ECONOMICS

Class XII

School Curriculum Division
Department of School Education
Ministry of Education and Skills Development
Royal Government of Bhutan
Thimphu

Published by:

School Curriculum Division, Department of School Education, MoESD
Thimphu.

Tel: + 975 - 2 - 332885/332880

Toll free : 1850

Website: www.education.gov.bt

Provisional Edition 2022

We would like to sincerely acknowledge the retrieval and use of ideas and pictures from various sources. We reaffirm that this book is purely for educational purposes.

9 789993 605591

Reprint 2024

Acknowledgement

The Department of Curriculum and Professional Development, Ministry of Education would like to thank all specialists, professionals, lecturers and teachers from different agencies, colleges and schools for their valuable contributions towards the development of this book.

Advisors:

1. Tashi Namgyal, Director, DCPD, MoESD, Thimphu
2. Wangpo Tenzin, Dean, DCPD, MoESD, Thimphu

Research & Writing:

1. Ugyen Lhendup, Curriculum Developer II, SCD, MoESD Thimphu
2. Deki Wangmo, Teacher, Motithang HSS, Thimphu
3. Lobzang Norbu, Teacher, Jigme Sherubling HSS, Trashigang
4. Tashi Wangmo, Teacher, Damphu CS, Tsirang
5. Ugyen Lhendup, Curriculum Developer III, SCD, MoESD, Thimphu
6. Bal Bdr. Ghalley, Teacher, Mendrelgang CS, Tsirang
7. Padma Zimba, Teacher, Gedu HSS, Gedu
8. Tshewang Dorji, Teacher, Dechencholing HSS, Thim-Throm
9. Karma Lhaden, Teacher, Punakha CS, Punakha
10. Yeshi Tshewang , Teacher, Mongar HSS, Mongar
11. Dawa, Teacher, Loselling MSS, Thimphu
12. Bal Bahadur Kharka, Teacher, Yangchenphug HSS, Thimphu
13. Kuenga Choden, Teacher, Wanakha MSS, Paro
14. Sangay Doma, Chundu Armed Forces Public School, Haa
15. Dorji Wangchuk, Teacher, Kengkhar MSS, Mongar
16. Tshegay, Teacher, Tsirangtoe CS, Tsirang
17. Migma Tshering, Teacher, Bjishong CS, Gasa
18. Kencho Wangmo, Teacher, Shrubling CS, Trongsa
19. Jamyang Tsheltrim, Teacher, Chukha CS, Chukha

Review and Refinement 2022

1. Ugyen Lhendup, Curriculum Developer II, DCPD, MoESD, Thimphu
2. Deki Wangmo, Teacher, Motithang Higher Secondary School, Thimphu
3. Ugyen Lhendup, Curriculum Developer III, DCPD, MoESD, Thimphu
4. Chimi Lhaden, Teacher, Babesa HSS, Thimphu
5. Rinzin, Teacher, Wangbama CS, Thimphu
6. Dawa, Teacher, Loselling MSS, Thimphu
7. Bal Bahadur Kharka, Teacher, Yangchenphug HSS, Thimphu

Review and Refinement 2023

1. Norbu Wangchuk, SCD, DSE,MoESD
2. Tashi Zangpo, SCD, DSE, MoESD
3. Deki Wangmo, Motithang Higher Secondary School, Thimphu
4. Migma Tshering, Bjishong Higher Secondary School, Gasa
5. Rinchen Dorji, Mendrelgang Higher Secondary School, Tsirang
6. Bhuwan Chandra Ghalley, Damphu Central School, Tsirang
7. Mani Lhamo, Samtengang Central School, Wangdue Phodrang
8. Tshering Dolma, Tashidingkha Higher Secondary School, Punakha
9. Chaxin Norbu, Dashiding Higher Secondary School, Punakha
10. Sonam Tshering, Dechencholing Higher Secondary School, Thimphu
11. Thinley Wangchuk, Geserling Central School, Dagana
12. Lhakpa Tshering Tamang, Drujaygang Central School, Dagana
13. Tobgay, SCD, DSE, MOESD

Copy Editors:

1. Amber Rai, Curriculum Developer SCD, MoESD, Thimphu

Illustration, Cover Design & Layout:

1. Karma Wangmo, STEM and Innovation Division, MoESD, Thimphu

Foreword

Economics is the branch of knowledge related to making right choices and allocating the resources for efficient use in the world of scarcity. It fosters creativity, analytical and problem solving skills that enable people to understand the world around them. Therefore, studying economics helps people to navigate the challenges and seize the opportunities that the fast changing world has to offer.

This Economics curriculum has been developed encompassing components of 21st century skills and transversal competencies complemented with strengthened assessment practices to ensure an effective teaching-learning process. It is intended to help our learners acquire economic concepts, principles, theories, skills, and values nurturing them to be competent in the fast changing economic trends and explore the opportunities that lie ahead.

Rapid rates of GDP growth alone can bring about undesirable economic and social costs. In view of such issues, this curriculum has been channelized through the lens of philosophy of holistic path to development: Gross National Happiness, which aims to bring about a balance between the spiritual and the material wellbeing.

I would like to commend the good work done by our colleagues in the Department of Curriculum and Professional Department and every individual who relentlessly contributed towards the development of this book. It is my fervid aspiration that our learners reap colossal benefits of acquiring required economic knowledge, skills, values and attitudes.

Tashi Delek

Tashi Namgyal

Director

Table of Contents

Acknowledgement.....iii

Foreword.....v

Chapter 1: Consumers and their Preferences 1

Chapter 2: Production Decision: Returns to a Factor and Scale 17

Chapter 3: Production Decision: Cost Analysis 29

Chapter 4: Production Decision: Revenue Analysis 47

Chapter 5: Firm's Equilibrium 53

Chapter 6: Theory of Distribution..... 69

Chapter 7: Statistics for Economics..... 83

Chapter 8: Public Revenue and Expenditure 99

Chapter 9: Deficit Financing 115

Chapter 10: Fiscal Policy..... 127

Chapter 11: National Income 137

Chapter 12: Measurement of National Income..... 149

Chapter 13: Economic Integration 169

Chapter 14: Exchange Rate..... 179

Assessment 191

Chapter

Consumers and their Preferences

Learning Objectives

1. *Explain total and marginal utility*
2. *Discuss the relationship between total utility and marginal utility*
3. *Explain the law of diminishing marginal utility*
4. *Explain consumer's equilibrium through the marginal utility approach using illustrations*
5. *Explain indifference curve and its properties*
6. *Examine budget line with an example*
7. *Explain consumer's equilibrium through indifference curve approach using illustrations*
8. *Compare marginal utility analysis and indifference curve analysis*

Introduction

Consumers behaviour are the actions and decision processes of people who purchase goods and services for personal consumption. These economic actions of individuals, societies, and firms involve trade-off in the world of scarcity. Therefore, understanding consumers and their preferences is important for addressing consumer's need.

Reprint 2024

This chapter discusses how consumers make their decision by allocating limited income across all possible goods and services in order to obtain maximum satisfaction.

1.1. Utility Analysis

Utility analysis provides insights into understanding consumer behaviour and market purchase which is based on satisfaction derived from the consumption of goods and services. Measurement of utility helps in analysing the behaviour of a consumer. Utility can be analysed using marginal utility analysis and indifference curve analysis.

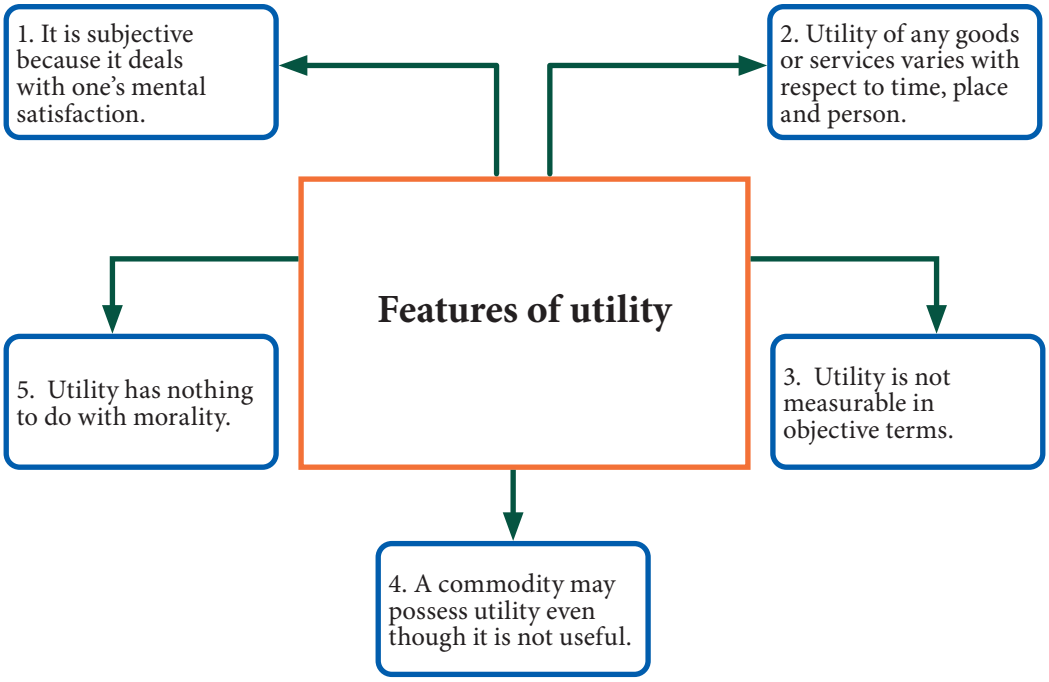

Figure 1.1 *Features of utility*

a. Marginal utility analysis

Marginal utility analysis helps to understand the behaviour of a consumer in determining how a consumer maximises satisfaction from consumption of goods and services. It explains the consumer's behaviour through quantitative measurement using cardinal numbers (utils). The concepts of total utility and marginal utility are fundamental for marginal utility analysis.

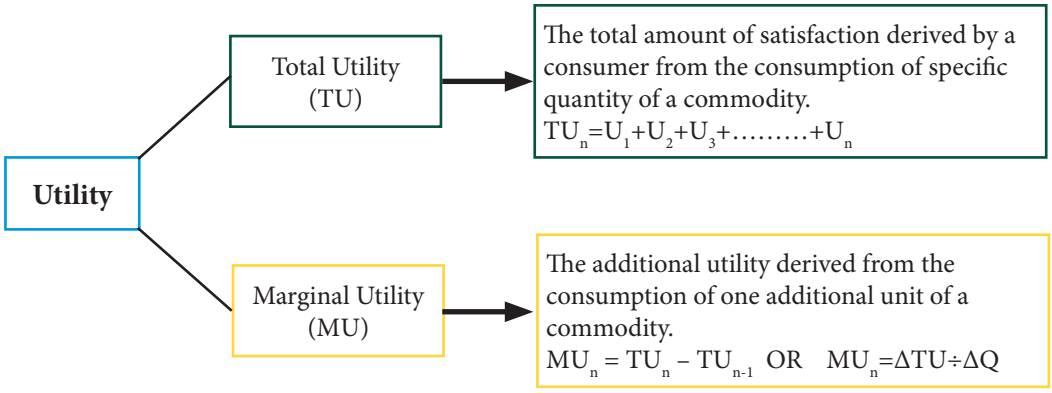

Figure 1.2 *Utility*

Learning Activity 1.1 ***Interpreting the relationship between total utility and marginal utility***

Instructions

1. Study table 1.1 and calculate MU.

2. Use the information to plot TU and MU curves.

Table 1.1 *Total utility and marginal utility*

Units	TU	MU
0	0	
1	10	
2	18	
3	24	
4	26	
5	26	
6	24	

Questions

1. What is the value of MU when TU is maximum?
2. What happens to TU when MU becomes negative?
3. As the unit of a commodity consumed increases, what happens to marginal utility? Why?
4. Establish the relationship between TU and MU.

b. Law of diminishing marginal utility

The law of diminishing marginal utility states that the utility derived by the consumer from consumption of additional units (marginal utility) of a commodity goes on diminishing.

According to Marshall, the additional benefit a person derives from a given increase of consumer's stock of a commodity diminishes with every increase in the stock that consumer has. The law of diminishing marginal utility is represented in figure 1.3.

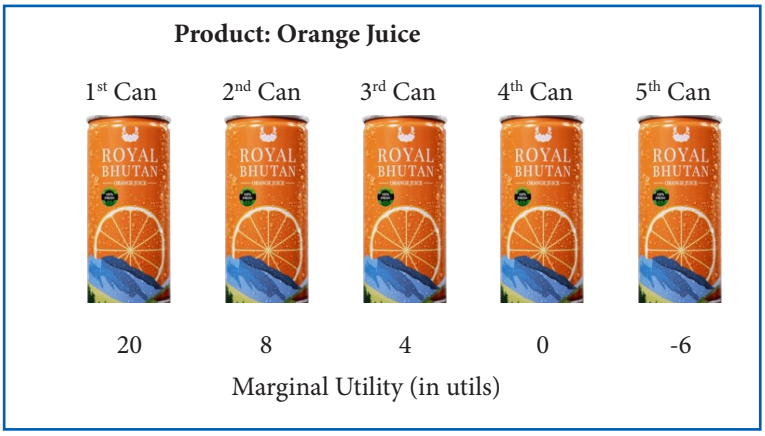

Figure 1.3 *Diminishing marginal utility of orange juice*

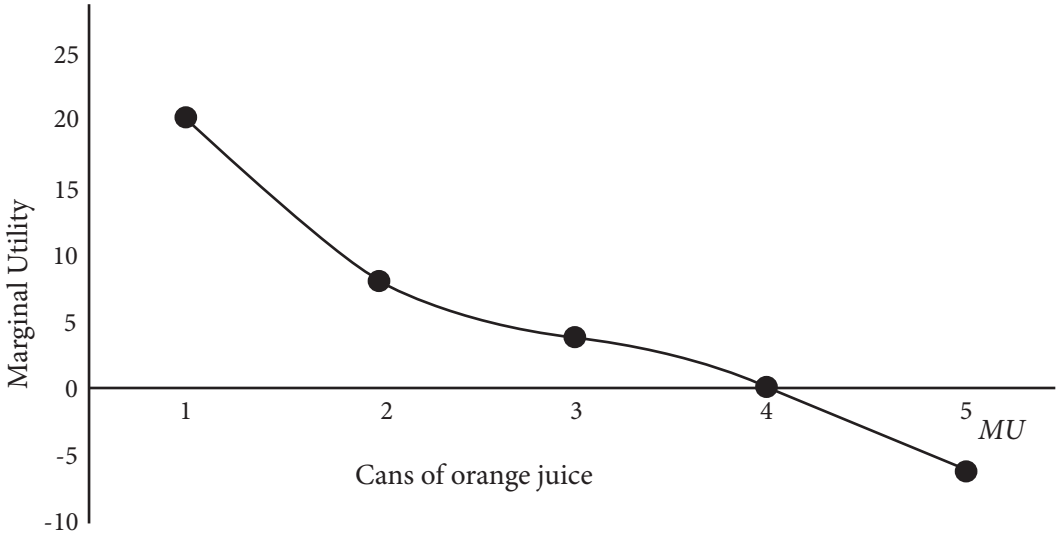

Figure 1.4 *Law of diminishing marginal utility*

Figure 1.4 illustrates Law of diminishing marginal utility. As the consumption of orange juice increases, marginal utility obtained from each successive unit diminishes.

Assumptions

The application of the Law of diminishing marginal utility operates only under the following conditions:

i. There is no change in the consumer's taste and preference, habit, fashion, and character during that span of consumption.

ii. Every unit of a commodity is exactly the same in shape, size, colour, quality, and brand.

iii. Standard quantity of a commodity is consumed.

iv. There is continuous consumption of a commodity.

v. There is no change in the income of the consumer.

vi. There is no change in the price of the commodity and its substitutes.

vii. Marginal utility of every commodity is independent.

c. Consumer's equilibrium - marginal utility approach

A consumer's equilibrium is a situation when a consumer gets maximum satisfaction and has no tendency to change the level of consumption at a given price of a commodity. The decision of a consumer to buy goods or services depends on the price of each unit and the utility gained from it. Consumer's equilibrium in case of a single commodity is explained by the Law of diminishing marginal utility.

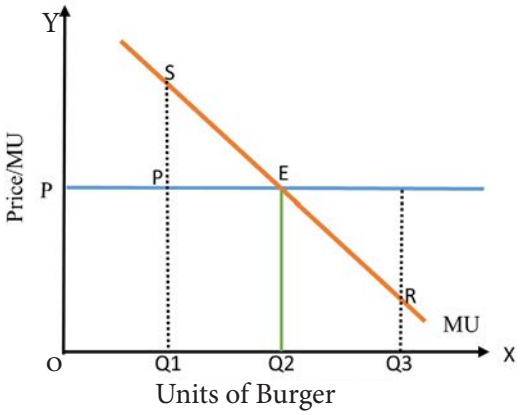

Figure 1.5 *Consumer's equilibrium*

In figure 1.5, unit of burger is shown on the X-axis and price on Y-axis. The downward sloping curve indicates marginal utility derived by the consumer on consuming burger. The straight line parallel to X-axis represents the price. The MU curve and price line P intersect at E. This point represents consumer's equilibrium. At any point above E, MU is greater than price P, hence, the benefit is more than cost. Therefore, the consumer increases total utility by purchasing more units of burger. Similarly, at any point below E, MU is less than price P, the benefit is less than cost, and the consumer decreases consumption to be in equilibrium. Thus, point E is the point of equilibrium where MU of burger is equal to its price ($MU_{burger}=P_{burger}$).

1.2. Indifference Curve Analysis

Modern economists have put forward a new approach to explain consumer's behaviour known as indifference curve analysis. Indifference curve analysis has abandoned the concept of cardinal utility by adopting ordinal utility. This approach does not require the utility to be measured in terms of quantity but it implies that the consumer is capable of simply comparing the utility derived from different units of same goods or different combination of goods.

a. Indifference curve

An indifference curve is a graphical representation of various combinations of two commodities that give equal level of utility or satisfaction to the consumer. It is also known as iso-utility curve.

Since any combination of the two goods on the indifference curve gives equal level of satisfaction, the consumer is indifferent to any combinations.

b. Indifference schedule

The indifference schedule is the tabular representation of the various combinations of two goods giving the consumer equal satisfaction.

Table 1.2 *Indifference schedule*

Combination	Orange	Mango	Marginal rate of substitution
A	18	1	-
B	13	2	5:1
C	9	3	4:1
D	6	4	3:1
E	4	5	2:1
F	3	6	1:1

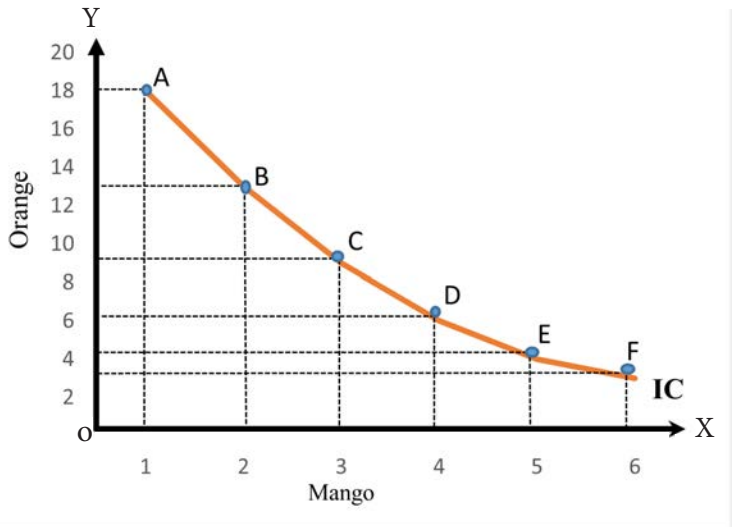

Figure 1.6 *Indifference curve*

Figure 1.6 shows various combinations A, B, C, D, E and F of oranges and mangoes. At combination A, consumer consumes 18 units of oranges and 1 unit of mango. Similarly, at combination D, consumer consumes 6 units of oranges and 4 units of mangoes.

A consumer is indifferent to any of these combinations because same level of satisfaction is derived although the amount of oranges and mangoes vary in every combination.

Assumptions

i. Rational consumer

A consumer behaves in a rational manner, i.e. a consumer always aims to maximise total satisfaction.

ii. There are two commodities

It is assumed that the consumer has fixed amount of money, all of which is to be spent only on two goods. It is also assumed that prices of both the commodities are constant.

iii. Ordinal utility

Utility is a psychological phenomenon and thus it is immeasurable. However, it assumes that a consumer can express utility in terms of rank. A consumer can rank the preferences on the basis of satisfaction derived from each combination of commodities.

iv. Non-satiety

Indifference curve analysis assume that consumer is not over supplied with goods to reach the point of saturation. As a result, consumer prefer a larger unit over a smaller unit of commodity.

v. Diminishing marginal rate of substitution

Indifference curve analysis is based on the concept of diminishing marginal rate of substitution. As the consumer consumes additional unit of one commodity, they are prepared to give less amount of one commodity for one more unit of another commodity. This decline in willingness occurs because the consumer's satisfaction or desire for the former commodity decreases with each additional unit consumed.

vi. Transitivity

It is assumed that consumer's choices are characterised by transitivity. For instance, if a consumer prefers combination A to B and combination B to C, then the consumer also prefers combination A to C.

c. Properties of indifference curve

i. Indifference curve slopes downward to the right

When a consumer consumes more unit of one commodity, lesser units of the other commodity must be consumed. Hence, the indifference curve slopes downward to the right.

ii. Indifference curve is convex to the origin

The slope of the indifference curve decreases from left to right making it convex to the origin. The convexity of IC to the origin is the result of diminishing marginal rate of substitution.

iii. Higher indifference curve represents higher level of satisfaction

Higher the indifference curve, higher will be the level of satisfaction. This means, any combination of two goods on the higher IC gives higher level of satisfaction compared to combination of goods on the lower IC. In figure 1.7, IC_2 shows more units of both the commodities than IC_1.

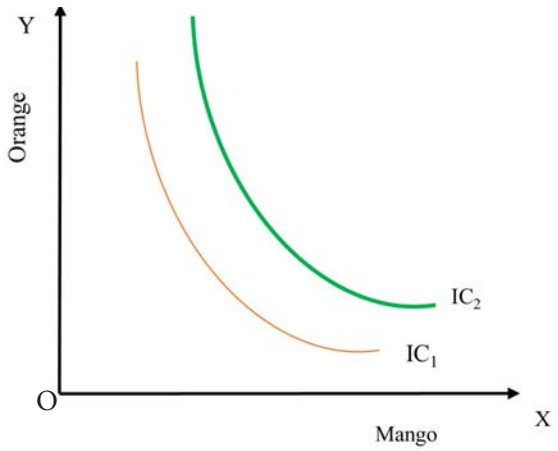

Figure 1.7 *Indifference curve*

iv. Two indifference curves never touch or intersect with each other

Each indifference curve is a representation of different level of consumer's satisfaction. The consumers prefer the combinations which lie on a higher indifference curve as compared to the combinations lying on a lower indifference curve.

As shown in figure 1.8, if two indifference curves IC_1 and IC_2 intersect each

other at point B, this would imply two different levels of consumer satisfaction. However, this would not happen as per the properties of IC. IC_1 and IC_2 may lie closer to each other but never intersect or touch each other.

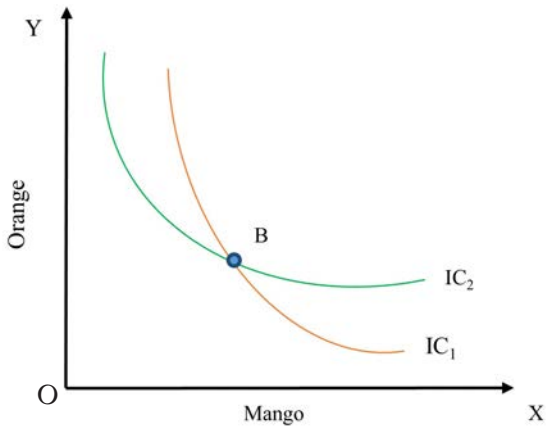

Figure 1.8 *Intersecting indifference curves*

d. Indifference map

An indifference map is a series of indifference curves that represent different levels of satisfaction. Higher indifference curve gives higher level of satisfaction because it represents more quantities of one or both the commodities.

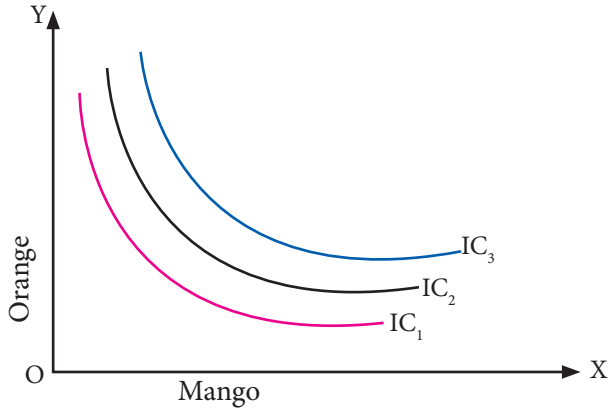

Figure 1.9 *Indifference map*

Figure 1.9 represents an indifference map comprising of three indifference curves IC_1, IC_2 and IC_3. All the combinations on IC_2 give higher satisfaction to the consumer in comparison to IC_1. Similarly, the combinations on IC_3 give higher satisfaction to the consumer in comparison to IC_1 and IC_2.

1.3. Marginal Rate of Substitution

Marginal rate of substitution is the rate at which a consumer is willing to substitute one good for another without altering the level of satisfaction.

Marginal rate of substitution of orange and mango is illustrated in figure 1.10. For instance, when a consumer moves from combination A to B, 5 units of orange is sacrificed to get 1 unit of mango. Thus, MRS of orange for mango is 5:1.

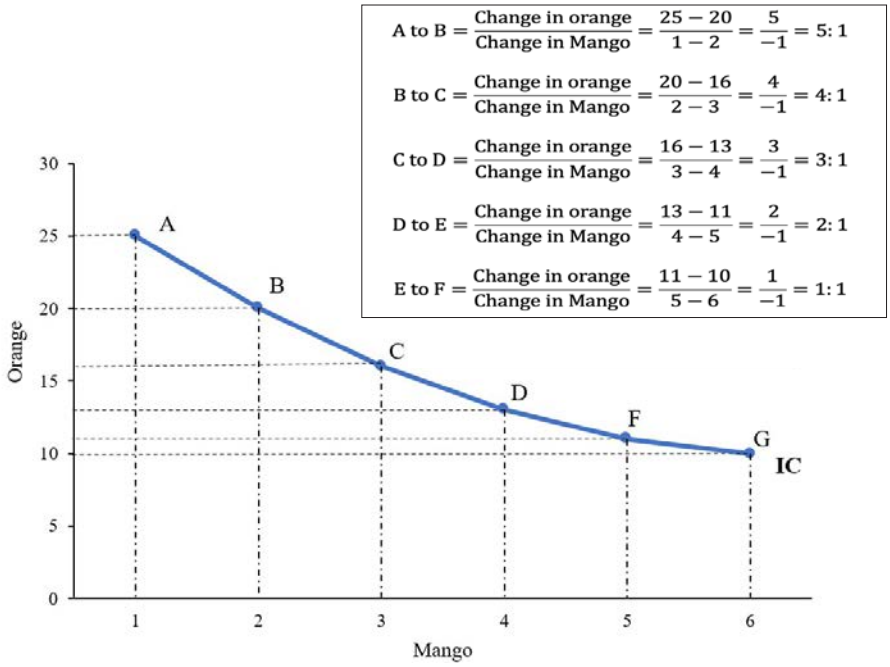

Figure 1.10 *Marginal rate of substitution*

1.4. Budget Line

A budget line is a graphical delineation of various combinations of two commodities that a consumer can afford to buy with a given income at a given prices of the two commodities. It is also known as budget constraint or price line.

While an indifference curve shows what choices the consumer would like to make based on one's taste and preference, the budget line shows what the consumer can actually do.

Table 1.3 *Budget schedule*

Combination	Orange (Nu 10/Kg)	Mango (Nu 5/Kg)	Expenditure
A	0	10	10(0)+5(10)=50
B	1	8	10(1)+5(8)=50
C	2	6	10(2)+5(6)=50
D	3	4	10(3)+5(4)=50
E	4	2	10(4)+5(2)=50
F	5	0	10(5)+5(0)=50

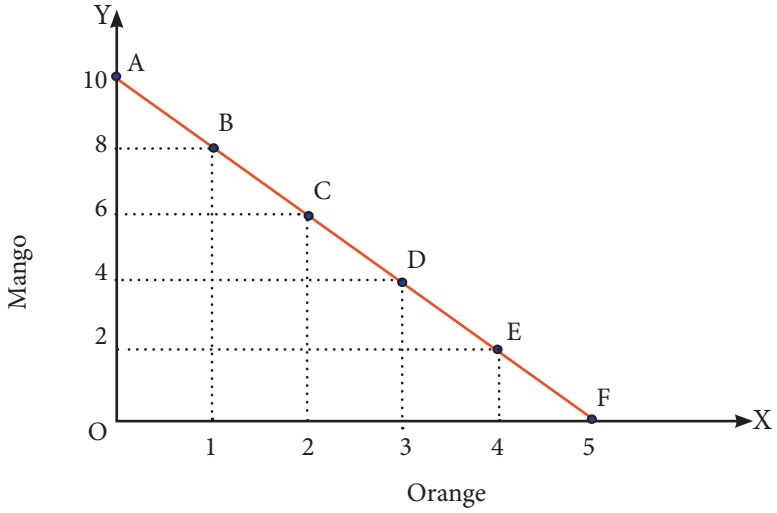

Figure 1.11 *Budget line*

Table 1.3 shows the various combinations of oranges and mangoes that the consumer can purchase, supposing that, a consumer has Nu 50 to spend on oranges and mangoes at Nu 10 and Nu 5 per Kg respectively.

If the entire income is spent on mangoes, the consumer can buy 10 kg of mangoes and no oranges at combination A. On the other hand, if the entire income is spent on oranges, the consumer can purchase 5 Kg of oranges and no mangoes at combination F. There are several other combinations of oranges and mangoes represented by

the budget line AF in figure 1.11. This indicates that the combinations of the two commodities are placed within the consumer's budget and cannot purchase any combinations outside the budget line.

Learning Activity 1.2 Analysing consumer's equilibrium using indifference curve analysis

Instructions

1. In figure 1.12, AB represents the budget line and IC_1, IC_2 and IC_3 are three different indifference curves.
2. Study the figure carefully and answer the questions that follow.

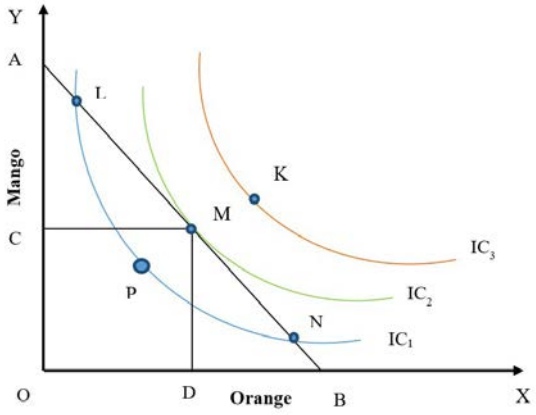

Figure 1.12 *Consumer's equilibrium - IC approach*

Questions

1. Identify the point of consumer's equilibrium. Justify.
2. Why other points are not consumer's equilibrium?
3. Will it be possible for consumers to shift equilibrium? Illustrate with a suitable diagram.

1.5 Similarities and Differences between MU Analysis and IC Analysis

- Both approaches assume that the consumers are rational and try to maximise the satisfaction from the limited resources.
- Both the theories assume some form of diminishing marginal utility. As the

consumer consumes more units of a commodity, the amount of utility gained from each additional unit progressively diminishes.

- Both the approaches yield the similar results which is consumer's optimality.
- Both the theories are based on introspective method. In this method, the consumer behaviour is explained by looking into one's own psychology.

Table 1.4 *Differences between MU and IC analysis*

MU approach	IC Approach
Consumer's level of satisfaction can be measured numerically in cardinal numbers.	It assumes that utility can be measured in ordinal numbers. It can be compared or ranked based on the preference.
Cardinal utility is less realistic, as quantitative measurement of utility is not possible.	The ordinal utility is more realistic as it relies on qualitative measurement.
The Law of diminishing marginal utility is used to analyse consumer's behaviour to explain consumer's equilibrium. $MU_X=P_X$	The Law of diminishing marginal rate of substitution is used to analyse consumer's behaviour to explain consumer's equilibrium. $MRS_{xy} = \frac{P_x}{Py}$

Review Questions

1. Assume that you have the habit of drinking tea every after two hours. Which cup of tea would you enjoy the most, the first one in the morning or the last one towards the evening? Respond using the concept of marginal utility.

2. Pema was served a plate of momo comprising 6 pieces and admits each momo doesn't taste as delicious as the previous one. This clearly shows that
   a. the marginal utility of momo is positive but decreasing
   b. the total utility of momo is increasing by larger and larger increments
   c. the total utility of momo is declining by larger and larger increments
   d. the marginal utility of momo is negative but increasing

3. All of the followings are true about indifference curve approach EXCEPT
   a. The slope of the indifference curve is equal to marginal rate of substitution
   b. Two indifference curves intersecting each other gives maximum satisfaction
   c. Indifference curve is convex to the origin
   d. Higher the indifference curve higher is the level of satisfaction

4. Karma has Nu 1,000 to be spent on book and pen. If the price of 1 unit of book and pen are Nu 50 and Nu 25 respectively.

   a. What are some of the possible combinations of the two commodities that can be purchased. Explain using the concept of budget line.

   b. If karma decides to purchase 30 units of pen, what quantity of book can be purchased with remaining budget?

   c. Suppose karma's budget increases by 50%, how would this affect purchase of book and pen?

5. Which of the shaded area in the figure 1.13 represents total utility?

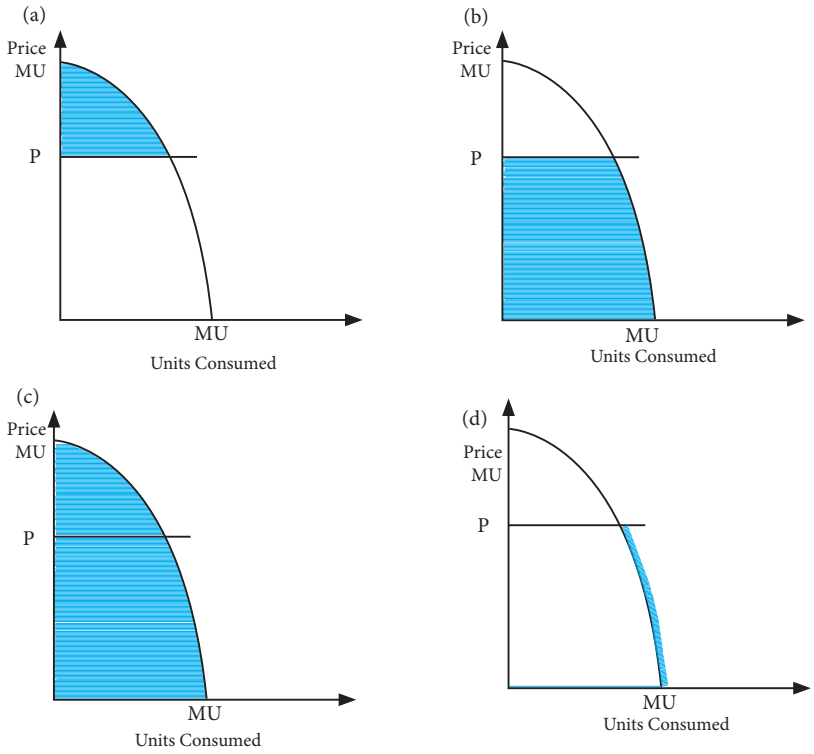

Figure 1.13 *Total utility*

Chapter

Production Decision: Returns to a Factor and Scale

Learning Objectives

1. *Explain production*
2. *Analyse laws of production in short-run and long-run*
3. *Explain the causes of returns to factor and returns to scale*
4. *Interpret laws of production using illustrations and numerical examples*

Introduction

The study of production brings insight on understanding how to allocate the factors of production in an efficient way. Producers produce goods and services with the available resources by employing the least-cost combination of inputs such as land, labour and capital in order to maximise profit. Thus, a firm maximises profit by producing quantity of output where marginal revenue equals marginal cost. However, applying the best combination of factor inputs to give the maximum output is a challenging task for a producer.

This chapter discusses production function in short-run and long-run.

Reprint 2024

2.1 Production function

Production is the process of transforming inputs into outputs. The outputs of goods and services depend on the units of factor inputs employed. The production function explains a functional relationship between inputs and outputs. It is expressed as:

$$Q_x = f(i_1, i_2, i_3 \ldots\ldots\ldots\ldots i_n)$$

Where

- Q_x is the quantity of a commodity produced.
- $(i_1, i_2, i_3 \ldots\ldots\ldots\ldots i_n)$ are the quantity of various inputs used.

Assuming that there are only two inputs, labour (L) and capital (K), the production function is expressed as:

$Q_X = f(L, K)$, which means the quantity of commodity X produced depends on the quantity of labour and capital used.

a. Types of production function

Based on the time period of production, the quantity of output varies with the change in the quantity of inputs. Assuming that the technology is given, the output can be increased only by increasing the inputs. The relationship between input and output is classified based on short-run and long-run.

b. Basic concepts of production in short-run

The basic concepts of short-run productions are:

i. Total Product (TP)

It is the total quantity of a commodity produced with a given unit of factor inputs and technology during a given period of time.

ii. Average Product (AP)

It is the output produced per unit of variable input employed. It is obtained by dividing total product by the units of variable factor.

$$AP_L = \frac{TP}{L}$$

iii. Marginal Product (MP)

It refers to the additional output produced by employing one more unit of variable input. It is represented as:

$$MP_L = \frac{\Delta TP}{\Delta L}$$

2.2 Law of Variable Proportions

The change in output as a result of employing different units of variable factors to the given unit of fixed factor is explained by the law of variable proportion. The law of variable proportions state that with additional units of a variable factor employed to the given quantity of a fixed factor, the total product increases at an increasing rate initially, and increases at a diminishing rate before it falls perpetually in the final stage. As such, the law of variable proportions is the extension of the law of diminishing returns.

Assumptions

The law of variable proportion holds true under the given assumptions:

1. The firm operates in the short-run.
2. The state of technology is given and remains unchanged.
3. At least one input is fixed while other inputs vary.
4. Technology has the possibility to change the factor proportion.
5. All units of variable factors are homogeneous and equally efficient.

a. Stages of the Law of Variable Proportions

The behaviour of output in terms of TP, AP and MP has three stages. It is illustrated in figure 2.1 and table 2.2.

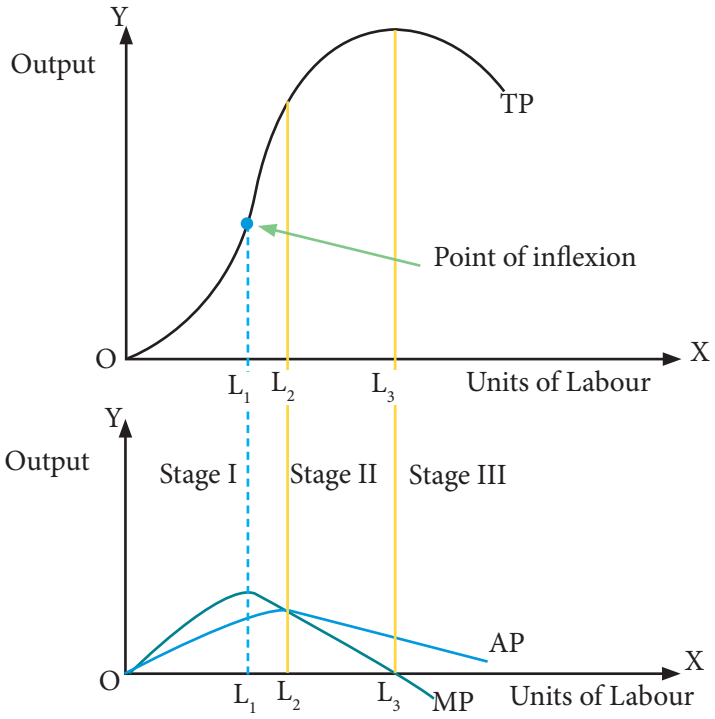

Figure 2.1 *Stages of law of variable proportions*

Figure 2.1 shows the behaviour of TP, AP and MP when additional units of variable factors (labour) are applied to a given unit of fixed factor (capital). All three curves rise at first and decline eventually. The MP curve declines at the earlier stage followed by AP and TP curves. When MP reaches maximum, TP will change its slope indicating a lesser increase of the total output. This is the point of inflexion. It is a turning point for a producer to determine the level of output.

Learning Activity 2.1 ***Computing TP, AP and MP to draw the relationship amongst the variables***

Instructions

1. Study table 2.1 and compute the missing values of AP and MP.
2. Plot graph to study the behaviour of TP, AP and MP.

Table 2.1 *TP, AP and MP*

Fixed factor (capital)	Variable factor (labour)	TP	AP	MP
1	0	0		
1	1	100		
1	2	220		
1	3	360		
1	4	520		
1	5	650		
1	6	750		
1	7	840		
1	8	880		
1	9	880		
1	10	830		
1	11	770		

Questions

1. What happens to TP when MP decreases?
2. Explain the relationship between:
   a. TP and MP
   b. MP and AP

Table 2.2 *Stages of the Law of Variable Proportions*

Stage	Type of returns	Total product	Average product	Marginal product
I	Increasing return	Increases initially at an increasing rate and subsequently increases at a diminishing rate	Increases throughout and reaches the maximum	Increases at first, reaches the maximum and then decreases
II	Diminishing return	Increases at a diminishing rate and eventually reaches the maximum	Begins to decrease	Decreases and eventually becomes zero
III	Negative return	Decreases consistently	Decreases but it remains positive	Decreases and becomes negative

1. Causes of increasing return

i. Fuller utilisation of fixed factors

Initially, the amount of fixed factor is too large relative to the amount of variable factor. Therefore, fixed factor remains underutilised. However, with the increase in use of variable factors, the fixed factor is utilised efficiently. Thus, the total product increases at an increasing rate.

ii. Division of labour

Increase in variable factors enable a producer to have division of labour. The division of labour leads to specialisation and efficiency of variable factor resulting to increased returns.

2. Causes of diminishing return

i. Disturbing the optimum proportion

With the additional units of variable factors to a given amount of fixed factor, the fixed factor is better utilised. There is an optimum combination of fixed and variable

factors when the fixed factor is fully and efficiently utilised. However, when this optimum combination is disturbed, it decreases the average and marginal products.

ii. Imperfect substitutability of factor inputs

Factors can be substituted for each other up to a certain point of production. Employing more variable factors beyond the optimal combination leads to diminishing return as labour and capital cannot be substituted.

3. Causes of negative return

i. Overcrowding

Employing more units of variable factor to a fixed factor leads to overcrowding which reduces the productivity of the factor inputs.

ii. Management problem

Increased units of variable factor create the problem of effective management. When there are too many workers there is a tendency to shift responsibilities amongst the workers to avoid work. This leads to a decrease in the efficiency and output.

Learning Activity 2.2 Examining the stages of operation and decision to produce

Instructions

1. Construct a table depicting different stages of production and firm's decision with regard to TP, AP and MP.
2. Identify the stages of the law of variable proportion.

Questions

1. If you are a producer, in which stage would you decide to operate? Why?
2. Why would producers not operate in other stages?
3. Discuss the importance of TP, AP and MP for the producers.
4. A firm cannot increase output after reaching negative returns in the short-run. Explain.

2.3 Law of Returns to Scale

In the long-run, it is assumed that all factor inputs are variable. Therefore, the production function is expressed as:

$$Q_x = f(L, K)$$

The long-run production function studies the change in output when all inputs increase in the same or different proportion. The change in total output due to the change in scale of production is called returns to scale. However, traditional theory of production explains the change in output with the proportionate change in inputs.

When a firm increases its inputs proportionately, the total output increases more than the proportion, in the same proportion, or less than the proportion. Accordingly, these are the three possibilities of returns to scale.

1. Increasing returns to scale

If the producing unit increases all its inputs by a given quantity and the total output increases by more than proportionate increase in inputs, it implies increasing returns to scale.

2. Constant returns to scale

If the producing unit increases all its inputs and the total output increases by the same proportion to increase in inputs, it is the situation of constant returns to scale.

3. Decreasing returns to scale

If the producing unit increases its inputs and the total output increases by less than proportionate increase in inputs, it implies decreasing returns to scale.

Table 2.3 *Returns to scale*

	Inputs		Units of output produced		
Time period	Units of labour (L)	Units of capital (K)	Increasing returns	Constant returns	Decreasing returns
1	5	2	100	100	100
2	10	4	250	200	170

Diagrammatic representation of Returns to Scale

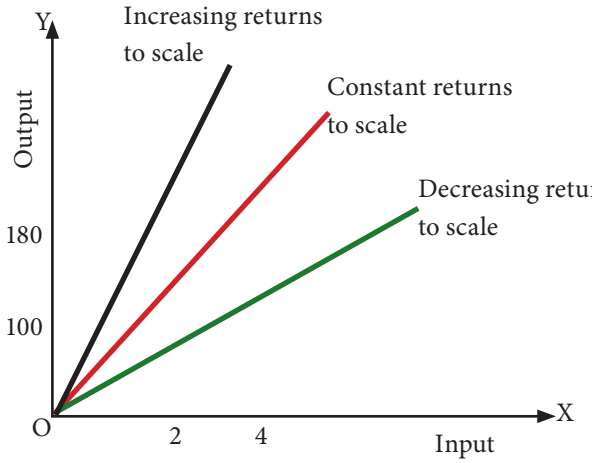

Figure 2.2 *Returns to scale*

1. Causes of increasing returns to scale

i. Indivisibility of inputs

Inputs like huge and bulky machineries can be fully and efficiently utilised at larger levels of output. Such inputs can neither be divided into smaller units to suit lower scale of production nor be excluded from production. Thus, increasing returns can be realised from the efficient use of such resources.

ii. Greater division and specialisation of labour

As the scale of production increases, it allows the possibility to adopt division of labour and specialisation. This increases the labour productivity and efficiency of the management.

2. Causes of constant returns to scale

i. Limits of economies of scale

Economies of scale refers to the decrease in cost per unit of output with the increase in level of production. Increasing returns to scale cannot go on indefinitely as the economies of scale are exhaustive. When the economies of scale reach the peak, there exists a brief phase of constant returns to scale before experiencing the diseconomies.

ii. Perfect divisibility of inputs

Constant returns to scale may occur in certain productive activities where the factor inputs are perfectly divisible. Doubling the inputs in the same proportion can double the output. For example, the output might get doubled by setting up one more unit of the same plant.

3. Causes of decreasing returns to scale

i. Entrepreneur is a fixed factor

An increase in scale of production may come to a point where the abilities and skills of the entrepreneur may be fully utilised. Thus, an increase in the scale of production beyond this point may decrease the efficiency of entrepreneur.

ii. Exhaustibility of natural resources

Exhaustion of natural resources is responsible for diminishing returns to scale. For example, when the number of lumberjacks and their tools are doubled, the output of logs may not double due to the limited timber at the source.

2.4 Comparison between short-run and long-run production function

Short-run Production	Long-run Production
Change in input proportion	Change in scale of proportion
Inadequate time for a firm to change fixed input to change its output level	Sufficient time for a firm to adjust inputs to change its output level
At least one factor is fixed	All factors are variable
Production function $Q_{x=f(L,\bar{K})}, K \text{ is fixed}$	Production function $Q_x=f(L,K)$
Law of variable proportion or returns to a factor	Law of returns to scale

Figure 2.3 *Types of production function*

Review Questions

1. Write True or False for each of the statements.
   a. In the short-run, TP increases at an increasing rate after the point of inflexion.
   b. MP is negative when TP is at maximum.
   c. The slope of TP curve is shown by AP.
   d. The stage of decreasing returns to a factor starts at the point where AP and MP are equal.
   e. During the phase of constant returns to scale, when input is doubled the output also doubles.
   f. Economies of scale leads to the availability of cheaper inputs
2. Explain the following terms with examples.
   i. Variable input
   ii. Fixed input
3. Why do you think AP is always positive?
4. Table 2.4 gives the average product schedule of a labour. Find the total product and marginal product.

Table 2.4 *Average Product Schedule*

Labour (L)	1	2	3	4	5	6
AP_L	2	3	4	4.25	4	3.5

5. Sonam Bakery increases its staff from 1 to 10 bakers and experiences increase in marginal returns. Explain reasons for increase in marginal returns.
6. A Juice factory has 5 employees and produces 20 bottles of juice per hour. The factory hires one additional worker and produces 30 bottles per hour. Further, hiring one more additional worker increases production to 45 bottles of juice per hour. What is the behaviour of marginal returns?

7. Study figure 2.4 and answer the questions that follow.

Desho Production Process

Desho is a hand-made traditional paper in Bhutan. It is used in printing old manuscripts and making products such as envelope, packing paper, gift wrappers, and books.

Figure 2.4 *Desho production*

i. Identify the inputs to formulate a production function.

ii. Classify the inputs as fixed and variable factors of production.

iii. Create the short-run and long-run production functions.

iv. Show different stages of production with the help of a hypothetical schedule of a firm in short-run.

Chapter

Production Decision: Cost Analysis

Learning Objectives

1. *Explain types of cost*
2. *Analyse the impact of social cost as a result of production*
3. *Explain the application of opportunity cost*
4. *Analyse the behaviours of cost in short-run and long-run*
5. *Interpret the behaviour of cost in short-run and long-run using illustrations and numerical examples*

Introduction

Business decisions and operations revolve around the concept of cost. It influences and determines production, supply, sale, and price of commodities in the market. Producers try to combine all the factor inputs to achieve cost minimisation and maximise the profit.

This chapter discusses concepts of cost and its behaviour over time.

Reprint 2024

3.1 Concept of Cost

The cost is the expenditure incurred by producers on purchase of factor inputs such as land, labour, capital, raw materials and fuel.

a. Explicit cost

Explicit cost is the expenses incurred by producers when inputs are hired or purchased from the factor market. These costs include payments for raw materials, taxes, depreciation charge, transportation, advertisement, power, and fuel. Under explicit cost, producer make payments to outsiders for purchasing or hiring factor services. It is also known as money cost or accounting cost.

b. Implicit cost

Implicit cost refers to the cost of using self-owned inputs by the producer. This cost includes imputed value of factors such as land, labour and capital. It is a cost involving sacrificed income for the use of factors of production that is owned by the firm.

The sum of explicit and implicit cost is known as economic cost.

Economic Cost = Explicit Cost + Implicit Cost

c. Social cost

It is the cost related to the working of a firm which is not explicitly borne by the firm but it is the cost as a result of production of a commodity.

Social cost is used in the social cost-benefit analysis of the overall impact of the business operations on the society and do not normally figure in the business decisions. The external costs are those costs which are related to the production and consumption of the commodity but is not directly paid by the producer. These are the costs borne by the society. For example, hazardous pollutions resulting from the cement production is an external cost faced by the community located nearby the firm.

While the production process has social costs, it also has social benefits. The process of production requires cost-benefit analysis. If benefits are greater than the cost, the society benefits. If the cost is greater than the benefits, the society suffers from the production process. Social costs accrue to negative externalities and social benefits generate positive externalities.

i. Positive externalities

This occurs when the production of goods and services benefit third party. With positive externalities, the benefit to society is greater than the personal benefit. For instance, education benefits both individuals and society as a whole.

ii. Negative externalities

This occurs when the production of goods and services cause a harmful effect to third party. Negative externalities have an impact on the community and rest of the world. For example, constructing road results in environmental degradation.

Learning Activity 3.1 Analysing the social cost as a result of production

Instruction

1. Read the case study and answer the questions.

The human and social costs of mega hydropower construction in Samcholing

Samcholing under Dragteng gewog in Trongsa is one of the most affected villages due to the construction of the Mangdechhu Hydroelectric Project. Samcholing has over 218 households and 70% of them were interviewed. It was discovered that the construction activities of hydro power projects have immeasurable human and social costs.

Roads are damaged by trucks carrying heavy loads. Drainage systems are spoiled while Irrigation canals located along the road are hampered. Cultivation of major crops and vegetables are compromised due to an erratic supply of water. Drinking water has become scarcer than before, as it is drained to meet the needs of thousands of project staff and workers.

The heavy trucks not only pollute the air, but the community as a whole because of the disturbing noise and commotion they create. Dust particles are visible during the day time and is felt and experienced at night. It even dirties the dried laundry. The dust contaminates stored drinking water in the bucket and also food. Altars and offerings set with statues are also affected by the dust.

The people reported that sprinkling of water on the road was not being carried out properly by the project authority, except on certain occasions when there are visits by senior government officials. People state that their health hazards have increased by almost twofold over the construction period. Common cold and other respiratory diseases are perceived to have gone up with the launch of the project as compared to preceding years.

The tremor from the moving trucks and excavation works shake the houses that fall near the road and excavation sites. These house owners are constantly under stress and have to keep on worrying. They feel insecure and have to live under complete uncertainty. Some households lost land to the project. They were given an option to choose between the cash compensation and land replacements.

Very few people feel that the project has been a blessing for their livelihood. For those to whom the projects have been beneficial, it is in terms of limited employment on temporary and daily wage basis. They have also benefited from being able to sell some farms products they could salvage from the dust and pollution. Employment opportunities, if any, was given to those households whose land had to be acquired by the project.

The pursuit of economic benefits from hydropower appears to come at the huge social, environment, land and the cultural heritage costs. Nevertheless, in the future, such projects may displace hundreds of people who may have to relocate and rebuild villages if more attention to strategic planning for social and environmental impacts with strict laws is not put into place.

There must be new and strict regulations for the hydroelectric project construction authority to undertake social and environmental impact studies and also to offer prospect for public comments and oversight. Compensation package for the residents and community needs to be improved by considering the wholesome nature of the project's externalities. The supply of vegetables and other requirements for the project could be negotiated from the community through the means of brokers and cooperatives so as to benefit the local economy. New regulations, conducive systems and ideas need to be brought in, so that the locals can have a voice as against their helplessness today.

Contributed by Pema Thinley

Source: Thinley, P. (2014, October 1). The Human and Social costs of Mega Hydropower Construction in Samcholing. *TheBhutanese- Bhutan's National Paper.*

Questions

1. Highlight various social costs and benefits discussed in the case study.
2. Which of the two, social costs or benefits, is higher on the society? Justify.
3. What policy interventions should the government initiate to minimise such social costs?
4. Discuss social costs and benefits arising from economic activities in your community.

d. Opportunity Cost

Opportunity cost arises due to unlimited wants and scarce resources. As resources are limited and can be used in various alternative ways, individuals have to make a choice. Opportunity cost is the value of the next best alternative forgone when choosing a particular option. It represents the potential benefits or value that is sacrificed while making a specific choice.

For instance, with given resources, a producer can grow either potato or groundnut. If a given amount of resources can produce 1,000 Kg of potato or 2,000 Kg of groundnut, then the opportunity cost of 1,000 Kg of potato is 2,000 Kg of groundnut which needs to be sacrificed.

All cost of production are opportunity costs. In case of explicit costs, opportunity cost is the value of the best alternative that was not purchased, and in case of implicit cost, opportunity cost would be those income sacrificed by the owners.

Application of opportunity cost

The opportunity cost has a wide range of applications in economic theories and policies.

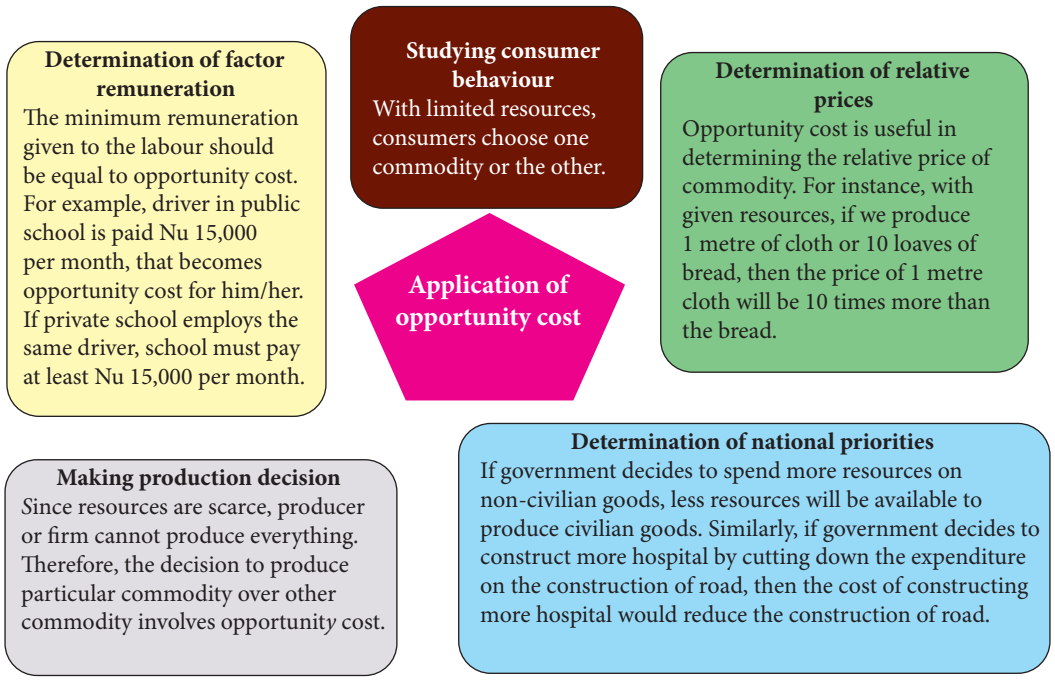

Figure 3.1 *Application of opportunity cost*

3.2 Short-run cost

In short-run, the inputs used by the firms can be classified into fixed and variable inputs. Fixed costs are incurred on fixed inputs such as equipment, machinery, land, and building. It remains constant with change in level of output. Variable costs are incurred on the variable input such as raw materials, labour and utilities. It varies with the change in level of outputs.

Short-run cost is further divided as follows:

a. Short-Run Total Costs

1. **Total Fixed Cost (TFC)** is total cost incurred by the firm on all the fixed factors. Total fixed costs are constant and they must be paid even when output is zero.
2. **Total Variable Cost (TVC)** is the cost incurred by the firm on the use of variable factors. It varies with change in output produced. Variable cost is zero when no output is produced.
3. **Total cost** is sum of fixed and variable costs at each level of output.

$$TC = TFC + TVC$$

Behaviour of short-run cost curves

Total cost of the firm increases with increase in output. Similarly, variable cost also increases with increase in output. But the fixed cost remains constant with increase in output. Table 3.2 and figure 3.2 illustrates the behaviour of the cost curves in short-run and their relationship.

Table 3.2 *Cost Schedule*

Out put	TFC	TVC	TC
0	60	0	60
1	60	40	100
2	60	76	136
3	60	102	162
4	60	132	192
5	60	170	230
6	60	222	282

Short-run cost curve

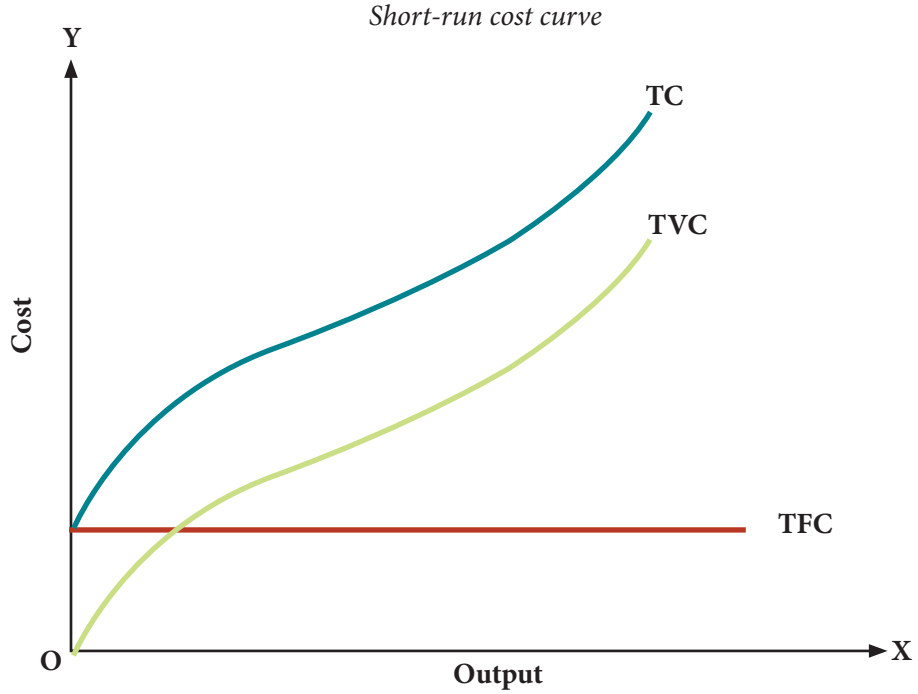

Figure 3.2 *Cost curves*

i. TFC curve

TFC curve is parallel to the X-axis showing that it is constant at all levels of output. It is incurred even at zero level of output. Thus, TFC curve originates from a point on the Y-axis as shown in figure 3.2.

ii. TVC curve

TVC curve originates from origin showing that variable cost is not incurred at the zero level of output. It increases with increase in output as larger quantity of variable factors are required to produce more units of output. Initially, TVC curve increase at a diminishing rate and then after certain level of output it increases at an increasing rate. Thus, TVC curve is concave to the X-axis at lower level of output and convex at higher level of output assuming the shape of reverse S.

iii. TC curve

Total cost is vertical sum of the TFC and TVC curves. TC curve lies above TVC curve equal to TFC at all level of output. Since a constant fixed cost is added to the total variable cost, the shape of TC curve is same as that of TVC curve.

b. Short-run Average Cost (SAC)

Average cost refers to the per unit cost of production. It measures the amount of money that the firms has to spend to produce each unit of output. It is also known as average unit cost. Figure 3.3 depicts the types of average cost.

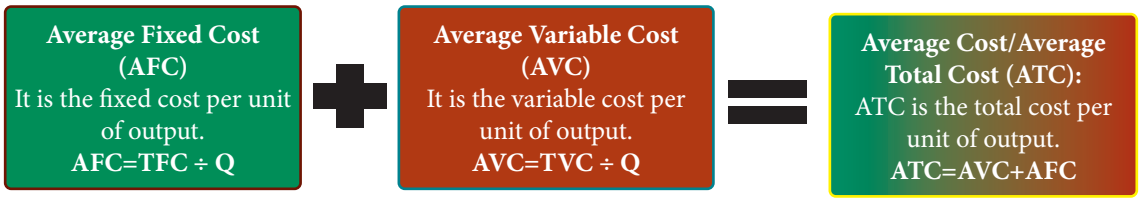

Figure 3.3 *Types of average cost*

Table 3.2 *Cost schedule*

Out put	TFC	TVC	TC	AVC	AFC	ATC	MC
0	70	0	70				-
1	70	20	90	20	70	90	20
2	70	30	100	15	35	50	10
3	70	38	108	12.6	23.3	36	8
4	70	48	118	12	17.5	30	10
5	70	66	136	13.2	14	27	18
6	70	98	168	16.3	11.6	28	32
7	70	160	230	22.8	10	33	62

Figure 3.4 *Average cost curves*

Behaviour of average cost curves

i. Average Fixed Cost

AFC decreases with increase in output because it is shared amongst all the units of output produced. AFC curve is downward sloping and it is asymptotic to the axes as it can never be zero at any level of output. Thus, the shape of the curve is rectangular hyperbola. In figure 3.4, when the firm produces 1 unit of output, the AFC is 70. As the output keeps on increasing, the AFC goes on decreasing.

ii. Average Variable Cost

The average variable cost generally falls as output increases. But beyond the normal capacity of output, average variable cost rises steeply. Thus, AVC is a U-Shaped. In figure 3.4, at lower level of output AVC curve is negatively sloped. At the 4^{th} unit of output, it reaches minimum and beyond that it is sloped positively assuming a U-shape.

iii. Average Total Cost

Figure 3.4 shows that the behaviour of ATC curve depends upon the behaviour of both AVC and AFC curves. Since ATC is derived by adding AFC and AVC, ATC curve lies above the AFC and AVC curves. ATC curve is also U-shaped, initially negatively sloped, reaches the minimum and ultimately slopes positively. The distance between AVC and ATC curve gets smaller and smaller as the output increases but it never touches each other.

c. Short-run Marginal Cost (SMC)

It is the extra cost incurred in producing additional unit of output. Marginal cost is an addition to the total cost in producing one more unit of output.

$$MC = TC_n - TC_{n-1}$$

or

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

Behaviour of marginal cost curve

Figure 3.5 *Marginal cost curve*

In figure 3.5, initially MC curve is negatively sloped till 3rd unit of output, reaches minimum and then slopes positively at greater level of output, thus assuming U-shape.

MC curve is U-shaped due to the law of variable proportion. Increasing return will cause MC to decline with increase in output, therefore MC curve is negatively sloped. It is positively sloped in later stage of production due to negative returns.

The following are key points for analysing marginal cost.

1. Marginal cost is independent of fixed cost. However, MC is associated with TVC and thus with TC.
2. The change in marginal cost is due to change in variable cost when the output is increased. Thus, MC is related to variable cost.
3. TVC can be also computed by adding MC of various units of output. For example, $TVC_n = MC_1+MC_2+MC_3+..... +MC_n$

d. Relationship between AC and MC

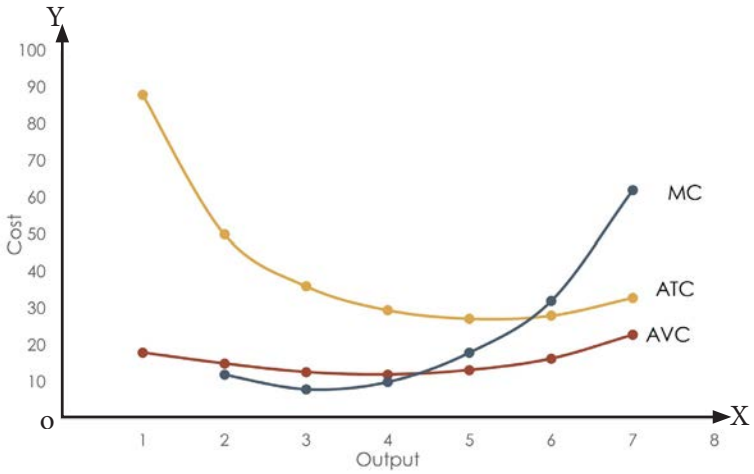

Figure 3.6 *Relationship between AC and MC*

Relationship between AC and MC

1. When MC is less than AC, AC falls with increase in output.
2. When MC is more than AC, AC increases with increase in output.
3. When MC is equal to AC, AC is constant. MC curve cuts AC from below at its lowest point showing that MC is equal to AC.

Why are AVC and MC curves U-shaped?

The U-shaped of AVC and MC curves can be explained through the law of variable proportions. In the beginning, with increase in output, AVC and MC falls because of operation of increasing returns. After reaching the minimum point, when output increases, AVC and MC starts increasing because of the operation of the law of negative returns.

3.3 Long-run cost

In the long-run, producers have sufficient time to change the scale of production by changing all the factor inputs. Since all factors are variable, there is no fixed cost in the long-run. Thus, costs in the long-run are TC, AC and MC. The long-run cost curves will be similar to short-run cost curves, however, the long-run cost curves are flatter due to economies and diseconomies of scale.

i. Long-run Total Cost (LTC)

Long-run total cost refers to the least cost of producing a given level of output when all the factors are variable.

ii. Long-run Average Cost (LAC)

It is per unit cost of factors of production in the long run. It is derived by dividing long-run total cost by units of output. LAC shows the lowest average cost of producing output when all the factors are variable. LAC curve is generally U-Shaped. However, it is flatter than the SAC curve. It initially falls and eventually rises at higher level of output.

iii. Long-run Marginal Cost (LMC)

It shows the extra cost incurred in producing one extra unit of output when all the factors are varied. It represents the change in the total cost due to the production of one extra unit of output. LMC curve is U-Shaped.

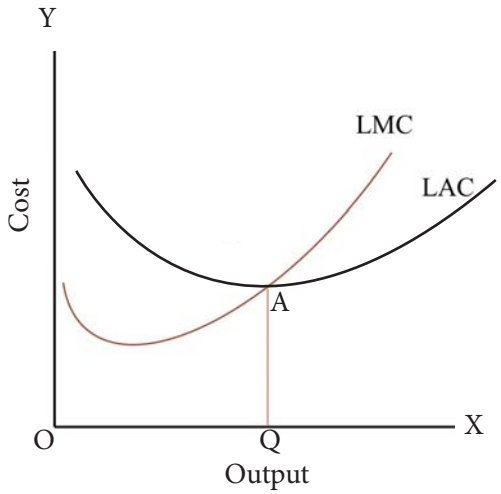

Figure 3.7 *Relationship between LAC and LMC*

iv. Relationship between LAC and LMC

Generally, the relationship between LAC and LMC is similar to that of SAC and SMC, except for flatter shape of LAC and LMC. The relationship between LAC and LMC is represented in figure 3.7.

1. When LMC is less than LAC, average cost falls with increase in output. When LAC falls, LMC also falls upto OQ level of output and LMC curve lies below the

LAC curve. Throughout this stage, LAC curve is negatively sloped.

2. When LMC is equal to LAC at A, LAC is minimum and constant. LMC cuts LAC at the minimum point from below. At Q level of output, LAC and LMC curve intersects. At this point, LAC is minimum and remains constant.

3. When LMC is greater than LAC, LAC increases with increase in output. When LAC rises, LMC also rises beyond OQ level of output and LMC curve lies above LAC curve.

   The LAC curve slopes positively beyond this level of output. LAC curve initially falls and rises later due to internal economies of scale and diseconomies of scale. Thus, the LAC curve is U-shaped.

3.4 Economies of scale

Economies of scale can be both external and internal. While shift in the long-run average cost curve is due to external economies of scale and diseconomies of scale, the U-shaped of long-run cost curve is caused by internal economies of scale and diseconomies of scale.

With the expansion of productive capacity of a firm or industry, the total cost of production increases less proportionately than the increase in output. In the long run, the average cost of production falls with the scale of production. This phenomenon is known as economies of scale. However, if the firm increases the scale of production beyond a point, it may experience diseconomies of scale and the average cost will increase with increase in output.

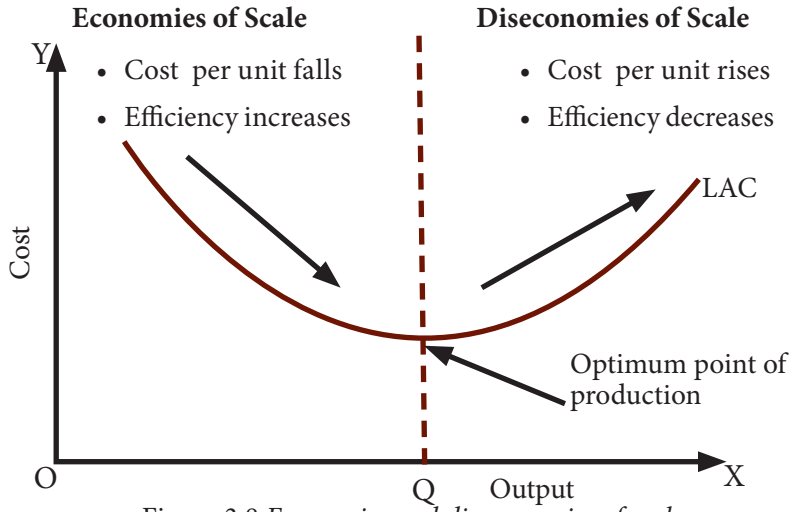

Figure 3.8 *Economies and diseconomies of scale*

The economies of scale occur as a result of expansion of size of the firm or increase in the scale of firm's production. As a result, a large firm can decrease average cost. Some of the economies of scale are represented in Figure 3.9.

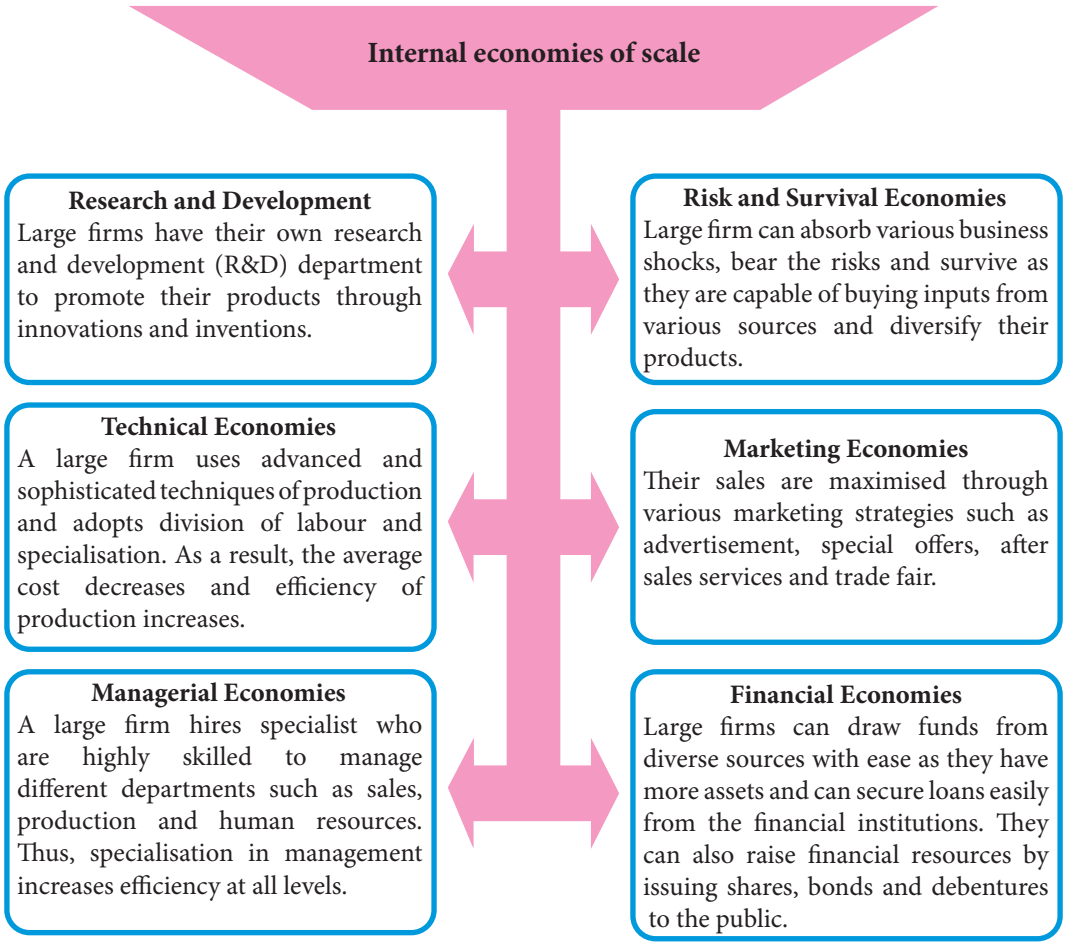

Figure 3.9 *Internal economies of scale*

3.5 Diseconomies of scale

An increase in the scale of production beyond the optimum point may lead to increase in average cost. This phenomenon is known as diseconomies of scale. Some of the diseconomies of scale are represented in figure 3.10.

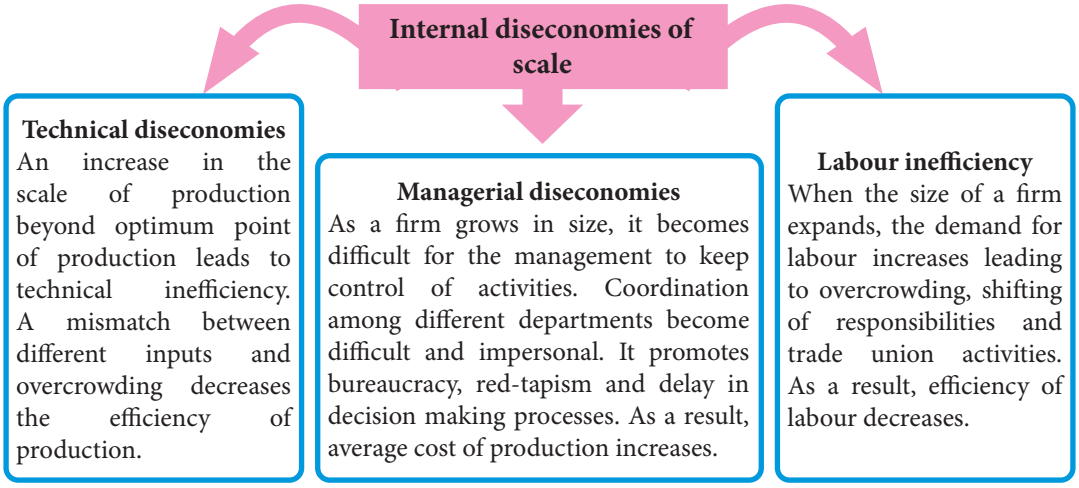

Figure 3.10 *Internal diseconomies of scale*

Why is LAC curve U-shaped?

The U-shape of the LAC curve is the result of the operation of internal economies and diseconomies of scale. When the firms expand the scale of production, they get some advantages. As a result, per unit cost of production goes on decreasing. After certain level, when the production becomes extensively large, the firms begin to experience disadvantages, resulting in increase in per unit cost of production.

Review Questions

1. All of the following describes the relationship between average cost and marginal cost EXCEPT

   a) When average cost falls with increase in output, marginal cost is less than average cost

   b) When average cost rises with increase in output, marginal cost is greater than average cost

   c) When average cost is constant as output increases, marginal cost and average cost are equal

   d) When average cost is constant as output increases, marginal cost is greater than average cost

2. Explain the reasons for the following

   a) Decline in AFC

   b) U-shaped LAC curve

   c) U-shaped SAC curve

   d) Intersection of MC and AC curves

3. Study table 3.3 and answer questions that follow.

Table 3.3 *Cost schedule*

Units of output	TFC	TVC	TC	MC	AFC	AVC	ATC
0			100				
1			125				
2			145				
3			157				
4			177				
5			202				
6			236				
7			270				
8			360				
9			398				
10			490				

4. Calculate the missing values in table 3.3.
   a. Draw AFC, AVC and ATC curves
   b. Why does AFC curve falls continuously but never touches X-axis?
   c. The distance between ATC and AVC decreases as the level of output increases. Give reason.

5. How is the concept of opportunity cost applicable in your daily life?

Chapter

Production Decision: Revenue Analysis

Learning Objectives

1. *Explain types of revenue*
2. *Examine the behaviour of revenue under different market structures*

Introduction

Revenue is a lifeblood of a business as it ensures the sustenance and growth of the enterprise. As such, it is crucial for a firm to understand the behaviour of revenue which determines how much to produce in different market structures. Producers make business decision based on the knowledge on types of revenue and their behaviour. The informed decisions in the business can be made through better understanding of the revenue behaviour.

Thus, this chapter discusses the meaning of revenue, types of revenue and examines the behaviour of revenue under different market structures.

Reprint 2024

4.1 Concept of Revenue

The term revenue refers to the income obtained by a firm through the sale of commodity at different prices at a given time.

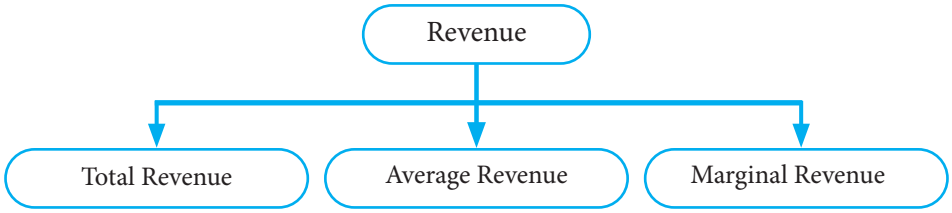

Figure 4.1 *Types of Revenue*

a. Total Revenue (TR)

Income earned by a firm from the sales of its total output is called total revenue. TR varies with firm's output level and the market price. It is calculated by multiplying the price of the commodity and quantity of output sold.

$$TR = \text{Price} \times \text{Quantity}$$

b. Average Revenue (AR)

Average revenue refers to the revenue obtained per unit of output sold. AR is also the price per unit of the commodity. It is obtained by dividing the total revenue by total output sold.

$$AR = \frac{TR}{Q}$$

c. Marginal Revenue (MR)

Marginal revenue is the additional revenue obtained by selling an additional unit of the output. Mathematically, MR is the addition to the total revenue by selling n^{th} units of commodity.

$$MR_n = TR_n - TR_{n-1}$$

OR

$$MR_n = \frac{\Delta TR}{\Delta Q}$$

4.2 Revenue Under Different Market Structures

Unlike the theory of cost, a single theory of revenue does not apply to all the firms. The total, average and marginal revenue vary with level of output under different market structures.

a. Revenue under perfect competition

A firm under perfect competition is a price taker as no individual firm can influence the price of a commodity. There exists a uniform price which remains constant in the market. Table 4.1 shows the relationship amongst total, average and marginal revenue under perfect competition.

Table 4.1 *TR, AR and MR under perfect competition*

Price per unit (Nu)	Outputs (Units)	TR (Nu)	AR (Nu)	MR (Nu)
100	1	100	100	100
100	2	200	100	100
100	3	300	100	100
100	4	400	100	100
100	5	500	100	100

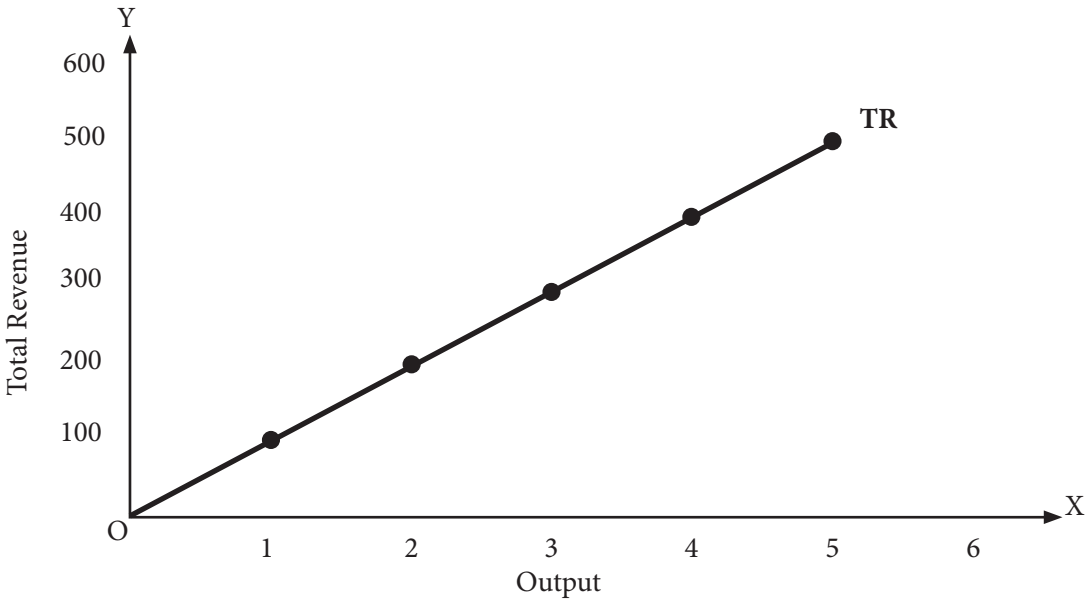

Figure 4.2 *TR under perfect competition*

Figure 4.2 shows that total revenue increases at all levels of output. TR curve is a straight line with constant positive slope because the price, AR, and MR are constant under perfect competition. The market price in the perfect competition is not affected by the variation of firm's output. Thus, under the perfect competition P=AR=MR. This indicates that the TR also increases at a constant rate. It passes through the origin because TR is zero when the output is zero.

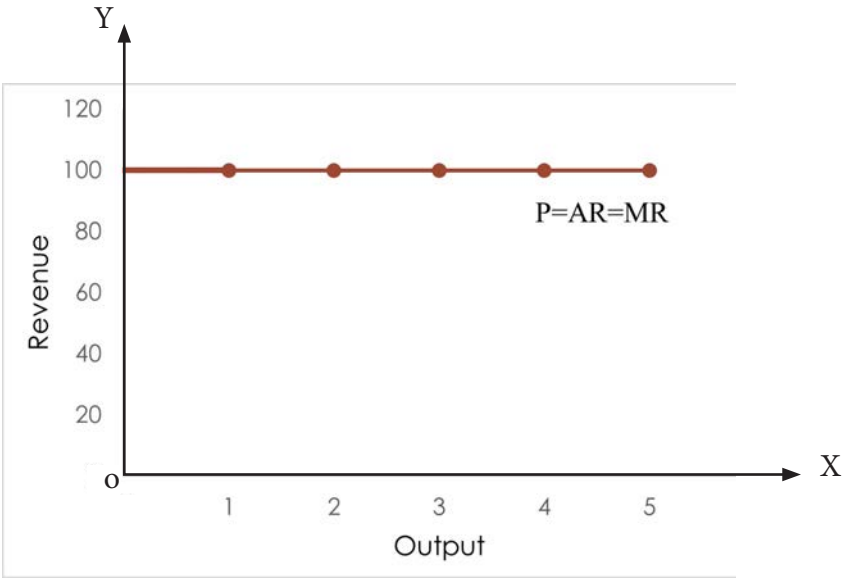

Figure 4.3 *AR and MR under perfect competition*

In Figure 4.3, AR and MR curves coincide at the level of market price at Nu 100, showing that AR is equal to MR at all levels of output. AR is equal to MR because marginal revenue resulting from the sale of one additional unit is equal to the price (AR). It indicates that a firm under perfect competition can sell any unit of goods at the given market price.

b. Revenue under imperfect competition

Firms under imperfect competition (monopoly, monopolistic and oligopoly) set their own prices, therefore, they are known as price maker. They reduce price in order to sell more units of output. Unlike the perfect competition, total, average and marginal revenue in imperfect competition behave differently.

Learning Activity 4.1 ***Analysing the behavior of revenue under imperfect competition***

Instructions

1. Calculate the values to complete the table.
2. Draw TR, AR and MR curves based on the data given in Table 4.2.

Table 4.2 *Total, average and marginal revenue under Imperfect Competition*

Price per unit of toothpaste (Nu)	Units of Output (Unit)	TR (Nu)	AR (Nu)	MR (Nu)
120	1			
100	2			
80	3			
60	4			
40	5			
20	6			

Questions

1. Explain the behaviour of TR, AR and MR with help of a graph.
2. What happens to total revenue when the marginal revenue is
   i) positive
   ii) negative
   iii) zero
3. Derive the relationship between
   a. AR and MR
   b. TR and MR
4. In both the market structures, what other factors besides price do you think will affect the revenue of a firm? Explain.

Review Questions

1. What would be the shape of AR curve if the TR curve is upward sloping?
   a. Upward slopping
   b. Downward slopping
   c. Vertical
   d. Horizontal
2. Average revenue of a firm is same throughout different level of output under
   a. perfect competition
   b. monopoly
   c. monopolistic
   d. oligopoly
3. Differentiate the price line of perfect and imperfect competition.
4. Calculate price, AR and TR from the Table 4.3.

Table 4.3 *Revenue Schedule*

Units of output	1	2	3	4
MR (Nu)	20	16	9	3

5. Pema sells garment and wants to maximise revenue. She knows that she can sell more by lowering the price. Use a schedule to illustrate the situation.

6. If you want to start a business, in which type of market structure would you like to operate? Why?

Chapter

5

Firm's Equilibrium

Learning Objectives

1. *Explain firm and industry*
2. *Discuss firm's equilibrium*
3. *Explain the two rules of profit maximisation*
4. *Explain firm's equilibrium under different market structures using illustrations*

Introduction

Producer is at equilibrium when the firm has reached the level of output from where it does not wish to either increase or decrease output. In such a situation, a producer is either earning maximum profit or incurring minimum loss.

In any business, the ultimate goal of a producer is to maximise profit. Producers need to minimise cost and maximise output to attain equilibrium. Thus, the producer's equilibrium condition is also referred to as profit maximising condition.

Reprint 2024

This chapter discusses the meaning of firm and industry, rules of profit maximisation and the firm's equilibrium under different market structures.

5.1 Firm and Industry

Decision regarding the production of goods and services is taken by the firm. A firm is a single production unit that produces goods and services. However, the nature of firms may be different depending upon the size, ownership and market structure. A large production unit like Penden Cement Authority Limited as well as a small bakery are examples of firm.

Industry refers to a group of firms producing similar goods and services. Penden Cement Authority Limited, Lhaki Cement and Dungsam Cement Corporation Limited collectively forms cement industry in Bhutan.

5.2 Profit Maximisation as a Goal of a Firm

The standard economic theory assumes profit maximisation as the main goal of firms, although they may have several alternative goals. Thus, the firms always seek to attain equilibrium to maximise their profit. Profit can be either normal or abnormal. However, the firm may also incur loss in the short run. Cost and revenue analysis are used to determine the profit maximising output of a firm.

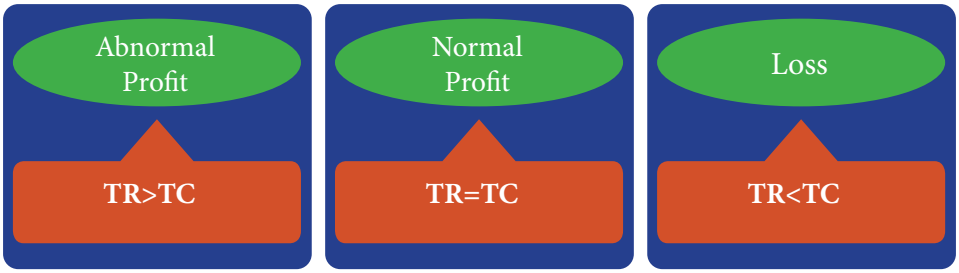

Figure 5.1 *Abnormal profit, Normal profit and Loss conditions*

a. Rules of profit maximisation when the firm has no influence over price

There are two approaches of explaining how firms maximise profits.

i. Total Revenue and Total Cost approach

Equilibrium of a firm can be explained with the help of Total Revenue and Total Cost curves. Profit is the excess of total revenue over total cost. Therefore, the firm's maximum profit will be at the level of output where the difference between TR and TC is the maximum. This is depicted in figure 5.2.

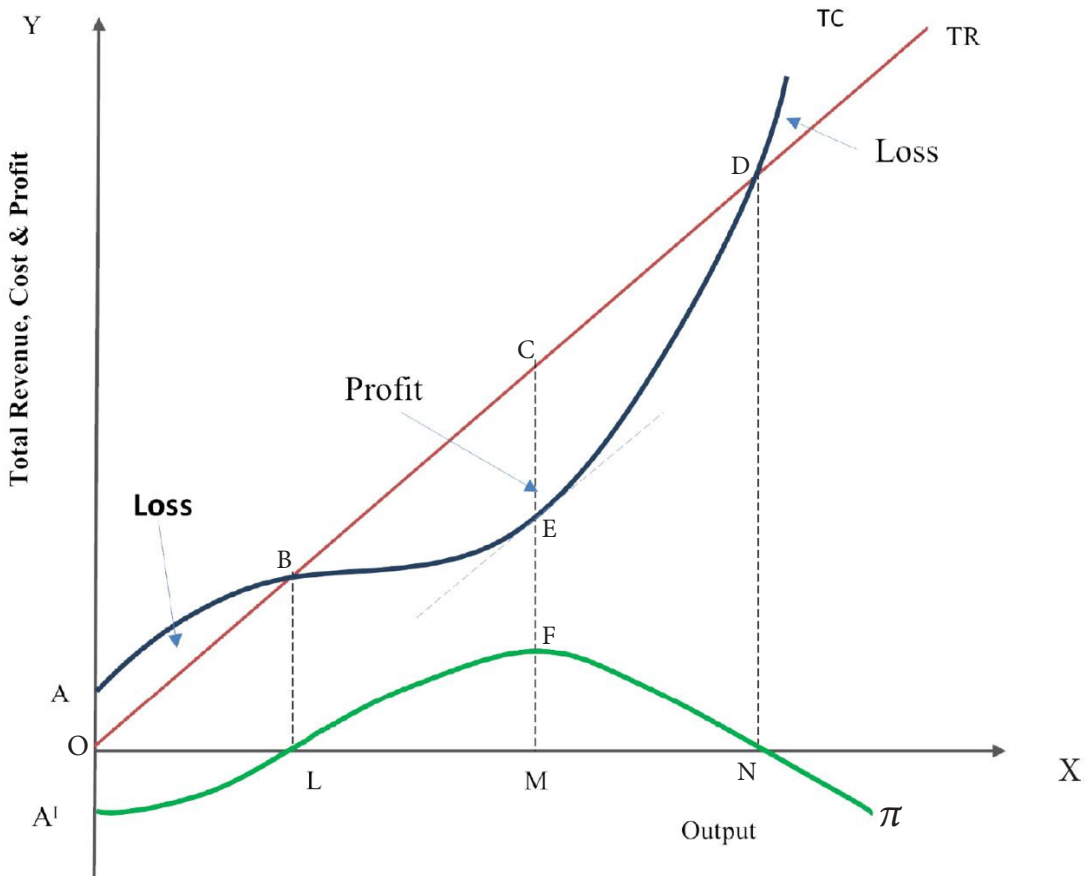

Figure 5.2 *TR and TC Approach*

In a perfectly competitive market, the positively sloping TR curve originates from the origin corresponding to zero level of output. As output increases, TR curve also increases at a constant rate since all level of output are sold at the same price.

TC curve starts from point A on the Y- axis to indicate that TC is equal to TFC when production is zero. TC curve initially increases at decreasing rate and then at an increasing rate. Up to OL level of output, TC curve lies above TR curve which shows that the firm is incurring loss. At OL level of output, TR and TC curves intersect at point B, indicating a normal profit. At this level of output, the firm is neither making profit nor incurring loss. Thus, point B is known as a break-even point.

When the firm produces beyond OL level of output, TR curve lies above TC curve (TR>TC) indicating that the firm is earning profit. The difference between TR and TC is highest at OM level of output which shows that the firm is earning maximum profit. Thus, CE is the firm's maximum profit and OM is the profit maximising output. Beyond OM level of output, the profit begins to decrease, as shown by the diminishing gap between TR and TC curves. If the firm continues to produce beyond ON level of output, the firm will start incurring losses.

ii. Marginal Revenue and Marginal Cost Approach

The firm's profit maximising conditions can also be explained using MR and MC approach. In this approach, two conditions must be fulfilled for the profit to be maximum.

1. **Marginal Revenue should be equal to Marginal Cost (MR=MC)**

   For a firm to determine profit maximising output, it is necessary that the firm's marginal revenue is equal to its marginal cost. If MR>MC, the firm can increase its profit by producing more units of output. On the other hand, if MC>MR, production of additional units of output reduces profit. Thus, if MC=MR, profit is maximum and the firm may want to produce at that level of output.

2. **Marginal Cost curve must cut Marginal Revenue curve from below**

   The necessary conditions for profit maximisation are that marginal cost is less than marginal revenue at slightly lower output, and marginal cost is more than marginal revenue for slightly higher output. This implies that MC curve must cut MR curve from below.

In figure 5.3, the firm is at break-even point at L corresponding to OQ level of output. At this point, the firm is able to cover the cost for the first time. When the firm produces beyond OQ level of output, the firm starts to earn profit since MR>MC, but it is not a profit maximixing condition. As the firm increases production, its profit keeps increasing up to OQ_1 level of output. Beyond OQ_1 output, the firm will start to incur losses. Thus, the firm is in equilibrium at OQ_1 level of output as the profit maximising condition of MR=MC is fulfilled and MC curve cuts MR curve from below at point M.

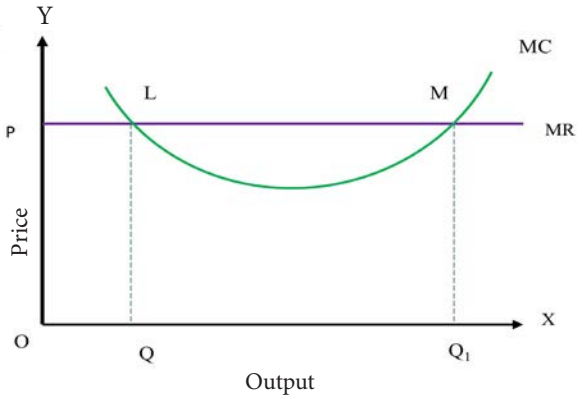

Figure 5.3 *MR and MC Approach*

Learning Activity 5.1 ***Analysing rules of profit maximisation when the firm has influence over price***

Instructions

1. Study Figure 5.4 to analyse profit maximising output.

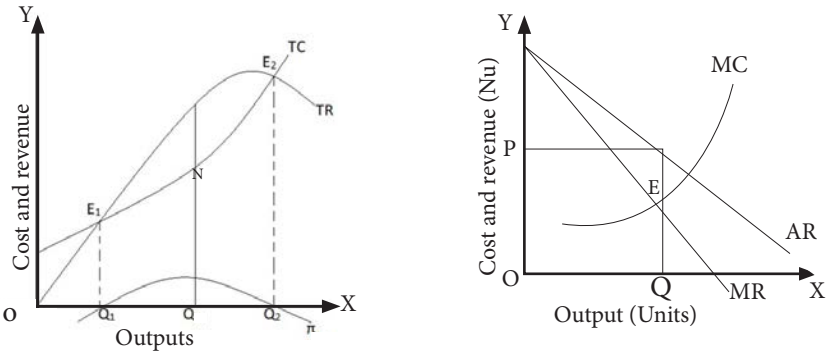

Figure 5.4 *Profit maximising output under imperfect competition*

Questions

1) Which is profit maximising level of output for TC and TR approach and MC and MR approach as per figure 5.4? Justify.

2) How is figure 5.4 different or similar to the profit maximisation output under perfect competition?

5.3 Equilibrium Price and Output Under Different Market Structures

A firm's equilibrium refers to the state where the combination of price and output gives maximum profit to the producer. If the producer increases output beyond the equilibrium output, profit starts to decline.

a. Short-run equilibrium of a firm under perfect competition

In the short-run, a firm under perfect competitive market earns abnormal profit, normal profit or incur loss.

i. Abnormal Profit

The equilibrium conditions for a firm earning abnormal profits are:

a. SMC = MR

b. P/AR > AC

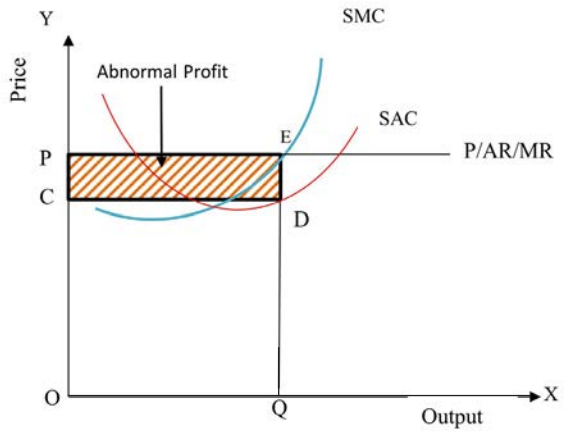

Figure 5.5 *Abnormal profit under perfect competition*

In figure 5.5, SMC and MR are equal at E. Thus, E is the equilibrium point where the price is OP and the profit maximising level of output is OQ. The amount of total revenue earned by the firm is OPEQ while the total cost incurred is OCDQ. The difference between the two, as shown by the shaded region CPED, represents the amount of abnormal profit earned by the firm since P/AR > SAC.

ii. Normal Profit

The equilibrium conditions for a firm earning normal profits are:

SMC = MR

P/AR = SAC

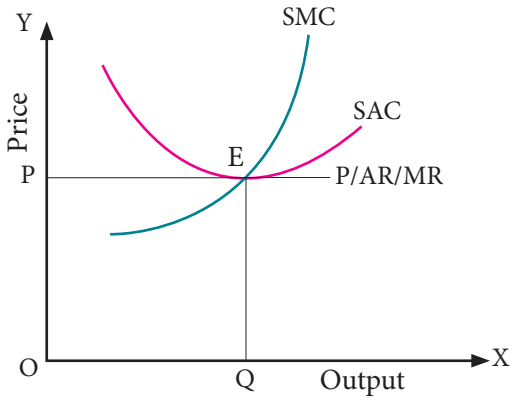

Figure 5.6. *Normal profit under perfect competition*

In figure 5.6, SMC and MR are equal at E. The equilibrium price is OP and the profit maximising level of output is OQ. The amount of total revenue earned by the firm is OPEQ and the total cost incurred is also OPEQ. Therefore, the firm is earning just a normal profit as P/AR = SAC.

iii. Loss

The equilibrium conditions for a firm incurring losses are:

SMC = MR

P/AR <SAC

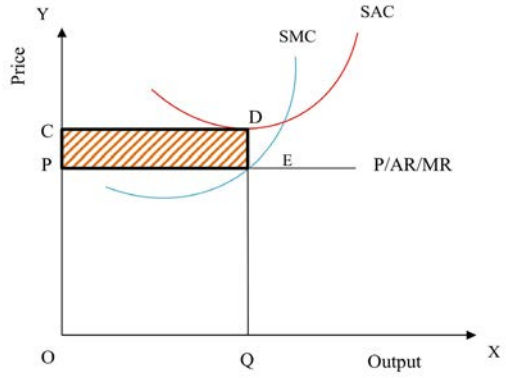

Figure 5.7 *Losses under perfect competition*

In figure 5.7, SMC and MR are equal at E. Therefore, at equilibrium point E, the price is OP and the profit maximising level of output is OQ. The amount of total revenue earned by the firm is OPEQ while the total cost incurred is OCDQ. The difference between the two as shown by the shaded region PCDE represents the amount of loss incurred by the firm since P/AR < SAC.

b. Long run equilibrium of a firm under perfect competition

In the long run, a firm under perfect competition will only earn normal profit since there is free entry and exit of firms. If the existing firms earn abnormal profits in the short run, new firms will enter the market until all abnormal profits are eliminated. Similarly, if the existing firms are incurring losses in the short run, some firms will exit the market and thereby increasing the price. Thus, a firm under perfect competition end up earning just a normal profit in the long run.

The equilibrium conditions for a firm are:

i. LMC = MR

ii. P/AR = LAC

In figure 5.8, the firm attains equilibrium at point E where LMC curve intersects MR curve and AR is equal to LAC. At point E, both conditions of long run equilibrium are satisfied. Long run equilibrium of the firm is at the minimum point of LAC corresponding to the optimum level of output OQ.

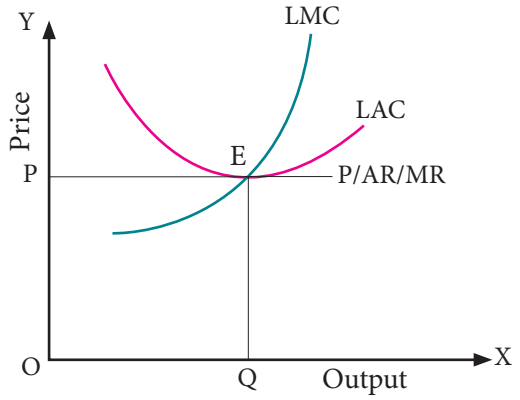

Figure 5.8 *Long run equilibrium of the firm under perfect competition*

c. Short run equilibrium of a firm under imperfect competition

In the short run, a firm under monopoly and monopolistic market earns abnormal profit, normal profit or may incur loss.

i. Abnormal Profit

The equilibrium conditions of monopoly and monopolistic market earning abnormal profits are:

SMC = MR

P/AR > SAC

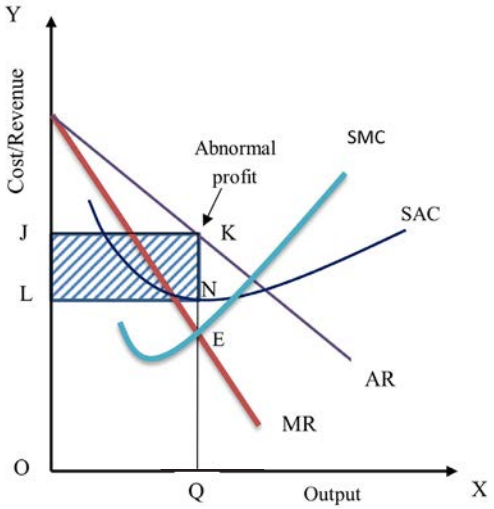

Figure 5.9 *Abnormal profit under monopoly and monopolistic market*

In figure 5.9, SMC and MR are equal at point E. Thus, point E is the equilibrium point where the price is OL and the profit maximising level of output is OQ. The amount of total revenue earned by the firm is OJKQ while the total cost incurred is OLNQ. The difference between the two, shown by the shaded region LJKN, represents the amount of abnormal profit earned by the firm as P/AR > SAC.

ii. Normal Profit

The equilibrium conditions of a monopoly and monopolistic market earning normal profits are:

SMC = MR

P/AR = SAC

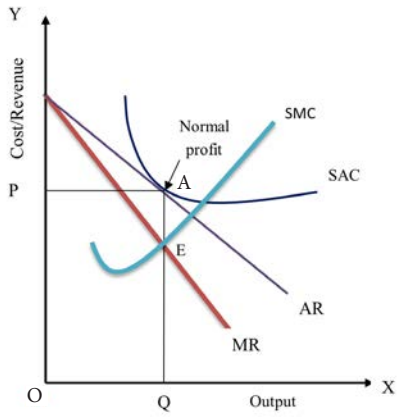

Figure 5.10 *Normal profit under monopoly and monopolistic market*

In figure 5.10, SMC and MR are equal at equilibrium point E. Hence, the equilibrium price is OP and the profit maximising level of output is OQ. The amount of total revenue earned by the firm is OPAQ and the total cost incurred is also OPAQ. Therefore, the firm is earning just a normal profit since P/AR = SAC.

iii. Loss

The equilibrium conditions of a monopoly and monopolistic market incurring losses are:

SMC = MR

P/AR < SAC

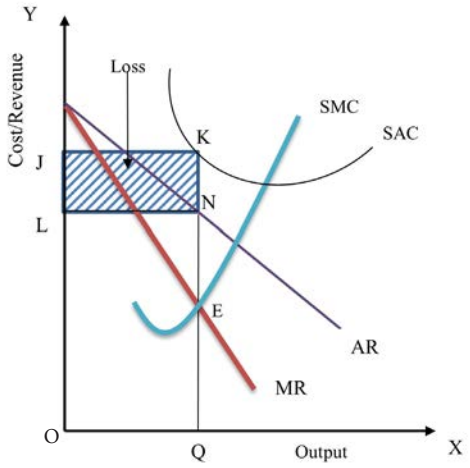

Figure 5.11 *Losses under monopoly and monopolistic market*

In figure 5.11, SMC and MR are equal at E. At this point, the price is OL and the profit maximising level of output is OQ. The amount of total revenue earned by the firm is OLNQ but the total cost incurred is OJKQ. The difference between the two as shown by the shaded region LJKN represents the amount of loss incurred by the firm since P/AR < SAC.

d. Long run equilibrium of a firm under imperfect competition

In the long run, a monopoly market earns abnormal profit. However, a few public utility monopoly might incur losses. The monopoly firm will be at equilibrium by earning either normal or abnormal profit. On the other hand, monopolistic would be earning only normal profit.

The equilibrium conditions of monopoly are:

i) MC = MR

ii) P/AR ≥LAC

Similarly, the equilibrium conditions of monopolistic firms are:

i) MC = MR

ii) P/AR =LAC

Learning Activity 5.2 Analysing equilibrium of firms under imperfect competition

Instruction

1. Study figure 5.12.

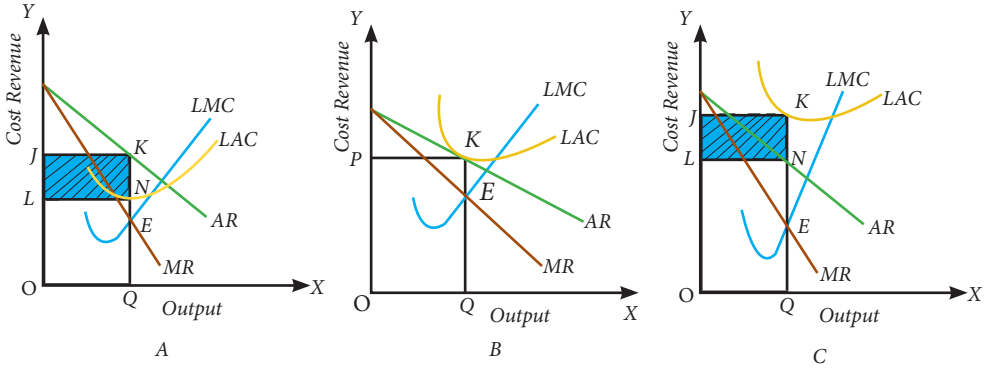

Figure 5.12 *Equilibrium of a firm under imperfect competition*

Questions

1. What market structure does each graph represent in the long run?
2. Why are the monopolists able to earn abnormal profits even in the long run?
3. Firms under monopolistic competition earn only normal profit in the long run. Justify.

e. Equilibrium of a firm under Oligopoly

In an oligopoly, there are only a few firms that are interdependent on one another. Oligopoly can be collusive or non-collusive. In case of collusive oligopoly, firms will behave like monopolist and the equilibrium conditions will be similar to that of monopoly.

In non-collusive oligopoly, the price and output decision of one firm has a significant impact on the price and output decision of its rival firms. Suppose a firm increases its price, the rival firms will not increase the price. Therefore, the firm who raises the price will experience a decrease in the demand. Thus, its demand will be elastic. On the contrary, if a firm lowers its price, its rival firms will also lower their price. Thus, firms will not be able to increase the demand for their product and its demand will remain inelastic.

Given the two scenarios, the firms under the oligopoly do not have the incentive to either increase or decrease its price. Hence, the price will remain stable. The price stability (rigidity) is explained with help of kinked demand curve model.

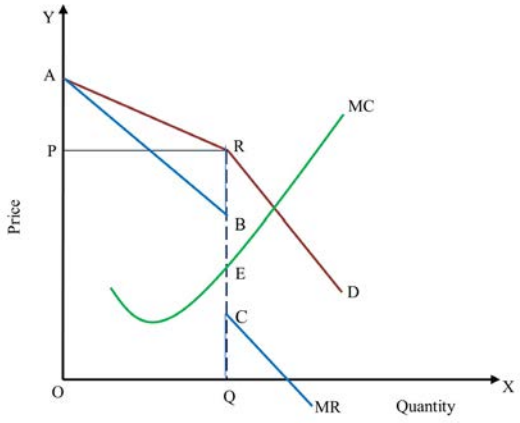

Figure 5.13 *Kinked demand curve*

In figure 5.13, quantity is given on X-axis and price on Y-axis. D is the kinked demand curve of an oligopoly firm. OP is the prevailing price and OQ is the quantity corresponding units of output. If the firm raises its price above OP level, the consumers will shift their demand to the rival firms. Thus, the firm's demand is elastic till point R. On the other hand, if the firm reduces the price below OP, the rival firms will retaliate by reducing the price. The demand of the firm will not change much with change in price. Therefore, the demand of the firm will be inelastic below point R. For this reason, the demand curve is kinked at point R which indicates price rigidity. The firm will not have any incentive to change its price from OP.

The firm maximises the profit by the rule MR=MC. The MR curve corresponding to the kinked demand curve will have a discontinuous range between point B and C. The MC curve passes through the discontinuous range. The profit maximisation is at the point E where MR is equal to MC and the equilibrium price is OP and quantity is OQ corresponding to the kink.

Learning Activity 5.3 ***Evaluating firms operating under different market structures in Bhutan***

Instructions

1. Evaluate the behavoiur of Bhutan Telecom and TashiCell.

Figure 5.14 *Example of firms under imperfect competition*

Questions

1) Under which market structure do these telecommunication companies operate? Justify.
2) Discuss what will happen to the revenue of both the firms if TashiCell increases the price of its product.
3) How do you think the behaviour of one firm affect the other firm in such a market structure?
4) Mention a few other examples of firms operating under similar market structure in Bhutan.
5) Discuss the advantages and disadvantages of such market structure to the consumers.

Review Questions

1. Study Figure 5.15 and answer the following questions.

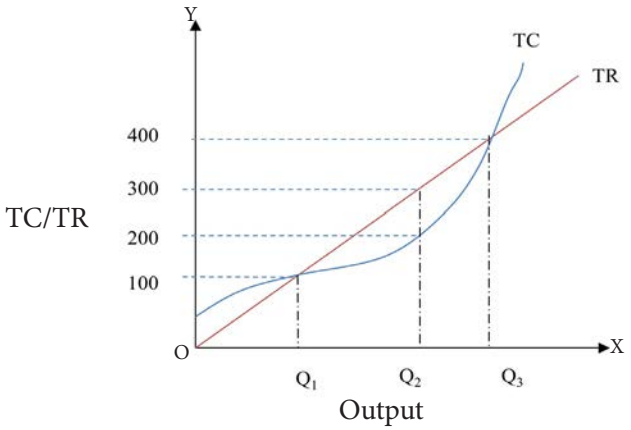

Figure 5.15 *TR and TC curve*

i) By increasing its output from Q_1 to Q_2, the firm can

A. increase its profit

B. decrease its profit

C. increase its MR

D. decrease its MR

ii) When the firm increases its output from Q_2 to Q_3, the

A. MR will decrease

B. MR will increase

C. Profit will decrease

D. Profit will increase

iii) A firm will expand the amount of output it produces as long as it's

A. average total revenue exceeds its average variable cost

B. average total revenue exceeds its average total cost

C. marginal revenue exceeds its marginal cost

D. marginal cost exceeds its marginal revenue

iv) A perfectly competitive firm will earn an economic profit when

A. Price >ATC

B. Price >AVC

C. Price < ATC

D. MR <MC

2. Illustrate the long run equilibrium of a monopoly firm earning abnormal profit and incurring losses.

3. Why do you think non-price competition is important for oligopolies?

4. Provide a few examples of public utility monopoly firms in Bhutan.

Chapter

6

Theory of Distribution

Learning Objectives

1. *Explain wage*
2. *Describe modern theory of wage*
3. *Explain collective bargaining*
4. *Describe modern theory of rent*
5. *Compare gross and net interest*
6. *Analyse gross and net profit*

Introduction

Production is carried out by combining factors such as land, labour, capital and enterprise. Each of these factors are rewarded for their services. Therefore, the theory of distribution is concerned with the principles according to which the price of each factor of production is determined and distributed.

The distribution of factors of production are personal and functional. Personal distribution is concerned with the distribution of income among different individuals,

while functional distribution is associated with the distribution of income among different factors of production as per their functions, such as wage, rent, interest and profit. This chapter discusses theories of factor returns.

6.1 Wages

Wage is a payment for the services of labour, both mental and physical. The term wage may refer to nominal wage or real wage. The nominal wage refers to the monetary payment made to the labour during a specific period of time and real wage refers to the amount of goods and services that can be purchased using nominal wage.

a. Modern theory of determination of wages

According to the modern theory of wages, the wage is determined by the demand and supply of labour. It regards wage as a price of labour in nominal term and assumes perfectly competitive market and absence of trade unions.

i. Demand for Labour

The demand for labour is the number of workers demanded by the firm at a given wage rate during a specific period of time.

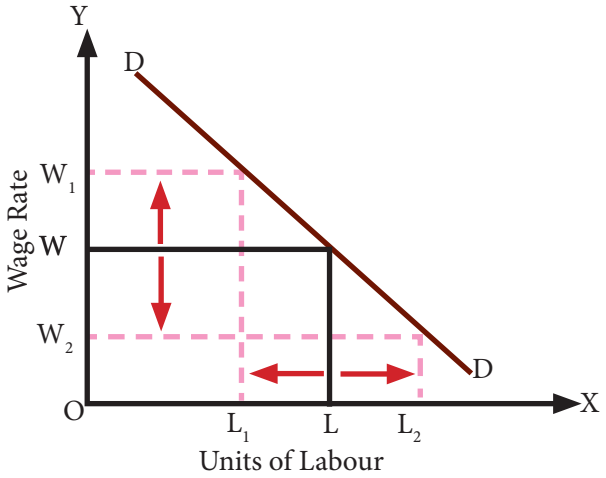

Figure 6.1 *Demand curve for labour*

Figure 6.1 illustrates the change in demand as a result of change in wage rate. Initially, when the wage is OW, the quantity demanded for labour is OL. When the wage rate

increases from OW to OW_1, the quantity demanded decreases from OL to OL_1. On the other hand, when the wage decreases from OW to OW_2, the quantity demanded increases from OL to OL_2. The firm will demand more labour at lower wage rate and less at higher wage rate. Thus, the demand curve for labour is downward sloping indicating inverse relationship between wage rate and demand for labour.

ii. Supply of Labour

The supply of labour is the number of workers who are willing and able to work at a given wage rate during a specific period of time.

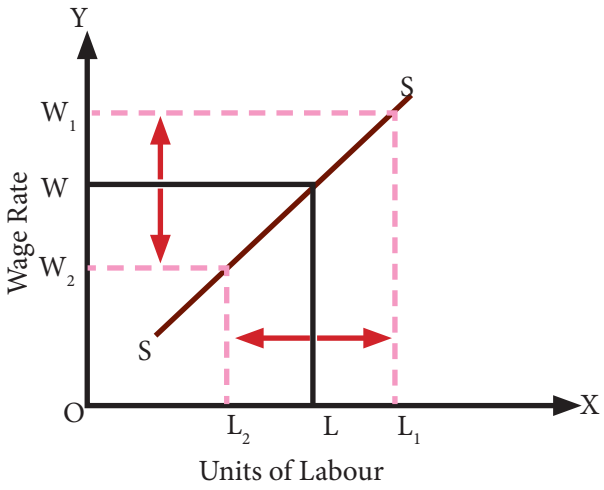

Figure 6.2 *Supply curve for labour*

Figure 6.2 illustrates the change in supply of labour due to change in wage rate. Initially, when the wage rate is OW, the quantity of labour supplied is OL. When the wage rate increases from OW to OW_1, the quantity supplied increases from OL to OL_1. On the other hand, when the wage decreases from OW to OW_2, the quantity supplied decreases from OL to OL_2. At a higher wage rate, there will be more supply of labour. On the contrary, at the lower wage rate, there will be less supply of labour. Thus, supply curve of labour is upward sloping, indicating a positive relationship between wage rate and the supply of labour.

iii. Determination of wage rate

In a competitive market, wage rate is determined through the interaction of market demand and supply of labour. Figure 6.3 illustrates how the forces of demand and supply operates in a market to determine an equilibrium wage rate and quantity of labour.

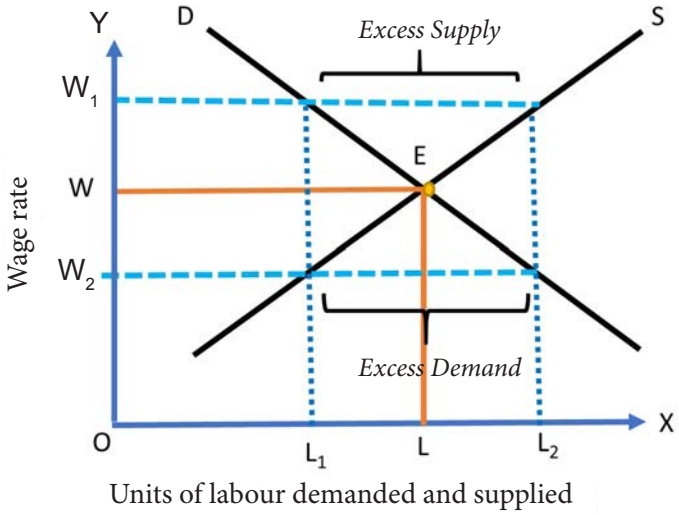

Figure 6.3 Determination of wage rate

The horizontal axis represent units of labour and vertical axis represents the wage rate. Demand and supply curves intersect at point E, the point of equilibrium. Thus, the equilibrium wage rate is OW and equilibrium quantity of labour is OL. Labour market will not be in the equilibrium at any other wage rate higher or lower than OW. At a higher wage rate OW_1, supply of labour exceeds demand for labour creating excess supply. Therefore, all the workers who are willing to work at OW_1 wage rate may not be employed. As a result, the competition among the workers will reduce the wage rate to the level of OW. Likewise, at a lower wage rate OW_2, the demand for labour exceeds the supply of labour leading to an excess demand for labour. Consequently, the competition among the firms will raise the wage rate to OW.

b. Collective bargaining

Collective bargaining is the process of negotiation between an employer and a group of employees with their union representative that sets the terms and conditions of

work. Collective bargaining results in a collective bargaining agreement, a legally binding agreement that lays out policies agreed to by the management and labour. The negotiation includes provisions that address compensation, scheduling, promotions, discipline, and job standards.

Learning Activity 6.1 Analysing wage negotiation through collective bargaining

Instructions

1. Study figure 6.4 to analyse the role of trade unions and employer association to arrive at the market wage rate.

2. Compare the objectives of trade unions and employer association to analyse the concept of collective bargaining.

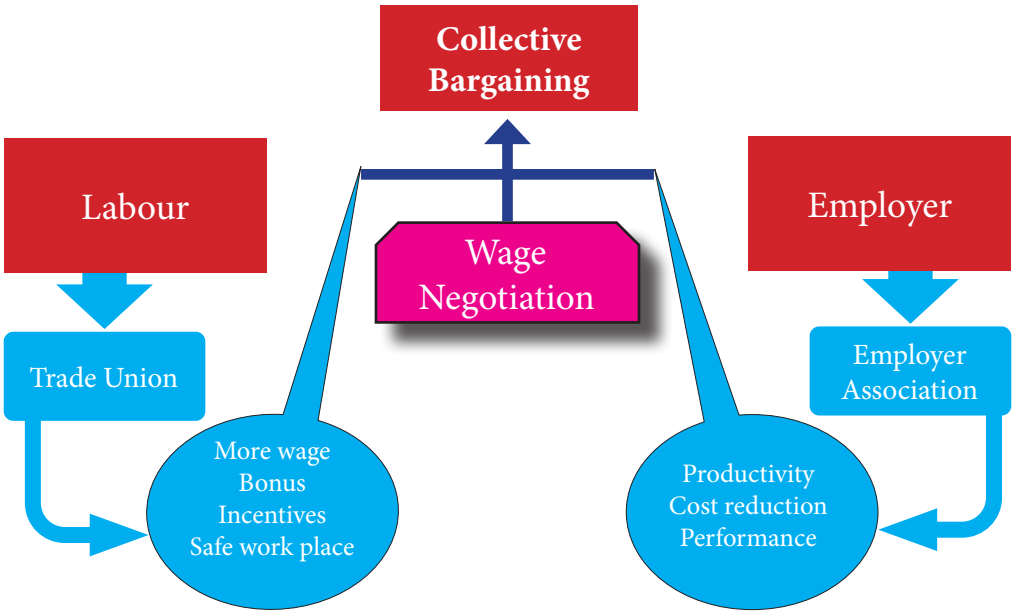

Figure 6.4 *Wage negotiation through collective bargaining*

Questions

1) Explain trade union through the objectives stated in the figure.

2) How are the objectives of trade union different from employer association?

3) Discuss the role of trade union and employer association in negotiating wages through collective bargaining.

4) What are the impacts of trade union in the labour market?

5) State the situation in which a trade union would succeed in raising the wages.

6) In the absence of collective bargaining in Bhutan, what are some of the alternatives to protect employers and workers?

6.2 Modern Theory of Rent

In general, the term rent refers to any periodic payment made regularly for the hire of any durable goods such as house, land, car, and machinery. However, in economics rent is used in the sense of payments made for factors of production that exceed the minimum amount necessary to bring that factor into production. Economic rent is essentially the surplus income of profit earned beyond what is needed to keep a resource in its current use.

Classical economists considered rent as a payment for use of land which is perfectly inelastic in supply. According to Ricardo and other classical economists, "Economic rent is the price paid for the use of the services of land and other natural resources which are free gift of nature."

The payment for the services of a house built on the land includes payment on capital invested to build the house and the service of land. This is termed as contract rent.

Economic rent is a part of the contract rent which is the payment accruing to the use of land alone.

Figure 6.5 *Rent*

Opposed to the classical economists, the modern economists consider rent as a part of the total income of all the factors of production including the land. The concept of rent arises from the opportunity cost or transfer earnings.

According to Boulding, economic rent is any other payment to the factors of production which is in excess of the minimum amount necessary to keep the factor in its present occupation. Since factors of production have several uses, it can be put to alternative uses.

The minimum earning which a factor should obtain from its present use to prevent it from transferring to another use is called transfer earning or opportunity cost. Accordingly, the amount of money which any particular unit could earn in its best paid alternative use is called its transfer earning.

Actual earning is what the factor of production earns in its present employment. Therefore, economic rent is the excess of the actual payment over the minimum amount necessary to retain it in the present use, i.e., transfer earning.

Economic Rent = Actual Earning – Transfer Earning

The modern theory of rent is a comprehensive and logical theory catering to rent determination. According to this theory, economic rent can be earned by any factor of production whose supply is less than perfectly elastic . More elastic the supply, less will be economic rent and vise versa.

Modern economists propounded the determination of rent from two perspectives:

i. Determination of rent of land – Scarcity theory of rent

The scarcity theory of rent assumes land as a homogeneous factor of production and the supply of land is perfectly inelastic in relation to its demand. It also assumes that the demand for land is a derived demand. For example, the demand for land increases as the demand for agricultural product increases.

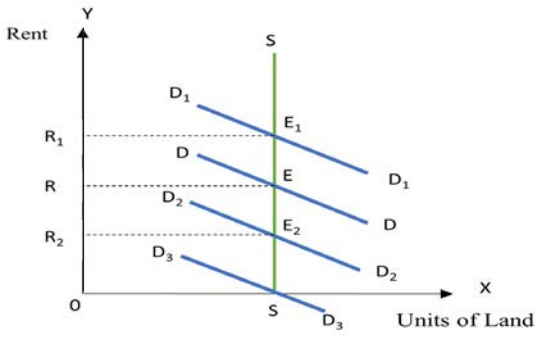

Figure 6.6 *Determination of rent for land*

In figure 6.6, unit of land is shown on X-axis and the rent is shown on the Y-axis. All the demand curves of land DD, D_1D_1, D_2D_2 and D_3D_3 are downward sloping because the marginal returns of the land diminishes in short run. The supply curve of land SS is vertical to the Y-axis implying that the supply of land is perfectly inelastic.

Rent of land is determined at a point where the demand for and supply of land are equal. This equilibrium point occurs at the point of intersection of the demand and supply curve. Initially, at the equilibrium point E, the demand curve DD for the land and equilibrium rent OR is determined. If there is an increase in the demand for land due to increase in population, the demand curve will shift to D_1D_1 and new equilibrium rent OR_1 will be determined at the equilibrium E_1. On the other hand, if the demand for land decreases due to a decrease in population, the demand curve will shift to D_2D_2 and the new equilibrium rent OR_2 will be determined at the equilibrium E_2. The demand curve like D_3D_3 may also occur implying zero rent. Such situation is applicable in cases where a country is entirely new and the supply of good quality land is in abundance.

Rent will also differ depending on the quality of land, accordingly there can be different demand curve for each quality of land to explain the determination of rent.

ii. Rent as a difference between the actual earning and transfer earning

According to the modern economists, rent is a part of income for all factors of production. Unlike land which is perfectly inelastic in supply, the rest of the factors can earn rent on the basis of their relative inelasticity. The supply of factors can be perfectly elastic, perfectly inelastic and less than perfectly elastic.

1. Rent for a factor with perfectly elastic supply

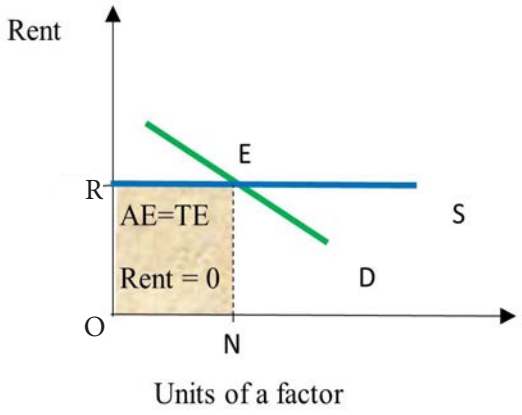

Figure 6.7 *Determining rent for a factor with perfectly elastic supply*

In figure 6.7, units of a factor and rent are shown on X-axis and Y-axis respectively. The supply curve is parallel to the X-axis showing the supply of the factor is perfectly elastic. The demand curve for the factor is shown by D which is downward sloping. Intersection of D and S is the equilibrium point E. at this point OR price an infinite quantity of factor service would be supplied but nothing would be supplied at slightly lower price. The whole price OR is equal to transfer earning of the factor. Actual earning of the factor is ORxOM i.e, OREN, which is equal to transfer earning. Hence, economic surplus or economic rent is 0.

2. Rent for a factor with perfectly inelastic supply

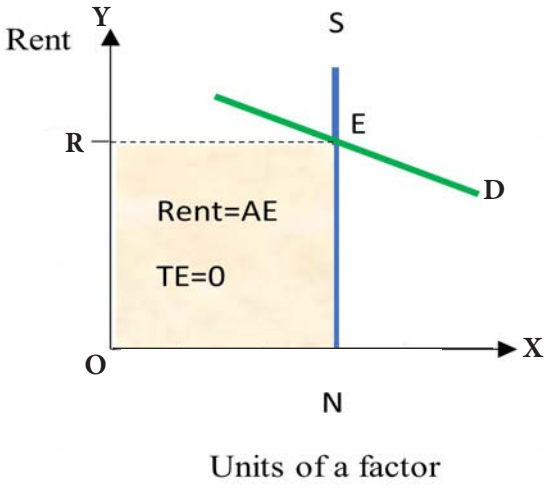

Figure 6.8 *Determining rent for a factor with perfectly inelastic supply*

In figure 6.8, units of a factor and rent are shown on X-axis and Y-axis respectively. Factor supply is fixed and factor has only one use due to which it cannot transfer else where. The supply curve for such a factor would be a vertical straight line parallel to Y axis. The demand curve for a factor is shown by D, which is downward sloping. Intersection of D and S is the equilibrium point E. In such a situation the transfer earning is Zero and whole factor is economic rent. The actual earning is OREN which is all economic rent, because a decrease in this earning would not educe any unit of factor to move else where. Thus, rent is equal to the actual earning.

3. Rent for a factor with less than perfectly elastic supply

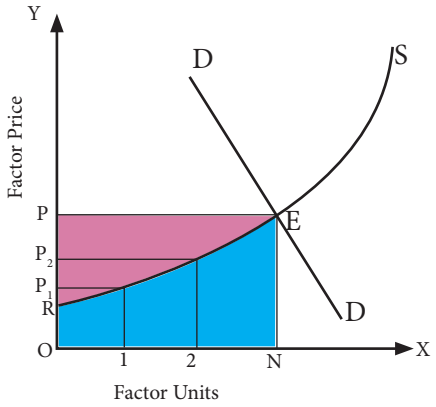

Figure 6.9 *Determination of rent for a factor with less than perfectly elastic supply*

Perfectly elastic supply and perfectly inelastic supply are the two extreme situations. The more usual and realistic situation is that of a positively sloped supply curve. Normally in order to attract more units of a factor of production, there is the need of offering higher remuneration. Positively sloping curve S in figure 6.9 illustrates such a situation. It shows that more and more units of factor would be supplied to this particular industry if factor prices increase. For example at OP_1, only 1 unit of the factor would be supplied, at OP_2, 2 units would be supplied and ON units would be supplied at OP. Given demand curve DD and supply curve S, OP is the market price at which ON units are employed. Here all except the last unit of this factor are willing to work/supply at lower price than OP price. This means that transfer earning of all factor units except the last one, is less than their actual earning OP. It means that all except the last unit would be earning economic rent. For example, the transfer earning of the 1st unit is OP_1, whereas its actual earning is OP. Thus the first unit earns an economic rent of P_1P, i.e.. The difference between actual earning OP and transfer earning OP_1. The total actual earnings of the factor is OPEN. The aggregate economic rent is shown by the shaded portion(Pink) RPE above the supply curve and the aggregate transfer earnings by the shaded portion (blue) OREN below the supply curve.

6.3 Interest

Interest is the payment made for the use of capital. It is the payment for the use of certain amount of money for a specific period of time.

a. Gross and net interest

Gross interest is the total interest paid for capital. It is not merely the payment for the use of money, but it also includes payment for a number of other services. Net interest is the payment made only for the services of money borrowed. According to Marshall, "Net Interest is the earnings of capital simply or the reward of waiting simply."

Gross Interest = Net Interest + Payment for risk + Payment for inconvenience + Cost of administration.

b. Reasons for paying interest

i. Payment for risk

The lender has to face the risk of loss of capital due to business risk and personal risk. Business risk faced by the borrower arises from the uncertainty of profit in the business and may not repay the loan amount in time. Personal risk is due to dishonesty of the borrower.

ii. Payment for inconvenience

After lending the money, the lender may urgently need the money for some other purpose but may not have it. So, opportunity is missed. Sometimes, the borrower may return the money at the time when the lender may not be able to make investment. These are some of the inconveniences faced by the lender.

iii. Administrative cost

Lending money involves certain amount of work and expenditure on the management of the debt. The lender has to maintain proper book of accounts for administrative purposes.

6.4 Profit

Profit is the reward for the services of an entrepreneur rendered in productive activity. Income left after payment for the hire of factor services is profit. Hence, profit is also called a residual income.

i. Gross and net profit

Gross profit refers to the excess of revenue over all paid out costs in the form of contractual rewards for the factor services hired. It is the difference between total revenue and total explicit cost. Net profit is the excess of revenue over all explicit and implicit payments to factors of production. Explicit cost is the total expenses incurred by the entrepreneur in hiring the factor of production while implicit cost is the imputed value of the factor services provided by the entrepreneur.

$$\textit{Gross Profit} = \textit{Total Revenue} - \textit{Explicit Cost}$$

$$\textit{Net Profit} = \textit{Total Revenue} - \textit{Explicit Cost} - \textit{Implicit Cost}$$

$$\textit{Net profit} = \textit{Gross Profit} - \textit{Implicit Cost}$$

Learning Activity 6.2 ***Computing gross and net profit using the concept of costs***

Instructions

1. Study table 6.1 and list the item under explicit and implicit cost of the firm.
2. Examine the differences between implicit and explicit cost.

Table 6.1 *Explicit and implicit cost of a firm*

Item	Item	Amount (Nu)
1	Wages paid to workers	500
2	Interest for capital owned by an entrepreneur	100
3	Wage for managerial functions performed by an entrepreneur	500
4	Cost for bearing risk and uncertainties	200
5	Rent for office	450
6	Interest payment to the bank	600

Questions

1) What are the value of explicit and implicit costs?
2) Calculate the gross and net profit if the firm's total revenue is Nu 5,000.
3) What is the purpose of implicit cost in calculation of profit?
4) Why is net profit a better indicator of profitability than gross profit of a business?

Review Questions

1. Fill in the blanks
   i) If the actual earning is Nu.10,000 and transfer earning is Nu. 7,000, then the economic rent will be Nu.……
   ii) The modern theory of rent states that the factors of production whose ……is limited can earn rent.
   iii) Rent will be zero if the supply of a factor of production is perfectly.…….....
   iv) Demand for land and labour is ……..….. demand.
2. Will economic rent arise if input supply is perfectly elastic? Why?
3. Explain the following with the help of a diagram.
   i) Economic rent is equal to zero
   ii) Economic rent is equal to actual earning
4. Mr. Dawa currently works for a law firm. He is considering to open his own law firm, where he expects to earn Nu 50,000 per month. To run his own firm, he needs an office and a law clerk. He has to pay Nu 5,000 per month as rent for his office and Nu 15,000 for hiring law clerk. He has also decided to quit his current job which earns him Nu 20,000 per month. Considering the above information, answer the following questions:
   i) Find out the implicit and explicit cost.
   ii) Calculate the profit that will be earned by Dawa.
   iii) Is it profitable for Dawa to start a law business? Why?
5. Calculate the net profit when gross profit is Nu 50,000 and the price of the factor of production provided by an entrepreneur is Nu 20,000.
6. Differentiate between contract rent and economic rent with an example each.
7. Why are trade unions formed?
8. How is collective bargaining helpful to the labour market?

Chapter

Statistics for Economics

Learning Objectives

1. *Discuss the importance of statistics*
2. *Analyse the limitations of statistics*
3. *Discuss sources of data and methods of data collection*
4. *Present data in different forms*
5. *Analyse different methods of constructing index numbers*
6. *Compute indices to measure changes in price and quantity over time*

Introduction

The term statistics evolved in the 18th century in response to the needs of industrialisation of sovereign state. In the past, statistics was restricted to information about states, particularly demographics. Later it was extended to include collections of all types of information, analysis, and interpretation of data. The statistical data is an important step towards establishing a general statement about economic entities to help in establishing theoretical concepts and models by providing evidences.

This chapter discusses the importance of statistics, limitations, presentation of data, and methods of constructing index numbers.

Reprint 2024

7.1 Statistics

The origin of the word statistics may be traced back to the word 'status' meaning political state. Statistics refers to statistical methods of collection, classification, presentation, description, analysis, and interpretation of numerical facts or data. In economics, statistical data is gathered to study economic variables such as income, consumption, poverty, employment, and public expenditure.

a. Importance of statistics

i. Understanding the performance of the economy

Statistics provides important data for comparing the performance of an economy with itself and with other economies. In this respect, the data on production, employment, national income, and level of prices are some useful indicators for the economy.

ii. Understanding the importance of various sectors of the economy

With the help of statistics, it is possible to understand the roles and contributions of various sectors of the economy. It helps in making inter-sectorial comparisons and inter-temporal comparisons of the economy.

iii. Statistics for planned development

Statistics relating to the availability of resources and their distribution among different uses is essential in ensuring better utilisation of resources in an economy. It also helps in evaluating the achievements and problems of previous plans.

iv. Better comprehension of the basic principles of economics

Economics, as a subject, encompasses various principles such as the laws of demand and supply, as well as theories of cost and revenue. Thus, analyzing data pertaining to these principles aids in comprehending the operations of markets and firms. Similarly, it also enable economists to find out the cause and effect relationship between different sets of data.

v. Quantitative expression of economic problems

Statistics are helpful in understanding the magnitude of economic problems in quantitative terms. Therefore, it helps in the formulation of an appropriate economic policies. For instance, the data on unemployment would help the government to formulate policies in creating employment opportunities.

vi. Statistics for research

Statistics is helpful in generating new ideas and formulating economic laws and policies. It functions as a tool in designing research, analysing the data and drawing conclusions.

b. Limitations of statistics

i. Sampling bias

Statistics often rely on samples to represent a larger population. If the sample is not representative or suffers from sampling bias, the conclusions drawn from the statistics may not accurately reflect the entire population.

ii. Limited scope

Statistics can only provide insights based on the data available. If certain important variables are not measured or included in the analysis, the conclusions may be incomplete or misleading. Additionally, statistics may not capture qualitative aspects or complex phenomena that cannot be easily quantified.

iii. Misinterpretation

Misinterpretation of data in statistics refers to incorrect understanding or analysis of data leading to erroneous conclusions or misleading interpretations. It can occur at various stages of statistical process.

iv. Human errors

Statistics are often generated and analysed by humans, and errors and biases can occur at various stages. Data collection, entry, analysis, and interpretation are all susceptible to human errors or subjective judgments. These factors can influence the results and undermine the reliability of statistical findings.

v. Improper use of statistics

The improper use of statistics relates to the misuse of numerical data intentionally or by error. The result provides deceiving information that creates false narratives around a topic. Misuse of statistics may happen in advertisements, politics, news, and media.

7.2 Data

Data are numerical description of certain observations. It involves collection of facts and measurements which helps in drawing conclusion. For example, if marks scored in economics are collected to see the overall performance of the students, it is known as data. If the data are unorganized numerically, it is called raw data and if the data are arranged in particular order, it is called ordered data.

a. Sources of data

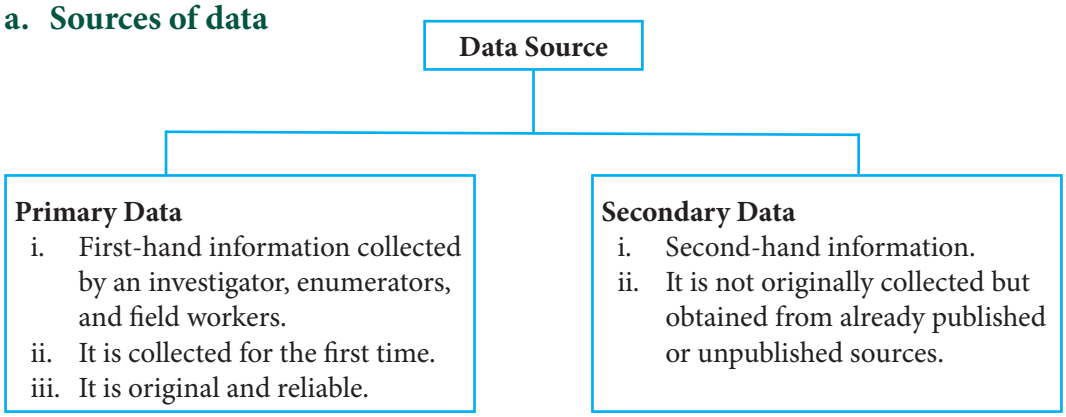

Figure 7.1 *Sources of data*

The sources of data collection depends on the type of data.

i. Primary data

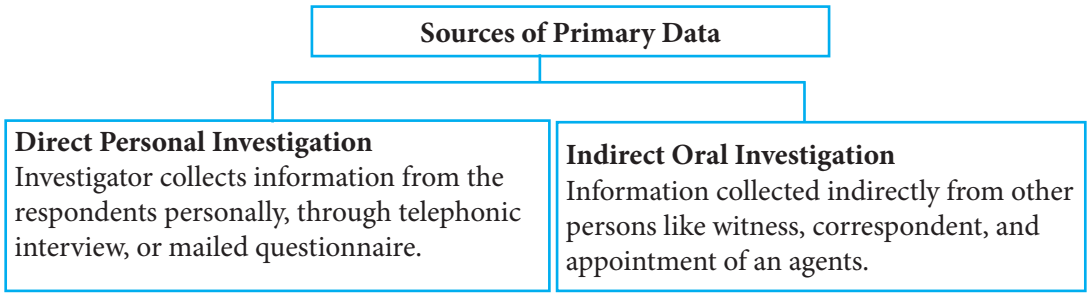

Figure 7.2 *Sources of primary data*

ii. Secondary data

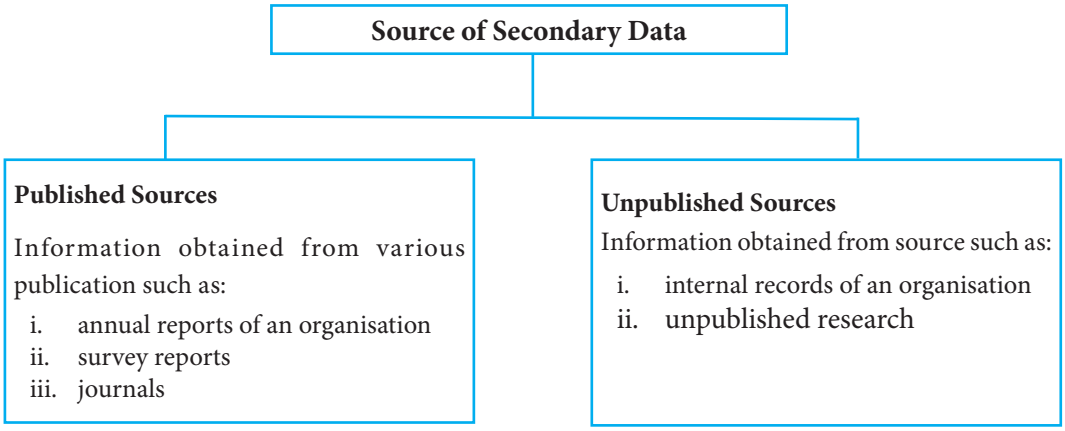

Figure 7.3 *Sources of secondary data*

b. Presentation of data

After the collection of data from various sources, presentation of data is a vital function of statistical method. Data can be presented as:

i. Tabular presentation

It is used to present data in columns and rows. It can be distinguished based on the presentation.

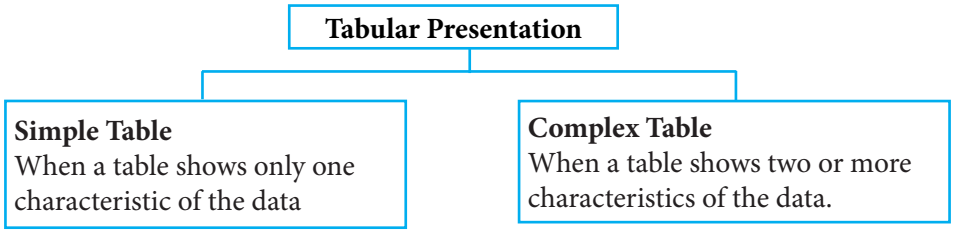

Figure 7.4 *Tabular presentation*

ii. Diagrammatic presentation

Maps, curves, geometric figures, pictures, and lines are used to represent data diagrammatically. Generally, bar graph, pie diagram, histogram, and frequency polygon are used for representation.

Learning Activity 7.1 Interpreting data

Instructions

1. Visit the website of Bhutan Council for School Examinations and Assessments (BCSEA) and study the mean marks of class 12 economics for last five years.

2. Represent the data in tabular form and draw:
   a) Bar graph
   b) Pie chart

Questions

i. Write a descriptive analysis of the graphs.
ii. What is the source of data? Explain.
iii. Which graph is most suitable to interpret the mean marks? Why?

7.3 Index Number

Index numbers are tools to measure the changes in the magnitude of a variable or a group of related variables over time with respect to a chosen base year. The variable includes price, quantity of output, and imports and exports that helps to determine how economy functions with respect to time, place and certain other characteristics.

According to Spiegel, an index number is a statistical measure designed to show changes in a variable or a group of variables with respect to time, geographical location or other characteristics. For example, the prices of consumer goods are 20 percent higher in the year 2023 as compared to 2022. This implies that the index number in the current year 2023 is 120 compared to 100 in the base year 2022.

When the comparison is done for the quantity like industrial output and agricultural production between the two periods, this is called quantity index number.

Broadly, there are three kinds of index numbers:

a. Price index numbers

It measures the general changes in price between the current year and the base year. These index numbers can be of various types like wholesale price index numbers and consumer price index numbers.

b. Quantity index numbers

It measures the relative change in quantity in any particular year in comparison to the level of quantity in the base year. The commonly used index number is Index of Industrial Production (IIP).

c. Value index numbers

It measures the relative changes in total value of items like retail sales and profit as compared to their level in the base year.

d. Considerations for the construction of index numbers

i. Base year

Base year is the year of reference or the year with which the current year is compared to. The index for the base period is always taken as 100. Selection of the base year is one of the problems in the construction of index number. Though the selection of the base year could primarily depend on the object of the index, the following points need to be considered while deciding the base year:

i. Base year should be a period of normal and stable economic activity. If it is an abnormal year, it implies that we would compare current year with an abnormal year. Naturally, we will not get the right comparison.

ii. The base year should not be too distant from the current period. If the time lag between the current and the base period is too large, then it is likely that the tastes, customs, fashions, and quality of goods may have undergone a change. Further, some new goods may have been developed or some goods consumed in the base year may have gone out of market. Under these circumstances, comparison of prices between current and base years become meaningless.

ii. Items

It is not possible to include each and every item in the construction of an index number. Only a few items, whose price movements appear to be the representative of the whole group, are selected for inclusion.

When making decisions regarding the inclusion or exclusion of items in the calculation of an index number, it is important to ensure that:

i. the items included are relevant to the desired purpose of the index numbers.
ii. the number of items should be neither too large nor too small to ensure that index number will be the representative of the whole group.

iii. System of weighting

The commodities included for the construction of index numbers like food, clothing, housing, and transport are not of equal importance. In order to reflect the relative importance of these items, weights are assigned to each of these items according to their relative importance. The two kinds of weights are quantity weight and value weight. The choice depends on the method selected for the construction of index numbers. When all items are equally important, an unweighted index number is constructed.

e. Methods of constructing price index numbers

Price index numbers are classified into two types. They are simple or unweighted indices, and weighted indices. In unweighted index numbers, all items are considered equally important. But in weighted indices, weights are explicitly assigned to each item selected for inclusion in the calculation of index number. Weights are assigned to different items in accordance to their importance.

The methods of calculating simple and weighted index number are shown in figure 7.5.

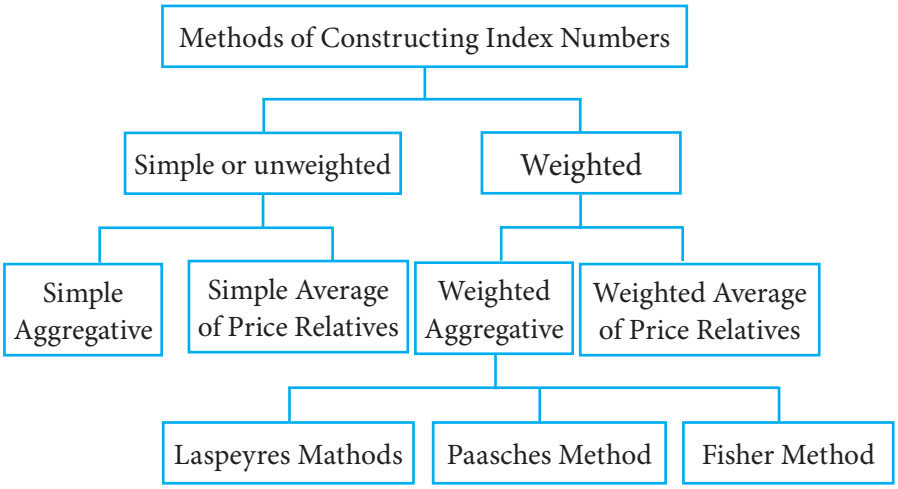

Figure 7.5 *Methods of constructing index number*

i. Simple (unweighted) index numbers

An unweighted index number is constructed when all items like food, clothing, housing, and transport are given equal importance.

1. Simple aggregative method

This is the simplest of all the methods of constructing index numbers. In this method, the aggregate prices of all items in the current year are expressed as a percentage of the same in the base year. It is expressed as:

$$P_{01} = \frac{\sum P_1}{\sum P_0} \times 100$$

Where:

$\sum P_{01}$: Index number of the current year

$\sum P_1$: Sum of prices of items in the current year

$\sum P_0$: Sum of prices of items in the base year

Learning Activity 7.2 ***Calculating price index number using simple aggregative method***

Instruction

1. Refer table 7.1 to solve the question that follows.

Table 7.1 *Price Index Number*

Commodity	Price (Nu) in year	
	2020	2024
A	150	250
B	70	140
C	200	180
D	55	70
E	105	100

Questions

1. Calculate the price index number using simple aggregative method.
2. Did the price of commodities increase or decrease in general? Justify.

2. Simple average of price relative method

The price relative is the percentage ratio of price in the current year to the price in base year. In this method, price of each commodity in the current year is taken as a percentage of its base year price.

$$\text{Price Relative} = \frac{P_1}{P_0} \times 100$$

The simple average of these price relatives is used to construct index number.

$$P_{01} = \frac{1}{N} \sum \left(\frac{P_1}{P_0} \times 100 \right)$$

Where:

P_1 : Price in the current year

P_0 : Price in the base year

N : Total number of items

Learning Activity 7.3 ***Computing Price Index Number***

Instruction

1. Using table 7.2 construct an index for the year 2023 taking 2021 as the base year using a simple average of price relative method.

Table 7.2 *Price Index Number*

Commodity	Price (Nu) in year	
	2021	2023
A	20	25
B	16	24
C	40	40
D	50	40
E	10	20
F	35	70

Question

1. Calculate price index number using simple average of price relative method and interpret your result.

ii. Weighted index numbers

In this type of index number, appropriate weights are assigned to all the items in such a manner that the weight of each item reflects its relative importance in the group. In the weighted aggregative methods, different goods are accorded weights according to the quantity bought. The two types of weights are quantity weights and value weights. While quantity weights are used in weighted aggregative method, the value weights are used in weighted average or price relative method.

1. Weighted aggregative method

Although there are many methods developed to construct index number, the following are commonly used:

i. Laspeyres method: *This method uses base period quantity (q_0) as weight.*

$$P_{01} = \frac{\sum P_1 q_0}{\sum P_0 q_0} \times 100$$

ii. Paasche Method: This method uses current period quantity (q_1) as weight.

$$P_{01} = \frac{\sum P_1 q_1}{\sum P_0 q_1} \times 100$$

iii. Fisher method: This method uses the geometric mean of Laspeyres and Paasche's indices.

$$P_{01} = \sqrt{\frac{\sum p_1 q_0}{\sum p_0 q_0} X \frac{\sum p_1 q_1}{\sum p_0 q_1}} X100$$

Learning Activity 7.4 ***Construction of weighted price index with weighted aggregative methods***

Instruction

1. Refer table 7.3 to construct index number for prices of the year 2021.

Table 7.3 *Price Index Number*

Item	2013 (Base year)		2021 (Current Year)	
	Price	Quantity	Price	Quantity
A	10	10	15	20
B	25	3	30	5
C	20	4	15	10
D	5	15	7	18
E	30	2	30	4

Questions

1. Calculate price index number using:
   a. Laspeyres method
   b. Paasche method
   c. Fisher method
2. Are the three index numbers same? Explain.

2. Weighted Average of Price Relative

Step 1: Calculate the price relatives.

$$\left(R = \frac{P_1}{P_0} \times 100\right)$$

Step 2: Multiply the price relatives of each item by the respective weights (generally, p_0q_0 are used).

Step 3: Add the price relatives to obtain ΣRW.

Step 4: Divide the sum of weighted price relative by the sum of the weights to compute the price index.

$$i.e.\ P_{01} = \frac{\Sigma RW}{\Sigma W}$$

***Learning Activity 7.5* Computing price index number**

Instruction

1. Refer table 7.4 to find the weighted average of price relative index number of price for 2023 and the base year 2019.

Table 7.4 *Weighted Average of Price Relative Index Number*

Item	Weight	Price (Nu) per unit	
		2019	2023
A	30	20	25
B	35	40	40
C	10	2	4
D	25	15	20

Questions

1. Calculate weighted average of price relative index number of price for 2023 and the base year 2019.
2. What conclusion can you draw from the value of price index?

7.4 Consumer Price Index Numbers (CPI)

Consumer price index numbers are designed to show changes in the price level of a specified basket of goods and services purchased by the households. Since consumers purchase the goods at retail price in the retail market, consumer price index numbers are also termed as retail price index numbers or cost of living index numbers. These are special index numbers designed to measure the change in the cost of living in two different situations. The need for constructing consumer price index number arises because the general price index numbers do not give the exact idea about the effect of a given change in the general price level on the cost of living of different categories of consumers. This is because different categories of people consume different types of goods.

a. Method of constructing consumer price index

There are two methods of constructing consumer price index.

i. Aggregate expenditure method

This method is based upon the Laspeyres method and is widely used. The

quantities of commodities consumed by a particular group in the base year are the weight.

$$CPI = \frac{\sum p_1 q_0}{\sum p_0 q_0} \times 100$$

ii. Family budget method or weight relatives method

This method estimates an aggregate expenditure of an average family on various items and is weighted. The family budget method is same as weighted average price relative method. It is given by:

$$CPI = \frac{\sum WP}{\sum W} \quad \text{where} \quad P = \frac{P_1}{P_0} \times 100 \quad \text{and} \quad w = p_0 q_0$$

Learning Activity 7.6 Constructing consumer price index

Instruction

1. Refer table 7.5 to answer the questions.

Table 7.5 *Consumer price index*

Commodity	Quantity consumed (2015)	Price (Nu) per unit	
		2015	2020
Food	50	10	15
Clothing	8	50	120
Fuel	2	60	90
Electricity	48	2	5
Miscellaneous	30	6	12

Questions

1. Calculate consumer price index (CPI) for the year 2020 using:
   a) Aggregate expenditure method.
   b) Family budget method.
2. Why do you think the two indices are same or different?

Review Questions

1. Statistics is defined as an aggregate of numerical facts. Explain.
2. Why is quantitative data mostly used in statistical analysis?
3. Why statistics is important in the study of economics?
4. Distinguish between primary and secondary data.
5. Explain limitations of statistical data.
6. While constructing an index number, what considerations need to be taken in selecting base year and items.
7. Construct the index number for the following data using:
   i) simple average of price relative method.
   ii) weighted average of price relative method.

Commodity	Base year Price	Current year price	Weights
	2010	2015	
Rice	36	45	10
Wheat	20	25	5
Oil	125	160	4
Pulse	28	50	7
Salt	10	15	3

Chapter

Public Revenue and Expenditure

Learning Objectives

1. *Explain public finance and the branches of public finance*
2. *Discuss the sources of government revenue*
3. *Discuss the importance and types of taxation system*
4. *Explain types, components and importance of public expenditure*
5. *Examine the recent trends in public expenditure of Bhutan*
6. *Explain budget and its types*
7. *Discuss budgetary procedures in Bhutan*

Introduction

In 1776, Adam Smith wrote 'The Wealth of Nation' in which he argued for a limited role of government. Smith argued that individuals and firms driven by profit maximisation would inadvertently serve the public interest while pursuing their own self-interest. The profit motive would lead individuals and firms to compete against one another and supply the goods at a price as low as possible. Smith argued that the economy was led, as if by an invisible hand, to produce what was desired by the society and in the best possible way. In the nineteenth-century, many economists

further promulgated the doctrine, which was known as laissez-faire. Hence, most of the economies of the world operated under a laissez-faire system and the role of the government was confined to maintaining law and order and securing national sovereignty.

The laissez-faire system could not sway all nineteenth-century social thinkers. They were concerned about rising income inequality, unemployment, and poor living standards of the working class. In addition, the economies governed by the laissez-faire system suffered due to market failures. The Great Depression of the 1930s acted as the pivotal event that led to the fundamental shift in attitudes toward government. Furthermore, the emergence of Keynesian economics emphasised on government intervention in mitigating market failures and maintaining economic stability.

Hence, the role of the government extended beyond maintaining law and order and securing national sovereignty resulting in huge increase in expenditure and simultaneous increase in revenue to meet the expenditure. This chapter discusses the sources of public revenue, spending, and allocation of public resources.

8.1 Public Finance

Government spends in millions annually. As the government performs different functions for the public welfare, it needs to raise funds to finance its activities. Government raises revenue through various means and sources to meet the increasing public expenditure. Public finance is a branch of economics that studies the sources of government revenue and alternative means of financing government expenditures at central, district, and local levels.

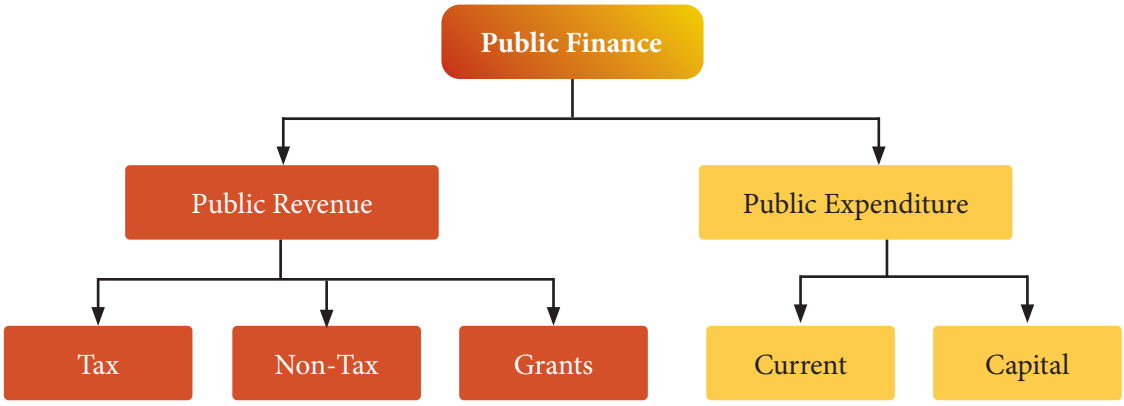

Figure 8.1 *Components of public finance*

8.2 Public Revenue

The first component of public finance is public revenue. It refers to the income of the government generated from various sources such as taxes, non-taxes and grants.

a. Tax revenue

Taxes are mandatory contributions levied on individuals or corporations by a government to provide public goods and services. Tax payers do not receive any corresponding direct returns from the government. Tax revenues generated by the government are used to finance activities and provide public services such as roads, hospitals, schools, and social security.

Objectives of taxation

In the past, taxes were collected mainly for administrative functions, maintaining law and order, and defence. Now, with the increasing role of government, taxes are levied for many other reasons.

i) Raising revenue

Taxes are levied to raise revenue to finance government activities, such as the provision of public goods and services, capital formation and increasing employment opportunities that further helps in generating revenue. It is a major source of domestic revenue.

ii) Redistributive function

Taxation is aimed at reducing the unequal distribution of income and wealth that results from the operation of a market-based economy. Government adopts progressive taxation system to reduce income inequality and equitable wealth distribution in the country. Taxation also helps to reduce regional imbalances through various means such as tax exemptions and tax concessions to investors in underdeveloped regions and sectors.

iii) Regulatory function

Taxation also has a regulatory function. It can be used to steer private sector activity and influence consumption patterns of the people in the directions desired by government. Government levies varying degrees of taxes on different firms based on the nature of products, types of inputs used, and the impacts on the environment. Moreover, taxation is a principle tool of fiscal policy that helps to correct market failures, promote market efficiency and maintain economic stability.

Types of tax

Government levies tax on economic activities including income-earning activities and consumption of goods and services. In addition, taxes are also levied on properties based on the value. Taxes are broadly categorised into direct and indirect taxes.

The categorisation of taxes into direct and indirect is made on different bases by different economists but the ability to shift tax burden is the oldest and perhaps the most familiar basis. In this context, it is important to make a distinction between tax impact and tax incidence. The tax impact refers to the initial burden of a tax, which is at the original point of imposition. It falls on the individual who pays it to the government in the first instance and it cannot be shifted. The tax incidence refers to the ultimate money burden of a tax. It occurs at the ultimate settlement of the tax burden, which can be shifted to another individual.

i. Direct tax

Direct tax refers to those taxes whose burden cannot be shifted to another person. The tax burden is borne by the same person from whom the tax is collected. Therefore, the impact and incidence of the tax falls on the same person. The direct taxes are normally levied on properties, income and wealth.

ii. Indirect tax

Indirect taxes are those which are collected from one person but whose burden is ultimately shifted to another person. Unlike the direct tax, both the impact and incidence of the tax do not fall on the same person. Normally, indirect taxes are collected from producers and sellers but the incidence of tax gets shifted to the consumers.

Table 8.1 *Examples of direct and indirect taxes*

Direct Tax	Indirect Tax
• Personal income tax • Business income tax • Corporate income tax • Property tax	• Sales tax • Excise duty • Green tax • Import tax • Export tax

Learning Activity 8.1 *Surveying financial literacy and responsibility in the locality*

Instructions

1. Plan and prepare a field visit in your locality.
2. Conduct interviews with individuals, business firms, or corporations.
3. Use the suggested questions provided to guide the survey interview.

Interview Questions

A. General information of the respondent

1. Name of individual/firm/corporation ……
2. Age/ Year of establishment …….
3. Occupation/type of business ……..

B. Interview questions

a. Did you pay any kind of direct taxes to the government in the previous year?
b. Are you aware of other taxes besides direct taxes?
c. Why do you think the government collects taxes from the people?
d. What are your perceptions about paying taxes to the government?
e. What is your advice to the people who evade tax?

Use the table given below to gather information from the respondents

Sl.No.	Types of tax paid	Amount (Nu)	Authority/government
1			
2			
3			

Questions

1. Make a list of different types of taxes people pay in the locality.
2. What are people's perspectives on paying taxes to the government?
3. Do you think people of the locality are socially responsible? Justify.
4. How can you contribute in improving the society in terms of paying tax as a social responsibility?

Taxation system

In Bhutan, taxes were collected in kind and in the form of labour contributions before 1960. Gradually the taxes in kinds were phased out and it was replaced by monetised tax on land, property, business income, and consumption of goods and services. The first major tax reform occurred in 1989 to develop a coherent and rational taxation system. It was initiated to establish a fair, equitable and efficient taxation system in the country. Thereafter, a series of tax reforms were initiated by the government to rationalise and streamline the procedures.

Taxation system is generally classified into four as proportional, progressive, regressive and degressive depending on its tax base and tax rate.

i. Proportional taxation

A tax is called proportional when the rate of taxation remains the same as the income of the taxpayer increases. All the incomes are taxed at a single uniform rate irrespective of the level of taxpayer's annual income. This taxation system attempts to create equality and stimulate the economy by encouraging people to save more and invest. Generally, the social security and medicare taxes are proportional.

ii. Progressive taxation

In a progressive taxation, the tax rate increases as the taxable income of taxpayer increases. In such a system, the rate of tax increases along with an increase in the level of income of the taxpayer. Normally, personal income taxes are progressive in nature. The progressive taxation pursues equitable distribution of income among citizens where the higher income group contributes higher than the lower income group.

iii. Regressive taxation

A tax is called regressive when the rate of taxation decreases as the taxable income of the taxpayer increases. Thus, the burden of tax falls more on the low-income group. This means that individuals with lower incomes end up paying a larger share of their income in taxes compared to those with higher incomes. Examples of regressive taxes include sales tax, where everyone pays the same tax rate regardless of income.

iv. Degressive taxation

A tax becomes degressive when the rate of progression in taxation does not increase in the same proportion as the increase in the level of income of the taxpayer. In such a case, the rate of tax increases up to a certain limit beyond which a uniform tax rate is charged. This system helps to encourage savings and investments in the

economy for higher income groups. Degressive tax is a combination of progressive and proportional taxation.

Table 8.2 *Understanding the differences among the four taxation system*

Income (Nu)	Proportional tax		Progressive tax		Regressive tax		Degressive tax	
	Rate	Amount (Nu)	Rate	Amount (Nu)	Rate	Amount (Nu)	Rate	Amount (Nu)
1,000	10%	100	10%	100	10%	100	10%	100
10,000	10%	1,000	15%	1500	8%	800	15%	1,500
100,000	10%	10,000	20%	20,000	6%	6,000	20%	20,000
500,000	10%	50,000	25%	125,000	5%	25,000	20%	100,000
1,000,000	10%	100,000	30%	300,000	3%	30,000	20%	200,000

Learning Activity 8.2 *Evaluating taxes and taxation system in Bhutan*

Instructions

1. Collect latest tax rates information from the website of Ministry of Finance.
2. Complete the table using information.

Table 8.3 *Types, rate and taxation system*

Taxable items	Types of Tax (Direct or indirect)	Rate of Tax	Tick the appropriate taxation system			
			Proportional	Progressive	Regressive	Degressive
Personal Income						
Business Income						
Corporate Income						

Questions

1. Which taxation system is more prevalent in Bhutan? Justify.
2. Which taxation system do you think is beneficial to the economy? Justify.
3. How would proportional taxation system affect income distribution and work incentives of the people?
4. Do you think Bhutan should diversify its tax base? Justify.

b. Non-tax revenue

Government also generates substantial revenue from other sources besides taxes. Other sources of revenue are categorised into three as other revenue, current and capital revenue from government agencies.

i. Other revenue

This category of revenue consists of property income and social contribution. Property income comprises of interest receipts from corporations, dividends from Druk Holding Investment (DHI) and corporations, withdrawals from income of quasi corporations, and miscellaneous rents. Social contribution comprises of health contributions.

ii. Current revenue from government agencies

Current revenue from government agencies include administrative fees and charges and sales of goods and services. Administrative fees and charges comprise of revenues collected from economic services such as agriculture, livestock, and forest; social services such as health, education, and regulatory services; and general services such as immigration, municipal, and environmental services. Sales of goods and services include the revenues from the sales of economic services, general services, and miscellaneous revenues.

iii. Capital revenue from government agencies

Capital revenue from government agencies is minimal. Government agencies generate this revenue from the auction of building, land, vehicles, and other goods and commodities.

c. Grants

Grant is one of the sources of revenue for developing countries. Grants are voluntary contributions made by individuals, private organisations, corporations, international organisations, and foreign governments for specific purposes. Contributions made to the government by individuals and organisations within the country are called internal grants. External grants comprise of program grants and project-tied grants received from international organisations and foreign governments.

8.3 Public Expenditure

Public expenditure is the branch of public finance that studies the expenditure incurred by the public authorities such as central, district, and local government. Public expenditures are important for the provision of public goods and services.

a. Importance of public expenditure

i. Provision of public goods and services

Government spending on public goods brings about economic and social benefits such as workforce participation, higher skilled domestic industries and reduced rates of poverty. Public expenditure on health, education and other social infrastructures helps in building human capital.

ii. Generation of employment opportunities

Unemployment is one of the major problems in developing countries. Public expenditure plays a vital role in influencing the level of employment in an economy. Public expenditure in capital formation such as construction of hydropower plants, bridges, roads and schools contribute towards employment generation in the country.

iii. Balanced regional development

Public expenditure can correct regional disparities. Government reallocates the public resources towards the development of least developed regions in the country to ensure balanced regional development.

iv. Capital formation

Public expenditure incurred on the investment projects for capital formation leads to increase in the productive capacity and generates long-term economic growth. Public expenditure directed to scientific Research and Development (R&D) ensures progress in technology and raises productivity of labours.

v. Social security and welfare scheme

Public expenditure also plays an important role in providing social security benefits to the people such as unemployment allowances, pension and provident fund, old-age homes, and transfer grants. It helps to improve the living standards of the people.

b. Types of public expenditure

Public expenditure is classified broadly into current expenditure and capital expenditure.

i. Current expenditure

It refers to the expenditure incurred by the government for the purchase of goods and services for current consumption or for benefits expected to terminate within

the fiscal year. Such type of expenditure is incurred regularly within a fiscal year and need to be budgeted every year.

ii. Capital expenditure

It refers to the expenditure incurred by the government for the acquisition and creation of goods and services, the benefits of which extend beyond the fiscal year that adds to the assets of the government.

Table 8.4 *Difference between current and capital expenditure*

Parameters	Current Expenditure	Capital Expenditure
Meaning	Expenditure that neither creates assets nor reduces the liability of the government.	Expenditure that either creates an asset or reduces the liability of the government.
Nature	They are regular and recurring.	They are irregular and non-recurring.
Components	• Salary and wages • Operation and maintenance • Subsidies and grants • Interests • Utility bills • Stationeries • Medicines • Rent • Insurance • Fees	• Training HRD and Awareness • Infrastructure • Plants and equipment • Vehicle • Professional service • Office furniture and equipment • Grants and equity • Lending • Repayment
Time frame	Short term	Long term

Learning Activity 8.3 ***Analysing the trend of resource allocation in Bhutan***

Instructions

1. Visit the website of Ministry of Finance to collect data on sector-wise budget allocation for the past five fiscal years.
3. You may use spreadsheet to compute the percentage shares for the sectors listed.
4. Plot line graph.

Table 8.5 *Budget allocation for the past five fiscal years*

Fiscal Years →	Year-1		Year-2		Year-3		Year-4		Year-5	
Sectors	Total Allocation	% Share	Total Allocation	% Share	Total Allocation	% Share	Total Allocation	% Share	Total Allocation	% Share
Health										
Education										
Agriculture										
Communications										
Mining and Manufacturing										
Roads										
Law and order services										

Questions

1. Arrange the sectors in descending order based on the resource allocation by government for the past five years.
2. Which sector is allotted the highest budget? Provide some probable reasons for prioritising the sector.
3. What is your opinion on the resource allocation and prioritisation of the sectors by government in the past five years?
4. Considering the prevailing socioeconomic scenario, which sector would you prioritise? Justify.

8.4 Budget

A budget is a vital part of the fiscal policy that guides planning and supervision of the financial affairs. It serves as a comprehensive financial programs and policies of action which the government envisions to pursue. The government formulates budget for efficient allocation of resources. Thus, budget comprises of detail estimated revenues and proposed expenditures for a particular fiscal year. Budget is important for the following reasons:

i. Planned approach to government's activities

With increase in the role of government, there is a need to mobilise huge resources

and public expenditure. Thus, budgeting ensures rigorous planning and prioritisation of the resources in accordance to the socioeconomic needs of the country.

ii. Instrument of economic policy

A budget is not confined to estimating the public revenue and distributing the resources, rather it is a potent tool that reflects socioeconomic objectives of the government. It is a fundamental instrument, which helps to accelerate economic development, maintain price stability, curb income disparity, and reduce unequal distribution of wealth.

iii. Integrated approach to fiscal operations

An effective planning integrates different fiscal operations as the government cannot take decisions pertaining to taxation, borrowings, expenditures and other measures randomly. These decisions are interrelated and they comprise collective objectives to ensure effective financial management.

iv. Index of government operations

Budget is a framework which guides the implementation, assessment, monitoring and evaluation of all government programmes. It ensures transparency, accountability and efficiency of government functions. Thus, the budget depicts the overall performance of the government.

v. Responsibility and accountability

Public accountability is essential for good governance. The budget exhibits the accountability of public funds. It ensures transparent and timely dissemination of information about government operations to the public. Budgeting also enables community participation through Public Private Partnership (PPP) project.

a. Types of budget in Bhutan

Budget is categorised based on the government objectives and circumstances. Three different types of budget in Bhutan are government budget, supplementary budget, and rolling budget.

i. Government Budget

Government budget refers to a detailed estimated receipts and proposed expenditures of the government in a fiscal year. It comprises the information of the disbursement of the government revenues under various sectors and agencies.

ii. Supplementary Budget

In the budget implementation phase, the government and agencies often require additional fund besides the original budget allotted. This usually occurs due to the unanticipated alterations and delays in the process of execution. Thus, a supplementary budget is sanctioned to meet such circumstances. Supplementary budgets can be classified into three as new budget, additional budget, and complementary budget.

Table 8.6 *Types of supplementary budget*

New budget	Additional budget	Complementary budget
It is the budget for new activities that emerge in the middle of a fiscal year. It is proposed during the course of the fiscal year but they are not planned at the initial phase of the year.	At times, the scope of a project alters or additional works emerge, which are not included in the budget at the start of a fiscal year. In such circumstances, the additional budget is approved.	When the cost escalates for the programmes or projects, a budget that is complementary to the amount approved in the initial phase of a year.

iii. Rolling budget

Rolling Budget is prepared when a developmental activity extends beyond the normal budget time frame. This is a continuous budget that expands incrementally as the time passes. A three-year rolling budget is introduced in Bhutan for development planning and aid coordination. This budget is reviewed, adjusted and rolled over to include an additional year on an annual basis. For example, a rolling budget starting in 2024 shall include allocation for 2024-2025 and projections for 2025-2026, and 2026-2027. However, only the current year's budget is approved by the National Assembly and the remaining two years shall be a mere indication of allocations.

b. Budgetary procedure and preparation

The government aims to manage public expenditures and expand the revenue and resources to reduce the deficits. The government aims to meet the recurrent expenditure through the domestic revenue while the capital expenditures are catered through assistances from the development partners in the form of grants and loans.

Learning activity 8.4 ***Explaining the budgetary process***

Instructions

1. Refer latest budget manual of Ministry of Finance.
2. Gather information on budgetary process of Bhutan as given in figure 8.2.

Figure 8.2 *Budgetary Process*

Questions

1. Explain the budgetary process of Bhutan in detail.
2. Why do you think the budgetary processes must be followed?
3. What factors must be considered while preparing budget?

Review Questions

1. An example of a tax where incidence and impact of tax falls on different individuals is
   i. personal income tax
   ii. customs duty
   iii. rural tax
   iv. royalties
2. A taxation system which encourages citizens to earn more and save more for further investment in an economy is
   i. proportional tax system
   ii. progressive tax system
   iii. degressive tax system
   iv. regressive tax system
3. All of the following are the phases of budget preparation EXCEPT
   i. budget approval
   ii. budget execution
   iii. budget preparation
   iv. budget termination
4. Differentiate between the following.
   i. Direct and indirect tax
   ii. Tax evasion and tax avoidance
   iii. Proportional and progressive tax
   iv. Impact of tax and incidence of tax
5. Categorise the following spending into current and capital expenditure.
   i. Salary paid to teachers
   ii. Budget allocated for PD programmes
   iii. Pension paid to retired civil servants
   iv. Interest paid on national debt
   v. Repayment of loan taken from World Bank
6. Based on the prevailing economic scenario, which taxation system do you think is most appropriate for Bhutan? Justify.

7. The government encounters challenges to meet increasing public expenditure. Suggest some measures to overcome the challenges.
8. How do budget assist functioning of government to meet socio-economic objectives?
9. Do you think budget preparation is necessary? Justify

Chapter

9

Deficit Financing

Learning Objectives

1. *Explain deficit financing*
2. *Discuss the methods of deficit financing*
3. *Discuss the types of public debt*
4. *Analyse the reasons for borrowing by the government*
5. *Evaluate the methods of debt redemption used by the government*
6. *Analyse the effects of public borrowing on the Bhutanese economy*

Introduction

Governments have many competing demands for financial support. Most of the time, it is difficult for the government on its own to generate all the revenue required to finance its recurrent and capital expenditure. When government's expenditure is more than its revenue a budget deficit is created. This is commonly known as fiscal deficit.

The increased fiscal deficits have social cost and implication on an economy. Many economists view deficits as a threat to the wellbeing of the economy. When a country runs into budget deficits, the government functions and socio-economic operations

are disrupted. It affects the continuity of economic development and future planning of socio-economic activities. Any attempt to reduce the deficit has fundamental effects on various aspect of government operations. For instance, increasing public borrowing as a means to address budget deficits lead to increasing burden on the government and future generation. However, borrowing is one of the effective fiscal tools that stimulates economic growth. This chapter discusses deficit financing and its methods.

9.1 Deficit Financing

In general, deficit financing is an ultimate resort of filling up the gap created due to overspending by the government in a fiscal year. It is perceived to be common among developing nations, however, the method is also adopted by the advanced countries as it is an effective scheme of funding government activities.

The term deficit financing refers to the method of financing a deliberately created gap between public revenue and public expenditure. When a government cannot fund its developmental activities with its revenue, a gap is created. Financing of the gap is called deficit financing. It is the excess of public spending over public revenue, which is financed through different methods.

a. Methods of deficit financing

When there is a budget deficit, the government uses different ways of financing the deficit. Some of the plausible options include increasing taxes, borrowing, printing money, and realisation of government assets. Although taxation is the dominant form of public finance, government resorts to other alternatives to finance the deficits because increasing the taxes is distortionary in nature. In practice, there are three prominent methods of deficit financing:

i. Borrowing

Government borrowing allows the financing of projects with benefits that will accrue in the future, without excessive reduction in the purchasing power of citizens in the current period. The government borrows money from both within and outside the country. In Bhutan, borrowing is the principal means of deficit financing.

ii. Withdrawal of cash reserves

Another method of deficit financing is running down the cash reserves. Government preserves a certain amount of foreign currency reserves at the central bank for contingencies and economic crises in the short run. In Bhutan, government reserves

the fund with the central bank, Royal Monetary Authority (RMA). Government can withdraw the cash reserves during the fiscal deficits. While borrowing implies increasing the public liabilities, withdrawal of the cash reserve implies reduction in the assets of the government.

iii. Issuing New Currency

Fiscal deficits can also be financed by printing new money, which is called money financing of the budget deficit. When the economy runs into deficit, the central bank prints and issues new currency, influencing the circulation of money.

While the first two methods are fiscal policy tools, issuing new currency falls under the monetary policy.

b. Reasons for deficit financing

Deficit financing is more than simply subsidising the expenditure gap. It is a deliberate scheme under fiscal policy used to operate developmental activities and stimulate economic development. Some of the reasons for deficit financing are:

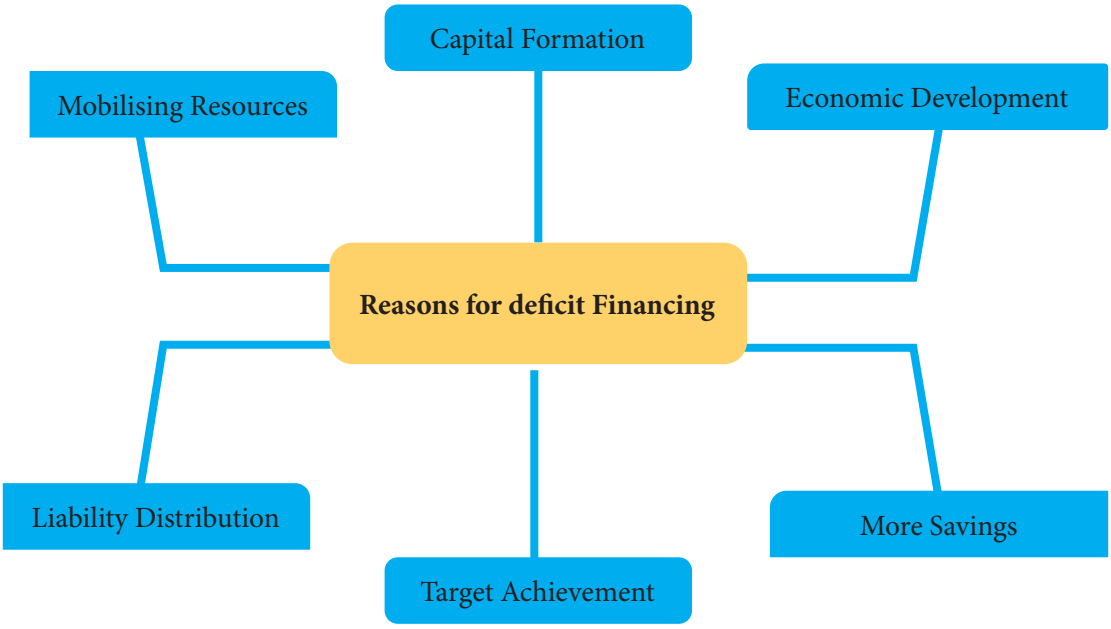

Figure 9.1 *Reasons for deficit financing*

i. Mobilising the domestic resources

Government cannot mobilise large resources with the revenues collected through taxes and other schemes. For a developing economy like Bhutan, domestic revenues are inadequate to make the optimal use of available resources in the country. Hence, the public resources are underutilised or left unutilised if all developmental activities were to be financed only through domestic revenue. Thus, deficit financing is essential for the optimal utilisation of the resources.

ii. Rapid economic development

Deficit financing helps to achieve rapid economic development. Developmental activities are often hindered by the budget constraints especially in developing countries. Without deficit financing, the government cannot operate beyond the scope of the national revenue of a fiscal year. Socio-economic activities can be executed as planned through deficit financing.

iii. Capital formation

Capital formation such as construction of hydropower plants, establishment of industries, and procurement of technologies involve a huge fund. As domestic revenue is inadequate, so it is devoted to the current expenditure. Thus, deficit financing can be used for capital building.

iv. Distribution of liabilities

Deficit financing ensures distribution of liabilities across generations. Suppose, the construction of public infrastructure like roads, schools and hospitals take several years. When such facilities are financed immediately by taxation, the current taxpayers bear all the tax burden without accruing any benefits until the completion. Deficit financing allows government authorities to tax citizens in the future thereby spreading the costs over time.

v. Increase saving

Increase in public expenditures through deficit financing leads to increase in economic activities which further increases the production of goods and services. In addition, the optimal mobilisation of domestic resources and capital formation leads to increase in the employment opportunities. Hence, deficit financing results in increased saving.

vi. Achieving the desired goals

Most of the time, the government spending exceeds the proposed budget. During such

situation, the developmental activities cannot make smooth progress. Thus, deficit financing helps to continue and accomplish the developmental activities planned for a fiscal year.

Learning Activity 9.1 *Evaluating deficit financing as a method of public financing*

Instructions

1. Organise a debate on 'Deficit financing is an important scheme of public financing'.
2. Based on the figure 9.2, examine the effects of deficit financing in relation to the Bhutanese economy.

Figure 9.2 *Merits and demerits of deficit financing*

Questions

1. Do you think deficit financing is a desirable method of government expenditure for Bhutan? Justify.
2. Deficit financing comes with certain cost and risk factors. Share your opinions on how government can finance deficits efficiently.
3. Deficit financing can be related at your personal level as borrowing and availing loans from the bank. Is borrowing a good alternative source of finance at personal level? Justify.

9.2 Public Debt

Borrowing is the principal means of deficit financing. It is a means through which government finances public services, without reducing the real wealth of private individuals at the time of acquiring fund. Borrowing from within the country or from abroad results in accumulation of public debt. Thus, the accumulated sum of money that the government is indebted to its creditors is known as public debt.

a. Types of public debt

Public debts are categorised on various bases. Four common bases are source of borrowing, purpose, time frame, and liquidation process, which are presented in figure 9.3.

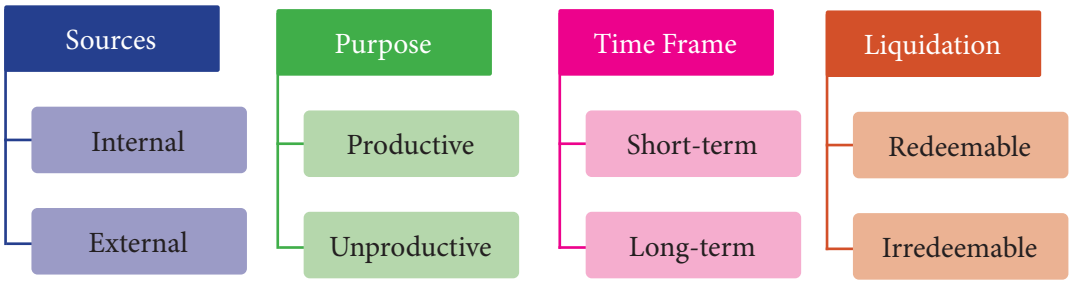

Figure 9.3 *Types of public debt*

i. Internal and external debt

Internal and external public debt is classified based on source of borrowing. The internal debt refers to the government borrowing from internal sources such as central bank, commercial banks and private individuals. It is repayable only in domestic currency. An internal debt can be either voluntary or compulsory. Internal debt implies a redistribution of income and wealth within the country.

The external debt refers to the government borrowing from external sources such as foreign countries and international organisations. Bhutan borrows mostly from the Government of India, International Monetary Fund (IMF), Asian Development Bank (ADB), and World Bank. These loans are repayable in foreign currencies. External loan helps to carry out various developmental programmes in developing countries.

ii. Productive and unproductive debt

Public debt can be productive or unproductive based on its purpose. A debt is considered productive when its mobilisation adds to the economy's productive capacity and provides continuous flow of income to the government. The government borrowing money for capital formation such as the construction of roads, irrigation canal and hydropower projects are examples of productive debt. Such projects generate revenue after its completion and it is self-liquidating.

Unproductive debts are those which do not add to the economy's productive capacity. Public debt on war, famine, relief, and social welfare are some of the examples of unproductive debt. Such debts are normally not self-liquidating, and its repayments are adjusted from other sources of revenue. Hence, unproductive debts add burden to the citizens.

iii. Short-term and long-term debt

This classification is on the basis of duration of loan repayment. Debts that are payable on demand or with a maturity of one year or less are called short-term debt. The treasury bills of RMA, which usually have maturity period of 90, 91 and 98 days are examples of short-term debt. Interest rates for such kind of debts are normally low and they are used to facilitate the temporal budget constraint.

On the contrary, long-term debt has a maturity of more than a year and sometimes it does not have a specified maturity. The interest rate for such loans are normally high. Long-term debts are used for developmental programmes and infrastructural formation that takes many years to complete.

iv. Redeemable and Irredeemable debt

Redeemable and irredeemable debt are classified on the basis of liquidation. Redeemable debt is repaid at a specified date and the government has to arrange for repayment of the loan.

Quite the reverse, irredeemable debts do not have a specified date of repayment. Such debts are repaid regularly in the form of interests until the loan is fully redeemed.

Learning Activity 9.2 *Analysing the trend and status of public debt in Bhutan*

Instructions

1. Visit the website of Ministry of Finance to collect information on the internal and external debt of Bhutan for the last five years.
2. Tabulate the information as per the format given in table 9.1.
3. Plot line graph.

Table 9.1 *Internal and external debt*

Year	Public debt stock	
	Internal debt	External debt

Questions

1. Identify the trend of public debt in Bhutan over the past five years. Give possible reasons.
2. Which year experienced the highest public debt? State plausible reasons.
3. Do you think it is rational to increase public borrowing to foster economic growth? Justify.
4. What types of loan should the government obtain, and what are the reason behind these choices?

b. Methods of debt redemption

The repayment of the loan is called debt redemption. The government ensures the repayment of its debts to build trust, credibility and confidence to the creditors. If the government pays debt on time, its credit rating will be higher and this will motivate creditors to grant loans.

The government adopts various methods for debt redemption.

i. Budgetary surplus

The government may adopt the policy of budgetary surplus to pay off the debt. It is normally used to liquidate internal debts. However, surplus budget is not a common phenomenon in developing countries including Bhutan. Even when there is surplus, it is insignificant to make debt repayment.

ii. Export surplus

External debt of a country needs to be repaid in foreign currency. A country earns foreign currency by increasing exports. To do this, government provides financial and technical incentives to export-oriented industries to boost exports. This results in export surplus. Thus, it is used to pay the external debts.

iii. Sinking fund

The government reserves a separate fund known as sinking fund for the purpose of debt repayment. In this method, the government keeps aside a certain amount of revenue generated every year for the repayment of outstanding debt.

iv. Refunding

Refunding is the process by which the government floats new bonds to pay off the maturing bonds. In such cases, the government takes a fresh loan to repay the old loans. However, the debt burden continues to accumulate in the economy.

v. Debt conversion

The process of converting high-interest loan into low-interest loan is called debt conversion. Sometimes, the government borrows at a higher rate but the interest rate falls in the market later. During such scenario, the government converts high-interest loan into a new low-interest loan. Thus, the debt burden of high interest rate is reduced.

9.3 Effect of public borrowing on the Bhutanese economy

Bhutan has experienced a steady and stable growth driven by public sector investments, particularly in large-scale hydropower projects and other planned developmental activities. Growth, however, has been coupled with increasing public debt, comprising largely of external debts. Effective debt management is of paramount importance for the government to ensure the sustainability and productivity of debt financing. The effects of public borrowing on Bhutanese economy can be positive as well as negative.

Learning Activity 9.3 Analysing the effects of public borrowing on Bhutanese economy

Instructions

1. Read the excerpt given below and answer the questions that follow.

The Debt Burdens

Debt is spiralling out of control, but the government has to borrow. Both the Prime Minister and the Finance Minister recently told a local weekly, The Bhutanese, that the government will not only borrow, but borrow big to help revive the economy. To revive the economy, the government needs to inject money. Economic growth is in the negative. Without money in the government coffers, the government has to fund activities through borrowing from within or from outside. It will add to the debt burden.

Increasing debt, whether internal or external, should be a cause for concern. We could blame the pandemic that forced the economy to a standstill. The biggest contributors to the GDP like the construction and manufacturing sectors, tourism, and service sectors have been the hardest hit sectors. If we are convinced that GDP is not the correct yardstick to measure growth, we need not be concerned. Growth will be spurred if we open our borders to tourism, let foreign workers come in, and revive the construction and manufacturing sectors. Government expenditure, which the pandemic has restricted, contributes substantially to the GDP.

Going through the details, what we should be more concerned about is the increasing recurrent expenditure, even as the source of internal revenue is affected. In the last fiscal year, total recurrent expenditure was 88.94 percent of the total internal revenue. It has fulfilled the constitutional requirement of internal revenue meeting current expenditures, but we should not take comfort in this.

Domestic revenue has been increasing over the years, even during a pandemic year. However, apart from meeting current expenditures, there is waste of public funds. Millions of Ngultrums are wasted every year. Even as the government discusses borrowing, there is a Royal Audit Report that has pointed out wastage of public resources through several means.

Millions of Ngultrums are wasted through fraud and corruption, misappropriation due to lapses and loopholes, or not following rules. The details of the audit report will be made public soon, but we can surmise that the scarce resources are misappropriated, misused because of inadequacies in our control and monitoring systems, or lack of integrity. Issues in procurement procedures, excess payments, inadmissible payments, fictitious payments, and lack of integrity or not shouldering responsibilities are always the leading causes of wastage of scarce resources.

While successive governments had been saying that hydro debts are self-liquidating, it still remains a concern, not only because of the delay in commissioning hydro projects, but the increasing financial irregularities in the hydropower sector.

Hydro debts today amount to 73.40 percent of the total external debt. Irregularities because of failure to comply with financial norms, laws and regulations, uneconomical operations, and many more lapses are leading to losses in the billions. It will add to the debt burden.

Source: *Kuensel 17th November, 2021*

Questions

1. What are the reasons for borrowing by the government in the excerpt?
2. What are the concerns of borrowing shared in the excerpt?
3. How would you address the challenges related to management of public debt?

Review Questions

1. State True or False.
   i. Deficit financing is sometimes called as debt financing.
   ii. Deficit financing is simply a means of financing the expenditure gap in a fiscal year.
   iii. Issuing new currency is principal method of financing the deficit in the developing countries.
   iv. Unproductive debts are self-liquidating in nature.
2. The main objectives of deficit financing in developing economies are to reduce unemployment, poverty and income inequality. Discuss.
3. Deficit financing during an economic downturn can boost an economy. Justify.
4. Printing of new money is the last resort to meet the budgetary deficit. Why?
5. What is your opinion on refunding as a method of debt redemption?
6. If you are given an opportunity to manage the public debt, which method would be most appropriate to repay the public debt in Bhutan? Why?
7. Explore other debt redemption methods adopted by the developed countries.
8. Public borrowing is necessary but it comes with certain costs. Discuss.

Chapter

Fiscal Policy

Learning Objectives

1. *Discuss fiscal policy*
2. *Explain the objectives of fiscal policy*
3. *Evaluate the use of fiscal instrument in achieving economic goals*
4. *Discuss the impact of national economic issues*

Introduction

The era of the Great Depression led to reforms in macroeconomic policies to ease instability in an economy. John Maynard Keynes developed the theory of Employment, Interest and Money; which suggested the importance of government spending, tax cuts and monetary expansion to generate employment and raise the level of income. According to Keynes, monetary policy was inefficient to stabilise the economy during depression. Therefore, he emphasised on fiscal policy. However, in the modern times, both monetary policy and fiscal policy are equally important in promoting stable and sustainable economic growth.

Reprint 2024

10.1 Concepts of Fiscal Policy

Fiscal policy is a macroeconomic policy that involves changes in the government spending and taxation to influence aggregate demand in the economy. The change in public spending and taxation impacts the Gross Domestic Product (GDP). When the government increases spending or reduces tax, the level of aggregate demand increases. This is known as expansionary fiscal policy. On the contrary, when the government decreases spending or increases tax, the level of aggregate demand decreases. This is known as contractionary fiscal policy. Thus, it indicates how the government uses fiscal policy to achieve economic stability, growth and equity.

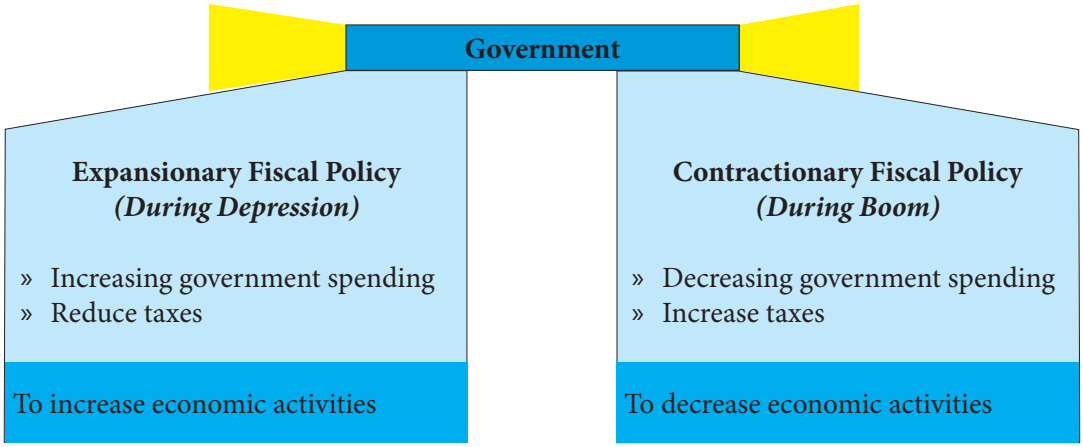

Figure 10.1 *Government decision on fiscal policy*

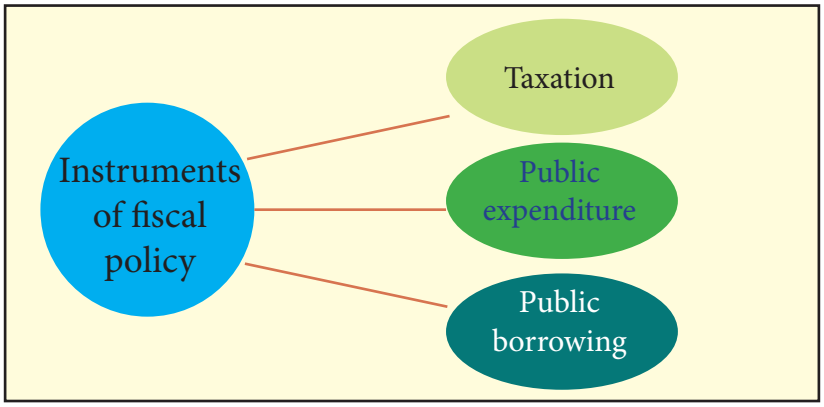

Figure 10.2 *Instruments of fiscal policy*

10.2 Instruments of Fiscal Policy

i. Taxation

The taxation policy is a major instrument to promote growth, regulate external trade and ensure equitable distribution of income. It significantly affects the disposable income, consumption and investment pattern of the consumers. For this purpose, there is a flexibility in the taxation system. The government adopts progressive taxation system, tax exemptions, deferrals, waiver of specific tax, and broaden the tax base. Therefore, the taxation system is developed to help the government in mobilising resources for capital formation, increasing proportion of saving, providing incentives for undertaking productive investment, and controlling inflation to enhance economic growth with stability.

ii. Public expenditure

The government participation in economic activity has brought public spending to the forefront among the fiscal tools. The variations in public expenditure has direct affect in determining the level of economic activities in the country. Therefore, government prioritises spending based on the economic situations.

iii. Public borrowing

The public borrowing is an instrument of fiscal policy adopted by the government to finance the resource gap and mobilise additional resources to improve fiscal position. As a judicious financing strategy to ensure debt sustainability, the government resorts to borrowings at lowest possible costs.

10.3 Objectives of Fiscal Policy

Fiscal policy plays an important role in financing developmental activities, equitable distribution of income, efficient production of goods and services, reducing unemployment, and stabilising inflation and economic growth.

The three main objectives are economic stability, growth and equity.

i. Maintain economic stability

Economic stability is a situation where the economy experiences the least fluctuations in the level of output, employment and price. Instability can discourage investments, slow down economic growth, and deter quality of living standard. The policy maker emphasises on stabilising the economy by maintaining desired level of production and employment. Table 10.1 explains the fiscal instruments implemented during depression and boom.

Table 10.1 *Fiscal instruments adopted to achieve economic stability*

Instruments	Depression/Recession	Boom
1. Taxation	Tax rate is reduced to increase the disposable income and consumption spending.	Tax rate is increased and new taxes are imposed to decrease disposable income, purchasing power and consumption expenditure.
2. Public Expenditure	Government increases expenditure on various developmental activities to boost income and create employment opportunities.	Government abates public expenditure which helps to reduce purchasing power and control consumption expenditure.
3. Public Borrowing	As an expansionary measure, government borrows to increase money circulation, income level of people and production of goods and services.	As a contractionary measure, government borrows from public to reduce purchasing power and aggregate demand in the economy.

ii. Achieve economic growth

Economic growth is an increase in volume of production of final goods and services compared to one period of time to another. It measures increase in the per capita income which leads to improvement in living standard and increase in consumption. The expansionary fiscal policy is applied to boost the economic growth. Table 10.2 explains the fiscal instruments used to boost economic growth.

Table: 10.2 *Fiscal instruments adopted to achieve economic growth*

Instruments	Application
1. Taxation	Government grants tax relief, tax holidays and subsidies to encourage investment in the economy.
2. Public Expenditure	Government spends on infrastructural facilities, social overheads and R&D to stimulate investment in the economy.
3. Public Borrowing	Government borrows to invest in infrastructural facilities, social overheads and R&D which contributes to economic growth.

iii. Maintain economic equity

Economic equity refers to equitable distribution of income and wealth in the society. Fiscal policy should ensure redistribution of income and wealth to

reduce the existing inequalities. Table 10.3 explains the fiscal instruments used to maintain economic equity.

Table 10.3 *Fiscal instruments adopted to achieve economic equity*

Instruments	Application
Taxation	Government adopts different tax policies such as progressive taxation, varied tax rates on goods and tax holidays to ensure economic equity in the economy.
Public Expenditure	Government prioritises its expenditure on activities such as social services and investment in backward regions in the society to benefit the low-income groups.
Public Borrowing	Government borrows idle money from wealthy individuals and institutions through issue of bonds and treasury bills to finance social welfare programmes that directly benefit low-income individuals and vulnerable groups. This include programmes like healthcare, education, and housing.

Learning Activity 10.1 Analysing the fiscal instruments for achieving the fiscal objectives

Instructions

1. Study the case on fiscal policy and measures taken during COVID-19 pandemic 2020.
2. Identify the fiscal issues stated in the case.

Fiscal policy and measures taken during COVID-19 Pandemic 2020

The wide spread pandemic and emergence of new strains of virus have constrained the recovery of the economy. The real GDP growth for 2020 was estimated to contract to the record low of -6.3 %. Sectors such as tourism and allied sectors, manufacturing and construction sectors have been impacted significantly due to the pandemic. However, hydropower sector recorded sustained growth complemented by favourable credit conditions that continued to cushion the economy from severe fall out. The unemployment rate stood at 5.0 % (2020) and continues to pose great challenge. Successively, the timely interventions by His Majesty the Druk Gyalpo and the government have helped to support the affected individuals, business and also mitigate the rising issues of unemployment.

To achieve the policy target for FY 2021-22 the government will pursue following strategic measures.

1. **Strengthen resource mobilization**

   Government will continue to mobilize additional resources such as grants and concessional borrowing. Government will continue to strengthen tax administration to enhance compliance and revenue collection. With these measures, the domestic revenue for FY 2021/22 is estimated to improve by 7percent from the previous years..

2. **No capital budget ceiling-"Expansionary Fiscal Stance"**

   Expansionary fiscal stance is adopted to ensure "sustained Economic Stability for a Resilient Recovery". 33 percent of planned capital outlay has been allocated for the FY which is one of the highest during the plan period.

3. **Stimulating Aggregate demand**

   Fiscal stimulus plan to support economic activities, which boost private sector participation, generate employment and improve aggregate demand. The government will continue to provide budget in the form of annual grants to the local Government and block grants to the budgetary bodies.

4. **Sustained Level of Fiscal Balance**

   For the FY 2021/22, considering the need for high level of investment in the economy to support economic recovery, the estimated fiscal deficit is 8.59 percent of GDP. However, the fiscal target is to contain within 5 percent of GDP.

5. **Maintaining Public Debt**

   The government ensures that the financing decision are prudent and public debt is maintained at a sustainable level and the public sector's financing needs and debt service obligation are met in a timely manner, at the lowest possible cost, while also supporting development of an efficient domestic capital market.

   The COVID-19 pandemic has exposed our economic vulnerabilities related to domestic production bottleneck and policy implementation inconsistencies, increasing youth unemployment problem, rising stock of public debt and intensifying in equalities. Nevertheless, the pandemic situation also provided a unique opportunity to revisit and recalibrate economic development models and reorient national plans and priorities to find effective and sustainable solutions to address the challenges and structural weakness.

Questions

1. Identify the expansionary fiscal tools used by the government during COVID-19 pandemic.
2. Tourism, manufacturing and construction sectors have been severely affected to the extent of people losing their livelihoods. Which fiscal strategies do you think would be the most effective in reviving livelihood of the affected people? Explain.
3. Suggest measures to build a resilient economy to navigate through unforeseen challenges.

10.4 Economic Issues

The economic issues such as fluctuations in business cycle, high inflation, inequalities, and unemployment are prevalent in every economy. The causes of these issues are misallocation of resources, lack of policy intervention, lack of research and development, uncertain natural conditions, and spillover effects.

Learning Activity 10.2 *Analysing the impact of national economic issues*

Instructions

1. Study the case given below.
2. Identify the national economic issues in the case.

Financial, human capital, and social inclusiveness, key for a high-income country

Financial support, human capital development, and social inclusiveness would be key areas for Bhutan to become a high-income country, Asian Development Bank's (ADB) Vice President of South Asia Regional Department, Shixin Chen said yesterday. The government plans the country's gross domestic product (GDP) to double to USD 5 billion (B) by 2029 and USD 10B by 2034.

According to ADB, Bhutan's GDP was USD 2.6B in 2022. For Bhutan to achieve the USD 10B economy, the country should have a real GDP growth rate of 11.7 percent annually, an official from ADB said. Between 2011 to 2019, Bhutan saw an average growth rate of 5.4 percent. "Bhutan's economy is on the right track towards recovery," Shixin Chen said, adding that after seeing a huge contraction because of Covid-19 crisis. He said that Bhutan's GDP is projected to grow at 4.7 percent this year and 4.6 percent next year. Shixin Chen said that as Bhutan works on the 13th Plan, the ADB's current portfolio and pipeline are strongly aligned with the plan's priorities. The pipeline includes skills development and green energy investments.

ADB is currently working on the country partnership strategy 2024-28 which is a perfect fit for the 13th Plan. "The next five years would be a critical period for Bhutan since it will give direction on how the country will move forward for a long-term goal, aiming for a high-income country by 2034," he said. "The government has a strong commitment to economic and social development for the medium and long term." However, Shixin Chen said that the government should focus on investment in the priority sectors which will generate more productivity, revenue, and efficiency.

He also said that human capital development in social, health, and education, skills development including vocational training, investment in the energy sector (hydropower) and private sector,

solar and wind under public-private partnership would be important. "Solar and wind energy has the potential to offset the country's electricity imports during winter," Shixin Chen said. He added that Bhutan's unique advantages–rich culture, great people and hospitality, and natural beauty would be an asset for tourist attraction. At the same time, Shixin Chen said that the ADB will support agro-business, human capital development, water and sanitation, foreign direct investments, and urban development along with regional cooperation and integration. Sharing his concerns about many Bhutanese leaving abroad for work and study, he said that skilled and talented people are key to economic growth and it would be challenging without them. However, Shixin Chen said there has to be a comprehensive approach to retain and attract talent in the country by creating more opportunities for private sector investment and skill training considering short-term, medium-term, and long-term. He also said that Bhutan's elevated fiscal deficit of 9 percent in 2022 is not under distress but controllable as huge money was spent to respond to Covid-19.Shixin Chen added that Bhutan could generate more revenue and tax as the economy recovers.

According to the ADB, Bhutan's fiscal deficit remains elevated at around 9 percent in 2022, higher than the average of 2 percent in the five years prior to Covid-19.The government can release the pressure on the fiscal deficit by looking at revenue generation from investment in productive areas, structural reforms, and growth in tax revenue from 13 percent in 2022 to above 15 percent, Shixin Chen said.

(Source: Kuensel report, May 27th, 2023)

Questions

1. List the issues discussed in the case.
2. How would these issues impact the Bhutanese economy?
3. Suggest measures to address the issues.
4. Explore recent articles or documents on similar economic issues in Bhutan from a relevant source and study the change over the period.
5. Predict the economic situation of Bhutan in next five years.

Review Questions

1. All the options below are objectives of the fiscal policy EXCEPT
   a. regional disparity
   b. economic stability
   c. optimum allocation of resources
   d. accelerate the rate of economic growth

2. During a recession, which fiscal policy approach is likely to be considered expansionary?
   a. Increasing taxes
   b. Decreasing government spending
   c. Cutting social welfare programs
   d. Implementing tax cuts and increasing public spending

3. Economic equity is concerned with
   a. maximizing profits for businesses
   b. ensuring everyone has the same income
   c. distributing resources fairly to address disparities
   d. promoting economic growth at any cost

4. Match the following:

	Column A		Column B
i	A progressive tax policy	A	Expansionary fiscal policy
ii	Increase in disposable income of an individual	B	Fiscal Policy
iii	To boost the economic activities	C	Reduce inequalities
iv	A government adjust its spending level and tax rates	D	Contractionary fiscal policy
		E	Promotes consumption

5. Explain the following terms:
   a. Economic boom
   b. Economic depression
6. Discuss the need of flexibility in taxation system.
7. Explain the fiscal measures adopted to control inflation.
8. How is contractionary fiscal policy different from expansionary fiscal policy?
9. Explain how fiscal policy helps in maintaining economic stability and achieving economic growth.
10. Explain how fiscal policies ensure equitable distribution of income and wealth in the society.
11. Identify some of the current economic issues in Bhutan and discuss measures to resolve the issues.

Chapter 11

National Income

Learning Objectives

1. *Explain the circular flow of income in a three and four sector model*
2. *Interpret the national income aggregates*
3. *Derive the interrelationship amongst national income aggregates*

Introduction

The national income measures the economic performance of a country. It depicts how the economy has performed and its relationship with the rest of the world. This is measured conventionally through Gross National Product (GNP).

In Bhutan, the National Statistics Bureau (NSB) prepares the National Accounts Statistics every year. The System of National Accounts (SNA) is a systematic framework of accounts that measures the level of economic development and the rate of economic growth over time. The report facilitates evidence-based decision making, formulation of policies and plans, and monitoring and evaluation of the development plans and programmes.

Reprint 2024

11.1 National Income

The national income is the total market value of all final goods and services produced by the normal residents of the country operating within and outside the country. Definition of national income is based on aspects such as:

i. Monetary expression

Different goods and services have different units of measurement, for which they cannot be aggregated. Therefore, money value is used as common denominator to measure the value of all final goods and services produced in the country.

ii. Final goods and services

There are possibilities of double counting the intermediate goods used for producing the final outputs. Hence, the national income omits the transactions involving intermediate goods and includes only the market value of the final products.

iii. Flow concept

The national income measures the flow of goods and services over the period of time. Hence, it indicates monetary value of goods and services flowing in the economy in a particular year.

iv. Current output

The national income measures the value of goods and services produced within the current year. It excludes pure exchange transactions such as sales and purchase of second-hand goods, securities, and transfer payments.

It is important to distinguish national income from domestic income. The national income is an income received by the residents of the country in a year, regardless of where the factors of production owned by residents are located. On the contrary, domestic product is the value of final goods and services produced within the boundary of a country in a year regardless of who owns the factors of production.

11.2 Circular Flow of Income

Economic activities are continuous processes that involve interactions and transactions among various economic agents. The economic agents are broadly categorised into

four sectors namely household, business, government, and rest of the world. Circular flow of income is a model that illustrates interactions and the flow of money, goods, and services among these economic sectors. The flow of money in the form of receipts and payments is called money flow. Similarly, the flow of factor services and goods and services among various economic agents is called real flow.

In order to understand different models of circular flow, it is important to discuss the components and roles of the four sectors in an economy.

i. Household sector

Households are the owners of the factors of production. They supply factor services to the business sector and receive incomes in the form of wage, rent, interest, and profit. Households use the factor earnings to purchase goods and services produced by the firms.

ii. Business sector

Business sector, which is also referred to as firms, are the producers of goods and services. They produce goods and services using the factor services provided by the households. The products are sold to the households, government and rest of the world.

iii. Government

Government plays an important role in an economy. It acts as both a consumer and producer. As consumer, the government purchases goods and services that benefit the society. As producer, it provides infrastructures and social services. It collects tax from the households and firms and also make transfer payments to them.

iv. Rest of the world

With globalisation, the circular flow of income expands beyond the geographical boundary of a nation. Business firms and the government import goods and services from abroad and make foreign payments. They also export their products and receive income from rest of the world.

a. Models of circular flow of income

The circular flow model is classified under circular flow in a closed economy and circular flow in an open economy. Unlike in the open economy model, the closed economy model does not involve rest of the world. Thus, the circular flow model under

the closed economy comprises three sectors, while the model in an open economy comprises all the four sectors.

b. Three sector model of circular flow of income in an economy

The households as owners of the factors of production provide factor services to the firms and receive factor payments in return. The firms produce goods and services using the factor services and sell them. The households spend the factor incomes to purchase goods and services. Hence, the factor payments made to the households flow back to the firms as consumption expenditure of the households.

Capital market in the economy are facilitated by financial institutions through saving and investment. With the capital market in the model, only a certain portion of household income flows to the business firms and the rest flows to the capital market in the form of saving (S). These savings flow to the firms through the capital market to finance the investment (I). The withdrawal of income from the flow is called leakage and infusion of income to the flow is called injection.

In theory, the circular flow of income would be in equilibrium. When the households save money in the capital market, the level of income in the circular flow decreases. However, the money saved in the capital market flows to the business firms in the form of investment, which increases the level of income in the circular flow. The contraction of income due to the saving equals the expansion of income resulting from the investment. Thus, the circular flow of income in two-sector economy is in equilibrium. It is expressed as:

$$S = I$$

The three-sector economy comprises of household sector, the business sector, and the government. There is flow of money and goods between the households and business firms as the two sector model. In this model, the government plays an important role in the economy and hence the money and goods flow among the three sectors instead of two.

The government collects tax (T) from the household sector in the form of personal income tax and commodity tax. Similarly, the business firms pay taxes in various forms to the government. The taxes paid by the households and firms are leakages as they decrease the level of income in the circular flow. But the government purchases factors of production, firms' outputs, makes transfer payments, and provide social services such as education, health, and infrastructures. These government spendings

(G) are injections into the circular flow. In other words, the government offsets leakages that result from taxation by injections through its spending on public goods, social services and transfer payments. Thus, the circular flow of income remains in equilibrium. The equilibrium condition of circular flow of income in three-sector economy model is:

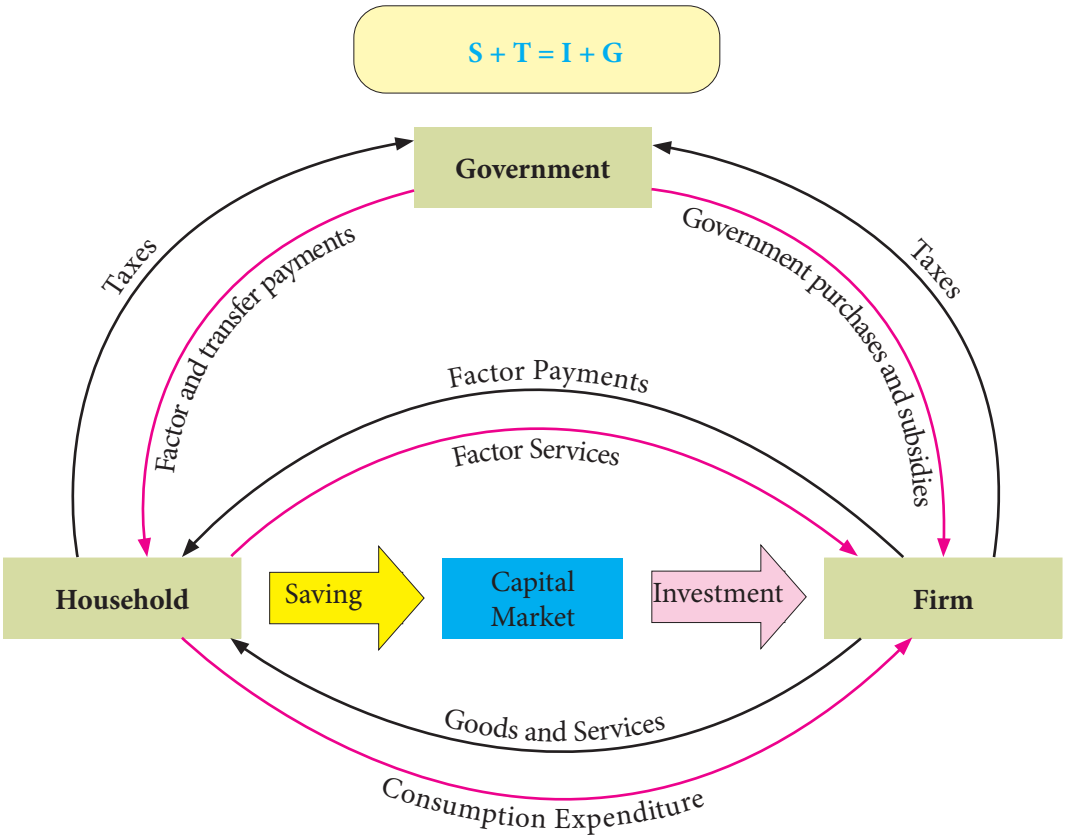

Figure 11.1 *Circular flow of income in a three-sector model*

c. Four sector model of circular flow of income in an economy

The four-sector economy is the addition of the external sector to the three-sector economy. It comprises households, the business firms, the government, and the rest of the world. In this model, the flow of money and goods is extended beyond the national boundary as shown in figure 11.2.

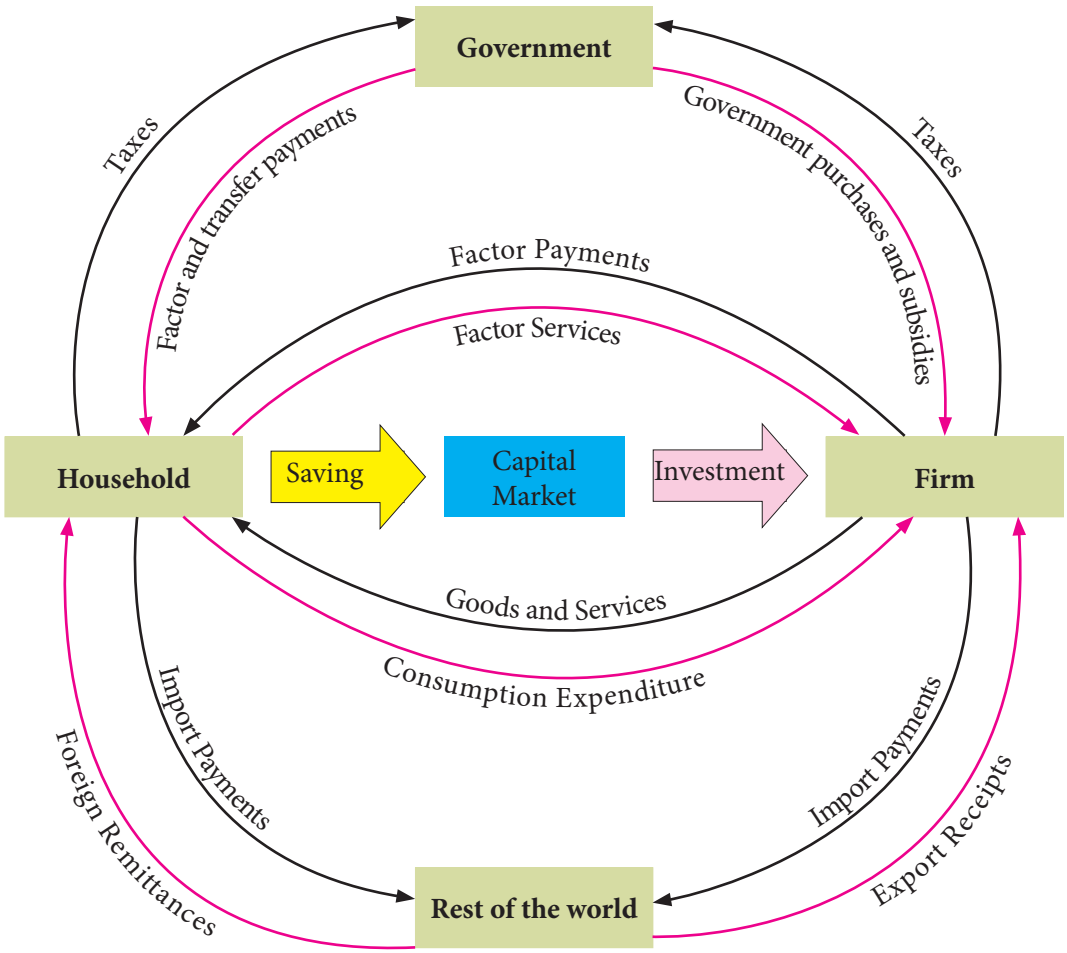

Figure 11.2 *Circular flow of income in a four-sector model*

Learning Activity 11.1 ***Analysing the circular flow of income in a four-sector model***

Instructions

1. Study figure 11.2.
2. Identify the real flows, money flows, leakages, and injections.

Questions

1. Derive equilibrium condition in circular flow of income under a four sector model.
2. Explain how foreign sector helps to maintain equilibrium in the circular flow.
3. Explain the role of foreign sector in relation to:
   a. household sector.
   b. business sector.
4. What will happen to the circular flow income in an economy if
   a. The sum of injections > the sum of leakages
   b. The sum of injections < the sum of leakages
5. Do you think the equilibrium condition in circular flow of income is possible in reality? Justify your answer considering actual economic scenario of Bhutan.

11.3 Concepts of National Income Aggregates

The national income aggregates comprise the macroeconomic variables related to the determination of income of a country. The national income is measured on the basis of national product (national income) and domestic product (domestic income). The concepts of depreciation, net indirect taxes, and net factor income from abroad are important to determine the interrelationship among the national income aggregates.

i. Depreciation

In the process of production, some amount of stock of plants and equipment is used up or wears out. The loss of value of fixed capital such as machineries and equipment in the process of production is called depreciation. It is also called as consumption of fixed capital because it reduces the value of the capital owing to the wearing and tearing. It primarily differentiates between gross and net. The term gross implies the value of product including depreciation while net excludes depreciation.

Gross - Depreciation = Net

ii. Net Indirect Taxes (NIT)

Net indirect tax shows the difference between indirect taxes and subsidies. It is used to find difference between market price and factor cost. Market price (MP) refers to the price paid by the buyer for a commodity in the market while factor cost (FC) refers to the cost incurred by the producer for the factor services availed in the production of the commodity. Market price comprises factor cost, indirect taxes and subsidies.

Net Indirect Taxes =Indirect tax - Subsidy

Factor Cost = Market Price - Net Indirect Taxes

iii. Net Factor Income from Abroad (NFIA)

NFIA is the difference between national product and domestic product. Thus, NFIA is the difference between factor receipts from abroad and factor payments to abroad. Addition of net factor income from abroad to the domestic income gives national income.

NFIA = Factor receipts from abroad – factor payments to abroad

NFIA = National Product – Domestic Product

a. National Income Aggregates and their Interrelationship

Domestic product and national product are estimated at factor cost or market price, and at gross or net income. There are eight national income aggregates.

i. Gross Domestic Product at Market Price (GDP_{MP})

It refers to the gross value of all final goods and services that are produced within the domestic territory of a country in a year, including net indirect taxes.

ii. Gross Domestic Product at Factor Cost (GDP_{FC})

It refers to the gross value of all final goods and services that are produced within the domestic territory of a country in a year, excluding net indirect taxes.

iii. Net Domestic Product at Market Price (NDP_{MP})

It refers to the net value of all final goods and services that are produced within the domestic territory of a country in a year, including net indirect taxes.

iv. Net Domestic Product at Factor Cost (NDP_{FC})

It refers to the net value of all final goods and services that are produced within the domestic territory of a country in a year, excluding net indirect taxes.

v. Gross National Product at Market Price (GNP_{MP})

It refers to the gross value of all the final goods and services that are produced by the residents of the country in a year, regardless of where the factors of production owned by residents are located, including the net indirect taxes.

vi. Gross National Product at Factor Cost (GNP_{FC})

It refers to the gross value of all the final goods and services that are produced by the residents of the country in a year, regardless of where the factors of production owned by residents are located, excluding the net indirect taxes.

vii. Net National Product at Market Price (NNP_{MP})

It refers to the net value of all the final goods and services that are produced by the residents of the country in a year, regardless of where the factors of production owned by residents are located, including the net indirect taxes.

viii. Net National Product at Factor Cost (NNP_{FC})

It refers to the net value of all the final goods and services that are produced by the residents of the country in a year, regardless of where the factors of production owned by residents are located, excluding the net indirect taxes.

Technically, national income is taken in the sense of net national product at factor cost. It is because the payments to factors of production such as wages and salaries, rents, interests, and profits are the factor costs of production.

The national income aggregates are interrelated to each other as shown in figure 11.3.

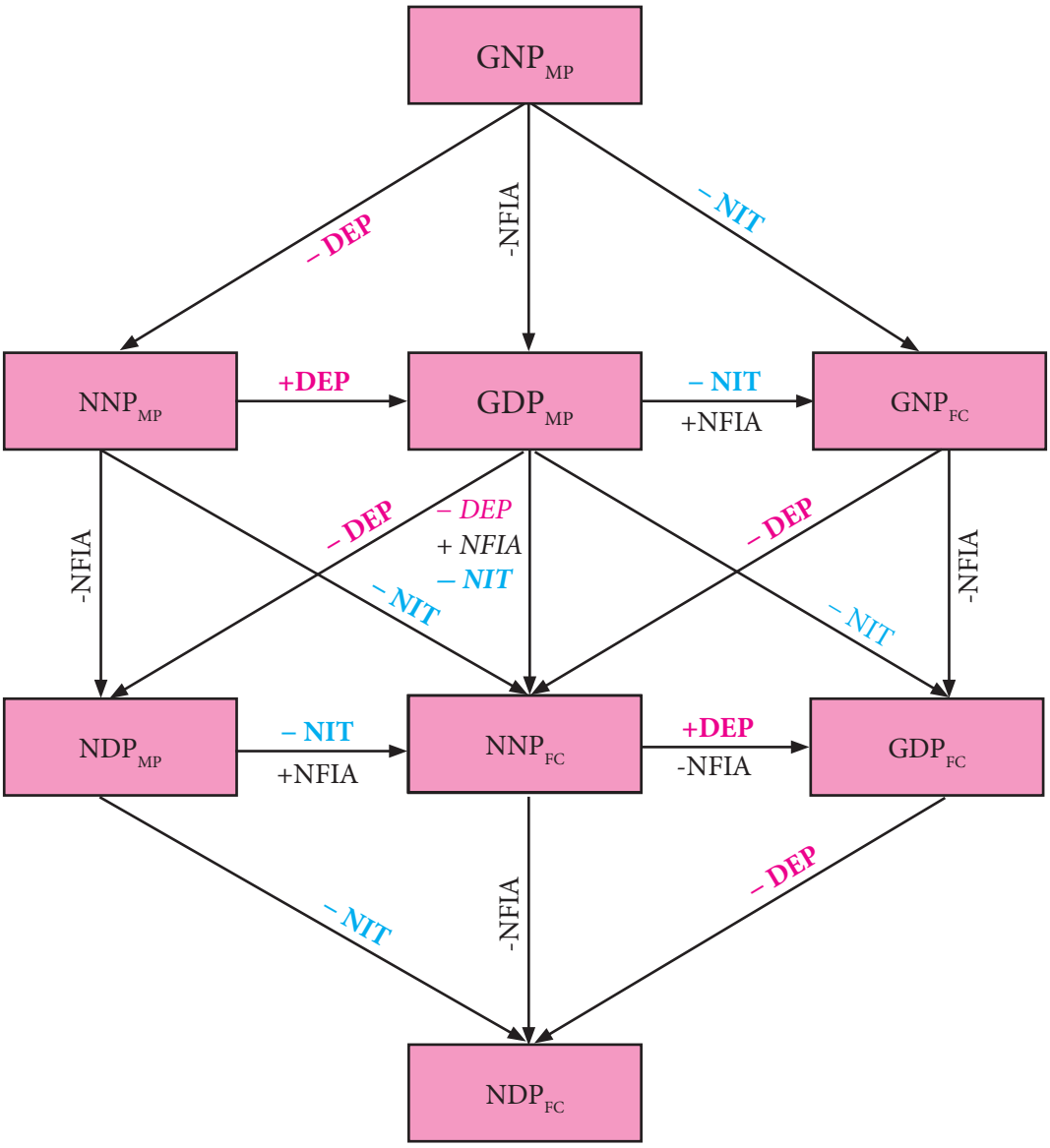

Figure 11.3 *Interrelationship among the National Income Aggregates*

Learning Activity 11.2 *Estimating national income aggregates*

Instructions

1. Use table 11.1 for this activity.

Table 11.1 *Sample aggregates of national income*

Sl.No.	Particulars	Nu (million)
i.	Consumption of fixed capital	100
ii.	Net income from abroad	800
iii.	Gross domestic product (GDP_{MP})	15,000
iv.	Subsidies by government	50
v.	Indirect taxes	75

Questions

1. Calculate:
   a. Net domestic product at market price
   b. Gross domestic product at factor cost
   c. Net domestic product at factor cost
   d. Gross national product at market price
   e. Net national product at market price
   f. Gross national product at factor cost
   g. Net national product at factor cost

Review Questions

1. Fill in the blanks
   a. The owner of the factor services is ……..
   b. The income flows from the household to the foreign sector in the form of ……..
   c. The withdrawal of income from the circular flow is called ……
   d. The economic agent that facilitates the flow of money among different sectors in the economy in the form of saving, borrowing, and investment is ……
   e. Business sector exports goods and renders services such as shipping to foreign countries. The receipts for the exports are …… in the circular flow of income.

2. Match each item under column A with the most appropriate item in column B.

Column A	Column B
i. GNP_{MP} – Depreciation	a. GDP_{FC}
ii. NDP_{MP}-NIT	b. NNP_{MP}
iii. GDP_{MP}+NFIA-NIT	c. NNP_{FC}
iv. NNP_{FC} +DEP-NFIA	d. NDP_{MP}
v. GDP_{MP}-NIT-DEP+NFIA	e. GNP_{FC}
	f. NDP_{FC}

3. Differentiate between national income and domestic income.

4. Provide appropriate examples of the following in the three-sector and four-sector model.
   a. Leakage
   b. Injection

5. How is the circular flow model in a closed economy different from the open economy?

6. Explain the role of government in the circular flow of income.

Chapter

12

Measurement of National Income

Learning Objectives

1. *Explain steps of estimating national income by output, income and expenditure method*
2. *Discuss the precautions taken in estimating national income by different methods*
3. *Analyse the difficulties faced in estimation of national income*
4. *Apply different methods to estimate national income*

Introduction

National income of a country is the sum of all the factor incomes such as wages, interest, rent, and profit from all the factors of production in a given year. The measurement of national income is necessary and important to understand the performance of the economy. It helps to ascertain the contribution made by different sectors, identify the structural weaknesses, evaluate the performance of the economy, and assist in overall socio-economic planning and policy formulation.

This chapter discusses the methods of measuring national income, precautionary measures and difficulties in estimating national income.

Reprint 2024

12.1 Methods of Measuring National Income

The national income of a country can be viewed in terms of product, income and expenditure. Accordingly, the three methods to measure national income are product method or value-added method, income method and expenditure method. However, the type of method to be used depends on the availability of data in the country and the purpose in hand.

a. Product (value added) method

Product method is also known as output method or value-added method. This method measures national income as the sum of net final output produced or net value added by all the producing units in an economy during a year. The steps necessary for estimating national income by this method are:

Step I: Identification and classification of production units

a. Primary sector

b. Secondary sector

c. Tertiary sector

Step II: Estimation of Net Value Added

i. **Estimate the value of gross output**

Add the value of each final goods and services produced (P x Q) in an economy within a year, and deduct the value of intermediate consumption to avoid double counting. This gives GDP_{MP} or gross value added at the market price.

ii. Estimate the value of net output

Net value added at market price or NDP_{MP} by each enterprise is estimated by deducting the value of depreciation from gross value added at market price.

$NDP_{MP} = GDP_{MP}$ – Depreciation

iii. Estimate the net value added at factor cost

In order to arrive at net value added at factor cost or NDP_{FC} by each enterprise, deduct the value of net indirect taxes.

$NDP_{FC} = NDP_{MP}$ – Net indirect taxes

Step III: Estimation of National Income (NNP_{FC})

Finally to arrive at NNP_{FC}, add net factor income from abroad to NDP_{FC}. Net factor income from abroad is the difference between factor incomes received from rest of the world and factor payments made to rest of the world.

$NNP_{FC} = NDP_{FC}$ + Net Factor Income from abroad.

$NNP_{FC} = GDP_{MP}$ – Depreciation – Net Indirect Taxes + Net Factor Income from abroad

Example

Using the information given in table 12.1, calculate national income by value added method.

Table 12.1 *Sources of income of an economy*

Sl. No	Items	Nu (million)
i	Gross value of output at market price	21,000
ii	Depreciation	2,000
iii	Net Indirect taxes	1,500
iv	Intermediate consumption	8,000
v	Net factor income from abroad	2,000

Solution

Items	Nu (million)
Gross value of output at market price (—) Intermediate Consumption (—) Depreciation	21,000 8,000 2,000
Net value added at Market Price (NDP_{MP}) (—) Net Indirect taxes	11,000 1,500
Net value added at Factor Cost (NDP_{FC}) (+)Net factor income from abroad	9,500 2,000
National Income (NNP_{FC})	11,500

Learning Activity 12.1 Analysing the Items in National Income Calculation

Instructions

1. Use the information in the table 12.2 and identify the activities that are included in estimating net national product at factor cost.

2. Provide your justification in table 12.2.

Table 12.2 *List of activities in an economy*

Sl. No	Activity	Justification	
		Included	*Not included*
1	Farm products sold at centenary farmer's market		
2	Child care provided by a licensed day care centre		
3	The sale of new electronic gadgets		
4	The sale of a used car		
5	Child care provided by grandmother		
6	Increased inflow of tourist in XYZ Tours and Trek company		
7	The iron is turned into an iron bar, which is then used in bridge construction		
8	Cost of maintenance of old school building		
9	Surplus balance of payment		

Questions

1. Differentiate between final goods and intermediate goods.
2. How will national income be affected if the maintenance cost of the property is included while estimating?
3. Would you include the value of child care provided by child's grandmother at day care centre in estimation of national income? Give reasons.

a. Precautions in Estimation of National Income by Product Method

i. To avoid double counting, only the value of final goods and services are taken into account and value of intermediate goods are excluded.

ii. The sale and purchase of second-hand goods should be ignored as it is not a part of current production. However, any brokerage or commission earned to facilitate the sale of second-hand goods are included.

iii. Imputed value of goods for self-consumption should be included as they contribute to the current output of goods and services.

iv. Change in the stock of goods should be included because it is a part of capital formation.

b. Difficulties in Estimation of National Income by Product Method

i. **Lack of occupational specialisation**

When a person is engaged in production of multiple products other than their main trade, accounting becomes difficult because income from such productive activities is not included in the national income estimates.

ii. **Estimation of imputed value**

Goods and services for self-consumption is included in national income but the imputation of such value is a difficult task.

iii. **Change in value of inventory**

Unsold amount of goods is included in national income because these goods reflect current production of goods and services. However, there is problem of valuation of inventories due to change in their prices.

b. Income method

Income method measures national income accrued from the factor incomes received by primary factors of production in the form of rent, wages and salaries, interest and profit for their productive services in a given year. Thus, national income is estimated by summing up all the incomes accruing to the primary factors of production used by producing units in a year.

The measurement of national income by this method involves:

Step 1: Identification and classification of the production units

All the producing enterprises employing various factors of production are identified and classified into:

a. Primary sector

b. Secondary sector

c. Tertiary sector

Step II: Classification of factor income

1. Labour income or compensation of employees

Labour income is known as compensation to the employee. Labour income is the income earned by labour for rendering the physical or mental services in the process of producing goods or services. It includes:

i. Wages and salaries in cash, bonus, commission and allowances.

ii. Supplementary labour income in the form of employer's contribution towards social security schemes for employees such as provision for pensions, provident fund, group insurance, and gratuity.

iii. Payment to employees in kind such as rent-free accommodation, free medical services, free educational facilities, free uniforms, free transportation, recreational and holidaying facilities, free provision of goods and services produced by the employees, and imputed interest on interest free loans.

2. Capital income, property income or operating surplus

Capital income includes rent, interest, royalty, dividend, undistributed profits of corporations before deducting corporation taxes and profits of the government enterprises. Operating surplus is the income earned from the ownership and control of capital. It includes:

i. Rental income: Income from hiring land, buildings and other assets.

ii. Royalty income: Income from patents and copyrights.

iii. Interest: Interest income received from lending money.

iv. Income from entrepreneurship: Income from entrepreneurship in the form of profit.

v. Dividend: Part of the profit distributed to the shareholders of the companies.

vi. Undistributed profit: Part of the profit which is retained with the company for paying taxes and for corporate saving (Profit = Dividends + undistributed profit)

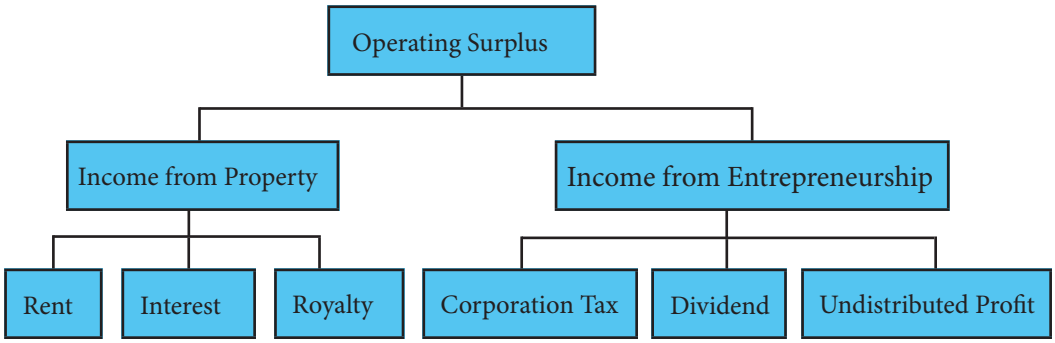

Figure 12.1 *Operating Surplus*

3. Mixed income

Mixed income refers to the income of self-employed individuals, farming units and sole proprietorships. It is a mixture of income from work and income from property and entrepreneurship. For example, earnings from agriculture, transport, sole proprietorship and incomes of own-account workers like plumbers and carpenters.

Step III: Estimation of Domestic Factor Income

When all the factor incomes in the form of compensation to the employees, operating surplus and mixed income are summed up, it arrives at net domestic product at factor cost (NDP_{FC}).

NDP_{FC} = Compensation of employees + Operating surplus + Mixed income

Step IV: Estimation of National Income (NNP_{FC})

In the final step, net factor income from abroad is added to NDP_{FC} in estimating national income (NNP_{FC}).

National Income = NDP_{FC} + Net Factor Income from abroad

NNP_{FC} = Compensation of Employees + Operating Surplus + Mixed Income + Net Factor Income from abroad

Example

Use income method to calculate national income (NNP_{FC}) from the data given in table 12.3.

Table 12.3 *Sources of income of an economy*

Sl. No	Item	Nu (million)
1	Consumption of fixed capital	50
2	Employers' contribution to social security	150
3	Interest	320
4	Net indirect taxes	110
5	Dividend	90
6	Rent	260
7	Corporate tax	30
8	Undistributed profit after tax	20
9	Mixed income	35
10	Net factor income from abroad	(—) 20
11	Wages and salaries	900

Solution

A	Compensation of employees	2 + 11	150 + 900 = 1,050
B	Operating surplus	3 + 5 + 6 + 7 + 8	320 + 90 + 260 + 30 + 20 = 720
C	Mixed Income	9	35
D	NDP_{FC}	A + B + C	1050 +720 + 35 = 1,805
E	NNP_{FC}	D + 10	1805 + (– 20) = 1,785

I. Precautions in estimation of national income by income method

i. Factor income earned by rendering productive services are included. The transfer income such as scholarships, donations, old-age pensions, and charity are excluded.

ii. Income from illegal activities such as gambling, smuggling, black marketing, windfall gains, and income from lottery are not included in national income.

iii. The sale of shares and debentures should be excluded, because such transactions do not contribute to the current flow of goods and services.

iv. Output produced but retained for self-consumption and the imputed rent of owner-occupied property are included.

II. Difficulties in estimation of national income by income method

i. Allocation of mixed income

Mixed incomes are earned by the unincorporated sector. Thus, it is difficult to get reliable information from the unorganised sectors.

ii. Change in price

National income is calculated based on the market price of goods and services. Therefore, during inflation the value of stocks alters which leads to difficulties in measurement.

iii. Income from self-employed

The uncertainty of self-employed persons getting their income causes ambiguity in calculating the actual income.

c. Expenditure method

Expenditure method measures national income at the disposition stage by estimating the expenditure on final products at market prices during a year. The final products are goods which are used for consumption and investment. The steps involved in this method are:

Step I: Identification of economic units

a. Household sector
b. Business sector
c. Government sector
d. Rest of the world

Step II: Classification:

Final expenditure on final goods and services in the economy are divided into four broad categories:

a. consumption expenditure (C)

b. investment expenditure (I)

c. government expenditure (G)

d. net export (X-M)

Step III: Measurement of components of final expenditure

a. Private final consumption expenditure (C)

It comprises expenditure on purchase of consumer goods and services by household and private non-profit institutions like schools, clubs, and hospitals. This expenditure is calculated by multiplying the volume of sale of goods and services in the market by their retail prices.

b. Investment expenditure/ Gross domestic capital formation (I)

Investment expenditure is the expenditure on capital goods such as machinery, factories, and residential houses. Investment expenditure can be:

i. Gross fixed business investment

Expenditure of household and firm on purchase of machinery, equipment and construction works estimated by taking the value of final capital goods at market price.

ii. Inventory investment

Expenditure on change in inventories of the firms which are in the warehouses and showrooms and semi-finished goods calculated at market price.

Thus, expenditure on machinery and equipment, changes in inventories and expenditure on residential housing give the total investment expenditure or gross investment. However, a part of this expenditure is incurred to replace worn out capital. The amount necessary for the replacement is called the depreciation. By deducting depreciation from gross investment, net investment is obtained.

Net Domestic Investment =	**Gross Fixed Business Investment + Inventory Investment + Gross Residential Investment - Depreciation**

c. Government final consumption expenditure (G)

It is the expenditure of government on administration, defense, maintenance of law and order, social welfare services, education, and health. The government incurs expenditure on providing these services to the public to satisfy their collective wants. Thus, this expenditure is termed as government final consumption expenditure.

d. Net Exports (X – M)

Net exports are the difference between the value of goods and services exported to other countries and the value of goods and services imported from other countries. Net exports are included in national income computation for two reasons. First, exports represent foreign spending on domestic goods which are produced within the geographical territory. Second, the expenditure on imports is a part of aggregate spending by residents of the country.

Step IV: Estimation of net domestic product at factor cost

The sum of consumption expenditure, investment expenditure, government expenditure, and net exports gives GDP_{MP}. Thus, NDP_{FC} is estimated by deducting depreciation and net indirect taxes from GDP_{MP}.

$GDP_{MP} = C + I + G + (X – M)$ and

$NDP_{FC} = GDP_{MP}$ – Depreciation – Net Indirect Taxes

Step V: Estimation of net national product at factor cost

In the last stage, net factor income from abroad is added to NDP_{FC} in arriving at NNP_{FC}.

$NNP_{FC} = NDP_{FC}$ + Net Factor Income from abroad

$$Y = C + I + G + (X-M) - Dep.-NIT + NFIA$$

Where

Y: National income

C: Private final consumption expenditure

I: Investment expenditure

G: Government expenditure

(X – M): Net Exports

Dep.: Depreciation

NIT: Net indirect taxes

NFIA: Net factor income from abroad

Example

Using the data given in table 12.4, calculate national income by expenditure method.

Table 12.4 *Income and expenditure of an economy*

Sl. No	Item	Nu (million)
i	Personal consumption expenditure	7,000
ii	Consumption of fixed capital	100
iii	Gross domestic capital formation	2,500
iv	Change in stock	1,000
v	Exports	800
vi	Imports	1,500
vii	Net indirect taxes	80
viii	Governments' consumption expenditure	3,200
ix	Net factor income abroad	(–)20
x	Wages and salaries	900

Solution

Item	Nu (million)
Personal consumption expenditure	7,000
+ Gross domestic capital formation	2,500
+ Change in stock	1,000
+ Government consumption expenditure	3,200
+ Net exports (Exports – Imports)	(—) 700

GDPMP (—) Depreciation	13,000 (—)100
NDP_{MP} (—) Net indirect taxes	12,900 80
NDP_{FC} + Net factor income from abroad	12,820 (—) 20
NNP_{FC}	12,800

I. Precautions in estimation of national income by expenditure method

1. Expenditures on intermediate goods are excluded in national income because it is already included in the value of final expenditure.
2. Expenditure on transfer payments by the government are excluded from the total expenditure as it is not related to any production activity.
3. Expenditures on the purchase of any second-hand goods are excluded in the national income estimation of the current year.
4. Purchase of shares and bonds are excluded. This is because these are mere financial assets and do not reflect any production activity of the goods or services.
5. Expenditure on self-consumption should be included in national income as these are part of productive activity.

II. Difficulties in estimation of national income by expenditure method

1. Nature of Government expenditure

Differentiating government consumption expenditure from government investment expenditure is difficult. Expenditure on defence is treated as consumption expenditure. On the other hand, expenditure incurred on education and health is taken as investment expenditure.

2. Non-availability of expenditure data

This method is difficult to apply in developing countries due to non-availability of adequate data about expenditure.

12.2 Components of net national product at factor cost

Table 12.5 *Three methods of estimation of national income*

Product method	Income method	Expenditure method
1. Gross value added at market price: a. Primary sector b. Secondary sector c. Tertiary sector 2. Depreciation 3. Net indirect taxes 4. Net factor income from abroad	1. Domestic factor income: i. Compensation of employees a. Wages and salaries in cash b. Supplementary labour incomes c. Compensation in kind ii. Operating surplus a. Net interest b. Net rent c. Royalties d. Dividends e. Undistributed profit f. Corporation taxes g. Profits of government companies iii. Mixed income 2. Net factor income from abroad	1. Final expenditure on the domestic product: i. Private final consumption expenditure ii. Gross domestic capital formation iii. Government final consumption expenditure iv. Net export 2. Depreciation 3. Net indirect taxes 4. Net factor income from abroad
$NNP_{FC} = GDP_{MP}$ – Depreciation – Net indirect taxes + Net factor income from abroad	NNP_{FC} = Compensation of the employees + Operating surplus + Mixed income + Net factor income from abroad	$NNP_{FC} = C + I + G + (X - M)$ – Depreciation – NIT + NFIA

12.3 Common difficulties in estimation of national income

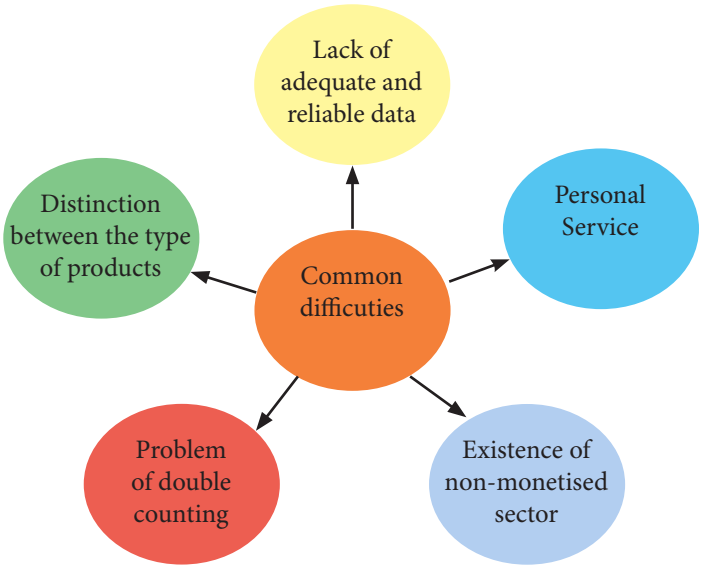

Figure 12.2 *Common difficulties in estimating national income*

Learning Activity 12.2 Calculating national income

Instructions

1. Study the information given in table 12.6 and answer the questions that follow.

Table 12.6 *List of activities in an economy*

Sl. No	Items	Nu (million)
1	Private final consumption expenditure	500
2	Net factor income from abroad	(—) 50
3	Indirect tax	75
4	Subsidies	25
5	Government final consumption expenditure	100
6	Operating surplus	150
7	Net domestic fixed capital formation	150

8	Wages and salaries	250
9	Net exports	(—) 25
10	Free education and medical services	100
11	Social security contribution by employers	75
12	Mixed Income	100

Questions

1. Calculate NNP_{FC} by expenditure method and income method to see if the amounts are same or different. Explain.
2. If you are to compute national income of Bhutan, which method would you prefer? Why?
3. Discuss some practical problems associated with estimation of national income in Bhutan.

Review Questions

1. Match each item in column A with the most appropriate item in column B.

Sl. No	Column A	Column B	
i	Measures national income by estimating expenditure on final products at market prices during a year.	a	Factor income
ii	It is calculated by adding up all the incomes generated in the course of producing national product.	b	Domestic income
iii	Measures national income at the phase of factor payments made to primary factors for the use of their factor services.	c	Output method
iv	The sum total of net value added by all the producing units within the domestic territory during a year.	d	Income method
		e	Expenditure method

2. Complete the formula with most appropriate words.

i) Gross Domestic Product at Market Price = _____ + Government Final Consumption Expenditure + _____ + Net Exports.

ii) Gross National Product at Market Price = Private Final Consumption Expenditure + _____ + Gross Domestic Investment + Net Exports + _____

iii) National Income = Private Consumption Expenditure + _____ + Gross Domestic Investment Expenditure + _____ – Depreciation – Net Indirect Taxes + Net Factor Income from Abroad.

3. What do you understand by operating surplus? List any three components.
4. Explain the expenditure method of measuring national income.
5. What are the difficulties of measuring national income in output method?
6. Explain the precautions taken while estimating national income by expenditure method.
7. How can the problem of double counting be avoided?
8. Explain the steps of estimating national income by output method.
9. Use the data given in the table to calculate:
   i) GDP_{MP}
   ii) NDP_{MP}
   iii) National Income

Sl. No	Contents	Nu (million)
1	Gross value of output in primary sector	900
2	Gross value of output in secondary sector	800
3	Gross value of output in tertiary sector	400
4	Intermediate consumption in primary sector	350
5	Intermediate consumption in secondary sector	320
6	Intermediate consumption in tertiary sector	100
7	Consumption of fixed capital	80
8	Net indirect taxes	85
9	Net factor income from abroad	(—) 15

10. Using the data given in the table, calculate national income by income method and expenditure method.

Sl. No	Items	Nu (million)
1	Compensation of employees	600
2	Government final consumption expenditure	550
3	Net factor income from abroad	(—)10
4	Net exports	(—)15
5	Profits	400
6	Net indirect taxes	60

7	Mixed income of self-employed	350
8	Rent	200
9	Interest	310
10	Private final consumption expenditure	1,000
11	Net domestic capital formation	385
12	Consumption of fixed capital	65

11. Using the data given in the table, estimate:

i) Net value added at factor cost

ii) National income

Sl. No	Contents	Nu (million)
1	Final expenditure on domestic product	10,800
2	Value of gross output	9,500
3	Purchase of raw materials and other inputs	3,600
4	Depreciations of fixed capital	450
5	Net indirect taxes	300
6	Net factor income from abroad	(—) 20

12. From the data given estimate the compensation of the employees

Sl. No	Contents	Nu (million)
1	Wages and salaries	528
2	Value of free housing facilities	25
3	Subsidised goods	10
4	Employers' contribution to social security schemes	27
5	Compensation received by injured workers from the insurance companies	3
6	Commission paid to sales staff	15
7	Leave travel Concession paid to staff	4
8	Travel allowance paid to staff to ravel to and from work	5
9	Employees' contribution to social security scheme	25

13. Calculate the operating surplus from the following data:

Sl. No	Contents	Nu (million)
1	Mixed income	50
2	Rent	625
3	Interest	375
4	Royalty	25
5	Dividends	225
6	Corporate tax	75
7	Undistributed profit before tax	50

Chapter

Economic Integration

Learning Objectives

1. *Explain globalisation and liberalisation*
2. *Analyse the importance of interconnectedness and interdependence among trading partners*
3. *Discuss the benefits accrued from the international economic organisations*
4. *Analyse volume of trade*
5. *Analyse current international economic issues*
6. *Discuss the role of technology in trade*

Introduction

The theory of economic integration framework was first laid out by Jacob Viner in 1950 and was further developed by Bela Alexander Balassa in 1961. It was widely used for the interregional flow of goods and services. Economic integration is the unification of economic policies between different nations through the abolition of tariff and non-tariff restrictions on trade.

In the recent years, economic integration and liberalisation of trade policies have led to rapid growth of the world economy. Therefore, it is necessary for every

country to interact and integrate with other countries to derive the benefits from international trade.

This chapter discusses the concepts of liberalisation and globalisation, and the role of technology in trade.

13.1 Trade Liberalisation and Globalisation

Trade liberalisation is a policy that removes barriers to trade and encourages free trade between countries. It is done by lessening tariffs, relaxing quotas and eliminating non-tariff barriers. It creates a transnational phenomenon called globalisation that has evolved out of trade liberalisation and free trade.

The term globalisation was first used in the publication 'Towards New Education' in 1930 to connote a holistic view of human experience in education. Later in the 1960s, social scientists started to use the term more frequently.

Globalisation refers to the integration of markets in the global economy, leading to the increased interconnectedness of the national economies. Although, globalisation facilitates free flow of goods and services, technology and human capital, yet some countries are cautious in globalising their economy for the risks of economic dominance and exploitation by developed countries.

a. Importance of globalisation

i. Technology and innovation

Globalisation enables countries to make use of advanced technology developed by countries without investments in research and development.

ii. Market access

Globalisation helps widening the market access of countries to export their produce to other countries. Simultaneously, it enables the consumers to obtain quality goods and services at relatively lower prices.

iii. Production and productivity

Globalisation facilitates the transfer of knowledge and technology between countries to raise the level of production and productivity. It, therefore, generates the momentum to reach international standards of productivity.

iv. Cost of production

Globalisation reduces the cost of production because countries can not only avail resources at cheaper rates but also trade at lower tariffs and relaxation of non-tariff arrangements.

v. Foreign Direct Investment

Globalisation promotes foreign direct investment and thus it enables developing countries to raise capital without recourse to international indebtedness.

Learning Activity 13.1 ***Analysing the impact of trade liberalisation and globalisation***

Instructions

1. Explore information on trade policies of Bhutan from the relevant sources.
2. Identify some liberalised trade policies of Bhutan with any of its trading partners.

Questions

1. How would liberalisation of trade amongst the trading partners benefit global economy?
2. What would be the impact if Bhutan does not liberalise trade?
3. How would trade liberalisation lead to globalisation?

13.2 Interconnectedness Among Trading Partners

In a modern economy, the economic life of every individual is interrelated in which the flow of commodities, capital, and ideas across borders have led to significant economic gains for millions of people around the world. Interconnectedness is important as no country is fully self-sufficient. It helps to expand their markets and access goods and services that otherwise may not have been available domestically. Through interconnectedness, the economic decisions of a country affect the decisions of other countries.

For example, the policies regarding trade and finance formulated by the United States is going to affect the economy of developing countries though they do not directly depend on US economy.

13.3 Interdependence Among Trading Partners

International relationships are crucial for economic growth and development. International trade is one of the ways to strengthen such relationships. Countries depend upon each other for exchange of products, resources, information, ideas, finance, and technology with the purpose of satisfying each other's multiple needs for mutual benefits. For instance, trade with any trading partner is governed by free trade agreement, bilateral, regional, and multilateral agreements.

Learning Activity 13.2 *Exploring the impacts of interconnectedness and interdependence*

Instructions

1. Bhutanese economy has evolved since 1961 as a result of interconnectedness and interdependence with the trading partners. In light of this, explore the information related to the economic situation of Bhutan before and after 1961.
2. Fill table 13.1 using the information collected.

Table 13.1 *Economic situation*

Economic situation before 1961	Economic situation after 1961

Questions

1. How has the economic situation evolved over the years after 1961?
2. Change in economic situation is a result of interconnectedness and interdependence. Justify.
3. What are some of the benefits derived by Bhutan due to interconnectedness and interdependence in trade?
4. 'Trade interdependence raises the economic well-being of a nation.' Justify.

13.4 International Economic Organisation (IEO)

The International Economic Organisation was formed in 1961 to help countries recover their economy and financial system after World War II and the Great Depression. International Economic Institutions are organised international bodies that aim to stabilise economic relationships amongst member countries through monetary, fiscal and trade integration.

The objectives of IEO is to formulate a common international programme, resolve conflicts and encourage cooperation amongst the member countries.

a. World Trade Organisation (WTO)

The WTO was formed on January 1, 1995 replacing the General Agreement on Tariffs and Trade (GATT) with its headquarter at Geneva, Switzerland. It is an international organisation dealing with the rules of international trade among the member countries. The objective is to ensure that the trade flows as smoothly, predictably and freely as possible.

The functions of WTO are:

- Setting framework and reviewing the trade policies of the member countries.
- Providing technical assistance to developing countries.
- Reducing barriers to international trade.
- Setting a negotiation forum for multilateral trade agreements.
- Ensuring transparency of trade policies
- Cooperating with the international institutions like IMF and World Bank for making global economic policies.

b. World Bank

The World Bank was founded in 1944 in Washington DC, at the Bretton Woods Conference, with a goal to foster economic growth and development in middle-income and low-income countries to alleviate poverty. It provides financial and technical assistance to individual countries around the globe.

The motto of the World Bank is working for a world free of poverty. It provides low-interest loans, zero-interest credits and grants to support the development of qualifying countries.

The functions of World Bank are:

- It grants loans for reconstruction of those countries affected by war.
- Provide financial assistance to least developed countries to accelerate economic growth, reduce poverty and improve standard of living.
- It promotes foreign investments of other organisations by guaranteeing the loans.
- It provides development loans to various governments for irrigation, agriculture, water supply, health, and education.
- It encourages the development of industries in least developed countries by introducing various economic reforms.

c. International Monetary Fund (IMF)

With the goal to oversee the stability of the monetary system of the world, the IMF was founded at the Bretton Woods Conference in 1944, along with the World Bank, headquartered in Washington D.C.

The functions of IMF are:

- To improve and promote global monetary cooperation of the world.
- To secure financial stability by eliminating or minimising the exchange rate instability.
- To reduce poverty around the world.
- To facilitate a balanced international trade.
- To promote high employment through economic assistance and sustainable economic growth.

d. United Nations Conference on Trade and Development (UNCTAD)

UNCTAD was established in 1964 and it plays vital role in shaping global trade policies, promoting economic growth, and reducing inequalities between developed and developing nations. It fosters cooperation and provides support to countries at various stages of development, and contributes to building a more balanced and equitable global trading system.

Learning Activity 13.3 ***Analysing the importance of International Economic Organisations***

Instructions

1. Explore some of the latest projects in Bhutan funded by the World Bank.
2. Identify other International Economic Organisations that fund projects in Bhutan.

Questions

1. Select one of the projects funded by the World Bank in Bhutan and assess its contribution.
2. How different and similar are the nature and purpose of the projects funded by different International Economic Organisations?

13.5 Volume of Trade

Volume of trade refers to the volume of imports and exports of a country. It relates to the size of international transactions. Economies of the world are gradually opening up for international trade as no country in the world is self-sufficient. This has led to the rise in volume of trade.

Every trading country that engages in international trade enjoys win-win situation as volume of trade depends upon the Terms of Trade (TOT). TOT is expressed as a ratio of import prices index to export prices index, which is the amount of imported commodities that an economy can purchase per unit of exported commodities.

Thus, terms of trade determine the international values of commodities and the values of commodities depend upon the prices of exports and imports of the country.

Learning Activity 13.4 ***Exploring the volume of trade in Bhutan***

Instruction

1. Explore the volume of trade of Bhutan for the last five years with any trading partners and fill the table 13.2.
2. Plot a graph.

Table 13.2 *Volume of trade in Bhutan*

Country	Year	Trade Volume	
		Export	Import

Questions

1. Discuss the trend observed in the graph.
2. What are the reasons that led to this situation?
3. How will this situation affect Bhutanese economy?
4. Suggest relevant measures to overcome this situation.
5. What would be the status of volume of trade after five years? Why?

13.6 International Economic Issues

The economic issues are also known as economic growth challenges as it affects economic development. The problem of unemployment, inequality, high inflation, poverty, recession, and depression are some examples of economic issues.

In the world of interconnectivity and globalisation, all the economies are interdependent and interconnected. As such, economic problems of one nation is likely to affect the situations of others. For example, spillover effects of the Great Depression due to crash of the world stock market in 1930s has affected the global economy. Similarly, the fluctuations in the price of fuel in India has a direct effect on the Bhutanese economy.

Learning Activity 13.5 ***Analysing the impacts of the international economic issues***

Instructions

1. Explore economic issues and their spillover effect globally.
2. Explore economic issues due to climate change.

Questions

1. Climate change has become a global concern. How is it going to impact the economic development of a country?
2. How do geopolitical tensions and conflicts affect global economic stability?
3. If you were a policy maker of a country, what measures would you recommend for economic recovery?

13.7 Technology and Trade

Innovation breeds business, and technology paves the way for it. In the recent times, the world of business is increasingly inclined towards technology, making it almost impossible to separate the two from each other. For instance, technology facilitates better access to trade in the global market.

Trade mobility is significantly impacted by technology with reliable and faster shipments. Advancement in telecommunication contributes to competitive pricing in the global market.

Technology facilitates communication and collaboration, especially for companies with offices in different countries as they can seamlessly meet with their colleagues and customers over digital platforms. Technology has transformed marketing by making campaigns more personalised and immersive for people that are more integrated and targeted for marketers. Moreover, technology empowers consumers with unlimited access to information related to goods and services in the international market.

Learning Activity 13.6 ***Exploring technology in facilitating the trade***

Instructions

1. Visit any E-commerce sites and explore its features.
2. Explore information about evolution of trade due to technology.
3. Explore types of technology which enhances:
    a. Productivity and efficiency
    b. Market accessibility
    c. Mode of payment
    d. Marketing and sales promotion

Questions

1. What are the prominent features of E-commerce?
2. How does technology facilitate E-commerce?
3. How would investment in technology change the scope of international trade?
4. What challenges would technology pose to the trade?

Review Questions

1. Fill in the blanks
   a. When a country moves towards free trade through the reduction of tariff and other trade barriers it is termed as……..
   b. The major trading partner of Bhutan is……
   c. The international body that help countries to overcome the financial crisis is .....
2. How beneficial is trade liberalisation for the economic development of a country?
3. How would globalisation influence the achievement of Gross National Happiness?
4. Economic organisations play an important role in uplifting the economic situation of a country. In what ways has Bhutan benefited from these organisations?
5. What opportunities and challenges do you foresee if Bhutan becomes the member of WTO?
6. How could an economic problem occurring in another country have a spillover effect on Bhutanese economy? Discuss with relevant examples.
7. How would the use of technology foster economic integration and development?

Chapter

Exchange Rate

Learning Objectives

1. *Explain the determination of exchange rate*
2. *Compute exchange rate*
3. *Analyse fixed and floating exchange rate*
4. *Discuss effects of changes in the value of domestic currency on trade*

Introduction

The foreign exchange market began during the 1970s. This followed three decades of government restrictions on foreign exchange transactions under the Bretton Wood system of management, which set out the rules for commercial and financial relations among the world's major industrial states after World War II. In the Bretton Wood system, exchange rates were fixed but adjustable.

In the current system, exchange rates among the major currencies fluctuate in response to market forces, with short-run volatility and occasional large medium-run swings. Some medium-sized industrial countries also have market determined floating rate regimes, while others have adopted pegged system. Developing economies have a wide

variety of exchange rate arrangements but most countries move toward increased exchange rate flexibility.

The exchange rate is essential in facilitating the international transactions of goods and services. Generally, the currency of one country is accepted within its geographical boundary but not in foreign countries. Therefore, international trade between nations take place with the help of exchange rate and the value of this transaction depends upon the prices of the currencies of various countries.

This chapter discusses the determination of exchange rate, types of exchange rate, and conversion of rate of exchange.

14.1 Exchange Rate

The exchange rate is the value of a country's currency in terms of another currency. It represents how many units of a foreign currency a consumer can buy with one unit of their home currency and vice-versa. The exchange rate is important for international economic transactions because it helps to determine the value of home currency with foreign currency.

Learning Activity 14.1 ***Analysing the importance of exchange rate***

Instruction

1. Explore the importance of exchange rate on international trade and transactions.

Questions

1. How would exchange rate impact the life of Bhutanese people?
2. What would be the impacts of having a single currency in the world?
3. Propose strategies to increase the value of Bhutanese currency in international market.

a. Determination of Exchange Rate

The exchange rate in a free market is determined by the demand for and supply of currency in the foreign exchange market. The equilibrium exchange rate is thus the rate at which the demand equals supply of currencies in the foreign exchange market.

i. Demand for currencies

Consider two countries, Bhutan and the United States. The demand for Bhutanese

currency arises when US residents wish to make payments to Bhutan in order to:

1. Buy Bhutanese goods and services from Bhutan

   US residents interested in buying Bhutanese goods and services will sell their country's currency and demand ngultrum for the purpose of purchasing Bhutanese goods and services. For example, the purchase of Bhutanese handicrafts by an American tourist in Bhutan would require him or her to exchange US dollars for ngultrum.

2. Buy stocks and bonds in Bhutan

   Demand for ngultrum comes from Americans who wish to invest in bonds and stocks in Bhutan.

3. Make foreign direct investment

   Demand for ngultrum arises when the US residents wish to set up multinational companies in Bhutan.

4. Travel to Bhutan

   Demand for ngultrum comes when the US residents wish to travel to Bhutan as a tourist.

ii. Supply of currencies

Consider two countries, Bhutan and the United States. Supply of Bhutanese currency arises when residents of Bhutan wish to make payment to the United States in order to:

1. Buy goods and services from USA

   Import of goods and services by Bhutanese from USA requires to exchange ngultrum for USD.

2. Buy stocks and bonds in USA

   Supply of ngultrum comes from Bhutanese who wish to invest in bonds and stock in USA.

3. Make foreign direct investment in USA

   The supply of ngultrum arises when the Bhutanese residents wish to set up multinational companies in USA.

4. Travel to USA

   Supply of ngultrum also arises when the Bhutanese residents wish to travel to USA.

The determination of the exchange rate of ngultrum against the US dollar is illustrated in figure 14.1.

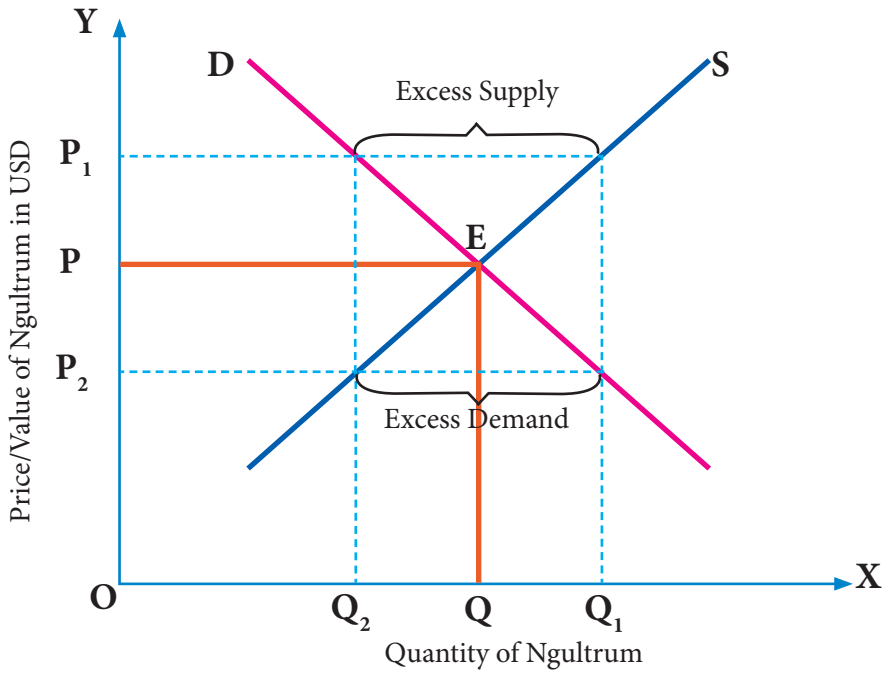

Figure 14.1 *Determination of exchange rate*

Exchange rate is determined by market forces of demand and supply of currency. The demand for ngultrum reflects the sum of transactions giving rise to the receipt of US dollars. The supply of ngultrum represents the total transactions that require payments in ngultrum for the purchase of US dollars. Therefore, the demand for ngultrum would result in the inflow of US dollars into Bhutan while the supply of ngultrum would lead to the outflow of US dollars.

In figure 14.1, horizontal axis represents the quantity of ngultrum demanded and supplied. Vertical axis represents the price of ngultrum in terms of US dollar. The demand for ngultrum is shown by curve D and its supply by curve S. Demand and supply curves intersect at point E. This is the point of equilibrium. Thus, the equilibrium exchange rate is OP and equilibrium quantity of currency is OQ. Exchange rate will not be in the equilibrium at any other prices higher or lower than OP.

At a higher price OP_1, the quantity of ngultrum supplied is OQ_1 and quantity demanded is OQ_2.The quantity supplied is more than the quantity demanded, creating an excess supply. This situation of excess supply of ngultrum in the exchange market results in the decline of the price or value of ngultrum. In this case value of ngultrum depreciates. Consequently, the market forces automatically revert to the equilibrium exchange rate at E.

Likewise, at a lower price OP_2, the quantity demanded is OQ_1 and the quantity supplied is OQ_2. The demand for ngultrum exceeds the supply of ngultrum, leading to an excess demand for ngultrum. This situation of excess demand for ngultrum in the exchange market results in the rise of the value of ngultrum. In this case value of ngultrum appreciates. Consequently, the market forces automatically revert to the equilibrium exchange rate at E.

b. Change in the Exchange Rate

The changes in market forces of demand and supply cause the exchange rate to appreciate or depreciate. Changes in the equilibrium exchange rate is brought about by a shift in the demand and supply curves of a currency.

i. Increase in exchange rate

An increase in the value of currency or exchange rate occurs due to an increase in the demand or decrease in the supply of currency. This increase in the value of a currency is called appreciation.

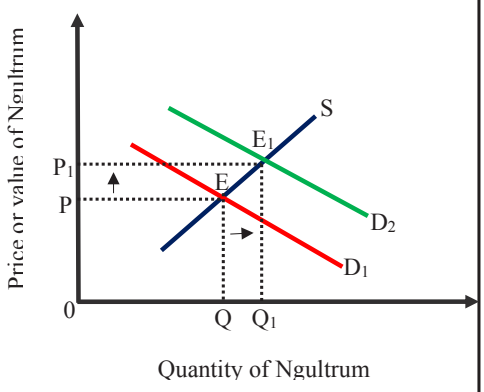

Figure 14.2 *Change in exchange rate due to increase in demand*

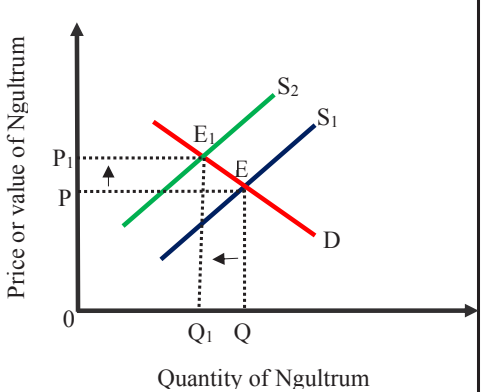

Figure 14.3 *Change in exchange rate due to decrease in supply*

Figure 14.2 explains the increase in price or value of the exchange rate when the demand curve shift towards the right from D1 to D2. The shift in the demand curve increases the demand for a currency (BTN) from OQ to OQ1 with the supply of a currency (BTN) remaining constant. When the demand for currency is more than the supply of a currency, this situation is called excess demand. The excess demand forces the equilibrium exchange rate to move from OP to OP1. Hence increasing the value or price of the exchange rate.

Figure 14.3 explains the increase in price or value of exchange rate when the supply curve shift towards the left from S1 to S2. The shift in the supply curve decreases the supply of currency from OQ to OQ1 with the demand of a currency remaining constant. When the supply of currency is less than the demand for a currency, this situation is called excess demand. The excess demand forces the equilibrium exchange rate to move from OP to OP1, hence increasing the value or price of the exchange rate.

The increase in the value of a currency in the freely floating exchange rate system due to an increase in demand for or decrease in the supply of currency is called appreciation. On the contrary, the increase in the value of a currency done through government intervention is called revaluation.

When a domestic currency appreciates or revalues, imports become cheaper and exports become expensive leading to a decrease in net export. Thus, it reduces domestic inflation.

ii. Decrease in exchange rate

The decrease in the value of currency or exchange rate occurs due to a decrease in the demand or increase in the supply of a currency. This decrease in the value of a currency is called depreciation.

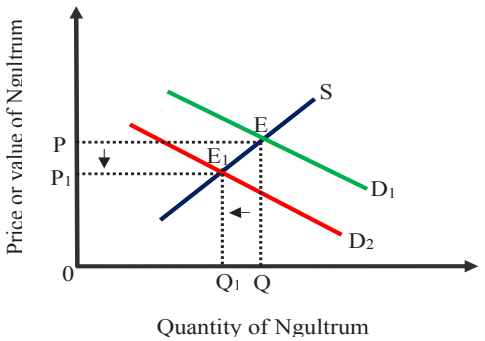

Figure 14.4 *Change in exchange rate due to decrease in demand*

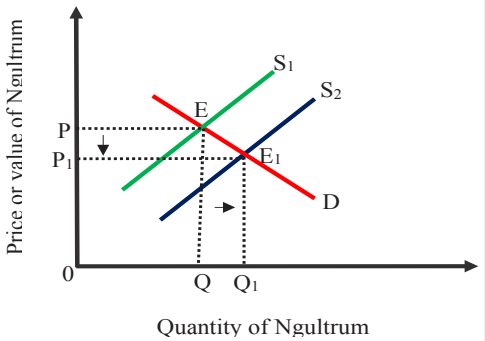

Figure 14.5 *Change in exchange rate due to increase in supply*

Figure 14.4 explains the decrease in price or value of exchange rate when the demand curve shift towards the left from D_1 to D_2. The shift in the demand curve decreases the demand for a currency from OQ to OQ_1 with the supply of currency remaining constant. When the demand for a currency is less than the supply of a currency , this situation is called excess supply. The excess supply forces the equilibrium exchange rate to move from OP to OP_1, hence decreasing the value or price of exchange rate.

Figure 14.5 explains the decrease in price or value of exchange rate when the supply curve shift towards the right from S_1 to S_2. The shift in the supply curve increases the supply of a currency from OQ to OQ_1 with the demand for currency remaining constant. When the supply of currency is more than the demand for a currency, this situation is called excess supply. The excess supply forces the equilibrium exchange rate to move from OP to OP_1, hence decreasing the value or price of exchange rate.

The decrease in the value of a currency in the freely floating exchange rate system due to decrease in demand for or increase in the supply of currency is called depreciation. On the contrary, when the decrease in value of a currency is done through government intervention, it is called devaluation.

When a domestic currency depreciates or devalues, exports become cheaper and imports become expensive leading to an increase in net exports. Thus, it reduces the trade deficit.

Learning Activity 14.2 *Analysing the fluctuations in exchange rate*

Instruction

1. Study figure 14.6.

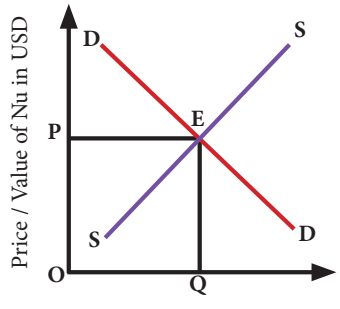

Figure 14.6 *Equilibrium exchange rate*

Questions

1. Discuss the market situation of exchange rate when the price of ngultrum is below the equilibrium.
2. Illustrate changes in equilibrium exchange rate and quantity of ngultrum as a result of:
   a) increase in export of Bhutan.
   b) decrease in import of Bhutan.
   c) decrease in foreign investment in Bhutan.
   d) increase in Bhutanese travelling abroad.
3. Generally, exchange rate is highly volatile in nature. What could be some of the reasons?
4. How does the fluctuations in exchange rate impact Bhutanese economy?

14.2 Exchange Rate Conversion

It is the rate at which the value of one currency can be converted into another currency in the foreign exchange markets. When currency is exchanged in terms of foreign currency, one would get more or less currencies depending on the value of currencies. Currency conversion is important to facilitate international transaction since one country's currency is not accepted across the world.

Learning Activity 14.3 *Calculating the exchange rate*

Instructions

1. Explore the current rate of exchange of BTN against at least five foreign currencies from any credible sources.
2. Fill table 14.1 using the information gathered.

Table 14.1 *Current exchange rate of BTN against foreign currencies*

Country	Currency	Buying rate	Selling rate

Questions

1. Which country has the highest and lowest rate of exchange in terms of Bhutanese currency?
2. Calculate the amount of ngultrum you would need to pay to get the latest IPhone from USA.
3. Calculate the amount of Euros a European tourist needs to pay as tariff to stay for a week in Bhutan.
4. Discuss the significance of exchange rate on the country's economy.

14.3 Exchange Rate Regime

It is the exchange rate system adopted by the central bank of a country to manage its currency relative to other currencies. The foreign exchange market is regulated with the objective of controlling inflation, interest rates, real GDP, imports, and unemployment rate.

a. Types of exchange rate system

The exchange rate systems are classified as:

i. Fixed exchange rate

When the Central Bank of the country decides to keep the value of its currency fixed against a currency of another country in order to have a free and smooth flow of goods and services, it is termed as fixed exchange rate. The central bank will keep a reserve of foreign currency or gold reserve in order to intervene in the foreign exchange market when demand and supply are not equal. A change in the fixed exchange rate is either revaluation or devaluation.

Some of the developing countries whose currency are not powerful will choose to peg the value of their currency to a currency of a country with bigger economy with whom they have lots of trading activities. This is called a pegged system which is similar to a fixed system.

Following such a regime has an advantage to both importers and exporters due to its certainty and there is no fear of fluctuations based on the market condition, which helps to facilitate more foreign direct investment.

ii. Floating exchange rate

An exchange rate determined by the forces of demand and supply of the currency without any government intervention is called floating exchange rate. The fluctuation in the exchange rate is either appreciation or depreciation. Floating exchange rate adjusts automatically with change in the market situation and it helps the country to prevent from the balance of payment crisis.

iii. Managed exchange rate

An exchange rate system in which the exchange rate is neither fixed nor flexible but a hybrid of two. While it captures the benefits of floating system, to certain degree there is an intervention from central bank to influence the value of their currency in a range against another currency and lower the risk of harmful effects of floating system.

In this system, the central banks use the monetary policies to stabilise exchange rate movement. However, when foreign currency reserves are insufficient, it leads to speculation activities.

Know More

From Fixed to Flexible: A Brief History

The shift from fixed to more flexible exchange rates has been gradual, dating from the breakdown of the Bretton Woods system of fixed exchange rates in the early 1970s, when the world's major currencies began to float. At first, most developing countries continued to peg their exchange rates-either to a single key currency, usually the U.S. dollar or French franc, or to a basket of currencies. By the late 1970s, they began to shift from single currency pegs to basket pegs, such as to the IMF's special drawing right (SDR). Since the early 1980s, however, developing countries have shifted away from currency pegs-toward explicitly more flexible exchange rate arrangements. This shift has occurred in most of the world's major geographic regions.

In 1975, countries with pegged rates accounted for 70 percent of the developing world's total trade; by 1996, this figure had dropped to about 20 percent. The overall trend is clear, though it is probably less pronounced than these figures indicate because many countries that officially describe their exchange rate regimes as "managed floating" or even "independently floating" in practice often continue to set their rate unofficially or use it as a policy instrument.

The CFA franc zone in sub-Saharan Africa, where some 14 countries have pegged their rate to the French franc since 1948-with one substantial devaluation in 1994. In addition, some countries have reverted, against the trend, from flexible to fixed rate regimes.
Nevertheless, the general shift from fixed to flexible has been broadly based worldwide. In 1976, pegged rate regimes were the norm in Africa, Asia, the Middle East, nonindustrial Europe, and the Western Hemisphere. By 1996, flexible exchange rate regimes predominated in all these regions.

Source: www.elibrary.imf.org

Learning Activity 14.4 *Examining fixed and floating exchange rate*

Instruction

1. Explore advantages and disadvantages of fixed and floating exchange rate from relevant sources.

Questions

1. What are the pros and cons of
   a. floating exchange rate?
   b. fixed exchange rate?
2. How do central banks manage fluctuations in exchange rate?
3. Which exchange rate system is widely adopted? Why?
4. BTN is pegged with INR since 1970s. Discuss the impacts of this regime.

Review Questions

1. When the value of foreign currency appreciates in terms of domestic currency,
   a. exports become cheaper
   b. imports become cheaper
   c. exports become costlier
   d. imports equals exports
2. When supply of domestic currency increases, the equilibrium exchange rate will
   a. rise
   b. fall
   c. remain constant
   d. initially rise and fall
3. Write True or False for the following statements
   i. Excess supply of currency decreases the value of that currency.
   ii. Fixed exchange rate is determined by the demand for and supply of currency.
   iii. A change in exchange rate of USD1=BTN75 to USD1=BTN 70 indicates that the value of ngultrum has appreciated.
   iv. Due to depreciation of foreign currency, the supply of foreign currency in the domestic market will decrease.
4. What would be the effects on international trade if there is no exchange rate regime?
5. What will be the effect of appreciation of ngultrum on domestic industry?
6. The price of a MacBook in Japan is Yen 300,000. How much do you have to pay if the seller accepts only in Norwegian Kroner?

ASSESSMENT

Educational assessment is the process of documenting, usually in measurable terms, the outcomes of knowledge, skills, attitudes and beliefs of the learners. This includes the processes of gathering and interpreting information about the progress of their learning. In order for the assessment to be valuable to individuals and organisations, the assessment must be accurate and objective. Learners should be well informed about what will be assessed and how it will be assessed. This makes the teacher's expectations clear to the learners to set appropriate learning outcomes. Teachers play an important role in the learners' achievement by effectively monitoring their learning progress and providing constructive feedback using techniques and tools.

a. Continuous Formative Assessment (CFA)

Formative assessment is used to provide feedback to teachers and learners, so that teaching and learning can be improved through the provision of regular feedback and remedial learning opportunities for the learners. It also enables the teachers to understand what teaching methods and materials work best.

CFA facilitates the teachers to diagnose the learning needs of the learners and recognise the individual differences in learning. Through the constructive feedback, learners can understand their strengths and areas of improvement. It also empowers them to be self-reflective who can monitor and evaluate their own progress. CFA happens continuously throughout the academic year. It is not graded as it provides continuous and quality feedback to the learners.

The suggested techniques for CFA includes debate, quiz, field trip, case analysis, presentation, etc. The tools are checklists, anecdotal records, and rating scale.

i. Continuous Summative Assessment (CSA)

Continuous Summative Assessment is another form of continuous assessment. It helps in determining the learner's performance and the effectiveness of instructions. The feedback from this assessment helps to improve the learner's learning and mandates the teachers to incorporate varied teaching strategies and resources to ensure quality teaching and learning. It empowers learners to be self-reflective who can monitor and evaluate their own progress. In CSA, the learner's performances and achievement are graded. This ensures active participations of learners in the teaching-learning processes.

The suggested techniques are class tests, project work, group work, and observation.

The tools for CSA are rubrics, rating scale and paper pencil tests.

b. Summative Assessment (SA)

Summative assessment (SA) is conducted at the end of the terms to determine the level of learning outcomes achieved by the learners. The information gathered is used to grade learners for progression and to report to parents and other stakeholders.

The identified techniques for SA are terminal examinations. The questions cover all the three domains of learning prepared using the principles of Bloom's taxonomy.

Assessment Matrix

Broad assessment based on Knowledge, Skills and Values and Attitudes (KSV)

Assessment type	Formative assessment			Continuous Summative Assessment			Summative Assessment	
Domains	Economic Knowledge	Economic Skill	Economic Values & Attitude	Economic Knowledge	Economic Skill	Economic Values & Attitude	KSV Term I	KSV Term II
Techniques	Class test, observation, debate, quiz, question answer, field trip, case study, seminar, presentation, group work, case analysis, peer interaction, and project work			i. Class Activity: Class test, observation, debate, quiz, question answer, case study, seminar, presentation, group work, case analysis, and peer interactions. ii. Project Work			Exams	Exams
Assessment tools	Rubrics, checklist, rating scale, anecdotal records, paper-pencil test						Paper-pencil test	Paper-pencil test
Frequency	Continuous			Class Activity: Continuous assessment with final grade once in a term Project work: One project work in a year and assessment should focus on both process and product.			Once in a term	Once in a term
Weighting				T1=10 Class Activity: 5 Project Work: 5 T2=10 Class Activity: 5 Project Work: 5			T1=40	T2= 40

Reprint 2024

Weighting and Instructional Time (Minutes)

Chapters	Chapter weighting	Strand weighting	Time (Minutes)
Chapter 1- Consumer's and their Preferences	7	Individual Economy (43%)	504
Chapter 2- Production Decision: Returns to a Factor and Scale	8		576
Chapter 3- Production Decision: Cost Analysis	8		576
Chapter 4- Production Decision: Revenue Analysis	5		360
Chapter 5- Firm's Equilibrium	8		576
Chapter 6- Theory of Distribution	7		504
Chapter 7- Statistics for Economics	6	National Economy (43%)	432
Chapter 8- Public Revenue and Expenditure	9		648
Chapter 9- Deficit Financing	7		504
Chapter 10- Fiscal Policy	6		432
Chapter 11- National Income	7		504
Chapter12- Measurement of National Income	8		576
Chapter 13- Economic Integration	7	Global Economy (14%)	504
Chapter 14- Exchange Rates	7		504
	100%	100	7200 (120 hrs)

Sample checklist for assessment of debate

Class: **Criteria** **Name**	Organises the idea points tied to the bigger idea	Presents ideas and information convincingly	Presents ideas clearly with originality	Supports the arguments with relevant facts & figures	Provides accurate counter arguments	Completes presentation on time	Demonstrates courteous body and spoken language	Teacher's Comments
Tshering								
Sonam								

Sample Anecdotal notes for assessment of group work

Date:		Class:	Lesson Topic:
Name of Student:		Observation/Comments	
1	Contribution		
2	Skill Input		
3	Responsibility		
4	Respect for Other		
5	Cooperation & Collaboration		

Sample checklist for field trip

Key: ✓ Yes ✘ No **Class: .....** **Criteria** **Name**	**Criteria**							**Teacher's Comments**
	The student is able to:							
	dressed in a way to stay comfortable during the entire field trip	demonstrated expected behavior during the field trip without a reminder.	listened to all of the lesson and helped to create a good learning environment	respected the time and expertise of the presenter	listened attentively and wrote all the points.	asked relevant questions and listened to the responses.	followed all the safety directions without needing a reminder.	
Tshering								
Sonam								

Sample checklist for Peer Interaction (to test Values and Attitude)

Key: ✓ Yes ✘ No Class: ..... Criteria Name	Criteria				Teacher's Comments
	The student				
	Initiates positive discussions in the class	Respects other ideas	Collaborates with other learners	Demonstrates sensitivity of oneself and others	
Tshering					

Sonam					

Sample Rating scale for Observation (Values & attitude)

Class: ..... Criteria Name	Criteria Always (4), Sometimes (3), Rarely (2), Never (1) Punctuality	Integrity	Collaboration	Respect for Diversity	Resilience	Resource Management	Teacher's Comments
Tshering							
Sonam							

Note: Teacher to identify attributes of each parameter and record the observations

Sample Rating scale for case study

Class: ..... Criteria Name	Criteria The student Clearly identifies the key issues in the case. (1-4)	Evaluates the information in the case in relation to relevant principles and theories. (1-4)	Identifies realistic and appropriate options or alternatives for rational decisions. (1-4)	Recommends solution for solving the issues presented in the case. (1-4)	Presents the analysis report with appropriate writing format. (1-4)	Teacher's Comments

Tshering				
Sonam				

Sample rubric for assessment of project work

Name:..... Roll no:..... Class/sec:.....

Criteria	Score				Total Score(28)
	4	3	2	1	
Problem and hypothesis	Problem is new, meaningful and well researched. Hypothesis is clearly stated	Problem is not new but meaningful. Hypothesis is clearly stated.	Problem is stated but not new and so meaningful. Hypothesis is not clearly stated.	Problem is not stated and Hypothesis is unclear.	
Background research on the hypothesis	Research is thorough and specific. All the ideas are clearly explained.	Research is thorough but not specific. Most ideas are explained.	Research is not thorough and not specific. Few ideas are explained.	Research not thorough and ideas are not explained.	
Methodology	Procedure and plans are detailed and sequential. All materials are listed. Ethical issues have been addressed.	Procedure and plans are detailed but not sequential. Most materials are listed. Ethical issues have been addressed.	Procedure and plans not detailed and not sequential. Few materials are listed. Few ethical issues have been addressed.	A few steps of procedure are listed and no concrete plans evident. No materials are listed. Ethical issues were not addressed.	
Investigation/ Data collection	Variables have been identified and explained. Sample size is appropriate and explained. Data collected from appropriate number of sources.	Variables have been identified but not explained. Sample size is appropriate. Data collected from appropriate number of sources.	Variables have somewhat been identified. Sample size is not appropriate. Data collected from reasonable number of sources.	Missing two or more of the variables. Sample size is not considered. Data collected from limited number of sources.	
Analysis	Conclusion is supported by the data. Explanation is made for how or why the hypothesis was supported or rejected. Reflection of what was learned and how it could be made better is made.	Conclusions are supported by the data. Not enough explanation is made for how or why the hypothesis was supported or rejected. Reflection of what was learned and how it could be made better is made.	Conclusions are not supported by enough data. Not enough explanation is made for hypothesis Reflection is not clear.	Conclusions are not supported by data. Not enough explanation is made for the hypothesis Reflection is not stated.	

Format and editing	Correct format followed throughout. Report is free of errors in grammar, spelling or punctuation.	Only one aspect of format is incorrectly done. Report contains a few errors in grammar, spelling, and punctuation.	Only two aspects of format are incorrectly done. Report contains some errors in grammar, spelling, punctuation	Three or more aspects of format are missing or incorrect. Report contains many errors in grammar, spelling, and punctuation.	
Bibliography	Five or more references are cited in APA format and referenced throughout the paper and presentation.	Three or four references are cited in APA format and referenced throughout the paper and presentation.	One or two references are cited and referenced throughout the paper and presentation.	No references made.	

(Name & signature of Subject Teacher)

Question Pattern for Term Examinations

1. ***Part A***

Objective type and short answer questions 50 Marks

a. Multiple Choice Questions

b. Matching

c. Sentence completion

d. True or False

e. Short answer questions

2. ***Part B***

Extended response questions 50 Marks

Any five sets of questions to be attempted from six sets of questions

Total Marks **100 Marks**