welfare to the members of the region.
- e. Ensures uplifting of tariffs between member countries, thus enhancing trade links.
- f. A stronger bargaining position with the rest of the world.
- g. Accelerated rates of investments in the region.

12.5.3 Disadvantages of economic integration

- a. There will be increased competition that may injure domestic industries.
- b. Loss of state revenue if tariffs are uplifted.
- c. Countries that are better than others may dump goods in poor member countries.
- d. Economic domination by those countries which are better than the others e.g. South Africa in the SADC region.
- e. Member countries may follow economic policies that can threat co-operational e.g. the land redistribution in Zimbabwe in the SADC region.

12.6 Exchange rates systems

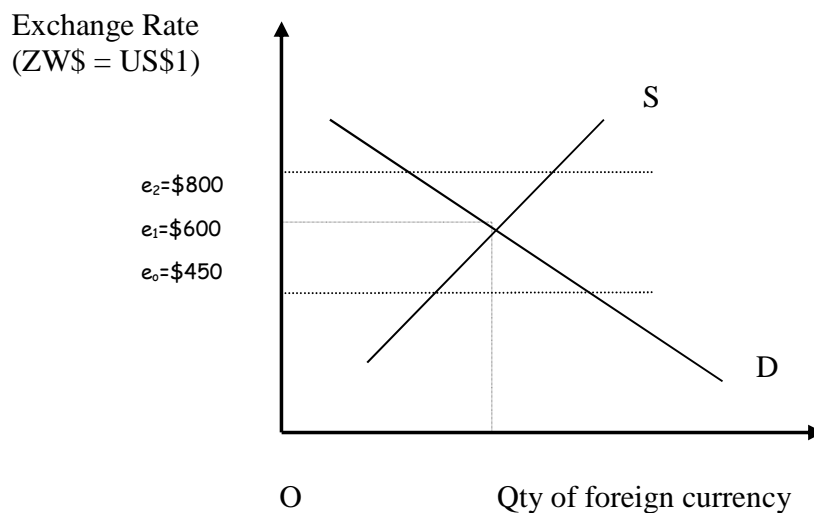
An exchange rate indicates the value of one currency relative to some other currency. It is the amount of Zimbabwean dollars that will be required to buy a unit of foreign currency. It is the price at which purchases and sales of foreign currency or claims

of it take place and thus exchange rates act as signal and rationing devices. There are three traditional exchange rate regimes namely flexible, fixed and managed float exchange rate systems

12.6.1 Flexible exchange rates

This is a system in which the market forces of demand and supply determine the rates without any government intervention. No reserves are theoretically required as there is self-adjustment of relative prices of exports and imports through the free fluctuating rates. Demand for foreign currency arises out of a desire to buy imports or to invest abroad or to repay our foreign debt. On the other hand the supply for foreign currency arises from earnings from exports or inflow of capital from foreign investors. The market exchange rate (e_1) will be established at the point where the demand for foreign currency equals the supply of foreign currency on the following diagram.

Fig 12.3 Market exchange rates



The equilibrium exchange rate is determined by the intersection of demand and supply for foreign currency. The equilibrium exchange rate equals e_1 where ZW\$600 = US\$1. If the exchange rate is above e_1 , the supply of US dollars will exceed the demand forcing down the value of the US\$ relative to the ZW\$ (the ZW\$ appreciates relative to the US\$). The opposite will happen in the case of an excess demand for US\$ (the ZW\$ will depreciate relative to the US\$).

a. Factors affecting demand for and supply of foreign currency

- i. Seasonal fluctuations e.g. in Zimbabwe, the supply of foreign currency increases during the tobacco selling season.
- ii. Changes in consumer preferences e.g. if Zimbabweans start to prefer American goods demand for the US\$ will increase.
- iii. Differentials in interest rates that is if Zimbabwe start to offer high real rates of interest on short term investment foreigners may increase their deposits of foreign currency in the country to benefit from the high real returns ('hot money').
- iv. Relative price changes (inflation).
- v. Granting of foreign loans and developmental aid which directly contribute to foreign currency supply.

- vi. Changes in capital flows (foreign direct investment) - where an increase in foreign direct investment results in an increased flow of foreign currency into the country.

b. Advantages of flexible exchange rates

- i. There is an automatic correction of BOP disequilibrium through the automatic appreciation and depreciation of the exchange rate to adjust imports and exports.
- ii. Monetary authorities may devote their effort and resources to other domestic objectives.
- iii. There is no need for foreign currency reserves.
- iv. There is little risk of controlling the exchange rate for political or selfish reasons.
- v. The equilibrium exchange rate is the market rate hence there would be no parallel or black markets.
- vi. This market-based rate is a true reflection of economic performance and thus allows rational decisions.

c. Disadvantages of flexible exchange rates

- i. Flexible exchange rates are open to speculation and hence fluctuate daily, thus are unstable.
- ii. Fluctuations in exchange rates tend to add to the uncertainties of foreign trade.
- iii. Fluctuations increase the possibility of domestic inflation, for example, currency depreciation will raise import prices and hence raise costs of imported inputs. This will be passed on in the form of imported cost-push inflation.
- iv. Fluctuations may tend to lessen the flow of foreign lending. A small exchange rate change may wipe out several years' interest from foreign lending.

12.6.2 Fixed exchange rates

Fixed exchange rate refers to a situation where the exchange rates are fixed at pre-announced par values that are only changed when they can no longer be defended. The exchange rate is therefore determined by the authorities and not by market forces. An essential precondition of fixed exchange rates is that the Reserve Bank must be able to buy and sell any quantities of foreign currency necessary to eliminate excess supply and demand of foreign currency at the controlled rate. Thus the Reserve Bank should set up a reserve fund of convertible currencies in order to carry out this intervention policy.

a. Advantages of fixed exchange rates

- i. Fixed exchange rates are very stable because they are not open to speculation and hence they create a certain environment
- ii. Stability makes business planning and forecasting a lot easier.
- iii. The local currency can be overvalued making foreign currency artificially cheaper and hence capital intensive investment is promoted.
- iv. Because of their fixed exchange rate stability there is limited chances of importing inflation therefore fixed exchange rates are anti-inflationary.

b. Disadvantages of fixed exchange rates

- i. A currency may remain overvalued or undervalued.
- ii. Resources that could be used more productively are tied up in foreign currency reserves needed for the central bank's intervention policy.
- iii. There will be foreign currency shortages causing black and parallel markets to emerge.
- iv. Credibility problems, that is, there may be doubts about the government's ability to maintain the exchange rate at its level that leads to speculative crises.

12.7 Balance of Payments (BOP) Accounts

BOP is an account showing a country's financial transactions with the outside world over a given period of time, usually a year. The BOP accounts are made up of three separate accounts namely, current account, capital account and official reserves and liabilities account.

12.7.1 Current account

The current account records a country's commercial transactions, that is, the import and export of goods and services. It is subdivided into two sections: -

- a. Trading account which record transactions in merchandised goods that is export and import of goods which are tangible or visible. The balance on the trading account is called the Balance of Trade (BOT). It is obtained by exports less imports of goods. BOT is favourable if it is positive and unfavourable if imports exceed exports.
- b. Services account which record trade in services which are invisible or intangible. The balance on the services account is called the Invisible Balance

NB* The sum of the BOT and the Invisible Balance is the Balance on Current Account

12.7.2 Capital account

The capital account records the movement of money for non-trade reasons. That is the inflow and outflow of money for non commercial transactions. The bulk of these flows are for investment purposes. The capital account is subdivided into: -

- a. Short-term capital flow which measures capital flows arising from investments in assets with contractual maturity of less than one year. These funds are held in bank accounts or treasury bills and move around the world in search of relatively high rates of interest and are referred to as 'hot money'.
- b. Long-term capital flow that record capital movements that arise from investments in assets whose contracts are for more than one year e.g. bonds and the establishment of industries or construction of factories in foreign countries (foreign direct investment).

12.7.3 Official reserves and liabilities account

The official reserves and liabilities account serves two purposes in the BOP accounts:

- a. It records a country's holding of foreign reserves and gold.

- b. It serves as the means of correcting imbalances between inflows and outflows of foreign currency, that is, it is a balancing item. For example, if there were no capital flows and a country incurs a BOP deficit in one year, the difference will be made up by a decline in the official reserves. This section provides a link between the current and capital accounts and hence can be viewed as a balancing item.

12.7.4 The importance of BOP accounts

A country's BOP accounts are very important because,

- a. They show how a country is performing externally.
- b. They reveal the trend of trade and the major trading partners of a country.
- c. BOP accounts are a barometer of economic performance e.g. persistent BOP deficits implies that the economy is not performing well.
- d. Government can see where to intervene with trade regulations.

12.8 The IMF and the World Bank

The two Breton Woods sister institutions were incepted at a conference held in 1944 in Breton Woods. However, they started their operations in 1947. The IMF was created primarily to promote a freer trade and payments mechanism. On the other hand, the World Bank was created to finance developmental projects and the eradication of poverty.

12.8.1 Principles of the IMF

- a. All members were to contribute to a large pool of foreign currencies and gold. Each country's quota was determined by the size of its national income and its share of the world's trade. This explains why countries like the USA dominate the operations of the IMF.
- b. All member countries were encouraged to refrain from using any trade restriction measures that are harmful to trade.
- c. Member countries were to adopt an adjustable peg system of exchange rates where devaluation or revaluation were allowed in order to correct BOP serious problems.

12.8.2 The role of the IMF

- a. The IMF provides short-term assistance to countries facing BOP deficit problems to enable them to correct the deficit without resorting to harmful trade restrictions.
 - b. It gives expert advice to member countries on Economic Reform Programs such as ESAP.
 - a. The fund plays a banking role by allowing member countries to withdraw funds through the Special Drawing Rights (SDR).
 - b. It encourages that currency of member countries should easily be exchanged for other currencies (international convertibility of member currencies).
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Chapter 13

Money and banking

13.0 Introduction

"Money bewitches people. They fret for it, and sweat for it. They devise most ingenious ways to get it. Money is the only commodity that is good for nothing but be gotten rid of. It will not feed you, clothe you, shelter you or amuse you unless you spend it or invest it. It imparts value only in parting. People will do almost anything for money and money will do almost anything for people. Money is a captivating, circulating, masquerading puzzle" Federal Reserve Bank of Philadelphia, 'Creeping Inflation'; Business Review, August 1957 p3. In this chapter among other issues, we are going to define money and discuss its functions. In addition market equilibrium interest rates will be determined where money supply equals the demand for money.

13.1 Functions of money

Good money is characterised by stability, scarcity, portability, divisibility, uniformity, acceptability, and durability. Money can be identified as anything that is generally acceptable in the settlement of debts. It can be described by what it does, that is, money can best be described by its functions. Money plays the following important roles in the economy

13.1.1 Medium of exchange

Money as a medium of exchange allows consumers to exchange their preferences. That is people exchange their goods and services for money rather than for other goods and services like what used to happen in barter trade. Thus money is usable in buying goods and services.

13.1.2 Measure of value

Money as a measure of value becomes a common denominator upon which relative exchange values can be established. The value of one product can be expressed in monetary terms (price). For example the value of a vehicle can be expressed as \$200m and not 20 herds of cattle.

13.1.3 Store of wealth

Money presents a convenient form in which to store wealth especially because of its liquidity, that is, money can easily be used to pay for transactions. People can prefer to keep their wealth in the form of money which is liquid rather than illiquid assets such as bonds. One other reason for this preference is because money is not perishable as compared to some other assets such as cattle.

13.1.4 Standard of deferred payments

Deferred payments are future payments obligations. Money as a standard of deferred payments allows credit transaction to be undertaken. For example people can buy on hire purchase and sign a contract to repay in monthly instalments.

NB* Money should maintain a constant purchasing power over a long period if it were to perform these functions properly. The purchasing power of money is what a given currency can buy in the domestic economy. The purchasing power or value money is reduced by inflation. For example, if our Z\$ loses its purchasing power, people would quote their prices in other currencies such

as the US\$ and they would prefer to accumulate assets that appreciate in value such as houses rather than storing their wealth in the form of money.

13.2 Money Supply

The different functions of money give rise to different definitions of money supply in the economy. The official definition of money supply in Zimbabwe is M_3 which is derived as follows:

13.2.1 Money as medium of exchange (M_1)

M_1 defines transaction money, that is, money used to pay for day to day transactions and it is given by:

$M_1 = \text{Notes and coins in circulation} + \text{Demand deposits with financial institutions.}$

Demand deposits refer to deposits that can be withdrawn without giving notice of withdrawal to the bank, for example current account deposits which can be withdrawn by writing a cheque.

13.2.2 Money as a spending potential of the economy (M_2)

This definition identifies all deposits that are easily convertible into cash. These deposits are made up of notes and coins in circulation, demand deposits with financial institutions, savings deposits and fixed time deposits that mature within 30 days.

Thus M_2 is given by:

$M_2 = M_1 + \text{Savings deposits} + \text{Fixed time deposits that mature within 30 days.}$

13.2.3 Money as store of wealth (M_3)

This definition includes quasi or near money, that is, assets that are not easily convertible into cash. This is the official definition of money supply in Zimbabwe and it is given by:

$M_3 = M_2 + \text{Fixed time deposits that mature after 30 days.}$

Thus M_3 has five items, namely notes and coins in circulation, demand deposits with financial institutions, savings deposits, fixed time deposits that mature within 30 days and fixed time deposits that mature after 30 days.

NB* The supply of money at any given time is a measurable aggregate. It is determined by the Reserve Bank and thus can be taken as fixed in the short-term. The supply of money curve is vertical showing that money supply is independent interest rates.

13.3 Money Demand

Keynes described the demand for money as "demand for money to hold." This is the amount of cash balances people wishes to hold rather than illiquid assets that yield income such as bonds or government securities. The demand for money is called liquidity preference. Keynes identified three motives for holding money:

13.3.1 Transactions motive

People hold money to use to buy goods and services, that is, they need money to pay for day-to-day transactions such as bus fare.

13.3.2 Precautionary motive

In addition to the amount of money they hold to pay for day-to-day transactions, additional cash is held for precautionary purposes, that is, to make it available in case of need, not only for the emergency situation such as illness but even to buy a bargain if it should be available.

NB* The amount of money held as transactions and precautionary balances are referred to as active balances. The amount held as active balances depend upon the level of prices, the level of income, the frequency at which income payments are made and the financial development of the economy.

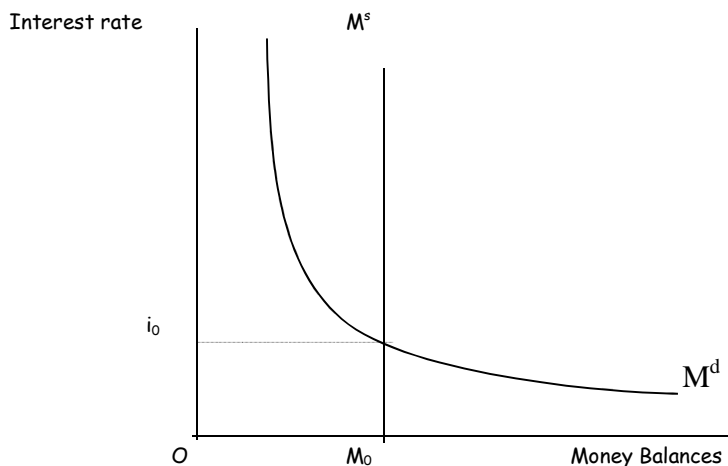
13.3.3 Speculative motive

People also hold cash balances in order to take advantage of improving interest rates and prices of financial assets. People holding money for speculative purposes must be convinced that for the time being, it is more rewarding to hold money than real income earning assets. People will prefer to hold cash balances than bonds when the yield on bonds (interest rates) is low. At lower interest rates, less will be lost by not investing it, whereas the reverse is true for higher interest rates. The demand for money is positively related to income and negatively related to the rate of interest. Thus the liquidity preference curve (demand for money curve) is downward sloping.

13.4 Determination of market interest rates

The intersection of the demand for money curve and the supply of money curve determine the market equilibrium rate of interest.

Fig 13.1 The market equilibrium rate of interest



Any changes in the level of income and prices will shift the money demand curve while money supply changes will shift the money supply curve. The equilibrium interest rate will change in the process.

13.5 Credit creation by commercial banks

In their duty of lending commercial banks create bank deposits that are directly related to money supply. To determine the extent to which commercial banks create credit, we use the credit multiplier.

13.5.1 Simplifying assumptions

- i. Assume a multiple banking system that is, assume that there are numerous banks in the economy..
- ii. Assume a 20% cash reserve ratio, that is, 20% of total deposits need not be advanced as loans but set aside as cash reserve requirement. This amount is set aside for client withdrawal and will not be advanced as an overdraft.
- iii. Bank transactions are only loans and payments are made and paid by way of cheques.
- iv. There are no cash leakages and banks keep no excess reserves.

13.5.2 Illustration of the credit creation process

Based upon the above assumptions, an initial \$100m deposit into CBZ will increase CBZ's deposits by \$100m. CBZ will have \$100m at its disposal and can give out an 80% overdraft of \$80m to Ben by writing a cheque in his favour. Ben will deposit the cheque into his FBC account where upon FBC's deposits will increase by \$80m. FBC will give an overdraft of \$64m to Chen while reserving \$16m for client withdrawal. Chen will deposit the cheque into his Stanbic account. The process will continue until further deposits approach zero. The total deposits or credit generated can be summarised by the following table.

Table 13.1 The credit creation process

Stage	Bank	Deposit	Cash Reserves	Overdraft
1	CBZ	100	20	80
2	FBC	80	16	64
3	Stanbic	64	-	-
-	-	-	-	-
-	-	-	-	-
Total		5000	1000	4000

The total amount of bank deposits created can be calculated using the credit multiplier:

$$\begin{aligned}
 \text{Credit multiplier} &= \frac{1}{\text{Cash ratio}} \\
 \text{Thus, total deposit created} &= \frac{\text{Initial deposit}}{\text{Cash Ratio}} \\
 &= \frac{\$100\text{m}}{0.2} \\
 &= \$100\text{m} \times 5 \\
 &= \underline{\underline{\$5\ 000\text{m}}}
 \end{aligned}$$

NB* It should be understood that the money supply in this case is not only notes and coins alone but the 'invisible money' called credit. Banks can not create notes and coins but they can as illustrated, create credit by giving out loans or overdrafts. The

amount of cash money in the system remains the same. The system works because of a fundamental assumption that the depositor, who is the bank's creditor, comes back to withdraw only a little which is catered by 20% cash ratio, in this case. A bank could collapse if all depositors claimed their money back all at one time because the bank would not have enough liquidity to pay cash (bank run). However this seldom happens.

13.5.3 Limitations to the credit creation process

There are four limitations to the ability of commercial banks to increase money through credit creation.

- a. No increase in deposits.
- b. Lack of willingness to borrow on the part of the public.
- c. Lack of willingness to lend on the part of commercial banks.
- d. The cash ratio, the smaller the cash ratio the greater the amount of credit created and the larger the cash ratio, the smaller the amount of credit created. This can best be illustrated if you answer the following example.

Example

Given an initial deposit of \$200b into the banking system, how much credit or bank deposits will be created if the cash reserve ratio is 10% and 50%?

13.6 Monetary policy

Monetary policy refers to deliberate attempts to manipulate the rate of interest and money supply in order to bring about desired changes in the economy.

13.6.1 Aims of the monetary policy

In general terms monetary policy is used to regulate credit conditions and the supply of money in order to fulfil macroeconomic objectives. The overall objective is to improve the standards of living within the economy. Alternative objectives can be listed as follows: -

- a. To maintain stable prices, that is, control inflation or deflation.
- b. To attain a rising level of employment.
- c. To achieve real economic growth which is prerequisite to improvement in the standards of living.
- d. To secure a healthy BOP position.

13.6.2 Targets of monetary policy

To achieve the above objectives of economic policy, the authorities through monetary policy will seek to manipulate:

- a. Interest rates.
- b. Growth in money supply.
- c. Exchange rate and,
- d. Growth in the volume of credit.

13.6.3 Instruments of monetary policy

There are two main categories of monetary policy instruments. On the one hand there are those instruments of policy that are designed to have a general effect on the financial sector and through that sector, on the whole economy. On the other hand there are instruments of control that are specific in their effects on particular financial organisations.

a. Instruments for general control

General control instruments affect certain key interest rates or the authorities may directly engage in transactions in key financial markets in order to affect credit throughout the economy.

i. Open Market Operations

'Open market operations' refers to the buying or selling of government securities (bonds or treasury bills) by the central bank to the public. The principle is to exchange 'paper assets' for 'cash.' For example, if there is excess liquidity in the market the central bank will enter the market selling government securities. People will exchange their cash for the securities and hence the excess liquidity is mopped up. Conversely if there is a shortage, the central bank will enter the market buying the securities from the public thereby injecting liquidity into the market.

ii. Discount policy or accommodation window

The discount policy refers to variations in the rates at which the central bank discounts first class bills and other terms at which the central bank, as a lender of last resort, advances funds to certain domestic parties in the money market, usually to enable those parties to make good a reserve asset deficiency. Holders of first class bills such as treasury bills can apply to the central bank for the maturity dates of their bills to be brought forward. This is granted on condition that the holder will receive an amount less than what they were going to receive upon maturity of the bill. Thus the central bank will 'discount' the bill. For example if an investor holds a \$100m bill that will mature in the next three months, the investor can apply to liquidate the bill today but instead of receiving \$100m the central bank will pay an amount less than \$100m e.g. \$80m. The bill would have been discounted by 20% which is the \$20m. Discounting increases the liquidity situation in the market. Thus if the central bank is pursuing a tight monetary policy it will increase the rediscount rate or the central bank can close the accommodation window facility.

iii. Non-marketable government debt

The government can seek to borrow direct from the central bank for some general or specific purpose. In such cases, the terms of the loan are negotiated beforehand and those negotiating on behalf of government will be anxious to ensure that the agreed interest rate does not have an adverse influence on the absolute level of interest rates, in nominal terms.

iv. Public debt management

The Reserve Bank operates a government account through which borrowing and interest payments pass. Government borrowing or specifically the PSBR directly fuels credit creation by commercial banks if the government borrows from the banking sector.

b. Instruments of specific control

Specific instruments of control have their impact on specific financial institutions and that impact is in the short-term restricted to those specific institutions.

i. Moral suasion

Moral suasion or moral persuasion consists of central bank requests or admonitions to banking institutions to act or not to act in certain ways and it may cover any of the bank's activities e.g. lending policy. Moral suasion is not compulsory and hence banks may not agree to change. However because of the nature of the relationship between the central bank and these banks moral suasion has been successfully implemented in Zimbabwe.

ii. Calling for special deposits with the Reserve Bank

The central bank can wish to make credit tighter and call specifically for a special deposit from commercial banks. This dampens optimism and so curtails business spending.

iii. Ceilings and directional controls

This refers to lending ceilings and selective credit controls. It involves the authorities imposing formal or informal maximum or minimum levels of amounts banks can lend to certain specific borrowers or categories of borrowers or for certain specific purposes.

iv. Variable reserve ratio

This refers to attempts to control credit creation by commercial banks by manipulating the cash ratio. From the illustration on the credit creation process we concluded that the smaller the cash ratio, the greater the banks' ability to increase money supply and vice versa. For example the central bank can increase the cash ratio if it wants to reduce the level of money supply growth from the creation of credit.

v. Statutory Reserve Requirement

Banks are required to maintain reserve cash balances with the Reserve Bank for management purposes. These reserves can be varied depending on the monetary policy. For example with a tight monetary policy the reserves can be increased so as to reduce excess cash in the market.

vi. Directives

The central bank can issue directives such as demanding pension funds to hold a portion of their earnings in prescribed government paper.

13.6.4 Limitations of monetary policy in Zimbabwe

The advantage of monetary policy is that it is flexible and can be applied fairly quickly unlike fiscal policy that needs to have both cabinet and parliamentary approval before it can be applied. However the effectiveness of monetary policy in Zimbabwe is affected by;

- a. Financial dualism that is the existence of a monetised and non-monetised sectors in the economy. The monetised sector uses money for its transactions while the non-monetised sectors engage in barter trade. There is a large non-monetized sector which is little affected by monetary policy.
- b. There is a narrow size and inactive money and capital market.
- c. There is a limited array of financial stocks and assets.

- d. The notes constitute a major proportion of total money supply, which implies the relative insignificance of bank money in the aggregate supply of money.
- e. Foreign owned commercial banks in Zimbabwe can easily neutralise the restrictive effects of a strict monetary policy as they can replenish their reserves by selling foreign assets and can draw on the international market.

13.7 Zimbabwe's financial system

It has been argued that the Zimbabwean financial system is one of the well developed, mature, diversified and geographically spread financial system. The financial system may promote or hinder the process of economic development depending on its nature. If the financial system is well developed, it may provide economic development, that is, financial development lead to economic development. However the financial system in Zimbabwe recently has been involved in non-core activities such as buying the whole year's production of bricks and other speculative activities. This has led to placement of more than five financial institutions including commercial banks under curatorship and some were subsequently liquidated. The historic case of ENG and Trust Bank will come to mind.

13.7.1 The Reserve Bank of Zimbabwe (RBZ)

The RBZ or the central bank is at the apex of the financial institutions. It plays a supervisory and regulatory role in the financial sector. The RBZ plays important internal and external roles.

a. Internal functions of the RBZ

The internal functions of the RBZ can be grouped into three classes

i. Banking functions

- *Banker to the government* - the RBZ operate a government account through which government revenue, expenditure and borrowing is processed.
- *Banker to other banks* - banks are required by statute to maintain reserve requirement accounts with the central bank for administrative purposes. In addition the RBZ operates a cheque clearing house through which cheques from various commercial banks are settled.
- *Lender of last resort* - the central bank acts a lender of last instance.
- *Banker to the nation* - Firstly, the RBZ is responsible for the printing and replacement of notes (money). Secondly, the central bank maintains the country's gold and foreign currency reserves.

ii. Regulatory institutions

The RBZ is a licensing authority, that is, it licenses all financial institutions for example it issues commercial banks with banking licenses. The central bank is there to supervise the activities of other financial institutions. It ensures that codes and practices that the government lays down are conformed to by the financial sector.

iii. Monetary policy function

The central bank formulates monetary policy; supervise the implementation of the monetary policy and makes periodic evaluations of the monetary policy (for example quarterly reviews) on behalf of the government.

b. External functions of the RBZ

i. Stabilisation of the exchange rate function

This is done in conjunction with government policy. The central bank can devalue or revalue the dollar depending on the state of the economy. The RBZ administers the foreign currency movements.

ii. Interactive function

The central bank is the one that interacts with external financial institutions. The RBZ represents the government in the international money markets for example repayment of the government debt to the IMF.

13.7.2 Commercial banks

Commercial banks accept deposits from the public and pay the depositors interest rates which are the interest earnings of the deposits. They also offer overdrafts and charge lending rates and these are the cost of borrowing. Commercial banks offer a variety of services that include, current accounts, ATMs, safe custody of valuables such as jewellery, financial advice and savings deposits.

13.7.3 Building societies

These basically provide finance for home ownership (mortgage lending) and act as a medium for small savings through various types of accounts which offer different rates of interest. However it is now difficult to draw a line between a building society and a commercial bank because they have the same legal requirements and building societies can also offer the services that commercial banks offer.

13.7.4 Merchant banks

Merchant banks offer trade finance and give advice to those companies dealing with international finance. In addition merchant banks advise companies on mergers and acquisition. They also underwrite the issue of new shares (Initial Public Offer). That is, merchant banks guarantee the issue of shares not bought by the general public in order for the issuing company to raise the required funds.

13.7.5 Discount houses

Discount houses act as intermediaries between other financial institutions and the central bank. They specialise in the sale and purchase of securities with different maturities and dates. They operate 'call accounts' which form part of the liquid assets held by banks and other institutions.

13.8 Money and capital markets

Financial markets are the means by which savings are channelled back into the economy as loanable funds. The process is known as financial intermediation. Financial intermediation arises because lenders and borrowers have different requirements in terms of risk and time. One of the more important distinctions within the financial markets is that between money and capital markets.

13.8.1 Money market

Money market is a submarket of the finance market and specialises in short term lending or borrowing. That is the money market contracts are up to one year. Institutions in the money market include commercial banks, savings clubs, micro finance

corporations and individuals. The instruments through which people can borrow in the money market include treasury bills, trade bills, call loan and negotiable certificates of deposits. Interest rates in the money market apply to periods of usually up to twelve months. The interest rate is dependent on the bank rate, that is, the rate at which the central bank advances loans to financial institutions as a lender of last resort. Thus interest rates in the money market are influenced by the central bank (commercial bank lending rate equals bank rate plus mark-up).

13.8.2 Capital market

The capital market constitute of institutions such as the stock exchange market, mortgage market, new issues of shares market and the corporate market (bonds issued by the government). The capital market, unlike the money market, specialises in long-term lending. Amounts involved are generally bigger and are supposed to be repaid in more than one year. The capital market deals with long-term private and government securities and funds. It's a market for long-term borrowing and lending using instruments such as bonds, equity shares, debentures and preference shares. The central bank does not influence interest rates in the capital market. The market is a free market where the rate of interest is determined by the forces of demand and supply of securities. As a result, interest rates in the capital market are one of the best indicators of the market's current expectations about future interest rates.

13.8.3 The role of money and capital markets

The money and capital markets are of great importance in Zimbabwe because

- a. They promote savings and investment
- b. They represent a counter for borrowings (deficit units) hence are a major source of funding.
- c. They offer financial advice
- d. They offer banking and financial services to the community
- e. Money and capital markets
- f. Standards of living are improved through transactions in the money and capital market

13.9 The quantity theory of money

In the Quantity Theory of Money, Milton Friedman improved Irvin Fisher's equation of exchange to illustrate the role of money in the economy.

13.9.1 The Classical Quantity Theory

Fisher thought that money was used only as a medium of exchange. Its sole function was to act as a means of payment in transactions for goods and services. According to Fisher, if the number of transactions is independent of the amount of money, then the total money value of transactions will be given by:

P, the price level of goods and services bought and sold, multiplied by,

T, the number of transactions, to equal PT ($P \times T = PT$)

The amount of money required to pay for these activities is given by:

M, the money supply, multiplied by

V, the velocity of circulation, to give MV ($M \times V = MV$).

The velocity of circulation (V) measures the speed at which money changes hands in the economy. MV must always equal PT because they are simply two different ways of measuring the same transactions. MV looks at society as consumers while PT looks at society as producers.

13.9.2 The new quantity theory

Friedman improved the classical quantity theory of money to

$$MV = PQ \quad \text{where,}$$

M = Money supply

V = Velocity of circulation

P = General level of prices

Q = National income or real output.

The velocity of circulation (V) is assumed to be fairly constant. The economy is assumed to be at or near full employment such that it is not possible to increase output. Thus Q is constant. Given that V and Q are constants, a change in M will directly affect P. for example, if M doubles, Q must also double for the equation to remain holding. Thus an increase in money supply will directly result in an increase in the level of prices (inflation).

13.9.3 Criticism of the quantity theory

- a. The assumption full employment of resources is unrealistic. It is true that at full employment any increase in the money supply can only result in a higher price level since output cannot expand. With unemployed resources available, a rise in the amount of money is likely to result in changes in production as well as prices.
 - b. Velocity of circulation is unlikely to remain constant. An increase in the money supply will probably cause an increase in velocity when people expect a sharp rise in inflation. They will try to spend before prices rise. In every depressed economy, an increase in the money supply may cause a compensating fall in velocity as people cut back spending. This leaves the price level and the number of transactions unaltered.
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Chapter 14

Theory of national income distribution

14.0 Introduction

The assumption is that all factor income generated through economic activity will be distributed among the factors of production used to produce the output. Land will earn rent, capital earns interest, labour earns wages and salaries and the entrepreneur will earn profit. The question remaining is how to determine how much each of the factors of production will receive (pricing of factors of production). In this chapter we are going to illustrate in theory how wages and salaries, rentals, interest payments and profits are determined. However, it may be important to note that in reality these theories are not religiously applied in determination of the factor earnings.

14.1 The marginal revenue productivity theory of wages

The marginal revenue productivity theory is based on the fact that labour is wanted not for its own sake but for the sake of the product it can produce. As a result the payments for labour (wages) are derived from the return from the sale of the product of labour hence if labour productivity increase, labour tend to enjoy increased remuneration.

14.1.1 Assumptions

- a. Assume a perfectly competitive labour market; for example, assume that there are very large numbers of employers and workers, that labour is homogenous and so on.
- b. Assume that labour is the only variable factor of production to be applied to other fixed factors.
- c. Assume that the marginal physical product of labour can be measured; that is, each additional workers contribution total product can be measured.

Given the above conditions, a profit maximising firm will employ additional units of labour up to the point where $MRP = MC$.

14.1.2 The marginal revenue productivity (MRP)

Marginal Revenue Product (MRP) of labour is the addition to the firm's total revenue that comes as a result of employing one more unit of labour. It is given by,

$$\text{Marginal Revenue Product} = \text{Marginal Physical Product} \times \text{Price of the Product}$$

The marginal physical product (MPP) of labour is the addition to total product that comes as a result of the employment of an additional unit of labour. Due to the law of diminishing returns which maintains that as you add more and more units of a variable factor, with all other factors held constant, the addition to output (MPP) becomes smaller and smaller. Thus the MRP curve initially rises, reaches a maximum and then falls due to the influence of diminishing marginal returns.

Marginal Cost (MC) of labour is the amount that each additional unit of labour adds to the firm's total costs. Since we assume conditions of perfect competition, this is the wage rate and is constant because workers take the wage as given. Under conditions of perfect competition the price of the product does not change as the firm changes its output.

A profit maximising firm operating under conditions of perfect competition where it cannot influence the price of labour will employ additional units of labour up to the point where the $MRP = MC$. Infact the MRP curve is the firm's demand curve for labour because it indicates to the firm what the additional unit of labour is worth in terms of revenue.

14.1.3 Demand for labour

The demand for labour is derived demand rather than direct. It is derived from the demand for the product of labour, that is, the demand for labour just like the demand for any other factor of production depends on its productivity and on the price at which the product which is produced is sold. This is because labour does not directly satisfy consumer need but do so indirectly by producing goods and services. Demand for labour is downward sloping due to the influence of diminishing marginal returns and equal to that part of the MRP curve that lies below the ARP curve.

The demand for labour depends on:

- The demand for the product of labour and therefore the prices of the product of labour.
- The productivity of labour (MRP).
- The importance of labour costs in total costs of production.
- The possibilities of substituting labour with other factors as wages rise.

Any changes in these factors will shift the demand for labour curve either to the right or to the left.

14.1.4 The supply of labour

The supply of labour curve is upward sloping. Justification for the upward sloping supply curve can be found in the need to pay workers higher wages to induce them to work longer hours (as illustrated by higher rates on overtime work) and by the need to pay higher wages to attract new workers into the industry.

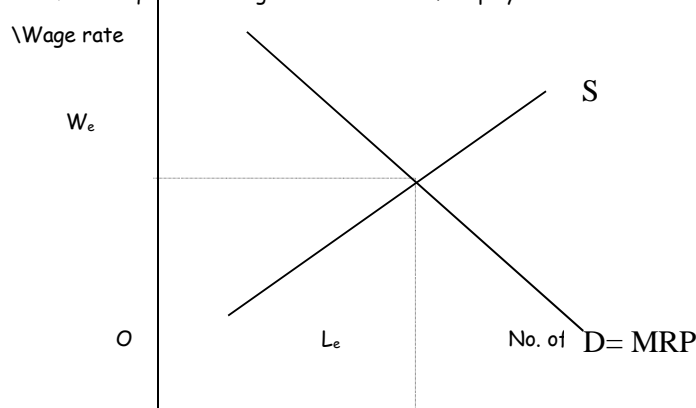
The supply of labour to a particular industry depends on:

- The standard of living and the extent to which workers value leisure relative to income.
- The prevailing social attitudes towards the nature of work.
- The mobility of labour, that is, the extent to which restrictions on entry such as education, training and skills requirement is applicable.
- The extent to which trade unions and professional associations are able to control recruitment.

14.1.5 The equilibrium wage and level of employment

The intersection of the demand for and supply of labour will determine the market wage rate and the level of employment.

Fig 14.1 Market equilibrium wage rate and level of employment



Any changes in the factors that affect demand for and supply of labour will change the equilibrium position. In which case, the curves will shift either to the right or to the left.

14.1.6 Criticism of the marginal revenue product theory

The theory is based on several assumptions, some of which are not realistic, for example labour can never be homogeneous and it is difficult to measure the productivity of each individual labour. In reality the productivity of labour depends on the productivity of other factors of production such as capital. In addition, the theory ignores the importance of trade unions and government policy which often set wages.

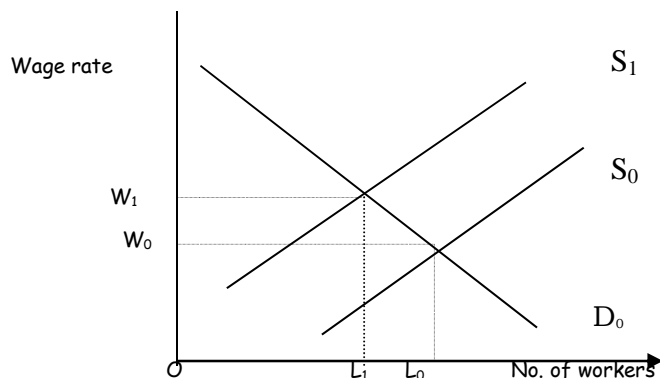
14.2 Imperfectly competitive labour markets

The supply of labour is not at all competitive in the labour market. Instead, it is controlled by a labour monopoly known as a trade union. A trade union is a group of workers who band together to pursue certain common aims, especially the achievement of wage increases for their members and the lobbying of government to pass legislation in favour of workers.

14.2.1 Effects of trade union on wages and the level of employment - restriction of supply

Workers with specific skills such as doctors and accountants can form a craft union that can restrict supply by controlling the length of apprenticeship programmes and restricting membership for example by imposing licensing and other entry requirements.

Fig 14.2 The effect of restricting labour on wages and the level of employment

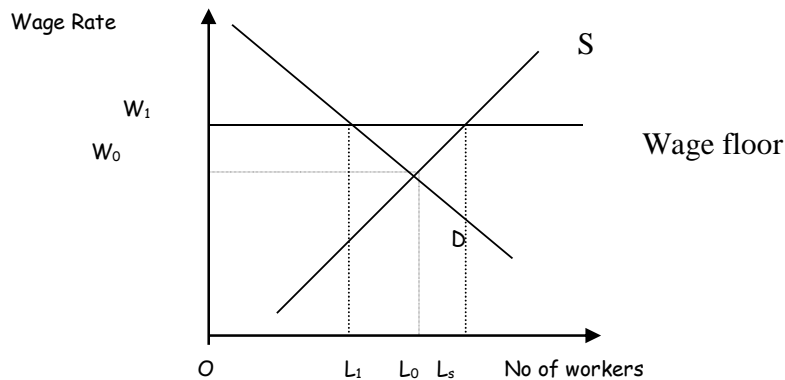


If supply is restricted, the supply curve will shift from S_0 to S_1 thereby increasing the wage rate from W_0 to W_1 . However, at the higher wage rate (W_1), it becomes expensive for firms to hire labour hence the level of employment decreases from L_0 to L_1 .

14.2.2 Effects of trade union on wages and the level of employment - wage setting -

Workers in a single industry may be represented by an industrial union or workers union. Such unions derive their strength from numbers of their membership and hence can force firms in the industry to bargain exclusively with the union over wages and other conditions of employment. Thus bargaining power enables the union to obtain wages for its members above the level that would pertain in a perfectly competitive market.

Fig 14.3 The effect of a minimum wage on wages and the level of employment

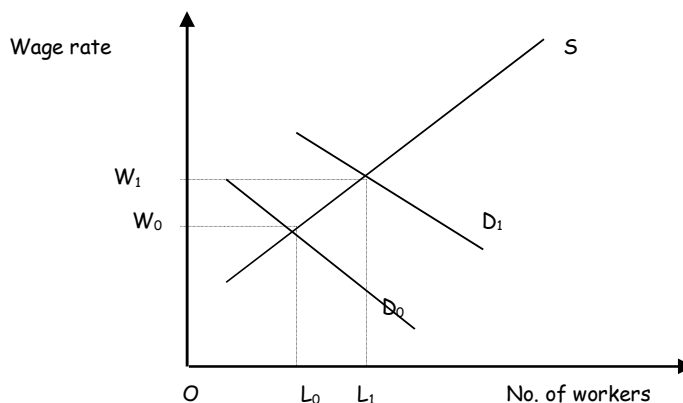


The perfectly competitive wage rate is W_0 . If the union gains control of the supply of labour, it can fix the wage rate at W_1 . Given a downward sloping demand curve, the level of employment will decrease to L_1 . Thus involuntary unemployed labour is $L_s - L_1$.

14.2.3 Effects of trade union on wages and the level of employment - increasing labour demand

Trade unions may support, or even conduct training courses to increase productivity and therefore the demand for labour. Unions also have an interest in supporting employers in lobbying for tariff legislation that protects their industry from import competition. Tariffs raise the price of imports. This will tend to increase the demand for domestically produced goods which are substituted for the more expensive imported goods. Thus the demand for labour used to produce the domestic goods will increase (the demand curve will shift outwards) as shown on the following diagram.

Fig 14.4 The effect of increasing labour demand on wages and level of employment



An outward shift of the demand curve for labour from D_0 to D_1 will raise wages from W_0 to W_1 and employment rises from L_0 to L_1 .

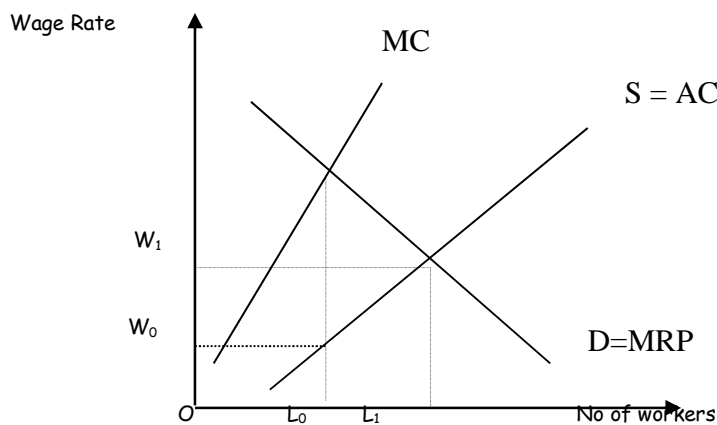
14.2.4 Monopsony

A monopsony is a market where one buyer purchases a product or factor of production from many sellers. It is, in a sense, the opposite of monopoly. A labour market where one employer confronts a non-unionised group of workers competing for jobs is a monopsony. To attract additional workers, the monopsonistic firm must raise wages, that is, it faces an upward sloping supply of

labour curve. If we assume that labour is the only factor of production, the supply curve will be equal to the AC curve ($S=AC$). If AC is rising the MC will be rising even faster.

According to the marginal productivity theory, a profit maximising firm will hire labour by equating MC to MRP. The same will apply for a monopsonist who will hire L_0 units of labour at a wage rate W_0 as illustrated in the following diagram

Fig 14.5 Monopsony level of wages and employment



The monopsonistic firm will equate MC to MRP to employ L_0 number of workers. The wage is determined from the supply curve, since a point on the supply curve indicates the wage for which workers are willing to supply their labour services. Hence, the wage will be W_0 per worker. Not only is employment depressed by monopsony but also the wage rate paid (W_0) is lower than would have resulted under competitive conditions in the labour market (W_1).

14.3 Wage differentials in the labour market

Why do workers in the same industry or in the same occupation earn different wages? Wage differentials can be explained by differences in labour productivity, that is, highly productive labour will be in great demand and hence will be paid higher wages. However, other reasons can be cited.

- Labour markets can be segmented into distinct segments and it is extremely difficult and costly for an individual to move from one segment to another.
- Differences in labour market structures - wages in perfectly competitive labour markets differ markedly from those in monopsony.
- Institutions in the labour market - trade unions could through a number of activities ranging from bargaining to a restriction of supply, also alter the wage rate from that which would hold in a perfectly competitive market.
- Human capital - education and training impart skills but requires effort, time and resources. Thus higher wages should be paid for qualified labour.
- Opportunity cost - acquiring human capital involves foregoing income. As a result, individuals expect to recover this opportunity cost through higher incomes on completion of studies.

- f. Experience and on the job training – there is a positive relationship between the individual's wage and the length of time spent at a specific company.
- g. None monetary rewards – such as esteem and social status given to doctors or the country's president who happen to earn a salary far less than what most managing directors in industry get..
- h. Discrimination – racial, tribal and gender discrimination.

14.4 The loanable fund theory of interest

The term capital is used either to describe capital goods or to describe financial resources. Capital is formed by forgoing current consumption and diverting these resources to the production of future wealth. In other words capital accumulates by doing without now and using the resources so freed to create more wealth in the future. Interest is the reward for parting with liquidity for a specified period. According to the loanable fund theory or classical theory of interest, the interaction of the savings (supply of loanable funds) and borrowings (demand for loanable funds) determine the rate of interest. The theory is an alternative to the Keynesian's liquidity preference theory looked at in chapter 13.

14.4.1 The supply of loanable funds (savings)

The supply of loanable funds refers to the willingness and ability of households or firms with excess funds (savings) to make them available to borrowers at a certain rate of interest. People save from their current incomes and the level of savings will depend on:

- a. The social framework of the society – if the society encourages savings and there are saving intermediaries such as savings clubs, people will save.
- b. The size of the income of an individual – the higher the income the more likely will the present wants be fully satisfied with some funds being left over as savings.
- c. The preference of individuals for present over future consumption – if people are impatient to spend their incomes in the present, that is, if they have a greater preference for present over future enjoyment of goods, then the higher have to be the rate of interest to induce them to save and lend their money.
- d. The degree of uncertainty regarding enjoyment in the future – the more certain an individual is of the ability to enjoy his income in the future, *ceteris paribus*, the less impatient he will be to spent money in the present.

The supply of loanable funds curve is upward sloping showing that higher interest rates encourage individuals to consume less now and save more.

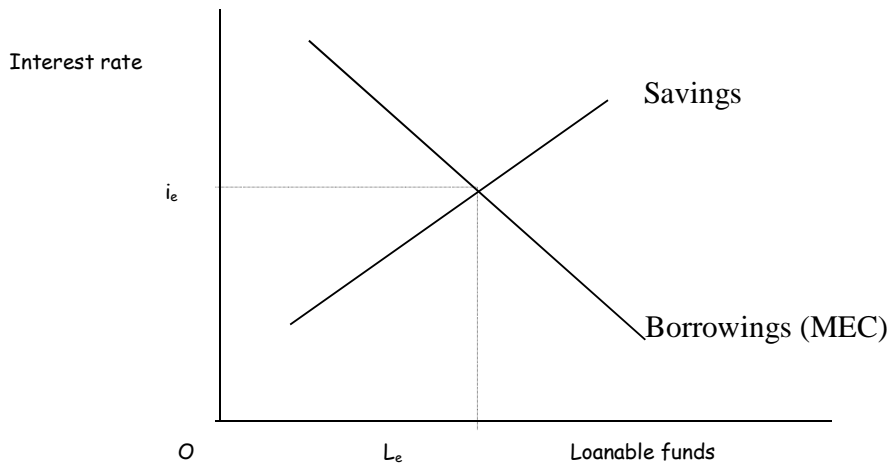
14.4.2 The demand for loanable funds (borrowings)

The demand for capital refers to the willingness and ability of households, firms and the government to borrow funds to finance their various consumer needs and investment projects. Capital is demanded because it makes it possible a much future output. Firms borrow with the aim that these productive investments will yield a rate of return that exceeds the cost of borrowing thereby reaping profits for the firm. Just like the demand for labour, the demand for capital is derived demand and it depends on the marginal revenue product of capital (the marginal efficiency of capital).

14.4.3 The market interest rate

The interaction of the supply and demand for loanable funds curves determines the market interest rate.

Fig 14.6 Determination of the market equilibrium interest rate



The market interest rate i_0 is determined at the intersection of the savings and borrowings curves. Any changes in the factors that determine the supply and demand for loanable funds will change the market equilibrium interest rate.

14.4.4 Why interest is paid

- Lenders want to be compensated for the sacrifice that they make when parting with liquidity. This sacrifice comes in the form of forgoing present consumption for that of the future. Utility derived from present consumption is greater than that of the future.
- A dollar advanced today as a loan will be worth less than a dollar by the same time next year due to inflation. To cushion against this, interest rate greater than the inflation rate must be charged on loans.
- Lenders should also be paid interest because the loans made to borrowers carry risk even if the loans are fully secured by collaterals. The interest rate must vary according to the degree of risk involved.
- When loans are issued out, administrative costs such as the cost of the loan application form are incurred. These costs are incorporated in the interest charge to the borrowers.

14.5 Profit

Profit is defined as the reward for risk-taking or the reward for uncertainty bearing. There are insurable and non-insurable risks in business. Insurable risks include fire, theft and accident. Since this risk can be insured against, they are not rewarded by profit. Profits therefore are rewards for non-insurable risks such as changes in demand for the product or cost conditions for the product.

14.5.1 The role of profit

- Profits are the reward to the entrepreneur hence they act as an incentive.
- Profits influence the level of resource utilisation and the allocation of resources among alternative uses.

- c. It is the profit or the expectation of profit that induces firms to innovate. Innovation stimulates investment, total output and employment. That is, it is the pursuit of profit that underlies most innovation.
- d. The occurrence of economic profit is a signal that society wants that particular industry to expand.
- e. Profits are the financial means by which firms can add to their productive capacities, that is, ploughed back profit inject working capital.

14.5.2 Why profits vary from firm to firm in the same industry

Firms in the same industry may earn different profits because

- a. One firm may be enjoying economies of scale while the other is not, that is, cost differences.
- b. One firm may have built a reputation by excellent service in the past and hence the firm may derive advantages from an outstanding goodwill.
- c. The nature of the returns in production; firms that are operating under conditions of increasing returns to scale tend to make greater profits than those in which diminishing returns are threatening, if not actually operative.

14.5.3 Why profits vary from firm to firm in different industries

- a. Differences in degrees of risks for example new industries have high degree of risk and high profit levels.
- b. Market structure for example one firm may be operating in a monopolistic industry and making great profits than the other firm that may be operating under a perfectly competitive industry.
- c. Differences in the degree of elasticity of demand for the commodity or service.

14.6 Rent

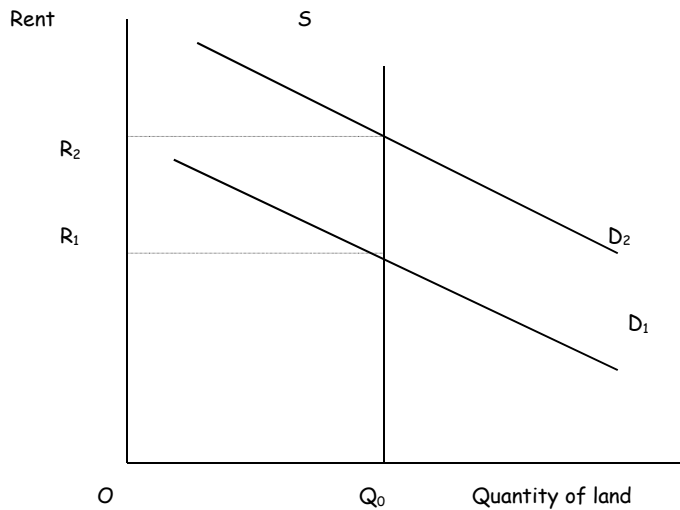
The meaning of the word 'rent', in its everyday usage, is the payment made for the use of property, usually in the form of land or buildings. The same word is often used as a synonym for 'hire'. The rent that is paid in this case is commercial rent. Any payment made to any factor, therefore, simply for the purpose of retaining, as it were, possession of it should be regarded as rent; where the supply of the factor is fixed, and it is specific in its use, so it cannot be used for anything else, any surplus or extra money paid to it is economic rent. The earnings of most factors of production consist of economic rent and transfer earnings. Transfer earnings are defined as the minimum amount that must be earned to prevent a factor of production from transferring to another use. Economic rent is said to be earned whenever a factor of production receives a reward that exceeds its transfer earnings.

14.6.1 Determination of rent

The total quantity of land is fixed in supply. Unlike the other factors of production such as capital and labour, the available supply of land cannot be increased by human efforts. Thus, the total quantity of land supplied is the same at every price. That is, the supply of land is represented by a vertical or perfectly inelastic supply curve. On the other hand demand for land just like demand for any other factor of production is derived from demand for its product. It will depend on the quality or the productivity of the piece of land (fertile versus barren), its location (rural land versus urban land) and the number of uses for

that piece of land. Given these conditions, the free market rent will be determined by the intersection of the demand and supply of land curves.

Fig 14.7 Determination of rent



From the diagram, the total supply of land is to a large extent fixed. Increased demand does not bring increased supply but it increases the rent earnings of those who are fortunate enough to own land. For example if demand for housing increase in Harare due to Operation Murambatsvina which destroyed illegal structures, the demand curve will shift from D_1 to D_2 and rentals will increase to R_2 .

Chapter 15

Macroeconomic problems

15.0 Introduction

An economist returns to visit his old school. He's interested in the current exam questions and asks his old professor to show some. To his surprise they are exactly the same ones to which he had answered 10 years ago! When he asks about this the professor answers: "the questions are always the same - only the answers change!" The same can be said of macroeconomic problems. Over the decades Zimbabwe has faced the same problems of inflation, unemployment and BOP deficits. In this chapter we are going to explore the theoretical underpinnings of these problems as well as the probable macroeconomic policies that can be implemented to curb the problems.

15.1 Unemployment

An unemployed person is someone who is actively searching for a job but unable to find one within a specified time period. An 'expanded' definition of unemployment includes people who have the desire to work but have become too discouraged to actively search for a job. The rate of unemployment is defined as the number of unemployed job seekers divided by the total number of employed and unemployed persons.

$$\text{Unemployment rate} = \frac{\text{Unemployed persons}}{\text{Labour force}} \times 100$$

In Zimbabwe the level of unemployment is estimated to be over 80%.

15.1.1 Types, causes and remedies for unemployment

Economists distinguish between three major types of unemployment; namely frictional, structural or 'mismatch' and cyclical unemployment. The following table summarises the main causes and remedies for the different types of unemployment.

Table 15.1 Type, causes and remedies of unemployment

Type	Description	Cause	Remedy
FRICTIONAL	<ul style="list-style-type: none"> - People voluntarily remain unemployed while they seek out and weigh up suitable job vacancies. - People searching for jobs which exist but where complete information concerning these jobs is lacking 	<p>Difficulty in matching quickly workers with suitable jobs due to :</p> <ul style="list-style-type: none"> - Lack of information concerning jobs. - Delays in applying, interviewing and accepting jobs. 	<p>Improve the flow of job information to make it easier for job seekers to come into contact with job vacancies</p> <ul style="list-style-type: none"> - Advertising in public media e.g. national newspaper - Establishing employment exchange offices.
STRUCTURAL	Skills profile of unemployed persons does not match the skills demanded by employers	<ul style="list-style-type: none"> - Declining industries and the immobility of labour. - Workers have the wrong skills in the wrong place 	<ul style="list-style-type: none"> -Subsidise and improve the mobility of labour. - Change the education curriculum to meet the requirements of industry
TECHNOLOGICAL	With improvement in technology, old skills are no longer required and machines will do the jobs people used to do (labour saving)	<ul style="list-style-type: none"> - Technological progress. - Automation and information technology 	<ul style="list-style-type: none"> - Training and retraining the labour force. - Halt the pace of technological development
CYCLICAL	Workers with skills will be searching for jobs but job vacancies fall short of the number of job seekers	Periodic downswings in the business cycle which lead to an insufficient aggregate demand in the economy	<ul style="list-style-type: none"> - Increased government spending. - Reduce taxation. - Government can spend more money directly on jobs (hiring more civil servants)

15.1.2 Consequences of unemployment

Unemployment affects individuals, society, businesses and the government through the following ways.

a. Loss of output

The opportunity cost of each unemployed person is his or her foregone output. If labour is unemployed the economy is not producing as much output as it could.

b. Loss of human capital

The unemployed labour gradually loses its skills because skills can only be maintained by working.

c. Lost tax revenue

Growing unemployment means less direct and indirect tax revenue because unemployed people stop paying income tax and their spending will fall considerably.

d. Social Costs

Unemployment brings social problems of personal suffering and distress and possibly also increases in crime such theft and prostitution.

e. Increasing inequalities in the distribution of income

Unemployed people earn less than employed people and so when unemployment is increasing the poor get poorer.

Table 15.2 Employment and training schemes to reduce unemployment in Zimbabwe

Scheme	Description
Restart Programme	Interviews and training for people unemployed for long periods
Community Projects	Local projects for the unemployed
New Workers Scheme	A subsidy to employers taking on the unemployed youth.
Job Search Scheme	Return fare and allowance for job interviews
Job Release Scheme	Early retirement with an allowance
Job Splitting Scheme	A subsidy to encourage job sharing

15.2 Inflation

Inflation refers to a persistent and continuous rise in the general or average price level as reflected in changes in the consumer price index (CPI). It refers to the rate of increase in the general price level and not a price increase per se or to a one-off increase in the price level.

15.2.1 Types, causes and remedies for inflation

Economists distinguish between three different types of inflation namely demand pull, cost push and structural inflation. The following table summarises the main causes and remedies for different types of inflation

Table 15.3 Type, causes and remedies to inflation

Type	Cause	Remedy
DEMAND - PULL	Demand pull inflation can either be from the real sector or monetary sector - In the real sector keynesians argue that an increase in aggregate demand not being matched sufficiently by increased output usually results in an excess AD which triggers bidding up of prices.	To curb demand pull inflation first identify the source of inflationary pressure - If it is from the real sector, take steps to reduce demand in the economy through increased taxation, and reduced government expenditure. - if it is from the monetary sector reduce growth in money supply through tight monetary policy

	- in the monetary sector monetarists argue that excess supply of money causes too much money to end up chasing too few goods as individuals try to dispose of the excess cash.	
COST-PUSH	<p>A firm passes on an increase in production costs to the consumer. The inflationary effect of increased costs can be a result of:</p> <ul style="list-style-type: none"> - increased wages leading to a wage-price spiral or wage-wage spiral - increased import prices (imported inflation) - unjustified price increases in the case of monopolies 	<p>The solutions to cost push inflation resides in</p> <ul style="list-style-type: none"> - de-regulate labour markets - encourage greater productivity- apply controls over wage and price rises e.g. price controls - deduce import prices by removing tariffs.
STRUCTURAL	<p>Production constraints or structural rigidities such as drought cause output to lag behind demand for the goods. The resulting shortage will put an upward pressure on prices.</p>	<p>The solution to structural inflation resides in making supply more responsive to changes in demand through,</p> <ul style="list-style-type: none"> - the establishment of national reserves e.g. GMB to minimise adverse effects of events such as droughts. - improve worker productivity.

15.2.2 Effects of inflation

Not everyone suffers from inflation. Some parts of society actually benefit for example

- The government finds that people earn more and so pay more income tax.
- Firms are able to increase prices and profits before they pay workers higher wages.
- Debtors (borrowers) gain because they have the use of money now when its purchasing power is greater.

On the other hand some parts of society are disadvantage by inflation for example

- People on fixed incomes such as pensioners tend to suffer as their incomes are usually not adjusted for inflation.
- Creditors lose because the loan will have reduced purchasing power when it is repaid.
- Zimbabwean goods may become more expensive than foreign made goods, so the balance of payment suffers.
- Industrial disputes may occur if workers are unable to secure wage increases to restore their standard of living.
- Investment habits are forced to change from savings to investment in non-monetary assets such as property, which appreciate in value. Monetisation of the economy is reduced.

NB* On the basis of these argument it can be argued that inflation tends to negatively affect living standards of an economy. In the extreme cases of inflation people will loose confidence in the monetary system of the country and resort to barter. Germany is a historical example where the mark lost its value due to hyperinflation which broke the 1000% record to the extent that people resort to using cigarettes as a medium of exchange.

15.2.3 Measuring inflation - Calculating the consumer price index (CPI)

CPI is a statistical device that indicates the price level at any given time as compared with the level of prices at some standard time called the base. CPI looks at how prices are changing in retail shops hence it is also referred to as the Retail Price Index (RPI). The following procedure is used:

Step 1 A basket of goods and services consumed by the average family is listed. For example food, clothing and transport are included in the basket.

Step 2 The price of items in the basket in the base year is noted. The base year is the year in which it is assumed that there were no chronic economic problems, that is, there is no inflation.

Step 3 Each item in the basket is assigned a weight to reflect its relative importance to the average family, in terms of the proportion of income spend on each item. For example, food has higher weighting than transport.

Step 4 The price of goods in the basket is recorded in the current year and compared with base year prices as a percentage (index) using the equation:-

$$\text{Index} = \frac{\text{Current price}}{\text{Base price}} \times 100$$

Step 5 The index of each item is then multiplied by its weighting to get the weighted index

$$\text{Weighted Index} = \text{Index} \times \text{Weight}$$

Step 6 The new CPI is found using the equation:

$$\text{CPI} = \frac{\text{Total Weighted Index}}{\text{Total Weight}}$$

Step 7 The value of the CPI in the base year is always 100. The rate of inflation is the percentage change in the CPI and is calculated using the equation:

$$\text{Inflation Rate} = \frac{\text{Current CPI} - \text{Base CPI}}{\text{Base CPI}} \times 100$$

The above steps can be illustrated using the follow table

Table 15.4 Calculation of the CPI

Item	Price in Base Year	Price in Current Year	Weight	Index	Weighted Index
Food	300	600	5	200	1000
Clothing	50	250	3	500	1500
Transport	10	5	2	50	100
Total			10		2600

$$\text{CPI} = \frac{\text{Total Weighted Index}}{\text{Total Weight}} = \frac{2600}{10} = 260$$

$$\text{The rate of inflation is} = \frac{260 - 100}{100} \times 100 = 160\%$$

15.2.4 Problems in using the consumer price index

In Zimbabwe people have doubted the authenticity of the CSO published CPI. In most cases they would view the prices as having increased by a greater percentage than the published index. Problem likely to be encountered when computing the CPI may be outlined as follows:

- a. How to define a standard basket, that is, which items should be included in or excluded from the basket of goods?
- b. Different families have different tastes hence different weightings. How is an average family found?
- c. For a while new products (e.g. mobile phones) may not be included in the basket.
- d. Consumption patterns change overtime, thus weights must be altered to reflect these changes.
- e. The quality of goods changes over time but CPI simply monitors price changes while ignoring quality improvements.

15.3 Balance of Payment (BOP) deficit

BOP deficit refers to a situation on the current account when exports are less than imports. In the short term, a deficit leads to improved standards of living due to increased consumption of imports but in the long term it may lead to depreciation of the domestic currency thus leading to deterioration in the standard of living.

15.3.1 Correcting a BOP deficit

The correct measures to correct a BOP deficit will depend upon its causes and the exchange rate system.

a. Short-term BOP deficit

A short-term BOP deficit may be dealt with by:

- i. Running down foreign currency reserves.
- ii. Borrowing from international institutions such as the IMF.
- iii. Raising real interest rates in order to attract 'hot money.'

b. A serious BOP deficit

The measures to correct a serious BOP deficit problem can have two effects. They can either reduce expenditure (cut domestic expenditure on imports) or switch expenditure (switch expenditure from imports to domestic goods). The various policy measures include:

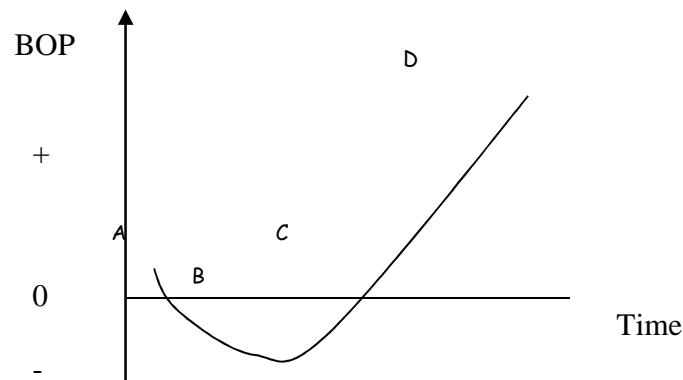
i. Devaluation or depreciation of the domestic currency

Devaluation is a deliberate attempt by the authorities to lower the rate at which the domestic currency exchanges for a unit of foreign currency. The effect of devaluation is to make our exports cheaper to foreign buyers and holding other things constant, the demand for our exports is expected to rise while demand for imports is expected to decrease since they will become expensive. The success of devaluation in correcting a BOP deficit will depend on:

- Whether the country has the capacity to produce for exports and increased domestic demand. Zimbabwe currently does not have such a capacity.
- The sum of price elasticities of demand for exports and imports must be greater than one (Marshall-Lerner condition). That is devaluation can reduce imports or increase exports if demand for imports or exports is elastic. The demand for imports in Zimbabwe is inelastic because most products produced in Zimbabwe require imported components.

- The J-curve effect, that is, due to the existence of contracts and other factors promoting short run inflexibility, measures taken to remedy a BOP deficit have often led to immediate deterioration of the payment position followed by subsequent recovery.

Fig 15.1 The J-Curve effect



ii. Import controls

Import controls refer to the imposition of direct measures such as tariffs or customs duties. Such controls tend to discourage imports by either increasing their prices or reducing their volumes. For example, faced with a BOP deficit a country can impose high tariffs on imports so as to reduce the volume of imports. However import controls conflict with a nation's treaty obligations, for example, SADC agreement to remove barrier to trade and can be less effective if the other countries retaliate.

iii. Deflation policy

These are measures aimed at reducing incomes for example, wage freezes or increased taxes on income. If income is reduced, the ability to import is reduced since imports are an increasing function of income. However deflation policy is unpopular and can push the economy into other serious problems such as civil unrest.

iv. Export Promotion

This refers to the carrot and stick methods of increasing export volumes such as:

- Giving export incentives e.g. tax holidays to exporters.
- Establishing Export Processing Zones (EPZ).
- Allowing exporters to retain a percentage of their foreign currency earnings.
- Trade exhibitions such as the ZITF and Travel Expo.

v. Import substitution

To reduce the volume of imports the country can produce goods that are close substitutes of the imported goods.

15.4 ECONOMIC PROGRAMMES IN ZIMBABWE

The country is best known for the numerous unsuccessful economic reform programmes most of which were never implemented. Of those implemented, they were never fully implemented rendering them all ineffective in addressing the economic problems facing the country.

15.4.1 The Economic Structural Adjustment Programme (ESAP)

Independence in Zimbabwe coincided with the start of the first decade of structural adjustment in Africa. The economy that we inherited from the colonial government was highly regulated and inward looking, that is, it had adopted an import substitution strategy as a way of overcoming the shortages caused by sanctions. The new government needed to redress the imbalances caused by the colonial past and this could not be accomplished through market forces. As a result the government adopted a socialist stance through the Five -Year Developmental Plans.

Zimbabwe became a member of the IMF and the World Bank in 1980. These two institutions and the donor community exerted pressure on the country to adopt a reform program from the IMF in return for a stand by finance package.

a. Economy under ESAP (1991-5): Economic Policy Statement (1990) and the Framework for Economic Reform (1991)

The main targets as outlined in the framework for economic reform document include;

1. A reduction of the budget deficit from about 10% of the GDP in 1990 to 5% by 1995.
2. Complete liberalization of the foreign exchange and trade regime in 1995.
3. Elimination of subsidies, reduction of social expenditure and levying of cost recovery rates on social services.
4. Rationalization of some public enterprises and privatization of others.
5. Liberalization of prices, interest rates and the exchange rate by 1995.
6. Deregulation of the economy.
7. Liberalization of foreign investment regulations and,
8. Deregulation of the labor market by allowing for free collective bargaining wage flexibility and abolishing certain restrictions on retrenchments.

b. The outcomes of ESAP

As a result of ESAP the country's economy was opened to competition, trade was liberalized, controls on prices were removed and economic growth was promoted. On the other hand, companies closed, workers were retrenched, the removal of price controls witnessed an increase in the rate of inflation, the economy's capacity to grow was greatly reduced and the overall standards of living deteriorated. Uncertainties, drought and the increasing budget deficit sometimes hampered the promotion of investment, both local and foreign. Retrenchments led to reduced incomes for households and this has increased poverty. ESAP brought more suffering than help.

c. Why ESAP failed

ESAP did not derive from the prevailing conditions in Zimbabwe. ESAP failed in Zimbabwe (and elsewhere) partly because it was an externally designed economic program, which did not suit our local realities. In addition, it failed because of its total reliance on market forces and its bias towards the formal sector at the expense of the informal sector of the economy. However, ESAP gave us a framework upon which our domestically designed policies can be built such ZIMPREST.

15.4.2 ZIMPREST

a. Main components

1. Urgent restoration of macroeconomic stability
2. Facilitation of public and private sector saving and investment needed to attain growth.
3. Pursuing economic empowerment and poverty alleviation by generating opportunities for employment and encouraging entrepreneurial initiative.
4. Investing in human resource development
5. Providing a safety net for the disadvantaged.

b. Comment

The program was not successful. The main problem was that the macroeconomic fundamentals (particularly the budget deficit, inflation and foreign currency) were not right. Economic empowerment was hampered by lack of credit and high interest rates. Debt repayments are taxing on the economy and this has meant reduction in expenditure on other more fundamental areas.

Appendices

"Zimbabwe is currently experiencing the stagflation problem." Discuss and explain briefly.

Stagflation occurs when high inflation, unemployment and a significant decline in economic growth occur simultaneously. Signs of a stagflation include:

- a) A sudden increase in production costs – higher wages, high energy costs such as electricity and petrol.
- b) Obsolete plant and equipment.
- c) Falling aggregate demand.
- d) Retrenchment and high unemployment.
- e) A significant decline in real GDP.
- f) Higher prices (inflation) – decreasing standards of living.

"Price control is a necessary evil." Analyse Zimbabwe's economic situation with respect to the above statement and recommend what the government may do to solve the problem.

- a) The purchasing power of incomes has been eroded in the past few years. Leaving the producers to increase prices without proper justification would worsen the situation.
- b) Price controls ensure political stability (inflation can lead to civil unrest).
- c) Price controls maintain prices at affordable levels thus improving the average standard of living.
- d) Price controls are necessary to control inflation.

On the other hand:

- a) Price controls affect the viability of the industries.
- b) It is not just the price control in general but the skewed controls in favour of one stage in the production line- controlling the price of the final product while not controlling prices of raw materials.

- c) Problems of shortages and unemployment tend to arise.
- d) Emergency of black or illegal markets.

The dilemma is on either removing the controls and sees the worst inflation and labour unrest or maintain controls and fight the unemployment that may result. Shortages of basic commodities will also need to be solved.

What were the main causes of the dramatic depreciation of the Zimbabwean dollar, which started on November 14, 1997?

There are several explanations behind the fast depreciation of the Zimbabwean dollar, some of which are listed below:

- a) Poor export earnings during the first ten months of 1997.
- b) Speculative dealing.
- c) Weak commodity prices on the international market.
- d) Uncertainty about levels of foreign exchange reserves.
- e) Foreign debt payment by government.
- f) Lack of balance of payment support by foreign donors.
- g) Forward importing by industries in anticipation of a faster depreciation towards the end of 1997.
- h) Low foreign investor confidence.

"Blaming weak commodity prices on the international market as the sole cause of Zimbabwe's weak balance of payment tantamount to economic policy short sight." Comment critically.

While it is true that the commodity prices have been weak for the past years resulting in declining export earnings for Zimbabwe, there are other important contributors to a weak BOP position.

- a) Declining foreign direct investment due to failing foreign investors' confidence.
- b) Primary commodity export at the expense of imported manufactured goods.
- c) Lack of a pronounced export policy for a long run BOP stability.
- d) Debt repayments.
- e) Speculation.
- f) Poor management by the Central Bank.
- g) High inflation.
- h) Reliance on donor funds for stability in the short to medium term.

What role can be played by the informal sector in the development of the country?

The informal sector is generally characterised by the following: -

- a) Ease of entry.
- b) Reliance on indigenous resources.
- c) Small scale operations.
- d) Labour intensity.
- e) Adoptive technology.
- f) Unregulated and competitive markets.

The promotion of informal sector will go a long way in solving economic and social problems of development.

- a) It supplements income from formal employment where the wage structure is generally poor. Thus the informal sector will alleviate poverty.
- b) Unemployment will be reduced. One of the major roles of the informal sector is the absorption of labour. Because untrained labour can easily be used, it thus employs the poor people in the society.
- c) Output will be enhanced and the availability of commodities will suppress the general price level. Goods produced in the informal sector can compete with those produced in the formal sector because they are cheaper and or more accessible.
- d) The sector enhances human capital development, that is, creation of skills. This is through enlarging people's choices and creating possibilities for people to expand their capabilities and opportunities.
- e) Although the sector is largely untaxed, it has a potential to become a substantial government revenue base.
- f) High employment from the sector improve earnings and hence savings which are a source of investment.
However there is need for support of government policies to ensure the success of the informal sector.
- a) A reduction in the budget deficit will create an environment conducive for the operations of the sector.
- b) The informal sector can perform well when the formal sector subcontracts some of its activities to them. In this way, forward and backward linkages will be promoted.
- c) Interest rates and inflation are negatively affected by government expenditure.

What are the barriers to economic development in Zimbabwe? Suggest ways in which these barriers could be tackled in order to foster economic development.

The barriers to economic development include: -

- a) Excessive government interference.
- b) Social and political factors.
- c) High levels of population growth.
- d) Depletion of natural resources.
- e) Higher inflation rates.
- f) Inadequate infrastructure.
- g) Resource underutilisation particularly labour.
- h) Financial institutions that are not supportive of development e.g. NSSA which develop upmarket office space from contributions by the poor without constructing low cost housing.
- i) Wrong policies and priorities and most times the policies re never fully implemented.

Discuss the advantages and disadvantages of the low interest rate policy usually pursued by the Central Bank in Zimbabwe.

Advantages

- a) Promote borrowing and so investment will increase.
- b) Promote small scale and local investment and thus indigenisation of the economy.
- c) This leads to a fall in unemployment, which is a major problem in Zimbabwe.
- d) These lead to high growth.
- e) Promote a situation of reduced inflation.

Disadvantages

- a) May reduce short-term foreign investment ('hot money').

- b) May reduce savings and so funds available for investment are reduced.
- c) These may slow down growth, which would worsen Zimbabwe's problems.
- d) May promote inefficiency in investment due to low costs. This leads to low economic activity.

Explain why Zimbabwe is experiencing some serious foreign currency shortages and the shortage impact on the economy.

Foreign currency is money from other countries. The amount of foreign currency available in Zimbabwe is very important because it determines how much of imports the country will buy. The amount of foreign currency available in a country is determined mainly by the amount of exports as well as capital transfers and aid from foreign countries. Presently Zimbabwe has serious foreign currency shortages which have resulted in shortages of most imported products. The shortage of foreign currency has been caused by several factors:

- a) A fall in the country's export earnings especially due to falling mineral prices on the international market e.g. gold.
- b) Management of the exchange rate which reduces the competitiveness of our exports.
- c) Our political situation which has led to bad publicity abroad. Facts are being exaggerated in foreign media by pressure groups lobbying the government to abandon the land redistribution programme. This has affected foreign currency earning sectors such as tourism.
- d) People are speculating on devaluation of the dollar hence they are holding on to their foreign currency.
- e) Our economy is not diversified leading the country to be an exporter of primary products. This has resulted in a persistent BOP deficit.
- f) Donor communities have withdrawn its funding. The country's relations with international financial institutions have been severed. The country has been isolated through smart sanctions.
- g) The government has been playing for time instead of addressing the country's problems.

The foreign currency shortages have led to the following impacts on the economy:-

- a) Black market and a thriving parallel market for foreign currency has emerged
- b) Firms are sourcing foreign currency on the parallel market, which is expensive and this has contributed to the increased cost of production. Resulting in hyperinflation.
- c) Due to the development of black and parallel markets, the government has lost a lot of revenue.
- d) The country's productive capacity has been reduced due to the country's inability to import major inputs as a result of the foreign currency shortages.

Zimbabwe is currently in a debt trap. Discuss

A debt trap is a situation where a country has to borrow money to pay interest on debt. It's a situation where a country borrows money to service its interests on debt. Public debt is the total amount of money owed by the government to its citizens (domestic debt) and foreigners (foreign debt). The public debt consists of the primary budget deficit plus interest payment. If a government incurs a budget deficit, it has to borrow the finance the additional expenditure. Interest has to be paid to service the debt. When a country fails to raise or generate enough revenue to service the interest, it may borrow to repay the interest.

This is the current situation with Zimbabwe. Interest on past debt rose from \$1,6 billion in 1991/2 to an estimated \$55 billion in 2000 and \$50 billion in 2002. In the current year budget (2005) the government made a \$750 billion provision for servicing interest on the public debt. The current interest servicing costs are estimated to be close to \$3 trillion. The implication therefore is that the

government is going to borrow the remaining \$2, 25 trillion interest servicing costs. Thus the country is facing a serious debt trap. It has to borrow money in order to service interest payments on the debt.

Faced with a serious debt trap, the authorities should undertake the following remedies:

a) Inflating the debt away

During inflationary periods, borrowers gain while lenders lose. Borrowers gain in the sense that they will repay the money when it is valueless. A dollar loaned today should worth more than a dollar tomorrow. This is how the government has been benefiting during the current hyper inflationary environment. Billions of money are now being repaid but at a value less than 20% of their original value. This is called inflating the domestic debt away because the foreign debt which is quoted in foreign currency cannot be inflated away.

b) Seigniorage

The government can simply print new money to be used to repay the interest on debt. However, this will increase money supply leading to a situation where too much money will end up chasing too few goods in the economy. Thus inflation will be fueled.

c) Debt restructuring

The government can negotiate to restructure the domestic debt. This can be achieved by converting short term debt into long term debt. For example the government can negotiate with the holders of treasury bills to convert them into bonds.

d) Debt relief

The government can negotiate for part of the debt to be written off by the international financing community such as the IMF and the World Bank. Alternatively, it can negotiate for more time to repay and service its debt. However, this option is not likely to work in the current situation because of the strained relations that exist between the international financing community and the country. In addition, Zimbabwe does not qualify to be classified as a poor country and hence can not benefit from debt relief in as way as the poor countries like Mozambique.

e) Prudent debt management policy

The country defaulted servicing its debt for the greater parts of 2001 to 2003. No debt management policy was in place. The default in debt servicing, contribute to the strained relations between the country and the international financing community. As a way forward, the government should formulate a proper debt servicing policy with adequate yearly provisions for the servicing of debt.

f) Economic diversification and sustained economic growth

If our economy is diversified it is likely to achieve sustainable economic growth. Where the economy is growing at a faster rate, it is possible for the government to collect more revenue from taxes. Thus the government will be able to meet its expenditure and service interest payments on the debt from revenue.

What is devaluation?

Devaluation refers to deliberate attempts by the authorities to lower the rate at which a local currency exchanges for a unit of foreign currency. Devaluation is possible under a fixed exchange rate regime. Fixed exchange rate is a system where the value of a currency is fixed at pre-announced par values where it is supposed to trade to units of foreign currencies. The Zimbabwean dollars was previously devalued to the United States dollar as follows: ZW\$37 = US\$1 to ZW\$38 = US\$1 (1999), ZW\$38 = US\$1 to ZW\$55 = US\$1 (2000) and a partial devaluation from ZW\$55 = US\$1 to ZW\$824 = US\$1 (2003).

After a currency is devalued, more units of that currency will be required to buy a single unit of foreign currency than before. A devaluation policy is deliberate or discrete. That is, it is done at the discretion of the government. As such the government may not devalue the dollar even if there are strong signs that the dollar must be devalued as was the case in the period 2000 to 2003 when the Zimbabwean dollar traded at a fixed ZW\$55 = US\$1. The fall in the value of a local currency in terms of units of foreign currency due to changes in the market forces of demand and supply is known as depreciation. Depreciation thus applies in a country where the exchange rate fluctuates according to the levels of demand and supply (free floating or market exchange rate).

Why may a country devalue its currency?

Devaluation is an exchange rate policy measure aimed at correcting a balance of payment (BOP) deficit. BOP deficit refers to a situation on the current account of the balance of payments when import payments exceed exports receipts. This implies that the country will be importing more than it is exporting. Thus, earnings from exports will be less than payments for imports. A persistent BOP deficit may result in foreign currency shortages in the long-run although in the short term standards of living may improve due to the increased consumption aided by the consumption of imported goods.

A BOP deficit may be temporary (short-term) or structural (long-term). A temporary BOP deficit occurs when in the short term a country periodically exports less than imports. On the other hand, a structural BOP deficit is a situation when a country persistently incurs a BOP deficit. "A short-term deficit might be dealt with by running down reserves or by borrowing. Another short-term measure might be to raise interest rates to encourage the inflow of money." (Beardshaw, et al, 1999:p561).

However, a structural BOP deficit, which is more serious than the temporary BOP deficit can be dealt with by the implementation of policies that are either expenditure reducing or expenditure switching. Expenditure reducing measures rectify the deficit by cutting expenditure on imports. Expenditure switching measures are designed to switch expenditure from imports to domestically produced goods. According to Beardshaw, et al (1999), these measures are not alternatives but rather complements. No one measure can remedy a deficit.

How does devaluation work to correct BOP imbalances?

Devaluation discourages imports by making imports expensive to local buyers while at the same time it encourages exports by making exports cheaper to foreigners. The following illustration shows how devaluation reduces imports and increases exports when correcting a BOP deficit.

Illustration

Ceteris paribus, assuming an exchange rate of ZW\$10 = US\$1 which is devalued to ZW\$20 = US\$1. If there is a company in the business of importing cars from Japan at a price of US\$1 000 per vehicle. Before devaluation, the price of the vehicle in local currency is ZW\$10 000. However, after devaluation the same car will cost ZW\$20 000. This means that the price of the imported vehicle in local currency will increase after devaluation. Imports become expensive and ceteris paribus, demand for imports will fall and so are import payments.

Assume a foreigner buying bananas from Zimbabwe at a local price of ZW\$100 per kilogram. Before devaluation, the kilogram will cost US\$10 while after devaluation; the same kilogram will cost an equivalence of US\$5. Devaluation has the effect of reducing the foreign

currency equivalence price of our exports although the Zimbabwean dollar price remains unchanged. Exports become cheaper to foreign buyers, ceteris paribus, demand for exports and export earnings increase.

"A. P. Lerner in his book Economics of control applied Alfred Marshall's ideas on elasticity to foreign trade.devaluation will increase total earnings from exports only if demand for exports is elastic and, similarly, expenditure on imports will be reduced by devaluation only if demand for imports is elastic." (Beardshaw, et al, 1999:p562). This brings in an important criterion for the success of devaluation in correcting a BOP deficit known as the Marshall - Lerner condition. It states that devaluation will improve the balance of trade only if the sum of the elasticities of demand for exports and imports is greater than unity.

Can the devaluation of the Zimbabwean dollar correct the current structural BOP deficit and increase foreign currency earnings?

a). In Zimbabwe demand for imports is inelastic

Devaluation can reduce the demand for imports where the price elasticity of demand for imports is greater than one (elastic demand). Zimbabwe is a major importer of fuel, electricity, drugs, and high technology components among other things. Our industry operates with more than 30% of imported components. We cannot do without these imports. Demand for imports is highly inelastic. As a result, any devaluation cannot reduce imports since we cannot afford not to import. The real effect of such devaluation is to increase the domestic prices of the imported components and thus fuelling inflation (imported inflation). Devaluation of the Zimbabwean dollar will have a 'knock - on' effect on domestic prices given the current conditions.

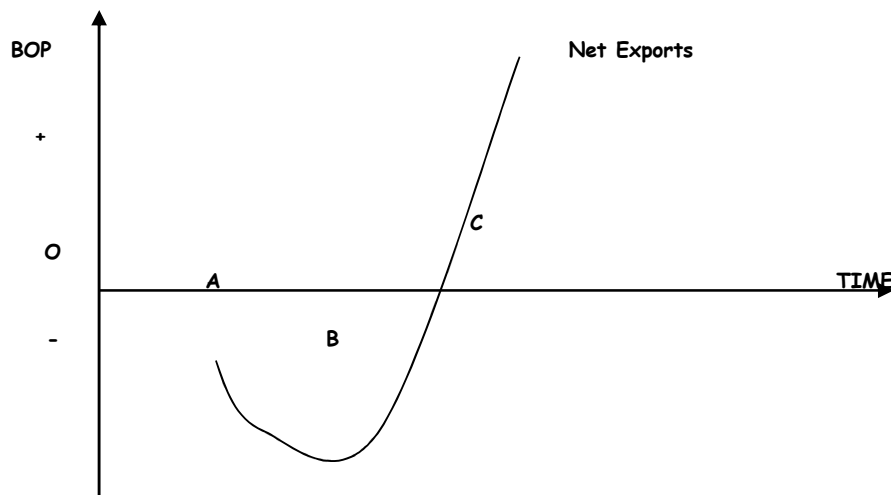
b). Lack of a capacity to produce for the domestic market and the increased export market

For devaluation to be successful, the country must be in a position to produce enough to satisfy the domestic market and a surplus to meet the increased foreign market demand. If the economy is at, or near, capacity devaluation is unlikely to be successful immediately until capacity is increased. Zimbabwe is an exporter of primary products mainly tobacco and minerals. The country's agricultural sector is currently going through structural changes due to the 'fast -track land reform program'. Tobacco output has fallen significantly from above 300 million tones to about 60 million tones per year. Devaluation will not improve the foreign currency shortages because there would be no increase in export volumes because there would nothing to export. Our current production capacity is even failing to satisfy the domestic market as evidenced by shortages of most products such as mealie-meal, milk and other products

c). The J-curve effect

"Due to the existence of contracts and other factors promoting short-run inflexibility, the volume of exports and imports may not immediately adjust in the wake of devaluation." (Black, et al, 2000: 343). It has frequently been observed that devaluation often lead to an immediate deterioration in the payments position followed by a subsequent recovery. If the Zimbabwean dollar is devalued, importers with contractual obligations must still meet these obligations unfortunately at a much higher domestic price. This will worsen the BOP position until such a time when imports can be reduced, may be after three months. Against time, the initial effect on BOP of devaluation is illustrated below.

The J - Curve



Devaluation of the Zimbabwean dollar when at point A will initially result in the deterioration of the BOP position to point B after which the BOP position may improve until it gets to surplus after point C.

"The disadvantages of devaluation are price effects. The price of imports in terms of the domestic currency will increase whilst the price of exports in terms of domestic currency will either stay constant in the short-run or rise in the long-run. These inflationary effects will be immediate. Thus, a country that has devalued is likely to see its total expenditure on imports increase at a faster rate than the increase in its total receipts from exports. Thus the balance of trade deteriorates in the short run." (Beardshaw, et al, 1999: 563).

d). Moral of devaluation – Devaluation is most successful when it is not anticipated. This is not the current situation in Zimbabwe. People have been speculating about the devaluation for a long time. This speculation is fuelled by the performance of the Zimbabwean dollar against major currencies on the parallel and the auction system. To devalue the dollar now would be simply confirming the anticipation, which would have very little impact on the BOP and foreign currency position because people have prepared themselves for the devaluation.

e). Increased debt servicing costs

The country is currently reeling under a heavy foreign debt-servicing burden. Zimbabwe is on the record for failing to service its debt to international financial institutions such as the IMF. Devaluing the local currency will increase the foreign debt servicing requirements in local currency. The interest repayment, in Zimbabwean dollars will rise in direct proportion to the devaluation.

f). The effect devaluation is short term

Devaluing the local currency can only have temporary effects on the BOP position. The BOP problems faced by the country are structural, that is, they are a result of a poor exchange rate system. The auction exchange rate system has failed to operate effectively in the country. Recently, foreign currency allocations have fallen to less than 10% of the bids. Devaluing the dollar will simply push forward the same problems probably by a week.

What other policy options may be used to improve a country's BOP position

No single policy measure can remedy BOP deficit and increase foreign currency inflows. Devaluation needs to be complemented by other measures for it to be effective. "Devaluation may be powerful instrument for improving the trade balance under the right circumstances, but it can by no means be regarded as a panacea for all that ails a country's balance of payments." (Black, et al, 2000:344). Faced with a structural BOP deficit a country may implement direct controls such as quantity restrictions on imports, import licenses and foreign currency rationing or deflation, import substitution and structural adjustment.

a). Import substitution - Import substitution refers to a situation where the country produces goods that are perfect substitute to the imported goods. For example, the country may seek to produce petrol blend from molasses that contains alcohol. This will reduce the country's fuel imports.

b). Deflation

Deflation refers to a situation where the government seeks to reduce the level of aggregate demand in the economy. This is achieved if either the government reduces its expenditure directly or reduced income through increased taxation. The assumption is that imports are positively related to income, that is the import function can be expressed as $M = mY$ where M = imports, m = marginal propensity to import and Y = income. Thus if incomes are reduced, the volume of imports will decrease.

c). Direct controls

Direct controls refer to the situation where imports are controlled directly by imposing higher tariffs on imports or introducing the requirement to produce import licenses. This tends to reduce the volume of imports directly and can be very efficient especially on imports that are not essential such as clothing from China.

d). Remove foreign currency controls and allow the exchange rate to float freely

Current foreign currency controls must be removed. For example, people must be allowed to receive their foreign payments in foreign currency not at the converted auction rate equivalence like is currently being exercised for those receiving money from the Diaspora. The auction exchange rate system has failed as evidenced by the decline in foreign currency allocations highlighted on above. The Zimbabwean dollar must fluctuate freely according to the forces of demand and supply. In other words, the country must abandon the auction exchange rate system and implement a market exchange rate system.

e). Increase foreign investor confidence

Zimbabwe used to get significant foreign currency inflows as foreigners came in to invest in the country (foreign direct investment). Foreign investment inflow is affected negatively by the current land policies. There is urgent need to revive the economy by increasing foreign investor confidence and possibly attract foreign investment and the donor community. This is achievable if there is a major improvement on governance and improved relations with the donor community.

f). Promote the export of manufactures especially high tech products. - Manufactures are accounting for over 75% of increased world exports. Unfortunately, the country has to rely on the export of primary products, which have high volumes but less value. The prices of primary products have declined relative to those of manufactured products on the international market. The government must promote the export of manufactures initially by the construction of factory shells. This will provide the facilities to those who would want to engage formally in manufacturing not to promote the informal sector. In other words, the current informal sector can be formalised.

ECONOMICS

MAY 2004

TIME ALLOWED: 3 HOURS

TOTAL MARKS: 100

INSTRUCTIONS

1. Answer according to instructions given in each section
2. Write legibly using good English
3. Planning / Workings must be neatly crossed out

SECTION A

ANSWER ALL QUESTIONS

**NB: Make your answers short and precise corresponding with the marks allocated for each question*

1. What is the difference between microeconomics and macroeconomics (10)
2. Define (i) Allocative efficiency
(ii) Productive efficiency (10)
3. Define (i) Marginal Revenue
(ii) Marginal Cost
(iii) Average Variable Cost
(iv) Fixed Cost
(v) Variable Cost (10)
4. State any five characteristics of money (10)
5. What is the difference between GDP and GDP per capita? (10)

SECTION B

ANSWER ANY ONE QUESTION FROM THIS SECTION

**NB: Use of diagrams to reinforce answers is an added advantage.*

- 6(a) How can the concept of price elasticity of demand be used in the revenue maximization decision of firms?
(15)
- (b) Explain how the concept of price elasticity can be useful to the government in its taxation policies.
(10)
7. Outline the short run break-even, shut down and abnormal profit conditions for a firm operating under conditions of perfect competition.
(25)

SECTION C

ANSWER ANY ONE QUESTION FROM THIS SECTION

**NB: Use of diagrams to reinforce answers is an added advantage.*

8. (i) Explain clearly the causes of inflation in Zimbabwe (15)
 (ii) What are the effects of inflation? (10)
9. (a) Give a detailed explanation of the trade barriers which exist (13)
 (b) Why do some countries impose trade restrictions? (12)
- THE INSTITUTE OF ADMINISTRATION AND COMMERCE**

ECONOMICS

OCTOBER 2004

TIME ALLOWED: 3 HOURS

TOTAL MARKS: 100

INSTRUCTIONS

1. Answer according to instructions given in each section
2. Write legibly using good English
3. Planning / Workings must be neatly crossed out

SECTION A

ANSWER ALL QUESTIONS

**NB: Make your answers short and precise corresponding with the marks allocated for each question*

1. (a) Define scarcity (5)
 (b) What does "ceteris paribus" mean? (5)
2. Distinguish between price ceiling and price floor (10)
3. Briefly outline the functions of a central bank (10)
4. Briefly state any four functions of money (10)
5. State the factors which determine the elasticity of demand for a good (10)

SECTION B

ANSWER ANY ONE QUESTION FROM THIS SECTION

**NB: Use of diagrams to reinforce answers is an added advantage.*

6. "Inflation is everywhere and anywhere a monetary phenomenon". Discuss (25)
7. How can a fiscal deficit be financed and what are the advantages and disadvantages associated with each financing method? (25)

SECTION C

ANSWER ANY ONE QUESTION FROM THIS SECTION

**NB: Use of diagrams to reinforce answers is an added advantage.*

8. What are the advantages and disadvantages of international trade (25)

9. Explain the short run and long run profit maximizing conditions of a monopoly (25)

ECONOMICS

MAY 2005

TIME ALLOWED: 3 HOURS

TOTAL MARKS: 100

INSTRUCTIONS

1. Answer according to instructions given in each section
2. Write legibly using good English
3. Planning / Workings must be neatly crossed out

SECTION A

ANSWER ALL QUESTIONS

**NB: Make your answers short and precise corresponding with the marks allocated for each question*

1. State the law of diminishing marginal utility (10)
2. Define (a) Price elasticity of demand
(b) Cross price elasticity of demand (10)
3. State the four factors of production that a firm can use (10)
4. Define (a) Trade balance
(b) Current account balance of the balance of payments (10)
5. Define (a) Normal profits
(b) Abnormal profits (10)
6. Distinguish between marginal product and marginal cost (10)
7. Explain the difference between the momentary period and the short run period of a firm (10)
8. State the quantity theory of money and briefly state all the variables (10)

SECTION B

ANSWER ANY ONE QUESTION FROM THIS SECTION

**NB: Use of diagrams to reinforce answers is an added advantage.*

9. The exchange rate is determined by speculation. Discuss. (20)

10. Explain whether the current turnaround measures being implemented have been effective in solving the country's economic problems. What are the challenges that the country is likely to encounter in its bid to turnaround its economic fortunes? (20)
-

EXAMINATION QUESTION PAPER

Date: NOVEMBER 2004 3 HOURS

Part: PART A

Subject: ECONOMICS

Instructions to candidates:

There are seven questions in this paper. Answer any FIVE questions

Mark Allocation

All questions carry 20 marks each.

Total: 100 marks

Question 1

- a). What is meant by elasticity of demand? Briefly explain how this concept may be used by the Zimbabwean government and firms. (8)
- b) With the aid of diagrams describe a demand curve which:
- i) is relatively inelastic (4)
 - ii) is relatively elastic (4)
 - iii) has an elasticity of unity (4)

Question 2

Explain the following concepts:

- a) real versus money income (6)
- b) inferior and normal goods (6)
- c) revaluation and devaluation (8)

Question 3

- a) Define the term monopoly and explain why the marginal revenue curve lies below the average revenue curve in a monopolistic firm. (10)
- b) Outline the main sources of monopoly power (10)

Question 4

Outline the instruments of monetary policy and their limitations to a developing country such as Zimbabwe (20)

Question 5

- a) Distinguish between Gross National Product (GNP) and Gross Domestic Product (GDP) (6)

- b) What are the limitations of using national income statistics to compare standards of living in different countries?
(14)

Question 6

"Economic analysis is concerned with the means of achieving particular economic objectives." Outline these economic objectives. Can they be achieved at the same time?
(20)

Question 7

Define the term "fiscal policy". Explain how the Zimbabwean government can use fiscal policy to ease the unemployment problem in the country.
(20)

THE INSTITUTE OF CHARTERED SECRETARIES AND ADMINISTRATORS IN ZIMBABWE

EXAMINATION QUESTION PAPER

Date: MAY 2005

3 HOURS

Part: PART A

Subject: ECONOMICS

Instructions to candidates:

There are seven questions in this paper. Answer any FIVE questions

Mark Allocation

All questions carry 20 marks each.

Total: 100 marks

Question 1

a. Define the law of demand and state the exceptions to this law (11)

b. The following relations describe the supply and demand of pencils:

$$Q_d = 65\,000 - 10\,000P$$

$$Q_s = -35\,000 + 15\,000P$$

Where Q is the quantity and P is the price of a pencil in dollars

i. What is the equilibrium price? Calculate the quantity demanded and supplied at equilibrium.

(3)

ii. Calculate the quantity demanded and supplied at prices of Z\$6.00 and Z\$5.00. At each price level comment on whether there would be a surplus or shortage of pencils in the market.
(6)

Question 2

a. Distinguish between own-price elasticity of demand and cross price elasticity of demand.

(8)

b. Discuss the factors which affect the own-price elasticity of demand. (12)

Question 3

a. The table below shows a firm's units of output and total costs.

Output	0	1	2	3	4	5	6
--------	---	---	---	---	---	---	---

Total Costs	50	70	80	85	95	115	160
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Using the data in the table compute: fixed costs, variable costs, average fixed costs, average variable costs, average costs and marginal costs (12)

b. Given the revenue function: $TR = 10Q - Q^2$

i. What is the firm's marginal revenue (MR) function? (2)

ii. Calculate MR at output levels of 2 and 4 (6)

Question 4

Define the term price discrimination as used in economics. Outline the arguments in favour of price discrimination. (20)

Question 5

What are the basic functions of banks? Explain the importance of banks to commerce and industry. (20)

Question 6

Clearly outline the measures recently employed by the Reserve bank of Zimbabwe to combat inflation. To what extent have they succeeded? (20)

Question 7

Discuss the measures that can be adopted by the government faced with a balance of payment deficit. (20)