ECONOMICS

STUDENT TEXTBOOK

GRADE 10

FEDERAL DEMOCRATIC REPUBLIC OF ETHIOPIA

MINISTRY OF EDUCATION

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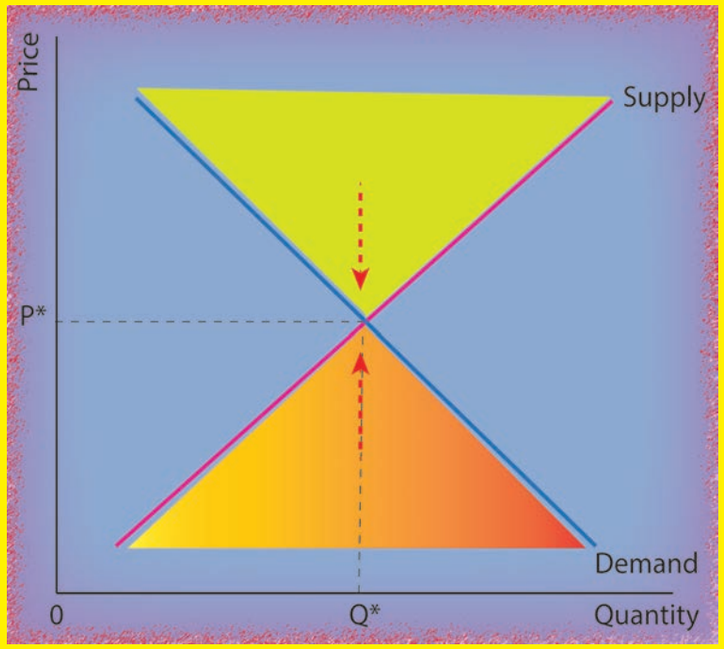

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GRADE 10

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Introduction to the Book

This book is intended for grade 10 students in Ethiopia. Economics starts at grade 9, thus this book is subsequent to that. Students will learn subsequent content similar to that of the previous grade. Accordingly, there is a little depth and width in terms of theories and applications.

The book has eight units. The first unit deals with the Theory of Consumer Behavior, under which students will learn from the definition of utility up to an illustration of the optimum of the consumer using the cardinal utility approach. The second unit deals with the Theories of Demand and Supply, in which students will learn from evaluating the effects of changes in demand and supply on equilibrium price and quantity to computing elasticities of demand and supply.

The third unit covers the Theory of Production and Cost, in which students will learn everything from short- and long-run production to cost of production mapping.

The fourth unit deals with the market structures, under which students will discuss various concepts, from basic features of different markets to understanding the sources of monopoly power.

The fifth Unit deals with Theories of Banking and Finance, with in which students will learn various concepts from the Financial Intermediaries up to the role of indigenous financial institutions such as Iqub and Idir. The Sixth Unit deals with the theories and measurements of Economic Growth with in which students will learn various economic growth concepts, from explaining how to measure economic growth to discussing about productivity, measurements in economics.

The seventh unit deals with discussing the overview of the Ethiopian Economy in which various economic situations in Ethiopia will be discussed, from the main sectors of the Ethiopian economy up to being able to write a brief report on Ethiopian economy. The eighth unit deals with Innovation and business startups in which students will learn various business concepts, from defining the term innovation up to conducting a strength, weakness, opportunity, and threat (SWOT) analysis of an existing enterprise.

Each unit begins with an introduction that states the lessons and the outcomes. It also provides a list of the key words and concepts you will encounter in the unit. The objectives are listed at the beginning of each lesson. The start-up activities are to introduce you to the lesson. On many pages, you will find tables and figures that illustrate the topic you are studying. There are also examples thataim to elaborate on the concept you are studying. Each lesson has at least one set of questions linked to the objective of the lesson. At the end of each unit, there is a unit summary of what you have read. This will help you revise. Finally, unit review exercises enable you to test your knowledge and understanding of the unit content.

In learning the economic literature throughout all the units included in this book, there are two things expected from both the teacher and the students. First they should understand the basic theoretical background of each unit. A teacher should understand the theories before starting to teach the students. For this, s/he has to refer to the reference lists indicated at the end of the student text or teacher's guide. The second thing is that students should try to associate the theories with the practical situation in their country. This can be accomplished via the different activities and also by examples that the teacher makes the students exercise.

Finally, this book is just one resource that students will use to learn economics at this level. Additional reference materials, books, and documents are listed at the end of the book.

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Unit 1 Theory of Consumer Behaviour

Unit Introduction

A consumer is a decision making unit (an individual or a household) who uses or consumes a commodity or service. The theory of consumer behavior is concerned with how a consumer decides on the basket of goods and services he/she consumes in order to maximize his/her satisfaction. In this unit, we will discuss how the consumer decides to spend his/ her income on different goods.

The theory of consumer behavior, set out with the following important assumptions;

- The consumer has a limited income.
- The consumer is assumed to be rational. Given the consumer's income and the market prices of the commodities, he/she spends the income on goods and services that give the highest possible satisfaction or utility.

The consumer has relevant information to make a decision, is aware of his or her income, and is aware of the commodities available and their prices.

Unit Objectives

After completing this unit, students will be able to:

- Explain cardinal utility
- Discuss the law of diminishing marginal utility
- Illustrate the consumer optimum under the cardinal approaches
- Mention the assumptions of ordinal utility theory

Main Contents

1.1. The concept of utility
1.2. The cardinal utility theory
1.3. The consumer maximization problem
1.4. Introduction to the ordinal utility theory

1.1 The Concept of Utility

At the end of this section, students will be able to:

- Define the term utility
- Discuss relativity of utility

Key Concepts

Commodity, Satisfaction, Utility

Startup Activity

1. Why do you buy goods and services?

In our everyday lives, we buy different goods and services for consumption. Utility is the level of satisfaction or pleasure derived from the consumption of a good or service. Thus, utility is the power of a commodity to satisfy human wants. For example, bread has the power to satisfy hunger, while water quenches our thirst.

In defining utility, it is important to bear in mind the following points:

- Relativity of Utility: The utility of a commodity is subjective to a person's needs. It is not absolute (objectively determined).The same commodity provides different utilities to different consumers. For example, non-smokers do not derive any utility from cigarettes.
- The utility of a product can be different at different places and times. For example, the utility that we get from wearing jackets during the cold season is not the same as during the hot season. For the same consumer, utility varies from unit to unit, from time to time, and from place to place. For example, the utility we get from drinking tea early in the morning may be different from the utility we get during lunch time.
- 'Utility' and 'usefulness' are not synonymous: usefulness is the concern of a product whereas utility is the concern of the consumer.

Approaches to measuring Utility:Since utility is a qualitative concept, it is difficult to measure quantitatively, but economists try to quantify it in two different ways: cardinal utility and ordinal utility.

Activity 1.1

1. Define utility
2. Why is the level of utility obtained by consuming the same product by different individuals different?

1.2. The Cardinal Utility Theory

At the end of this section, students will be able to:

- Discuss the cardinal utility and its key assumptions
- Compute total utility
- Calculate marginal utility
- State law of diminishing marginal utility
- Derive consumer optimum

Key Concepts

utils, cardinal utility

Startup Activity

1. How do you measure the satisfaction level (utility) that you get from goods and services?

To get a higher level of satisfaction, the consumer must be able to compare the utility of the various baskets of goods that can be bought with the available income. According to Cardinal Utility theory, utility is measurable like weight, height, and temperature, and they suggested a unit of measurement of satisfaction called 'utils'**.** The Cardinal School postulated that utility can be measured in monetary units (i.e., by the amount of money that the consumer is willing to pay for another unit of a commodity) or by subjective units called 'utils'. Thus, the school assumes that the level of utility can be expressed in numbers.

1.2.1. Assumptions of Cardinal Utility Theory

I . The consumer is Rational: The main objective of the consumer is to maximize his/her satisfaction given his/her limited budget or income. Thus, in order to maximize his/her satisfaction, the consumer has to be rational.

II . Cardinal Utility**:** Utility is a cardinal concept, which means the utility of each commodity is measurable, with the most convenient measure being money.

III . Constant Marginal Utility of money**:** the utility that one derives from each successive unit of money income remains constant.

IV . Diminishing Marginal Utility**:** The utility gained from the successive units of a commodity diminishes. In other words, the marginal utility of a commodity diminishes as the consumer consumes larger quantities of it. This is the law of diminishing marginal utility.

V . The total utility of a basket of goods depends on the quantities of the individual commodities. If there are n commodities in the bundle with quantities X_1 , X_2 ,...X_n , the total utility is given by TU = f (X_1 , X_2; ……X_n).

1.2.2. Measurement of Utility (Total and Marginal Utility)

Total Utility (TU): refers to the total amount of satisfaction a consumer gets from consuming or possessing some specific quantities of a commodity (X) at a particular time. As the consumer consumes more of a good (X) per time period, his/her total utility increases. However, there is a saturation point for that commodity after which the consumer will not be capable of enjoying any greater satisfaction from it. Therefore, TUn refers to the total utility derived from consuming *n* units of a commodity X.

Marginal Utility(MU): refers to the additional utility obtained from consuming an additional unit of a commodity. In other words, marginal utility is the change in total utility resulting from the consumption of one more unit of a product per unit of time. Mathematically, the formula for marginal utility is:

$MU = \frac{\Delta TU}{\Delta Q}$ Where, ΔTU is the change in total utility, and,

ΔQ is change in the amount of product consumed.

Suppose Beka gets 10 utils of total utility by consuming 2 quantities of orange, and his total utility increases to 12 utils as he consumes 3 quantities of orange. Thus, consumption of the 3rd quantity of orange has caused total utility to increase by 2 utils (12 utils minus 10 utils). Therefore, themarginal utility of the 3rd orange is 2 utils.

$$Thus, MU = \frac{\Delta TU}{\Delta Q} = \frac{12utils - 10utils}{3-2} = 2 \text{ utils}$$

Activity 1.2

Find the missed value of total utility (TU) and marginal utility (MU) in the following table.

Table 1.1 Numerical Values of marginal and total utility derived from consumption of hypothetical commodity (X).

Quantity consumed (Q_b)	0	1	2	3	4	5	6	7	8	9	10
Total Utility (TU)	0	8	15	20		24	24	22	19		5
Marginal Utility (MU)	-		7	5	3	1	0		-3	-6	-8

Example: Given Table 1.2 Numerical Values of marginal and total utility derived from consumption of hypothetical commodity (banana).

Quantity consumed (Qb)	0	1	2	3	4	5	6	7	8	9	10
Total Utility (TU)	0	12	22	29	34	36	37	37	36	34	30
Marginal Utility (MU)	-	12	10	7	5	2	1	0	-1	-2	-4

Table 1.2 As a consumer consumes only one quantity of banana, both the marginal utility and total utility are equal, which is 12 utils. When a consumer consumes 2 quantities of banana, he/she gets 10 additional utils (marginal utility). The total utility from 2 quantities of banana is 22 utils (12 fromthe first quantity of banana and 10 from the second quantity of banana). Finally, at 7 unit of quantity, the saturation point of total utility, marginal utility becomes zero. After this maximum point of total utility, if he/she consumes more quantity of banana, his/her total utility decreases, which leads to dissatisfaction. Figure 1.1 is the graphical representation of table 1.2, and it shows the relationship between total utility and marginal utility.

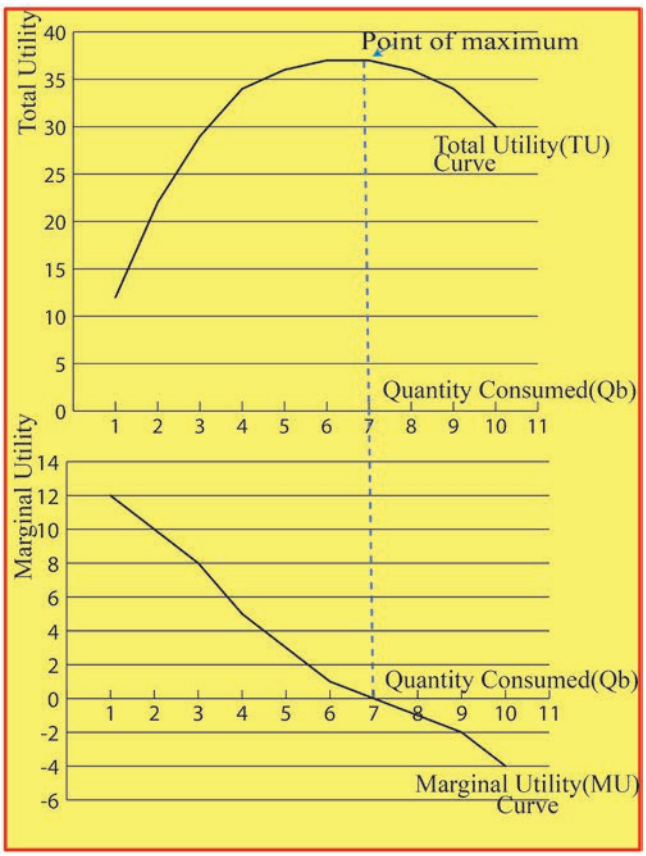

Figure 1.1: Relationship between total utility and marginalutility

Figure 1.1 shows that total utility initially increases, and reaches 'its pick (saturation) point'. This saturation point indicates that by consuming 7 quantities of banana, the

consumer attains its highest satisfaction level of 37 utils. However, consumption beyond this point results in dissatisfaction, because consuming the 8th and more quantities of banana brings negative additional utility.

On the other hand, the marginal utility continuously diminished and became zero when the total utility reached maximum, and then became negative as consumption increased beyond the saturation point of the total utility.

Activity 1.3

Table 1.3 total utility (TU) of hypothetical commodity Y.

Quantity(Y) consumed	0	1	2	3	4	5	6
TU_Y	0	10	16	20	22	22	20

1. From the given table (1.3)
   a. Find marginal utility (MU_Y)
   b.Find quantity (Q_Y) where total (TU_Y) reach maximum point and MU_Y will be zero.
2. What does it mean that marginal utility of a commodity is diminishing?
3. Explain the main assumptions of the cardinal utility theory.

1.2.3 The Law of Diminishing Marginal Utility (LDMU)

Do you get the same utility from drinking the first glass of water and the second glass of water? The utility that a consumer gets by consuming a commodity for the first time is not the same as the consumption of the good for the second, third, fourth, etc.

LDMU is central to the cardinalutility analysis of consumer behavior. This law states that as the quantity consume do facommodity increases over a unit of time,the utility derived by the consumer from the successive units goes on decreasing, provided the consumption of all other goods remains constant. The above(table 1.2) shows a numerical illustration of the law of diminishing marginal (LDMU). Here, TU increases with a nincrease inconsumption of banana, but at a decreasing rate.It means that MU decreases withan increase in consumption.

1.3. The Consumer Maximization Problem

At the end of this section, students will be able to:

- Drive consumers' budget equations
- Compute the optimum for the consumer

Key Concepts

Consumer income/budget, Consumer equilibrium

Startup Activity

1. Discuss in pairs how you spend your money. How should a consumer spend his/her income on different commodities?

A consumer that maximizes utility reaches his/her equilibrium position when the allocation of his/her expenditure is such that the last birr spent on each commodity yields the same utility.

A consumer budget (income) is the actual purchasing potential with which a consumer can purchase a set of goods or services, provided their prices. A consumer has limited income therefore the consumer's budget shows the number of goods and services he/she can afford.

Assumptions: Economists have developed the concept of consumer equilibrium based on the following assumptions.

- The consumer is rational. She/he aims at the maximisation of her/his utility or satisfaction,
- Cardinal measurement of utility is possible,
- If utility is measured in terms of money, the marginal utility of money remains constant,
- The law of diminishing marginal utility operates,
- The Consumer income is given and remains constant,
- Commodity prices given and remain constant.

I . Consumer Equilibrium:The Case of one commodity

Let's assume that the consumer consumes a single commodity, X. The consumer can either buy x or retain his money income Y. Under these conditions, the consumer is in equilibrium when the marginal utility of X is equated to its market price (p_x).

Symbolically,

$MU_x = P_x$

- If $MU_x > P_x$, the consumer can increase his/her welfare by purchasing more units of X, and
- If the $MU_x < P_x$, welfare can be increased by reducing the consumption of X.

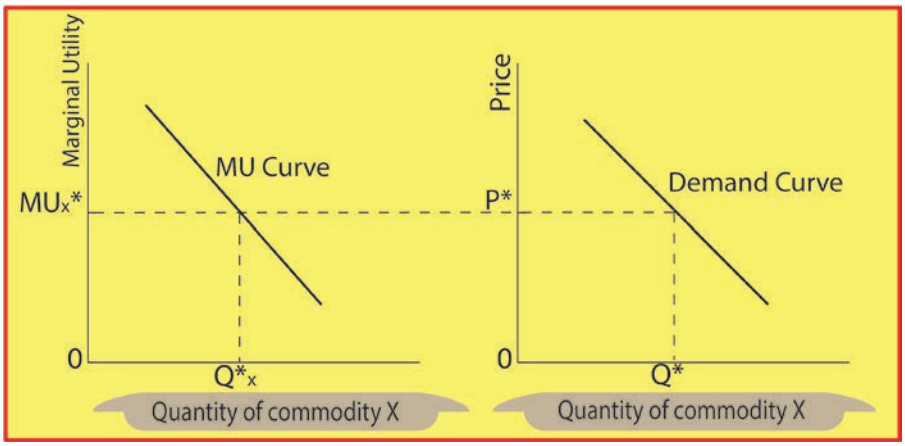

Figure 1.2: Consumer equilibrium and derivation of demand curve

At Q^*_x the marginal utility is MU^*_x which is equal to P^*_x. Hence, at P^*_x consumer demands Q^*_x and this forms the demand curve for commodity X. The demand curve is simply the graphical representation of the relationship between price and quantity demanded.Thus, the expenditure on a single commodity X is: $P_X Q_X$ =Income/budget of the consumer, which is called consumers' budget equation.

II . Consumer Equilibrium:the case of more than one commodity

In the case where there are more commodities, the condition for the optimality of the consumer is the equality of the ratios of MU of the individual commodities to their prices, i.e. the utility derived from spending an additional unit of money must be the same for all commodities. For example, if the consumer consumes a bundle of N commodities, i.e A, B, C,… N, he/she would be in equilibrium or utility is maximized if and only if:

$$\frac{MU_A}{P_A} = \frac{MU_B}{P_B} = \frac{MU_C}{P_C} \ldots\ldots\ldots = \frac{MU_N}{P_N} = MU_M$$

Where, MU_M =marginal utility of money

MU_A= Marginal utility of commodity A;

MU_B= Marginal utility of commodity B;

MU_N= Marginal utility of commodity N,

P_A = Price of commodity A

P_B = Price of commodity B

Thus, the consumer's budget equation will be:

Consumer's Income=Expenditure on *A* + Expenditure on *B* + Expenditure on *C*... + Expenditure on *N*.

Mathematically:

Consumer's Income= $AP_A+BP_B+CP_C$ +--------+NP_N

P_N = Price of commodity N.

Therefore, in the situation of a consumer's equilibrium, the utility derived from spending an additional unit of money must be the same for all commodities. If the consumer derives greater utility from any one commodity, he/she can increase his/her satisfaction by spending more on that commodity and less on the others. It will continue till the above equilibrium condition is reached.

Suppose a single commodity (bread) and its price (p) is equal to Birr 2 per unit and consumer equilibrium is computed as in table 1.4 below.

Table1.4. Utility schedule for a single commodity (bread)

Quantity of bread	Total utility (TU)	Marginal utility (MU)	Marginal utility per Birr (price=2 birr)	Marginal utility of money
0	0	-	-	1
1	4	4	2	1
2	6	2	1	1
3	7	1	0.5	1
4	7	0	0	1
5	6	-1	-0.5	1

For consumption levels of less than 2 quantities of bread, since the marginal utility of bread is higher than the price, the consumer can increase his/her utility by consuming more quantities of bread. On the other hand, for quantities greater than 2, since the marginal utility of bread is less than the price, the consumer can increase his/her utility by reducing their consumption of bread.

i.e $MU_{bread} = p_{bread} = 2$ or $\frac{MU_{bread}}{P_{bread}} = \frac{2}{2} = 1 = MU_{Money}$

Thus, the consumer will be at equilibrium when he/she consumes 2 quantities of bread at a price where the marginal utility of bread (MU_{bread}) is equal to the Price of bread (p_{bread}).

Suppose that an individual, whose income is Birr 22 consumes two types of goods, bread (X) and injera (Y), whose prices are Px = Birr 2 and Py =Birr 4, spend all his/her income on these goods. By using the above information and the utility table for the two goods, determine the following questions.

1. Indicate how much of X & Y, should the individual purchase to maximize utility.
2. Show that the condition for utility maximization is achieved.
3. Determine how much total utility the individual receives when he /she maximizes utility.

Table 1.5 Utility schedules for two commodities (bread and injera)

Quantity (X)	TU	MU	MU/P_x	Quantity (Y)	TU	MU	MU/P_y
0	0	-	-	0	0	-	-
1	6	6	3	1	12	12	3
2	10	4	2	2	19	7	1.75
3	12	2	1	3	24	5	1.5
4	12	0	0	4	28	4	1
5	11	-1	-0.5	5	28	0	0
6	9	-3	-1.5	6	26	-2	-0.5

Solution:

1. As we have discussed, a consumer maximizes his/her total utility when the marginal utility of one commodity divided by its market price is equal to the marginal utility of the other commodity divided by its market price, i.e.

$$\frac{MU_1}{P_1} = \frac{MU_2}{P_2}$$

Thus, the consumer will be in equilibrium when he consumes 3 quantities of commodity X (bread) and 4 quantities of commodity Y (injera) , because:

$$\frac{MU_X}{P_X} = \frac{MU_Y}{P_Y} = \frac{2}{2} = \frac{4}{4} = 1$$

2. At the equilibrium of the consumer, Expenditure on X (bread) + Expenditure on Y(injera)= Consumer's Income (I).

Thus, PxX + PyY = I

⇨ 2(3) + 4(4) = 22

⇨ 22 = 22

3. Maximum total utility obtained from consumption of these commodities is;

$TU = \sum MUs = \sum MUx + \sum MUy$

⇨ $TU = (6+4+2)_x + (12+7+5+4)_y$

⇨ $TU = (12)_x + (28)_y$

⇨ TU = 40 utils

Activity 1.4

Table 1.6 Utility schedule for two commodities (X and Y)

Qx	MUx	Qy	MUy
1	10	4	5
2	6	5	4
3	4	6	3
4	2	7	2
5	0	8	1

Assume that an individual, whose income is birr 10, consumes two types of goods, X and Y, whose prices are Px = 2 and Py = 1, and that the consumer spends all his/her income on these goods. Usethe information in table 1.6 to determine the following things/ answer the following questions.

1. Indicate how much of X & Y the individual should purchase to maximize utility.
2. Show that the condition for constrained utility maximization is achieved.
3. Determine how much total utility the individual receives when he /she maximizes utility.

1.4. Introduction to the Ordinal Utility Theory

At the end of this section, students will be able to:

- Explain ordinal utility
- State the assumptions of ordinal utility theory

Key Concepts

Ordinal utility

Startup Activity

1. Suppose you have just eaten an orange and a banana. Can you tell how much you are satisfied with each of these items?

You can probably tell which item you liked more. But, it is very difficult to express "how much" you liked one over the other. In the ordinal utility approach, utility cannot be measured absolutely, but different consumption bundles are ranked according to preferences. The concept is based on the fact that it may not be possible for consumers to express the utility of various commodities they consume in absolute terms, like, 1 util, 2 util, or 3 util, but it is always possible for consumers to express the utility in relative terms. It is practically possible for the consumers to rank commodities in the order of their preference, as 1st, 2nd, 3rd, and so on.

That is, to make his/her choice, the consumer needs not know the utility of various commoditiesin a specific unit, but be able to rank the various baskets of goods (order of preference) according to the satisfaction that each bundle gives.

Assumptions

- Rationality: The consumer is assumed to be rational. The main objective of rational consumer is to maximize his/her satisfaction or utility given his/her income and market prices.
- Utility is ordinal: utility is not absolutely (cardinally) measurable. The consumer can rank his/her preference (order the various baskets of goods) according to the satisfaction of each basket.
- The Diminishing marginal rate of substitution (DMRS): The marginal rate of substitution is the rate at which a consumer is willing to substitute one commodity for another commodity so that his/her total satisfaction remains the same. The rate at which one good can be substituted for another in a consumer's basket of goods diminishes as the consumer consumes more and more of the good. This means that as the consumer substitutes more and more of one commodity (say

Y) for another commodity (say X), he/she will be prepared to give up fewer units of the latter (X) for each additional unit of the former (Y).

- The total utility of the consumer depends on the quantityof the commodity consumed: The total utility of a consumer is measured by the amount (quantities) of all items he/she consumes from his/her consumption basket**.**
- Consistency and transitivity of choices: is assumed that the consumer is consistent in his/her choice, that is, if he/she chooses bundle A over B in one period, he/she will not use B over A in another period if both bundles are available to him/her, under exactly the same conditions.

The consistency assumption may be symbolically written as follows:

=> If bundle A>B, then B is not greater than A

Similarly, it is assumed that consumers' choices are characterized by transitivity: if bundle A is preferred to B and B is preferred to C, then bundle A is preferred to C.

Symbolically, we may write the transitivity assumption as follows:

=> If bundle A >B and B>C, then A>C.

Activity 1.5

1. What is ordinal utility?
2. What are the assumptions of ordinal utility theory?

Unit Summary

The theory of consumer behavior is concerned with how consumers decide on the basket of goods and services they consume in order to maximize their satisfaction/ utility. Utility is the power of a commodity to satisfy human wants. There are two approaches for the measurement of utility: the Cardinal Utility and Ordinal utility approaches.

The cardinal utility approach argues that utility is measurable and quantifiable with a unit of measurement of 'utils' while the ordinal utility approach argues that utility has only ordinal value and could only be ordered and ranked. The law of diminishing marginal utility states that as the amount consumed of a commodity increase, the utility derived by the consumer from the additional units (marginal utility) goes on decreasing.

Under the cardinal utility approach, the consumer reaches equilibrium when the marginal utility of the commodity is equal to its price in the case of one commodity ($MU_x = P_x$), and when the ratio of the marginal utilities of the commodities to their prices is equal for all commodities.

In the ordinal utility approach, utility cannot be measured absolutely, but different consumption bundles are ranked according to preferences. The concept is based on the fact that it may not be possible for consumers to express the utility of various commodities they consume in absolute terms, like, 1 util, 2 util, or 3 util, but it is always possible for consumers to express the utility in relative terms. It is practically possible for the consumers to rank commodities in the order of their preference, as 1st, 2nd, 3rd, and so on.

Unit Review Exercises

Part I: Write 'True' if the statement is correct or 'False' if the statement is incorrect.

1. Total utility is the sum of all marginal utilities.
2. Total utility increases as long as marginal utility is postive.
3. The law of diminishing marginal utility is an assumption of ordinal utility theory.
4. As ordinal utility, the level of satisfaction (utility) obtained from commodities is be measurable in monetary units.
5. Consistency and transitivity can be applied to a single commodity case.
6. An ordinal utility attaches figures to utility measurement, but a cardinal utility ranks market baskets.

Part II: Multiple-choice items.

Direction: Read the following questions and choose the correct answer from the given alternatives.

1. Which of the following is false about utility?
   A . The utility of a product can be different at different places and time.
   B . Utility means usefulness.
   C . Utility is pleasure derived from the consumption of a good or service.
   D . The same commodity gives different utilities to different consumers.
2. When we rank the utility gained from the consumption of different commodities as 1st , 2nd and 3^{rd,} etc, we are measuring utility:
   A . Cardinally
   B . Ordinally
   C . both Cardinally and Ordinally
   D . Using Traditional theory
3. Which of the following assumptions is common in Cardinal and Ordinal approaches?
   A . Constant marginal utility
   B . Diminishing marginal utility
   C . Considering the consumer as rational
   D . Measuring the utility of each commodity in number.
4. Which one is true if total utility is increasing at a decreasing rate?
   A . Marginal utility is increasing.
   B . Marginal utilityiszero.
   C . Marginal utility is decreasing.
   D . MU will benegative.

5. Which of the following is true?

A . The consumer is in equilibrium when the $TU_X = P_X$.

B . If the $MU_X > P_X$, the consumer can increase his/her utility by purchasing less units of goods.

C . If the $MU_X < P_X$, the consumer can increase his/her utility by purchasing more units of good.

D . When the total utility curve reaches its maximum point, marginal utility becomes zero.

Part III: Write detail answers to the following.

1. Mention at least one assumption that is common for both the cardinal and ordinal utility approaches.
2. What is meant by the marginal rate of substitution? Discuss with examples the principles of the diminishing marginal rate of substitution.
3. Assume a hypothetical consumer consumes good X and good Y. The price of good X is 1 and price of good Y is 3 and the consumer budget is birr 10 for the two goods. Where: Q_X is quantity of good X, Q_Y is quantity of good Y and TU_X and TU_Y is total utility from consuming good X and good Y respectively, MUx and MUyare marginal utilities for good X and good Y respectively.

Q_X	TU_X	Q_Y	TU_Y	MUx	MUy
0	0	0	0		
1	10	1	24		
2	19	2	45		
3	27	3	63		
4	34	4	78		
5	40	5	87		
6	44	6	90		
7	41	7	91		
8	41	8	91		
9	40	9	90		

Based on the given information (from the above table), answer the following questions.

A . Calculate the marginal utility of the two goods

B . Determine the quantities of the two goods that the consumer should buy in order to maximize his total utility.

Unit 2 Theories of Demand and Supply

Unit Introduction

The tools of demand and supply can take us far in understanding not only specific economic issues but also how the entire economy works. As you recall, the circular flow model in your grade 9 course identified the participants in the product and resource markets. There, we asserted that prices were determined by the "interaction" between demand and supply in these markets. In this unit we examine that interaction in detail explaining how prices and output quantities are determined, determinates and elasticies of demand and supply.

Market is a place, condition, or mechanism, which brings together both buyers (demanders) and sellers (suppliers) in order to exchange their goods and services. All situations which link potential buyers with potential sellers are markets. Thus, the market means the system in which sellers and buyers of a commodity interact to settle its price and the quantity to be bought and sold.

Unit Objectives

After completing this unit, students will be able to:

- Explain the theory of demand.
- Describe the theory of supply
- Identify factors that affect demand and supply
- Distinguish between individual and market demand
- Distinguish between individual and market supply
- Demonstrate market equilibrium both graphically and mathematically
- Evaluate the effect of changes in demand and supply on equilibrium price and quantity.
- Define elasticity
- Calculate and interpret the different types of elasticity

Main Contents

2.1. Theory of Demand
2.2. Theory of Supply
2.3. Market Equilibrium
2.4. Elasticities of Demand and supply

2.1. Theory of Demand

At the end of this section, students will be able to:

- Define the concept of demand
- State factors affecting demand.
- Explain demand schedule and demand curve
- Interpret demand equations and the slope of a demand curve.
- Distinguish between chages in demand and changes in quantity
- Determine individual and market demand

Key Concepts

Demand, Demand schedule, Demand curve, Market demand

Startup Activity

1. What do we mean by 'demand'?
2. Do you think it is synonymous with 'desire' or 'want'? Discuss the similarities and differences in pairs.

In the previous unit, we studied and derived the consumer's optimum given income, the price of the goods and preferences. The demand for a commodity is the quantity that consumers are able and willing to buy at various prices during a given period of time.

Definition: Demand means the ability and willingness to buy a specific quantity of a commodity at the prevailing price in a given period of time. Therefore, demand for a commodity implies a desire to acquire it, along with the willingness and ability to pay for it. Thus, Demand = Willingness to buy + Ability to pay.

2.1.1 The Demand Schedule, Demand Function and the Demand Curve

Demand could be expressed in the form of schedules, functions, or curves. Demand Schedule is a table showing different quantities of commodity that consumer is willing to buy at different level of prices, during a given period of time. Demand expresses the nature of functional relationship between the price of a commodity and its quantity demanded. $Q_d=f(P)=a-bP$;whereas 'Q_d' is quantity demanded, 'P' is price, 'a' is constant, 'b' coefficient of price, As quantity is function of price, or these variables are expressed in tabular form/ schedules, and can be transformed into curves. A demand curve is a curve that represents the relationship between the quantity of the good chosen by a consumer and the price of the good. The independent variable (price) is measured along the vertical axis, and dependent variable (quantity) is measured along

the horizontal axis. The demand curve shows the quantity demanded by the consumer at each price.

Let's consider the relationship between the price of coffee and the quantity of coffee demanded using a hypostatical example. Table 2.1 shows how many kgs of coffee Amina buys each month at different prices per kg. If coffee is free (assume the price is zero), she buys 9 kg. At birr 5.00, she buys 8kg of coffee. As the price rises further, she buys fewer and fewer kgs of coffee. When the price reaches birr 45.00, Amina doesn't buy any coffee at all.

Table 2.1 Amina's demand. The Demand Schedule shows the quantity demanded at each price.

Price of coffe in birr (per KG)	0	5	10	15	20	25	30	35	40	45
Quantiy demanded (in KG)	9	8	7	6	5	4	3	2	1	0

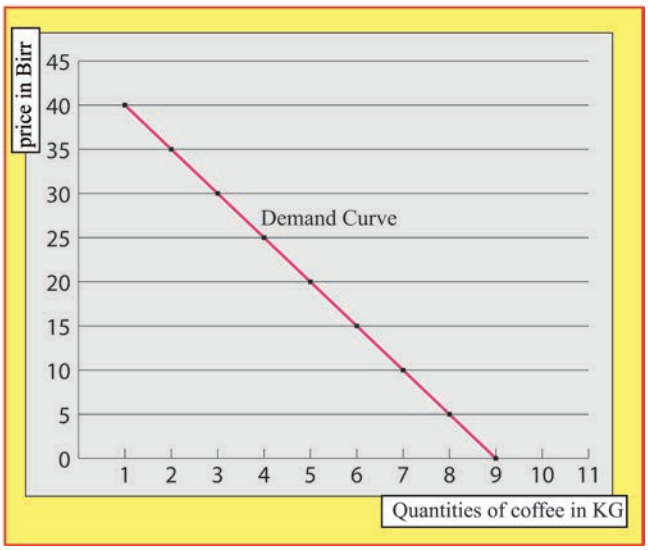

Figure 2.1 Amina's Demand Curve

Table 2.1 is a demand schedule**,** a table that shows the relationship between the price of coffee per kg and the quantity of coffee demanded per kg. It shows how the quantity demanded of the good (coffee) changes as its price varies, ceteris paribus (all other things remain constant).

The demand curve in figure 2.1 above, which graphs the demand schedule in table 2.1., shows how the quantity demanded of the good changes as its price varies. Because a lower price increases the quantity demanded, the demand curve slopes downward.

The slope of a demand curve: the law of demand states (recall from your grade 9)

quantity and price are inversely related: quantity demanded of a good (X) goes up when its price goes down. That is, the function has a negative slope, or the curve slopes downward. This important property is given the name of downward sloping demand. The law of demand can be stated as, all other things remaining constant, the quantity demanded of a commodity increases when its price decreases and decreases when its price increases.

2.1.2 Factors affecting demand

Determinants of demand are factors that cause the consumer to increase or decrease their demand for a particular commodity. Demand is a multi-variety function in a sense that it is determined by many factors/variables. There are various factors affecting the demand for a commodity. Some of these are:

- Price of the good: the price of a commodity is an important determinant of demand. Price and demand are inversely related. The higher the price, the lower the demand and vice versa.
- Price of related goods: the price of related goods like substitutes and complementary goods also affect the demand.
  - ➢ Substitute goods are goods that can be used in place of each other to satisfy a given want. (For example, coffee and tea, pens and pencils, butter and oil, etc.).
  - ➢ Complementary goods are goods used together to satisfy a given want. (For example, tea and sugar, phone and sim-card, cars and petrol, gun and bullet etc.)

  In the case of substitutes, rise in the price of one commodity leads to an increase in the demand for its substitute. In the case of complementary goods, a fall in the price of one commodity leads to a rise in demand for both the goods.
- Consumer income: is directly related to demand. A change in the consumer's income significantly influences his demand for most commodities. If the consumers' income increases, demand will be greater.
- Taste and habits: these are very effective factors affecting demand for a commodity. When there is a change in the consumer's taste, habits, or preferences, their demand will change.
- Population: if the size of the population is greater, demand for goods will be greater. The market demand for a commodity substantially changes when there is a change in the total population.
- Season**:** The demand for a commodity is also affected by the season. For example, demand for woolen clothes increases in the cold seasons. On the other

hand, demand for cotton clothes increases in hot seasons.

- Consumer's future price expectation: If a consumer expects prices to rise in the future, he may buy more at the current price, and thus his/her demand rises.

2.1.3 Changes in quantity demanded and changes in demand

Change in quantity demanded: Other things being equal, it designates the movement from one point to another point from one price quantity combination to another on a fixed demand schedule or demand curve. The cause of such a change is an increase or decrease in the price of the product being considered. Downward movement along the demand curve is called an extension of demand, while the upward movement is a contraction of demand.

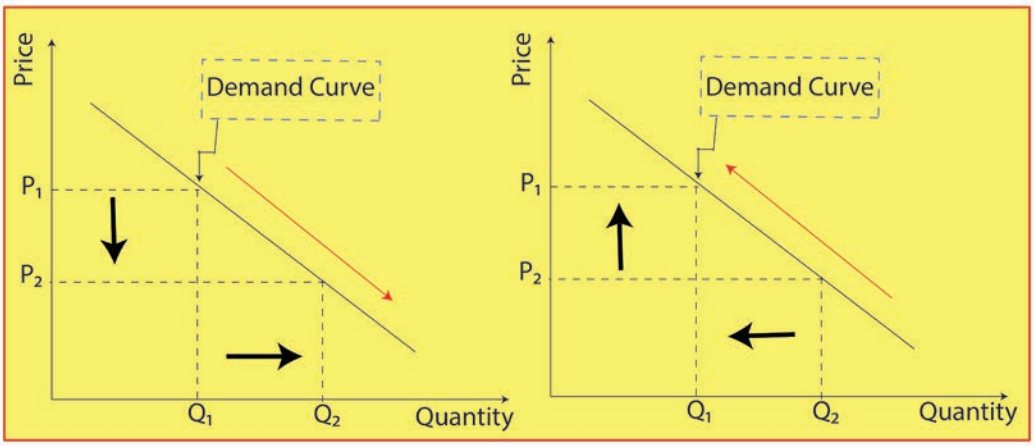

Figure 2.2: Extension of demand Figure 2.3: Contraction of Demand

Change in Demand: A change in one or more of the determinants of demand (other than their own price) will change the demand data (the demand schedule). A change in the demand schedule, or more graphically, a *shift* in the location of the demand curve, is called a change in demand. An increase in demand causes the demand curve to shift upward to the right; whereas, a decrease in demand causes the demand curve to shift downward to the left. In other words, while an increase in demand is explained by an outward shift of the demand curve, a decrease in demand is explained by an inward shift of the demand curve.

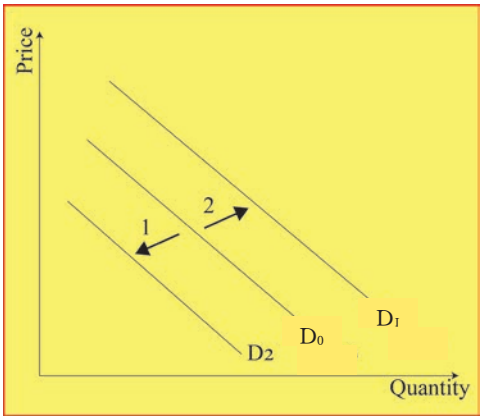

Figure 2.4: Shift in demand curve

Figure 2.4 shows that when demand increases, demand curve shifts upward (D_1) and a decrease in demand shifts the demand curve downwards (D_2). The factors affecting demand, except for their own price, are called shifting factors.

2.1.4 Derivation of market demand

Based on the number of consumer, demand is classified as individual demand and market demand.

Individual Demand: Individual demand may be defined as the quantity of a commodity that a person is willing and able to buy at given prices over a specified period of time. Suppose Mr. Adamu purchases a kg of banana when the price is Birr 25, and he purchases 2 kg for a week when the price drops to Birr 20. And when the price further decreases to Birr 15 per kg, he buys 3 kg banana for a week, but when the price rises to Birr 30 per kg, he buys zero kg of banana. This can be shown in the table 2.2 below.

Table 2.2: The hypothetical demand schedule for banana

Price of banana in Birr/kg	10	15	20	25	30
Quantity demanded in kg	5	3	2	1	0

Market Demand: Market demand refers to the total quantity that all the users of a commodity are willing and able to buy at a given price over a specific period of time. The market demand for the commodity is simply the horizontal summation of the demand of all the consumers in the market. In other words, the quantity demanded in the market at each price is the sum of the individual demands of all consumers at that price.

Assume that there are three consumers (say A, B, and C) in the market for a particular

commodity X (say wheat). Their demand at each price is given as follows:

Table 2.3: The individual and market demand schedule for wheat

Price per quintal of wheat (Birr)		12	9	6	3	1
Quantity demanded per year (in quintals)	A	2	3	4	6	9
	B	1	2	4	5	6
	C	0	1	2	4	5
	Market (Total)	**3**	**6**	**10**	**15**	**20**

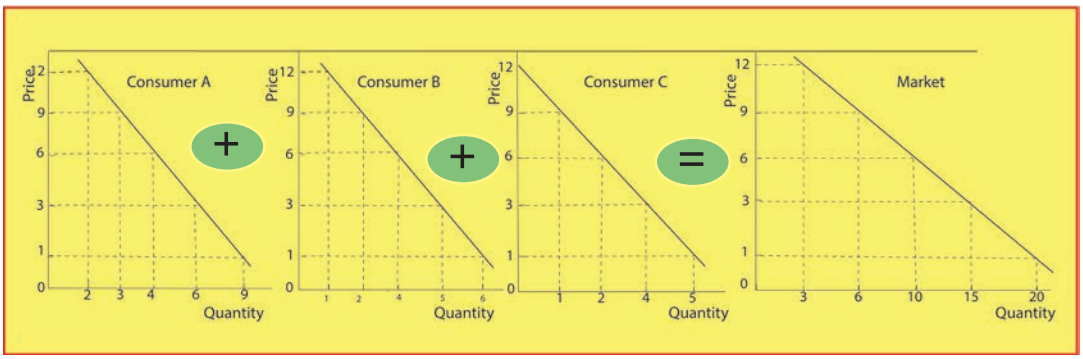

Figure 2.5 summation of demand curves

Thus, the market demand for a commodity shows the various quantities of the commodity demanded in the market per unit of time at an alternative price for the commodity holding everything else constant. However, if individual demand schedules were expressed as demand curves, the market demand curve would be derived by taking the *horizontal summation* of individual demand curves.

Numerical Example: Suppose the individual demand function of a product is given by: $Q_I = 50 - 5P$ and there are about 100 identical buyers in the market. Then the market demand function is given by:

$$\Rightarrow Q_m = (50 - 5P)\ 100$$

$$\Rightarrow \text{Market Demand } (Q_m) = 5000\text{-}500P$$

Activity 2.1

1. Define demand.
2. What factors affect demand?
3. Explain the demand schedule and demand curve concepts.
4. What is the difference between changes in quantity demanded and changes in demand?
5. What do you mean by individual demand and market demand?

2.2 Theory of Supply

At the end of this section, students will be able to:

- Define the concept of supply.
- Explain supply function, supply curve, and supply schedule.
- Interpret the slope of a supply curve.
- Differentiate changes in quantity supply and changes in supply.
- State factors that affect supply.
- Derive market supply curve.

Key Concepts

Supply, supply schedule, supply curve

Start-Up Activity

1. What comes to your mind when you hear the term "supply"?

In a market, while buyers of a product constitute the demand side of the market, sellers of that product make up the supply side of the market. Supply may be defined as the various amounts of a product that a producer (firm) is willing and able to produce and make available for sale in the market over a specific time period, at given prices, ceteris paribus. Holding other factors constant, the quantity supplied of a good or service is the amount offered for sale at a given price.

2.2.1. Supply function, Supply schedule, and Supply curve

A Supply function: is a statement that states the relationship between the quantity supplied (as a dependent variable) and its determinants (say price, as independent variable). Suppose that a single producer's supply function for commodity X is given as: $Q_X = F(P_X) = a + bP$, ceteris paribus.

The supply schedule*:* is a tabular presentation of the (law of) supply. By substituting various "relevant" prices of X into the above supply equation, we get the producer's supply schedule shown in table 2.4 below.

Table 2.4 supply schedule

Price per unit (in Birr/kg)	0	10	15	22	35	43	56	67	78	106
Quantity supplied (in kg)	0	1	2	3	4	5	6	7	8	9

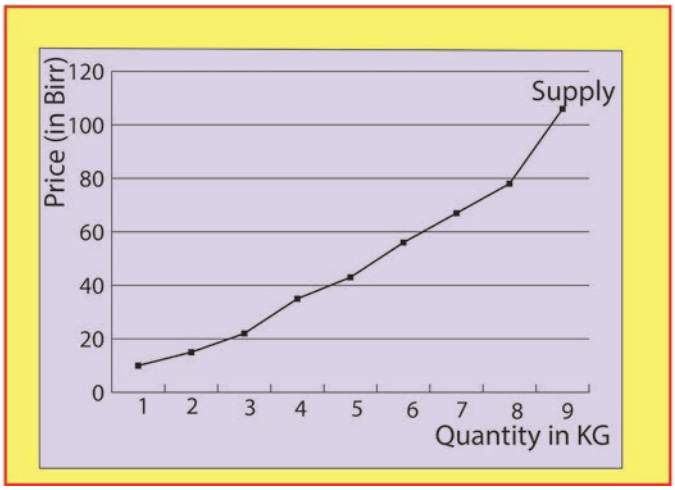

Figure 2.6 supply curve

The supply curve: is a graphical depiction of the supply schedule. Plotting each pair of values from the supply schedule in the table above on a graph and joining the resulting points we get the producer's supply curve, figure 2.6 below.

Table 2.4 illustrates that there is a positive relationship between the quantity supplied and its price. As we can see, the supplier requires a minimum price to start supplying its product, and then increases its quantities as the unit price for its product rises, and vice versa.

Figure 2.6 is a graphic representation of the supply schedule where, conventionally, the price of the product is shown on the vertical axis and the quantity supplied on the horizontal axis. The curve is, more or less functional in accordance with the law of supply, which states that, in general, the higher the price of a good, the greater the quantity of the good suppliers are willing and able to make available in the market.

The slope of a supply curve: the Law of supply expresses the direct relationship between the prices of a commodity and its quantity supplied. Price and supply are positively related. Hence, the slope of the supply curve is positive.

2.2.2 Changes in quantity supplied and changes in supply

A change in quantity supplied: as we stated earlier, as the price of a goods increases, the quantity supplied increases. We call this kind of movement along the supply curve a "change in quantity supplied." Thus, movement along the supply curve is caused by a change in the commodity's own price. In such a situation, the supply curve remains the same. Other things being constant, the movement along the (same) supply curve is caused by a change in the price of the good. For example, movement from A to B, B to C, C to A, etc., refers to a change in quantity supplied.

Change in supply: this kind of change refers to a shift in the position of the supply curve caused by a change in something other than the commodity's own price. A shift in the supply curve may be caused by change in the prices of other goods, a change in the prices of factors of production, a change in production technique or a change in the goals of the producer.

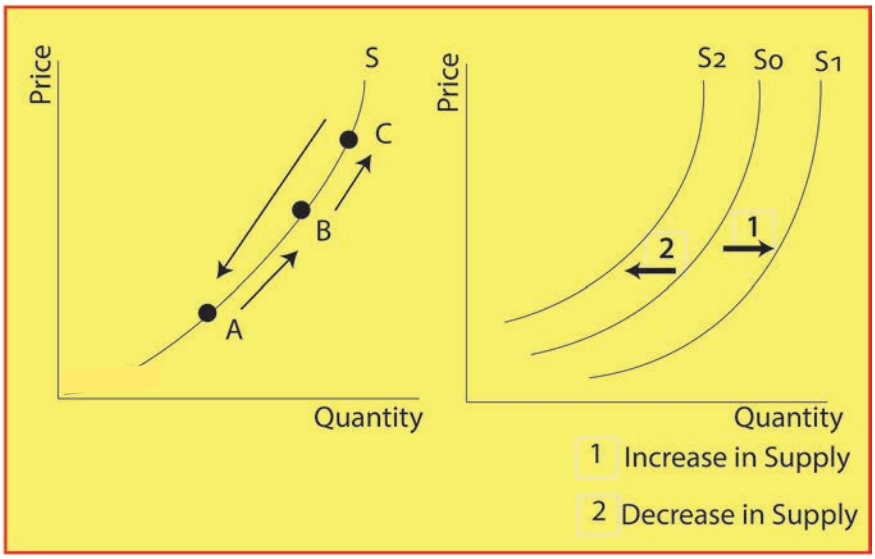

Figure 2.7 Movement on supply curve Figure 2.8 shift of supply curve

2.2.3 Factors affecting supply

In constructing a supply curve, the economist's assumption is that price is the most significant determinant of the quantity supplied of any product. But factors other than the good's own price can change the relationship between price and quantity supplied. These other factors include:

- The cost of factors of production: the cost depends on the price of factors. An increase in factor cost increases the cost of production, and reduces supply.
- The state of technology: Using advanced technology increases the productivity of the organization and increases its supply.
- External factors: external factors like this influence the supply. If there is a flood, this reduces the supply of various agricultural products.
- Tax and subsidies: an increase in government subsidies results in more production and higher supplies.
- Transport: better transport facilities will increase the supply.
- The price of other goods: if the price of other goods is more than the price of commodity 'X', then the supply of commodity 'X' will be increased.

2.2.4 Derivation of the market supply curve

The derivation of the market supply (schedule and curve) from the individual supply is similar to that of demand. That is, the market supply in a given market is the summation of the individual suppliers in that market. Suppose that there are only four suppliers of a specific type of shirt, and their demand schedule is given below.

Table 2.5 Market Supply for shirt four sellers A, B, C, and D

Unit price (Birr)		1	2	3	4	5	6
Quantity supplied	A	0	0	1	2	4	7
	B	0	1	2	3	4	6
	C	1	2	5	7	10	13
	Total (Market)	**1**	**3**	**8**	**12**	**18**	**26**

As can be seen from the above supply schedule, the market supply schedule could simply be derived by taking the summation of the individual quantities supplied at all possible prices.

Graphically, the market supply is the horizontal summation of the individual supply curves as shown below. Suppose we have only three suppliers in the market for a commodity, say soft drinks, and their supply curves are given as S_A, S_B, and S_C.

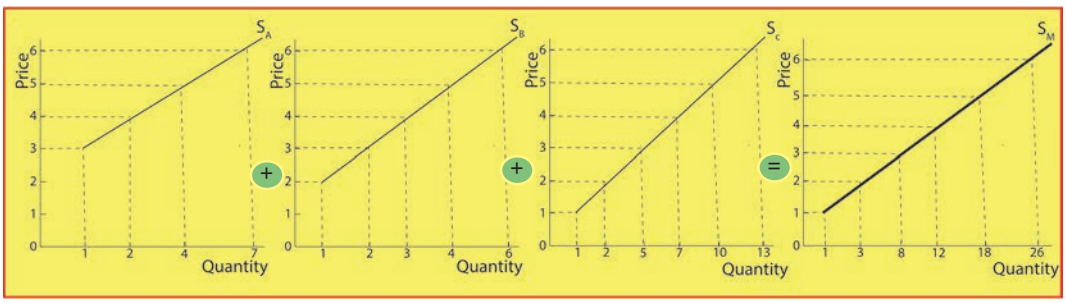

Figure 2.9: Summation of the Supply curves

Note that the market supply curve is flatter than the individual supply curves. We assume that the sellers are identical (perfect competitive market), hence they have the same supply curve. So, we can simply multiply the quantity supplied by a representative supplier by the number of sellers in that market in order to get the market quantity supplied at all possible prices.

Example: Suppose there are 120 sellers of potatoes (in tons) in a market and the sellers have a more or less similar supply curve of the form (supply equation) Qs = 20p - 5. Driven by the market supply equation. What is the quantity supplied in the market when the price is Birr 4?

Solution:

i. Market supply is $Q_m = Q_s \times 120$

$= 120 (20p - 5)$

$Q_m = 2400p – 600$ (market supply equation).

ii. Total quantity (market) supplied at price Birr 4 is;

$Qm (p=4) = 2400 (4) – 600$

$=9600 - 600$

$= 9000$ tons.

Activity 2.2

1. Define supply.
2. What is the market supply of 100 identical wheat suppliers if the supply function of a typical supplier is Qs = 3p - 2?.

2.3 Market Equilibrium

At the end of this section, students will be able to:

- Define market equilibrium.
- Define surplus and shortage.
- Explain how surpluses and shortages cause the price to move towards equilibrium.
- Describe how change in demand and supply affect equilibrium.

Key Concepts

Market equilibrium, Excess demand, Excess supply

Startup Activity

1. Have you ever heard of the term 'Equilibrium'? What comes to your mind whenever you hear the term 'Equilibrium'?

In a general sense, the term 'equilibrium' means the "state of rest". In the context of market analysis, equilibrium refers to the market condition that once achieved, tends to persist. This condition occurs when the quantity demanded of the commodity equals the quantity supplied of the commodity. This equality produces an equilibrium price (market- clearing price).

2.3.1. The derivation of equilibrium

Having seen the theory of demand and supply, we can now bring them together to see how the buying decisions of households and the selling decisions of firms interact to determine the price of a product and the quantity actually bought and sold. Market equilibrium explains the balance between demand and supply for a commodity. That is, equilibrium occurs when the quantity demanded by the buyers equals the quantity supplied by the sellers in a particular market, so that the market clears. It is a condition that once it is achieved, tends to persist because economic agents have no incentive to change their behavior.

The price level at which the market reaches equilibrium is called the 'market clearing/ equilibrium price', and the corresponding quantity is called the 'equilibrium quantity". The equilibrium price in a free market is determined by the market forces of demand and supply. Suppose that the market demand and supply schedules are given as shown in the table below:

Table 2.6 Monthly demand and supply schedules for shirts

Price per shirt	Demand	Supply	Market Position
5(rise)	7	0	shortage (-)
10 (rise)	5	1	shortage (-)
15 (rise)	4	2	shortage (-)
20(stable)	3	3	equilibrium
25(fall)	2	4	surplus (+)
30(fall)	1	5	surplus (+)
35(fall)	0	6	surplus (+)

The above table 2.6 shows how market equilibrium is reached. When the price of a shirt is, say, Birr 15, the quantity demanded is 4 units of shirts, but the quantity supplied is only 2 units of shirts. The result is a shortage of 2 units of shirts. Thus, unsatisfied buyers will bid the price up. Raising the price will reduce the shortage. If, however, the price of shirts rose to, say, Birr 25 per shirt, the quantity supplied is 4 units of shirts while the amount demanded is only 2 units of shirts. The result is a surplus of 2 units of shirts. This surplus will cause the price of shirts to fall as unsatisfied sellers bid the price down. As the price falls, the surplus will diminish. Thus, as the table shows, there is only one price of shirts (Birr 20) at which the market is in equilibrium, i.e. the quantity demanded and quantity supplied are equal at 3 units of shirts. At all other prices, the shirt market is in disequilibrium.

We have already seen that a surplus causes prices to decline and a shortage causes prices to rise. With neither shortage nor surplus (at Br.20), there is no reason for the actual price of shirts to move away from this price. The economists call this the ***equilibrium price:*** 'equilibrium' means "in balance" or "at rest". Graphically: this is the price at which the quantity demanded and the quantity supplied are equal.

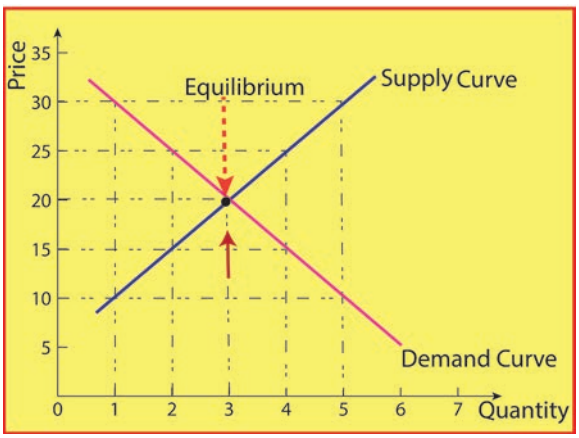

Figure 2.10 Market equilibrium

The intersections of the downward sloping demand curve and the upward sloping supply curve indicate the equilibrium price and quantity (Birr 20 and 3 shirts). The shortage of shirts that would exist below the equilibrium price and the surplus that occurs above the equilibrium price. In a free market, disequilibrium itself creates the condition for equilibrium.

2.3.2. The concepts of excess demand and excess supply

Excess demand occurs when the quantity demanded is greater than the quantity supplied, which leads to a shortage in the market. Excess supply occurs when the quantity supplied exceeds the quantity demanded, resulting in a market surplus.

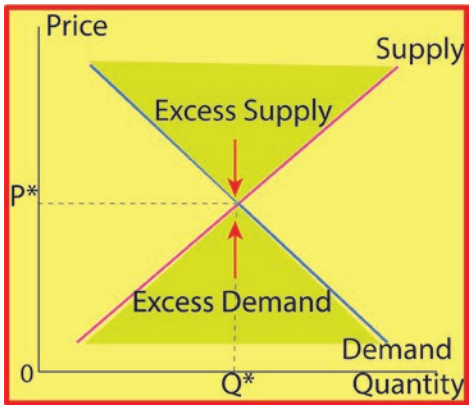

Figure 2.11 Excess demand and Excess Supply

Therefore, graphically, the intersection of the supply and demand curves for a product indicates the market equilibrium (Q^*, P^*). Any price above this intersection will lead to a surplus because sellers will be willing to offer more of the commodity in the market while the buyers cut their demand. On the other hand, any price below the intersection point will discourage the suppliers and reduce the quantity supplied in the market while buyers are willing to buy more, indicating that there is a shortage. However, there is always a tendency for movement towards the equilibrium point. That is, when there is a surplus, there is a tendency for prices to move downward, and when there is a shortage there is a tendency for price to move upward.

Example: If the market demand and supply functions of wheat are given as $Q_d = 80 – 3P$ and

Qs = 9P -40, respectively. Then, what is the market clearing price in Birr/kg and the corresponding quantity in kg?

Solution: Equate $Q_d = Q_s$ to get the equilibrium price

- $Q_d = Q_s$
- $80 – 3p = 9p-40$ substitute for Q_d and Q_s

- 120 = 12p rearrange
- p* = 10 birr/kg

To get the equilibrium quantity (Q*), substitute this price into either of the functions.

- Qd = 80 – 3 (10)
- Q* = 50 kg.

Therefore, the market clears when the price is Br.10/kg and both the quantity demanded and supplied are 50 kilograms.

Graphically:

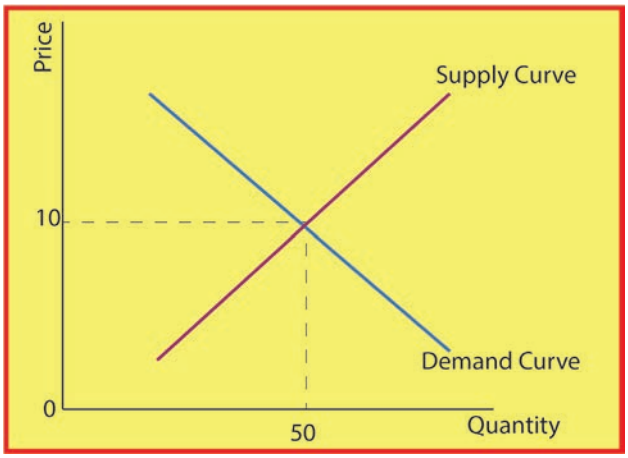

Figure 2.12 Market equilibrium price and quantity

For prices greater than 10, supply is greater than demand, which leads to excess supply (surplus), while prices less than 10 lead to excess demand (shortage).

2.3.3 Effects of change in demand and supply on equilibrium quantity and price

We know that demand might change because of fluctuations in consumer tastes or incomes, changes in consumer expectations, or variations in the prices of related goods. Supply might change in response to changes in resource prices, technology, etc.

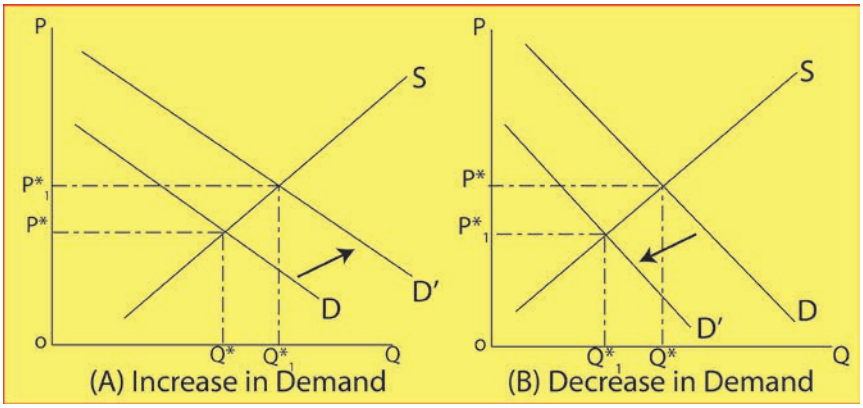

Figure 2.13: The Effect of a change in Demand on the Equilibrium

Changes in Demand: Suppose that supply is constant and increases in demand, leads to a rise in both the equilibrium price and quantity; and also if there is demand fall it leads to decrease in both the equilibrium price and quantity demanded**.** Look at figures 2. 13 (A) and (B) respectively.

Change in Supply: Let's suppose demand is constant but supply increases (decreases). This will affect the equilibrium by lowering (rising) the new market- clearing price and raising (lowering) the new equilibrium quantity. Look at the following figure 2.14:

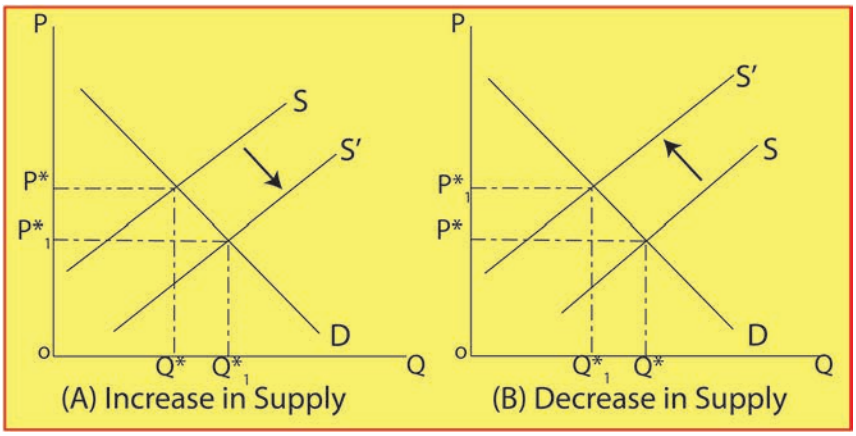

Figure 2.14: The Effect of a change in Supply on the Equilibrium

Let's see the summary of changes in demand, and changes in supply with the help of tables.

Table 2.7 Factors Shifting Demand Curve (assume Supply remains constant)

Factors Changing Demand	Effect on Demand	Direction of Shift in Demand Curve	Effect on Equilibrium Price	Effect on Equilibrium Quantity
Increase in income	Increase	Rightward	Increase	Increase
Decrease in income	Decrease	Leftward	Decrease	Decrease
Increase in price of Substitute	Increase	Rightward	Increase	Increase
Decrease in price of substitute	Decrease	Rightward	Decrease	Decrease
Increase in price of complement	Decrease	Leftward	Decrease	Decrease
Decrease in price of complement	Increase	Rightward	Increase	Increase
Increase in taste and preference for good	Increase	Rightward	Increase	Increase
Decrease in taste and preference for good	Decrease	Leftward	Decrease	Decrease
Increase in number of consumers	Increase	Rightward	Increase	Increase
Decrease in number of consumers	Decrease	Leftward	Decrease	Decrease

Table 2.8 Factors that shift the Supply Curve (assume demand remains constant)

Factors Changing Supply	Effect on supply	Direction of Shift in Supply Curve	Effect on Equilibrium Price	Effect on Equilibrium Quantity
Increase in resource price	Decrease	Leftward	Increase	Decrease
Decrease in resource price	Increase	Rightward	Decrease	Increase
Improved technology	Increase	Rightward	Decrease	Increase
Decline in technology	Decrease	Leftward	Increase	Decrease
Expect a price increase	Decrease	Leftward	Increase	Decrease
Expect a price decrease	Increase	Rightward	Decrease	Increase
Increase in number of suppliers	Increase	Rightward	Decrease	Increase
Decrease in number of suppliers	Decrease	Leftward	Increase	Decrease

Activity 2.3

1. Explain Excess demand and excess supply.
2. When supply remains unchanged, what is the effect of a change in demand on price?

2.4 Elasticities of Demand and Supply

At the end of this section, students will be able to:

- Define elasticity.
- Explain the types of elasticity.
- Describe elasticity of demand
- Discuss elasticity of supply.
- Analyse determinants of elasticity.

Key Concepts

Elasticity, Price elasticity, Income elasticity, Cross elasticity

Elasticity is a measure of the sensitivity of one variable to another. It tells us the percentage change in one variable in response to a one percent change in another variable.

2.4.1The Elasticity of Demand

Elasticity of demand is the measure of the responsiveness of demand for a commodity to changes in any of its determinants, such as the price of the commodity, price of related goods, and consumers' income. Accordingly, there are three basic elasticities:

I. Price elasticity of demand,
II. Cross-price elasticity of demand &
III. Income elasticity of demand

I . Price elasticity of demand

Price elasticity of demand is a measure of the degree of responsiveness (or sensitiveness) of consumers to changes in the price of the commodity itself. It may be defined as the ratio of the percentage change in quantity demanded to the percentage change in price. In other words, the price elasticity of demand (E_P^D) is the percentage change in the quantity demanded divided by the percentage change in price. Economists measure the degree of elasticity or inelasticity by the elasticity coefficient (E_P^D), which is given as follows:

$$\text{Price elasticity } (E_P^D) = \frac{\text{Proportinate change in the quantity demanded}}{\text{proportinate change in price}}$$
$$= \frac{\text{Percentage change in the quantity demanded}}{\text{percentage change in price}}$$

Price elasticity of demand is of two types: point elasticity and arc elasticity of demand.

Point elasticity of demand: measures elasticity at a (given) point or for a very small change in price. Symbolically, we could write:

$$\text{Price elasticity}\,(E_P^D) = \frac{\Delta Q / Q}{\Delta P / P} \quad \text{or} \quad E_P^D = \frac{\Delta Q}{\Delta P}\left(\frac{P}{Q}\right)$$

Whereas, arc elasticity refers to price elasticity over a distance on the demand curve. In other words, arc elasticity measures the average responsiveness of consumer demand to changes in price over a range of extended prices. Symbolically, we could write:

$$\text{Arc elasticity of demand} = E_P^D = \frac{\%\,\Delta\, quantity\ demanded}{\%\,\Delta\, price} = \frac{\Delta Q}{\Delta P}\left(\frac{P_1 + P_2}{Q_1 + Q_2}\right)$$

From the down sloping demand curve, we know that price and quantity demanded are inversely related. Thus, the price elasticity coefficient of demand, Ed, will always be a negative number. Therefore, we usually ignore the minus sign and simply present the absolute value of the elasticity coefficient to avoid any ambiguity that might otherwise arise.

Interpreting Price Elasticity of Demand Values

a) Price Elastic Demand: demand is said to be relatively elastic if a specific percentage change in price results in a larger percentage change in quantity demanded. Then, E_P^D will be greater than 1.

b) Price Inelastic Demand: If a given percentage change in price is accompanied by a relatively smaller change in the quantity of the good or service, then demand is said to be relatively price inelastic.

For example, if a 10% increase in a product's price is accompanied by only a 2% decrease in the quantity demanded, the price elasticity of demand will be $E_P^D = 0.02/0.1 = 0.2 < 1$

c) Unitary Elastic: When a percentage change in price and the accompanying percentage change in quantity demand are equal, the case separating elastic and inelastic demands is said to be unitary elastic. For example, if a 6% change in price results in a 6% change in quantity demanded, then $E_P^D = \frac{6\%}{6\%} = 1$.

d) Perfectly Inelastic: this is a situation in which the quantity demanded of a certain product is invariable relative to the change in the price. The elasticity coefficient is equal to zero (E_P^D =0).This shows that a change in the price of a good or service does not bring about in any change in the quantity demanded i.e. $(\Delta Q = 0)$.

e) Perfectly Elastic: denotes that a 1% change in price results in an infinite change in quantity demanded. In this regard, the consumer can buy all possible quantities at the given price and nothing else at other prices.

Table 2.9 Summary of Price Elasticity of Demand

Elasticity	Description	Implication
$/E_P^D/ > 1$	Elastic	% $\Delta Q > \% \Delta P$
$/E_P^D/ = 1$	Unitary elastic	% $\Delta Q = \% \Delta P$
$0 < /E_P^D/ < 1$	Inelastic	% $\Delta Q < \% \Delta P$

Example**:** Given table 2.10 demand schedule

Points	A	B	C	D	E
Price (Birr)	0	2	4	6	8
Quantity	800	600	400	200	0

Find the price elasticity of demand between two points (B and C).

Solution: Using demand arc elasticity.

$$Ep = \frac{\%\ \text{change in Q}}{\%\ \text{change in P}}$$

$$\frac{Q2 - Q1}{Q1 + Q2} \quad X \quad \frac{P1 + P2}{P1 - P2}$$

By rearranging ,it becomes $\%\text{change in Q} = \frac{Q_2 - Q_1}{Q_1 + Q_2} \quad X \quad \frac{P_1 + P_2}{P_1 - P_2}$

$$\frac{400 - 600}{2 - 4} \quad X \quad \frac{2 + 4}{600 + 400} = / - 0.6 / = 0.6$$

Activity 2.4

1. From table 2.10 (demand schedule), find the price elasticity of demand between two points (C and E).

The price elasticity of demand depends on the following factors:

- Nature of the commodity: The demand for necessities is inelastic because the demand does not change much with a change in price. But the demand for luxuries is elastic in nature.
- Availability of close substitutes**:** The commodity that has the greatest number of substitutes has relatively elastic demand. A commodity with fewer substitutes has relatively inelastic demand.
- People with high incomes are less affected by price changes than people with low incomes.
- Proportion of income spent on the commodity: When a small part of income is spent on the commodity, the price change does not affect the demand. Therefore, the demand is inelastic in nature.
- Urgency of demand / postponement of purchase: The demand for certain commodities is highly inelastic because you cannot postpone their purchase. For example, medicines for any sickness should be purchased and consumed immediately.
- Durability of a commodity: If the commodity is durable, then it will be used for a long period of time. Therefore, the elasticity of demand is high. Price changes highly influence the demand for durables in the market.
- Product purchase frequency or recurrence of demand: Demand for frequently purchased goods is more elastic than demand for rarely purchased goods.
- Time: In the short run, demand will be less elastic, but in the long run, demand for commodities will be more elastic.

II . Cross Elasticity of Demand

The quantity demanded of a particular commodity varies according to the price of other commodities. Cross elasticity measures the responsiveness of the quantity demanded of a commodity due to changes in the price of another commodity. For example, the demand for tea increases when the price of coffee goes up. Here, the cross elasticity of demand for tea is high. If two goods are substitutes, then they will have a positive cross elasticity of demand. In other words, if two goods are complementary to each other, then negative cross elasticity may arise.

The responsiveness of the quantity of one commodity demanded to a change in the price of another good is calculated with the following formula. The cross elasticity of demand is defined as the proportionate change in quantity demanded of X resulting

from a proportionate change in the price of Y.

$$\text{Cross elasticity } (E^D_{XY}) = \frac{\text{Proportinate change in demanded for commodity X}}{\text{proportinate change in Price of commodity Y}}$$

$$= \frac{\text{Percentage change in demanded for commodity X}}{\text{percentage change in Price of commodity Y}}$$

$$E^D_{XY} = \frac{\Delta Q_X}{\Delta P_Y}\left(\frac{P_Y}{Q_X}\right)$$

This coefficient tells us whether the two goods (say X and Y) are substitutes, complements, or independent (unrelated).

Substitute goods: If the cross elasticity of demand is positive, that is, the quantity demanded of X moves in the same direction as a change in the price of Y then X and Y are substitute goods. Example: Coca-Cola (X) and Pepsi (Y). An increase in the price of Pepsi (Y) causes consumers to buy more Coca-Cola (X). In general, the larger the positive cross elasticity coefficient, the greater the substitutability between the two products, cetris paribus.

Complementary goods: *We know that X and Y "go together" when cross elasticity is negative.* An increase in the price of one decreases the demand for the other. So, the two are complementary goods. The larger the negative cross elasticity coefficient, the greater the complementarity between the two goods.

Independent goods: A zero cross elasticity suggests that the two products are unrelated or they are independent goods.

III . Income Elasticity of Demand

Income (I) Elasticity of Demand measures the percentage change in the amount of a commodity purchased per unit time resulting from a given percentage change in a consumer's income. That is,

$$\text{Income elasticity } (E^D_I) = \frac{\text{Proportinate change in the quantity demanded}}{\text{proportinate change in Income (I)}}$$

$$= \frac{\text{Percentage change in the quantity demanded}}{\text{percentage change in Income (I)}}$$

$$\text{Income elasticity } (E^D_I) = \frac{\Delta Q / Q}{\Delta I / I} \quad \text{OR} \quad E^D_I = \frac{\Delta Q}{\Delta I}\left(\frac{I}{Q}\right)$$

It is measured by dividing the percentage change in quantity demanded by the

percentage change in income. If the demand for a commodity increases by 10% when income increases by 5%, then the income elasticity of that commodity is said to be positive and relatively high. If the demand for food were unchanged when income increased, the income elasticity would be zero. A fall in demand for a commodity when income rises results in a negative income elasticity of demand. The income (Y) elasticity is defined as the proportionate change in the quantity (Q) demanded resulting from a proportionate change in income. The following are the various types of income elasticity:

- **Negative Income Elasticity:** The increase in the income of consumers leads to less purchase of those goods ($E_I^D < 0$). This implies the commodity is inferior good.
- **Income Elasticity is greater than one:** The change in income increases the demand for that commodity more than the change in income ($E_I^D > 1$). This implies the commodity is normal and lexurious good.
- **Income Elasticity is less than one:** The change in income increases the demand for the commodity, but at a lesser percentage than the change in income ($E_I^D < 1$). Thus, a good is necessity.

Example: Based on table 2.11 below, answer the following question:

Table 2.11 Income schedule

Income (I) Birr per year	12,000	16,000	20,000	24,000	28,000
Quantity (Q) unit per year	10	15	18	20	19

Determine **income elasticity (E_I^D)** at Birr16, 000 level of income.

Solution

Recall that, $\text{Income elasticity}\,(E_I^D) = \frac{\Delta Q}{\Delta I}(\frac{I}{Q})$

$$\text{Income elasticity}\,(E_I^D) = \frac{15-10}{16000-12000}(\frac{16000}{15}) = \frac{4}{3} > 1;$$

The change in income increases the demand for that commodity more than the change in income. This implies the commodity is luxury good.

Activity 2.5

1. From table 2.11, compute the income elasticity of demand at an income level of Birr 20,000.

2.4.2 Elasticity of supply

Price elasticity of supply measures the degree of responsiveness or reaction of producers to price changes. The greater the reaction, the greater the elasticity. The lesser the reaction, the smaller the elasticity. If the price of coffee rises, for example, producers may be tempted to sell more in the market and keep less in stock.

Formally, the price elasticity of supply (E_P^S) is the percentage change in quantity supplied divided by the percentage change in price of the commodity. That is,

$$\text{Price elasticity } (E_P^S) = \frac{\text{Proportinate change in the quantity Supplied}}{\text{proportinate change in price}}$$

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

$$E_P^S = \frac{\%\Delta Q_s \text{ of product } X}{\%\Delta \text{ price of } X},$$

$$E_P^S = \frac{\Delta Q_s}{\Delta P_x} \cdot \frac{P_x}{Q_s}$$ - Point elasticity of supply

Whereas, $$E_P^S = \frac{\Delta Q_s}{\Delta P_x} \cdot \left(\frac{P_1 + p_2}{Q_1 + Q_2}\right)$$ - Arc elasticity of supply

The coefficient of E_P^S is defined as E_P^D except that we substitute "percentage change in quantity supplied" for "percentage change in quantity demanded."

The interpretations we used for price elasticity of demand also work for price elasticity of supply.

That is, if

- $E_P^S > 1$, supply is elastic;
- $E_P^S < 1$, then supply is inelastic; and
- $E_P^S = 1$, then supply is unitary elastic.

As the law of supply states, price and quantity supplied of a product are directly related. Hence, price elasticity of supply is positive.

Example: Given table 2.12 Supply schedule.

Price in Birr	60	80	100	120
Quantity supplied	14	16	18	20

Elasticity of supply when price is Birr 80 is:

Recall, $E_P^S = \frac{\Delta Q_s}{\Delta P_x} \cdot \frac{P_x}{Q_s}$ - Point elasticity of supply

$$\Rightarrow E_P^S = \frac{\Delta Q_s}{\Delta P_x} \cdot \frac{P_x}{Q_s} = (\frac{16-14}{80-60})(\frac{80}{16}) = 0.50$$

Determinants of the price elasticity of supply: There are factors which determine the price elasticity of supply. The main factors are:

- **Expectation of future prices:** If producers expect a rise in the price of a commodity in the future, they will likely hoard the commodity to take advantage of the rise in future prices. The supply will, therefore, be less elastic. On the other hand, if they expect a fall in future prices, they will release the goods from their stocks. The supply will be more elastic.
- **Production period:** The amount of time available to producers for responding to changes in product price is the main determinant of price elasticity of supply. Generally, supply is relatively elastic to price changes in the long-run and relatively inelastic in the short-run. The reason why supply is elastic for a longer period is that suppliers might produce good substitutes. In other words, time for adjustment is important because most production activities cannot be changed in scale overnight.
- **Factor substitution:** If there are greater substitutes for factors of production, supply is more elastic. Whenever there is a slight change in the price of a factor input, it can be substituted for others, making supply quite elastic. With no substitutes, supply becomes inelastic.
- **Number of sellers:** The market's supply will be more elastic when there are large numbers of firms serving the market. With a smaller number of firms/ sellers, supply becomes inelastic.

Activity 2.6

1. Explain the meaning and types of elasticity
2. When is the market said to be in a state of equilibrium?
3. What will be the effect on the demand for tea if the price of coffee rises?
4. What factors determine price elasticity of demand?

Unit Summary

Demand for a commodity refers to the amount that will be purchased at a particular price during a particular period of time. The demand curve shows how the quantity of a good demanded depends on the price. According to the law of demand, as the price of a good falls, the quantity demanded also rises. Therefore, the demand curve slopes downward.

In addition to price, other determinants of the quantity demanded included the income of the consumer, the prices of substitutes and complements, consumer tastes and preferences, consumer expectation, the number of consumers in the market, etc. If one of these other determinants changes, it leads to demand curve shifts. Individual demand for a commodity is the amount purchased by a single consumer at a given price during a particular period of time; while market demand is the horizontal summation of individual demand.

In a market, while buyers of a product constitute the demand side of the market, sellers of that product make up the supply side of the market. Supply may be defined as a schedule, equation or a curve that shows the various amounts of a product that a producer (firm) is willing and able to produce and make available for sale in the market over a specific time period, at given prices, ceteris paribus. Holding other factors constant, the quantity supplied of a good or service is the amount offered for sale at a given price.

The supply curve shows how the quantity of a good supplied depends on the price. According to the law of supply, as the price of a good rises, the quantity supplied also rises. Therefore, the supply curve slopes upward. In addition to price, other determinants of the quantity supplied include input prices, technology, and expectations. If one of these other determinants changes, it causes the supply curve to shift.

The intersection of the supply and demand curves determines the market equilibrium. At the equilibrium price, the quantity demanded equals the quantity supplied. The behavior of buyers and sellers naturally drives markets toward equilibrium. When the market price is above the equilibrium price, there is a surplus of the good, which causes the market price to fall. When the market price is below the equilibrium price, there is a shortage, which causes the market price to rise.

Elasticity of demand refers to the degree of responsiveness of the quantity demanded of a commodity to changes in any of its determinants. Price elasticity of demand is the ratio of a percentage change in a commodity's quantity demanded to a given

percentage change in its price.

The numerical value of the price elasticity of demand ranges from zero to infinity.

Price elasticity of supply measures the degree of responsiveness/ reaction of producers to price changes. The greater the reaction is the greater he elasticity; and the lesser the reaction, the smaller the elasticity. Like the elasticity of demand, the numerical value of the price elasticity of supply ranges from zero to infinity.

Unit Review Exercises

Part I: Write 'True' if the statement is correct or 'False' if the statement is incorrect.

1. Demand is different from want.
2. An increase in market demand and a decrease in market supply lead to raising the equilibrium price.
3. If the income elasticity of demand for a good is 3, then the demand is elastic.
4. The cross-price elasticity between coffee and tea is likely to be negative.

Part II: Multiple-choice items.

Direction: Read the following questions and choose the correct answer from the given alternatives.

1. Which one is the correct definition of demand, ceteris paribus?
   A . It is a willingness and ability to buy goods and services.
   B . It is an individual's willingness to buy goods and services.
   C . It is the amount of a product which a producer is willing to sell.
   D . All
2. _____ is a place, condition, or mechanism, that brings together both buyers and sellers in order to exchange their goods and services.
   A . Demand B. Supply C. Market D. Elasticity
3. Which of the following statements is true?
   A . Individual demand and market demand are both the same.
   B . The price and quantity demanded of a commodity are positively related.
   C . At equilibrium, the market demand and supply curves intersect.
   D . All of the above.
4. Which of the following is incorrect statement?
   A . The demand curve is downward sloping.
   B . The market demand curve is flatter than the individual demand curves.
   C . The law of demand states the inverse relationship between price of the commodity and quantity demanded.
   D . None of the above.
5. Which of these statements is false?
   A . The value of the price elasticity of demand is negative.
   B . The value of the cross elasticity of demand between coca-cola and Pepsi-cola is positive.
   C . The price elasticity of demand is inelastic for all commodities.
   D . None of the above

6. Which one of the following factors determines demand?
   A . Price of the product itself.
   B . Consumer's income.
   C . Size of population.
   D . All of the above
7. Suppose the demand for good Z goes up when the price of good Y goes down. We can say that goods Z and Y are:
   A . Substitutes.
   B . Complements.
   C . Unrelated goods.
   D . Perfect substitutes.
8. Which of the is incorrect statement?
   A . When the price elasticity of a good is 1 then demand is unitary elastic.
   B . When income elasticity of demand is negative, the commodity is luxury good.
   C . When the cross elasticity of demand between two goods is 0 the two goods are unrelated.
   D . All of the above

Part III: Write detail answers to the following.

1. What does the law of supply state?
2. What is the difference between the causes behind movement along the demand curve and the shift of the demand curve?
3. If the demand and supply functions of a good are given as Q = 250-3P and Q = 2P – 50, respectively; determine
   A . Equilibrium price.
   B . Equilibrium quantity.
   C . From the above information, would there be a shortage or surplus if the government decided the market price to be 75 units?

Unit 3 Theories of Production and Cost

Unit Introduction

In the previous unit, we have discussed the theory of demand and supply. In this unit, we move to the theory of production and cost, which emphasizes the behavior of firms in the production of goods and services. Firms incur costs when they buy inputs to produce the goods and services that they plan to sell. In this unit, we examine the link between a firm's production process and its total cost.

Unit Objectives

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

- State production and production functions in the short and long run.
- Derive and draw the various average and marginal functions from the total functions.
- Calculate the average and marginal cost and productivity values.
- Draw and explain the relationship between different types of cost curves.
- Show the relationship between production and cost curves.
- Discuss the stages of production.
- Analyze the concept of returns to scale in production.

Main Contents

3.1 Theory of Production

3.2 Theory of Cost

3.1. Theory of Production

At the end of this section, students will be able to:

- Define the function of production.
- Describe short run and long run production functions.
- Calculate the average and marginal products.
- State the law of diminishing marginal productivity and its implications.
- Explain the concept of returns to scale.
- Clarify the stages of production.
- Analyse technology change and the position of production curves.

Key Concepts

Production, production function, isoquant, returns to scale

Startup Activity

1. How do you define 'production'? What is needed to undertake production?

Introduction

Production is a scientific process that involves the transformation of raw materials (inputs) into desired products or services (outputs) by adding economic value. Production of goods and services involves transforming resources such as labor power, raw materials, services, and machines into finished products.

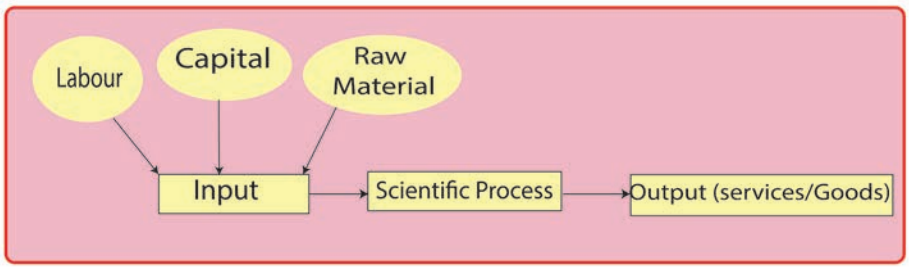

Figure 3.1 Production

3.1.1 Production Function

The production function is a function that shows the highest output that a firm can produce for every specified combination of inputs. In particular, the production function tells us the quantity of output the firm can produce given quantities of the inputs that it might employ. Assuming labor (L) and capital (K) as the only inputs, mathematically, the production function can be written as: $Q = f(L,K)$.The production function allows inputs to be combined in varying proportions so that output can be produced in many ways (using either more capital or less labor or vice versa).

3.1.2 Short Run Production Function

As you may recall from your grade 9th economics class, the term short-run refers to the period of time over which at least one factor of production is fixed. In the real world, land and capital (such as plants and equipment) are usually treated as fixed factors. The long run is the period of time (planning horizon) which is sufficient when all quantities of inputs are variable. Here we are considering a simple production process with only two factors. We treat capital as the fixed factor, and labor as the variable factor.

Production with one variable input: Production with one variable input (while the others are fixed) is obviously a short run phenomenon. So, let's now consider a farmer producing wheat. To the farmer, the only variable input is assumed to be labor, and all other inputs, like land, capital, and technology, are fixed inputs.

That is to say: $Q = F(L, \bar{L}_a, \bar{K}, \bar{T})$

Where, Q=Quantity (output), L = Labor, L_a = Land, K = Capital, T = Technology, and the bar implies constant. So the short run production function tells us only the effect of a change in the farmer's labor on the production of wheat, while keeping the size of land, capital, and technology constant.

The following are the three basic concepts of the production function:

- ⇨ Total physical product (total product) **(TP)**
- ⇨ Average physical product (Average product) **(AP)**
- ⇨ Marginal physical product (marginal product) **(MP)**

Total product (TP): refers to the total output produced by a given amount of a variable input, keeping the quantity of other (fixed) inputs constant. It is the overall amount of output produced by the factors of production employed over a given period.

Average Product (AP): To calculate the average product (AP), the total product is divided by the number of units of that input. Suppose in the production of wheat, the AP of a farmer is obtained by dividing the total output by the number of workers employed.

This can be put in the form of: $AP_L = \frac{\text{Total product}}{\text{Number of workers}} = \frac{TP}{L}$

Where AP_L denotes Average Product of Labor, TP denotes Total Product, and L denotes Labor. An average product measures the output per worker, which is an indication of the productivity of the input.

***Marginal Product (MP)*:** The marginal product (MP) is the extra or additional output obtained with one extra unit of the variable input while all other variables remain constant. In other words, the MP is the percentage change in total output resulting from a percentage change in variable input, all other things being equal.

Mathematically, $$MP_L = \frac{\text{Change in total product}}{\text{Change in number of workers}} = \frac{\Delta TP}{\Delta L}$$

As a result, the marginal product (MP) is equal to the slope of the total product (TP). Generally, we can say that the three, i.e. total product (TP), marginal product (MP), and average product (AP), are interrelated.

3.1.2.1. The Law of Diminishing Marginal Productivity

In any production function with a fixed level of some of the inputs, it is impossible to expand the level of production indefinitely. Initially, as more of the variable inputs are employed together with the fixed ones, the output level increases dramatically to a certain extent, i.e. the marginal contribution of one more variable input (say, labor) increases sharply. But as the number of labor employed increases with a fixed capital, the production capacity goes to exhaustion and eventually the total output declines, i.e. the additional contribution of extra laborers employed becomes a loss or negative. Therefore, according to the law of diminishing returns, increasing the amount of the variable factor (labor) with the fixed factor (capital) will lead to an eventual decline in the marginal contribution of the additional labor to the total output. This is also accompanied by an eventual decline in total output.

3.1.2.2 Stages of production

Assume capital is fixed. The production function shows different levels of output that the firm can obtain by efficiently utilizing different units of labor. In the short run production function above, the quantity of capital is fixed. Thus, output can change only when the amount of labor used for production changes. Hence, total production (TP) or total quantity (Q**)** is a function of labor (L). Now let us take a hypothetical example (table 3.1**)** that explains how a farmer can produce wheat on fixed land (one hectare of land) by changing only the amount of labor.

Table 3.1 short run productions and stages production

Fixed input (a hectare of land)	Variable input (labor)	Total Product (TP) (In quintals)	Average product	Marginal Product	Stages of production
1 hectare	0	0	---	---	
»	1	5	5	5	
»	2	11	6	5.5	
»	3	19	8	6.33	**Stage I**
»	4	30	11	7.5	
»	5	40	10	8	
»	6	48	8	8	
»	7	54	6	7.71	
»	8	57	3	7.12	
»	9	59	2	6.56	**Stage II**
»	10	60	1	6	
»	11	60	0	5.4	
»	12	58	-2	4.80	
»	13	55	-3	4.23	**Stage III**
»	14	51	-4	3.64	
»	15	45	-6	3	

Stages of Production: as table 3.1 shows, the total product goes through three different stages.

- Stage I (increasing returns stage): this stage includes the range of variable inputs at which the MP_L continues to rise, i.e., up to the point of MP_L.
- Stage II (the diminishing returns stage): this stage includes the value over which MPL is positive but decreasing.
- Stage III (negative returns stage): defined as a range of negative MP_L or decreasing TP.
- In this stage of production, since MP_L is negative, additional units of variable inputs (L) actually cause a decrease in TP.

From table 3.1, we can sketch the graph to show the relationships between the variables, and also to explain the law of diminishing marginal returns.

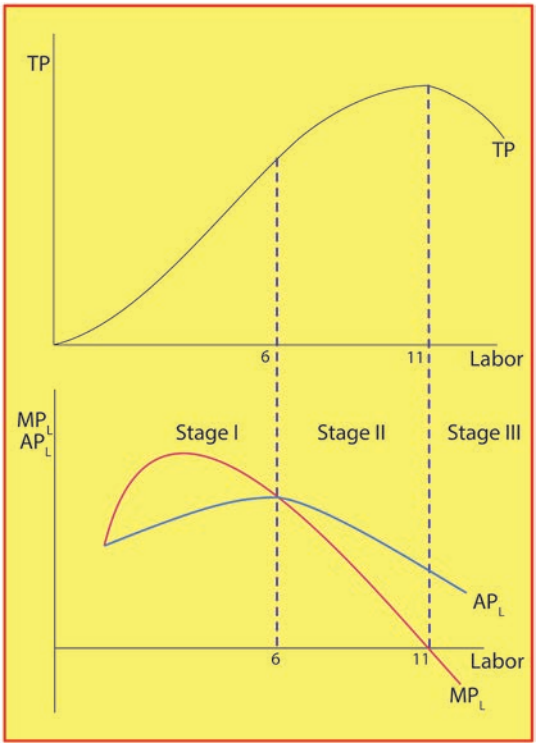

Figure 3.2 Production curves and stages of production

As you can see from the above graph, as we add more units of labor on the fixed inputs, our total product first increases. It, then reaches its maximum and starts to fall. The same is true for MP_L and AP_L. TP and MPL are related in the following ways:

- MP_L increases when TP increases at an increasing rate.
- It starts to fall but then remain positive when TP increases at a decreasing rate.
- MP_L reaches zero when TP is maximum and

When TP is falling, MPL becomes negative. AP_L also increases first, reaches its maximum, and starts to fall, but it remains positive whenever TP is positive.

The Relationship between MP_L and AP_L: As you have seen from the above figure, the MP_L curve reaches its maximum before the AP_L curve. Also, as long as the AP_L is rising, the MP_L is above it; when the AP_L is falling, the MP_L is below it. When the AP_L is at its maximum, the MPL is equal to the AP_L. Thus,

- For the AP_L to rise the addition to TP (or MP_L) must be greater than the previous AP_L, i.e. AP_L rises when $MP_L > AP_L$.
- For the AP_L to fall, the addition to TP (or MP_L) must be less than the previous average, i.e. AP_L falls when $MP_L < AP_L$.

- For the AP_L to remain unchanged, the addition to total product (or MP_L) must be equal to the previous Average. i.e. AP_L is at its maximum if $AP_L = MP_L$.

3.1.3 The Long-Run Production Function

Assume production with two variable inputs. In our earlier discussion of the short run production function and stages of production, we assumed labor as a variable input and capital as a fixed input. Now we turn to the long–term analysis of production. Remember that, long run is a period of time (planning horizon) which is sufficient for the firm to change the quantity of all inputs.

In order to produce an output, a firm may require any number of different inputs. Assume, however, that a firm produces output using only two factors of production: labor and capital. With both factors variable, a firm can usually produce a given level of output by combining different amounts of labor and capital. The output from the various combinations of inputs can be shown by using isoquant.

Isoquant

An isoquant is a curve that shows all possible efficient combinations of inputs that can yield equal level of output. If both labor and capital are variable inputs, the production function will have the following form.

$Q = f(L, K)$; given this production function, the equation of an isoquant, where output is held constant at Q is $Q = f(L, K)$

Thus, isoquants show the flexibility that firms have when making production decision: they usually obtain a particular output (Q) by substituting one input for the other. The production isoquant may assume different shapes depending on the degree of substitutability of factors. However, most of the time, the smooth or convex isoquant is used in the traditional economic theory, and we shall consider it in this section.

An isoquant schedule: is a tabular representation of the various combinations of two variable inputs that give the same level of output. Suppose that a firm seeks to produce 100 units of output by using two variable inputs, L and K (say, labor and capital, respectively). It can do so by employing different combinations of L and K. The hypothetical table 3.2 shows the different combinations the firm could make to produce the given level of output.

Table 3.2: Factor Combinations to Produce a Given Level of Output (Isoquant Schedule)

Factor Combinations	labour (units)	Capital (units)	Output (units)
A	1	11	100
B	2	7	100
C	3	4	100
D	4	2	100
E	5	1	100

Table 3.2 shows that input combination A, consisting of 1 unit of labor (L) and 11 units of capital (K), produces 100 units of output. While combination B consists of 2 units of labor and 7 units of capital. Similarly, combination C consists of 3 units of labor and 4 units of capital, and so on. Figure 3.3 is constructed from Table 3.2 by joining the points of different combinations of labor and capital required to produce 100 units of output.

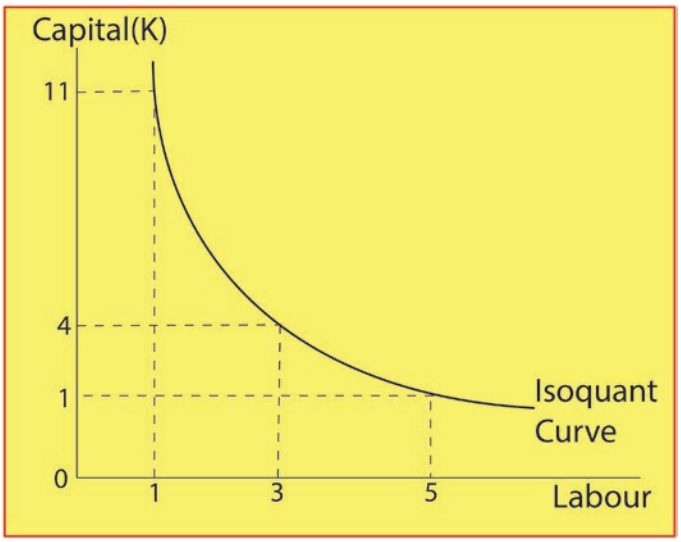

Figure 3.3 Isoquant Curve

An isoquant map is a graph combining several or a set of isoquants. An isoquant map is another way of describing a production function. The level of output increases as we move upward to the right, while it remains constant along an isoquant.

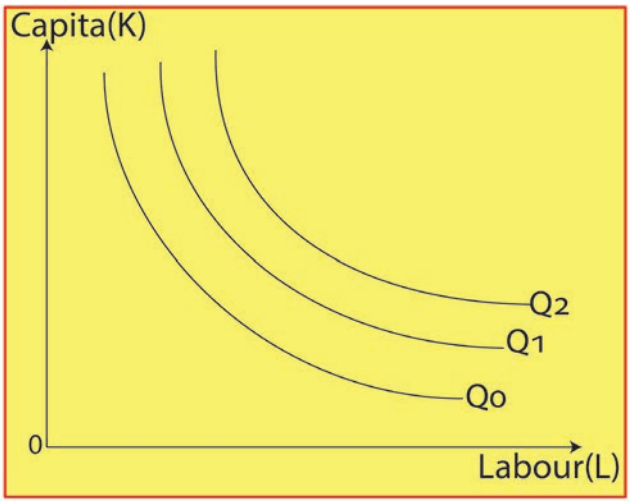

Figure 3.4 Isoquant map

Properties of isoquants

I . Isoquants are down ward sloping: implying that if more of one factor is used, less of the other factor is needed for producing the same level of output.

II . The further an isoquant lays away from the origin, the greater the level of output it denotes.

III . Isoquants do not cross each other.

IV . Isoquants are convex to the origin.

The slope of an isoquant/ marginal rate of technical substitution (MRTS): The slope of the isoquant ($\Delta K/\Delta L$) defines the degree of substitutability of the factors of production. This slope decreases (in absolute terms) as we move downwards along the isoquant. The slope of the isoquant is called the rate of technical substitution, or the marginal rate of technical substitution (MRTS) of factors. MRTS of labor for capital, denoted as $MRTS_{L,K}$ shows the amount by which the input of capital can be reduced when one extra unit of labor is used so that output remains constant.

The "steepness" of an isoquant determines the rate at which the firm can substitute between labor and capital in its production process. The $MRTS_{L,K}$ tells us the following:

- The rate at which the quantity of capital can be decreased for every one unit increase in the quantity of labor, holding the quantity of output constant, or
- The rate at which the quantity of capital must be increased for every one unit decrease in the quantity of labor, holding the quantity of output constant

As we move down along the isoquant, the slope of the isoquant increases (i.e., becomes less negative), which means that the $MRTS_{L,K}$ gets smaller and smaller. This

property is known as diminishing marginal rate of technical substitution. When a production function exhibits diminishing marginal rate of technical substitution (i.e., when the $MRTS_{L,K}$ along an isoquant decreases as the quantity of labor L increases), the isoquants are convex to the origin (i.e., bowed in toward the origin).

Returns to Scale

In the previous section, we explored the extent to which inputs could be substituted for each other to produce a given level of output. In this section, we study how increases in all input quantities affect the quantity of output the firm can produce. When inputs have positive marginal products, a firm's total output must increase when the quantities of all inputs are increased simultaneously—that is, when a firm's scale of operations increases. Often, though, we might want to know by how much output will increase when all inputs are increased by a given percentage amount.

In the long run, where all inputs are variable, output can be increased by changing all factors by the same proportion. The concept of returns to scale tells us the percentage increase in output when a firm increases all of its input quantities by a given percentage amount. We have three cases of returns to scale: increasing, constant, and decreasing returns to scale.

- **Increase returns to scale:** this is the case where increasing all factors by the same proportion 'm' leads to an increase in output by more than 'm' scale.
- **Constant returns to scale**: if we increase input by some factor 'm' and output is increased by the same proportion as inputs 'm' then it is called constant returns to scale. In this case, the size of the firm's operation doesn't affect the productivity of its factors.
- **Decreasing returns to scale:** When scaling up all inputs by 'm' results in a scaling up of output by less than 'm', this is referred to as decreasing returns to scale**.** This is because difficulties in organizing and running a large scale operation may lead to decreased production of both labor and capital.

3.1.4 Technology Change and the Position of Production Curves

Technological change (progress) makes factors of production more productive or the production system more efficient so that the firm will get higher output from the same combinations of labor and capital than before. Figure 3.5 shows ***upward*** movement of the total product curve indicating higher output level can be achieved from the same input after technological advancement.

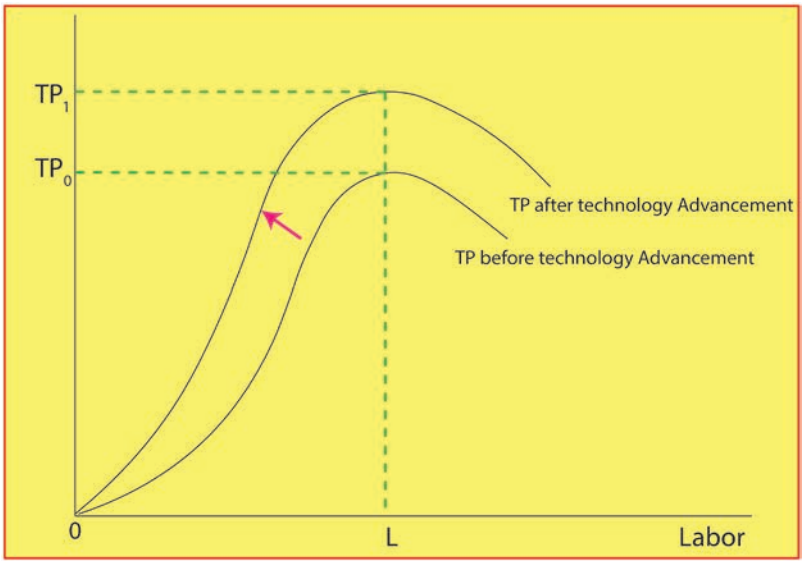

Figure 3.5 Technology change and the position of production curves

Technical progress and the production function: as knowledge of new and more efficient methods of production become available, technology changes. Furthermore new inventions may result in increase of the efficiency of all methods of production. These changes in technology constitute technical progress.

Graphically, the effect of technical progress is shown with an upward shift of the production function. This shift shows that the same output may be produced by less factor inputs, or more output may be produced with the same inputs.

Technical progress may also change the shape (as well as produce a shift) of the isquant. There are three types of technical progress, depending on its effect on the rate of substitution of the factors of production.

Capital side technical progress: a technical progress which increases the MP_K by more than the MPL. For this kind of technical progress, along a line on which the K/L ratio is constant, the $MRTS_{L,K}$ decreases in absolute terms (the slope of an isoquant declines). The slope of the shifting isoquants becomes less steep along any given radius. This type of technical progress is also called capital saving or labor using technical progress.

Labor side technical progress: a technical progress which increases the MP_L by more than the MP_K. Along a line on which the captital labor ratio (K/L) is constant, the $MRTS_{L,K}$ increases(the slope of an isoquant increases in absolute value). It is also called labor saving or capital using technical progress.

Neutral technical progress: a technical progress that increases the MP_L and MP_K by

the same percentage, so that the $MRTS_{L, K}$ (along any radius) remains constant.

Activity 3.1

1. Define the function of production.
2. Differentiate between short run and long run production functions.
3. Explain the return to scale.
4. What stages must a firm follow in its production process?
5. Explain technology change and the position of production curves.

3.2. Theory of Cost

At the end of this section, students will be able to:

- Define the cost of production.
- Explain the difference between short and long run costs.
- Calculate total, average, and marginal costs.
- Describe the link between production and costs.
- Analyze the relationship between product curves and cost curves.

Key Concepts

Cost, average costs, cost curves

Startup activity

Discuss how the cost function relates to the production function.

Introduction

In the production process, the firm needs to employ inputs in order to produce outputs. Thus, the prices of inputs or the expenditures the firm incurs on these inputs are referred to as the "cost of production." In this section, you will study the types and behaviors of production costs and the relationship between production and costs (i.e. cost function both in the short run and long run).

Cost functions are derived functions (derived from production functions) that describe the cheapest way to produce each level of output, given the prices of production factors and technology. Both in the short-run and the long-run, total cost is a multi-variable function, i.e. total cost is determined by many factors such as output, technology, prices of variable and fixed factors.

3.2.1 Short-Run Costs

Short-run costs are costs over a period during which some factors of production (usually capital equipment and management) are fixed. In short run based fixed and variable inputs, total cost (TC) is divided into two parts:

Total Fixed Cost (TFC): TFC is a cost that does not vary with the level of output (it does not change with change in quantity of output).Thus, it is independent of output. Fixed costs consists costs such as: salaries of administrative staff, expenses for building depreciation and repairs, etc.

Total variable cost (TVC): TVC is a cost that varies as output varies. These costs

vary directly with changes in the volume of output, rising as more is produced and falling as less is produced. The variable costs include: the cost of raw materials, the cost of labor, etc.

Total Cost (TC): Total cost is the cost incurred on all types of inputs fixed, as well as variable inputs incurred in producing a given amount of output. Total cost of production is the sum of all fixed and variable costs (TC = TFC+TVC).

Table 3.3 Total Fixed Cost, Total Variable Cost, and Total Cost

Output (Quantities)	TFC (in Birr)	TVC(in Birr)	TC(in Birr)
0	100	0	100
1	100	30	130
2	100	56	156
3	100	75	175
4	100	85	185
5	100	90	190
6	100	100	200
7	100	130	230

As the total fixed cost (TFC) does not depend on the level of output, it is represented by a horizontal line.

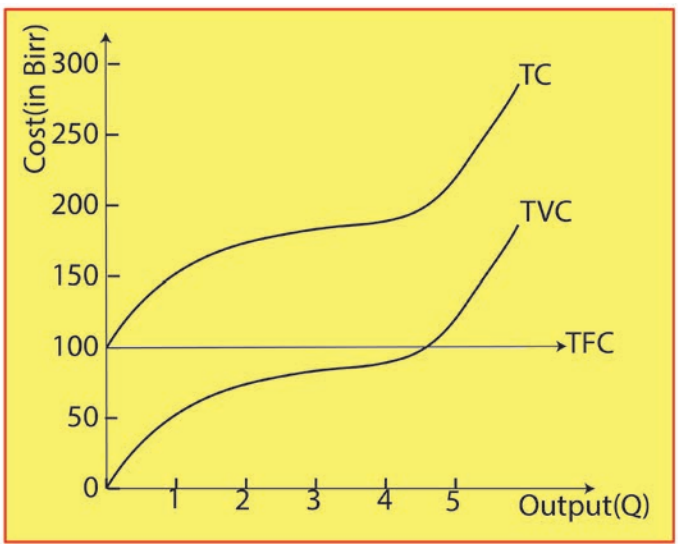

Figure 3.6 Total Fixed Cost, Total Variable Cost, and Total Cost curves

The total variable cost initially increases at a decreasing rate at the initial stage of production, as more of the variable factors are employed. When the productivity of the variable input falls, larger and larger units of the variable input will be needed to

increase output by the same unit, and thus TVC and TC increase at increasing rates. By adding the TFC and TVC, we can obtain the TC of the firm. From the total-cost curves, we obtain average cost curves.

- **AFC (Average Fixed Cost):** AFC is the total fixed cost divided by the amount of output, i.e., $AFC=\frac{TFC}{Q}$.

  Since TFC is constant, an increase in output (Q) reduces the ratio and thus the AFC approaches the quantity (output) axis as output rises.

- **Average Variable Cost (AVC):** The average variable cost is the per-unit cost of the variable factors of production. It is obtained by dividing the total variable cost by the total units of output. $AVC=\frac{TVC}{Q}$
- **ATC (Average Total Cost):** ATC (Average Total Cost) is the per-unit cost of both fixed and variable factors of production. It is obtained by dividing the total cost by the total units of output.

$$ATC=\frac{TC}{Q} \quad \text{or} \quad ATC=\frac{TFC+TVC}{Q}=\frac{TFC}{Q}+\frac{TVC}{Q}$$

→ ATC=AFC+AVC

- **Marginal Cost (MC):** Marginal Cost is the extra or additional total cost that results from producing one more unit of output; or it is the change in total cost resulting from a percentage change in output i.e.

→ $MC=\frac{\Delta TC}{\Delta Q} or \quad MC=\frac{\Delta TFC}{\Delta Q}+\frac{\Delta TVC}{\Delta Q}$ or

→ $MC=\frac{\Delta TVC}{\Delta Q}$, when ΔTFC=0 (in the short run)

Table 3.4 Average and Marginal costs

Output (Q)	TFC (in Birr)	AFC	TVC (in Birr)	AVC	TC (in Birr)	ATC	MC
0	100	-	0	-	100	-	-
1	100	100	30	30	130	130	30
2	100	50	56	28	156	78	26
3	100	30.33	75	25	175	58.33	19
4	100	25	85	21.25	185	46.25	10
5	100	20	90	18	190	38	5
6	100	16.67	100	16.67	200	33.33	10
7	100	14.28	130	18.57	230	32.86	30

The Relationship between Average and Marginal Cost Curves: Cost curves show how average and marginal costs vary with output level. Since the TFC is constant, it falls continuously as output increases. The AVC declines first, reaching a minimum level, then starts rising and shows a U- shaped structure. The MC also declines first, reaches its minimum, and then rises. The MC curve passes through the minimum point of both the AVC and ATC curves. Figure 3.7 shows the relationship between the ATC, AFC, AVC, and MC curves.

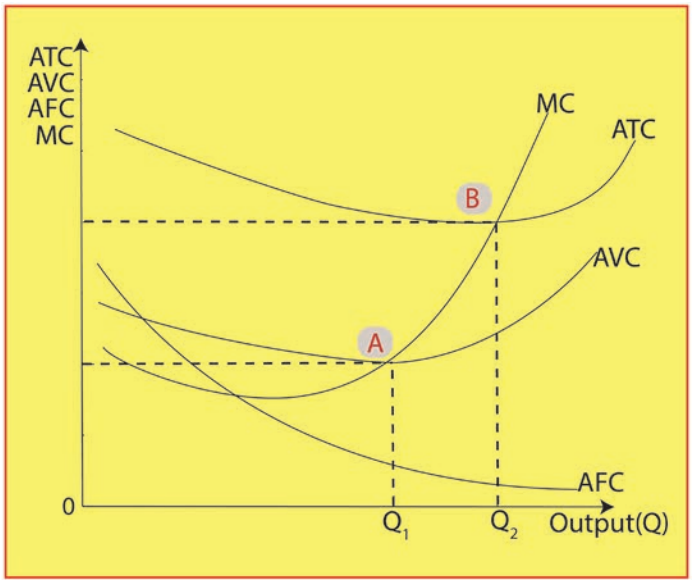

Figure 3.7 AC and MC curves

The behavior of the average variable cost is derived from the behavior of the total variable cost. The AVC curve slopes downward, up to output OQ_1 (the optimum capacity level of output), showing decreases in average variable cost, and it slopes

upward beyond output OQ_1, indicating increases in average variable cost. In other words, the AVC curve is U-shaped. Point A is at where AC=MC and minimum point of ATC, corresponding to optimum capacity level of output, OQ_1.

The ATC curve can be obtained by adding the AFC and AVC curves. An ATC curve is the summation of the AFC and AVC curves. Therefore, at each level of output, the ATC curve lies above the AVC curve at a distance equal to the value of the AFC curve. The ATC curve slopes downward up to output OQ2, shows a decrease, and slopes upward beyond output OQ2, indicating an increase in average total cost. Point B is the minimum point of ATC and the point where ATC=MC.

3.2.2 Long-run Costs

In the long run, the amounts of all the factors of production can be varied so that there are no fixed costs. The time period corresponding to the long run will be such a condition that the producers can make all the necessary changes to the size of the plant. For the analysis of the long-run cost of production, we use only three types of curves: the Long- Run Total Cost Curve (LTC), the Long-Run Average Cost Curve (LAC), and the Long- Run Marginal Cost Curve (LMC). Here also, LAC and LMC curves are U-shaped, but they are flatter than the short-run cost curves.

If we consider the case, the total cost first increases at a deceasing rate due to increasing returns to scale (which implies economies of scale). With an increasing rate attributed to decreasing returns to scale after the optimum size, the long-run total cost curve will look like the following. The LAC and LMC curves will be U-shaped.

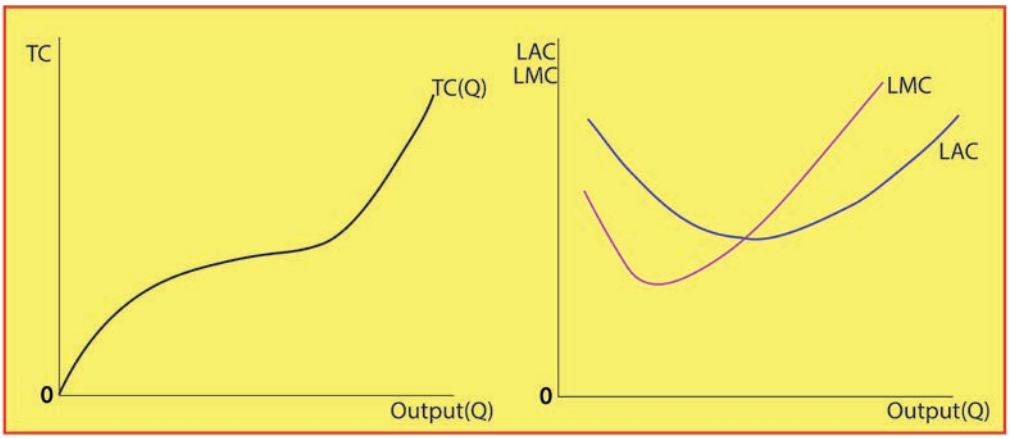

Figure 3.8 Long run total cost curve Figure 3.9 Long run average cost and mar ginal cost curves

The range from the minimum point of LAC to the left is called the "economies of scale range," which means output can be doubled for less than a doubled cost. The range from the minimum of LAC to the right is called "diseconomies of scale," because a

doubling of output requires more than a doubling of cost.

3.2.3 The Relationship Between Product and Cost Curves

Cost and production curves are mirror images of each other, i.e. the relationship between cost and production is shown in figure 3.9.

- when AP(MP) rises, AC(MC) falls;
- when AP(MP) falls, AC(MC) rises; and
- When AP (MP) is maximum, AC (MC) is minimum.

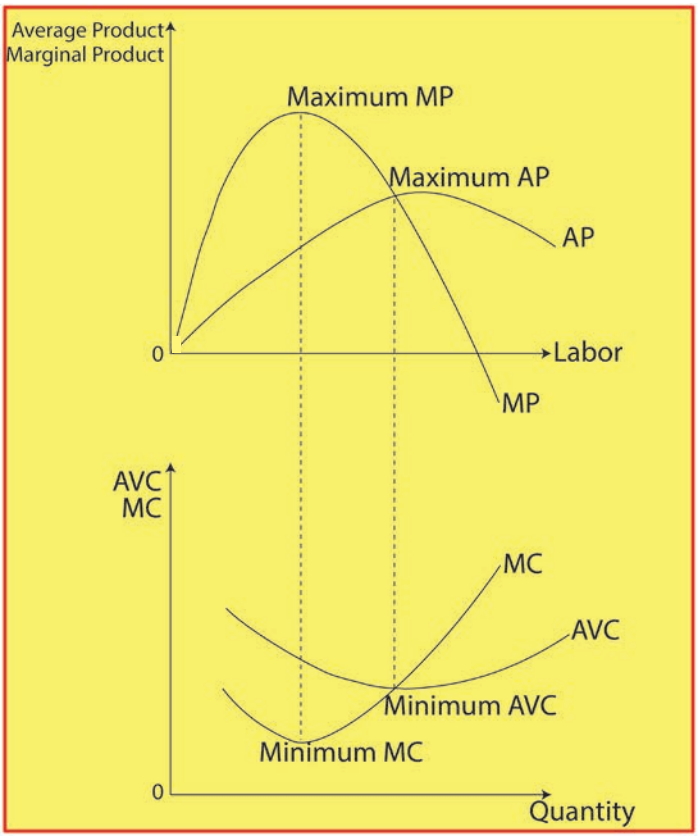

Figure 3.10 the relations hips between Production and Cost curves

Activity 3.2

1. Define the cost of production.
2. What is the difference between short run and long run costs?
3. Explain the link between production and costs.
4. Explain the relationship between product and cost curves.

Unit Summary

The production function shows the maximum quantity of a commodity that can be produced per unit of time, with given amounts of inputs, when the best production technique is used. A Total Product (TP) refers to the total amount of a commodity produced during some period of time by combining different factors of production. The average product (AP) of a variable factor refers to the output per unit of the variable factor. The marginal product (MP) of a variable factor may be defined as the change in total product resulting from the additional unit of a variable factor.

Returns to a factor mean a change in the physical output of a good when the quantity of one factor is increased while the quantity of other factors remains constant. The law of diminishing marginal returns states that in all production processes, adding more of one factor of production while holding one or more of the other inputs constant will at some point yield lower per unit returns.

Diminishing returns occur in the short run when one factor is fixed. Technological change shifts the production function upward. The cost of production depends on several factors, such as the quantity of production, the level of technology and input prices. In the short run, one or more of a firm's inputs are fixed. Thus, the total cost of production can be divided into fixed costs and variable costs. Fixed costs are constant regardless of the level of output. A firm cannot avoid fixed costs by producing zero levels of output. Variable costs, on the other hand, vary with the level of output directly. By dividing the total cost and total variable costs for the quantity of production, we obtain an average cost (AC) respectively.

In the short run, when not all inputs are variable, the AC and AVC curves assume a U- shape due to the law of variable proportions. Marginal costs of production are additional costs incurred to produce one more unit of a commodity. The MC curve has a U-shape due to the law of variable proportions. The short-run marginal and average variable cost curves are a mirror reflection of the marginal product and the average product of the variable input, respectively. In the long run, all the inputs to the production process are variable. As a result, the choice of inputs depends both on the relative costs of a factor of production and on the extent to which the firm can substitute among inputs in its production process.

In the long run, all the inputs to the production process are variable. As a result, the choice of inputs depends both on the relative costs of a factor of production and on the extent to which a the firm can substitute among inputs in its production process.

Unit Review Exercises

Part I. Write 'True' if the statement is correct or 'False' if the statement is incorrect.

1. When marginal products are rising, the total product curve reaches its maximum.
2. Isoquants show the flexibility that firms have when making production decisions.
3. When the marginal product of labor is rising, the average product of labor is also increasing.
4. Advancement in technology may possibly shift the production function outward.
5. The gap between successive multiple isoquants is decreasing for a production function with increasing returns to scale.
6. The law of variable proportions states the marginal product factor will eventually decline.
7. The magnitude of fixed costs does not depend on the level of output.
8. All the short run average cost curves are u-shaped because of the law of diminishing returns.
9. The gap between AVC and AC is continuously narrowing as output increasing.
10. The optimal expansion path for a homogenous production function is a straight line from the origin.

Part II: Multiple-choice items

Direction: Read the following questions and choose the correct answer from the given alternatives.

1. Which of the following is a factor of production?
   A . Land.
   B . Labor.
   C . Capital.
   D . All of the above
2. In the third stage of production,
   A . Marginal product is negative.
   B . Marginal product is positive.
   C . A rational firm prefers to operate.
   D . All of the above
3. Technological progress,
   A . shift the isoquants inward.
   B . shift the production function outward
   C . reduce cost of production
   D . All of the above

4. Which of the following is true?
   A . Total cost is the sum of total fixed cost and total variable cost.
   B . Total cost is the product of total fixed cost and total variable cost.
   C . Fixed cost increase as output increase.
   D . All of the above
5. All of the following curves are "U" shaped except:
   A . The AVC curve
   B . The AFC curve
   C . The ATC curve
   D . The MC curve

Part III: Write detailed answers to the following.

1. What is the shape of the total product curve? Why?
   A) What is the relationship between the AP & MP?
   B) What is the law of diminishing return? How is it reflected in the shape of TP curve? In the shape of MP curve? Its relationship to the stages of production?
2. What does an isoquant refer to? What are its characteristics?
3. Given the following TFC and TVC cost information, complete the following table.

Output	TFC	TVC	TC	AFC	AVC	ATC	MC
0	100	0					
1	100	7					
2	100	12					
3	100	15					
4	100	17					
5	100	18					
6	100	20					
7	100	25					

4. If the marginal cost of production is greater than the average variable cost, do you know whether the average variable cost is increasing or decreasing? Explain.

Unit 4 Market Structures

Unit Introduction

In the previous unit, we discussed the theory of production and cost. There, we studied concepts related to a firm's production function and cost curves. In this unit, we discuss the types and characteristics of firms under different market models.

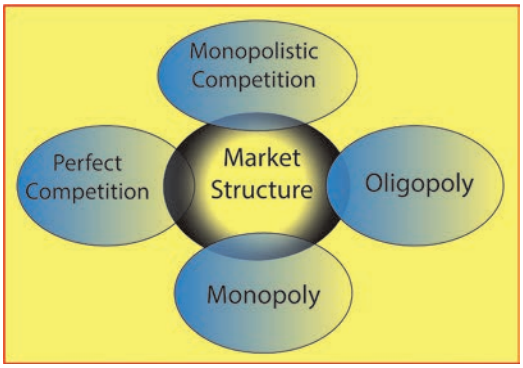

Figure 4.1 Market Structure

In economics, markets are characterized based on the competition levels and the nature of their markets, such as the nature of the products, the number of sellers, the number of buyers, etc. The market in which an individual firm operates or sells its product (good or service) to consumers can be categorized broadly into perfect (perfectly competitive) and imperfect markets. A perfect competitive market is a market with a large number of sellers and buyers; whereas a monopoly market (dominated by one firm), an oligopoly market (very few firms), and a monopolistic competition market (relatively large numbers of firms selling closely substitutable products) are the three common types of imperfect markets.

Unit Objectives

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

- Explain the characteristics of the market structures.
- Analyze the nature of demand and revenue curves of a firm in each market.
- Make a list of the sources of monopoly.
- Calculate total, average, and marginal revenues.

Main Contents

4.1 Perfectly competitive market.

4.2 Pure monopoly market.

4.3 Monopolistically competitive market.

4.4 Oligopoly market.

4.1 Perfectly Competitive Markets

At the end of this section, students will be able to:

- Define a market that is completely competitive.
- Review the characteristics of a perfectly competitive market.
- Explain the nature of demand and revenue curves in a perfectly competitive market.
- Calculate total, average, and marginal revenues.

Key Concepts

perfectly competitive, demand and revenue

Startup Activity

1. How do you define a perfectly competitive market?

In microeconomics, perfect competition describes a market in which a buyer or seller has no market power or where all buyers and sellers are price takers. It is this distinction that differentiates perfectly competitive markets from imperfectly competitive ones. In short, a perfectly competitive market is characterized by the fact that no single firm has any influence on the price of the product it sells. For instance, consider a farmers market where each seller sells the same type of products (such as maize). There is little differentiation between each of their products, and they each sell them at an equal price. At the same time, sellers and buyers free to participate in the market without any barrier.

4.1.1 The Characteristics of Perfect Competition

A perfectly competitive market has several distinguishing characteristics. The main features include:

The market has a large number of buyers and sellers: a perfect competitive market is composed of a large number of buyers and sellers of a commodity, so that the buying or selling decision of a single buyer or seller cannot affect the price of the commodity. That is, the actions of a single seller or buyer cannot influence the market price of the commodity, since the firm or buyer) is too small in relation to the market.

Homogeneity of products: products supplied by the different firms are the same or homogenous. For example, salt supplied by two sellers is identical to the extent that buyers are unable to differentiate which firm supplied which product. The assumption of a large number of sellers and product homogeneity together imply that an individual firm operating in a perfectly competitive market is a price taker.

For example, in the wheat market, there are thousands of farmers who sell wheat and millions of consumers who use wheat and wheat products. Because no single buyer or seller can influence the price of wheat, each takes the price as given.

Free entry and exit: in a perfectly competitive market, a new firm has the freedom to produce and supply a product. In other words, firms have freedom of movement or there is no barrier that restricts firms' entry into and/or exit out of a perfectly competitive market. If the firm believes that it is not worth staying in the business, it can go out of the market.

Perfect Information for Both Consumers and Producers: it is assumed that in a perfectly competitive market, both sellers and buyers have complete information and knowledge of the market. Every buyer and seller has full knowledge of the product quality and its nature, current and future prices, input prices, and other attributes that are certainly known.

Firms Aim to Maximize Profit: the objective of firms in perfect competition is profit maximization. Firms try to increase revenue and reduce (minimize) costs so as to increase profit.

4.1.2 Perfect competition demand and revenue functions

a. Demand

The assumption of a large number of sellers and product homogeneity together imply that an individual firm operating in a perfectly competitive market is a ***price taker***.

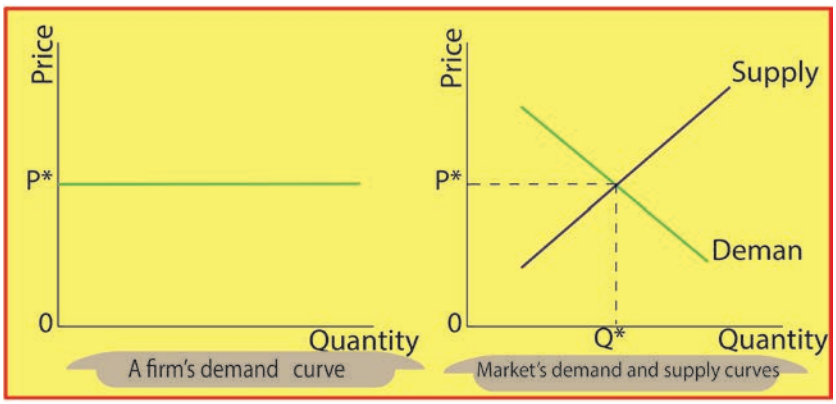

Figure 4.2: The demand curve faced by a firm in a perfectly competitive market

- Thus, a competitive firm faces a completely horizontal demand curve for its product, indicating that it can sell any amount of output only at the ongoing market price (P). That is, at the market price, the firm can supply whatever quantity it would like to sell. Therefore, once the price of the product is determined in the

market, the producer takes the price (p* in Figure 4.2) as given. Hence, the demand curve that the firm faces in this market situation is a horizontal line drawn at the equilibrium price, p*.

b. Revenue Function

The revenues of a firm are the receipts that it obtains from selling its products. Revenues have three main categories: Total Revenue (TR), Average Revenue (AR), and Marginal Revenue (MR).

- Total Revenue (TR): total revenue is the total amount of money received by a company from the sale of a specific quantity of its product. It is obtained by multiplying the unit price of the commodity and the quantity of that product sold.

  TR=P x Q; where P = price of the product
  Q = quantity of the product sold.

- Average revenue (AR)**:** is the revenue per unit of item sold. It is calculated by dividing the total revenue by the amount of the product sold, i.e.

$$AR = \frac{TR}{Q} = \frac{P*Q}{Q} \quad => AR = \text{P}$$

Note that average revenue (AR) and the price of the product (P) have the same meaning. Average revenue means the per unit revenue received by the seller from the sale of the commodity. On the other hand, price means the per unit payment made by the purchaser to purchase the commodity. Since the seller receives what the purchaser pays, the per unit revenue and per unit price are the same. That is why the AR curve and demand curve for a firm's product are also the same. Therefore, from the firm's viewpoint, the firm's demand curve is also the average revenue curve.

- **Marginal Revenue:** Marginal revenue is the change in total revenue resulting from one unit increase in sales. It is the additional amount of money or revenue the firm receives by selling one more unit of the product. It is calculated as the ratio of the change in total revenue to the change in the sale of the product, i.e.

$$MR = \frac{\Delta TR}{\Delta Q} = \frac{\Delta(P * Q)}{\Delta Q}$$

Thus, in a perfectly competitive market, a firm's average revenue, marginal revenue, and price of the product are equal, i.e. AR = MR = P = $D_{firm.}$ Marginal revenue can also be estimated as the change in total revenue with the sale of 'n' units of a product instead of (n – 1) units. Thus, $MR = TR_n - TR_{n-1}$

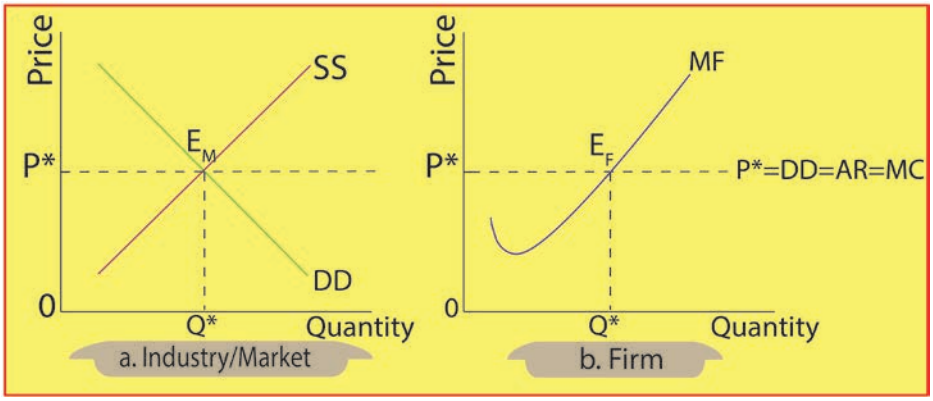

Figure 4.3: Determination of equilibrium price under perfect competition

In a perfect competition, a firm can sell any amount of output at a given market price. It means that a firm's additional revenue (MR) from the sale of every additional unit of the commodity is just equal to the market price (P) or average rate of the commodity (AR). Hence, average revenue and marginal revenue become equal and constant in the given situation. Consequently, the AR and MR curves are the same and would be horizontal or parallel to the X-axis.

Activity 4.1

1. Define a perfectly competitive market.
2. Explain the characteristics of the perfect competitive market.
3. Explain the nature of demand and revenue curves in a perfectly competitive market.
4. A farmer usually sells 100 kg of coffee for Birr 200/kg. Calculate total revenue and average revenue. What will be marginal revenue if he/she decides to make an additional sale at 190?

4.2 Pure Monopoly Market

At the end of this section, students will able to:

- Define pure monopoly market
- Review the characteristics of the pure monopoly market
- Describe the reasons for the existence of pure monopoly
- Analyze the nature of demand and revenue curves of pure monopoly market

Key Concepts

Monopoly, Demand and Revenue

Startup Activity

1. What is a "pure monopoly market"? Discuss the topic in pairs.

The second market structure in which we analyze the interaction between producers and consumers is that of a pure monopoly. The term "monopoly" is derived from two Greek words, viz., "monos" and "polus." Monos" means" single," and "polus" means "a seller." A monopoly is a market structure in which there is only one supplier in a given market (industry). A monopoly market structure requires that there be a single producer of a particular commodity. For no other commodity to work as a substitute for this commodity, and for this situation to last, sufficient restrictions must be in place to prevent any other firm from entering the market and beginning to sell the commodity.

When there is only one firm in the market, the firm is the price maker, whereas, consumers are the price takers. For instance, ELPA is one of the firms producing and supplying electric power in Ethiopia can be considered an example of a monopoly firm, (however, ELPA is state owned firm).

4.2.1 The Characteristic Features of Pure Monopoly

A pure monopoly exists when a single firm is the only producer of a product for which there are no close substitutes. The main characteristics of this market structure include:

A single seller and many buyers: A pure or absolute monopoly is a one firm industry that sells the product to many buyers. As a result, the monopoly firm is the only producer of a specific product or the sole seller of the product, and has full control over the supply and price of the product. In this case, the firm and the industry are one and the same (i.e., the firm = the industry).

No close substitutes: a product produced by a monopolist has a close substitute,

meaning that consumers have no alternative choices to substitute one product for another. So, the monopoly firm would not face competition from new or existing products. For example, there is no close substitute for the electric services provided by ELPA.

Price maker: The individual firm exercises considerable control over price because it is responsible for, and therefore controls, the total quantity supplied. As a result, the monopolist becomes a price-maker and fixes its own price. By having a downward-sloped demand curve for its product, the monopolist can influence the market price by changing the supply of the product.

Price Discrimination: Under the conditions of a monopoly, price discrimination is possible. It implies that a monopolist can sell its product at different prices to different customers.

Restrictions on Entry: In a monopoly, new competitors cannot freely enter the market due to some strict barriers. These barriers may be due to legal restrictions like licencing or patent rights or restrictions created due to economies of scale. There are various reasons for the existence of monopolies that help the monopolists to maintain monopoly power. Some of these factors are the following.

- Absence of close substitutes. A firm enjoys a monopoly when it is the sole seller of its product and the product has no close substitutes.
- Economies of scale in production are another reason for the emergence of monopolies. A firm is said to have economies of scale if its long-term average cost is declining. Small firms do not have the capacity to do so. In such a situation, when the incumbent firm observes that new firms are entering the market, it will produce a large amount of output to minimize its unit cost of production and will charge a lower price than the new firms to deter entry.
- Ownership of strategic or key inputs. A company may own or control the entire supply of a raw material needed to manufacture a commodity. Such firms are not willing to sell the raw materials to another firm. For example: Ambo mineral water has monopolized the natural mineral water.
- Patent rights for products or production processes give legal monopoly rights to firms. Government policies such as those related to granting licences or imposing foreign trade restrictions (like quotas, etc.) result in limiting the number of sellers.

- A company may develop or invent a unique product or manufacturing technique and take steps to prevent competitors from copying it by obtaining patent or copy rights. MOHA and Coca Cola soft drink companies have maintained monopoly power over the supply of their products, partly due to exclusive knowledge of the ingredient chemicals required for the production of their products.

4.2.2 The Demand and Revenue Functions of the Monopoly Firm

a. Demand

In the previous section, we have seen that a perfectly competitive firm is small relative to the market in which it operates and, therefore, takes the price of its output as given by market conditions and faces a demand curve that is horizontal. However, as a monopoly is the sole producer in its market, it can alter the price of its goods by adjusting the quantity it supplies to the market.

Thus, a monopoly firm faces a downward-sloping market demand curve. As a result, the monopoly has to accept a lower price if it wants to sell more output. If the monopolist decides to raise the price of the product, it will reduce the quantity of supply.

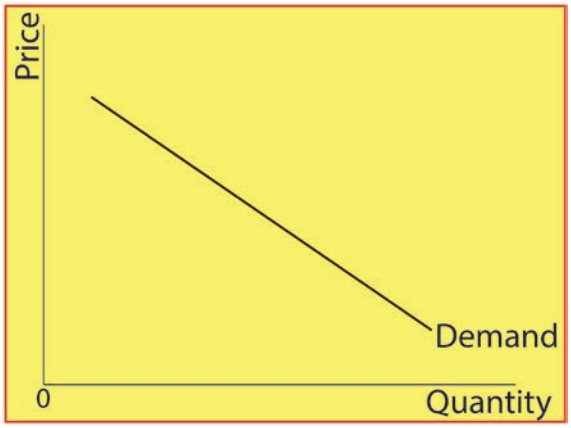

Figure 4.4 Monopolist's Demand Curve

Figure 4.4 shows the monopolist firm facing a downward-sloping demand curve, which implies that as the monopolist raises the price of its goods, consumers buy less of it. If the monopolist reduces its price, it will increase the quantity of output it sells. Where possible, a monopolist would prefer to charge a high price and sell a large quantity at that high price. The market demand curve makes that outcome impossible. In particular, the market demand curve describes the combinations of price and quantity that are available to a monopoly firm. The monopolist can choose any point on the downward-sloping demand curve, but it cannot choose a point off the demand curve.

Mathematically, assuming that the demand curve is linear, it can be written in the following form:

$$P = a - bQ$$

Where P – is the market price

Q – is the quantity of sales (quantity demanded)

'a' and 'b' are any positive constants

b. Revenue Function

The revenues of a firm are the receipts that it obtains from selling its products. Revenues have three main categories: Total Revenue (TR), Average Revenue (AR), and Marginal Revenue (MR).

- Total Revenue (TR): Total revenue is the total amount of money a company receives from the sale of a given quantity of its product. It is obtained by multiplying the unit price of the commodity and the quantity of that product sold.

  TR=P x Q; where P = price of the product

  Q = quantity of the product sold.

  From demand function P = a – bQ

  Substituting (a – bQ) for P

  TR = (a - bQ) Q

  TR = aQ – b Q^2

- Average revenue (AR): is the revenue per unit of item sold. It is calculated by dividing the total revenue by the amount of the product sold.

$$AR = \frac{TR}{Q} = \frac{P.Q}{Q} = \frac{aQ - bQ^2}{Q} = a - bQ$$

=>AR = P

Note that average revenue (AR) and the price of the product (P) are the same, which means, average revenue per unit received by the seller from the sale of the commodity.

- Marginal Revenue: Marginal revenue is the change in total revenue resulting from one unit increase in sales. It is the additional amount of money or revenue the monopolist firm receives by selling one more unit of the product. It is calculated as the ratio of the change in total revenue to the change in the sale of the product.

$$MR = \frac{\Delta TR}{\Delta Q} = \frac{\Delta(P * Q)}{\Delta Q}$$

Marginal revenue can also be estimated as the change in total revenue with the sale of n units of a product instead of n – 1 units. As a result, $MR = TR_n - TR_{n-1}$. Using the following hypostatical table 4.1, we can show a monopoly's TR, AR, and MR curves with the help of the corresponding diagram figure.

Table 4.1: TR, AR, and MR under monopoly conditions

Quantity (Q)	Price (In Birr)	Total Revenue (PQ)	Average Revenue (PQ/Q)	Marginal Revenue $(\frac{\Delta(PQ)}{\Delta Q})$
0	11	0	-	0
1	10	10	10	10
2	9	18	9	8
3	8	24	8	6
4	7	28	7	4
5	6	30	6	2
6	5	30	5	0
7	4	28	4	-2
8	3	24	3	-4

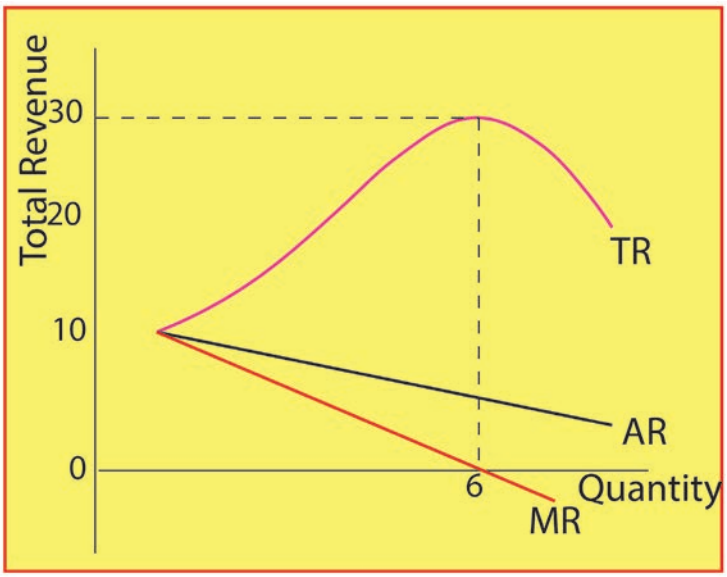

Figure 4.5: TR, AR, MR Curves under Monopoly

As figure 4.5 shows, the total revenue curve of the monopolist firm has an inverse U-shape. The total revenue of a monopolist firm first increase with the quantity of sales, reaches its maximum, and finally decreases when the quantity of sales increases. A monopolist firm's AR and MR curves are both downward sloping (decreases with sales quantity).

✎ Activity 4.2

1. Define a pure monopoly market.
2. Explain the characteristics of the pure monopoly market.
3. List at least three reasons for the existence of a pure monopoly.

4.3 Monopolistically Competitive Market

At the end of this section, students will able to:

- Define monopolistically competitive market
- Review the assumptions and characteristics of the monopolistically competitive market.
- Explain the nature of demand and revenue curves of monopolistically competitive market

Key Concepts

monopolistically competitive

Startup Activity

1. Suppose you walk into a stationary to buy a pen. On the stationer's shelve, you find different type of pens. When you pick out one and buy it, what kind of market are you participating in? Discuss about this in groups of three.

A monopolistic competition market refers to a market structure where there are relatively large numbers of sellers and buyers, and there is a free entry and exit of firms producing and selling differentiated (heterogeneous) products. A seller of a differentiated product has limited monopoly power over customers who prefer his/her product to others.

Monopolistic competition has some features of competition and some features of monopoly. The market is competitive due to the existence of a large number of firms, and there is no barrier to entry or exit. Its monopoly features, however, result from differentiated products that are close substitute products. Thus, this market is more real market, and its actual market situations are somewhere in between a perfect competitive market and a monopoly market.

4.3.1 Monopolistically competitive market characteristics

Monopolistic competition describes a market with the following characteristics:

Product differentiation: each firm produces and supplies a product that is at least slightly different from those of other firms. The difference could be in style, brand name, quality, etc. Different firms produce products like pens, biscuits, soap, and include stores that sell different styles of clothing; restaurants that sell different kinds of food; and even products like beer that may be at least similar but different in terms of public perception because of advertising and brand names.

Many sellers and buyers: another feature of monopolistic competition is the presence of many sellers and buyers in the market. There are many sellers and buyers of the product, though relatively less than in the perfectly competitive market.

Free Entry and Exit of Firms: similar to the perfect competitive market, there is no barrier to new firms that are willing and able to produce and supply the product in the market if they find it profitable. Similarly, if any firm believes that it is not worth staying in the business, it is free to exit.

The existence of non-price competition: due to product differentiation, in addition to price competition, there is also **non-price competition**. Non-price competition is an essential part of monopolistic competition. Non-price competitions take the form of product quality, advertising, brand name, customer service, etc. For example, a firm spends money on advertisements to reach consumers about the relatively unique characteristics of its product, thereby getting new buyers and developing brand loyalty.

4.3.2 The Demand and Revenue Functions

a. Demand

As a result of product differentiation, characteristic of a monopolistic competition market, firms are price-makers, and each firm faces a downward-sloping demand curve. This implies that, unlike perfect competitive firms, a firm in a monopolistically competitive market has few rivals. A monopoly firm has no rivals. Thus, the demand curve of a firm under monopolistic competition is flatter than that of a monopoly firm, as shown in figure 4.6.

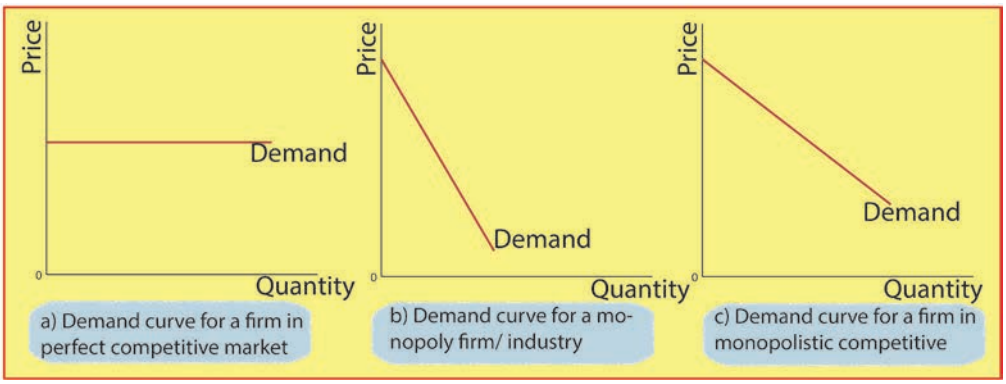

Figure 4.6 Compaction of demand curves under different markets

Figure 4.6 shows the demand curve faced by the monopolistic competitive firm is not horizontal as is the case with perfect competition. It is also not the market demand curve, as in the case of monopoly.

b. Revenue Function

In a perfect competitive market and a monopoly market, the revenues of a firm are the receipts that it obtains from selling its products. In the case of monopolistic competition, the firm expects an increase in demand if it lowers the price. The demand curve of a firm is also its AR curve. This firm, therefore, has a downward sloping AR curve. The marginal revenue is less than the average revenue, and also downward sloping.

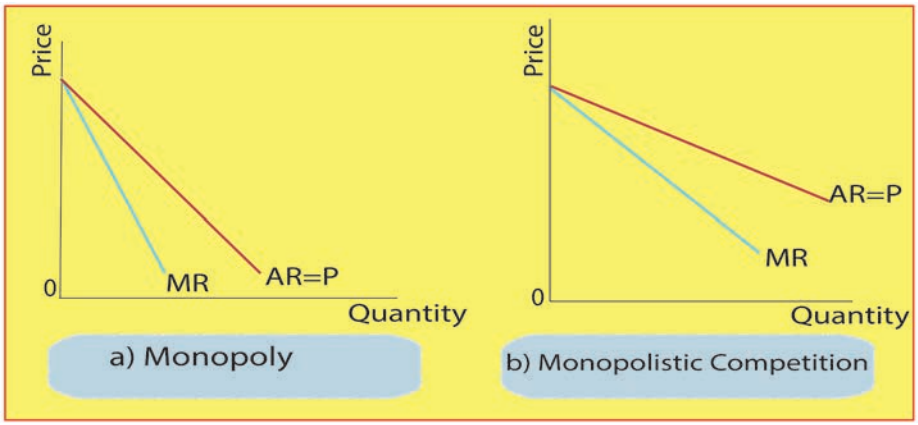

Figure 4.7: AR and MR Curves under Monopoly and Monopolistic Competition.

Activity 4.3

1. Define the term "monopolistically competitive market."
2. Review the assumptions and characteristics of the monopolistically competitive market.

4.4 Oligopoly Market

At the end of this section, students will be able to:

- Define the oligopoly market perfectly.
- Review the characteristics of the oligopoly market.
- Explain the nature of demand and revenue functions of the oligopoly market.

Key Concepts

duopoly, oligopoly demand.

Startup Activity

1. What is an oligopoly market? Discuss this topic in pairs.

An oligopoly is a market organization in which there are few firms that produce identical or closely substituted products (identical or differentiated). An oligopoly is said to exist when there is more than one seller in the market, but their number is not so large as to make the contribution of each firm negligible. Firms are, therefore, situated mutually interdependently. That is, they behave as if one firm's actions are directly affected by those of rivals and by the actions of others. One example is the world market for crude oil. A few countries in the Middle East control much of the world's oil reserves. Cement and sugar factories are examples of oligopoly firms in Ethiopia.

4.4.1 Characteristics of the Oligopoly market

An oligopoly market describes a market with the following characteristics:

Few dominant firms: the number of firms is small enough that each firm recognizes the actions of other firms, implying that firms are mutually interdependent.

- Entry barrier: in an oligopoly market, the barrier to entry is difficult or impossible for new firms to enter the market. Barriers to entry may arise as a result of; scale of economics and large capital requirements compared to other markets, except monopoly.
- Patents or access to technology or raw materials may exclude potential competitors.
- Products may be homogenous or differentiated.
- There is interdependence among the firms. The decision of one firm affects all firms, and so all firms follow the other firms.

A duopoly is the simplest type of oligopoly. A duopoly is a special case of oligopoly in which there are only two firms in the industry, example Ethio-Teleocom and Safaricom Ethiopia

4.4.2 The Demand and Revenue Functions

a. Demand

As a result of product differentiation, characteristic of an oligopoly market, firms are price-makers, and each firm faces a downward-sloping demand curve. Any change in price by one firm may result in price changes by rival firms. As a result, the demand curve faced by an oligopolist firm keeps on shifting.

b. Revenue Function

Like in all other markets, the revenues of a firm in an oligopoly are the receipts that it obtains from selling its products. The AR curve of a firm is also the same as its demand curve. Thus, the firm has a downward sloping AR curve. The marginal revenue curve is less than the average revenue curve.

✎ Activity 4.4

1. Define oligopoly market
2. What are the characteristics of the oligopoly market?
3. Explain the nature of demand and revenue functions of the oligopoly market.

Unit Summary

The market in which an individual firm operates or sells its product (good or service) to consumers can be categorized broadly into perfect (perfectly competitive) and imperfect markets. The three main criteria are: the number of potential buyers (demanders) and sellers (suppliers); whether the good or service is homogeneous or heterogeneous; and whether there is free entry and free exit from the market. Based on these criteria, markets are classified into the following main categories:

Types of market	Main characteristics
1. Perfect Competition	• large number of buyers and sellers • homogeneous product • free entry/exit • full information transparency
2. Monopoly	• one dominant supplier • homogeneous product • restricted entry/exit
3. Monopolistic competition	• large number of buyers and sellers • heterogeneous product • free entry/exit
4. Oligopoly	• limited number of dominant suppliers • homogeneous/heterogeneous product • restricted entry/exit

Because a competitive firm is a price taker, its revenue is proportional to the amount of output it produces. The price of the good equals both the firm's average revenue and its marginal revenue. A monopoly arises when a single firm owns a key resource, when the government gives a firm the exclusive right to produce a good, or when a single firm can supply the entire market at a lower cost than many firms could. Because a monopoly is the sole producer in its market, it faces a downward-sloping demand curve for its product.

A monopolistically competitive market is characterized by three attributes: many firms, differentiated products, and free entry. The product differentiation inherent in monopolistic competition leads to the use of advertising and brand names. The latter two types of imperfect markets (oligopoly and monopolistic competition) are characterized by rivalry among individual firms.

Unit Review Exercises

Part I: Write 'True' if the statement is correct or 'False' if the statement is incorrect.

1. Oligopoly market is a market with single buyers.
2. A pure monopolist is a price-taker.
3. Monopolistic competition market has flatter revenue curve than monopoly market.
4. Dominating factor of production can be source of monopoly power.
5. Product differentiation is feature of monopolistic competition market.

Part II: Multiple-choice items

Direction: Read the following questions and choose the correct answer from the given alternatives.

1. A perfectly competitive market is best characterized by:
   A . Homogenous product.
   B . Heterogeneous product.
   C . Existence of blocked entry.
   D . All of the above.
2. Which of the following is not the characteristic of monopoly?
   A . Single buyer
   B . Single seller
   C . Entry barrier
   D . None of the above.
3. Which of the following is entry and exit relatively difficult?
   A . perfectly competitive market
   B . monopoly market
   C . Oligopoly market
   D . monopolistic competition market
4. One of the following markets is NOT price maker.
   A . perfectly competitive market
   B . monopoly market
   C . Oligopoly market
   D . monopolistic competition market
5. Which of the following market has relatively steeper demand curve?
   A . perfectly competitive market
   B . monopoly market
   C . Oligopoly market
   D . monopolistic competition market

Part III: Write detail answers to the following.

1. What are the distinguishing characteristics of a perfectly competitive and pure monopoly market structure?
2. List as many potential causes/sources of a monopoly as you can.
3. What factors determine the amount of monopoly power an individual firm is likely to have?
4. Describe the three attributes of monopolistic competition. How is monopolistic competition like a monopoly? How is it like a perfect competition?

Unit 5 Banking and Finance

Introduction

One of the basic factors of production in economics is capital. Capital is the amount of money the producer pays for the other factors of production (labor, land and entrepreneur) used in the production process.

Banks are one of the financial institutions that are used to transfer finance from those who have in excess to those that are in need of it. People with excess money will go to finance and put it in banks, this is called saving. People who faced shortage of money will go to the bank and ask for loans. Banks will give money as a loan according to their lending procedures. This activity of banks is one example of financial intermediation.

Thus, in this unit the issues that will be discussed concerning banks and other financial intermediaries are introduction to financial Intermediaries, introduction to financial markets, financial Institutions, banking and non-banking financial institutions, historical development of the banking sector in Ethiopia, electronic banking (e-banking), indigenous financial institutions in Ethiopia – "ikub", "iddir". Therefore, students are expected to think of banks and other financial intermediaries in their locality and their functions as savers of excess money and as lenders to those who need the money.

Unit Objectives

By the end of this unit, students will able to:

- Discuss about the different types of financial intermediaries.
- Analyze the role of indigenous financial institutions.
- Explain the historical development of the financial institutions (Banks, Microfinances and Indigenous institutions) in Ethiopia.
- Describe the financial institutions (Banks, Microfinances and Indigenous institutions).
- Identify financial institutions in Ethiopia (Banks, Microfinances and Indigenous institutions).
- Evaluate the roles of financial institutions for the socio-economic improvement of the society.

5.1 Introduction to Financial Intermediaries

By the end of this section, students will be able to:

- Define financial intermediation,
- Mention financial intermediaries.
- List the benefits of financial intermediaries.

Key Concepts

Finance; Financial intermediaries; Saving; Borrowing; Banks; Microfinance Institutions

Start Up Activity

Think of financial institutions (e.g., banks) in your town. List out their benefits for the people in the town?

What is a financial intermediary?

Financial intermediary is an entity that acts as the middleman between two parties in a financial transaction, for instance- Commercial Bank of Ethiopia. Financial intermediaries offer a number of benefits to the average consumer, such as safety, liquidity, and economies of scale involved in banking and asset management.

In other words, financial intermediaries mediate between the providers (with excess money) and users (with shortage of money) of financial capital. The transfer of funds from surplus spending unit to deficit spending unit through financial intermediaries is also called Financial Intermediation.

What are the benefits of financial intermediaries?

For depositors: Financial intermediaries give safety and interest earning. Safety refers to the fact that the money of the depositors is free from any risk of loss. Banks also pay interest on the money saved at their banks by the depositors. These are the benefits to the depositors by financial intermediaries.

For the borrowers: People borrow money from banks and other financial intermediaries are known as investors. In the process of production, they may face shortage of finance and go to financial intermediaries (e.g., Banks), to get money or finance for their investment. The financial intermediaries will charge them annual interest on the money they borrow. The more money they borrow, the more investment (production) they undertake which is useful for the country.

Thus, finance (money) in the economy is like the blood circulating in the body. Any

economy or country cannot function well without money (finance), just as the body cannot function without blood circulating in it. We use it to buy our day-to-day needs (demand = willingness + Ability; where ability is the money or finance, we have).

Activity 5.1

1. Discuss in pairs with your friend on the following questions:
   - What are financial intermediaries?
   - What is financial intermediation?
2. List out financial intermediaries in your town.

In the following sub-sections, you will learn different types of financial intermediaries.

5.2 Introduction to Financial Markets

By the end of this section, students will be able to;

- Describe financial markets,
- Identify components of financial markets.

Key Concepts

Financial Markets; Money Markets; Capital Markets; Investment

Start Up Activity

What comes to your mind when you think of financial markets?

Financial markets are markets that provide channels for allocation of savings to investment. They provide a variety of assets to savers as well as various forms in which the investors can raise funds and thereby decouple the acts of saving and investment. The savers and investors are constrained not by their individual abilities, but by the economy's ability, to invest and save respectively. The financial markets, thus, contribute to economic development to the extent that the latter depends on the rates of savings and investment.

The financial markets have two major components:

A . Money market
B . Capital market

A. Money market: according to (Drake & Fabozzi, 2010), money market is the sector of the financial market that includes financial instruments with a maturity date of one year or less at the time of issuance. Money market instruments include:

- Treasury bills,
- Commercial papers,
- Negotiable certificates of deposit,
- Repurchase agreements, and
- Bankers' acceptances.

I . Treasury Bills: are financial instruments issued by the governments with maturity dates of three weeks, one month, three months or six months. The holder of a T-Bill realizes a return by buying these securities for less than the maturity value and then receives the maturity value at maturity.

II . Commercial papers: are promissory notes written promises to pay issued by a large, creditworthy corporation or a municipality having an original

maturity that ranges from one (1) day to two hundred seventy (270) days. Commercial paper may be either interest bearing or sold on a discounted basis.

III . *Certificates of deposit (CDs):* are written promises by a bank to pay a depositor. They are issued by large commercial banks with original maturities between one month and one year. On the maturity date, the issuer repays the principal, plus interest.

B. **The Capital market**: is the sector of the financial market where long-term financial instruments are issued by corporations and governments. They have an original maturity greater than a year and perpetual securities (those with no maturity). There are two types of capital market securities:

a. Equity and
b. Debt Obligations

a. *Equity*: is a capital market financial instrument which includes common stock and preferred stock. Common stock represents ownership of a perpetual corporation, and hence, common stock is a *perpetual security*. Preferred stock also represents ownership interest in a perpetual corporation but can either have redemption (maturity) date or be perpetual.

b. *Debt Obligation*: is capital market financial instrument whereby the borrower promises to repay the maturity value at a specified period of time beyond one year. They include:

Bank loans and

Debt securities.

Bank Loans- One form of such a bank loan is *a syndicated bank loan*. This is a loan in which a group (or syndicate) of banks provides funds to the borrower.

Debt securities: a *debt security with a maturity at issuance of 10 years or less(Notes)*; *and those with a maturity greater than 10 years (Bonds).*

Activity 5.2

1. What are financial markets?
2. What are the components of financial markets?
3. List some examples for each component of financial markets.

5.3 Introduction to Financial Institutions

By the end of this section, students will be able to;

- Describe the financial institutions
- Explain the banking system
- Elaborate the treasury bills
- Analyze the roles of banks and treasury bills

Key Concepts

Institutions; Financial institutions; Indigenous financial institutions; Microfinance institutions; Formal institutions; Informal institutions

Start Up Activity

What comes to your mind when you think of financial institutions?

What are institutions?

Institution are norms that organize social, political and economic relations. They are 'the underlying rules of the game' in any society or organization. There are two forms of Institutions:

- Formal and Informal.

Formal institutions include *the written constitution, laws, policies, rights and regulations enforced by official authorities*.

Informal institutions, on the other hand, are *the usually unwritten social norms, customs or traditions that shape thought and behavior.*

What are financial Institutions?

Financial institutions are *institutions that serve* as financial intermediaries.

There are *three* major types of financial institutions:

I . *Depositary Institutions:* Deposit-taking institutions that accept and manage deposits and make loans. Example: *banks and credit unions*.

II . *Contractual Institutions:* Insurance companies and pension funds; and

III . *Investment Institutes:* Investment Banks, underwriters, brokerage firms.

5.3.1 The Banking Financial Institution

A bank is a financial intermediary *that gives* money (loan) to a borrower. They also accept deposits (savings) from depositors. The banking sector, being an intermediary in any economy, has a major role to play in enhancing development and growth through their activities of:

(a) Mobilizing saving,
(b) Identifying good investment and
(c) Exerting through sound corporate control, particularly during the early stages of economic development and weak institutional environment.

Accordingly, the banks' roles in an economy include;

I. Acquiring information about firms and managers and thereby improving capital allocation and corporate governance.
II. Managing cross-sectional, inter-temporal and liquidity risk and thereby enhancing investment efficiency and economic growth.

As an institution, the efficiency of bank depends on following two key factors:

1) Degree of competition that exists among banks and,
2) The nature of the regulation to which banks are subject to.

It is believed that a competition among banks in the economy will result in:

- ✓ Greater technical efficiency within deposit institutions,
- ✓ Lower interest rates for borrowers,
- ✓ Higher interest rates for depositors and
- ✓ A greater variety of services

5.3.2 The Non- Banking Financial institution

A non-bank financial institution (NBFI) is a financial institution that does not have a full banking license or is not supervised by a national or international banking regulatory agency.

NBFIs facilitate bank-related financial services- such as investment, insurance, risk pooling, contractual savings, and market brokering.

Examples: insurance companies, pawn shops, cashier's check issuers, check cashing locations, payday lending, currency exchanges, and microloan organizations.

✎ Activity 5.3

Discuss in groups of desk mates with your friend;

1. What are financial Institutions?
2. What are the components of financial institutions are?
3. What role do banks play or have in the society?
4. What are treasury bills?

5.4 Historical Development of Banks in Ethiopia

By the end of this section, students will be able to:

- Describe the historical development of banks in Ethiopia
- Identify the non-banking financial institutions in Ethiopia
- Explain the roles and functions of banks

Key Concepts

Socialist economy System; Financial Liberalization

Start Up Activity

How old is the oldest Bank in Ethiopia?

A Historical Note

In Ethiopia modern banking started in 1905: with the establishment of Abyssinian Bank, based on a fifty-year agreement with the Anglo-Egyptian National Bank.

In 1908: a new development bank (called Société Nationale d' Ethiope Pour le Development de l'Agriculture et du Commerce) and two other foreign banks (Banque de l'Indochine and the Compagnie de l'Afrique Orientale) were also established.

These banks were criticized for being wholly foreign owned.

5.4.1 History of Banking in Ethiopia

I . 1905 - 1931

It was Emperor Menelik II (King of Ethiopia) that introduced modern banking in Ethiopia. There was an agreement signed between the King and the British owned National Bank of Egypt. The first modern bank, Bank of Abyssinia, was founded in 1906 as a result of this agreement. The Bank was totally managed by the Egyptian National Bank, a foreign bank. (National Bank Of Ethiopia, 2020/21).

According to (Mauri, 2003), The Bank was given a 50- years concession and was engaged in issuing notes, collecting deposits and granting loans, but its clients were mostly foreign businessmen and wealthy Ethiopians.

In the following couple of years after its foundation, Bank of Abyssinia opened branches in different towns of the country. Accordingly, the bank had opened branches in the following towns of the country:

- Harar town (1906)
- Dire Dawa town (1908)
- Gore Town (1912) and
- Dessie and Djibouti (1920)

Bank of Abyssinia was liquidated in 1931. (Mauri, 2003). According to (Nwanne, 2019), The Bank was a private bank whose shares were sold in Addis Ababa, New York, Paris, London, and Vienna. The Bank financed the Franco-Ethiopian Railway project which reached Addis Ababa in 1917.

II . 1931 to 1936

In 1931, Bank of Abyssinia was liquidated and legally replaced by **Bank of Ethiopia** shortly after Emperor Haile Selassie came to power.

The new bank, the Bank of Ethiopia, was totally under Government control and retained the management, the staff, the premises and the clients of the previous bank, Bank of Abyssinia. (Mauri, 2003). Thus, the bank of Ethiopia became the first independent bank of Ethiopia, which was totally under Ethiopian government control.

Bank of Ethiopia took over *the commercial activities of the Bank of Abyssinia* and *was authorized to issue notes and coins*. The bank keeping the branches of the previous bank, added;

- *Agency in Gambella and a transit office in Djibouti*.

It was, however, short lived and was liquidated during the Italian occupation in 1936. (Mauri, 2003).

III . 1936-1941

The following new banks were introduced by the Italians during their invasion of the country (Ethiopia) from 1936 – 1941:

- *Banca d'Italia,*
- *Banco di Roma,*
- *Banco di Napoli and*
- *Banca Nazionale del lavoro*

These were actually branches of the main Italian banks in Italy. They had branches which operated in the main towns of Ethiopia during the five year occupation period. Only Banco di Roma and Banco di Napoli (which were operating in Asmara) continued their operation after 1941.

IV . 1941 - 1943

There was another foreign bank introduced in 1941 (***Barclays Bank****) with the coming of the British troops and they organized* banking services *in Addis Ababa, until its early withdrawal in 1943.*

V . 1943 - 1963

The **State Bank of Ethiopia** was established in 1943 as the *central Bank of Ethiopia* with a power of issuing bank notes and coins as the agent of the Ministry of Finance. The Bank functioned as the principal commercial bank in the country and engaged in all commercial banking activities besides issuing bank notes and coins. (National Bank Of Ethiopia, 2020/21).

According to (Mauri, 2003), the establishment of the **State Bank of Ethiopia,** marked the rebirth of the Ethiopian independent banking. The bank was doing all the banking activities as the only bank: commercial banking activities (providing loans and taking deposits) and central bank activities (issuing bank notes and coins). Until 1963, the State bank was the Central bank of the country.

The **State Bank of Ethiopia** had established 21 branches including a branch in *Khartoum, Sudan and a transit office on Djibouti* until it ceased to exist by bank proclamation issued on December, 1963.

VI . 1963 – 1974

According to (Nwanne, 2019), The National Bank of Ethiopia was established in 1963 by Proclamation number 206 of 1963 and began operation in January 1964. This proclamation "The previous State Bank of Ethiopia" into two banks: National Bank of Ethiopia and Commercial Bank of Ethiopia.

In 1963, the Ethiopian government split the State Bank of Ethiopia (est. 1942) into the National Bank of Ethiopia, the Central Bank, and the Commercial Bank of Ethiopia (CBE). The government later merged Addis Bank into the Commercial Bank of Ethiopia in 1980 to make CBE the sole commercial bank in the country. The government had created Addis Bank from the merger of the newly nationalized Addis Ababa Bank, and the Ethiopian operations of Banco di Roma and Banco di Napoli. Addis Ababa Bank was an affiliate that National and Grindlays bank had established in 1963 and of which it owned 40%. At the time of nationalization, Addis Ababa Bank had 26 branches.

VII . From 1974 to 1991

Following the declaration of socialism in 1974, the government extended its control

over the whole economy and nationalized all large corporations. Accordingly, *the three private owned banks:*

- *Addis Ababa Bank,*
- *Banco di Roma and*
- *Banco di Napoli*

Were combined (Merged) in 1976 and formed the second largest Bank in Ethiopia called:

1. *Addis Bank*

Then, in 1980, Addis Bank and Commercial Bank of Ethiopia S.C. were merged / combined to form the sole Commercial bank in the country till the establishment of private commercial banks in 1994.

The *Commercial Bank of Ethiopia* commenced/started its operation with a capital of Birr 65 million, 128 branches and 3,633 employees, in the year 1980.

The *Agricultural and Industrial Bank* was formed in 1970 as a 100 percent state ownership, and which was under the umbrella of the National Bank of Ethiopia. *Then after, in 1979, the bank was renamed Agricultural and Industrial Development Bank (AIDB). It* was entrusted with the financing of the economic development of the agricultural, industrial and other sectors of the national economy extending credits of medium and long-term nature as well as short-term agricultural production loans (National Bank Of Ethiopia, 2020/21).

The financial sector constituted only three (3) banks and each enjoyed monopoly power in its respective market. The following was the three dominant banks in the country during 1974 -1991 period (according to the Gregorian calendar). This period was also known as the Socialist period in Ethiopian history.

- The National Bank of Ethiopia (NBE)
- The Commercial Bank of Ethiopia (CBE)
- Agricultural and Industrial Development Bank (AIDB)

VIII . From 1991 to ___

In 1991 the country became a liberal economy system. The National Bank of Ethiopia (NBE) outlined its main functions separated from the previous total government control. The Licensing and supervision of Banking Business was formulated in 1994. (Monetary and Banking Proclamation No. 83/1994). The proclamation laid down the legal basis for investment in the banking sector.

5.4.2 Roles and Functions of Banks in Ethiopia

A . **National Bank of Ethiopia (NBE)**

National bank of Ethiopia, just like other countries' national or central banks, control interest rates, manage the amount of credit available, and control the amount of money supply.

National Bank of Ethiopia, on behalf of the government, controls and regulates the activities of the financial sector, the commercial banks, insurance companies and microfinance institutions.

Commercial banks generate profit by depositing money, borrowing money from the national bank, and lending money to the public. National banks, however, are not profit making banks, rather they control the overall financial sector in the country. The objective of controlling the financial sector is to bring price stability or control inflation.

The following are the various roles that it plays to control the financial sector and bring price stability in the country:

- It prints the currency and mints the coins;
- Issues bonds, treasury bills, and promissory notes on behalf of the government;
- Maintains low levels of inflation;
- Authorizes and controls micro and other financial institutions;
- Deposits government money and provides direct advances to the government;
- Lends money to commercial banks;
- Regulates the money supply, interest rates and other charges,
- Controls the creation of credit by commercial banks;
- Formulates the monetary policy framework for the country;
- Manages the international reserve of the country;
- Regulates the foreign exchange of the country;

B . **Commercial Bank of Ethiopia (CBE)**

The Commercial Bank of Ethiopia is the biggest and the leading commercial bank in the country.

The current Commercial Bank of Ethiopia (CBE) was the result of the merging of Addis Bank S.C and the former commercial bank of Ethiopia 1980.

As a government commercial bank, the bank has the following Roles and Functions mandated to it by the NBE:

- Saving/deposit for the households/individuals and firms;
- Gives loans to households and firms;
- Provides safe custody for valuables for households/individuals;
- Sell and purchase foreign currencies;
- Issue letters of credit (LC), traveler's cheques, etc.;

C . **Development Bank of Ethiopia (DBE)**

The development bank of Ethiopia (DBE) is one of the financial institutions engaged in providing short, medium and long term development credits/loans. It has a "project" based lending tradition. Project financed by the Bank are carefully selected and prepared through appraised, closely supervised and systematically evaluated.

Specifically, the Development Bank of Ethiopia (DBE), which took this last name in 1994 financial reform is mandated with the following roles in the country:

1) Provides loans for the development of the agricultural and industrial sectors;
2) Supervises and controls the activities of projects financed by the bank;

Activity 5.4

1. In pairs, discuss about the historical development of banks in Ethiopia
2. What are the economic advantages of having more private commercial banks in Ethiopia? Discuss in groups of four.
3. List out as many functions of the following banks first individually and discuss with your friend;
   i. National Bank of Ethiopia (NBE)
   ii. Commercial Bank of Ethiopia (CBE)
   iii. Development bank of Ethiopia (DBE)

5.5 Micro-finance Institutions

By the end of this section, students will be able to;

- Explain micro-financing
- List microfinances in their locality
- Analyze microcredit, clients and mention features of money lenders.

Key Concepts

Microfinance; Microcredit; Group collateral; Loan default

Start Up Activity

Where do you think the poor go to get credit (loan)?

#Hint: Banks ask for collaterals (assets to be held) to give loans!

State-run banks had already tried to provide loans *to poor households* in different countries in the world. But, they only left a legacy of inefficiency, corruption, and millions of dollars of wasted subsidies. Thus, providing loans to the poor with no collateral was an issue for so many years until Mohammed Yunus (Bangladeshi Economist born in 1940) came with a noble winning idea of microfinancing and microcredit, resulting in the establishment of the Grameen Bank.

Muhammad Yunus started making small loans to local poor villagers with no collateral and could not get loans from the formal traditional banks. He believed that his poor clients would make profits and be able to pay back the loans reliably.

Today microfinance institutions serve millions of poor people in different countries in the world. They provide small/micro loans without collateral, collecting deposits, and, increasingly, selling insurance, all to customers who had been written off by commercial banks as being unprofitable. Advocates see the changes as a revolution in thinking about poverty reduction and social change, and not just a banking movement. (Armendáriz & Morduch, 2010).

5.5.1 Microfinance and Microcredit

M*icrofinance institutions (MFIs):* are financial institutions that give access to financial services such as *savings, credit, insurance and money transfer* to people that otherwise would remain un-served by the traditional banking system that asks for collaterals. What makes microfinance (-ing) different from other anti-poverty tools is the idea that it improves the living conditions of the poor through their own efforts. It gives “micro-credit” to support “microbusinesses” allowing low-income people to respond

to economic opportunities. For them the main constraint is a small investment in working capital, and microcredit allows overcoming this obstacle. The purpose of these organizations is the provision of financial services to those who would otherwise be excluded from the formal financial system.

A microcredit: is a small credit given to a client by a microfinance institution. Microcredit is offered, *often without collateral,* to an individual through group lending mechanism. Group lending is a mechanism that allows a number of individuals to obtain a loan through a group scheme. The group is taken as collateral in this case. The incentive to repay is based on peer pressure; if one person in the group defaults, the other group members must make up the payment amount.

Microcredit has been proven an effective tool against poverty, enabling those without access to the formal financial system to borrow the small amount of funds they need and start or develop small businesses.

Micro-entrepreneurs, or *economically active poor,* are business people who through microfinance take advantage of economic opportunities that otherwise would remain unserved due to *financial constraints*.

Microfinance institutions (MFIs) give not only microcredit, however, but also other financial services like saving service, insurance service and money transfer service that improve the well-being of the poor and helps poor people to stabilize income and to protect against risks.

5.5.2 Clients of Microfinance

The clients of microfinance are the "economically active poor" or low-income persons that do not have access to formal financial institutions. This "economically active poor" clients of microfinances must have economic opportunities and entrepreneurial skills as the money they receive must not be used for consumption but for productive purposes. The "poorest of the poor", or "the destitute", are generally excluded from the circle of microfinance and targeted by other development programs, because they don't have economic opportunities or entrepreneurial skills.

Group lending mechanism has been proven to be a good option for lending the money to the economically active poor. In this mechanism, each member of the group is guarantee/collateral for the other. The effectiveness and sustainability of group lending mechanism depends on the strength of social ties and the influence of peer pressure in the society.

5.5.3 Microfinance and Money Lenders

Informal moneylenders are the more direct competitors of microfinance institutions (MFIs). The interests charged in informal moneylenders almost always far exceed what is charged by MFIs and borrowers do not have any kind of protection from abusive behaviors, e.g., abusive lending or unfair loan collection practices. The informal moneylenders most of the time lend money to the poor who has no access to MFIs or even where MFIs exist some poor people may prefer the informal money lenders.

There are positive features that may make the informal moneylenders more close to the poor people and able to respond to their needs. These features include;

- Simple procedures, clear terms, timely disbursement and loans backed by the borrowers' character rather than group collaterals. Microfinance has actually taken the combination of these positive features of this informal money lending into more formal financial institutions.

5.5.4 Microfinance institutions in Ethiopia

By the year 2020/21 (Gregorian calendar), there are Forty One (41) Microfinance Institutions (MFIs) operational in Ethiopia. They altogether mobilized (approximately) Birr 47 billion in saving deposit. They altogether provided loans to the economically active poor Ethiopians (approximately) equal to Birr 64.6 billion. (National Bank Of Ethiopia, 2020/21).

Activity 5.5

Microfinances in general;

1. What are the reasons for the existence of microfinances? Work individually and list the possible reasons.
2. Discuss about the reasons that you have listed in a group of three.
3. Think of microfinance institutions in your area or in Ethiopia, and
   a . List what activities you think they are doing.
   b . Discuss about the activities in a group of three.

5.6 Electronic Banking (e-banking)

By the end of this section, students will be able to**:**

- Describe the role of technological innovations in the banking service sector,
- Examine how e-banking has increased the convenience of transactions

Key Concepts

E-banking, Mobile banking, ATM cards, Online banking

Start Up Activity

1. What is mobile banking?
2. What other e-banking services do you know?

Technology in all sectors of the economy is changing faster than ever and the banking/ financial sector is not an exception. Banking and money management became increasingly more electronic.

Electronic banking, which is also known as electronic fund transfer (EFT), refers to the transfer of funds from one account to another through electronic methods. Mobile phone payment is one good example for this electronic banking. A study in United States of America (USA) found out that more than twenty (20) percent of mobile phone owners used mobile phone payment methods.

There are three key aspects of electronic banking: automated teller machines (ATMs), direct deposits and debit card purchases.

I . Automated Teller Machines (ATMs)

Most people are familiar with automated teller machines (ATMs) as a method for withdrawing money/cash quickly and easily. They give you the flexibility to withdraw cash from your registered bank account (having credit or debit cards) almost any time given there is electric power and internet (network) connection. Automated teller Machines (ATMs) will also let you transfer funds between your accounts or to other accounts, make deposits, bill payments and also exchange currencies. ATMs allow customers to complete basic transactions without the aid of a branch representative or a teller. Service fees are commonly charged for cash withdrawals when using ATMs.

II . Direct Deposit

Suppose you are a worker and you are paid regularly, then your employer can deposit your salary directly into your bank account, this is known as direct deposit and it is one form of electronic banking system. This method is commonly used to transfer an

employee's salary, tax refunds, investment redemptions, payments from retirement accounts, and government benefits like Social Security.

Direct deposit requires the use of an electronic network that allows deposits to take place between banks. This network is called the automated clearing house (ACH). Because the funds are transferred electronically, recipients' accounts are credited automatically.

III . Debit Card Purchases

Debit card purchases are similar to credit card transactions with some differences. You can make debit card purchases in person, online or over the phone. In debit card purchase, the money is taken directly out of your linked account and you can't spend more than you have.

When using a debit card to make a purchase you are paying for the item then and there, drawing on funds in your bank account. When you use a credit card, however, you're essentially borrowing money from the card company for the item. It pays the merchant, and then bills you for the amount. You repay it when you get your monthly statement. If you don't pay the whole amount, you pay interest on the remaining portion, as you would with any loan.

IV . Mobile Banking

Mobile banking is the act of making financial transactions on a mobile device. Advantages to mobile banking include the ability to bank anywhere and at any time. Disadvantages include security concerns and a limited range of capabilities when compared to banking in person or on a computer.

✎ Activity 5.6

1. Compared going to the bank in person for banking services and electronic banking,
2. Based on your or your family's experience, discuss with your desk mate the advantages of using mobile banking

5.7 Indigenous Financial Institutions

By the end of this section, students will be able to:

- Distinguish the difference between different types of indigenous financial institutions in Ethiopia,
- Examine the role of indigenous financial institutions on the improvement of the livelihoods of the community

Key Concepts

Indigenous financial institutions; "Iqqub"; "Iddir"; Saving and Credit Cooperatives (SACCs)

Start Up Activity

Tell us anything about any indigenous (local) financial institution in your locality.

Ethiopians have traditional indigenous financial system called *'iqqub' and 'idir/ mahiber*. Depending on their income, Ethiopians save some amount of money in "iqqubs" per week. This ranges from 100 birr to 10, 000 birr based on the capability of the members in that "Iqqub". While most employees do this on a monthly basis, business people also save on either a weekly or even daily basis. The Iqub money is used mostly in social occasions such as *weddings, funerals, sickness*, and also to finish some unfinished activities like building a house, etc. and it circulates among members regularly until all the members get their part of the saving. (Lakew & Azadi, 2020).

Iddir on the other hand is mostly for funeral and associated services. Membership is mostly based on locality and the contributions are monthly. It is based on the wisdom that, death to the family member is sure to come one day. Until that, the member will contribute some amount of money every month in "iddirs". The Iddirs will give the member some amount of money so that he will undertake the necessaries.

These will be discussed briefly in the following sub-sections:

1. The "iqqub"- or Saving club

Membership in the "iqqub" is based on *pre-established social ties*. It consists of *homogeneous groups*: people from the *same work place*, *same ethnic background*, *same trade* or business activity, *schooling background* or *neighborhood*.

People from all walks of life, ranging from *the rural poor to the urban rich*, from *shoe-shine boys to high level government officials*, participate in the "iqqub", and the capital contributions vary according *to the purpose* of the "iqqub" and the *economic*

status of its members. (AREDO, 1993)

People prefer *"iqqub"* to the formal financial sector because of the following reasons as discussed by (AREDO, 1993):

- The strengthening of the ties of solidarity and friendship in the group,
- The forced savings of a contractual nature,
- The flexibility and adaptability of the *"iqqub"* to various situations and needs,
- The low risk of default,
- The low or practically non-existent costs of administration and transactions,
- The absence of minimum investment threshold,
- Tendency to gamble and the consequent attraction which the lottery holds for them.

2. *The "iddir"*

"Iddir" is an indigenous financial and social institution that almost exists everywhere throughout Ethiopia. *"Iddir"* provides a wide range of services including financial and material assistance and consolations to a member in the event of difficulties as well as entertainment as the case may be.

The services provided by "iddirs" include *funeral expenses, financial assistance to families of the deceased and, in some cases, coverage of other risks such as medical expenses, losses due to fire or theft, etc*. Almost every "*iddir"* has its own by-laws specifying the duties and responsibilities of members, procedures and functions of the officials.

Social ties are very important in *"iddirs"* also like the case of *"iqqub"*. A member is required *to attend meetings, be present at funeral ceremonies, visit the sick, etc.* The by-laws of "*iddirs"* are observed because of powerful social sanctions and fines of deviant behaviors among members of the "*iddirs"*.

Members' contributions vary from one *"iddir"* to another. Most of the common fund is deposited in the bank account purposely opened for the "*iddir"* while only a small sum of money is kept with the officials for emergency purposes. Most "*iddirs"* have their own *tents, benches or chairs, utensils, etc*. These materials are used mainly in the event of the death of a participant's family member. . (AREDO, 1993).

3. *The Savings and credit co-operatives (SACCs)*

Savings and credit co-operatives *(SACCos)* can be designated as semi-formal financial institutions. They are outside the control of the central authorities with respect to ownership of assets and management.

The *SACCos* in Ethiopia have recent origins. The oldest ones were established in the late 1960s, and they grew very slowly until 1978. One reason behind such slow growth was the political and social instability which followed the 1974 uprising. SACCos have been growing fast since 1978. However, the rate of growth is not the same for all co-operatives. Some of them are growing at very fast rates. (AREDO, 1993).

SACCos are considered to have immense potential *in financing short term loans for agricultural production technologies and undertake off-farm income generating activities. (Tesfamariam, 2015).*

Activity 5.7

1. Think about the economic and social benefits of Individually think and list the economic and social benefit of the "iqubbs", "iddirs" and "SACCos". Work individually and list out the benefits.
2. Bring the lists of benefits of "iqubbs", "iddirs" and "SACCos" in your localities. Then discuss about the benefits in a group of three students.

Unit Summary

Financial intermediary is an entity that acts as the middleman between two parties in a financial transaction, for instance- Commercial Bank of Ethiopia. Financial intermediaries offer a number of benefits to the average consumer, such as safety, liquidity, and economies of scale involved in banking and asset management.

Financial markets are markets that provide channels for allocation of savings to investment. They provide a variety of assets to savers as well as various forms in which the investors can raise funds and thereby decouple the acts of saving and investment.

Financial institutions are *institutions that serve* as financial intermediaries.

In Ethiopia modern banking started in 1905: with the establishment of *Abyssinian Bank,* based on a fifty-year agreement with the *Anglo-Egyptian National Bank*.

M*icrofinance institutions (MFIs):* are financial institutions that give access to financial services such as *savings, credit, insurance and money transfer* to people that otherwise would remain un-served by the traditional banking system that asks for collaterals.

Electronic banking, which is also known as electronic fund transfer (EFT), refers to the transfer of funds from one account to another through electronic methods.

People from all walks of life, ranging from *the rural poor to the urban rich*, from *shoe-shine boys to high level government officials*, participate in the "iqqub", and the capital contributions vary according *to the purpose* of the "iqqub" and the *economic status of its members*.

"Iddir" is an indigenous financial and social institution that almost exists everywhere throughout Ethiopia. "*Iddir"* provides a wide range of services including financial and material assistance and consolations to a member in the event of difficulties as well as entertainment as the case may be.

Unit Review Exercises

Part I: Write True if the statement is correct or False if not correct for the questions below

1. Banks are intermediaries between the depositors and the borrowers.
2. The allocation of saving and investment is undertaken in financial markets.
3. Financial institutions include banks, insurances and microfinances.
4. In Ethiopia, modern banking started in 1991.

Part II: Choose the best answer from the alternatives given

1. Which of the following statements best describes financial markets?
   A . Financial markets are where savers and investors meet and transact
   B . Financial markets increase the speed of transactions and they also decrease the cost
   C . Financial markets are not regulated
   D . A and B
2. Which of the following is NOT likely to be a goal of a National Bank?
   A . Printing currency notes or minting coins
   B . Deposits
   C . Maintaining a low inflation rate
   D . Encouraging economic growth
   E . Maintaining a stable financial system
3. A bank is an example of:
   A . a financial instrument.
   B . a financial market.
   C . a financial institution
   D . None of the above is correct.
4. The process of financial intermediation:
   A . creates a net cost to an economy but is unavoidable.
   B . is used primarily in underdeveloped countries.
   C . is used when a borrower needs to obtain funds.
   D . decreases the economy's ability to produce.

Part III: Fill in the blank spaces for each of the following with appropriate words

1. _____and _____are indigenous financial institutions in Ethiopia.
2. _____, _____ and _____ are electronic banking systems.
3. Banks take _____ from the households or individuals and give _____ to borrowers.
4. The private commercial banks were established in Ethiopia due to the _____proclamation in _____ (year).

Unit 6 Economic Growth

Introduction

The central concern of economics rests on how best we explain what Adam Smith called the 'wealth of nations. An answer to the question of why some countries are rich and others are poor can only be given by assessing their economic growth. The changes we realize in the types of economic activities undertaken and also the methods used in their performances are best explained by the changes in the level of the economy, i.e., economic growth. The capability that a country has to alleviate poverty and provide its citizens with a reasonable and higher standard of living depends, to a large extent, on how rapidly its economy grows. The majority of modern literature in economics is dedicated to an understanding of the processes of economic growth.

In this unit of grade 10th economics text book, we will discuss *"macroeconomic variables, definition and measurement of economic growth, sources of economic growth: economic factors and non-economic factors, why growth varies across economies, classification of countries by income levels: Low income, middle income and upper income, measurement of productivity, the effect of productivity on economic growth, the weaknesses of using GDP/GDP Per Capita, and the business cycle: its definition and phases"*.

Thus, students should be thinking about their country's economic status throughout this unit. They should associate every theoretical discussion with Ethiopia's perspective.

Unit Objectives

After *successfully completing this unit, students will be able to:*

- Identify the major sources of economic growth.
- Explain the different phases of business cycles.
- Discuss about alternative ways of measuring economic growth

6.1 Review of Macroeconomic Variables

By the end of this section, students will be able to:

- Identify the basic macroeconomic variables,
- Evaluate the desirable and the non-desirable magnitudes of these macroeconomic variables

Key Concepts

National Income Accounting (GDP, GNP, etc.), Economic Growth, Economic Development, Inflation, Unemployment

Start Up Activity

What is the difference between macroeconomics and microeconomics?

Macroeconomic Variables

Scarcity makes the study of Economics a necessity rather than a choice. Economics is a social science that deals with making decisions of getting the best out of the limited resources that we have. If these decisions are made at individual decision makers level, the analysis will be categorized under *microeconomics*. If on the other hand, these decisions are made at a country level, and the analysis will be categorized under *macroeconomics*.

Individual decision-making units in economics include individual consumer (buyer) and individual producer (seller) in the economy. Consumers try to maximize their satisfaction from the goods and services they consume. Producers try to maximize their profit from selling the goods and services. Thus, *microeconomics* gives a good analysis of how much the consumer should consume (buy) with the available budget. Similarly, the producer decides on the quantity of input used in the production process to maximize profit from the goods and services produced with the limited factors of production available. This is known in economics as optimization.

Nations make decisions through their governments or leaders. The endowments of countries such as land, forest, water, population, machineries, capital, etc. are limited. If not used economically, they will be wasted without attaining the macroeconomic goals of: increased economic growth, reduced unemployment, stable price, increased balance of payment, etc. Thus, *macroeconomics* is the best tool available in making the decision of giving priorities in production and consumption at country level so that we attain the macroeconomic goals mentioned above. These macroeconomic decisions are made through government macroeconomic policies.

The major macroeconomic variables include: *Current Account Balance, Inflation, Economic Growth and Unemployment*. On the other hand, the major macroeconomic goals pursued by governments of countries are; *improved current account balance; stable prices; increased economic growth; and reduced unemployment.*

I . *Current Account Balance:* countries sell their goods and services to other countries *(export)* and also, they buy goods and services from other countries *(import)*. Thus, current account balance is the difference between the dollar value of goods a country exports and the dollar value of goods a country imports.

- Therefore, *current account or trade balance = Exports (X) – Imports (M).*

There will be two scenarios:

Scenario 1: If the value of exports (X) is greater than the value of imports (M), there is a trade surplus. This is a desirable outcome. The country is benefitting from the trade. This is true for developed countries exporting expensive manufactured commodities.

Scenario 2: If the value of exports (X) is less than the value of imports (M), there is a trade deficit. This is not a desirable outcome. The country is now losing from the trade. Least developed countries face this scenario since they export cheap primary agricultural commodities.

II . *Inflation*: is an increase in the overall price level of goods and services over a certain period of time. The rise in the general level of prices, often expressed as a percentage, indicates that a unit of currency effectively buys less than it did in prior periods. This implies that, when there is inflation, there will be a fall in purchasing power of currencies over time. High inflation is not desirable in an economy. This would mean that policymakers try and keep inflation low.

There are two types (causes) of inflation;

⇒ Cost-push inflation: when the costs of production is high producers increase price to be profitable; and

⇒ Demand-pull inflation: when growing demand (being able to pay higher prices) for goods that firms produce, allowing firms to even increase prices to gain more profit.

III . *Economic growth:* is the amount that the level of output within an economy increases over a given time period usually a year. Economic growth is extremely desirable since it means that, the people within an economy are getting richer. Economic growth can be increased in a number of ways, such as *technological improvement, an increase in the demand for goods and services, and an increase in the size of the workforce*.

IV . *Unemployment:* refers to the number of people within an economy who are willing and able to work, but do not have a job at the going wage rate. There are a number of different types of unemployment: *frictional unemployment*; - caused by the search for a new job or a transition between jobs; structural *unemployment;* - caused by the decline of a specific industry, for example type-writing or coal mining; *seasonal unemployment;* - caused by the time of year, drought time for farmers; and *cyclical unemployment*; - caused by a recession – a reduction in the level of output within an economy.

Activity 6.1

1. What are the sources of economic growth? List them down.
2. Explain why are poor countries are in current account deficit?

6.2 Definition and Measurement of Economic Growth

By the end of this section, students will be able to:

- Define economic growth
- Measure economic growth
- Differentiate between economic growth and economic development

Key Concepts

Gross Domestic Product (GDP), Gross Domestic Product per Capita (GDP per capita), Population, Real Gross Domestic Product (RGDP), Real Gross Domestic Product Per Capita

Start Up Activity

What is economic growth?

6.2.1 Definition and measurement of Economic Growth

Economic growth in the **short run** is when RGDP increases in the short run. Increase in RGDP is given by the following formula:

$$g = \frac{\text{RGDPt} - \text{RGDP t}-1}{\text{RGDP t}-1} x100\%$$

Economic growth in the **long run**, is when there is *a sustained increase in per capita income* and *associated structural changes in the economy. That means* GDP increase for subsequent years and Structural change from agricultural sector to manufacturing sector also takes place. Per capita real GDP, also known as Per Capita Income, is given by the following formula. It is the RGDP of the given year divided by the total population of the year.

$$\text{Per capita RGDP} = \frac{RGDP\ t}{Population\ t}$$

Structural changes are usually characterized by industrialization; *a fall in the share of agriculture both in GDP and in the workforce*, and *a corresponding increase in the share of industrial and service sectors*.

Sources of economic growth in an economy

Economic growth comes when *resources are recreated, reorganized* and *reallocated in a more efficient manner*. Technological improvement brings economic growth since it increases productivity. Imagine using tractors rather than oxen for farming. Tractors can do far more than do the oxen within a short period of time. The others are the

factors of production; increases in the factors of production like land, labor and capital bring economic growth.

Economic growth is characterized by supply of more as well as better goods and services on a sustainable basis with minimum harmful byproducts. Higher growth rate of the GDP (economic growth) is taken as ***basic*** *for improving living standard, alleviating poverty, creating more employment opportunities and greater social security.*

The *level of real GDP is a good indicator of economic prosperity*, and *the growth of real GDP is a good indicator of economic progress*. (9). Growth rate measures how rapidly real GDP per person grew in the typical year.

6.2.2 Economic growth vs Economic development

Economic growth and economic development are taken wrongly as synonyms. Growth refers to the rate of increase in GDP or GDP per capita. Development, on the other hand, refers to a much broader concept that applies to a process of overall transformation in different aspects of human life. It deals with *progressive changes in social, political, institutional and economic structures*. Economic growth can take place without economic development but for economic development to take place economic growth is a necessary but not a sufficient condition. In this context, we can say that growth is a subset of development.

Activity 6.2

1. Define economic growth in the short run and in the long run.
2. Calculate the economic growth of Ethiopia by taking the GDP data of the country.
3. Differentiate between economic growth and economic development.

6.3 Sources of Economic Growth

By the end of this section, students will be able to:

- Identify the various sources (reasons) of economic growth
- Explain why some countries are rich and others are poor
- Mention the criteria of categorizing the world countries into different groups

Key Concepts

Factors of production, Technological progress, Economic growth

Start Up Activity

What do you think are the sources of economic growth in Ethiopia?

In the world, there is tremendous variation in the standard of living. In richer countries' (such as; the United States, Japan, or Germany) average income, is more than ten times the average income of poor countries (such as India, Indonesia, or Nigeria). These large differences in income lead to large differences in the quality of life. People in richer countries have *better nutrition, safer housing, better healthcare, and longer life expectancy* as well as *more automobiles, more telephones, and more televisions*.

In different countries, economic growth rates are substantially different. Recently, some East Asian countries, such as Singapore, South Korea, and Taiwan, have achieved economic growth of about seven percent (7%) per year. At this rate, their average income doubles every ten (10) years. Even more recently, China has enjoyed an even higher rate of growth—about twelve percent (12%) per year. *A country experiencing such rapid growth can, in one generation, go from being among the poorest in the world to being among the richest.*

6.3.1 Productivity as cause for differences in living standards among countries

Explaining the large variation in living standards around the world is in one sense very easy. As we will see, the explanation can be summarized in a single word—productivity. But in another sense, the international variation is deeply puzzling. To explain why incomes are so much higher in some countries than in others, we must look at the many factors that determine a nation's productivity.

Why productivity is so important: Productivity's key role in determining living standards is as true for nations as it is for stranded sailors (Robinson Crusoe). An economy's gross domestic product (GDP) measures two things at once: *the total*

income earned by everyone in the economy and *the total expenditure on the economy's output of goods and services*. GDP can measure these two things simultaneously because, for the economy as a whole, they must be equal. Put simply, an economy's income is the economy's output.

A nation can enjoy a high standard of living only if it can produce a large quantity of goods and services. Americans live better than Nigerians because American workers are more productive than Nigerian workers. The Japanese have enjoyed more rapid growth in living standards than Argentineans because Japanese workers have experienced more rapid growth in productivity.

How productivity is determined: Crusoe (in Robinson Crusoe) will be better at catching fish (he will be more productive), for instance, *if he has more fishing poles, if he has been trained in the best fishing techniques, if his island has a plentiful fish supply,* or *if he invents a better fishing lure*. Each of these determinants of Crusoe's productivity—which we can call *physical capital, human capital, natural resources, and technological knowledge*—has a counterpart in more complex and realistic economies. Let's consider each factor in turn.

I . *Physical capital Per worker*- Workers are more productive *if they have tools with which to work*. Physical capital per worker is the amount of tools and machineries available for each worker to work with.

II . *Human Capital Per Worker*- A second determinant of productivity is human capital. Human capital is the economist's term for the knowledge and skills that *workers acquire through education, training, and experience*. Human capital includes the skills accumulated in early childhood programs, grade school, high school, college, and on-the-job training for adults in the labor force. *Producing human capital requires inputs in the form of teachers, libraries, and student time.*

III . *Natural Resources Per worker*- A third determinant of productivity is natural resource. Natural resources are inputs into production that are provided by nature, such as land, rivers, and mineral deposits. Differences in natural resources are responsible for some of the differences in standards of living around the world. The historical success of the *United States* was driven in part by the *large supply of land well suited for agriculture*. Today, some countries in the Middle East, such as *Kuwait and Saudi Arabia*, are rich simply because they happen to be on top of some of the *largest pools of oil in the world*. Although natural resources can be important, *they are not*

necessary for an economy to be highly productive in producing goods and services. Japan, for instance, is one of the richest countries in the world, despite having few natural resources. International trade makes Japan's success possible. Japan imports many of the natural resources it needs, such as oil, and exports its manufactured goods to economies rich in natural resources.

IV. *Technological Knowledge-* A fourth determinant of productivity is technological knowledge—the understanding of the best ways to produce goods and services. A hundred years ago, most Americans worked on farms because farm technology required a high input of labor to feed the entire population. Today, thanks to advances in farming technology, a small fraction of the population can produce enough food to feed the entire country. *This technological change made labor available to produce other goods and services.*

6.3.2 Characteristics of Economic Growth

Simon Kuznets, a renowned Economist and the father of national income accounting, identified five major characteristics of modern economic growth:

a) *High rates of increase in per capita income:* Modern economic growth essentially means high rates of growth of per capita income over a fairly long period of time.

b) *High rates of increase in factor productivity:* Modern economic growth also requires increase in the productivity of all the factors of production.

c) *High rates of structural transformation:* Modern economic growth requires a shift in the economic activities from less productive (agricultural) to more productive (industrial) areas. Growth of the entrepreneurial class, which has the desire and capacity to undertake new economic activities, is an essential prerequisite for structural transformation to take place.

d) *Increase in the rates of saving and investment:* Economic growth takes place when the domestic saving and investment rates rise. The establishment and expansion of modern financial services is necessary for mobilizing domestic resources.

e) *Increasing application of modern scientific knowledge in the production process:* Application of scientific knowledge in the production process increases the efficiency of resource utilization and besides provides substitutes for the resources that are scarce.

6.3.3 Categories of the world countries according to Income

The most striking feature of the global economy is its extreme contrasts. We have developed countries on the one side and underdeveloped countries on the other.

With so much knowledge and with the movement of people, information, and goods and services so rapid and comparatively inexpensive, how have such large gaps managed to persist and even widen? (Todaro & Smith, 2012).

The most common way to define the world countries is by their per capita income as developed and developing. Several international agencies, including the Organization for Economic Cooperation and Development (OECD) and the United Nations, offer classifications of countries by their economic status measured by their per capita income into the above two groups: developed and developing.

In the World Bank's classification system, 210 economies with a population of at least 30,000 are ranked by their levels of gross national income (GNI) per capita. These economies are then classified as;

1. low-income countries (LICs):- *defined as having a per capita gross national income in 2008 of $975 or less,*
2. lower middle- income countries (LMCs): *have incomes between $976 and $3,855,*
3. upper-middle-income countries (UMCs): *have incomes between $3,856 and $11,906,*
4. high-income OECD countries, and other high-income countries: have incomes of $11,907 or more.

(Often, LMCs and UMCs are informally grouped as the middle-income countries.).

The United Nations, as of 2010, categorize a group of countries with *low income, low human capital, and high economic vulnerability* as the Least Developed Countries (LDCs). This classification includes 49 countries of the world; 33 in Africa, 15 in Asia, plus Haiti.

Activity 6.3

1. Calculate the GDP Per capita for Ethiopia taking the data for the past five years, and compare and analyze the differences in the years,
2. List the factors that make our country's living standard different from the neighboring Kenya.
3. Identify the various ways of categorizing the world countries.

6.4 The Weaknesses of Using GDP/GDP Per Capita

By the end of this section, students will be able to;

- Calculate and evaluate the economic growth of Ethiopia for the past five years
- Identify the weaknesses of GDP per capita based Economics growth calculation.

Key Concepts

Underground economy; Unpaid contributions

Start Up Activity

Recall the definition of the Gross Domestic product (GDP) measurement from your grade 9th economics course.

GDP measures both the economy's total income and the economy's total expenditure on goods and services. Thus, GDP per person tells us the income and expenditure of the average person in the economy. Because most people would prefer to receive higher income and enjoy higher expenditure, GDP per person seems a natural measure of the economic well-being of the average individual. But the following are the limitations of GDP as a measure of economic performance of a nation;

GDP, however, is not a perfect measure of well-being: Some things that contribute to a good life are left out of GDP. *One is leisure.* Suppose, for instance, that everyone in the economy suddenly started working every day of the week, rather than enjoying leisure on weekends. More goods and services would be produced, and GDP would rise. Yet despite the increase in GDP, we should not conclude that everyone would be better off. *The loss from reduced leisure would offset the gain from producing and consuming a greater quantity of goods and services.*

Because GDP uses market prices to value goods and services, ***it excludes the value of almost all activity that takes place outside markets.*** In particular, *GDP omits the value of goods and services produced at home.* When a chef prepares a delicious meal and sells it at his restaurant, the value of that meal is part of GDP. But if the chef prepares the same meal for his family, the value he has added to the raw ingredients is left out of GDP. Similarly, *child care provided in day-care centers is part of GDP, whereas child care by parents at home is not. Volunteer work also contributes to the well-being of those in society*, but GDP does not reflect these contributions.

Another thing that GDP excludes *is the quality of the environment*. Imagine that the

government eliminated all environmental regulations. Firms could then produce goods and services without considering the pollution they create, and GDP might rise. Yet well-being would most likely fall. The deterioration in the quality of air and water would more than offset the gains from greater production.

GDP also says nothing about the distribution of income. A society in which 100 people have annual incomes of $50,000 has GDP of $5 million and, not surprisingly, GDP per person of $50,000. So does a society in which 10 people earn $500,000 and 90 suffer with nothing at all. Few people would look at those two situations and call them equivalent. GDP per person tells us what happens to the average person, but behind the average lies a large variety of personal experiences. (Mankiw, 2012).

GDP also excludes those transactions that take place in Black markets. Their transactions are valuable to the society's well-being but since they are illegal, they will not be counted in the GDP.

- In the end, we can conclude that GDP is a good measure of economic wellbeing for most—but not all—purposes. It is important to keep in mind what GDP includes and what it leaves out.

Activity 6.4

1. Evaluate the economic growth of Ethiopia over the past five years and tell us whether it is underestimated or over estimated.
2. GDP per capita overestimates the individual's annual incomes. True/False. Explain.

6.5 The Business Cycle and Its Phases

By the end of this section, students will be able to;

- Describe the business cycle
- Explain the ups and downs in the business cycle

Key Concepts

Business cycle; Boom; Recession; Depression; Recovery

Start Up Activity

What is a "business cycle"?

The Business Cycle and its Phases

The term business cycle is somewhat misleading because it suggests that economic fluctuations follow a regular, predictable pattern. In fact, *economic fluctuations are not at all regular, and they are almost impossible to predict with much accuracy*.

Thus, Business cycle: is the irregular and largely unpredictable fluctuations in economic activity, as measured by the production of goods and services or the number of people employed. (9).

Phases of the business cycle: Changes in aggregate demand bring about changes in the level of output, employment, income and price. These changes are generally cyclical in nature and follow a cycle of four different phases:

1. Prosperity or boom;
2. Recession;
3. Depression or slump; and
4. Recovery.

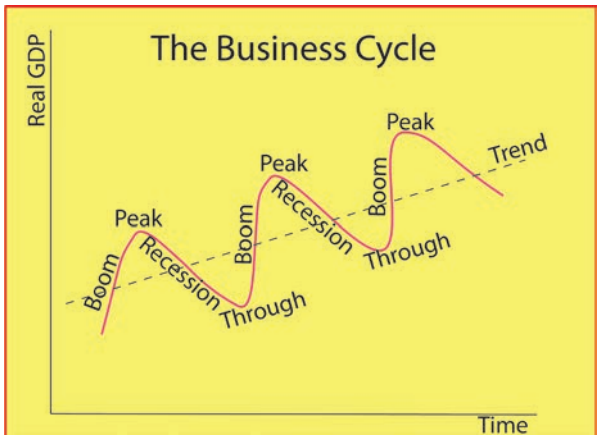

Figure 6.1 The Business Cycle

(Source: Sketched by the author)

I . Prosperity or boom or peak: is a phase of economic activity characterized by rising demand, rising prices, rising investment, rising employment, rising incomes, rising purchasing power and hence rising demand and so on. The investors, therefore, voluntarily undertake risks and go in for investment. These further fuels boom conditions through the working of the multiplier effect.

II . Recession: during the boom period, the economy may get over- heated and the monetary authorities, the financial institutions and the business itself may begin to play cautious. There may be cuts in investment, resulting in cuts in employment, fall in incomes, decline in purchasing power and demand. Prices may begin to fall.

III . Depression or slump or trough: if the effective corrective measures cannot be undertaken, the economy may find itself go into depression. It is a stage when the business confidence is at its lowest. Investment, employment, output, income and prices touch the bottom.

IV . Recovery or expansion: as the economy moves out of depression, it enters the phase of recovery. Sustained recovery will find the level of investment, employment, output, income and prices moving upwards. This may finally result in boom conditions in the economy.

Activity 6.5

1. What is the Trend Line in the business cycle diagram?
2. Which line shows the growth in real GDP

Unit Summary

The major macroeconomic variables include: Current Account Balance, Inflation, Economic Growth and Unemployment. On the other hand, the major macroeconomic goals pursued by governments of countries are; improved current account balance; stable prices; increased economic growth; and reduced unemployment.

Economic growth is when Real Gross Domestic Product (RGDP) increases in the short run, whereas it refers to a sustained increase in per capita income and associated structural changes in the economy, in the long run.

Economic growth comes when resources are recreated, reorganized and reallocated in a more efficient manner. Technological improvement brings economic growth since it increases productivity of factors of production.

The United Nations, as of 2010, categorize a group of countries with low income, low human capital, and high economic vulnerability as the Least Developed Countries (LDCs). This classification includes 49 countries of the world; 33 in Africa, 15 in Asia, plus Haiti.

GDP is not a perfect measure of well-being because it excludes: the well-being that one gets from leisure; it excludes the value of almost all activity that takes place outside markets; it also excludes the quality of the environment/or its deterioration; it also excludes issues about the distribution of income; it also excludes Black market transactions.

The term business cycle is somewhat misleading because it suggests that economic fluctuations follow a regular, predictable pattern. In fact, economic fluctuations are not at all regular, and they are almost impossible to predict with much accuracy.

Unit Review Exercises

Part I: Write True if the statements is correct or False otherwise for each of the following questions

1. One of the sources of economic growth is discovery of new factor of production.
2. There are no productivity differences in their factors of production between countries of the world.
3. The business cycle is a regular fluctuation in the actual RGDP of the country around the potential RGDP.
4. Ethiopia is one of the Developed countries of the world.

Part II: Choose the best answer from the given alternatives for each question

1. One of the following is not a macroeconomic variable, which one?
   A . Export B. Unemployment C. Inflation D. utility
2. Goals of governments include all of the following, except one,
   A . Decreasing unemployment C. increasing utility
   B . increasing economic growth D. controlling inflation
3. Economic growth is calculated by
   A . RGDP divided by Population
   B . RGDP this year minus RGDP last year divided by RGDP last year times 100%
   C . Total population divided by RGDP
   D . None
4. The requirements for the long run economic growth are
   A . Continued Increase in RGDP for many years
   B . Increase in Population for many years
   C . Structural transformation from less productive agriculture to more productive industrial sector
   D . A and C

Part III: Fill in the blank spaces with appropriate words for the following questions

1. GDP of a country is a _____ value of all _____ goods and services produced _____ in the _____ year.
2. Current account surplus is when _____exceeds _____of a country.
3. There are _____ number of LDCs in the world; out of which is _____ in Africa, _____ in Asia and _____ according to the 2010 UN classifications of the low income countries.
4. A business cycle reaches its _____ during expansion and _____during recession.

Unit 7 The Ethiopian Economy

Introduction

For about 100 years, the Ethiopian economy experienced changes from market-oriented to centrally planned and back again to a market-oriented economy. From the Monarchy up to 1974, the economy was primarily agricultural. The economy was based on a feudal system under which land ownership was highly inequitable with major portions of farmland being in the hands of wealthy landlords and the very few industries that existed were owned by foreigners.

During the Military Regime (1974 – 1991), the economy shifted to a command economy where socialist principles and ideologies ruled. Substantial land reforms were introduced in the agricultural, industrial and financial sectors. The government owned all the large-scale manufacturing industries, banks and insurance companies. In spite of all these measures, the regime failed to solve Ethiopia's multifaceted problems. That ended when on May 28th, 1991, the EPRDF marched into Addis Ababa and seized power.

After the EPRDF assumed power in 1991, the government followed a market-oriented economy. It supported economic reform based on privatization of state enterprises, promotion of agricultural exports and deregulation through a move towards free market of the economy. The move facilitated significant sectoral growth performances.

With this in mind, this unit the following points will be discussed, "C*omponents of Macro-economy (GDP); Overview of the main sectors of Ethiopian economy: The Agriculture sector, Role of the agricultural sector, Structure of the Agricultural Sector; Industry: The role of the industrial sector; Service: The role of the service sector, Components of the service sector; Agriculture versus industrial development, Arguments of industrial sector verses the rest of the economic sectors*".

Unit Objectives

By the end of this unit, students will be able to;

- Examine the macroeconomic performance of Ethiopia.
- Analyze the role and performance of each sector in economic growth.
- Write a brief report on Ethiopian Economy
- Compute GDP, NGDP, RGDP and GDP deflator

7.1 Components of the Gross Domestic Product (GDP)

By the end of this section, students will be able to;

- Describe the major components of the macro economy (GDP).
- Mention the common consumption expenditures by your family.

Key Concepts

Consumption (C) ; Investment (I); Gross Domestic Product (GDP); Export (E); Import (M) ; Government Purchases (G)

Start Up Activity

What are the major Components of The Gross Domestic Product (GDP)?

Review of the components of the Gross Domestic product (GDP)

Spending in the economy takes many forms. At any moment, the Soressa family may be having lunch at *Kaku Mame Restaurant; Haile Motors* may be building a car factory; the Ethiopian National Defense Force may be procuring Drones; and Ethiopian Airlines may be buying an airplane from Boeing. GDP includes all of these various forms of spending on domestically produced goods and services.

To understand how the economy is using its scarce resources, economists study the composition of GDP among various types of spending. To do this, GDP (which we denote as Y) is divided into four components: consumption (C), investment (I), government purchases (G), and net exports (NX):

$$Y = C + I + G + NX, \text{ Where } NX = \text{Export}(X) - \text{Import}(I).$$

This equation is an identity—an equation that must be true because of how the variables in the equation are defined. In this case, because each birr of expenditure included in GDP is placed into one of the four components of GDP, the total of the four components must be equal to GDP. Let's look at each of these four components more closely.

Table 7.1 GDP and its components- Numerical Example

Component	Total (Bill of $)	Per Person (in $)	Per cent of Total
Gross Domestic Product, Y	**$14, 259**	**$46, 372**	**100%**
Consumption, C	10, 093	32,823	71
Investment, I	1,623	5,278	11
Government Purchases, G	2,933	9,540	21
Net Exports, NX	-390	-1, 269	-3

Source: (Mankiw, 2012): 203.

i. Consumption

Consumption is spending by households on goods and services, *with the exception of purchases of new housing.* **Goods-** include household spending on *durable goods, such as automobiles and appliances,* and *nondurable goods, such as food and clothing*. **Services-** include such intangible items as *haircuts and medical care*. Household spending on *education* is also included in consumption of services (although one might argue that it would fit better in the next component).

ii. Investment

Investment is the purchase of goods that *will be used in the future to produce more goods* and *services.* It is the sum of purchases of *capital equipment, inventories, and structures*. Investment in *structures* includes expenditure *on new housing*. By convention, the purchase of a new house is the one form of household spending categorized as investment rather than consumption.

The treatment of inventory accumulation is noteworthy. When Dell produces a computer and adds it to its inventory instead of selling it, Dell is assumed to have "purchased" the computer for itself. That is, the national income accountants treat the computer as part of Dell's investment spending. (If Dell later sells the computer out of inventory, Dell's inventory investment will then be negative, offsetting the positive expenditure of the buyer.) Inventories are treated this way because one aim of GDP is to measure the value of the economy's production, and goods added to inventory are part of that period's production.

Notice that GDP accounting uses the word investment differently from how you might hear the term in everyday conversation. When you hear the word investment, you might think of financial investments, such as *stocks, bonds, and mutual funds*. By contrast, because GDP measures expenditure on goods and services, here the word investment means purchases of goods (such as *capital equipment, structures, and*

inventories) used to produce other goods.

iii. Government Purchases

Government purchases include spending on goods and services by *local, state, and federal governments.* It includes *the salaries of government workers as well as expenditures on public works.*

The meaning of government purchases requires a bit of clarification. When the government pays the salary of an Army general or a schoolteacher, that salary is part of government purchases. But when the government pays a *Social Security benefit* to a person who is elderly or an *unemployment insurance benefit* to a worker who was recently laid off, the story is very different: These are called *transfer payments* because they are not made in exchange for a currently produced good or service. Transfer payments alter household income, but they do not reflect the economy's production. (From a macroeconomic standpoint, transfer payments are like negative taxes.) Because GDP is intended to measure income from, and expenditure on, the production of goods and services, *transfer payments are not counted as part of government purchases*.

iv. Net Exports

Net exports equal the value of foreign purchases of domestically produced goods (value of ***exports***) minus the value of domestic purchases of foreign goods (value of *imports*). A domestic firm's sale to a buyer in another country, such as Haile Motors's sale of a car to Kenyans, increases net exports.

The net in net exports refers to the fact that value of *imports is subtracted from the value of exports*. This subtraction is made because other components of GDP include imports of goods and services. For example, suppose that a household buys a Birr 300,000 car from Toyota, the Japanese carmaker. That transaction increases consumption by Birr 300,000 because car purchases are part of consumer spending. It also reduces net exports by Birr 300,000 because the car is an import. In other words, net exports include goods and services produced abroad (with a minus sign) because these goods and services are included in consumption, investment, and government purchases (with a plus sign). Thus, when a domestic household, firm, or government buys a good or service from abroad, the purchase reduces net exports, but because it also raises consumption, investment, or government purchases, it does not affect GDP.

Net Exports = Total Export (E) - Total Import (M)

✎ Activity 7.1

1. List expenditures from your locality that are included under;
   (First individually and then discuss with your class mate)
   - Consumption (C)
   - Investment (I)
   - Government Purchase (G)
   - Net Exports (NX)
     - Exports
     - Imports

7.2 Real GDP Vs Nominal GDP

By the end of this section, students will be able to;

- Differentiate between nominal GDP and Real GDP
- Calculate the GDP deflator

Key Concepts

Real GDP; Nominal GDP; GDP Deflator

Start Up Activity

What comes to your mind when you hear Real GDP and Nominal GDP?

Real GDP versus Nominal GDP

GDP measures the *total spending* on goods and services *in all markets in the economy*. If total spending rises from one year to the next, at least one of two things must be true: Either,

1. *The economy is producing a larger output of goods and services*, or
2. *Goods and services are being sold at higher prices*.

When studying changes in the economy over time, economists want to separate *these two effects*. In particular, they want a measure of the *total quantity of goods and services* the economy is producing *that is not affected by changes in the prices of those goods and services*.

To do this, economists use a measure called ***real GDP***. Real GDP answers a hypothetical question: *What would be the value of the goods and services produced this year if we valued these goods and services* ***at the prices that prevailed in some specific year in the past***?

- By evaluating current production using prices that are fixed at past levels, real GDP shows how the economy's overall production of goods and services changes over time.

To obtain a measure of the amount produced *that is not affected by changes in prices*, we use real GDP, which is *the production of goods and services valued at constant prices*. We calculate real GDP by;

1. First designating one year as a base year
2. Then use the prices of goods and services in the base year to compute the value of goods and services ***in all the years***.

In other words, the prices in the base year provide the basis for comparing quantities in different years.

Suppose that we choose 2010 to be the base year in our example. We can then use the prices of *Kitfo and Chumbo* in 2010 to compute the value of goods and services produced in 2010, 2011, and 2012. Table 2 shows these calculations. To compute real GDP for 2010, we use the prices of *Kitfo and Chumbo* in 2010 (the base year) and the quantities of *Kitfo and Chumbo* produced in 2010. (Thus, for the base year, real GDP always equals nominal GDP.) To compute real GDP for 2011, we use the prices of *Kitfo and Chumbo* in 2010 (the base year) and the quantities of *Kitfo and Chumbo* produced in 2011. Similarly, to compute real GDP for 2012, we use the prices in 2010 and the quantities in 2012. When we find that real GDP has risen from Birr 200 in 2010 to Birr 350 in 2011 and then to Birr 500 in 2012, we know that the increase is attributable to an increase in the quantities produced because the prices are being held fixed at base-year levels.

To sum up: Nominal GDP uses current prices to place a value on the economy's production of goods and services. Real GDP uses constant base-year prices to place a value on the economy's production of goods and services. Because real GDP is not affected by changes in prices, changes in real GDP reflect only changes in the amounts being produced. Thus, real GDP is a measure of the economy's production of goods and services. (Mankiw, 2012).

Our goal in computing GDP is *to gauge how well the overall economy is performing.* Because real GDP measures the economy's production of goods and services, it reflects the economy's ability to satisfy people's needs and desires. *Thus, real GDP is a better gauge of economic well-being than is nominal GDP.* When economists talk about the economy's GDP, they usually mean real GDP rather than nominal GDP. And when they talk about growth in the economy, they measure that growth as the percentage change in real GDP from one period to another.

7.2.1 The GDP Deflator

Nominal GDP reflects *both the quantities* of goods and services the economy is producing and *the prices* of those goods and services. By contrast, by holding prices constant at base-year levels, *real GDP reflects only the quantities produced*. From these two statistics, we can compute a third, called *the GDP deflator*, which reflects only the prices of goods and services.

The GDP deflator is calculated as follows:

$$\text{GDP Deflator} = \frac{Nominal\ GDP}{Real\ GDP} x100$$

Because nominal GDP and real GDP must be the same in the base year, the GDP deflator for the base year always equals 100. The GDP deflator for subsequent years measures the change in nominal GDP from the base year that cannot be attributable to a change in real GDP.

The GDP deflator measures the current level of prices relative to the level of prices in the base year. To see why this is true, consider a couple of simple examples. First, imagine that the quantities produced in the economy rise over time but prices remain the same. In this case, both nominal and real GDP rise together, so the GDP deflator is constant. Now suppose, instead, that prices rise over time but the quantities produced stay the same. In this second case, nominal GDP rises but real GDP remains the same, so the GDP deflator rises as well. Notice that, in both cases, the GDP deflator reflects what's happening to prices, not quantities.

Let's now return to our numerical example in Table 7. 2. The GDP deflator is computed at the bottom of the table. For year 2010, nominal GDP is Birr 200, and real GDP is Birr 200, so the GDP deflator is 100. (The deflator is always 100 in the base year.) For the year 2011, nominal GDP is Birr 600, and real GDP is Birr 350, so the GDP deflator is 171.

Economists use the term *inflation* to describe a situation in which the *economy's overall price level is rising.* The inflation rate is the percentage change in some measure of the price level from one period to the next. Using the GDP deflator, the inflation rate between two consecutive years is computed as follows:

$$\text{Inflation rate in year 2} = \frac{GDP\ Delator\ in\ Year\ 2 - GDP\ Deflator\ in\ Year\ 1}{GDP\ Deflator\ in\ Year\ 1} x100$$

Because the GDP deflator rose in year 2011 from 100 to 171, the inflation rate is 100 × (171 – 100)/100, or 71 percent. In 2012, the GDP deflator rose to 240 from 171 the previous year, so the inflation rate is 100 × (240 – 171)/171, or 40 percent.

The GDP deflator is one measure that economists use to monitor the average level of prices in the economy and thus the rate of inflation. The GDP deflator gets its name because it can be used to take inflation out of nominal GDP—that is, to "deflate" nominal GDP for the rise that is due to increases in prices. We examine another

measure of the economy's price level, called the consumer price index, in the next chapter, where we also describe the differences between the two measures.

Table 7.2 Real and Nominal GDP- Example

	Prices and Quantities			
Year	Price of Kitfo	Quantity of Kitfo	Price of Chumbo	Quantity of Chumbo
2010	Birr 150	100	Birr 250	50
2011	180	150	350	100
2012	200	200	400	150

Given the above hypothetical data, calculate the nominal and real GDP;

	Calculating Nominal GDP		
2010	150*100= 15,000	250*50= 12,500	27,500
2011	180*150 = 27,000	350*100= 35,000	62,000
2012	200*200= 40,000	400*150= 60,000	100,000
	Calculating Real GDP (base year 2010)		
2010	150*100= 15,000	250*50= 12,500	27,500
2011	150*150= 22,500	250*100= 25,000	47,500
2012	150*200= 30,000	250*150= 37,500	67,500
	Calculating the GDP Deflator		
2010	(27,500/27,500) *100= 100	250*50= 12,500	GDP Deflator= (NGDP/RGDP) *100
2011	(62,000/47,500) *100= 131	250*100= 25,000	
2012	(100,000/67,500)*100= 148	250*150= 37,500	

Source: Customized from (9): 204.

✎ Activity 7.2

Taking three consecutive years from this year backwards, and taking two commonly used commodities in your area;

1. Calculate Nominal GDP
2. Calculate Real GDP
3. Calculate the GDP deflator

7.3 The Agricultural Sector in the Ethiopian Economy

At the end of this section, students will be able to;

- Describe the main sectors of the Ethiopian Economy
- Examine the forward and backward linkages of the agricultural sector;
- Assess the role of the agricultural sector in Gross Domestic Product and in the creation of employment.
- Analyze the structure of the agricultural sector of Ethiopia,

Key Concepts

Agricultural sector; Forward linkage; Compulsory delivery; Backward Linkage ; Household size; Small holder farmer; Price incentive

Start Up Activity

What comes to your mind when you hear agricultural sector in Ethiopia?

According to NBE, 2019/20 annual report data, agriculture's share in GDP has decreased form 40% to 33%, Industry's share in GDP has increased from 21% to 29% and service sector's share in GDP has almost been 40% over the six years from 2014/15 to 2019/20.

For decades, agriculture has been the backbone of the Ethiopian economy. Hence its performance determines the economic well-being of the people. Also, many other economic activities, including transportation and manufacturing, rely heavily on the agricultural sector.

Main Features of the Agricultural Sector: Agriculture contributes about 45% of the overall GDP of the country; generates more than 80% of export earnings; employs about 85% of the population; and supplies about 70% of raw materials to the secondary activities (Central Statistics Office, 2006). The agricultural sector produces both crops and livestock. The crops produced include food crops, cash crops, fruits, and vegetables. It constitutes the greatest share of the country's GDP and export earnings when compared to the livestock production. (Belayneh, Weldeselassie, Legesse, Tasew, Denu, & Bansal, 2011).

Major Problems of the Sector:

- Frequent drought,
- Soil degradation largely caused by overgrazing and overpopulation,
- Land fragmentation,

- Prevalence of backward agricultural practices,
- Poor marketing facilities due to poor road networks, etc.
- Rapidly increasing prices of agricultural inputs like fertilizers etc.

Roles of the Agricultural Sector

It is apparent that agriculture is the backbone of the Ethiopian economy, as you can see from the important roles it plays, as discussed in the following sections.

I . It is a source of food and raw materials

One of the main roles of agriculture in the Ethiopian economy is being the source of food and raw materials. For example, agriculture supplies the country with food grains, dairy and meat products. A productive agricultural sector provides relatively abundant food and raw materials to the population.

Backward linkages: an efficient/productive agricultural sector supplies food and raw material to the industrial sector and its labor force. In turn, it has to be supplied with modern inputs and technologies to cope with responding to the growing demand of the non-farming and farming population. Without such support, the agriculture sector appears weak and non-supportive. It may even risk its own population facing food insecurity.

Furthermore, productivity in the agricultural sector improves the level of income received by rural people. Increased income of rural people is believed to generate increased demand for manufactured goods from the industrial sector.

Forward linkages: productivity in the agricultural sector can promote the following forward linkages. First, it reduces the cost of living in the industry- based/urban areas which, in turn, reduces the pressure on wages and makes industrial profit higher. Second, increasing the provision of raw materials reduces the cost of raw materials and makes industrial profits higher. These two factors can contribute significantly to increasing industrial savings and investment that leads to the promotion of the sector.

II . It is a source of capital

Although the agricultural sector provides meager surpluses of savings and taxes to support investment, the transference of surplus from the agricultural sector to other sectors is made through the following three modalities:

- tax;
- defining the terms of trade to protect domestic agriculture by imposing price controls on agricultural products, and
- Compulsory delivery of agriculture commodities at very fixed prices.

The question is how much surplus should be transferred. In this regard, two opposing views can be discussed. One is that agriculture does not require large amounts of capital for its expansion. The other view is that the investment requirements for agricultural transformation are so large that there may be a need for a net flow of capital from non-agriculture to agriculture.

The Derg regime removed a great deal of surplus from the agricultural sector to supply both the urban consumers and its huge army with cheap foodstuffs. However, this surplus was used ineffectively. This indicates that the potential of the agricultural sector to produce surplus that could be transferable to the other sectors could be high.

III . It contributes to Gross Domestic Product

Over the last four decades, the share of agriculture and allied sectors (fisheries and forestry) to the national GDP has been declining. The percentage share declined from 76 percent in the early 1960s to 45 percent in 2003/04. Consequently, it has been the major source of fluctuations in the Ethiopian economy.

IV . It contributes to employment

More than 80% of the Ethiopian populations earn their livelihood from agriculture (crop cultivation and livestock rearing activities). High population growth and low urbanization have been an increasing major challenge to this sector that it could not absorb the growing surplus labor force. Neglect or less attention to urbanization and non-farm sector development has put the farm sector under a growing pressure. Nevertheless, it supports a large percentage of the labor force.

In the face of the increasing scarcity of other resources, particularly agricultural land, measures should be taken to improve labor productivity in the agriculture sector.

Structure of the Agricultural Sector

i. Farming Systems in Ethiopia

The agricultural sector of Ethiopia is composed of the crop-production, livestock, forestry, and fishery sub-sectors. About 65% of the sector's GDP comes from crop-production, while animal husbandry contributes 25%. The remaining 10% is generated from the allied sectors, forestry, fishing and others.

The national 2001/2002 Sample Agricultural Figures provides some data on the major agricultural production system. The report has identified three categories of farms.

Currently, the following farming systems are widely practiced in Ethiopia.

a. The smallholder farming system,

b. The pastoral/nomadic system, and

c. The modern commercial farming system.

a. The small holder farming system

It is the most important or dominant system. It accounts for more than 90 percent of the agricultural production and for about 95 percent of the total area under crop production. It is characterized by mixed farming.

The total numbers of households in this category were estimated to be about 10.58 million heads. The average household size stood at around 5 members per household. Over 86 percent of this community cultivates farmlands with areas less than 2 hectare each.

b. The Pastoral Farming System

About 40% of Ethiopia's land area is in the arid and semi-arid zones and is located in the lowlands, below 1,500 m. There rain-fed crop production is not possible because of low-level erratic rainfall, and people rely more on livestock for subsistence. The lowlands are home to about 20% of Ethiopia's cattle, 25% of the sheep, and 73% of the goats, plus about one million camels. These animals support some 5.5 million people.

In addition to feeding this population, the livestock in the range lands account for a major portion of the country's exports of live animals, in particular of cattle. Surplus sheep and goats sourced from the rangelands represent about 19% of the domestic supply.

Ethiopia's range lands are also important for wildlife. The main areas of wildlife concentration are in the southwestern part of the country, particularly in the Omo River basin and the Gambella region. In these areas, which have a high rainfall and fertile soils, tsetse infestation has greatly suppressed agricultural and pastoral activities. Although less abundant, wildlife also exists in the eastern part of the country, particularly in the Awash Valley and in the southern rangelands. The conservation and development of these resources are carried out through the development of national parks, wildlife sanctuaries, and reserves. In addition, 14 controlled areas have been established, of which the largest is the Borena controlled hunting area.

There is not much documented information about this system of farming. Most of the

people are nomadic, moving seasonally, together with their livestock, from one place to another in search of pasture and water. Some studies have been undertaken about the pastoralists roaming in the Awash Valley, in connection the with development of medium-to large-scale irrigation schemes there.

Livestock production is much greater than crop production in the pastoral nomadic system. General and empirical observations suggest that this system is characterized by chronic food shortages. Thus, agricultural products and productivity are extremely low. With the possible exception of livestock vaccination, there is virtually nothing that the government (or any other, non- governmental organization) has provided for long in terms of assistance or support to the pastoral-nomadic system. However, these days, the sub-sector has been the focus of serious concern through the expansion of extension service.

c. The Commercial Farming System

Commercial farming system was *officially introduced during the third five-year plan* (1968 – 73) of the Imperial Government of Ethiopia. Among the strategies envisaged to modernize agriculture and increase marketable surplus, the plan stated that available government land would be utilized for the establishment of large commercial farms. As a result, many entrepreneurs rented and developed commercial farms in *the Awash Valley, the Rift Valley and other areas*. After the 1974 revolution, all these farms were confiscated by the government. Additional government lands in many parts of the country were also developed into large-scale state farms. These were organized into enterprises which in turn were grouped under corporations, according to their locations and output specialization. A separate ministry, the Ministry of State Farms Development was set up to manage and expand state farms. Also, another separate ministry, the Ministry of Coffee and Tea Development, was established.

The state farm enterprise introduced intensive farming and extensive mechanized agriculture. The former was based on irrigation, while the latter was marked by rain-fed agriculture, with or without the use of fertilizers and other chemicals. It is based on bringing unused land, into cultivation a predominant feature of modern agriculture in Ethiopia prior to 1974.

State farms have been the most pampered of all production systems in Ethiopia. There had been no limit for these farms in terms of receiving land, agricultural inputs, credits, price incentives and marketing facilities. Despite all these advantages, they were unproductive and inefficient. The major characteristics of many of them were

mismanagement, abuse of assets, corruption, etc. It must be noted that some of these farms were developed without adequate studies, resulting in huge financial losses. In fact, most of the state farms were run on government financial resources.

This system, comprising about 5% of the total cropland area, together with co- operatives, accounted for less than 10% of total agricultural production.

The efficiency of state farms is extremely low, relative to the high expenditure made in establishing and operating them. The major crops grown in these farms include cotton, coffee, tea, sugarcane, fruits and vegetables.

The size and role of state farms declined after 1992 when the new government granted some of the state farms to nearby farmers and investors. At present, there are only 13 state farms. They produce mainly wheat, maize, cotton, coffee, and tea on 156,040 hectares of land.

Under the current economic policy attempted have been made establish commercial farms. Out of the total investment permits issued between 1992/93 and 1997/98, 1148 or 26.8% of them were in agriculture. However, only 508 projects became operational.

With the advent of market economy, the Federal Government has recognized the decisive role that private capital can play in the expansion and development of large-scale modern farming in order to enhance the supply of food and raw materials and to create employment opportunities. As a result, the role of state farms is expected to fall significantly. The state may operate those state farms that are strategic to the economy, jointly with domestic or foreign private capital. In order to encourage domestic and foreign private capital, without any capital limitation, the government is committed to creating an enabling environment.

Activity 7.3

1. Discuss with your desk mate the types/structure of agriculture are practiced in your area
2. List out the advantages that the society can get from the agricultural sector

7.4 The Industrial Sector in the Ethiopian Economy

By the end of this section, students will be able to;

- Describe the industrial sector of Ethiopia,
- Examine the role of the industrial sector to the economy of Ethiopia

Key Concepts

Industry; Manufacturing; Mining; Large scale manufacturing; Medium scale manufacturing; Construction

Start Up Activity

What comes to your mind when you think of industrial sector of Ethiopia?

The Ethiopian industrial sector has been small compared to the agricultural and service sectors. This could be due to the short history of industrialization in the country. Its growth was modest, not exceeding 6.7 percent for the last four decades except during the years from 1997/98 to 2009/2010. (Belayneh, Weldeselassie, Legesse, Tasew, Denu, & Bansal, 2011).

The industrial sector is dominated by three sub-sectors: manufacturing (38%), construction (25%), and electric and water supply (18%). The remaining sub- sectors, electricity, mining and quarrying, etc., constitute the remaining 19%.

Main Features of the Industrial Sector:

- The sector contributes about 13% of GDP and 9.5% of employment.
- There are about 130 state-owned and 7,000 private manufacturing industries of all sizes, mainly engaged in the production of consumer goods. Main products of these manufacturing industries include:
    - textiles, foodstuffs, tobacco, beverages, cement, leather and leather products, wood, metallic and non-metallic products, paper, plastic, tiles, clothing/apparel, canned and frozen meat, sugar and molasses, oil cakes and petroleum products.
- The growth performance of the industrial sector saw an appreciable improvement in recent years, compared to the average growth rate of 6.7% over the 10 years 2001/02 -2009/10.

Looking at the growth performance of each sub-sector, the construction sector registered the highest growth rate between 2002 - 2010. It averaged about 13% per year in 2006 - 2010, compared to only 4.6% between 1991/92 and 2005/06. Large-and

medium-scale industries recorded the second highest growth rates.

Major Problems in the Sector;

- Low industrial base
- Low productivity level
- Underutilization of capacity
- Shortages of foreign exchange, new investment, raw materials and spare parts
- Very low level of technology/high dependence on imported technology
- Low-level skills and management

Roles of the Industrial Sector to the Ethiopian Economy

According to the International Standards for Industrial Classification (ISIC), the Ethiopian industrial sector is composed of *mining and quarrying, manufacturing, electricity, water supply, and construction*. During the years 1991/92 - 1997/98, large- and medium-scale manufacturing contributed 38.4% of the gross value of industrial production, while small-scale manufacturing and handcrafts contributed around 18.7%. The contributions of mining, quarrying, and electricity-supply activities were 3.9%, 15.8%, and 23.2%, respectively. From this we can conclude that the *manufacturing sub-sector dominated the Ethiopian industrial sector*, providing more than 57% of the sectoral output.

Since the manufacturing sub-sector is the most dominant and dynamic component of the industrial sector, and also due to availability of time series data, we will concentrate on this sub-sector as we analyze the contribution of the industrial sector to the national economy.

i. **Out Put Contribution**

According to ISIC, the manufacturing sector is characterized by the physical or chemical transformation of materials or components into new products, whether the work is performed by power-driven machines or by hand, and whether it is done in a factory or in the worker's home.

Food and beverages accounted for about 48% of the gross value of output of manufacturing establishments in 2007/08, followed by *non-metal (17%)* and *chemicals (9%)*. These three industrial activities accounted for more than 74% of the entire gross value of products in large- and medium-scale manufacturing organizations during the same period.

In terms of the value added by the large- and medium-scale industry sub-sector, the

food and beverage industrial group is the leading one. For example, in 2007/08, the contribution of the food and beverage industrial group was 50.7%.

Looking at the data on revenue obtained from sales, the food and beverage industrial group generated around 8.3 billion Birr, which is close to 48.5% of the total revenue obtained from large and medium scale manufacturing in 2007/08. (Belayneh, Weldeselassie, Legesse, Tasew, Denu, & Bansal, 2011).

ii. Employment Contribution

The industrial sector, in general, and the manufacturing sub-sector, in particular, serves as important sources of employment, especially for the rapidly growing urban population in Ethiopia. In 2007/08, there were 1,677,906 persons engaged, out of which 678,911 were employees in the industrial sector. The number of persons engaged and employees during this period showed an increase of 6.4 and 5.8 percent, compared to that of 2006/07, respectively. These increases in the number of persons engaged and employees could be attributed to the increase in the number of establishments created in 2007/08. (Ibid).

When we examine the employment capacity of each industrial group in the manufacturing sector, as of 2007/08:

- The food and beverage group employed 50%,
- The non-metal, and paper and printing industrial groups contributed 14% and 10.9% of the sector's employment, respectively.

These three industrial groups, together, employed close to 75% of the total workforce in the manufacturing sub-sector for the year 2007/08.

The relative importance of the rest of the industrial groups, in terms of employment, varies between 2.1% in wood and furniture manufacturers to 8.8% in textile-product manufacturers. The decline in the share of employment of these sectors is mainly due to increased employment opportunities in other industrial groups such as in non-metal, paper and printing.

iii. Foreign Exchange Contribution

More than 90% of the nation's foreign currency earnings come from the agricultural sector. The poorly developed industrial sector of Ethiopia contributes very little to the foreign currency earnings of the nation.

Textiles generate 41.5% of the sector's foreign exchange, which is the largest contribution. Food and beverages, leather and footwear follow as the second and third

with 32.9% and 10.8%, respectively. This pattern has remained almost the same in recent years. The only noticeable change is in the wood and furniture and chemical groups. The total value of wood and furniture and chemical exports in 2007/08 was Birr 43,269.7 and 30,198.9, respectively. This can be taken as an indicator of the potential the nation has in bringing in foreign currency from non-traditional commodities.

The benefits for the Ethiopian manufacturing sub-sector from preferential treatment which the developed world offers are great. In this regard, The *Africa Growth and Opportunity Act (AGOA),* which allows some developing countries, including Ethiopia, to have access to the US textile market without tariffs and quotas, is the most notable opportunity. European countries are also opening their markets to African manufactured products. For instance, Ethiopia can now sell its sugar products in European markets. Therefore, the nation should try its best to benefit from these and other preferential treatments which the developed world is offering to the poorest nations of Africa.

Activity 7.4

1. List out products of the industrial sector from your area
2. Discuss in groups of three students the roles of the industrial sector the economy of Ethiopia

7.5 The Service Sector in the Ethiopian Economy

At the end of this section, students will be able to**;**

- Describe the service sector of Ethiopia
- Evaluate the role of the service sector to the economy of Ethiopia

Key Concepts

Service sector; Tourism; Education; Medical services; Cultural heritages

Start Up Activity

1. What is the service sector?
2. What is the difference between agriculture, industry and service sectors?

This sector is composed of various sub-sectors that range from wholesale and retail trade, to restaurants and to education and health service provision. More specifically, the service sector includes:

- wholesale and retail trade,
- hotels and restaurants,
- transport and communication,
- banking and insurance,
- public administration and defense,
- education,
- Health, domestic and other services.

Main Features of the Sector:

- The sector's share in GDP was 45.1% during 2008/09.
- A relatively small percentage of population (about 10%) has been engaged in the services sector.
- The large contribution of the sector to the GDP comes mostly from government employment.
- Significant achievements have been made in areas of health, trade, tourism, banking and insurance in the past few years.
- Growth Performance: The growth in the services sector has been significant following the reform carried out in the early 1990s. Consequently, its growth rate and hence its share in GDP has progressively increased during the last two decades.

Roles of the Service Sector to the Ethiopian Economy

The service sector plays an important role in the country's economy. Its contribution

can be seen from three angles, namely: *output, employment, and foreign exchange contributions*.

i. Out Put Contribution

The service sector has played a dominant role, next to the agriculture sector, in the Ethiopian economy. But in 2008/09 and 2009/10, the output contribution of the service sector in Ethiopia dominated the agriculture sector, contributing about 45% and 46% respectively.

ii. Employment Contribution

In Ethiopia, the service sector is the second largest sector, next to agriculture, in terms of absorbing a significant part of the labor force. About 1.4% of the total labor force is employed in the health and education sectors, while about 0.5% is employed in the communication and transport sectors.

In Ethiopia, a significant number of mostly permanent employment opportunities are being created because of the rapidly growing economy. In particular, employment opportunities are being created by:

- Sustained government efforts to enhance private sector investments;
- The big push in infrastructure development;
- The expanding services industry; and
- The rapid growing horticulture sector

iii. Foreign Exchange Earnings

The value of exports of services increased from $261 million in 1980 to $348 million in 1998, representing an average growth rate of 33%.

In 2008/09, foreign exchange income earned from service providers such as *Ethiopian Airlines* and *Ethiopian Shipping Lines*, as well as from various service sub-sectors such as *tourism, communication, insurance and financial services,* collectively reached nearly 2 billion dollars, when compared to just 1.5 billion dollars for the export of goods.

Components of the Service Sector

The service sector or the service industry is one of the three main economic sectors. The basic characteristic of this sector is the production of services (also known as 'intangible goods'), and does not include the goods-producing sector.

This sector is composed of various sub-sectors. More specifically, the service sector includes: trade, hotels and restaurants, transport and communication, education,

banking and insurance, public administration and defense, health, and other services.

According to the Ethiopian National Income Account classification, the first five sub-sectors are referred to as distributive services while the remaining are in the 'Other' service sector.

According to the 2009/10, MOFED Report the GDP share of the service sector increased from 41.1% in 2002/03 to 46% in 2009/10. This is mainly the result of the fast growth in the areas of real estate, hotel and restaurant, education, and health. In contrast, the share of agriculture fell from its level of 56.7% in 1995/06 to 42% in 2009/10.

There are a number of ways to consider the service sector such as: its divisions, its components, and the types of activities within the components. Accordingly, the service division includes a wide variety of industries, but they can be categorized into primarily consumer-oriented (providing a service directly to a consumer), primarily business-oriented (providing a service directly to another business) or mixed (providing services to both businesses and individual consumers).

Alternately, the activities of the services division can be described in reference to their economic activities. Accordingly,

- Physical activities: involve working with objects; examples include repairing cars, hairdressing, and cooking.
- Intellectual activities: involve providing education or training at such levels as university and vocational school.
- The aesthetic activities: entail providing consumers with artistic experiences such as offered by museums, theater performances, art shows, and musical performances.

Activity 7.5

1. List out the services that you know from your area provided by the service sector
2. In a group of four students evaluate the roles of the service sector to the economy of Ethiopia

7.6 Agriculture versus Industrial Development

By the end of this section, students will be able to;

- Differentiate between agricultural development and Industrial development strategies.
- Evaluate the agricultural Development Led Industrialization (ADLI) strategy of Ethiopia.

Key Concepts

Agricultural development; Industrial Development; ADLI strategy

Start Up Activity

Compare agricultural versus industrial development strategies?

As records reveal, the agricultural sector in Ethiopia is the mainstay of the country's economy. It is also the most volatile sector, as exhibited in the unevenness of its growth patterns, which is the effect of its heavy dependence on rainfall and the seasonal shocks that are frequently observed in Ethiopia. However, it contributes the largest share to the GDP, export trade earnings, and employment. It also provides raw materials for the various industries in the country to a great extent. With this scenario, the various strategies so far adopted to develop it need rethinking. This serious work of rethinking the development priorities should be made considering the various regional as well as local objective conditions.

Different views or paradigms have been adapted for the development of a country. The role of agriculture in economic development has been considered as largely passive and supportive or secondary. In the Western economies, the industrial sector was given priority, based on the assumption that it has the largest potential to adopt technology and to create forward and backward linkages with the other sectors.

However, the desirability of placing such heavy priority on industrial growth is questionable for most developing countries like Ethiopia. Since the 1970s, development economists have come to realize that the agricultural sector needs to be viewed as a leading and dynamic sector. They further state that, without the development of the agricultural sector, the growth of the industrial sector will become weak. Hence, the agricultural sector has to be the leading sector, and this is the approach of the current Ethiopian strategy of development, ADLI.

✎ Activity 7.6

1. Debate amongst yourselves taking side on the following;
    a. Industrial development is better than agricultural development for faster economic growth for Ethiopia.
    b. Agricultural development is better than Industrial development for faster economic growth for Ethiopia.
2. Evaluate the ADLI strategy of Ethiopia.

Unit Summary

To understand how the economy is using its scarce resources, economists study the composition of GDP among various types of spending. To do this, GDP (which we denote as Y) is divided into four components: consumption (C), investment (I), government purchases (G), and net exports (NX).

When studying changes in the economic performance of a country over time, economists want to separate the nominal effect and the real effect of this change. In particular, they want a measure of the *total quantity of goods and services* the economy is producing *that is not affected by changes in the prices of those goods and services (RGDP)*.

On the eve of the February 1974 revolution, the state of the Ethiopian economy *exhibited respectable moderate rates of growth of GDP and per capita GDP,* although it had begun to show signs of deceleration towards the end. The domestic savings ratio was growing and *Ethiopia had a comfortable balance of payments position and low inflation*.

The agricultural sector is the mainstay of the Ethiopian population, in which more than 85 percent of the people work.

The FDRE adopted a strategy of Agricultural Development- Led Industrialization (ADLI) to transform the agricultural sector and promote economic development.

The agricultural sector, though dominant, is facing problems that have deterred it from meeting national requirements. The problems are both social and natural. The social (human-made) problems are related to allocation of resources and decision-making, while the natural ones relate to recurring and unexpected weather conditions.

Based on NBE's annual report of 2019/20, of the share of sectors in GDP from 2014/15 to 2019/20, agriculture's share in GDP has decreased form 40% to 33%, Industry's share in GDP has increased from 21% to 29% and service sector's share in GDP has almost been 40% for the past six years.

Different views or paradigms have been adapted for the development of a country. The role of agriculture in economic development has been considered as largely passive and supportive or secondary. In the Western economies, the industrial sector was given priority, based on the assumption that it has the largest potential to adopt technology and to create forward and backward linkages with the other sectors.

Unit Review Exercises

Part I: Write True if the statement is correct or False if not correct for each of the following questions.

1. Agricultural development is more important than industrial development.
2. The current developmental strategy adopted in Ethiopia is the Industrial Development-Led Agriculture Strategy (IDLA).
3. Cereal production ranks second, next to oil seed production, in terms of volume of output.
4. The European demand for the cut flowers of Ethiopia has little effect on the promotion of floriculture in Ethiopia.

Part II: Choose the best answer from the given alternatives.

5. Which of the following is not one of agriculture's roles in the Ethiopian economy?
   A . Source of raw materials for non-agro-based industries
   B . Source of food supply
   C . Source of foreign currency earnings
   D . All of the above
6. One of the following is the dominant farming structural type in Ethiopia.
   A . The large-scale animal husbandry sub-sector
   B . State farms
   C . The smallholder farm system
   D . The collective farm system

Unit 8 Business Startups and Innovation

Introduction

Innovation is no longer a buzzword. More than ever, it is a critical element in fueling business growth and maintaining market share. The commercial benefits of innovation are well known. Today, however, there is an added urgency in businesses' efforts to devise and execute on new ideas. Increasingly, they are faced with the risk of disruption from many known and unknown sources. How businesses respond is critical to their continued success and ultimately, their existence.

With this in mind, this unit will discuss such contents like *Innovation, business startups and Cost Benefit Analysis*.

Unit Objectives

By the end of this unit, students will be able to:

- Define innovation
- Analyze innovation and its determinants
- Explain the main components of a business plan
- Distinguish among different businesses organizations
- Review a business plan

8.1 Innovation

By the end of this section, students will be able to;

- Describe innovation
- Mention the types of innovation

Key Concepts

Innovation; Product, process, market, eco-, organizational, Innovations; Creative destructions

Start Up Activity

What is innovation?

Definition of Innovation

The Oslo Manual, an international reference guide from the OECD for collecting and using data on innovation, defined the concept of innovation as:

"(…) a new or improved product or process (or a combination thereof) that differs significantly from the unit's previous products or processes and that has been made available to potential users (product) or brought into use by the unit (process)."

Innovation can be defined as something new, improved or introduced that creates value. It can be summarized into two key elements: creativity and implementation.

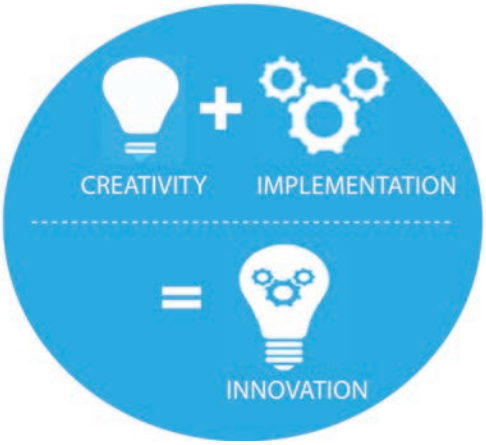

Figure 8.1 Innovation

Types of innovation

According to the 4th and most recent edition (2018) of the Oslo Manual, there are four main types of innovation:

I . Organizational Innovation

Organizational innovation refers to the development of a new organizational strategy that will somehow change a company's business practices, as well as the way its workplace is organized and its relationship with external stakeholders.

Examples:

- The first companies adopting a four-day week working schedule of only 4 days per week
- The first companies that started to use the power of digital and allowing employees to skip the office and work from home (depending on the role)

II . Process Innovation

Process innovation is about implementing a new or improved production or delivery approach, including changes in operational methods, the techniques used and the equipment or software.

Examples:

- The first firms betting on SaaS (software as a service) technology, and using, for instance, cloud contact centers from Talk desk, changed the way their customer support processes used to be organized
- The first hotels that decided to make decisions based on big data using, for instance, insights from the Climber Hotel, made changes on their decision-making approach

III . Product Innovation

Product innovation is the introduction of a new or improved good or service. These inventions or changes may have to do with improving technical specifications, the materials or the software used or even advancing on UX (user experience). However, product innovations don't need to improve all functions or performance specifications. An improvement to or addition of a new function can also be merged with a loss of other functions or the downgrade of some other specifications.

Moreover, a product innovation must add available to potential users but doesn't necessarily need to generate sales. Because if it did, then innovations with low demand or, for instance, digital products like apps that are free would be excluded. At the same time, routine changes or updates aren't considered product innovations as they are only correcting errors or making some seasonal changes.

Examples:

- Lego has been changing the materials of its famous bricks to biodegradable oil-based plastics
- The first electric vehicles introduced in the car's market were also an innovation, and new batteries with longer ranges that keep coming out are also an example of innovation

IV . Marketing Innovation

Marketing innovation means developing a new marketing strategy that produces changes in, for instance, the way a product is designed or packed, or even other decisions regarding price or promotion.

Example:

- Haagen Dazs' new waste-free container

V . Eco Innovation

Eco-innovation is an innovation resulting in significant progress towards the 2030 goals sustainable development established by the UN. In practice, it means reducing the impacts of our production modes on the environment, improving nature's resilience to environmental stresses, or achieving a larger efficient and responsible use of natural resources.

In this way, we can say eco-innovation may create value in two different areas. First, from a sustainable development perspective, as it promotes sustainability throughout a product's entire life cycle, it helps to address challenges such as climate change, resource scarcity, and biodiversity. Second, it can also boost a company's performance and competitiveness. By embracing new and greener processes, technologies and services, eco-innovation can help organizations access new markets, increase productivity and profitability across the value chain, strengthen their reputation or attract new investors.

Example:

- A while ago, Procter and Gambler realized householders could save on their electricity bill by switching to cold-water washings and started developing cold-water detergents (product innovation)
- As part of its sustainability strategy, IKEA is changing its fleet to electric vehicles (process innovation)

- Nestle's new paper-based straws as an alternative to plastic straws (marketing innovation)
- The first companies concerned with the sustainability of their operations that decided to change their suppliers and partners if they don't prove they are also making efforts to become more sustainable (organizational innovation).

Innovation is also destructive, not only creative!

Schumpeter (1934) brought into discussion several arguments on how businesses search for new opportunities and competitive advantage. One of his most famous arguments has to do with the concept of "creative destruction". In Schumpeter's vision, capitalism is a dynamic and innovative market system that is constantly changing. These changes, he says, happen because of new ideas and processes that take over the current paradigm (status quo) and create new ways of producing goods, services or entirely new industries.

The claims destruction and imbalance are what makes capitalism develop and grow, and not the usually accepted idea of economic equilibrium. In this way, the Austrian economist calls this imbalance "creative destruction" because innovation often leads to market chaos: for instance, products get obsolete, companies close and people get unemployed. Still, he believes these are necessary consequences for new solutions that increase life quality to come to light.

We've been watching these examples of creative destruction across humankind's history. We've gone over the first industrial revolution to the boom in using petroleum and we today we are a highly technological society of information. These periods of innovation make the old models obsolete and create the need for everyone and everything to innovate – and the transformation is drastic.

From a business perspective, only companies with a great strategic vision survive an episode of creative destruction. Companies like Nokia and Kodak, that were once market leaders in their own industries, failed to see how the cellphone and photography industries would change. At the same time, from a sustainability strategy, as we've discussed upper on this article, companies making radical changes and developing true sustainability strategies (from managing waste in a circular way to using renewable energy) will probably be the ones thriving in the future.

Examples of Famous Innovators

- Steve Jobs starting developed the smartphone world with the iPad
- Marie Curie made great researches on radioactivity
- Elon Musk has been making great progress on luxurious electric cars
- Ann Kiessling made plenty of findings on the area of biology
- Nikola Tesla worked on the production, transmission, and application of electric power
- Amanda Jones was the inventor of a vacuum method of canning
- Thomas Edison invented the incandescent electric light bulb
- Grace Hopper invented the first compiler for a computer programming language
- Leonardo DaVinci, among many other things, invented the parachute
- Josephine Cochrane invented the first mechanical dishwasher
- Alexander Graham Bell invented the first telephone

Activity 8.1

1. Define innovation
2. List the innovations you know and tell its type

8.2 Business Startups

By the end of this section, students will be able to:

- Describe business startups
- Differentiate small businesses from business startups
- Relate innovation and business startups

Key Concepts

Business Startups; Small businesses

Start Up Activity

What is business startup?

Business Startups

When an entrepreneur starts a business, they may see startups and small businesses differently. While these two types of businesses have a lot in common, there are some key differences that you should know about when creating your company so that you don't make any critical mistakes early on.

The initial decisions that you make when forming your business will fuel your early success or cause you to experience numerous hurdles at a time when you likely don't know how to navigate such problems. While there are no strict guidelines that determine what a startup is, the general definition of a startup is any company that's in the initial stages of operations but expects significant growth in the near future.

For many organizations, innovation is difficult to understand and execute. There remains a clear discrepancy between how big business and start-ups approach it. As a result, big business is looking to start-ups and entrepreneurs to identify disruptive ideas and opportunities for their business, and to unlock innovation through the spirit, blood, sweat and tears of entrepreneurship.

On the other hand, a small business is any kind of business that only has a certain number of employees, the maximum of which differs by industry. Though these types of businesses may sound the same, understanding the differences between the two will be integral to your future success as an entrepreneur.

Startups are entirely different than small businesses when it comes to business growth and revenue. For instance, startups are focused primarily on top-end revenue and growth potential. A startup is considered to be a temporary business model wherein the focus is on rapid growth. Unlike a small business, there are no restrictions or

limitations placed on growth. While small businesses are perfectly content with operating in a small portion of a large market, startups usually want to obtain as much market share as they can with the product or service that they provide.

Startups won't be profitable in the initial stages of business development since they want to grow within the shortest time possible. It will sometimes take years for a startup to make its first dollar of profit. The main goal is to create a product or service that can be successfully placed on the market, which could bring in millions of dollars of profit in the long run. Among the most successful startups is Uber, which now has a market value of $50 billion. Whether your goal is to create a small business or startup, you should know the difference between these two business types when forming your own company.

Startup businesses are attempting to create a product or service that's viable on the market, they will usually need to put in significant amounts of capital for product development, which usually can't be done without the right investments. In many cases, startups will obtain funding from angel investors or venture capital firms.

Funding for most startups involves seed funding, which means that the startup will approach potential angel investors for money. These investors are individuals who want to invest in a company that they believe is going to eventually make it big. These investors will get a share of the business for their money, which usually equates to 5-10 percent.

Activity 8.2

1. Define startup businesses
2. Differentiate startup businesses from small businesses

8.3 Types of Businesses Organizations

By the end of this section, Students will be able to:

- Identify different forms of business organization;
- Explain features, advantages and disadvantages of different forms of business organizations;
- Discuss the factors determining choice of an appropriate form of business organization.

Key Concepts

Sole Businesses; Corporations; Partnership Businesses

Start Up Activity

1. What are businesses organizations?
2. What are the types of business organizations?

Business organizations may be owned and managed by a single individual or group of individuals who may form a partnership firm or a joint stock company. Such arrangement of ownership and management is termed as a form of business organization. A business organization usually takes the following forms: sole ownership, partnership business and Corporations.

8.3.1 Sole Proprietorship

The term 'sole' means single and 'proprietorship' means ownership. So, only one person is the owner of the business organization. This means that a form of business organization in which a single individual owns and manages the business, takes the profits and bears the losses, is known as sole proprietorship form of business organization. A type of business unit where one person is solely responsible for providing the capital and bearing the risk of the enterprise, and for the management of the business. It is very simple to establish a sole proprietary concern. Any person who is willing to start a business and has the necessary resources can set up this form of business organization. To start and operate the business in this form, practically does not require any legal formalities to be fulfilled. In some cases, like restaurant, chemist shop etc. however, permission from the competent authority is required to be obtained before starting the business.

Characteristics of Sole Proprietorship Form of Business Organization

a) *Single Ownership*- This business organization has a single owner who himself/

herself starts the business by bringing together all the resources.

b) *No Separation of Ownership and Management:* The owner himself/herself manages the business as per his/her own skill and intelligence.

c) *Less Legal Formalities:* The formation and operation of a sole proprietorship form of business organization does not involve any legal formalities. Thus, its formation is quite easy and simple.

d) *No Separate Entity:* The business unit does not have an entity separate from the owner. The businessman and the business enterprise are one and the same, and the businessman is responsible for everything that happens in his business unit.

e) *No Sharing of Profit and Loss:* The sole proprietor enjoys the profits alone. At the same time, the entire loss is also borne by him. He alone bears the risks and reaps the profits.

f) *Unlimited Liability:* The liability of the sole proprietor is unlimited. In case of loss, if his business assets are not enough to pay the business liabilities, his personal property can also be utilized to pay off the liabilities of the business.

g) *One-man Control:* The controlling power of the sole proprietorship business always remains with the owner. He/she runs the business as per his/her own will.

Advantages:

- Easiest to get started
- Greatest freedom of action- Flexibility in Operation
- Maximum authority
- Income tax advantages in very small firms
- Maintenance of Business Secrets
- Quick Decision and Prompt Action
- Flexibility in Operation.
- Personal Touch.

Disadvantages

- Limited Resources.
- Lack of Continuity.
- Unlimited Liability.
- Not Suitable for Large Scale Operations.
- Limited Managerial Expertise.

8.3.2 Partnership

A partnership is a business owned by two or more persons who contribute resources into the entity. The partners divide the profits of the business among themselves. In *general partnerships*, all partners have unlimited liability. In *limited partnerships,* creditors cannot go after the personal assets of the limited partners.

Characteristics of partnership form of business organization Based on the definition of partnership as given above, the various characteristics of partnership form of business organization, can be summarized as follows:

a) *Two or More Persons:* To form a partnership firm at least two persons are required. The maximum limit on the number of persons is ten for banking business and 20 for other businesses. If the number exceeds the above limit, the partnership becomes illegal and the relationship among them cannot be called partnership.

b) *Contractual Relationship:* Partnership is created by an agreement among the persons who have agreed to join hands. Such persons must be competent to contract. Thus, minors, lunatics and insolvent persons are not eligible to become the partners. However, a minor can be admitted to the benefits of partnership firm i.e., he can have share in the profits without any obligation for losses.

c) *Sharing Profits and Business:* There must be an agreement among the partners to share the profits and losses of the business of the partnership firm. If two or more persons share the income of jointly owned property, it is not regarded as partnership.

d) *Existence of Lawful Business:* The business of which the persons have agreed to share the profit must be lawful. Any agreement to indulge in smuggling, black marketing etc. cannot be called partnership business in the eyes of law.

e) *Principal Agent Relationship:* There must be an agency relationship between the partners. Every partner is the principal as well as the agent of the firm. When a partner deals with other parties, he/she acts as an agent of other partners, and at the same time the other partners become the principal.

f) *Unlimited Liability:* The partners of the firm have unlimited liability. They are jointly as well as individually liable for the debts and obligations of the firms. If the assets of the firm are insufficient to meet the firm's liabilities, the personal properties of the partners can also be utilized for this purpose. However, the liability of a minor partner is limited to the extent of his share in

the profits.

g) *Voluntary Registration:* The registration of partnership firm is not compulsory. But an unregistered firm suffers from some limitations which makes it virtually compulsory to be registered. Following are the limitations of an unregistered firm.

1) The firm cannot sue outsiders, although the outsiders can sue it.
2) In case of any dispute among the partners, it is not possible to settle the dispute through court of law.
3) The firm cannot claim adjustments for amount payable to, or receivable from, any other parties.

Advantages of Partnership form

- Easy to Form
- Availability of Larger Resources
- Better Decisions
- Flexibility
- Sharing of Risks
- Keen
- Benefits of Specialization
- Protection of Interest
- Secrecy

Limitations of partnership form

A partnership firm also suffers from certain limitations. These are as follows:

- Unlimited Liability
- Instability
- Limited Capital
- Non-transferability of share
- Possibility of Conflicts

8.3.3 Corporations

A corporation is a business organization that has a separate legal personality from its owners. Ownership in a stock corporation is represented by shares of stock. The owners (stockholders) enjoy limited liability but have limited involvement in the company's operations. The board of directors, an elected group from the stockholders, controls the activities of the corporation. In addition to those basic forms of business ownership, these are some other types of organizations that are common today:

In general, a corporation has all the legal rights of an individual, except for the right to vote and certain other limitations. Corporations are given the right to exist by the state that issues their charter.

✎ Activity 8.3

1. Compare and contrast the three types of business organizations.
2. List at least one business organization from your locality for the three types of business organizations,

8.4 Business Feasibility Analysis

By the end of this section, students will be able to;

- Describe Cost benefit Analysis for business feasibility studies
- Explain business plan
- Develop a business plan
- Undertake cost benefit analysis of business startups

Key Concepts

SWOT analysis; Cost Benefit Analysis; Business Plan

Start Up Activity

Do you think all the business ideas get started, why or why not?

8.4.1 Feasibility Studies versus business plans

Be sure you know what you want and what to expect when pursuing a new venture, business or project. A lot of time, resources and money can be saved in knowing what to do and the order in which to do it. A good rule of thumb is to never commission a business plan until a feasibility study has been completed first. A proof of business concept, also known as a feasibility study, is normally less than 20% of the cost of a business plan and although a feasibility study will not be anywhere close to the in-depth "nuts and bolts" view of a business plan, it will do exactly what the name implies. It will show if a project is feasible before any other steps are taken or major financial burden is incurred. There are very big differences between a feasibility study and a business plan.

8.4.2 Feasibility Studies

A feasibility study is designed to discover if a business or project is "feasible" or if it is not: (In short, does the business or project warrant further investment of time, money and further study or is it a non-starter). A feasibility study is a relatively inexpensive way to safeguard any wastage of further investment (will it work or won't it). If a project is seen to be feasible from the results of the study, the next logical step is to commission a full business plan. Will the investment made in the feasibility study itself then be wasted? No. Because the research and information uncovered in the study will be of good use in the business planning stage and will also reduce the research time and therefore the cost of the business plan. On the other hand, a business plan is designed to "plan" in advance how a business or project will be started, implemented and managed. Business plans are commissioned for one of three reasons: Re-organization,

investment/funding or a management blueprint for operation.

People never plan to fail; people only fail to plan! FEASIBILITY STUDIES demonstrate to a prospective project owner or investor that a given concept is financially viable and whether further study and/or a business plan is warranted. For a feasibility study, basic data is obtained through a series of queries, questions and meetings, wherein the client provides some of the research and other data and facts need to be gained from a variety of sources. The typical feasibility study contains, among other items, notes on financial projections, a general description of the business, general details describing how the company / project will be formed, managed and marketed, statements concerning the competition and a cash-flow projection based on averages. Further notes can be included as to general details of the project and revelations found during the research stage. The study will normally be completed quickly and in very general format compared to that of a business plan.

A feasibility study should answer five questions.

1. Will it work or not?
2. Is it profitable or not?
3. What will it basically cost to fund or start?
4. Is it worth doing?
5. Is it worth commissioning a business plan?

8.4.2 Business Plans

A business plan is a detailed road map for building a given company. A business plan contains all that the feasibility study has plus specific timelines, detailed budgets with forecasts, letters of intent, resumes of staff, background, competition, strengths and weaknesses, work sheets (with full supporting references and notations) and appendices. Appendices should include copies of all documentation in relation to key analyses as well as plans that together represent the road map for company development.

A well-written business plan will show exactly what revenues can be expected and when to expect them, what overheads and expenses will need to be paid and exactly when they will be due. It will also show staffing levels and salaries along with costs of employment, sales levels with monthly and seasonal trends, setup costs, building/office costs, utility and telephone costs, legal, insurance and accounting costs, office furniture and supplies costs and a myriad of other costs and projections. However, while these costs and revenues form an important part of the required picture, a

business plan will also need to demonstrate that all required plans are completed.

As such a business plan will feature information central to establishing a high degree of certainty in effective operation. Sections on demographics, sales and sales methods, objectives, expansion plans, contingency exercises, product/services market introductions, regulatory requirements, laws of City, State and Federal governments relating to the business or project and much more should be included. A well-written business plan can help maximize potential and minimize overheads, liabilities and risk associated with any project. People never plan to fail; they only fail to plan! A feasibility study (proof of business concept) and a business plan are totally separate documents and each does a very specific job. The costs associated with each are also completely different.

However, a business plan may be developed that has as a component which includes key features and evidence supporting proof of the business concept.

8.4.3 Developing a Small & Medium Enterprise feasibility study

A SME feasibility study (proof of business concept) is a formalized, written approach to evaluating your business idea. It should;

- Show you what facts and figures are needed to aid decision- making.
- Show whether or not your idea is viable.
- Allow you to discover and look at alternative approaches and solutions to putting your idea into practice.

The Study should be written by you, for you, in language and in terms you can relate to about your business idea. It should include the following content.

1. **The business idea**

How would you describe your business idea? What is it? Will it work? How is it different from existing businesses? Who will buy from you? Can you put your idea on paper?

It is not enough simply to say “A Service business” or “A coffee shop”. Paint a picture of your business idea in words so that anyone reading this description knows exactly what you are talking about. To start your Feasibility Study - start with your business idea, on paper. Discuss it with others and adjust it as you obtain more information and ideas.

2. **Profiles- Key People**

It is not enough to have a good idea - you need people who can implement it. Who are they? Are they you, your partners, your family or anyone else? Once you have identified these people you need to determine your/their skills and strengths and whether they help or hinder in the proposed venture?

Create a one-page resume of each key person. This is not merely a job history, but a picture of each key person, showing pertinent strengths, skills, experience, training and qualifications. It will reveal to you and any potential lender, supplier, partners or agent, the operational/management strengths (and weaknesses) of you and your team. It will also show you the need to acquire any missing skills you can identify.

3. **Personal Objectives**

Why do you want to go into business? Answer - To create wealth!

Remember: business is principally a means of allowing people to achieve the things they want in their private life, like a home, cars, holidays and a good lifestyle. You need to set personal objectives. Do you know what you want in your private life? Consider Short Term - say up to one year; Medium Term - one to three years; Long term - greater than three years.

You need to sort out life objectives and ensure that the business will not only assist you in generating wealth but also facilitate your life style.

4. **The Market**

Customers: You cannot sell to everyone. So, who are your potential customers? Make a List. Why will they buy from you?

Identify your Market Segments or groups: What knowledge do you have of your market segments or groups? How many are there? What will they buy? How often will they buy? What will be their average purchase?

Products & Services: Create a list showing the products / services you will be offering to each segment. Also look at how long it will take you to produce or procure them. Determine how much it will cost to buy or produce them and how much you can sell them for. Suppliers: Identify preferred and alternative suppliers on a list and show products /services / prices on this list. Collect catalogues and brochures to assist this study.

Competition: List your competitors and show their perceived strengths and weaknesses. For each main competitor, list two good points and two bad points. You need to understand why they are competition to your proposed business. Ask the Question:

How can you attract their customers from them? Price is not the only answer.

Map: Obtain a map and on it define your market boundaries, location, competitors, suppliers, and demographic information on your market.

5. **Your Business Overview**

Location - Your site, is it rented, owned, or at home? Why locate there? What are the advantages and disadvantages?

8.4.4 Function Of A Feasibility Plan – Proof Of Business Concept

Feasibility plans help entrepreneurs - and their investors - judge whether a business concept is credible. The process of preparing a feasibility plan is a testing process - a validation process to determine what could go wrong and what needs to go right for an enterprise to root and grow. Preparing a feasibility plan requires a tremendous amount of research and thinking, which often lead to significant changes in the original idea. The good news is that the stronger the feasibility plan the easier the business plan is to write and the more likely it is that your business will receive financial support and succeed.

Feasibility Plan Narrative

The feasibility plan is not a formal document but it can be considered a structured formal commercial report. It is your first reality check. (The marketplace will be the real check.) As such, the plan should be very carefully thought through, extraordinarily well documented and clearly written. A feasibility study (proof of business concept) can exist in its own right or be in part of whole a supporting document (appendix) for the formal business plan. Within a formal business plan many decisions or business models will be used and the justification for those actions must be clearly demonstrated and this is often achieved by being able to reference to findings of the original business concept feasibility study

A feasibility plan should at least touch on most issues included in the final business plan. In the feasibility plan, the focus is on getting the design right and testing its coherence, rather than on convincing investors and other partners to extend their support. Often the feasibility study's validity is demonstrated through a cost benefit analysis. A cost - benefit analysis is a relatively simple and widely used technique for deciding whether a business model or decision is financially viable. As its name suggests, to use the technique simply add up the value of the benefits of a course of action, and subtract the costs associated with it.

Accordingly, clarity and factual evidence are more important for the feasibility plan than a convincing business presentation.

8.4.2 Cost Benefit Analysis

One of the main ways people make decisions is by using a cost benefit analysis (or CBA).

Whether you're a renter considering purchasing a new home or a business weighing a new sales strategy, you're probably using a CBA. It's an integral part of corporate, individual and even government decision making.

Even when big companies like Macy's (M) - Get Macy's Inc Report move to repurchase hundreds of millions of dollars of their own debt, executives are using CBA. In fact, most actions undertaken by companies involve CBA in some form or other.

But what actually is cost benefit analysis, and how is it used? What are some examples of cost benefit analysis?

What is cost benefit analysis: Cost benefit analysis is a process used primarily by businesses that weighs the sum of the benefits, such as financial gain, of an action against the negatives, or costs, of that action. The technique is often used when trying to decide a course of action, and often incorporates dollar amounts for intangible benefits as well as opportunity cost into its calculations.

Although CBA can be used for short-term decisions, it is most often used when a company or individual has a long-term decision.

CBA is an easy tool to determine which potential decision would make the most financial sense for the business or individual. The process also takes indirect benefits or costs into consideration, like customer satisfaction or even employee morale. And opportunity cost often plays a big role when deciding between several options. When listing potential costs and benefits, companies or analysts will often factor in things like labor costs, social benefits and other factors that may not be immediately obvious.

Still, CBA is similar to net present value (or NPV), which is often used by investors.

So, what's the difference between CBA and NPV?

Cost Benefit Analysis vs. Net Present Value

When performing a cost benefit analysis, or CBA, it is generally helpful to weigh the total benefits and total costs of a future project at their present value - which is where net present value comes in. Given that CBAs are often done with a long-term view

in mind, the value of money often changes due to inflation and other factors, making it helpful to factor in the net present value of the figures you are analyzing when conducting a CBA.

Net present value, as the name suggests, is a method used to determine the benefits of undertaking an investment by calculating the future benefits or costs in terms of their present value. If the net present value is positive for the calculation (meaning the benefits outweigh the costs), the action or decision will generally be a good investment. If negative, the opposite is likely true.

In CBA, net present value is used to calculate net present costs and net present benefits.

How to calculate Cost Benefit Analysis

For standard CBA, the formula, the benefit/cost ratio, is fairly simple:

Benefit/cost, simplified as b/c.

Cost Benefit Analysis Steps

Cost benefit analysis is fairly simple to execute, and can be helpful when considering a new course of action or strategy.

Step 1: Compile lists

The first thing to do when running a cost benefit analysis is to compile a comprehensive list of all the costs and benefits associated with the potential action or decision.

Consider not only the obvious costs (like the cost of installation for new software, or for the software itself) but also possible intangible costs like the opportunity cost of picking one software over another, or over another option like hiring a new employee.

Additionally, consider all the possible benefits of the course of action or decision - how much might it add to your revenue? What other benefits may be inherent in the action that would make it outweigh the costs? For example, would a new software improve efficiency or capabilities that could promote new business or make current operations run smoother? Be sure to also consider intangible benefits as well as obvious, fiscal ones.

Step 2: Give the costs and benefits a monetary value

Once you have two comprehensive lists of costs and benefits for the action, assignment. For some, the values will be obvious - like the cost of installing the software might be $500. However, it is also important to try to assign monetary values to direct or indirect and tangible and intangible costs or benefits if possible. For example, installing a new

software may render an employee's computer inaccessible for a couple hours, costing that employee working time or productivity and therefore money generated for the company. Once you assign monetary values for each cost and benefit, add all the costs and benefits respectively and set up the equation.

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Once you assign monetary values for each cost and benefit, add all the costs and benefits respectively and set up the equation.

Step 3: Set up the equation and compare

Take the sum of the benefits (the sum of all the monetary values assigned to the benefits of the action) and the sum of the costs (all the monetary values of the costs of the action) and plug them into the b/c equation.

The equation should be a numerical equation, and if the numerical benefits (the sum of the fiscal values for the benefits of the action) outweigh the costs, it is advisable to proceed with the decision. If not, the company or individual should re-examine the potential action and make adjustments accordingly.

This equation can also be set up for multiple different options or projects and can help companies compare options side by side.

✎ Activity 8.4

1. What is business plan?
2. What are the components of a business plan?

Unit Summary

Innovation can be defined as something new, improved or introduced that creates value. It can be summarized into two key elements: creativity and implementation.

Business Startups won't be profitable in the initial stages of business development since they want to grow within the shortest time possible. It will sometimes take years for a startup to make its first dollar of profit.

The main goal in business startups is to create a product or service that can be successfully placed on the market, which could bring in millions of dollars of profit in the long run. Among the most successful startups is *Uber*, which now has a market value of *$50 billion.*

Business organizations may be owned and managed by a single individual or group of individuals who may form a partnership firm or a joint stock company. Such arrangement of ownership and management is termed as a form of business organization. A business organization usually takes the following forms: sole ownership, partnership business and Corporations.

Cost benefit analysis is a process used primarily by businesses that weighs the sum of the benefits, such as financial gain, of an action against the negatives, or costs, of that action. The technique is often used when trying to decide a course of action, and often incorporates dollar amounts for intangible benefits as well as opportunity cost into its calculations.

Unit Review Exercises

Part I: Write True if the Statement is correct or False if not correct for the following questions

1. Innovation is only creating new things.
2. Business startups can be bring quick profits in the short run.
3. Sole ownership businesses are owned and managed by more than two individuals.
4. Cost benefit analysis (CBA) is a tool to check the profitability of a business or startups.

Part II: Multiple choice questions: choose the best answer for the following questions

1. Which one of the following actions by an entrepreneur is most likely to contribute to creative destruction?
   A . Development of a new product
   B . Take-over of a competitor
   C . Issuing shares
   D . Reducing prices
2. An advantage of the small firm in the innovation process?
   A . Ability to carry out R&D
   B . Ability to raise finance
   C . Ability of the entrepreneur to carry out multiple tasks
   D . Ability of the entrepreneur to act on new ideas or product development
3. External links may provide incentives to:
   A . Raise finance
   B . Introduce new working practices
   C . Introduce improvements to products
   D . Attend business exhibitions
4. Firms located on science parks compared to those located off science parks are:
   A . More innovative
   B . Less innovative
   C . No more or less innovative
   D . More growth orientated
5. Innovative small firms are more likely in:
   A . Knowledge-based sectors
   B . Biotechnology
   C . Automobile manufacture
   D . Aerospace manufacture

6. Schumpeter considered that innovative entrepreneurs would:
   A . Thrive
   B . Disappear
   C . Be absorbed within large innovative firms
   D . Be absorbed within non-innovative firms
7. Innovative entrepreneurs face special issues in raising:
   A . Development capital
   B . Structured capital
   C . Human capital
   D . Seed capital
8. Innovative entrepreneurs may have to pay high insurance premiums due to the:
   A . The need to protect patents
   B . Greater employee liability
   C . Greater customer liability
   D . Greater trading risks
9. Networking by innovative entrepreneurs may be most encouraged by?
   A . Science parks
   B . Business incubators
   C . Chambers of Commerce
   D . Business associations
10. The most likely problem encountered by innovative entrepreneurs in raising finance is:
   A . Limited security since R&D is an intangible asset
   B . The costs of the patenting system
   C . The exhaustion of personal equity in R&D
   D . Inability of potential external funders to understand technology

Part III: Fill in the blank space with appropriate words

1. Innovation has two elements:_____and _____.
2. Business types one individual, two individuals and many individuals are _____, _____ and _____.

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