PGEC S2 01
Exam Code: MIC2

Micro Economics- II

SEMESTER-II

ECONOMICS

BLOCK : 2



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March, 2020

ISBN : 978-93-89955-48-4

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Printed and published by Registrar on behalf of the Krishna Kanta Handiqui State Open University.

Head Office : Patgaon, Rani Gate, Guwahati-781 017;

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The University acknowledges with thanks the financial support provided by the **Distance Education Bureau, UGC**, for the preparation of this study material.

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BLOCK INTRODUCTION

This is the second block of the course and it comprises of eight units. The eight units will introduce you to the theory of rent. In this unit we will discuss the different types of rent, Ricardian theory of rent, modern theory of rent and rent element in other factors of production. The ninth unit deals with the theory of Interest. This unit will help you to understand the classical theory of interest, loanable funds theory of interest, liquidity preference theory and Hicks-Hansen synthesis to determine the rate of interest. This unit also discusses whether the Keynesian theory is an improvement over classical theory and loanable funds theory. The tenth unit outlines the theory of profit. This unit discusses the meaning of profit, how profit arises due to dynamic factors, the innovation theory of profit and the relation between uncertainty and profit. The eleventh unit of the course discusses about the Economics of Insurance. This unit will help you to understand the concepts like Attitude towards risk, expected utility hypothesis, risk aversion and insurance, risk lover and gambling, measures for risk reduction, problems of insurance and risk pooling and spreading. The twelfth unit deals with the welfare economics. In this unit we will discuss the meaning of welfare economics, concept of social welfare, role of value judgment, Pareto optimality and economic efficiency and marginal condition of Pareto Optimun. The thirteenth unit discusses about the new welfare economics. This unit will make a comparative study of the Kaldor-Hicks welfare criterion and Scitovsky's double criterion of welfare. The fourteenth unit will help you acquire knowledge about the social welfare function. In this unit we will discuss Bergson-Samuelson social welfare function, grand utility possibility frontier and point of Constrained Bliss. The final unit deals with the major issues associated with economics of information like markets with asymmetric information, market failure and asymmetric information problem, quality uncertainty and the market for lemons, adverse selection problem and social insurance.

While going through a unit, you will notice some along-side boxes, which have been included to help you to know some of the difficult, unseen terms. Again, we have included some relevant concepts in "LET US KNOW" along with the text. And, at the end of each section, you will get "CHECK YOUR PROGRESS" questions. These have been designed to self-check your progress of study. It will be better if you solve the problems put in these boxes immediately after you go through the sections of the units and then match your answers with "ANSWERS TO CHECK YOUR PROGRESS" given at the end of each unit.

UNIT 8: THEORY OF RENT

UNIT STRUCTURE

8.1 Learning Objectives

8.2 Introduction

8.3 Ricardian Theory of Rent

8.4 The Modern Theory of Rent

8.5 Rent Elements in Other Factors of Production

8.6 Let Us Sum Up

8.7 Further Reading

8.8 Answer to Check Your Progress

8.9 Model Questions

8.1 LEARNING OBJECTIVES

After going through this unit, you will be able to-

- know the meaning of rent
- explain the Ricardian theory of rent
- discuss the different types of rent
- explain the modern theory of rent
- know the rent element in other factors.

8.2 INTRODUCTION

In ordinary sense rent is nothing but the ownership price. For example, rent is paid by the lease holder or the tenant to the land lord or the land owner. That means, it is the hiring charge. e.g. rent of house, rent of a bus etc. But in economics, it's meaning is complex. In economics, rent means economic rent which is nothing but a payment for the use of land, the supply of which is unrealistic or fixed. In the words of Ricardo, "Rent is that portion of the produce of the earth, which is paid to the landlord for the use of the original and indestructible powers of soil." But this view is not accepted by the modern economists. According to the modern economists, economic rent can accrue to any factor of production, the supply of which is relatively less elastic.

To understand economic rent, we must know that contract rent is the total fined amount, which a tenant is bound to pay the owner of the factor i.e. land, capital, etc. for a given period of time. Contract rent includes economic rent, interest rent on capital, wage, maintenance cost, profit etc. Therefore it is normally more than economic rent.

Contract rent = Economic Rent + Interest on capital invested by the owner + Maintenance cost + wages for supervision + Profit (if any)

Economic Rent = Contract Rent - [Interest on capital invested by the owner + profit (if any)]

Economic Rent should also be differentiated from gross rent. Gross rent is a composite payment and it consists of: Economic Rent, Return on Capital, Compensation for risk and Implicit wages.

8.3 RICARDIAN THEORY OF RENT

An eminent classical economist David Ricardo, in his book, ‘’Principle of Political Economy and Taxation” gave his view on rent. This is popularly known as the Ricardian theory of rent. According to him, rent is that portion of the produce of the earth, which is paid to the landlord for the use of the original and indestructible powers of the soil.

Ricardian Theory can be explained under three different situations-

- **Rent under extensive cultivation:** All lands have not same productive power. According to Ricardo, initially people cultivate the best type of land. When population increases people have to cultivate inferior lands also to fulfill the increased demands for food grains. Ricardo believes that rent arises due to the excess of production on superior land in comparison to inferior land, i.e. differential surplus. This is explained in the following table and diagram.

Table: 1 Rent determination under extensive cultivation

Grade of land	Total production	Rent
A	40	40-10 =30
B	30	30-10 =20
C	20	20-10 =10
D (Marginal land)	10	10-10 =0

In the above table A, B, C, D are four different types of land where A is the best quality of land and D is the worst quality of land. When population increases, people will have to cultivate D type of land also. In this type of land there is no rent generated. Thus D is the marginal land or no rent land and A, B, C are intra marginal land. According to Ricardo, the excess of production over this marginal land on the other type of land are rent. Therefore A, B, C types of land have 30, 20 and 10 quintals of food grain as rent respectively, which is shown in the above table and below diagram.

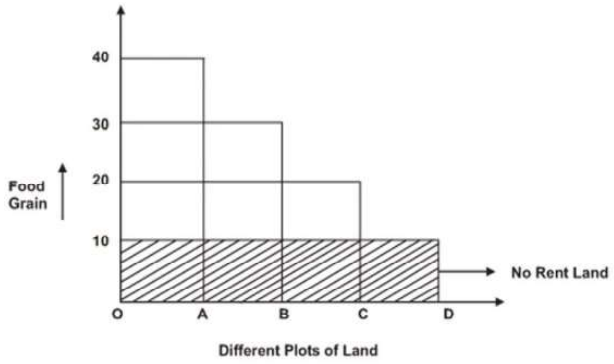


Fig. 8.1 : Determination of Rent

- **Rent under Intensive Cultivation:** When more units of labour and capital are used on the same type of land, it is called intensive cultivation. This is explained with the help of the following table. Ricardo assumes the operation of the law of diminishing return in the field of agriculture. Thus the marginal product of various uses of labour and capital diminishes with the increase of their quantity. Here also marginal unit is no rent unit.

Table 2: Rent determination under intensive cultivation

Dose of labour and capital	Total production	Rent (in capital quantity)
Dose I	40	40-10=30
Dose II	30	30-10=20
Dose III	20	20-10=10
Dose IV	10	10-10=0 (no rent unit)

- **Situation rent:** According to Ricardo rent also arises due to the differences in the situations of various type of land. This is called

situations rent. Particular type of land is located in the advantageous position, such as closer to the market, in comparisons to others and therefore they will earn rent as transportation cost will be less here.

- **Scarcity rent:** The concept Scarcity rent is used both by classical and modern economists. Ricardo did not explain scarcity rent directly but he assumed the that the supply of land is fixed and the demand for land depends upon the demand for crops. Thus Ricardo considers that demand for land is derived. According to Ricardo, over a long period, when population increases, the demand for corn increases. As a result demand for land also increases for cultivating more corn. Thus given the perfectly inelastic supply of land, rent tends to increase because there is increase in demand for land. Again, since there is fixed supply of land and the land have no alternative uses, therefore scarcity of corn leads to an increase in the demand for land for producing that product. As a result, rent increases. This is known as scarcity land.

In the modern version, rent is determined by the demand for and supply of land. Since curve of land is more elastic, the excess demand for land or scarcity of land results in increase in rent. On the contrary, the excess supply of land over the demand can lead to a fall in rent. Therefore modern economists also explicitly involve rent to the scarcity principle.

Assumption: The theory is based on the following assumptions-

- There is no rent or marginal land.
- Rent is the result of original and indestructible powers of land.
- The law of decreasing returns prevails.
- The causes for the emergence of rent are the difference in fertility of land.
- Various pieces of land are cultivated in the declining order of their fertility.

Criticism: Following are the main criticisms of Ricardian theory-

- Ricardo's idea that there are some original and indestructible powers of land is not correct. Land can be both destroyed and made more productive using man made technology.
- Ricardo observed that superior land is cultivated first. However, critics point out that the land which is near to the human habitation is cultivated first, irrespective of the fact as to whether it is superior or not.

- According to Ricardo rent is not price determining but price determined. Today we know that rent is a part of cost of production that determines price.
- According to Ricardo, for emergence of rent in the land, existence of marginal land is necessary. But according to modern economists, this is not necessary.
- According to modern economists, rent arises not only in case of land but also in every factors of production.



CHECK YOUR PROGRESS

Q.1: What is meant by rent? (Answer in about 20 words)

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Q.2: What is meant by contract rent? (Answer in about 30 words)

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Q.3: Define differential rent. (Answer in about 10 words)

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Q.4: What is meant by scarcity rent? (Answer in about 10 words)

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8.4 MODERN THEORY OF RENT

Ricardian theory is based on the two prominent facts - rent is the differential surplus and rent is measured from the non rent margin. But Ricardian theory does not explain why rent arises. Actually rent is paid because the produce of land is scarce in relation to the demand for it. According to the modern economists, rent is not only limited to land but also applicable in all factors of production. According to them, supply of every factors of production

is not perfectly elastic. Because of this reason, they earn extra income. which is rent. Therefore rent is the leading species of a large genus.

According to Mrs. Joan Robinson, "The essence of the concept of rent is the conception of a surplus earned by a particular part of a factor of production over and above the minimum earnings necessary to induce it to do its work." Thus, according to modern economists,

Economic rent = present earnings - transfer earnings

By transfer earnings we mean that minimum payment which is necessary to keep a factor of production in its production. In other words, it is the next best alternative to earnings. The other name of transfer earnings is the opportunity cost, supply price etc. According to the modern economists, economic rent arises due to the scarcity and specificity of the factors of production. In other words, rent of a particular factor actually depends on the elasticity of supply of that factor. When supply of a particular factor is perfectly elastic, then there will be no rent because its present earnings and transfer earnings will be equal. On the other hand if supply of a particular factor is perfectly inelastic, then transfer earnings will be zero. So the whole of present earning will be its rent. But in reality supply of factors are neither perfectly elastic nor perfectly inelastic. Thus rent is nothing but the difference between present and transfer earning. Hence rent is the excess of earnings of any factors of production over its minimum supply price. The minimum supply price of a factor is called their transfer earnings which is shown in the following diagram. The determination of rent when supply of the factor is perfectly elastic and inelastic is shown in the following Figure 8.3 and 8.4 respectively.

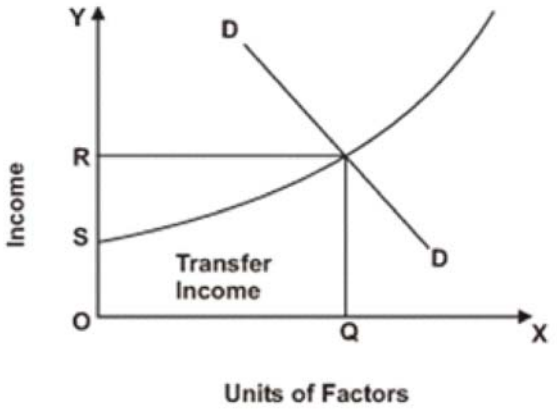


Fig. 8.2 : Determination of Rent

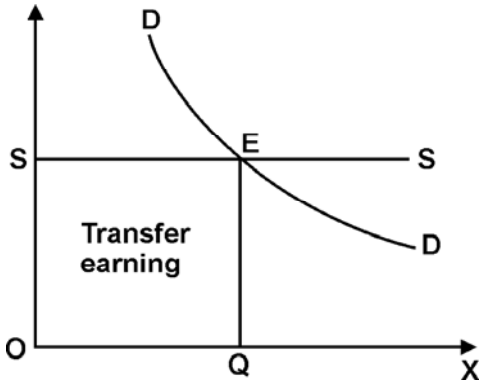


Fig. 8.3 : Determination of Rent when supply of factor is perfectly elastic

In the figure 8.2, the demand for and supply of quantity is OQ. SS is minimum supply price of the factor. It is clear from the figure that total earnings of factor is OQER and transfer earning is OQES. So, the economic rent = OQER - OQES = RES. In the above figure 8.3, it is clear that total earning and transfer earnings are equal, which is OMES. As the supply of factor can be changed according to requirement, there will be no economic rent.

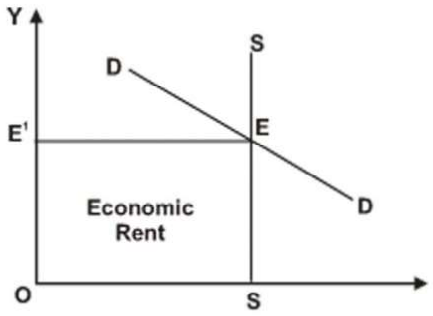


Fig. 8.4 : Determination of Rent when supply of factor is perfectly inelastic

Again, in figure 8.4 when supply of factor is perfectly inelastic then there will be no transfer earning and thus the amount of economic rent is OE/ES. As the supply of the factor cannot be changed all the earnings will be economic rent.

Modification made by the modern theory over the Recardian theory of Rent:

Following are the main modifications made by Modern theory of rent over classical theory:-

- **Main causes of the emergence of Rent:** The modern theory clearly and more scientifically explains the cause of the emergence of rent.

According to modern theory, the food supply reduces as the population grows. As a result, people are forced to cultivate inferior lands and the superior land starts earning a surplus over the marginal land. On the land the modern theory stats that rent arises because of the specificity of a factor. If a factor is perfectly specific, the entire earning can be treated as rent.

- **Quantitative measurement:** According to Ricardo, rent is the difference between produce from intra-marginal land. This is not true because no rent concept is imaginary. But modern theory measures rent through the excess of actual earning over the transfer earning i.e. it is a quantitative measurement.
- **Rent and price:** Ricardo assumes that rent is a surplus over and above the cost. Thus rent was not a part of price. On the other hand, according to modern theory, rent is included in the price because it is a part of actual earning which is determined through the price of the product.
- **General concept of Rent:** Ricardo said that rent arises only in the case of agricultural land. But according to the modern theory, rent arises not only on agricultural land but on all types of land, buildings, machinery, etc. It suggests that even these earnings of all the non–land factors of population have an element of rent in them. Therefore, the modern theory gives a general concept of rent.

***Quasi Rent*:** The concept of quasi rent was first introduced by Prof. Marshall. According to him, "quasi-rent is the income derived from machine and other appliances of production made by man.'' The term rent is used to mean income from land and other free gifts of nature, but quasi-rent stands for the whole of the income which some agents of production yield when demand for them has suddenly increased. It is earned during the period when their supply cannot be increased in response to increase in demand for them. Therefore Quasi rent exists in a short-period. Marshall used the concept of quasi rent to explain economic rent regarding man made machine, tools equipments and other goods, whose production was fixed during short period.

Silverman has explained the concept of quasi rent more clearly. According to him, ''the additional payment of those agents of production,

the supply of which though alterable in a long period, is fixed in a short period, is technically known as quasi rent.'' Thus it is the excess payment over and above the normal reward. Quasi rent arises due to emerging business activities of the short period.

Measurement of Quasi rent: When demand for machines and other man-made instruments are increased in the short period, they earn extra income. According to Marshal this extra income is the quasi rent. In the long run when Supply of the machine and other man made tool increase along with demand, then there will be no extra income. Hence quasi rent will also disappear.

But the modern economists' measurement of quasi rent is slightly different. According to them, if price is less than minimum short run average variable cost (SAVC), the production will be stopped. Thus rent is the excess of price over this minimum average variable cost.

$\therefore$ Per unit quasi rent = Price – AVC

Total quasi rent = TR – TVC

The concept of quasi rent is further explained with the help of the following diagram. In the diagram, it is considered that a competitive firm exists in the short period. 'E' is the equilibrium point. Where MR=AR and MC cuts AR from below. At 'E' the price is OP and the quantity is OQ. In the short period the firm must get FQ amount of the average variable cost. Since the price is OP= EQ, therefore the firm is getting additional reward i.e. EF= EQ-QF, which is nothing but Quasi rent.

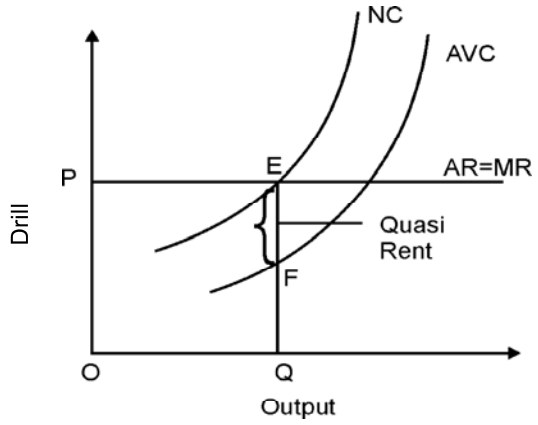


Fig. 8.5 : Measurement of Quasi rent



CHECK YOUR PROGRESS

Q.5: What is meant by transfer earning?(Answer in about 30 words)

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Q.6: What is meant by quasi rent? (Answer in about 30 words)

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Q.7: Distinguish between rent and quasi rent. (Answer in about 30 words)

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Q.8: Why marginal land is called no rent land. (Answer in about 40 words)

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8.5 RENT ELEMENTS IN OTHER FACTORS OF PRODUCTION

Ricardo assumes that rent arises only on land. But according to modern economists rent arises on all factors of production. Rent that arises in case of labour and entrepreneur is called rent of ability. Man made instrument like machine can also earn rent in the short run which is called quasi rent. We can explain both rent of ability and quasi rent with the help of the following example.

We know that rent arises on land because of the fix supply of land. This also happens in case of labour and entrepreneur. The supply of efficient

labour and entrepreneur are also scarce. Therefore they earn extra income in comparison to general labour. This extra income or surplus is known as rent of ability. Suppose in a factory, there are five labours and their wages are 200/- per month except one who gets 400/- per month due to his superior ability. So (400/— 200/-=200/-) is called rent of ability. Similar case may happen in case of an entrepreneur.

Again in case of manmade instrument like machine too, due to their fix supply in the short period, rent arises. This is called quasi rent, according to Marshall. Therefore rent arises in all four factors of production and hence it is said that rent of land is only a 'leading species of a large genus'.

Vilfredo Pareto gave a conceptually different meaning to rent. According to him, rent is an income earned by a factor over and above what it would earn in its next best alternative. For example, suppose a Ph.D. degree holder is working as a lecturer in a college where he earns Rs.75,000 per month. With his degree, his next best alternative employment is that of a researcher in a Research Institute where he is offered Rs.60,000 per month. Thus, as a lecturer he is earning a rent amounting to Rs.15,000 per month. Similar earnings can occur to land, and other factors of production as well.



8.6 LET US SUM UP

- In ordinary scene rent is nothing but the ownership price. For example, rent is paid by the lease holder or the tenant to the land lord or the land owner. It also means hiring charge.
- In economics, rent is used as economic rent. This is a part of contract rent. Actually contract rent is gross rent. Economic rent is that part of payment which is made for the use of land only. It is found out by deducting interest wage, profit, depreciation charges and so on from gross or contract rent.
- An eminent classical economist David Ricardo, in his book, ''Principle of Political Economy and Taxation gave his view on rent. This is

popularly known as Ricardian theory of rent. According to him, Rent is that portion of the produce of the earth, which is paid to the landlord for the use of the original and indestructible powers of the soil.

- According to Ricardo, initially people cultivate the best type of land. When population increases people have to cultivate inferior lands also to fulfil the increased demand for food grains. Thus, according to Ricardo, rent arises due to the excess of production on superior land in comparison to inferior land, i.e differential surplus.
- When more units of labour and capital are used on the same type of land, it is called intensive cultivation. This is explained with the help of the following table. Ricardo assumes the operation of the law of diminishing return in the field of agriculture. Thus the marginal product of various uses of labour and capital diminishes with the increase of their quantity. Here also marginal unit is no rent unit.
- According to Ricardo rent also arises due to the differences in the situations of various types of land. This is called situations rent. Particular type of land is located in the advantageous position in comparisons to others and therefore they will earn rent because locations of land are not uniform.
- Ricardian theory does not explain why rent arises. Actually rent is paid because the produce of land is scarce in relation to the demand for it.
- According to the modern economists, rent is not only limited to land but also applicable to all factors of production. According to them, supply of every factors of production is not perfectly elastic. Because of this reason, they earn extra income which is rent. Therefore rent is the leading species of a large genus.

  Thus, according to modern economists,

Economic rent = present earnings - transfer earnings

- By transfer earnings we mean that minimum payment which is necessary to keep a factor of production in its production. In other words, it is the next best alternative to earnings.
- According to the modern economists, economic rent arises due to the scarcity and specificity of the factors of production.
- The concept of quasi rent was first introduced by Prof. Marshall.

According to him, "quasi-rent is the income derived from machine and other appliances of production made by man."

- The term rent is used to income from land and other free gifts of nature but quasi - rent stands for the whole of the income which some agents of production yield when demand for them has suddenly increased.
- Ricardo assumes that rent arises only on land. But according to modern economists, rent arises on all factors of production. Rent arises in case of labour and entrepreneur is called rent of ability. Man made instrument like machine can also earn rent which is called quasi rent.



8.7 FURTHER READING

1) Siddique, S. A**. (**2002-2003). *Comprehensive Economic.* New Delhi: Laxmi Publications (P) Ltd.
2) Goal, J.P.& Goswami, H. (2008). *An Introduction to Economics*. Dibrugarh: Tushar Publishing House.
3) Goswami, N.G. (2006). *A text book of Higher Secondary Economics*. Guwahati: Jyoti Prakashan.
4) Verma, K.N (2018). *Introductory Micro Economic.* Jalandhar: Vishal Publishing.



8.8 ANSWERS TO CHECK YOUR PROGRESS

Ans to Q. No. 1: Rent is the price paid for the contribution of land and other free gifts of nature in the production of goods.

Ans to Q. No. 2: Contract rent is the rent which includes the investment made by the owner of land and the house, caretaker charges for land and building, earnings for undertaking risks. So, contract rent is gross rent.

Ans to Q. No. 3: Differential rent is the surplus obtained between more fertile and less fertile land.

Ans to Q. No. 4: Scarcity rent is a rent which arises due to scarcity of a factor of production

Ans to Q. No. 5: By transfer earnings, we mean that minimum payment which is necessary to keep a factor of production in its production. In other words, it is the next best alternative to earnings. The other name of transfer earnings is the opportunity cost, supply price etc.

Ans to Q. No. 6: The concept of quasi rent was first introduced by Prof. Marshall. According to him, ''quasi-rent is the income derived from machine and other appliances of production made by man."

Ans to Q. No. 7: Rent is basically related with land, while quasi rent is only related with machines, tools equipments and other man-made use and all other factors of production. Again rent exists both in the short as well as the long period.

Ans to Q. No. 8: Ricardo assumes the operation of the law of diminishing return in the field of agriculture. Thus the marginal product of various uses of labour and capital diminishes with the increase of their quantity. Here also marginal unit is no rent unit. Since in case of marginal land there is no surplus, rent does not arise In marginal land.



8.9 MODEL QUESTIONS

A) Short Questions (Answer each question in about 150 words)

Q.1: Explain the meaning of transfer earning.

Q.2: Write a note on the concept of quasi rent. Distinguish it also from rent.

B) Long Questions (Answer each question in about 300-500 words)

Q.1: Explain three main differences between the modern theory of rent and the Ricardian theory of rent.

Q.2: Explain economic rent, when supply of a factor of production is (a) perfectly elastic and (b) perfectly inelastic.

*** ***** ***

UNIT 9: THEORY OF INTEREST

UNIT STRUCTURE

9.1 Learning Objectives

9.2 Introduction

9.3 Classical Theory of Interest

9.4 Loanable Funds of Theory of Interest

9.5 Liquidity Preference Theory of Interest

9.6 Modern Theory of Interest: Hicks –Hansen Synthesis

9.7 Comparison of Keynesian Theory with Classical Theory and Loanable Funds Theory

9.8 Let us Sum Up

9.9 Further Reading

9.10 Answers to Check Your Progress

9.11 Model Questions

9.1 LEARNING OBJECTIVES

After going through this unit you will be able to-

- know about the classical theory of interest
- explain how interest rate is determined under loanable funds theory
- understand the meaning of liquidity preference
- know whether the Keynesian theory is an improvement over classical theory and loanable funds theory
- describe how rate of interest is determined under Hicks – Hansen synthesis.

9.2 INTRODUCTION

In common parlance, interest is the payment made by a borrower to the lender of money. But in economics, interest is regarded as the payment made for the use of capital. This payment may be used by the lender or capitalist for further production or improvement of technology. From time

to time, economists ranging from Marshal to Austrian school (John Rae and Bohm Bawerk), from Fisher to the Classical Economists, from Keynes to the Neo-Classical Economists, all put forwarded their definitions of interest and the methods for calculating the rate of interest. The views of some of the advocators of rate of interest are discussed below.

9.3 CLASSICAL THEORY OF INTEREST

The classical economists, Marshall and Fisher, propounded the classical theory of interest. Later on, economist like Pigou, Cassel, Knight and Tausig, also contributed to the modification of the theory. They envisaged that the rate of interest determined by the interaction of demand for and supply of capital. While supply of capital is governed by time preference, the demand for capital is governed by the expected productivity of capital. Again, time preference and productivity are dependent on waiting or savings. Hence, this theory is also known as the supply and demand theory of savings.

Assumptions: The key assumptions underlying the classical theory of interest are-

- **Perfect Competition:** The classical economists assumed that the market structure is perfectly competitive. This implies that the rate of interest is determined by the interactive forces of demand and supply. Besides, interest rates are flexible in the sense that any departure from the equilibrium rate will be automatically corrected and equilibrium will be restored.
- **Full Employment of resources:** The classical economists built their theory upon the assumption that there is full employment of resources. They believed that when a person saves, he/she sacrifices or postpones his/her consumption, and interest is the reward for this sacrifice or postponement. They maintained that only under a situation of full employment, people can be paid higher rates of interest to induce them to save more on one hand and abstain themselves from consuming on the other.

- **Rational Economic Agents:** The theory assumes that the economic agents are rational in the sense that they want to maximize their economic benefit.
- **Constant Price:** It is assumed that the price level remains constant. They further assumed that the savers and investors react only to changes in the interest rates and not to any changes in prices.
- **Money is neutral:** The classical economists assumed that the role of money is neutral and acts only as a medium of exchange and do not serve as a store of value.

Demand and Supply of Capital*:* According to the classical economists the equilibrium rate of interest is determined by the interaction of demand and supply.

Demand for capital: The demand for capital comes both from the consumers and the producers. Demand for capital is governed by various factors such as productivity of capital, growth of population, technological progress, changes in standard of living of the people, etc. But for producers the most important factor that influences demand for capital is the productivity of capital. Productivity of capital will vary and diminish with successive units. Suppose an investor borrows capital from bank at the rate of 10 percent. Let us suppose that he first invests Rs.5 lakhs in a factory with the expectation that the return would be at least 20 percent. Once the business takes off, another installment of Rs. 5 lakh is invested. However, this time the investment yields only 15%. Next, before investing another 5 lakh rupees, he estimates and finds that his third batch of investment will yield only 10 percent, the rate at which he has to borrow from the bank. Therefore, there will be no profit and he won't have any incentive to invest. However, if the rate of interest is lowered, he would be interested to borrow and invest. Thus, at lower rate of interest, the demand for capital will be higher and vice versa. Hence demand for capital and rate of interest are inversely related to each other and thereby the demand curve of capital slopes downward from upper left hand corner to lower right hand corner.

Supply of capital: According to the classical economists, the supply of capital depends upon savings, which in turn depends upon the willingness and ability to save of the community. People are induced to save when they are offered a good rate of interest on savings. However, there are exceptions as some people will save even if the rate of interest is zero. But generally, according to classical economists, the people will be inclined to save more if the rate of interest is higher and save less if the rate of interest is lower. Thus, savings and rate of interest are positively related. Therefore, the supply curve of capital will have a positive slope, i.e., it will be upward slopping from lower left hand corner to upper right hand corner.

Determination of Equilibrium Rate of Interest: Assuming the constancy of the level of income of the community, the equilibrium rate of interest is determined by the interaction of the demand and supply curve of capital. This is depicted in the following figure.

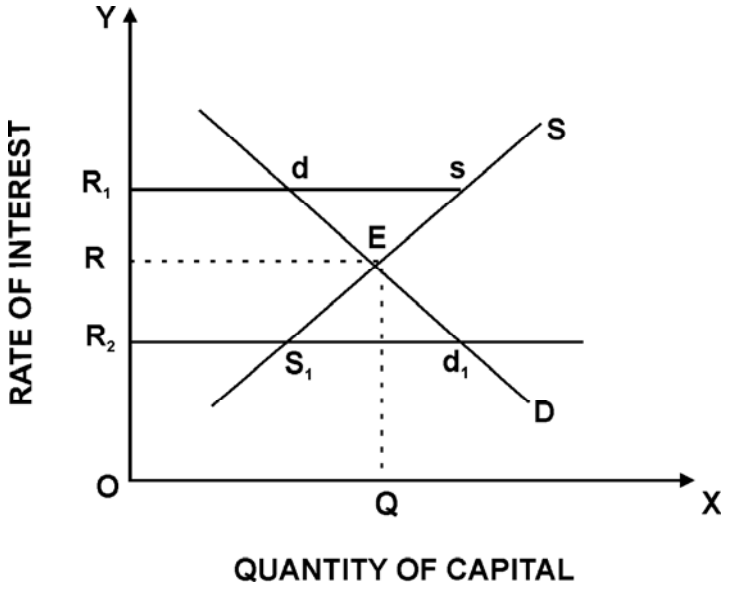


Fig. 9.1 : Determination of Equilibrium Rate of Interest

In the above figure, the quantity of capital is measured in the X-axis and the rate of interest is measured in the Y-axis. DD Is the demand curve for capital and SS is the supply curve of capital. The equilibrium is

at E, where the demand for capital curve and supply of capital curve intersect each other. The equilibrium rate of interest OR and demand and supply of capital are equal to each other at OQ. If for any reason, the rate of interest increases to R_1, the supply of capital will be greater than demand for capital by DS. This will push down the rate of interest to R. Further, if the rate of interest falls to R_2, here the demand for capital is higher than the supply of capital by d_1s_1. Since demand is greater than supply, the rate of interest will move up to R. Thus, R is the equilibrium rate of interest.

Criticisms: Some of the important criticisms of the Classical theory are noted below-

- The classical economists assumed that income of the community remains fixed. But Keynes pointed out that income is a variable factor and do not remain constant and the saving investment equality is brought about by variation in income and not by rate of interest.
- Keynes further maintained that investment has an effect of income. But this factor was ignored by the classical economists.
- Keynes called the classical theory of interest as indeterminate. This is because, savings is a factor of income and hence without knowing the level of income the rate of interest cannot be known. But income level can be known only by already knowing the rate of interest.
- The assumption of full employment is unrealistic. According to Keynes, underemployment is more prevalent than full employment and when resources are unemployed, high interest rate cannot essentially induce to save.
- Monetary factors are very much influential in determining the rate of interest. But the classical economist limited the function of money to only a medium of exchange. But money has a store of value as well. Keynes pointed out that the classical economist ignored this important role of money.

The classical theory was, therefore, dismissed by Keynes as an inadequate, incomplete and inappropriate theory.



CHECK YOUR PROGRESS

Q.1: Who propounded the classical theory of interest?

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Q.2: What governs the supply of capital? (Answer in about 20 words)

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Q.3: What governs the demand for capital? (Answer in about 20 words)

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Q.4: From whom does the demand for capital come? (Answer in about 10 words)

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9.4 LOANABLE FUNDS THEORY OF INTEREST

The loanable funds theory was expounded in the 1930s by Denis Robertson, a British economist and Bertil Ohlin, a Swedish economist. However, Ohlin credited its origin to Johan J. S. Wickshell, a Swedish economist and the so-called Stockholm school, which included economists like Eric Lindahl and Gunnar Myrdal. It was further elaborated by the neo-classical economists like Ohlin, Robertson, Pigou and others. According to this theory the price for credit is the rate of interest and this rate of interest is determined by the demand for and supply of loanable funds. By loanable funds they mean all forms of credit, such as bonds, saving deposits and loans. Thus, unlike the classical economists, who limited the role of money to only savings and investment, the neo-classical economists considered the various forms in which money can be held. In the words of Prof. Learner, "It is the price which equates the supply of 'credit', or saving plus the net

increase in the amount of money in a period, to the demand for 'credit', or investment plus net 'hoarding' in the period."

Demand for Loanable Funds: There are three primary sources that generate the demand for loanable funds. They are government, businessmen and consumers whose demand arises for the purpose of investment, hoarding and consumption. The neo-classical economists believed that the government demands money for carrying out the construction work and to meet war expenses. To them, the businessmen borrowed money from the bank for purchasing capital goods and for starting investment projects. Again, the consumers demanded money for purchasing durable goods. The neo-classical economists maintained that the tendency to borrow is interest elastic, i.e., it is lower at higher rate of interest and higher at lower rate of interest.

Supply for Loanable Funds: The advocates of loanable funds theory believed that supply of funds comes from savings, dishoarding and bank credit. The main sources of savings are private savings, individual savings and corporate savings. Taking the level of income as given, since personal savings depends on the level of income, they are regarded as interest elastic. The higher the rate of interest, the greater will be the inducement to save and vice versa. Corporate savings are the undistributed profits of a firm which also depends on the current rate of interest to some extent. Higher rate of interest will act as a deterrent to borrowing and thus encourage savings. The second source of supply of credit is dishoarding is also positively related to the rate of interest. Higher rates of interest will encourage greater dishoarding and lower rate of interest will encourage lower dishoarding. Lastly, the third source of supply is bank credit. Banks are inclined to lend higher credits at higher rates of interest and vice versa.

The summation of three types of demand will give the demand curve for credit and the summation of three types of supply will give the supply curve of credit. The intersection of the two summed up curves will give the equilibrium rate of interest, as shown in the following figure.

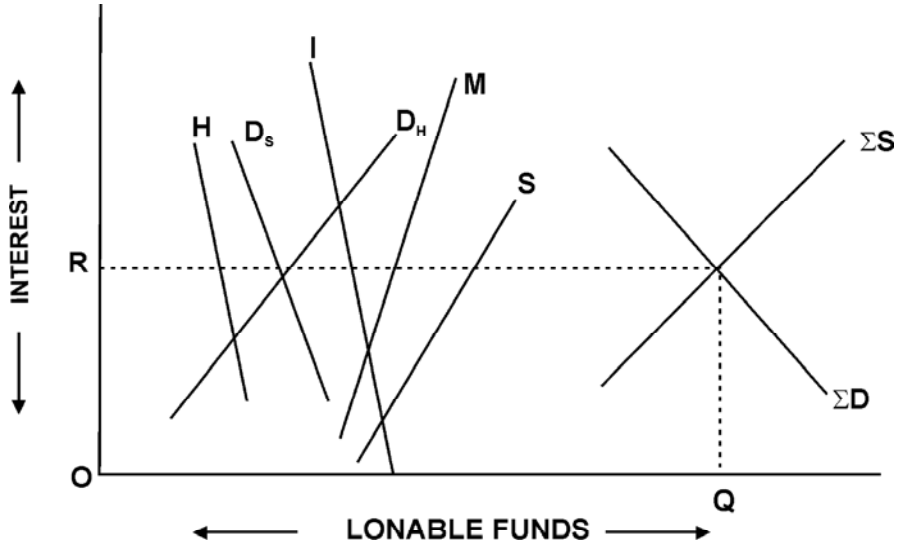


Fig. 9.2 : Determination of Rate of Interest

In the above figure, the individual demand curves H (Hoarding), Ds (Dissaving or Consumption) and I (Investment by government and businessmen) sum up to give the demand curve ΣD. The individual supply curves D_H (Dishoarding), M (Bank Credit) and S (Savings) together sum up and give the supply curve ΣS. The demand curve ΣD and the supply curve ΣS intersect each other at E and generates the interest rate OR where OQ amount of funds are borrowed and lent.

Criticisms: Although Prof. Robertson described it as a "commonsense explanation of the determination of the rate of interest", yet it is not free from criticisms.

- The neo-classical economists considered savings, which is one of the components of the supply schedule, to be a function of present income only. But savings depends not only on present income but is also a function of past income. This fact was ignored by this theory.
- The loanable funds theory states that supply of loanable funds can be varied by varying the cash balances. However, cash balances in a community remains fixed and is equal to the supply of money in the economy. Concept like velocity of circulation of money, which affects the money supply is not taken into consideration by the theory.
- The precautionary motive behind savings is ignored by the theory



and saving is presented only as interest driven.

CHECK YOUR PROGRESS

Q.5: Who propounded the loanable funds theory of interest?

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Q.6: How is the demand for loanable funds generated? (Answer in about 30 words)

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Q.7: From where does the supply of funds come? (Answer in about 20 words)

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9.5 LIQUIDITY PREFERENCE THEORY OF INTEREST

Keynes defines the rate of interest as "the reward for parting with liquidity." Here money is termed as liquid since money can be most easily converted into any types of economic goods and services. To him, rate of interest is determined by the demand for money and supply of money. As such the Keynesian theory of interest is termed as a monetary theory of interest.

DEMAND FOR MONEY

According to Keynes, people demands money for three specific motives: transaction motive, precautionary motive and speculative motive.

The transaction motive implies the need of cash to meet the everyday needs – both personal and business. Thus Keynes further divides it into income motive and business motive. To Keynes, a person prefers to hold cash to bridge the interval between the receipt of income and its disbursement. If this interval is small they will hold less cash and if it is big,

they will demand more cash. To Keynes, the amount of cash demanded by the community for transaction motive depends upon the level of income, employment and prices, the business turnover, the normal period between the receipt and disbursement of income, the amount of salary or income and on the possibility of getting a loan.

The precautionary motive implies that people demand cash to meet unforeseen expenses such as expenditure on medical and treatment. Also, sometimes, advantageous opportunities may crop up which will require money. Thus people want to hold cash as a precaution. In the same way, businessmen desire to keep cash in reserve to tide over unfavorable conditions or to gain from unexpected deals. To Keynes, the precautionary demand for money depends upon the level of income and business activity, opportunities for unexpected profitable deals, availability of cash, the cost of holding liquid assets in bank reserves, etc.

Keynes maintains that transaction and precautionary motives are relatively interest-inelastic, but are highly income elastic. The amount of money held under these two motives (M_1) is a function (L_1) of the level of income (Y) and is expressed as $M_1 = L_1(Y)$.

Money held under **speculative motive** is for "securing profit from knowing better than the market what the future will bring forth." Individuals and businessmen desires to earn profit from the money that remains after spending on transactions and keeping to meet future speculations. The amount of money held under this motive is dependent on the interest rate. To Keynes, people invest in bonds to earn profit. The bond prices and interest rates are inversely related. This again is responsive to speculations. When people speculate bond prices to rise (and interest rates to fall), they purchase bonds with the intension to sell them in the future when their prices rise and thereby gain profit. Conversely, when bond prices are expected to fall (the rate of interest to rise), they will buy less bonds. Thus the speculative demand for money will be less at a higher rate of interest because businessmen will convert their cash into bonds in the expectation of a rise in the price of the latter. On the other

hand, if the interest rate is low, businessmen would prefer to hold more cash and spend in the future. Thus speculative demand for money is responsive to interest rates. Algebraically, the speculative motive is expressed as $M_2=L_2(r)$.

Thus, Keynes summed up the total demand for money as

$M = M_1 + M_2$

where, M_1 = money held for transaction and precautionary motive

M_2 = money held for speculative motive

And, $M = L (Y, r)$

Since, $M_1 = L (Y)$, where L= function, Y = income

M_2= L (r), where r=rate of interest

SUPPLY OF MONEY

The supply of money is considered to be fixed here. It is given by the government. Hence, we have a perfectly inelastic or vertical curve.

DETERMINATION OF RATE INTEREST

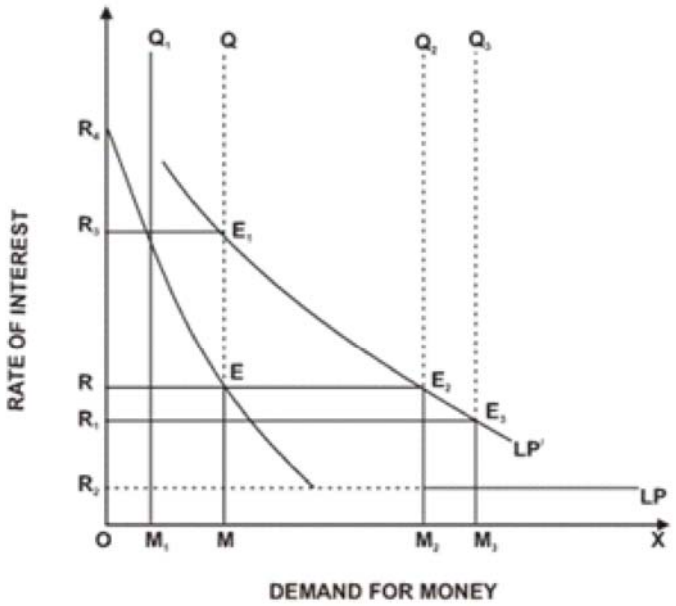


Fig. 9.3 : Determination of Rate of Interest

Just as price of a commodity is determined by demand and supply of the commodity, in the same way the rate of interest is determined at

the equilibrium level where demand for money and supply of money intersect. In the above figure QM is the supply curve which is a perfectly elastic vertical line. The curve LM represents the liquidity preference curve. The equilibrium point is E, where both the lines intersect and the rate of interest is determined at OR. Any deviation from this equilibrium position will lead to an adjustment via the rate of interest. Increase in supply of money by the monetary authority and unchanged liquidity preferences will lead to a fall in the rate of interest and vice versa. On the other hand, an increase in liquidity preference with unchanged supply of money will lead to a rise in rate of interest and vice versa. In the above figure, with the upward shifting of the liquidity preference curve to $LP^{/}$ the quantity of money QM remaining the same, the rate of interest rises to OR_3 at the equilibrium point E_1. If with the increase in the liquidity preference to $LP^{/}$, the quantity of money is also increased in the same proportion to Q_2M_2, there is no change in the rate of interest OR, except that the new equilibrium point is E_2. On the other hand, if the quantity of money increases to Q_3M_3, the rate of interest falls to OR_1 at the equilibrium point E_3.

CRITICISMS

- According to Robertson, Keynes presumes the presence of wealthy and shrewd people and has developed his theory based on them. But Robertson points out that bonds are not alternative for money, and that the present theory lacks realism and comprehensiveness.
- Keynesian theory has not proven true in reality. This is because Keynes advocates a very high rate of interest at the time of depression, but in reality interest rates are very cheap since investment opportunities are temporarily closed and the lenders have no reason to part with liquidity.
- The Keynesian theory is also indeterminate.
- If saving is independent of rate of interest then people will save even at zero rate of interest. This is inconceivable, as pointed out by Pigou.
- There is no empirical evidence to suggest the existence of 'liquidity trap'.

- Keynes makes interest a purely monetary phenomenon. Modern theorists dispute this.



CHECK YOUR PROGRESS

Q.8: Who propounded the liquidity preference theory of interest?

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Q.9: State the three motives for liquidity preference. (Answer in about 10 words)

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Q.10: For which motive do people get interest? (Answer in about 10 words)

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9.6 MODERN THEORY OF INTEREST: HICKS-HANSEN'S SYNTHESIS

A modern theory of interest rate determination was presented by Sir J. R. Hicks and A. H. Hansen. In this theory the different variables of classical theory and Keynesian theory are combined. In other words, interest, saving, investment, liquidity preference and quantity of money are integrated at various levels of income for a synthesis of the loanable funds theory with liquidity preference theory. The four variables of the two theories are combined to frame two curves – the IS curve and the LM curve. The IS curve represents the flow variables of the classical theory – savings and investment and the LM curve represents the stock variables of money and rate of interest of the loanable funds theory. The IS-LM equilibrium provides a determinate rate of interest.

The IS curve and the goods market equilibrium

The IS curve shows the equality of savings (S) and investment (I) at various levels of income (Y) and rate of interest, which brings about an equilibrium in the goods market. The IS curve involves the following goods market relationships:

I = *f*(r) ……. (Investment Function)

S = I……. (Equilibrium condition in real/goods market)

S = *f*(Y)……. (Saving Function)

The derivation of the IS curve is shown in the following figure.

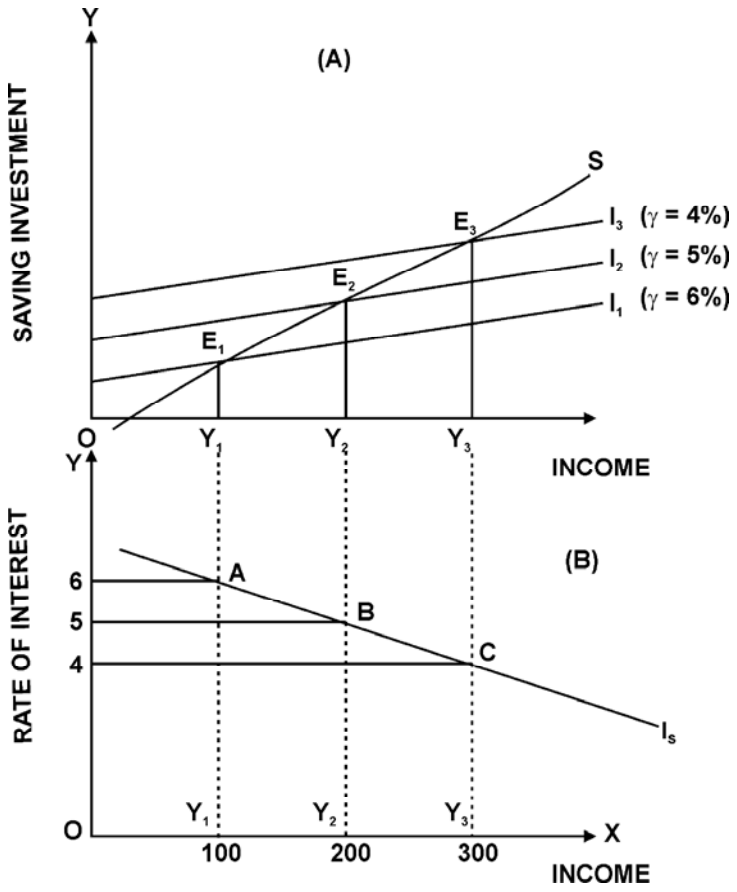


Fig. 9.4 : Derivation of the IS curve

In the above figure 9.4, the saving and investment is measured on the vertical axis and income is measured on the horizontal axis. The saving

curve S is a straight line and is assumed to be not much influenced by the rate of interest. The curve is an upward rising one, depicting a positive saving to be a positive income. Investment, on the other hand is influenced by rate of interest. As the rate of interest rises from 4% to 5% and then to 6%, the investment curve also rises from I_1 to I_2 and then to I_3, respectively. The intersection of investment and savings curve at different points corresponding to a particular rate of interest gives different equilibrium points E_1, E_2 and E_3. The figure shows that at higher level of investment, say I_3, higher income, Y_3, is generated. Thus, as interest rate rises, investment also rises and this increase in investment also increases the income level.

In part 'B' of the above figure, the rate of interest is measured on the vertical axis and income is measured on the horizontal axis. Corresponding to various levels of interest and income, the IS curve is generated. The IS curve slopes downward from left to right because, as the interest rate falls, investment increases and so does income.

The LM curve and the money market equilibrium

The LM curve is derived from the Keynesian formulation of liquidity preference schedules and the schedule of money, which give the money market equilibrium. A family of liquidity preference curves L_1Y_1, L_2Y_2 and L_3Y_3 is drawn at various income levels.

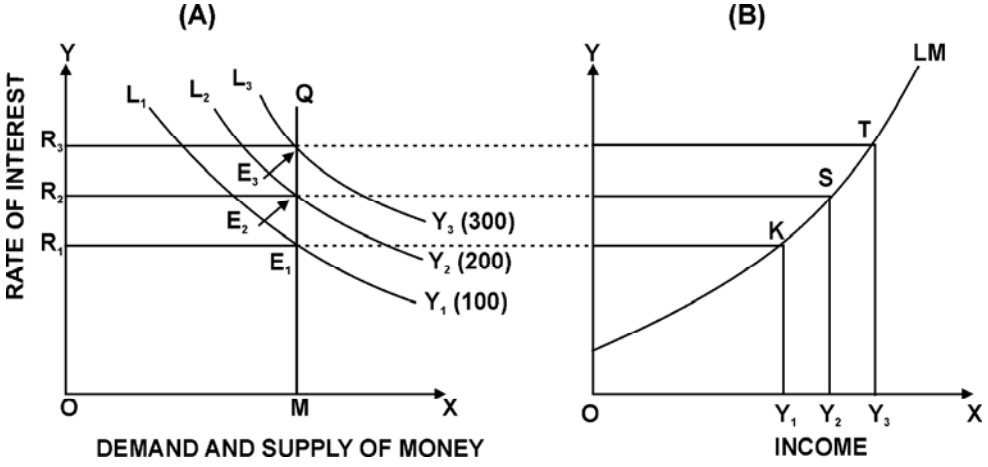


Fig. 9.5 : Determination of LM curve

The three curves, together with the perfectly inelastic money supply curve MQ gives us the LM curve. The LM curve consists of a series of

points, each point representing an interest income level at which the demand for money (L) equals the supply of money (M). Corresponding to income level Y_1, the rate of interest is R_1, which is generated through the interaction of L_1 with the perfectly inelastic money supply curve MQ. Likewise, corresponding to income level Y_2, rate of interest is R_2 and at income level Y_3, rate of interest is R_3. This curve relates different income levels to various interest rates. The points of intersection of L_1, L_2 and L_3 with MQ generate the points K, S and T. By joining the three points we get the LM curve.

Determination of Rate of Interest: The IS curve depicts the various combinations of income and rate of interest at which savings and investment are in equilibrium. And the LM curve depicts the various combinations of interest and income at which demand for money equals supply of money. The intersection of the IS curve and the LM curve gives the equilibrium rate of interest, where the entire economic system can achieve equilibrium. This is shown in the following figure.

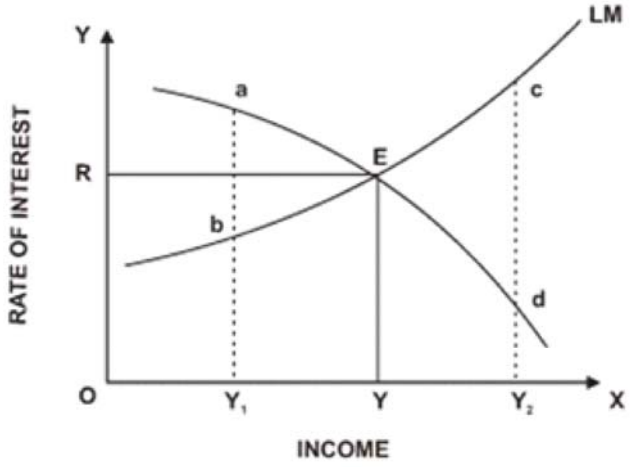


Fig. 9.6 : Determination of Rate of Interest

In the above figure, the IS curve and the LM curve intersect at point E and we get the equilibrium rate of interest OR and the equilibrium income level Y. This equilibrium position is termed as stable equilibrium by Hicks and Hansen because if there is any deviation from this point, the different market forces will act and react in such a way that the equilibrium will be restored.

The shift or change in the IS curve or the LM curve or in both, change in the equilibrium position and the rate of interest is determined accordingly. This is shown in the following figure.

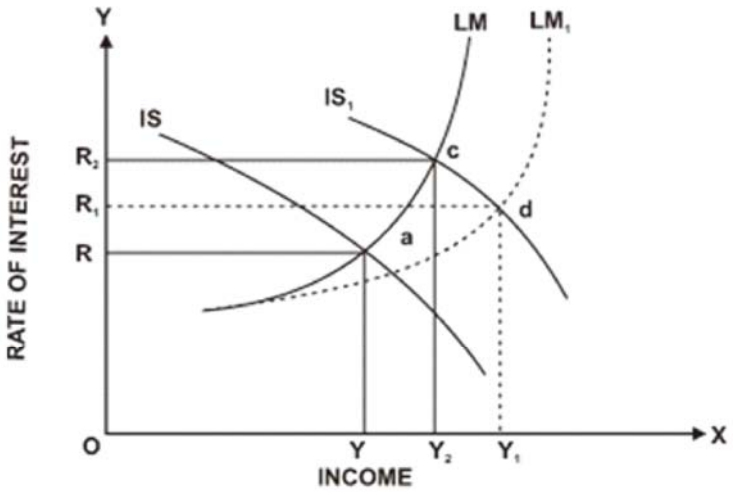


Fig. 9.7 : Shift in the IS curve or the LM curve

In the above figure, the IS and the LM curve intersect each other at point 'a' where the rate of interest is OR and income level is OY. An increase in investment and decrease in savings will shift the IS curve to the right to IS_1. Given the LM curve, the new equilibrium will be at 'c'. Now, the rate of interest will be OR_2 and the new income level will be OY_2. On the other hand, an increase in the supply of money will shift the LM curve to the right, and the new equilibrium rate of interest will be OR_1 with OY_1 level of income. Thus, with a given LM curve, when the IS curve shifts to the right, income increases and along with it the rate of interest also rises. Given the IS curve, when the LM curve shifts to the right, income increases but the rate of interest falls. In other words, the Hicks–Hansen analysis can be termed as a determinate theory of rate of interest since it considers the four major components influencing interest rates – savings, investment, demand for money or liquidity preference and supply of money.



CHECK YOUR PROGRESS

Q.11: Who propounded the modern theory of interest?

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Q.12: What does the IS curve depicts? (Answer in about 20 words)

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9.7 COMPARISON OF KEYNESIAN THEORY WITH CLASSICAL THEORY AND LOANABLE FUNDS THEORY

The Keynesian theory of interest can be said to be an improvement over the classical theory and the loanable funds theory. While the classical economists envisaged that the rate of interest is determined by the interaction of demand and supply for capital, according to loanable funds theory the price for credit is the rate of interest and this rate of interest is determined by the demand for and supply of loanable funds. But these two theories did not specify as for which type of money demand, interest is paid. Keynes pointed out that interest is the reward for parting with liquidity, and people hold money for three motives – transaction motive, precautionary motive and speculative motive. And interest is paid for the money held for speculative motive. Further, he also pointed out that supply of money is fixed and is determined by the monetary authority. This fixed money supply curve concept was ignored by the classical theorist and the advocators of loanable funds theory. The Keynesian theory is also free from the unrealistic full employment assumption.



9.8 LET US SUM UP

- The classical economist, Marshall and Fisher, propounded the classical theory of interest.
- They envisaged that the rate of interest determined by the interaction of demand and supply for capital.
- Supply of capital is governed by time preference.
- The demand for capital is governed by the expected productivity of capital.
- Time preference and productivity are dependent on waiting or savings and hence, this theory is also known as the supply and demand theory of savings.
- The loanable funds theory was expounded in 1930s by Denis Robertson, a British economists and Bertil Ohlin, a Swedish economist.
- There are three primary sources that generate the demand for loanable funds. They are government, businessmen and consumers whose demand arises for the purpose of investment, hoarding and consumption.
- The advocators of loanable funds theory believed that supply of funds comes from savings, dishoarding and bank credit.
- Keynes defines the rate of interest as “the reward for parting with liquidity.”
- According to Keynes, people demands money for three specific motives: transaction motive, precautionary and speculative motive.
- The Hicks –Hansen theory is also known as the IS-LM framework.
- The IS curve shows the equality of savings (S) and investment(I) at various levels of income(Y) and rate of interest, which brings about a equilibrium in the goods market.
- The LM curve is derived from the Keynesian formulation of liquidity preference schedules and the schedule of money, which gives the money market equilibrium.



9.9 FURTHER READING

1) Ahuja, H.L. (2017). *Advanced Economic Theory, Microeconomic Analysis*. New Delhi: S. Chand.

2) Maddala, G.S. and Ellen, Miller. (2004). *Microeconomics:Theory and Applications.* New Delhi:Tata McGraw-Hill.

3) Mukherjee, Sampat. (2009). *Analytical Microeconomics.* New Delhi:New Central Book Agency.



9.10 ANSWERS TO CHECK YOUR PROGRESS

Ans to Q. No. 1: The classical economists, Marshall and Fisher, propounded the classical theory of interest. Later on, economist like Pigou, Cassel, Knight and Tausig, also contributed to the modification of the theory.

Ans to Q. No. 2: According to the classical economists, the supply of capital depends upon governed by savings, which in turn depends upon the willingness and ability to save of the community.

Ans to Q. No. 3: Demand for capital is governed by various factors such as productivity of capital, growth of population, technological progress, changes in standard of living of the people, etc.

Ans to Q. No. 4: The demand for capital comes both from the consumers and the producers.

Ans to Q. No. 5: The loanable funds theory was propounded in 1930s by Denis Robertson, a British economists and Bertil Ohlin, a Swedish economist.

Ans to Q. No. 6: There are three primary sources that generate the demand for loanable funds. They are government, businessmen and consumers whose demand arises for the purpose of investment, hoarding and consumption.

Ans to Q. No. 7: The supply of loanable funds comes from savings, dishoarding and bank credit.

Ans to Q. No. 8: J.M.Keynes propounded the liquidity preference theory of interest.

Ans to Q. No. 9: The three motives of liquidity preference are: transaction motive, precautionary motive and speculative motive.

Ans to Q. No. 10: People get interest for the speculative motive.

Ans to Q. No. 11: The modern theory of interest rate determination was propounded by Sir J.R.Hicks and A.H.Hansen.

Ans to Q. No. 12: The IS curve depicts the equality of savings(S) and investment(I) at various levels of income(Y) and rate of interest, which brings about a equilibrium in the goods market.



9.11 MODEL QUESTIONS

A) Short Questions (Answer each question in about 150 words).

Q.1: Name two classical economists.

Q.2: State the meaning of speculative motive.

Q.3: How does Keynes define interest rate?

Q.4: Briefly explain how interest is determined according to Keynes.

B) Long Questions (Answer each question in about 300-500 words).

Q.1: Critically discuss how interest rate is determined according to the classical theory.

Q.2: Discuss how interest rate is determined under loanable funds theory.

Q.3: Discus the Hicks –Hansen theory of interest.

Q.4: Compare the classical theory and the loanable funds theory with the Keynesian theory of interest.

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UNIT 10: THEORY OF PROFITS

UNIT STRUCTURE

10.1 Learning Objectives

10.2 Introduction

10.3 Profits as a Dynamic Surplus: Clark's Dynamic Theory

10.4 Schumpeter's Innovation Theory of Profits

10.5 Knight's Theory of Profits

10.6 Let Us Sum Up

10.7 Further Reading

10.8 Answers to Check Your Progress

10.9 Model Questions

10.1 LEARNING OBJECTIVES

After going through this unit, you will be able to-

- know the meaning of profit
- understand how profit arises due to dynamic factors
- explain the innovation theory of profit
- Understand the relation between uncertainty and profit.

10.2 INTRODUCTION

Profit is a non contractual income earned by the entrepreneurs. In this sense, profit appears as a residue of sales revenue after other contractual costs such as wage, interest, and rent are deducted from it. From time to time there has been conflicting views about the term 'profit' and therefore Taussig considered it as a mixed and vexed income. Some have opined that entrepreneurs earn profits for organizing and coordinating the other factors of production. Some others think that the entrepreneur earns profits because he bears risk and uncertainty. Some have declared profits as a reward for innovations while some have emphasized uncertainty in the economy as a factor which gives rise to profits. So this unit tries to highlight some theories in which the economists focus their viewpoints regarding the concept of profits.

10.3 PROFITS AS A DYNAMICS SURPLUS: CLARK'S DYNAMIC THEORY

The dynamic theory of profits was propounded by J B Clark, who believed that profits are a dynamic surplus, i.e. profits arise in the dynamic economy not in the static economy. According to him, the entrepreneur must get some surplus over and above the cost as he has to operate his enterprise in highly risky, uncertain and dynamic conditions.

Clark believed that those entrepreneurs who successfully take the advantage of the changes that takes place in dynamic economy make pure profit, which is an addition to the normal profit. In his opinion the major dynamic changes in the economy which give rise to profits are-

- Changes in population
- Changes in capital stock
- Changes in methods or techniques of production
- Changes in quality and quantity of human wants
- Changes in business organization

The dynamic changes, on one hand, tend to increase productivity and on the other hand, lower costs. Thus a surplus of price over average cost is formed.

Clark opined that pure profit is momentary. In the long run the competitors imitate the changes initiated by the leading firms. Consequently the demand for the factors of production increases, thereby increasing the factor prices and the overall cost of production. On the other hand, with an increase in the output, the price of a product declines for a given level of demand as a result of which the pure profit disappears.

It is here worth mentioning that Clark's dynamic theory of profit should not be misinterpreted as the profits in the dynamic economy remains for a short period of time and then disappears forever. But, however, generic changes take place frequently, and the entrepreneur through his foresight must capitalize on it and continue to make a profit in excess of the normal profit. So emergence, disappearance and re-emergence of profit is a continuous process.

Thus, we have seen above that profit is a reward for inventing products and techniques of production and for managing the functions of entrepreneurs under dynamic conditions. Profit is recognition of dynamic entrepreneurs under dynamic conditions.

Criticisms: Knight asserted that the continuous change taking place in the economy creates uncertainty in the system. Profits, therefore, is essentially a reward of facing uncertainty. Clark's theory has also been criticized on the ground that it is not possible to have exact measurement of dynamic and continuous change taking place in the economy. It is difficult to provide explanation why the firms receive larger or smaller amount of profits at the same time.



CHECK YOUR PROGRESS

Q.1: Distinguish between dynamic economy and static economy. (Answer in about 50 words)

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Q.2: State the major changes in the economy, as stated by Clark, which lead to rise in profits. (Answer in about 50 words)

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10.4 SCHUMPETER'S INNOVATION THEORY OF PROFITS

According to Schumpeter, the principal function of the entrepreneur is to make innovations and profits are a reward for performing this important

function. Schumpeter used the term innovation in a wider sense. Innovation simply means the commercial exploitation of technical inventions and new ideas related to business organization, management and marketing. He opined that discovery of a new material or a new technique of production resulting in the lowering of the cost of production or improving the quality of the product is an innovation.

Innovations may be of two types:

- Those which change the production function and reduce the cost of production, and
- Those innovations which stimulate the demand for the product, i.e. which change the demand or utility function.

In the first type are included the introduction of new machinery, improved production techniques or processes, exploitation of a new source of raw material or a new and better organizational pattern for the firm. The second type of innovations are those which are calculated to increase the demand for the product by introducing a new product or a new variety of an old product, new and more effective mode of advertisement, discovery of new markets, etc. Success of any of these innovations brings a handsome increase in profits.

The technical innovations can speed up the process of production and economic costs. Thus the entrepreneur finds opportunity to make large profits. Hence profits, according to Schumpeter, are the reward for making innovations.

It may be pointed out that this theory suggests that profits are temporary. Initially, a few more enterprising producers introduce innovations and reap large profits. This induces other firms to enter the market and imitate the innovations. The intensified competition causes the reduction and elimination of profits due to price reduction and consequent slump in the market. After sometime, the pioneering entrepreneurs again make some innovations and start getting profits. In this way, the innovation theory explains that profits appear, disappear and reappear in the economy.

Criticisms: Schumpeter's innovation theory can be criticized on the same ground as Clark's dynamic theory-

- Schumpeter also like Clark ignores uncertainty as a source of profit.
- He also denies that risk-bearing plays any role in the determination of profit.

10.5 KNIGHT'S THEORY OF PROFITS

Frank Knight in his book 'Risk, Uncertainty and Profit' (1921) considered profit as a residual return to uncertainty bearing, not to risk bearing, as in the case of the theory of Hawley. According to him, "It is not dynamic change, or any change as such which causes profits, but divergence of actual conditions from those which have been expected and on the basis of which business arrangements have been made".

Knight segregated risk into two types:-

- **Insurable Risk:** There are certain risks whose probability of occurrence can be statistically estimated on the basis of available data. Examples of these types of risks are loss of property due to fire, floods, theft, accidents, riots, war and the like. Such risks can be offset through insurance. It signifies that the insurable risks are actually not borne by the entrepreneurs, rather borne by insurance companies.
- **Non-insurable Risk:** These are certain risks in which the probability of its occurrence is non-calculable, such as change in tastes and fashion, variation in market prices of materials or finished products, certain elements of production cost that cannot be accurately calculated. Hence, these are not insurable. The incalculable risks are represented by 'uncertainty'. The entrepreneur has to take decisions in this region of uncertainty. He earns profit if he takes right decisions.

  The uncertainty arises essentially because of the following reasons-

  - **Competition:** The forces of competition always tend to create much uncertainty in the market. The competition sometimes leads to the elimination of certain firms. That results in very uncertain conditions in the market. The rival firms cannot exactly

anticipate the reactions of one another to price or output variations. The intensity of competition too cannot be anticipated accurately by the business firms.

- **Market conditions:** There may be unexpected variations in demand because of changes in tastes, fashions, population and income distribution. Similarly, there may be unintended changes in supply. These market forces cause unanticipated changes in prices of raw materials or finished products and consequent conditions of uncertainty.
- **Business cycle:** The business cycles are also responsible for continuous variations in production activities. These variations do not permit the exact anticipation of the level of economic activity in future.
- **Technical change:** The introduction of new machinery, equipment, raw materials and production processes greatly influence costs, output, prices and profits. But the character of technical changes and their impact upon the working of the business firms remain highly uncertain.
- **Political and international factors:** The political environments, state of war or peace, political stability, economic policies and conditions related to international trade and foreign capital also create a lot of uncertainty in the economic system and it is not possible to quantify with exactness the extent of uncertainty.

If the changes were foreseen and predictable or if there were no changes, there would have been no uncertainty about the future and no profits. Profits crop up because of uncertainty of future. If the future conditions could be completely foreknown in the present, then people would certainly adjust things to the ideal state where all prices would equal costs and profits would not emerge. Ignorance about the future and uncertainty of it gives rise to profits.

We thus observe that entrepreneurs have to carry out the work of production under a situation of uncertainty. They have to make estimates

of the future conditions regarding demand for the product and other factors that affect price and costs in advance. On the basis of their estimates and anticipations, they make contract with the suppliers of factors of production in advance at fixed rates of remuneration.

Knight believes that there is a proportional relation between profit and uncertainty. The greater the uncertainty, the more profits must be ensured to the entrepreneurs, otherwise they cannot be induced to set up new enterprises and vice-versa.

In the opinion of Knight, uncertainty is unavoidable. Each industry and firm has to live with it. It can influence production in almost the same way as other factors of production do. Therefore, Knight maintains that uncertainty should be treated as a separate factor, the remuneration for which is paid in the form of profits.

Criticisms: Knight's theory has been criticized for the lack of scientific precision. Uncertainty is not an easy phenomenon. Uncertainty cannot be considered as the solitary cause of profit. The practical situations don't certify Knight's theory. If uncertainty brings profit and higher uncertainty brings more profit. The real life situations don't always conform to this theory.



CHECK YOUR PROGRESS

Q.3: What is meant by Innovation? (Answer in about 20 words)

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Q.4: What is meant by Insurable and Non-Insurable risk? (Answer in about 50 words)

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10.6 LET US SUM UP

- The dynamic theory of profits was propounded by J B Clark.
- According to Clark, the entrepreneur must get some surplus over and above the cost as he has to operate his enterprise in highly risky, uncertain and dynamic conditions.
- The innovation theory of profit was developed by Joseph A Schumpeter.
- It has been held by Schumpeter that the main function of the entrepreneur is to introduce innovations in the economy and profits are reward for his performing this function.
- Knight is of the view that unpredictable, unforeseen changes and uncertainty about the future give rise to profits.



10.7 FURTHER READING

1) Ahuja, H.L. (2017). *Advanced Economic Theory, Microeconomic Analysis*. New Delhi: S. Chand.

2) Koutsoyiannis, A. (1979). *Modern Microeconomics*. London: Macmillan Education Limited.

3) Madala, G.S. and Miller, Ellen. (2018). *Microeconomics Theory and Applications*. McGraw Hill Education (India) Pvt. Ltd.



10.8 ANSWERS TO CHECK YOUR PROGRESS

Ans to Q. No. 1: The static economy is one in which things do not change significantly or remain unchanged. For example, population and capital etc. remain stationary. Dynamic economy is characterized by the generic changes such an increase in population, improvement in production techniques, etc.

Ans to Q. No. 2: In the opinion of Clark, the major dynamic changes in the economy which give rise to profits are-

- Changes in population
- Changes in capital stock
- Changes in methods or techniques of production
- Changes in quality and quantity of human wants
- Changes in business organization

Ans to Q. No. 3: Innovation means the commercial exploitation of technical inventions and new ideas related to business organization, management and marketing.

Ans to Q. No. 4: Insurable risks are certain risks whose probability of occurrence can be statistically estimated on the basis of available data. Examples of these types of risks are loss of property due to fire, floods, theft, accidents, riots, war and the like.

Non-Insurable risks are certain risks in which the probability of its occurrence is non-calculable, such as change in tastes and fashion, variation in market prices of materials or finished products, certain elements of production cost that cannot be accurately calculated.



10.9 MODEL QUESTIONS

A) Short Questions (Answer each question in about 150 words)

Q.1: What are the essentials of Knight's uncertainty theory of profit?

Q.2: How do innovations result in the emergence of profits?

Q.3: What causes uncertainty in the economy?

B) Long Questions (Answer each question in about 300-500 words)

Q.1: Profits are a dynamic surplus. Discuss.

Q.2: Explain the Schumpeter's innovation theory of profits.

Q.3: Profits are a reward of uncertainty bearing. Discuss.

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UNIT 11: ECONOMICS OF INSURANCE

UNIT STRUCTURE

11.1 Learning Objectives

11.2 Introduction

11.3 Measuring risk: Probability, Expected Value and Variability

11.4 Attitude Towards Risk and Expected Utility Hypothesis

11.5 Risk Aversion and Insurance

11.6 Risk Lover and Gambling

11.7 Choice between Insurance and Gambling: Friedman Savage Hypothesis.

11.8 Measures for Risk Reduction

11.9 Problems of Insurance

11.10 Risk Pooling and Spreading

11.11 Let Us Sum Up

11.12 Further Reading

11.13 Answers to Check Your Progress

11.14 Model Questions

11.1 LEARNING OBJECTIVES

After going through this unit, you will be able to-

- know the different behaviours of people towards risk
- understand why people prefer to invest in insurance
- learn about different methods of risk reduction
- learn about how people make choices between gamble and insurance.

11.2 INTRODUCTION

In the theory of consumer behaviour, we normally assume that consumer's decisions do not face any uncertainty. However, in the real world, uncertainty is a fact of life and therefore risk is inevitable in case of any economic transactions. Here it is important to point out the difference between 'risk' and 'uncertainty'. Risk signifies a situation when the probability of each

possible outcome of an event can be specified. Consumer's decision-making involving risk requires that the individual is aware of all the possible outcomes and also the probabilities of each outcome. For example, in tossing of a coin, there are two possible outcomes and if one individual chooses Head, his possibility of winning or losing is equal to ½. On the other hand, uncertainty signifies a situation when probability of the possible outcomes of an event is unknown or there is no past information on the basis of which the chance of occurring of an outcome can be estimated. Different people have different attitude towards risky and uncertain situations which affect their choices. In real life, most of the people try to avoid risk and are called **risk averters**. They have incentives to buy insurances and pay premiums to avoid risky situations. There are some other individuals who have preference towards risk and are called **risk lovers**. Some individuals are indifferent in their choice towards risky situations and they are called **risk neutral** individuals.

11.3 MEASURING RISK: PROBABILITY, EXPECTED VALUE AND VARIABILITY

Probability is the possibility that a particular outcome will occur in a given experiment. It can be calculated by dividing favourable number of events (i.e. the total number of times the event occurred) by the total number of events of the experiment. For instance, when we throw a dice, the probability of getting a six is 1/6 and the probability of not getting a six is 5/6. Probabilities have two different concepts: **subjective probability** and **objective probability**. The interpretation of objective probability is dependent on long run experiences of the frequency of occurrence of an event. Suppose in an experiment, 25 is the number of success and the rest 75 is the number of failures. Thus, probability of success is ¼ and probability of failure is 3/4. Both these probabilities are calculated using past experiences. In cases where there are no past experiences, we use the concept of subjective probability which is not based on any long-term frequencies of occurrence of an event. Rather subjective probability depends on people's perception or judgement regarding the happening of an outcome. In case of subjective probability, people's judgement may vary in between different

outcomes which may result in variation in assigning probabilities by different individuals. Thus, choice of persons may also be different. These two concepts of probability help to make comparison among different risky and uncertain situations in order to make choices among them.

All the possible outcomes of an event and their probability of occurrence are known as **probability distribution**. The probability distribution of an uncertain event allows in measuring two important values, which are necessary for making choices under risky and uncertain situations: (i) **expected value** and (ii) **variability**.

The **expected value** of a probability distribution is the weighted average of all the possible outcomes and the probabilities of each outcome being the weights. If there are two possible outcomes X_1 and X_2 of any experiment with respective probabilities P_1 and P_2, then expected value is calculated as

$E(X)= P_1X_1+P_2X_2$

For instance, in a game of tossing of a coin between two players, the first player receives Rs.80 if a head turns up and has to pay Rs. 40 if it is a tail, the expected return of this game is

E(return) = 0.5 x Rs. 80+0.5 x Rs.(-40) = Rs. (40-20) = Rs.20

The **variability** of outcomes of an event is the extent to which the possible outcomes deviate from the actual values. The simplest measure of variability is calculating the difference of each outcome from their expected value. This difference is called **deviation**. Greater the deviation, greater is the risk involved in that situation. See the example in table 11.1

Table 11.1: Expected value and variability from two different experiments

	Outcome 1			Outcome 2			Expected Value
	Probability	Value	Deviation	Probability	Value	Deviation	
Experiment 1	0.5	1000	-250	0.5	1500	250	1250
Experiment 2	0.2	500	-1200	0.8	2000	300	1700

The deviation does not really serve the purpose as a measure of variability because they are sometimes positive and sometimes negative and if we calculate the average or expected value of deviations of all the

possible outcome of an event, the value will be always zero. For instance, in the experiment 1, average value of deviation is 0.5 x (-250) + 0.5 x (250)=-125+125=0.

The most widely used measure of variation is the standard deviation which is the square root of average of squared deviations of each outcome from their expected values. The calculation of standard deviation for our example cited in table 11.1 is given in table 11.2.

Table 11.2: Calculation of standard deviation

	Outcome 1		Outcome 2		Average squared deviation	Standard deviation
	Deviation	Squared Deviation	Deviation	Squared Deviation		
Experiment 1	-250	62500	250	62500	0.5x62500+0.5x62500 = 62500	250
Experiment 2	-1200	1440000	300	90000	0.2x1440000+0.8x90000 = 3,60000	600

The standard deviations of the two experiments show that the second experiment has more variability and therefore it is riskier. This concept of standard deviation is equally applicable if there are lot of probable outcomes of an experiment rather than just two as shown in the above example.



CHECK YOUR PROGRESS

Q.1: What is probability? (Answer in about 20 words)

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Q.2: What is the difference between objective and subjective probability? (Answer in about 30 words)

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Q.3: Briefly discuss the concepts of risk and uncertainty. (Answer in about 40 words)

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11.4 ATTITUDE TOWARDS RISK AND EXPECTED UTILITY HYPOTHESIS

A person's attitude towards risk is normally based on his preferences for fair gamble. A fair gamble is a type of gamble where the monetary return of the gamble is equal to the cost of playing the gamble. For example, when a coin is tossed, a player wins Rs. 1000 if a 'head' comes and lose Rs. 1000 if a 'tail' occurs. These two possible outcomes have equal possibility of occurrence i.e. probability of winning Rs.1000 or losing Rs.1000 are equal and the value of probability is ½. The expected return is ½ x 1000+1/2 x (-1000) = 500 +(-500) =0. This is the example of a fair gamble, where expected monetary value or return from a gamble is zero. We can distinguish between three different types of people based on their attitude towards risk by their acceptance or rejection to accept a fair gamble.

- A person who does not accept a fair gamble is called a risk averse.
- An individual is said to be risk neutral if he is indifferent between accepting and rejecting a fair gamble.
- If a person willingly undertakes a fair gamble, then he is called a risk lover.

According to expected utility hypothesis, any individual with rational behaviour will undertake their decision in risky and uncertain situations not on the basis of expected monetary value but depending on his expected utility from the additional money earned. As individual acquires more and more money, its marginal utility diminishes. The expected utility hypothesis was first put forward by Daniel Bernoulli. He observed different reactions from different individuals towards a same gamble. However, Bernoulli assumed utility to be measured cardinally which was one of the major points of limitation of his theory. J Von Neumann and O Morgenstern adopted a

new approach of constructing utility index which is known as N-M utility index. This N-M utility index can be used for assigning numerical values to the utility earned as his stock of money gets increased and this can be used for making rational choice under conditions of risk and uncertainty. Based on the expected utility theory, we can draw the utility functions of risk averse, risk loving, and risk neutral individuals as shown in figure 11.1, 11.2 and 11.3.

Consider a game where a coin is tossed, and players are paid Rs. 100 if a 'head' occurs and Rs. 100 is taken away from him, if a tail occurs, both the two outcomes having probabilities ½. This is a fair gamble because expected monetary value of the gamble is zero[100x1/2+(-100) x1/2=0]. Suppose an individual having income of Rs. 500 is offered this gamble. The initial utility without any uncertainty is U(Rs.500), if he does not accept the gamble. If he plays the gamble, the individual will get either Rs. 600, if he wins or Rs. 400 if he loses. Therefore, the expected utility is

EU=1/2 U(Rs.600) + ½ U(Rs.400)

The expected utility is the weighted average of utility from money income obtained from different outcomes, weights being the respective probabilities. In our example, if expected utility (EU) is smaller than U (Rs. 500), the individual will not accept the gamble, and this is the case of a risk averse person. The utility function of the risk averter is concave as depicted in figure 11.1 where marginal utility of the individual decreases along with the increase in his money income.

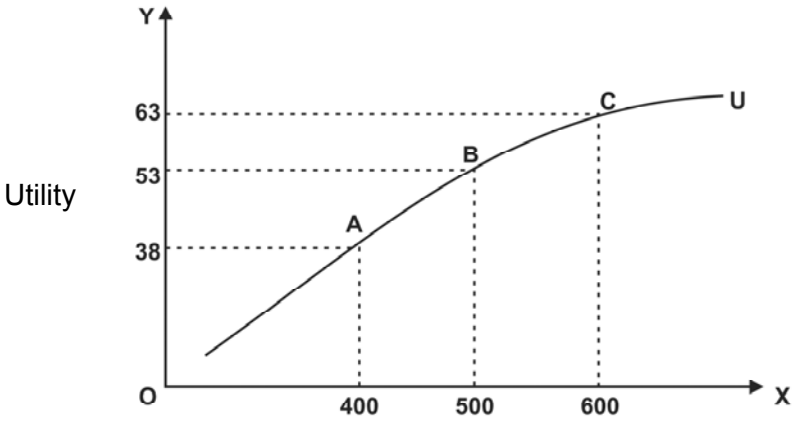


Fig. 11.1: Utility function of a risk averse individual

In figure 11.1, Utility from certain income of Rs.500 is

U (Rs 500) = 53

Expected utility from the gamble is

$EU = \frac{1}{2} U (Rs.600) + \frac{1}{2} U (Rs\ 400)$

$= \frac{1}{2} \times 62 + \frac{1}{2} \times 38$

= 31+19

= 50

As the expected utility from the risky gamble is less than the utility from certain income, the risk averse person will not accept this fair gamble. Now consider the case of a risk lover. In this case, marginal utility of money income increases as the individual earns more money and therefore his utility function is convex as shown in figure 11.2.

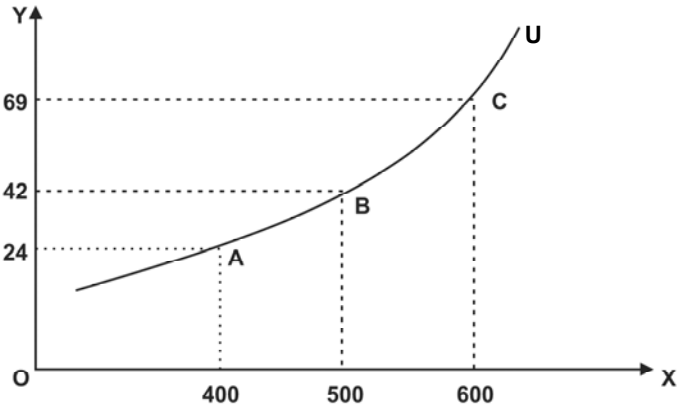


Fig. 11.2: Utility function of a risk lover individual

It can be seen from figure 11.2 that utility from certain income of Rs. 500 is

U(Rs.500) = 42

Expected utility from the gamble is

$EU = \frac{1}{2} U(Rs.400) + \frac{1}{2} U(Rs.600)$

$= \frac{1}{2} \times 27 + \frac{1}{2} \times 69$

= 13.5+34.5

= 48

Since the gamble or the uncertain situation offers more expected utility than the utility from the certain income of Rs. 500, the risk lover will

get indulged in this fair gamble. Now we take the case of a risk neutral individual. In case of a risk neutral person, the marginal utility of money remains constant. The total utility function of a risk neutral person is shown in figure 11.3

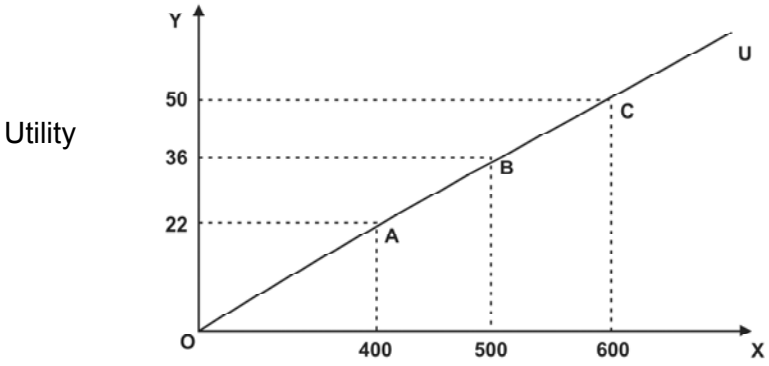


Fig. 11.3: Utility function of a risk neutral individual

Here utility from the certain income of Rs. 500 is

U(Rs.500) = 36

Expected utility from the risky gamble is

$EU = \frac{1}{2} U(Rs.600) + \frac{1}{2} U(Rs.400)$

$= \frac{1}{2} x\ 50+1/2x22$

= 25+11

= 36

It can be seen that in case of risk neutral person, the utility from a certain income is equal to expected utility of an uncertain income having the same expected value. Therefore, the risk neutral individual is indifferent between these two choices.

11.5 RISK AVERSION AND INSURANCE

Out of the three attitudes towards risk, risk aversion is the most common. Risk averse behaviour leads to willingness of individuals to pay for risk avoidance. In real life, most people buy different varieties of insurances like life insurance, health insurance, car insurance etc., indicating the fact that most people are risk averse. The important question that arises here is that how much money an individual is ready to pay as insurance premium or risk premium. The risk premium is the highest amount which a

risk averter is willing to pay in order to avoid a risky situation. To determine the risk premium, let us re-consider the utility function of a risk averter of figure 11.1.In our example of the fair gamble of tossing of a coin, the individual gets Rs. 600 if a head occurs and gets Rs. 400 if a tail occurs, each of these situations having equal chance of occurring. Thus, his expected income from these two risky situations is Rs 500.

Expected income = 600x1/2 +400x ½

= 300+200

= 500

This expected income is the weighted average of the two uncertain situations, weights being their respective probabilities. If probabilities of the uncertain alternatives differ, the expected income will also change. Again, this expected income of Rs. 500 is not an actual income (return) the player will get, he will either get Rs. 600 if he wins the gamble or Rs.400 if he loses.

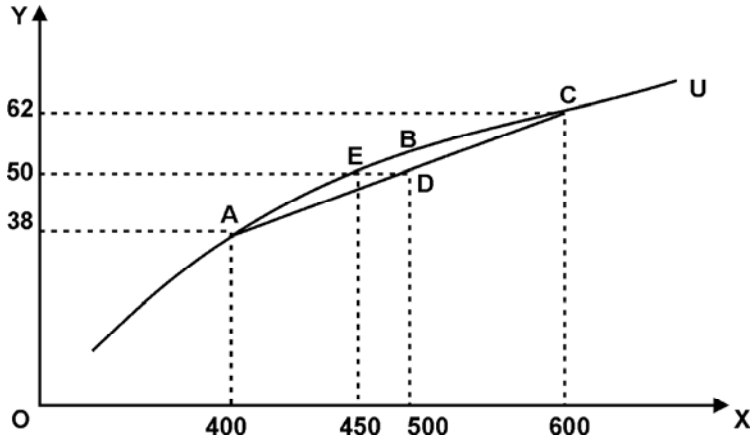


Fig. 11.4: Risk averter's preference for insurance

In figure 11.4, the expected utility of the individual in this risky situation is 50

Expected utility = ½ U (Rs. 600) + ½ U (Rs. 400)

= ½ x 62 + ½ x 38

= 31+19

= 50

In figure 11.4. we have drawn a straight line joining the points A and C representing utilities from the two uncertain alternatives of the gamble.

The expected utility 50 corresponding to the expected income of Rs. 500 is represented by point D on this line AC. From the concave utility function of the risk averter, it is seen that this expected utility 50 is equal to the utility obtained from a certain income of Rs. 460. This analysis has shown that the utility of an uncertain income of Rs 500 is same as the utility obtained from a certain income of Rs. 460. Therefore, the individual will be ready to forego Rs 40 or ED amount in figure 11.4 in order to get the assurance of a certain income of Rs. 460. Rs. 40 or ED is the amount of risk or insurance premium which the individual will pay to avoid this risky situation and get a certain income of Rs 460(Rs 500-Rs 40).

11.6 RISK LOVER AND GAMBLING

As explained already, a risk lover person accepts a fair gamble where expected monetary value or return from the gamble is always zero. For a risk loving person, the marginal utility of money increases as his money income increases and due to this, he has a convex utility curve. Consider the example where a person with a certain income of Rs. 500 is offered a fair gamble where he gains or lose Rs 100 with 50-50 chances. This means he will get Rs. 600 if he wins with probability ½ and will get Rs. 400 if he loses with the same probability. The expected monetary value of the gamble is 500.

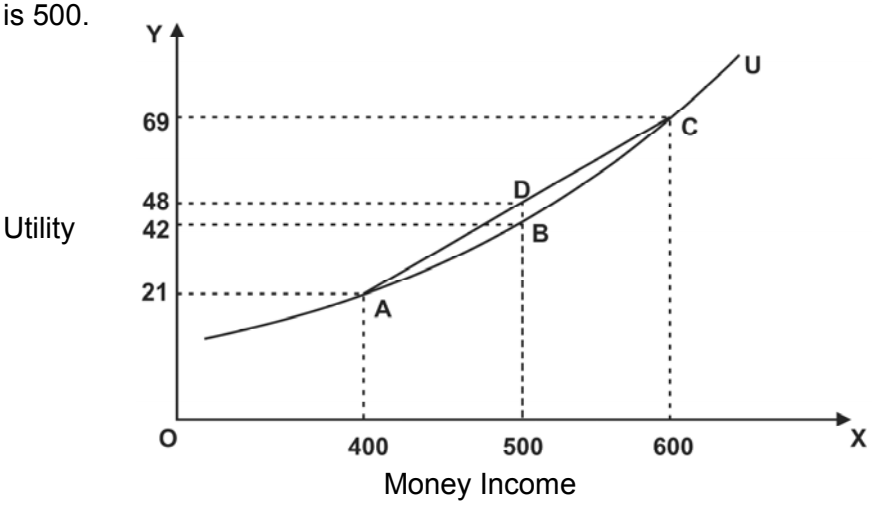


Fig. 11.5 Risk lover's preference for gambling

In figure 11.5, the convex utility curve of the risk lover is drawn. The utility from certain income of Rs 500 is 42. The expected utility from the

gamble can be calculated by joining the two points A and C on the utility curve representing utility from the two uncertain alternative outcomes of the gamble. On this line we have the point D which represents the expected utility form the expected monetary value of the gamble. Figure 11.5 shows that the expected utility from the expected income of Rs 500 or from the gamble is 48 and is greater than the utility obtained from the certain income. As the expected utility from the fair gamble is higher than the utility from the fixed income of Rs. 500, the risk loving person will be ready to accept this fair bet.



CHECK YOUR PROGRESS

Q.4: What is a fair gamble? (Answer in about 20 words)

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Q.5: State the expected utility hypothesis.(Answer in about 30 words)

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Q.6: What are the different attitudes of people towards risk? (Answer in about 40 words)

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11.7 CHOICE BETWEEN INSURNACE AND GAMBLING: FRIEDMAN-SAVAGE HYPOTHESIS

There are instances when it is seen that the risk loving and risk averse behaviour are present within the same individual. They buy insurance policies to secure risky situations and also get engaged in gambling. These are two completely contrasting behaviour which cannot be explained with

Bernoulli's hypothesis. Individual's choice between insurance and gambling depends on the type of insurance, the volume of premium and also on the type of gambling. Milton Friedman and L.J Savage, in their hypothesis provided answer to the question as to why the same person engage in gamble and buy insurance policies at the same time or why risk averse or risk loving behaviour are found in the same individual. The Friedman-Savage hypothesis is explained using figure 11.6.

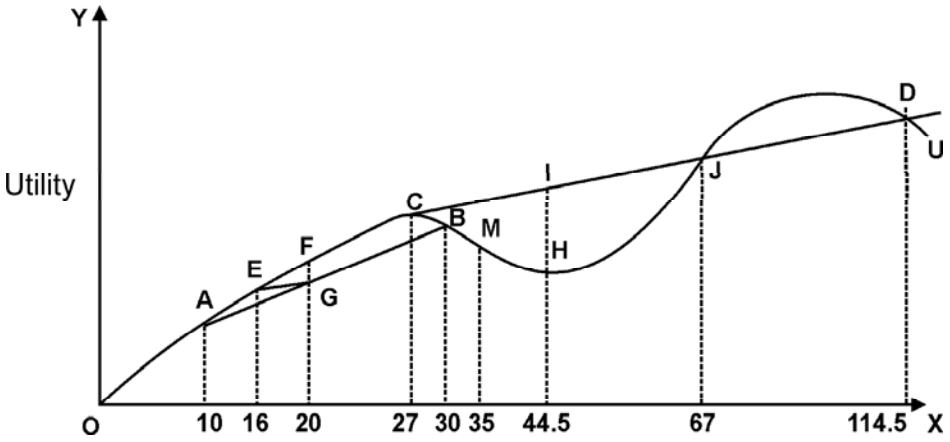


Fig. 11.6: Friedman-Savage Hypothesis

In the figure 11.6, the utility curve of the consumer has both convex and concave parts. The curve is concave up to point M, thereafter it becomes convex till point J and again turns concave when income increases beyond point J. This indicates that at lower level of money income, the consumer behaves like a risk averter, thereafter when his income reaches a particular level, he behaves as a risk lover and further increase in the level of money income again changes his attitude towards risk and he becomes a risk averter again.Thus, we have seen that with the changes in the income level, the attitude of the individual towards risk also changes. This implies that a same individual buys insurance policy and get engaged in gambling at different levels of money income earned by him. To show Friedman Savage's explanation of such behaviour of individuals, assume that a person has an income level of Rs 30,000 which he fears may get decreased to Rs 10,000 with 50% probability. The expected value of income is:

$$E(X) = 30000 \times \frac{1}{2} + 10000 \times \frac{1}{2}$$

$$= 15000+5000$$

$$= 20000.$$

In Figure 11.6, we observe that utility from income Rs. 20,000 is KF. The expected utility from the expected income of Rs. 20,000 is KG which is less than the utility KF of the certain income Rs 20,000. In order to avoid the risk, the consumer will pay EG or Rs. 4000 as insurance premium to attain a certain income of Rs. 16,000, utility from which is same as the expected utility from the expected income of Rs. 20,000.

Now suppose the same person with the income of Rs 30,000 is offered a gamble where he can increase his income up to Rs 1,14,500 if he wins with probability of 0.2 or may lose Rs 3,000 reducing his income to Rs 27,000 with probability 0.8. The expected monetary value of the gamble is E(X)=114500x0.2+27000x0.8=22900+21600=44500. As seen from the figure 11.6, the expected utility from the income level of Rs 44500 is IL which is more than the utility HL from the certain income Rs 44500. Therefore, the person will accept this gamble. At income levels higher than Rs 67000, the consumer's behaviour towards risk again changes and he becomes a risk averse again, which is shown by the concave portion of the consumer's utility curve beyond that income level.

11.8 MEASURES FOR RISK REDUCTION

As already mentioned, the majority of persons are normally risk averse and they try to avoid or reduce the risks involved in various situations. There are certain measures which can be adopted for risk reduction:

- **Diversification:** Diversification of one's resources to various alternative projects or activities can reduce the risk. For example, insurance companies reduce risk involved in their business by offering various types of insurances like life insurance, health insurance, car insurance etc. Similarly, a salesman can reduce his risk or secure his monthly commission by dividing his total time into selling of different commodities instead of concentrating in the sale of only one product. A share market investor can reduce the risk through diversification of his total fund into a variety of different stocks.

- **Insurance:** Risk averse persons prefer to buy insurance policies to avoid different risks such as death, theft, illness, property damage by fire, etc. When a person buys an insurance policy, he can remain assured of having the same income level whether there is a loss or not.
- **Complete information:** Incomplete information is the reason behind risky and uncertain situations that people face. If more information is available, the degree of risk involved is reduced. Complete information is therefore a valuable commodity and it can be acquired after payment of a price for it. The value of complete information is the difference between the expected value of a choice when there is complete information and the expected value when information is incomplete. Advertisement is a way to reduce the information gap. Suppose a firm spends on advertisement to disseminate complete information about its product among the customers. If the expected profit without complete information is Rs. 1,00,000 and with complete information is Rs. 1,70,000, then Rs. 70,000 is the value of complete information.

11.9 PROBLEMS OF INSURANCE

The insurance industry faces two major problems: moral hazard and adverse selection.

- **Moral Hazard** is a problem when the individual behaves in a careless manner after purchasing insurance policies which increases the probability of occurrence of the unfortunate event. For instance, after buying car insurance, the owner may drive his car recklessly or may not take care of the car as required or may behave carelessly while locking the vehicle. All these may increase the chances of an accident or theft. Similarly, a person insured by health policies may not take sufficient health care, which may increase the probability of illness. When insurance policies are purchased, the cost of damage to the object which is insured gets shifted from the customer to the insurance companies; therefore after buying insurance, individuals are less likely to take proper care of the insured object and this lack of incentive is

known as moral hazard problem. It creates divergence between private marginal cost and social marginal cost of any action taken up by individuals which leads to pareto efficiency or sub-optimal use of scarce economic resources.

- **Adverse Selection** occurs when there is lack of symmetric information between buyers and sellers, which may result in distortions in the working of market. In the case of insurance market, buyers normally have more accurate information than the sellers of insurance policies. For example, when health insurances are sold, buyers normally know more about their state of health than the sellers can know from their medical check-up. While fixing the premium, if the policy sellers consider some average health index, this can bring huge loss to the insurance company. This is because, healthy persons will find this premium to be too high for them compared to the risk of health issues which induces them not to buy the insurance policy. On the other hand, relatively unhealthy individuals will be very likely to buy health insurance because they find the premium charged to be low compared to the high risk of health hazard. As a consequence, individuals with high health risk will buy more health insurance policy than the people with good health which will increase the frequency of claims raising the cost to the company. This is the problem of adverse selection. In order to get rid of this problem, the sellers of insurance policies divide their customers into different sub- groups and charge different premiums from the sub-groups. In case of health insurance, different premium can be charged from different age groups; groups can also be divided based on the history of the individual's past health condition or family's heath background, occupation and nature of work of the individuals, etc.

11.10 RISK POOLING AND SPREADING

The main mechanism which is applied by most of the private insurance companies is risk pooling. In order to avoid the risk or to reduce it, they use the law of large numbers. When we toss one single coin, we cannot predict precisely about the outcome. But if 10000 coins are tossed, we can say with considerable confidence that approximately half of the

times a head will occur which implies that share of heads and tails are close to equal with probability of ½. Thus, when a large number of customers are insured, the insurance companies pool many independent risks and convert the risky, unknown, uncertain situation to an almost known situation. Through this practice, they minimise the cost impact of insured persons who are at highest risk by insuring both low and high-risk customers together and thereby the overall cost is reduced. For instance, when life insurance is sold to a large group of individuals, the insurance company almost know with a certainty that all insured persons will not claim the insurance at the same time unless there is a catastrophic situation like war, earthquake, epidemics etc. They can estimate the risk and the predictability of the situation as the number of insured person increases. This is the law of large number. In this way the insurance companies are capable of calculating the premium to be collected from its customers which can ensure their required profit margin.

The mechanism of risk pooling does not work when risks are not independent. For example, in case of major catastrophic events like earthquakes, wars, floods, famines, epidemics etc. the same incident affect a large group of person causing huge insurance claims. This is the reason why many insurance companies do not insurance property or life damage caused by such calamities. But it does not mean that such risks cannot be insured. Risk spreading can be done by providing insurance covers to such catastrophic incidents because each and every person are sure not going to be affected by the incident, there are going to be some which remain unaffected. So, from the point of view of social welfare, spreading risks by covering such incidents will enhance total welfare of the society; because taking away small amount of money from many individuals as insurance premium will indicate lower social costs than huge loss to few without insurance covers. Sometimes, the government can also spread risk by providing insurance covers to sectors where private parties are unwilling to participate and thereby enhancing overall social wellbeing.



CHECK YOUR PROGRESS

Q.7: Mention various measures for reduction of risk (Answer in about 20 words).

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Q.8: What is meant by risk pooling? (Answer in about 20 words).

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Q.9: What is the problem of moral hazards that arises in the insurance market?(Answer in about 30 words).

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Q.10: What is the value of complete information? Why is complete information important? (Answer in about 40 words)

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11.11 LET US SUM UP

- Uncertainty is a fact of life and therefore risk is inevitable in case of any economic transactions. In real life most of the economic decisions are to be taken in the presence of risk and uncertainty.
- Risk signifies a situation when the probability of each possible outcome of an event can be specified.On the other hand, uncertainty signifies a situation when probability of the possible outcomes of an event is unknown or there is no past information on the basis of which the chance of occurring of an outcome can be estimated.
- Probability of an uncertain or risky experiment is the possibility that a particular outcome will occur in the given experiment. It can be calculated by dividing favourable number of events (i.e. the total number

of times the event occurred) by the total number of events of the experiment. All the possible outcomes of an event and their probability of occurrence are known as probability distribution. The probability distribution of an uncertain event allows measuring two important values which are necessary for making choices under risky and uncertain situations: (i) expected value and (ii) variability. The expected value of a probability distribution is the weighted average of all the possible outcomes, probabilities of each outcome being the weights. The variability of outcomes of an event is the extent to which the possible outcomes deviate from the actual values. Standard deviation is mostly used to measure variability.

- Different people have different attitude towards risky and uncertain situation which affect their choices. In real life, most of the people try to avoid risk and are called risk averters. They have incentives to buy insurances and pay premium to avoid risky situations. There are some other individuals who have preference towards risk and are called risk lovers. Some individuals are indifferent in their choice towards risky situations and they are called risk neutral individuals.
- A person's attitude towards risk is normally based on their preferences for fair gamble. A fair gamble is a type of gamble where the monetary return of the gamble is equal to the cost of playing the gamble. A person who does not accept a fair gamble is called a risk averse.An individual is said to be risk neutral if he is indifferent between accepting or rejecting a fair gamble.If a person willingly undertakes a fair gamble, then he is called a risk lover.
- According to expected utility hypothesis, any individual with rational behaviour will undertake their decision in risky and uncertain situations not on the basis of expected monetary value but depending on his expected utility from the additional money earned.
- Out of the three attitudes towards risk, risk aversion is the most common. Risk averse behaviour leads to willingness of individuals to pay for risk avoidance. In real life, most people buy different varieties of insurances like life insurance, health insurance, car insurance etc paying insurance premiums indicating the fact that most people are risk averse. The risk

premium or insurance premium is the highest amount which a risk averter is willing to pay in order to avoid a risky situation.

- There are instances when it is seen that the risk loving and risk averse behaviour are present within the same individual. They buy insurance policies to secure risky situations and also get engaged in gambling. Individuals' choice between insurance and gambling depends on the type of insurance, the volume of premium and also on the type of gambling. Milton Friedman and L.J Savage, in their hypothesis provided answer to the question as to why the same person accept gamble and buy insurance policies at the same time or why risk averse or risk loving behaviour are found in the same individual.
- Diversification of portfolios, buying insurance policies, acquiring complete information are different measures people use for risk reduction.
- Insurance markets face two major problems: moral hazard and adverse selection. Moral Hazard is a problem when the individual behaves in a careless manner after purchasing insurance policies which increases the probability of occurrence of the event. Adverse Selection occurs when there is lack of symmetric information between buyers and sellers which may result in distortions in the working of market.
- Risk pooling is a method used by insurance companies where a large number of customers with different probability of risk are insured together to get capable of estimating the risk and predictability of the situation and also calculating the premium to be collected from its customers which can ensure their required profit margin. Risk spreading is done, especially by government to cover those incidents which are not normally covered by private insurance markets to increase the overall welfare of the society.



11.12 FURTHER READING

1) Ahuja, H.L(1970*). Advanced Economic Theory:Microeconomic Analysis.*18th Revised Edition. New Delhi: S Chand & Company Ltd.

2) Pindyck, S.R & Rubinfield D.L.(2001)*Microeconomics.*Fifth Edition. Pearson Education.

11.13 ANSWERS TO CHECK YOUR PROGRESS

Ans to Q. No. 1: Probability is the possibility that a particular outcome will occur in a given experiment. It can be calculated by dividing favourable number of events (i.e. the total number of times the event occurred) by the total number of events of the experiment.

Ans to Q. No. 2: Probabilities have two different concepts: *subjective probability* and *objective probability*. The interpretation of objective probability is dependent on long run experiences of the frequency of occurrence of an event. When past information are not available, the concept of subjective probability is used which is dependent on people's judgement or perception regarding happening or non-happening of an event.

Ans to Q. No. 3: Risk signifies a situation when the probability of each possible outcome of an event can be specified. On the other hand, uncertainty signifies a situation when probability of the possible outcomes of an event is unknown or there is no past information on the basis of which the chance of occurring of an outcome can be estimated.

Ans to Q. No. 4: A fair gamble is a type of gamble where the monetary return of the gamble is equal to the cost of playing the gamble.

Ans to Q. No. 5: According to expected utility hypothesis, any individual with rational behaviour will undertake their decision in risky and uncertain situations depending on his expected utility from the additional money earned.

Ans to Q. No. 6: Based on the attitude towards risk, we can find three different type of individuals: risk averter, risk lover and risk neutral individuals.

Ans to Q. No. 7: Diversification of portfolios, buying insurance policies, acquiring complete information are different measures people use for risk reduction.

Ans to Q. No. 8: Risk pooling is a method used by insurance companies where a large number of customers with different probability of risk are insured together to get capable of estimating the risk and predictability of the situation and also calculating the premiums to be collected from its customers which can ensure their required profit margin.

Ans to Q. No. 9: Moral Hazard is a problem when the individual behaves in a careless manner after purchasing insurance policies which increases the probability of occurring the event.

Ans to Q. No. 10: The value of complete information is the difference between the expected value of a choice when there is complete information and the expected value when information is incomplete. Incomplete information is the reason behind risky and uncertain situations that people face. If more information is available, the degree of risk involved is reduced. Complete information is therefore a valuable commodity and it can be acquired after payment of a price for it. The value of complete information is the difference between the expected value of a choice when there is complete information and the expected value when information is incomplete.



11.14 MODEL QUESTIONS

A) Short Questions (Answer each question in about 150 words).

Q.1: Briefly discuss why people pay insurance premiums.

Q.2: What are the different measures of risk?

Q.3: Write short notes on risk pooling and risk spreading.

B) Long questions (Answer each question in about 300-500 words)

Q.1: Discuss Bernoulli's expected utility hypothesis to show different attitude of people towards risk? What is the limitation of this theory?

Q.2: Do you think it is possible for the same individual to behave as risk averter and risk lover? Justify your answer.

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UNIT 12: WELFARE ECONOMICS

UNIT STRUCTURE

12.1 Learning Objectives

12.2 Introduction

12.3 Welfare Economics

- 12.3.1 Meaning and Definition

12.4 Three Concepts of Social Welfare

- 12.4.1 Pareto Improvement
- 12.4.2 Distributional Improvement
- 12.4.3 Paternalist Concept

12.5 Role of Value Judgments in Welfare Economics

- 12.5.1 Meaning and Definition
- 12.5.2 Role of Value Judgment

12.6 Pareto Optimality

- 12.6.1 Pareto Optimality and Economic Efficiency
- 12.6.2 Pareto Criterion of Social Welfare
- 12.6.3 Diagrammatical Explanation

12.7 Marginal Conditions of Pareto Optimum

- 12.7.1 Efficiency of Distribution of Commodities Among Consumers
- 12.7.2 Efficiency of Allocation of Factors Among Firms-Producers
- 12.7.3 Efficiency in the Composition of output (product-mix)

12.8 A Critical Evaluation

12.9 Let Us Sum Up

12.10 Further Reading

12.11 Answers to Check Your Progress

12.12 Model Questions

12.1 LEARNING OBJECTIVES

After going through this unit, you will be able to—

- put forward the meaning of the terms 'Social Welfare', 'Value Judgments' and 'Pareto Optimum'
- discuss the concepts of social welfare
- explain diagrammatically about the marginal conditions of Pareto optimal.

12.2 INTRODUCTION

Welfare means the state of well being of the people. The ultimate purpose of the economic activities is to promote the welfare of the society in a sustainable manner, and not the growth for growth's sake. In this unit, we discuss the origin and development of welfare economics including Pareto optimum.

12.3 WELFARE ECONOMICS

The purpose of welfare economics is to explain how a socially efficient allocation of resources can be identified and achieved. Welfare economics is gaining more importance in recent years. But the origin started with the talks of utilitarians. They referred welfare in terms of the formula, 'the greatest happiness of the greatest number'. However, Prof. Robbins' ethical neutrality view about economics had led to the development of welfare economics as an important field of economic studies. Now the literature on welfare economics has two broad distinctions depending on comparability of utility — 'old' and 'new' welfare economics. The old welfare economists assumed measurable and interpersonal comparison of utility. On the other hand, the new welfare economics is based on Pareto's principle of excluding interpersonal comparison of utility.

12.3.1 Meaning and Definition

Welfare economics is that branch of economics which is mainly concerned with the promotion of the welfare of a society. The subject

matter of welfare economics is the economic well-being of persons as consumers and as producers, and the possible ways of improving that well-being or welfare. The major task of welfare economics is to define an *ideal* situation and then to suggest ways and means of achieving that *ideal.*

Scitovsky defined welfare economics as 'that part of the general body of economic theory which is concerned primarily with policy'. In the words of Prof. M. Reder, "Welfare economics is the branch of economic science that attempts to establish and apply criteria of propriety of economic policies". According to Prof. Baumol, "Welfare economics has concerned itself mostly with policy issues which arise out of the allocation of resources, with the distribution of inputs among the various commodities and the distribution of commodities among various consumers".



CHECK YOUR PROGRESS

Q.1: State whether True(T) or False (F):

(i) Socially efficient allocation of resources is an aim of welfare economics. (T/ F)

(ii) The new welfare economics is based on interpersonal comparison of utility. (T/ F)

(iii) Economic welfare includes satisfaction from both economic and non-economic goods and services. (T/ F)

Q.2: State the basic difference between old and new welfare economic. (Answer in 50 words)

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Q.3: What is the main concern of welfare economics? (Answer in 50 words)

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12.4 THREE CONCEPTS OF SOCIAL WELFARE

General welfare refers to all economic and non-economic goods and services that provide utilities or satisfaction to individuals living in a community. Since, general welfare is a complicated notion, so economists have discussed mainly about economic welfare. It implies the satisfaction or utility derived by an individual from the use of economic goods and services or those that can be exchanged for money. Again, social welfare is derived from the aggregation of the satisfaction or utilities of all individuals in a society. The central problem of welfare economics is related with increase or decrease of social welfare as a result of a particular change in resource allocation. There are three concepts of social welfare — *Pareto improvement*, *distributional improvement* and the *paternalist concept*. Generally, the first two concepts are mainly used for measuring welfare.

12.4.1 Pareto Improvement

The first concept of social welfare was used by Pareto and his followers. This concept accepts that welfare of the society is simply the sum total of the welfare of different individuals comprising it. *Pareto Improvement* states that social welfare increases when society as a whole is better off without making any individual worse off. Conversely, if no one is better off and at least one worse off due to a change, then there is a decrease in social welfare. However, if some are made better off and some worse off, then, Paretian concept is unable to answer whether there is increase or decrease in social welfare. This

concept accepted the ethical view that 'it is good to make somebody better off while making nobody worse off'. It is, thus, free from making interpersonal comparisons of utility. The Paretian concept is used by economists like Hicks, Kaldor (in their *compensation principle*) and Scitovsky.

12.4.2 Distributional Improvement

The second concept is propounded by Bergson and Samuelson in their well-known theory of social welfare function. According to this concept, social welfare is increased when the distribution of welfare is better in some sense. It makes some persons in society better off than others so that the distribution of welfare is more equitable. This is known as *distributional improvement.* This concept involves interpersonal comparison of utility which is to be made by introducing an explicit set of value judgements in the form of a social welfare function. A social welfare function is analogous to the individual consumer's utility function. It provides a ranking of alternative states in which different individuals enjoy different utility levels. This concept of social welfare is able to judge the welfare implications of even those changes in economic organizations and policies that make some people better off and others worse off.

12.4.3 Paternalist Concept

Prof. Graff had referred the third concept of social welfare which he called the *paternalist concept.* This concept describes the views of paternalist authority and not of the individuals in the society. A state or a paternalist authority maximizes social welfare according to its own notion of welfare without any regard to the views of individuals. The preferences of the individual members of the society may be ignored and the state or a paternalist authority or a dictator uses its own ideas about social welfare. Social welfare increases when that paternal authority or the dictator thinks it so. However, the economists do not

make use of this concept to measure social welfare because it is related to a dictatorial regime and does not fit in a democratic set-up.



CHECK YOUR PROGRESS

Q.4: State whether True(T) or False (F)

(i) General welfare includes satisfactions derived only from non-economic goods and services. (T/ F)

(ii)More equitable distribution of welfare increases social welfare. (T/ F)

(iii)Paternalist concept recognizes the views of individuals. (T/ F)

Q.5: What is the main concern of the central problem of welfare economics? (Answer within 40 words)

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Q.6: How does the distributional improvement concept judge the welfare in changes which makes some people better off and others worse off? (Answer within 40 words)

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12.5 ROLE OF VALUE JUDGMENTS IN WELFARE ECONOMICS

Let us now discuss the role of value judgement in welfare economics. Value judgment is important as welfare economics is concerned with desirability of economic policies. It plays a crucial role.

12.5.1 Meaning and Definition

Value judgments mean the conceptions or ethical beliefs of the people about what is good or bad. The values are very little based on scientific logic or scientific laws. They are the result of ethical, religious, philosophical and political beliefs of the people. Value judgments describe facts in an emotive way and tend to influence people by altering their beliefs or attitudes. Thus, all ethical judgments and statements which perform recommendatory, influential and persuasive functions are value judgments.

According to R. B. Brandt, "A judgment is a value judgment if it entails or contradicts some judgment which could be formulated so as to involve any one of the following terms in an ordinary sense: 'is a good thing that' or 'is a better thing that'; 'is normally obligatory'; 'is reprehensible'; and 'is normally praiseworthy'.

12.5.2 Role of Value Judgment

Welfare is an ethical term. Hence, all welfare propositions are also ethical and involve value judgments. The terms used in welfare economics like 'satisfaction', 'utility', 'social', 'community' etc. are ethical in nature. Since, welfare economics is concerned with policy measures, it involves ethical terminology, such as increase of 'social welfare' or 'social advantage' or 'social benefit'. Thus, welfare economics and ethics cannot be separated. In spite of that, there is a great controversy regarding whether value judgments should have any role to play in welfare economics.

The neo-classical economists were concerned with the measurability of utility and the inevitable interpersonal comparisons of utility. Robbins attacked this view and discarded interpersonal comparisons. Robbins and his followers were of the opinion that economists should refrain from making value judgments. According to them, the inclusion of value judgments would make our study unscientific. On the other hand, majority of modern economists are

of the view that economists should not fight shy of making value judgments if there is a wide consensus about them among the community. Using his knowledge of economics together with these value judgments he should comment upon desirability or otherwise of certain policies and issues.

The individual welfare is possible to measure in ordinal terms and by observing the act of choice of the individual. Choice by an individual is an objective test for knowing and comparing his welfare in different economic states. Therefore, what promotes individual welfare or not can be tested and verified. But the same is not possible in case of social welfare. The society cannot be regarded as an organic whole, having its own mind. Therefore, social welfare, unlike individual welfare, is not something which resides in the mind of the society. Deriving propositions of social welfare from choice of individuals comprising the society is not possible because various individuals choose differently and, therefore, there is no unanimous social choice. Since, the vital issues in welfare economics are concerned with social welfare and devising certain criteria to judge the social welfare, therefore, welfare economics cannot be purely objective or free from value judgments.

Pareto developed the concept of social welfare which is claimed to be free from any value judgments, because it is not based upon any interpersonal comparison of utility. But contrary to the claim, this is also not value-free. The Paretian optimum states that if any reallocation of resources makes at least one person better off without making others worse off, then the welfare of the society is said to have increased. These are all value judgments which Pareto could not avoid despite the fact that he used the method of ordinal measurement of utility.

Again, Kaldor and Hicks by propounding a 'compensation principle' laid the foundations of *New Welfare Economics* which is supposed to be free from value judgments. According to this compensation principle, if a change in economic organization increases the welfare of some and reduces the welfare of others,

and those who gain in welfare are able to compensate the losers and still be better off than before, then that change will increase social welfare. But this test which is based on economic efficiency also involves in value judgments because the gainers from a change are able to compensate the losers. The very idea of compensation involves value prescriptions.

Modern economist Prof. Bergson has propounded the concept of social welfare function in which a set of value judgments is explicitly introduced. His followers such as Samuelson, Little, Boulding etc. are in the opinion that welfare economics cannot be purged of value judgments. In fact, the study of welfare economics has been developed to make policy recommendations to promote social welfare. And for doing so economists cannot escape from introducing ethical norms or value judgments since we all take interest in the question concerning happiness and welfare of the society.

Thus, from the above discussion it is obvious that welfare economics and value judgments are inseparable.



CHECK YOUR PROGRESS

Q.7: State whether True(T) or False (F)

(i) Value judgment is ethical consideration. (T/ F)

(ii) Modern economists accept role of value judgment in welfare economics. (T/ F)

(iii) Social welfare can be tested and verified. (T/ F)

Q.8: Why welfare economics and value judgment are inseparable? (Answer in 40 words)

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Q.9: What is the basis of controversy regarding the question whether value judgments should have any role to play in welfare economics? (Answer in 40 words)

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12.6 PARETO OPTIMALITY

Now let us discuss the situation of maximum social welfare. Pareto optimality and its conditions are important in determining the maximum situation.

12.6.1 Pareto Optimality and Economic Efficiency

According to Pareto optimality criterion any change that makes at least one individual better off and no one worse off is an improvement in social welfare. Conversely, a change that makes no one better-off and at least one worse-off is a decrease in social welfare. A situation in which it is impossible to make any one better off without making someone worse off is said to be Pareto-optimal. The Pareto optimum is often called Economic Efficiency because in that situation resources are allocated in the most economically efficient manner. Thus, when a certain economic state is reached, when through any reorganization it is not possible to make at least one individual better off with no one being worse off then, this is called the state of maximum social welfare or Pareto optimum.

12.6.2 Pareto Criterion of Social Welfare

Pareto criterion states that if any reorganization of economic resources does not harm anybody and makes someone better off, it indicates an increase in social welfare. If any reorganization or change makes everybody in a society better off, it will undoubtedly mean increase in social welfare.

12.6.3 Diagrammatical Explanation

Pareto criterion can be explained with the help of Edgeworth Box diagram as shown in figure 12.1, which is based on the assumptions of ordinal utility and non-interpersonal comparison of utilities. Suppose two persons A and B form the society and consume two goods X and Y. Their various levels of satisfaction are represented by the indifference curves I_{a1}, I_{a2}, I_{a3}, I_{a4} and I_{b1}, I_{b2}, I_{b3}, $I_{b4.}$ In the figure, O_A and O_B are the origins for the utilities of A and B respectively. Suppose the initial distribution of goods between A and B is at point K. The level of satisfaction of individual A is represented by I_{a3} where he consumes O_A G of X and GK of Y. Similarly, individual B's level of satisfaction is represented by I_{B1} and consumes KF of X + KE of Y. Now it can be shown that any movement from point K to a point S or R or any other point in the shaded region will increase social welfare.

Any movement from K to S through redistribution of two goods between the two individuals increases the level of satisfaction of A as he moves to higher indifference curve I_{a4} without any change in the satisfaction of B. Thus, according to Pareto criterion, social welfare has increased following the movement from K to S, and therefore K is not the position of economic optimum. Similarly, the movement from K to R is also desirable from the point of view of social welfare because in this movement individual B becomes better off without any change in the level of satisfaction of individual A. The tangency points of the various indifference curves of the two individuals of the society are the Pareto optimum points and the locus of these points is called *contract curve* or *conflict curve.*

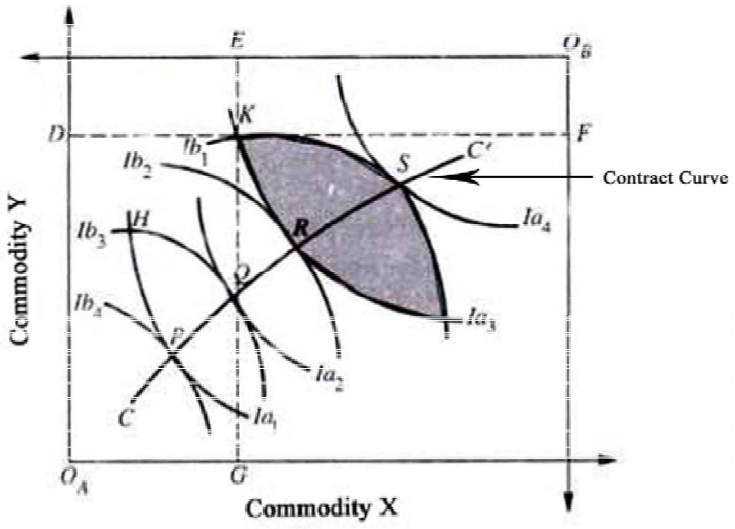


Fig. 12.1 : Pareto Criterion



CHECK YOUR PROGRESS

Q.10: State whether True(T) or False (F)

(i) Pareto optimality is also known as Economic Efficiency. (T/ F)

(ii) After achieving Pareto optimality it is possible to increase welfare of somebody without reducing the welfare of anybody. (T/ F)

Q.11: What is meant by Pareto criterion? (Answer in 40 words)

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Q.12: What does a contract curve represent? (Answer in 40 words)

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12.7 MARGINAL CONDITIONS OF PARETO OPTIMUM

For the attainment of Pareto efficient situation in an economy three marginal conditions must be satisfied: (a) Efficiency of distribution of commodities among consumers (efficiency in exchange); (b) Efficiency of the allocation of factors among firms (efficiency of production); (c) Efficiency in the allocation of factors among commodities (efficiency in the product mix or composition of output).

12.7.1 Efficiency of distribution of commodities among consumers

A distribution of the given commodities X and Y between the two consumers A and B is efficient if it is impossible by a redistribution of these goods to increase the utility of one individual without reducing the utility of the other. This is shown in figure 12.2. Only points on the contract curve satisfy Pareto optimality condition. Any other distribution off the contract curve is inefficient. For example, point z is inefficient as a redistribution of the commodities either to reach point a or b would increase utility of one individual. A movement from z to a increases the utility of B without reducing the utility of A. Similarly, movement to b increases the utility of A without reducing that of B. Thus, the contract curve shows the locus of Pareto efficient distribution of goods between consumers where the slopes of indifference curves are equal. At each point of the contract curve the following condition is satisfied—

$$MRS^{A}_{xy} = MRS^{B}_{x,y}$$

Thus, the marginal condition for a Pareto optimal or efficient distribution of commodities among consumers requires that the MRS between two goods be equal for all consumers.

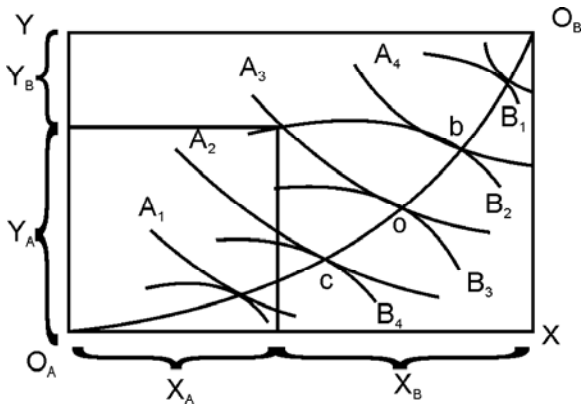


Fig. 12.2 : Efficiency of distribution of commodities among consumer

12.7.2 Efficiency of allocation of factors among firms-producers

The second condition for Pareto optimum requires that the available factors of production should be utilized in the production of different goods in such a manner that it is impossible to increase the output of one good without a decrease in the output of another or to increase the output of both the goods by any reallocation of factors of production. This situation would be achieved if the marginal rate of technical substitution between any pair of factors must be the same for any two firms producing two different products and using both the factors to produce the products. This is explained with the help of the figure 12.3 where two firms A and B producing goods X and Y by using two factors labour (L) and capital (K). Only the points on the contract curve of production are Pareto efficient. Other points, such as H is inefficient, since a reallocation of the given K and L between the producers of X and Y would be able to reach any point from c to d with the results in the increase of at least one commodity without a reduction in the other.

The contract curve is the locus of points of tangency of the isoquants of the two firms which produce X and Y, that is, points where the slopes of the isoquants are equal. Thus, at each point—

$$MRTS^{x}_{L,K} = MRTS^{y}_{L,K}$$

Therefore, the marginal condition for a Pareto optimal allocation of factors requires that the $MRTS_{L, K}$ be equal for all commodities produced by different firms.

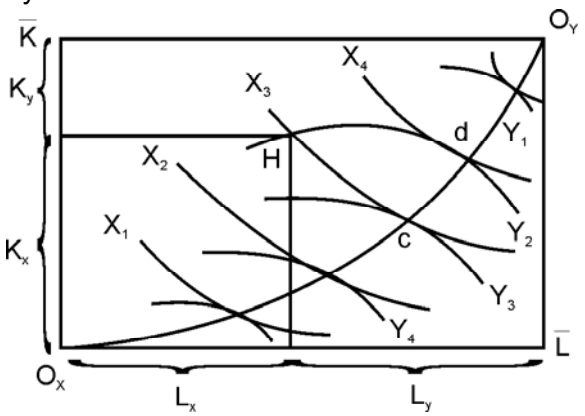


Fig. 12.3 : Efficiency of allocation of factors among firms-producers

12.7.3 Efficiency in the composition of output (product-mix)

The third condition relates to the technical conditions of production and the state of consumer's preferences. It states that a possible way of increasing social welfare is a change in the product-mix. To define the third condition the production possibility curve is used. The slope of the PPC is called the 'marginal rate of (product) transformation' ($MRPT_{x,y}$), and it shows the amount of Y that must be sacrificed in order to obtain an additional unit of X. The marginal condition for a Pareto efficient composition of output requires that the MRPT between any two commodities be equal to the MRS between the same two goods:

$$MRPT_{x,y} = MRS^{A}_{xy} = MRS^{B}_{x,y}$$

Since the MRPT shows the rate at which a good can be transformed into another (on the production side), and the MRS shows the rate at which consumers are willing to exchange a good for another, the rates must be equal for Pareto optimal situation to be attained. Suppose that these rates are unequal. For example—

$MRPT_{x,y} = 2Y/1X$ and $MRS_{xy} = 1Y/1X$

that is, $MRPT_{x,y} > MRS_{xy}$

The above inequality shows that the economy can produce two units of Y by sacrificing one unit of X, while the consumers are willing to exchange one unit of Y for one unit of X. clearly the economy produces too much of X and too little of Y relatively to the tastes of consumers. Welfare, therefore, can be increased by increasing the production of Y and decreasing the production of X.



CHECK YOUR PROGRESS

Q.13: State whether True (T) or False (F)

(i) Efficient distribution of commodities requires the MRSxy to be equal. (T/ F)

(ii) The second condition states that reallocation of factors of production increases the output of both the goods. (T/ F)

Q.14: What is meant by efficiency in exchange? (Answer in 40 words)

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Q.15: What happens if $MRPT_{xy}$ and MRS_{xy} are not equal? (Answer in 40 words)

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12.8 A CRITICAL EVALUATION

The Pareto welfare criterion possesses certain substantial merits like—

- The Paretian criterion of judging welfare changes is a better and more scientific criterion because it does not depend upon interpersonal comparison of utility.

- This analysis is significant because it was the first-ever attempt made to evolve and formulate a value free criterion of welfare.
- The main merit of this analysis lies in the explicit distinction that it has made between ambiguous and unambiguous changes in social welfare. The former refers to those changes which increase the welfare of some while reducing the welfare of others. The latter refers to those changes which benefit some without harming others.

However, the Paretian welfare analysis is not free from drawbacks—

- The Pareto criterion cannot evaluate a change that makes some individuals better off and others worse off. Since most government policies involve changes that benefit some and harm others, the Pareto criterion is of limited applicability in real world situation.
- A Pareto optimal situation does not guarantee the maximization of the social welfare. There can be an infinite number of Paretian optima, each with a different level of welfare.



12.9 LET US SUM UP

- Welfare economics has gained importance in recent times. It is defined as that branch of economics which is mainly concerned with the promotion of the welfare of a society.
- The purpose of welfare economics is to explain how a socially efficient allocation of resources can be identified and achieved.
- Social welfare is the aggregation of the satisfaction or utilities of all individuals in a society.
- There are three concepts of social welfare for measuring welfare — *Pareto improvement, distributional improvement* and *paternalist concept.*
- Value judgments mean the conceptions or ethical beliefs of the people about what is good or bad and are the result of their ethical, religious, philosophical and political beliefs.
- Pareto optimality refers to a situation in which it is impossible by a redistribution to make any one better off without making someone worse off.

- It is often called Economic Efficiency because in that situation resources are allocated in the most economically efficient manner.
- A Pareto optimal state in the economy can be attained if three marginal conditions are fulfilled—

  1. $MRS_{x,y}$ between any two goods be equal for all consumers.
  2. The $MRTS_{L,K}$ between any two inputs be equal in the production of all commodities.
  3. $MRPT_{x,y} = MRS_{x,y}$ for any two goods.
- Although Pareto criterion has certain drawbacks, it is one of the most important concepts of welfare economics.



12.10 FURTHER READING

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12.11 ANSWERS TO CHECK YOUR PROGRESS

Ans to Q. No. 1: (i) True (ii) False (iii) False

Ans to Q. No. 2: The basic difference between 'old' and 'new' welfare economics lies on comparability of utility. The old welfare economists assumed measurable and interpersonal comparison of utility. On the other hand, the new welfare economics excluded interpersonal comparison of utility.

Ans to Q. No. 3: The Welfare economics is mainly concerned with the promotion of the welfare of a society. The major task of welfare economics is to define an *ideal* situation and then to suggest ways and means of achieving that *ideal.*

Ans to Q. No. 4: (i) False (ii) True (iii) False

Ans to Q. No. 5: The central problem of welfare economics is related with increase or decrease of social welfare due to a particular change in resource allocation.

Ans to Q. No. 6: According to *distributional improvement* concept, social welfare is increased when the distribution of welfare is better in some sense. It makes some persons in society better off than others so that the distribution of welfare is more equitable.

Ans to Q. No. 7: (i) True (ii) True (iii) False

Ans to Q. No. 8: Welfare itself is an ethical term. Welfare economics is mainly concerned with policy measures and it involves ethical terminology, such as increase of 'social welfare' or 'social advantage' or 'social benefit'. So, welfare economics and ethics cannot be separated.

Ans to Q. No. 9: There is controversy regarding inclusion of value judgments in welfare economics. Robbins and his followers maintained that inclusion of value judgment would make our study unscientific. But others are of the opinion that the study of welfare economics has been developed to make policy recommendations to promote social welfare and for doing so economists cannot escape from introducing ethical norms or value judgments.

Ans to Q. No. 10: (i) True (ii) False

Ans to Q. No. 11: Pareto criterion states that if any reorganization of economic resources does not harm anybody and makes someone better off, it indicates an increase in social welfare. Similarly, there is an increase in social welfare if a change makes everybody in a society better off.

Ans to Q. No. 12: A contract curve is the locus of the Pareto optimum points i.e, the tangency points of the various indifference curves of the two individuals of the society.

Ans to Q. No. 13: (i) True (ii) False

Ans to Q. No. 14: Efficiency in exchange implies a state where it is impossible by a redistribution of the goods to increase the utility of one individual without reducing the utility of the other.

Ans to Q. No. 15: The inequality between $MRPT_{x,y}$ and MRS_{xy} shows that the sacrificing rate one unit of X for producing one unit of Y is not equal to the willing exchange rate of consumers to one unit of Y for one unit of X. It means the economy either produces too much or too little of one good in relative to the tastes of consumers. Welfare therefore can be increased by increasing or decreasing the production.



12.12 MODEL QUESTIONS

A) Short Questions (Answer each question in about 150 words)

Q.1: Define welfare and welfare economics.

Q.2: "Economic welfare is always conceived to be a part to total welfare." Comment.

Q.3: What is Pareto's social optimum?

Q.4: Critically evaluate Paretian welfare economics.

B) Essay type Questions (Answer each question in about 300-500 words)

Q.1: What is meant by value judgment? Analyse its role in welfare economics.

Q.2: Discuss the three concepts of social welfare.

Q.3: Explain the conditions for the attainment of Paretian optimum.

Q.4: Discuss with the help of a diagram the Pareto criterion of social welfare.

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UNIT 13: NEW WELFARE ECONOMICS

UNIT STRUCTURE

13.1 Learning Objectives

13.2 Introduction

13.3 Assumptions of Compensation Principle

13.4 Kaldor-Hicks Welfare Criterion: Compensation Principle

13.5 Scitovsky's Paradox

13.6 Scitovsky's Double Criterion of Welfare

13.7 Let Us Sum Up

13.8 Further Reading

13.9 Answers to Check Your Progress

13.10 Model Questions

13.1 LEARNING OBJECTIVES

After going through this unit you will be able to-

- know what welfare economics is about
- know about the New Welfare Economics
- understand various criterions of New Welfare Economics.

13.2 INTRODUCTION

Establishment of welfare state is the fundamental objective of most of the economies of the world, especially in the modern democratic countries.Welfare economics examines the conditions of economic efficiency in the production of output, exchange of commodities and equity in the distribution of income. The central problem of welfare economics is concerned with whether a particular allocation (reallocation) of resources will lead to increase or decrease in the social welfare.If any reallocation of resources cannot make at least one individual better-off without making some other individual worse off, it will lead to decrease in social

welfare.However, if any reallocation of resources can make at least one individual better-off without making some other individual worse off, it will lead to increase in social welfare. This state of maximum social welfare is known as the Pareto Optimality. Pareto's concept of social optimum draws heavily from the concept of ordinal utility. It is free from interpersonal comparison of utilities and value judgements. There are no unique points in Pareto Optimality and is indeterminate. Economists like Kaldor, Hicks and Scitovsky attempted to do away with the indeterminacy of Pareto optimality and gave the criterion of '*Compensation Principle'*. They believed that any reallocation will make at least someone worse off to make someone better off. Hence the losers need to be duly compensated so that welfare of the society as a whole increases.

13.3 ASSUMPTIONS OF COMPENSATION PRINCIPLE

The '*Compensation Principle'* is based on the following assumptions-

- An individual is the best judge of his welfare.
- The satisfaction of an individual is independent of other's satisfaction and his tastes remain constant.
- Utility is ordinally measurable.
- Interpersonal comparisons of utilities are not possible.
- The level of social welfare is a function of the level of production.

Given these assumptions, the compensation principle as given by Klador, Hicks and Scitosvsky are discussed in the subsequent sections.



CHECK YOUR PROGRESS

Q.1: Mention the primary objective of the economies. (Answer in about 20 words)

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Q.2: What does welfare economics examine? (Answer in about 20 words)

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Q.3: Define Pareto Optimality. (Answer in about 20 words)

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13.4 KALDOR-HICKS WELFARE CRITERION: COMPENSATION PRINCIPLE

Nicholas Kaldor stated welfare criterion based on '*compensating payments'*. According to Kaldor's welfare criterion if a certain change in policy or reallocation makes some people better off and others worse off, then it will increase social welfare if those who gain from change compensates those who lose and still be better off than before.Kaldor, in his "Welfare Propositions of Economics and Interpersonal Comparison of Utility" states that,

"*In all cases..... where a certain change policy leads to an increase in physical productivity and thus in aggregate real income.... it is possible to make everybody better off without making anybody worse off. It is quite sufficient.... to show that even is all those who suffer as a result are fully compensated for their loss, the rest of the community will still be better off than before."*

Prof. J.R. Hicks also supported Kaldor for employing the compensation principle in evaluating changes in social welfare resulting from any reallocation making some people better off and some others worse off. J.R.Hicks, in his "The Foundations of Welfare" states that,

"If A is made so much better by the change that he could compensate B for his loss and still have something left over, then the reorganisation is unequivocal improvement".

Thus the two criterions are basically the same and are generally known as Kaldor-Hicks Criterion. The Criterion can also be explained through the figure 13.1 with the help of utility possibility curve.

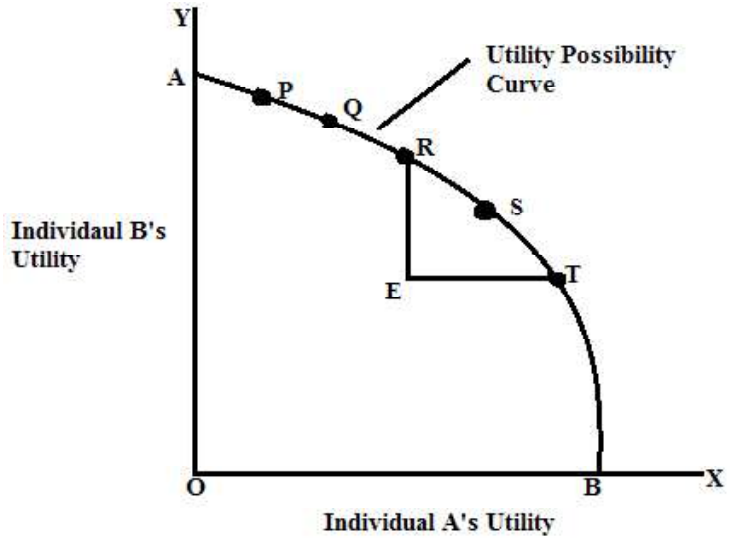


Fig. 13.1 : Kaldor-Hicks Criterion with Utility Possibility Curve

In the figure the ordinal utilities of two individuals A and B are depicted on the X-axis and Y-axis respectively. AB is the utility possibility curve representing the various combinations of utilities derived by the individual. Let us suppose that the utility derived by the individuals is at point E inside the Utility Possibility Curve. Now if due to some reallocation the two individuals move to point Q from point E, then individual B's utility goes up while that of individual A goes down. Thus, as one moves upward along the AB utility curve individual B's utility goes up, and if one moves downward along the utility curve individual A's utility goes up while that of B's goes down. A movement along any direction on the curve involves in comparison of inter-personal utilities and it cannot be said whether there is a change in the welfare (increased or decreased) on the basis of Pareto Criterion. However according to Kaldor- Hicks, if individual B who has gained due to the reallocation is willing to compensate A, and still be better off than before.

In figure 13.1 if due to redistribution of income, individual B compensates individual A and moves from point Q to point R, individual A is still as good as he was in E. But individual B has now become better off than he was at E. As such according to Kaldor-Hicks Criterion social welfare increases with a movement from point E to point Q, because

from position Q both the individuals could move to point R through redistribution of income and the society can be better off.

Let us consider the case where due a change in economic policy, the utility possibility curve moves from AB to A_1B_1 outward and both the individuals move to a point on the higher utility possibility curve A_1B_1. This is shown in the figure 13.2 whether such movement represents improvement in social welfare or not, according to Kaldor- Hicks Criterion.

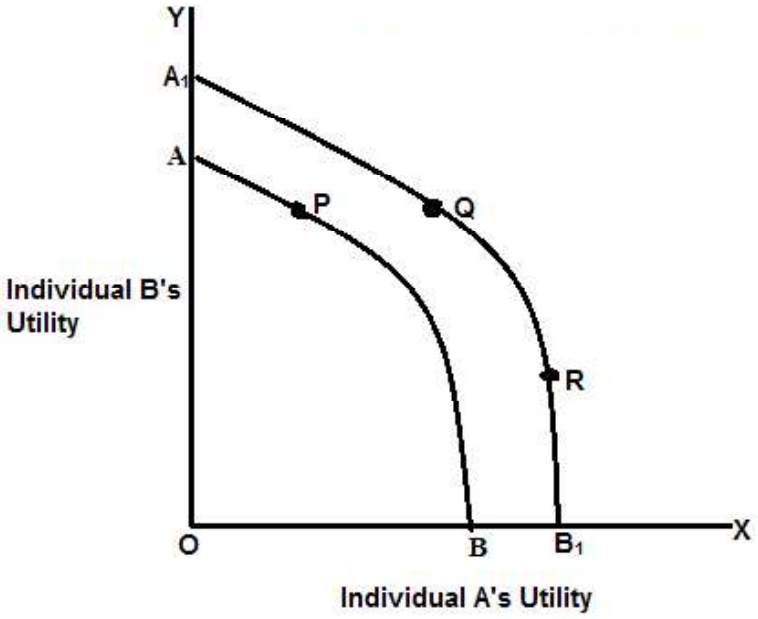


Fig. 13.2 : Kaldor-Hicks Welfare Criterion

In the utility possibility curve AB, position P represents the initial positions of the individuals. Now if the curve shifts to A_1B_1 and the individuals are now at point R where the utility of individual A has increased and that of individual B has decreased. But still position R compared to position P represents a greater social welfare according to Kaldor-Hicks compensation principle. This is because in the new curve utility possibility curve A_1B_1, it is possible to reach position Q from position R where the society consisting of the two individuals will be better off through reallocation if individual A compensates individual B for his loss. At position Q, individual B has been fully compensated, while individual A is still better off as compared to position P. Thus as a higher utility possibility curve increases social welfare.



CHECK YOUR PROGRESS

Q.4: What is the difference in the criterion stated by Kaldor and Hicks? (Answer in about 20 words)

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Q.5: State the Compensation Principle.(Answer in about 30 words)

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13.5 SCITOVSKY'S PARADOX

Scitovsky pointed out that in some situations Kaldor-Hicks Criterion might lead to contradictory results. He pointed out that if in a situation say position X is shown to be an improvement over another situation say position Y by Kaldor-Hick's criterion; then by the same criterion position Y can be shown as an improvement over another situation say position X. This, according to Scitovsky, leads to contradictory and inconsistent results. This is known as 'Scitovsky's Paradox'.

How Kaldor-Hicks's criterion leads to contradictory results is explained with figure 13.3 with the help of two utility possibility frontiers AB and CD. It can be seen from the figure 13.3 that both the utility possibility curves intersect each other.

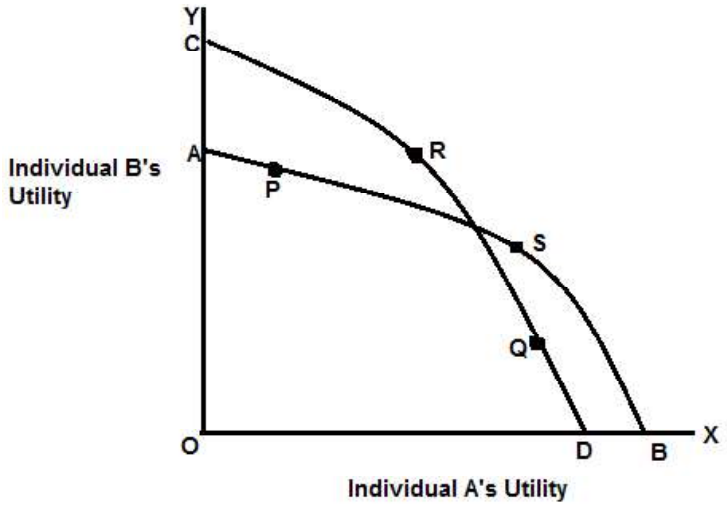


Fig. 13.3 : Scitovsky Paradox

Let AB be the initial utility possibility curve where the individuals A and B were at position P. Now due to some policy change and reallocation of resources, the utility possibility curve shifts and takes a new position CD, and the individuals are at position Q on it. According to Kaldor-Hicks criterion, this is an improvement over the initial position P, because through reallocation it is possible to reach position R. At position R, according to Kaldor-Hicks Criterion, individual A is fully compensated for his loss and individual B is still at a better position as compared to original position P.

But Scitovsky pointed out that the Kaldor-Hicks Criterion is also satisfied by a reverse movement from Q in the new utility possibility curve CD to position P in the initial utility possibility curve AB. By a mere redistribution from position P it is possible to reach position S, thus making P socially desirable. At position S, individual A is better off than at position Q, and individual B is still better off than in position Q.

Thus, it is seen that a movement from position P to position Q and also the reverse movement from position Q to position P satisfies the Kaldor-Hicks Criterion.This means that Kaldor-Hicks criterion leads to contradictory and inconsistent results. These contradictory and inconsistent results are attained when due to policy changes the new utility possibility curve is obtained (i.e. CD in the figure) which intersects with the former utility possibility curve (i.e. AB in the figure).

Scitovsky formulated his own criterion known as 'Scitovsky Double Criterion of Welfare' to address the contradictory and inconsistent results in Kaldor-Hicks Criterion.

13.6 SCITOVSKY'S DOUBLE CRITERION OF WELFARE

To address the inconsistency and contradictory results of Kaldor-Hicks Criterion, Scitovsky formulated a criterion which required the fulfilment of Kaldor-Hicks test and also the fulfilment of the reversal test. This means that a change can be considered as an improvement in welfare, if those who gain from the change in the situation are able to persuade those who

lose to accept the change. On the other hand the losers are not able to persuade the gainers to remain in the original situation before the change. This situation can be explained with the help of Utility Possibility Curve as in figure 14.4.

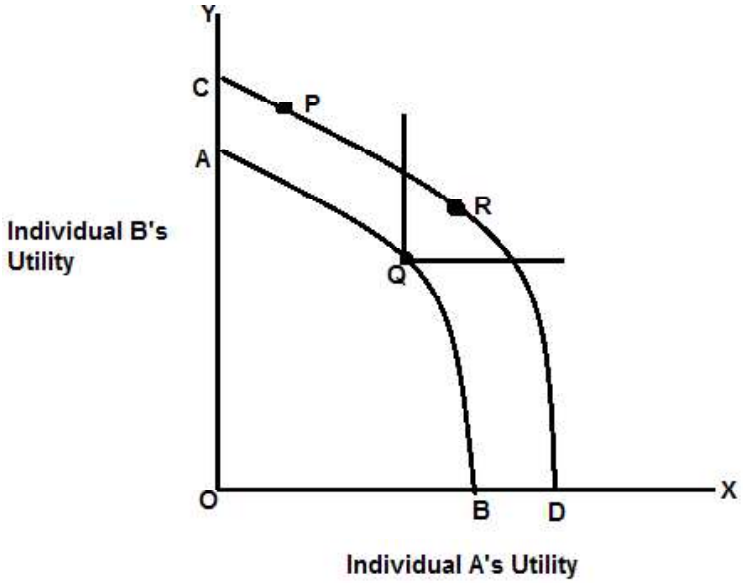


Fig. 13.4 : Scitovsky's Double Criterion

In the figure AB and CD are two utility possibility frontiers that do not intersect each other at any point. Suppose both the individuals were initially at position Q on the utility possibility frontier AB. Let there be a change in the policy and as a result the individuals find themselves at position P on the new utility possibility frontier CD. This movement from position Q to position P is an improvement according to Kaldor-Hicks Criterion. By redistribution of income both the individuals can reach position R on the utility possibility frontier CD and be better off than at position Q on utility possibility frontier AB. Thus, a change from position Q to position P represents social welfare as it satisfies Kaldor-Hicks Criterion.

However according to the reversal test of Scitovsky's Double Criterion a movement from position P in the new utility possibility frontier CD to the initial position Q on the utility possibility frontier AB should not pass by Kaldor-Hicks Criterion. In the figure 14.4 it is seen that by mere redistribution of income one cannot move from position Q on utility

possibility frontier AB to any other position that is socially better than position P in the utility possibility frontier CD. Thus a movement from position Q to position P is possible by Kaldor-Hicks Criterion, but a movement from position to P to position Q is not possible by Kaldor-Hicks Criterion. Thus a movement from position Q to position P satisfies Scitovsky's Double Criterion of Welfare.

Thus it can be concluded that when two utility possibility curves do not intersect each other, change results in a movement from a position in a lower utility possibility curve to a position on a higher utility possibility curve; the resultant increase in the social welfare implies fulfilment of Kaldor-Hicks and Scitovsky Criterion.



CHECK YOUR PROGRESS

Q.6: What is 'Scitovsky's Paradox'? (Answer in about 50 words)

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Q.7: Why are there contradictory and inconsistent results according to Scitovsky's Paradox? (Answer in about 50 words)

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Q.8: State the requirements of Scitovsky's Double Criterion of Welfare. (Answer in about 30 words)

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Q.9: When according to Scitovsky's Double Criterion of Welfare can a change be considered as an improvement in welfare? (Answer in about 40 words)

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Q.10: What is the implication of the change due to two non-intersecting utility possibility curves? (Answer in about 40 words)

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13.7 LET US SUM UP

- The central problem of welfare economics is concerned with the question whether a particular allocation (reallocation) of resources will lead to increase or decrease in the social welfare.
- If any reallocation of resources can make at least one individual better-off without making some other individual worse off, it will lead to increase in social welfare. This state of maximum social welfare is known as the Pareto Optimality.
- However, there are no unique points in Pareto Optimality and is indeterminate. Economists like Kaldor, Hicks and Scitovsky attempted to do away with the indeterminacy of Pareto optimality and gave the criterion of '*Compensation Principle'*.
- They believed that any reallocation will make at least someone worse off to make someone better off. The '*Compensation Principle'* is based on the fact that an individual is the best judge of his welfare.
- The Kaldor-Hicks Compensation principle states that it is possible to

make everybody better off without making anybody worse off; if all those who suffer as a result are fully compensated for their loss, the rest of the community will still be better off than before.

- However Scitovsky was able to show that contradictory and inconsistent results are attained when due to policy changes the new utility possibility curve is obtained and it intersects the former utility possibility curve.
- Scitovsky developed Double Criterion of Welfare that required the fulfilment of Kaldor-Hicks test and also the fulfilment of the reversal test to address the inconsistency and contradictory results of Kaldor-Hicks Criterion.
- Thus, a change according to Scitovsky's Double Criterion of Welfare can be considered as an improvement in welfare, if those who gain from the change in the situation are able to persuade those who lose to accept the change. On the other hand, the losers are not able to persuade the gainers to remain in the original situation before the change.



13.8 FURTHER READING

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13.9 ANSWERS TO CHECK YOUR PROGRESS

Ans to Q. No. 1: Establishment of welfare state is the fundamental objective of most of the economies of the world, especially in the modern democratic governments.

Ans to Q. No. 2: Welfare economics examines the conditions of economic efficiency in the production of output, exchange of commodities and equity in the distribution of income.

Ans to Q. No. 3: Pareto Optimality States that reallocation of resources cannot make at least one individual better-off without making some other individual worse off and will thus lead to decrease in social welfare.

Ans to Q. No. 4: Kaldor formulated his criterion from the view point of the gainers, while Hicks formulated his criterion form the point of view of the losers.

Ans to Q. No. 5: The Kaldor-Hicks Compensation principle states that it is possible to make everybody better off without making anybody worse off, if all those who suffer as a result are fully compensated for their loss, the rest of the community will still be better off than before.

Ans to Q. No. 6: Scitovsky pointed out that in some situations Kaldor-Hicks Criterion might lead to contradictory results. He pointed out that if in a situation say position X is shown to be an improvement over another situation say position Y by Kaldor-Hick's criterion,then by the same criterion position Y can be shown as an improvement over another situation say position X. This, according to Scitovsky, leads to contradictory and inconsistent results. This is known as 'Scitovsky's Paradox'.

Ans to Q. No. 7: Contradictory and inconsistent results are attained when due to policy changes the new utility possibility curve is obtained and it intersects the former utility possibility curve. In those situations a movement from one position in the utility possibility curve to another position and also the reverse movement satisfy the Kaldor-Hicks Criterion. This means that Kaldor-Hicks criterion leads to contradictory and inconsistent results.

Ans to Q. No. 8: Scitovsky Double Criterion of Welfare required the fulfilment of Kaldor-Hicks test and also the fulfilment of the reversal test to address the inconsistency and contradictory results of Kaldor-Hicks Criterion.

Ans to Q. No. 9: A change according to Scitovsky Double Criterion of Welfare can be considered as an improvement in welfare, if those who gain from the change in the situation are able to persuade those who lose to accept the change. On the other hand the losers are not able to persuade the gainers to remain in the original situation before the change.

Ans to Q. No. 10: When two utility possibility curves do not intersect each other, change results in a movement from a position in a lower utility possibility curve to a position on a higher utility possibility curve; the resultant increase in the social welfare implies fulfilment of Kaldor-Hicks and Scitovsky Criterion.



13.10 MODEL QUESTIONS

A) Short Questions (Answer each question in about 150 words)

Q.1: How is the concept of New Welfare Economics: Compensation Principle different from Pareto Optimality?

Q.2: State the various assumptions of Compensation Principle Criterion.

Q.3: Does higher utility possibility curve represent an increased social welfare according to Kaldor-Hicks Principle. If so, why?

B) Long Questions (Answer each question in about 300-500 words)

Q.1: Discuss the Kaldor-Hicks Compensation Principle critically.

Q.2: Discuss critically the Scitovsky's Paradox as a critique to Kaldor-Hicks Compensation Principle.

Q.3: Discuss theScitovsky Double Criterion of Welfare.

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UNIT 14: SOCIAL WELFARE FUNCTION

UNIT STRUCTURE

14.1 Learning Objectives

14.2 Introduction

14.3 Bergson-Samuelson Social Welfare Function

14.4 Social Welfare Function and Value Judgements

14.5 Grand Utility Possibility Frontier and Point of Constrained Bliss

14.6 Let Us Sum Up

14.7 Further Reading

14.8 Answer to Check Your Progress

14.9 Modal Questions

14.1 LEARNING OBJECTIVES

After going through this unit, you will be able to-

- know the main ideas behind Bergson-Samuelson social welfare function
- learn how value judgements are used to determine social welfare
- analyse how unique and maximum social welfare is attained at the point of constrained bliss.

14.2 INTRODUCTION

Welfare is a happy state of mind. It reflects the betterment and wellbeing of an individual. Individual welfare means personal happiness and betterment of a particular person. But social welfare is different from individual welfare in the sense that it refers to the happiness of the society as a whole. Social welfare is the sum total of the welfare of all individuals living in a society. In subsequent sections of this chapter, we shall discuss social welfare function formulated by Bergson and Samuelson, the use of the concept of value judgement while determining social welfare and the point of constrained bliss where maximum social welfare is attained.

14.3 BERGSON-SAMUELSON SOCIAL WELFARE FUNCTION

The concept of social welfare was propounded by Bergson-Samuelson. According to them, no meaningful proposition in welfare economics can be stated without the use of value judgment.Thus, with welfare we enter the arena of normative economics.Bergson defines social welfare as "a function either of the welfare of each member of the community or of the quantities of products consumed and services rendered by each member of the community". The original form of Bergson social welfare function was formulated in a general manner in which the relationship between social welfare and all possible variables effecting individual welfare such as services and consumption of all individuals were established. Social welfare function is regarded as a function of individual's welfare which depends on one's personal well-being. Thus, social welfare function may be termed as an ordinal index of society's welfare which is a function of the utility levels of all individuals constituting the society.Bergson-Samuelson social welfare function can be expressed as:

$$W = F (U_1, U_2, U_3 \ldots\ldots\ldots\ldots, U_n)$$

Where, W represents the social welfare, F denotes function and U_1, U_2, U_3, ..., Un represent the ordinal utility indices of individuals of the society, i.e. individuals 1, 2, 3.....n. The ordinal utility index of an individual depends mainly upon the goods and services consumed by him and also, the magnitude and kind of the work he does.

Assumptions: The Bergson social welfare function is based on the following assumptions-

- Social welfare function assumes that social welfare depends on each individual's wealth and income and each individual's welfare depends, in turn, on his wealth and income and on the distribution of welfare among the members of the society.
- Social welfare function assumes the presence of external economies and diseconomies with their consequent effects.
- Social welfare function is based on ordinal ranking of combinations of those variables which influence individual welfare.

- Interpersonal comparisons of utility involving value judgments are freely permissible.

Given the above assumptions, Bergson and Samuelson explained the social welfare function with the help of social indifference curves. A social indifference curve is a locus of various combinations of utilities of different individuals which results in the same level of social welfare. Let us assume a society of two individuals, A and B. In such case, a social welfare function can be represented with the help of social indifference curves. Each indifference curve shows various combinations of utility among the individuals which show the same level of social welfare.

In Fig. 14.1 the utilities of individuals A and B are represented on the horizontal and vertical axes respectively. In the figure, W_1, W_2, W_3 and W_4 are the social indifference curves which represent successively higher levels of social welfare. The nature and properties of social indifference curves are exactly as like as that of the individual consumer's indifference curves. The effect of an intended change in policy on social welfare can be expressed from a family of social indifference curves.In figure14.1 any change in policy that moves the economy from Q to T is regarded as an improvement in social welfare.

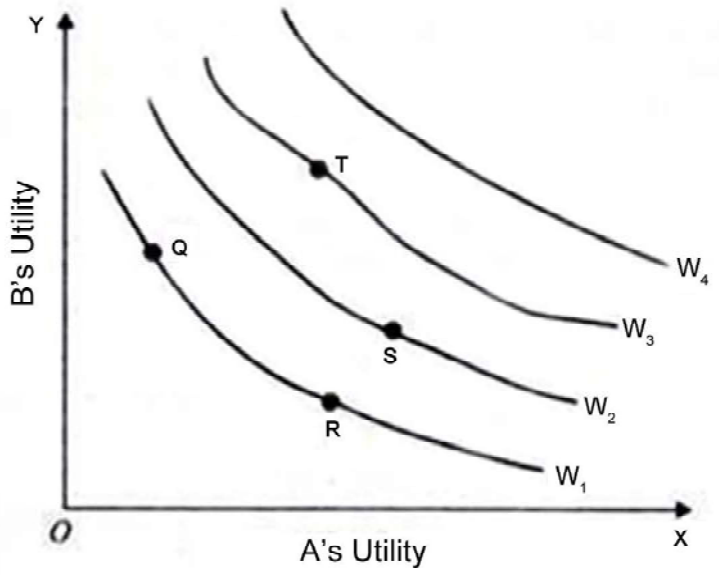


Fig. 14.1 : Social Welfare shown by Social Indifference

In the same way, the movement from Q to S or the movement from R to S also means an improvement in social welfare. But the movement from T to Q and T to S represents a fall of social welfare. Again, the movement along a same social indifference curve indicates no change in social welfare. The main significance of Bergson-Samuelson social welfare function is that it enables to find out a unique optimum position regarding social welfare which is best of all Pareto optimum positions and hence, it ensures maximum social welfare.

The main features of the Bergson-Samuelson Social Welfare function are as follows-

- This function is based on explicit value judgements and involves in interpersonal comparisons of utility ordinally.
- The maximum social welfare is completely determined by Bergson-Samuelson social welfare function by introducing value judgements in distribution of welfare among individuals.
- Bergson-Samuelson social welfare function changes with the change in value judgements.
- This social welfare function decided upon by value judgements, is Pareto optimum and also this function reflects the distribution of goods and services which is equitable and, hence, efficiency and equity are achieved and social welfare is maximised.
- Bergson-Samuelson social welfare function enables to find a unique optimum solution combining economic efficiency with distributive justice.

Bergson-Samuelson Social welfare function is not free from drawbacks. Most of the assumptions taken by Bergson-Samuelson paved the way of criticism of the social welfare function. Certain criticisms of Bergson-Samuelson Social welfare function are mentioned below:

- Economist like Little regards this social welfare function as inapplicable in a totalitarian state and more so in a democratic one-

"where there would be as many (vague) welfare functions as there are individuals. It can be regarded only as 'a formal device necessary to a perfectly general abstract system of welfare,' which bears no relation to practical policy."

- Economists regard construction and shaping of the welfare function to be a difficult task. This social welfare function is generally constructed by aggregating each individual's preferences. But the problem is, by doing so, whether individual preferences should be given equal or different weights is questionable.
- Social welfare function is determined in terms of either equations or a social indifference curve which is imaginary and arbitrary because individual welfare functions cannot be known.
- According to Little,

  "The maximum is a concept without any possible empirical significance, and therefore it seems preferable not to use it. It is more meaningful to derive the 'optimum' conditions as sufficient conditions for an improvement without attempting to define a maximum position."
- Prof. Arrow finds that,if the individuals have to make choices from among more than two alternatives, then, construction of a social welfare function on the basis of ordinal preferences is likely to lead to contradictory results.
- Prof. Baumol observes, "The social welfare function does not come equipped with a kit and a set of instructions for collecting the welfare judgments which it requires."



CHECK YOUR PROGRESS

Q.1: Mention Bergson's statement on social welfare. (Answer in 30 words).

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Q.2: Define Bergson-Samuelson's social welfare function. (Answer in 30 words).

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Q.3: Write the main assumptions of Bergson-Samuelson social welfare function. (Answer in 40 words).

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Q.4: Write the features of Bergson-Samuelson social welfare function. (Answer in 50 words).

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14.4 SOCIAL WELFARE FUNCTION AND VALUE JUDGEMENTS

Value judgment means judgment of the rightness or wrongness of something based on a comparison. A value judgement is a normative as well as subjective statement of opinion that can be tested by observing the available evidence. Some statements like 'this will increase social welfare', 'Social development is expected', 'inequalities in the society are to be reduced', are the examples of value judgments. By the term value judgement, we mean the ethical beliefs of the people about what is good or bad which is determined from outside economics and it is not obtained through any scientific methods.There is a controversy concerning whether value judgements should have any role to play in welfare economies. Prof. Robbins and his followers viewed that the inclusion of value judgements may turn the subject of welfare economics into most unscientific, hence,

economists should keep themselves refrain from making any such value judgements. But modern economists are on the view that value judgements should be considered and economists should comment upon the desirability of economic policies and issues.

The concept of value judgement has been explicitly used in Bergson-Samuelson's social welfare function. The form of social welfare function is determined by the concept of value judgement. For each different set value judgement, the form of social welfare would also be different. Hence, social welfare function is not unique; it varies with different value judgements that depend on the effect of which the utility level of each individual has on social welfare. According to Prof. Scitovsky, "The social welfare function can be thought of as a function of each individual's welfare which in turn depends both in his personal well-being and on his appraisal of the distribution of welfare among all members of the community".

Bergson-Samuelson's social welfare function is dependent on changes in economic situations that have a direct effect on individual welfares. So far as Bergson-Samuelson social welfare function is concerned, the ordinal utility level of a particular person is a function of consumption of goods and services of his own and not of the others. Moreover, the utility as well as the satisfaction level of a person depends on the value judgments of his own depending upon the composition of different goods and services consumed by him based on his tastes.

The formation of a social welfare function is a difficult task because utility is a psychological phenomenon and cannot be measured exactly by any person. Besides this, the addition and subtraction of utilities of different persons is also a very difficult task.It is quite a psychological phenomenon. The value judgements required to construct social welfare function may be obtained in two ways-

a) Dictatorial manners.

b) Democratic process.

In the dictatorial manner, the social welfare function depends upon the value judgements of the person or institution that has been assigned

by the society to do so. The authorised person or institution must be unbiased for true value judgements regarding the social welfare because changes in social welfare will depend upon his justifications.A social welfare function can be achieved by an authorised dictator. Social welfare based on value judgement is to be defined by a unanimous and unbiased authority. The authority possesses the responsibly of deciding social welfare via his justification. In this case, Bergson and Samuelson have introduced the concept of a “Superman” who undertakes the value judgements about the changes in social welfare.He takes the decisions in relation to the solution of various problems in the economy, for example, what should be produced in the society? Or how much should be produced? Or how should be the quality of the goods and so on. These issues of social welfare are to be answered by such assumed superman alone depending on his views on value judgements. The society, then, has to accept the solutions of all these questions as decided by the superman on the proposition that the superman provides value judgements and that will maximize social welfare. The superman plays the deciding role in determining social welfare. Here, people are free to from any sort of addition, subtraction and interpersonal comparisons of utilities at the existence of a super-man.

In the democratic process, the social welfare function is decided through the method of voting by individuals and majority rule and a common consensus is arrived among the individuals. This concept of value judgement is equally relevant in modern days also. The political system comes into the jurisdiction of determining social welfare by value judgement. The modern age witness people to elect their own representatives and these representatives constitute the Government by democratic process. The elected authority who owns the majority rules the society. The repre-sentative authority is responsible to take decisions regarding framing of various plans and policies on the basis of value judgements.It is expected that all the policy decisions taken by the Government are likely to maximise social welfare instead of maximising the welfare of a particular person.

Bergson and Samuelson expressed that social welfare function achieved either by dictatorial manner or by democratic process depending on value judgements must be consistent. Thus, once the social welfare function has been decided upon by value judgements, the maximisation technique is used to obtain maximum social welfare. Hence, efficiency and equity are achieved so that social welfare may be maximised. It is worth mentioning that Bergson-Samuelson's social welfare function incorporating explicit value judgements is an improvement over earlier attempts such as compensation principle advanced by Kaldor, Hicks and Scitovsky.



CHECK YOUR PROGRESS

Q.5: Define value judgement (Answer in about 20 words).

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Q.6: How is social welfare determined by value judgement according to Bergson and Samuelson. (Answer in about 40 words).

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14.5 GRAND UTILITY POSSIBILITY FRONTIER AND POINT OF CONSTRAINED BLISS

Grand utility possibility frontier is a locus of the various physically attainable utility combinations of two persons, let A and B, when the factor endowments, state of technology and preference orders of the individuals are given.

This means every point on the grand utility possibility curve refers to the optimum position in case of the allocation of the products among the consumers, allocation of factors among different products and the production direction. Hence, every point on the grand utility possibility curve is a Pareto optimum and as we move through the curve from one point to another, the

utility of one individual increases while the utility of the other falls.

Now, to find out the unique optimum position of social welfare, let us super impose grant utility possibility curve on the social indifference curves which repre-sent social welfare function. Fig. 14.2 shows that successively higher social indifference curves such as W_1, W_2, W_3 and W_4 reflect the social welfare functions. These are depicted along with the grand utility possibility curve VV/. All points on VV/ are equally efficient and hence are Pareto optimum points.

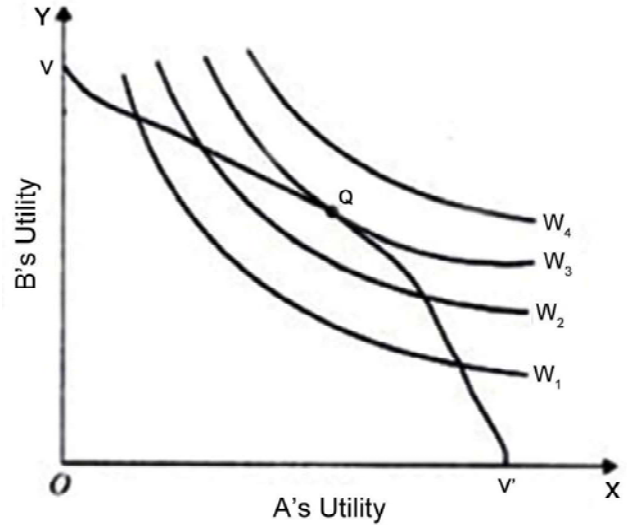


Fig. 14.2: Social Welfare function and Point of Constrained Bliss

Social indifference curve W_1 and W_2 are crossed by grand utility possibility curve VV/.But social indifference curve W_3 becomes tangent to the grand utility possibility curve VV/ at point Q which lies above W_1 and W_2 but below W_4. Thus, point Q shows the maximum possible point reflecting social welfare, given the factor endowments, technology and preference level. This is the maximum feasible point achievable grand utility possibility curve VV/ at point Q. Point Q is termed as the point of constrained bliss as per the given factor endowments and the state of technology is concerned. But the social welfare function indicated by the social indifference curve W_4, is at a higher position than social indifference curve W_3 which is beyond the reach of the individual with the given state of technology and factor endowment.Thus, from among lots of Pareto optimum points on the grand utility possibility curve along the curve VV/, the one and only unique optimum

point is Q at which the social welfare is the maximum. Hence, the point of constrained bliss means the unique (and hence maximum) point of production of goods, maximum distribution of goods between the individuals and unique (maximum) combination of factors employed to produce the goods.



CHECK YOUR PROGRESS

Q.7: Define grand utility possibility frontier. (Answer in about 30 words).

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Q.8: What is the significance of the point of constrained bliss. (Answer in about 50words).

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14.6 LET US SUM UP

- The concept of social welfare was propounded by Bergson-Samuelson.
- Bergson defines social welfare as “a function either of the welfare of each member of the community or of the quantities of products consumed and services rendered by each member of the community”.
- Social welfare function is regarded as a function of individual’s welfare which depends on one’s personal wellbeing. Thus, social welfare function may be termed as an ordinal index of society’s welfare which is a function of the utility levels of all individuals constituting the society.
- Bergson-Samuelson social welfare function can be expressed as:

  $W = F (U_1, U_2, U_3 \ldots\ldots\ldots\ldots , U_n)$

Where, W represents the social welfare, F refers for function and U_1, U_2, U_3, ..., Un represent the ordinal utility indices of individuals of the society, i.e. individuals 1, 2, 3.....n.

- Bergson-Samuelson social welfare function depends on value judgments.
- Value judgment refers to the judgment based upon a particular set or system of values. A value judgment is a normative as well as subjective statement of opinion that can be tested by observing the available evidence. By value judgments the ethical beliefs of the people about the concept what is good or bad is meant which are based on some scientific law or approach.
- Bergson and Samuelson expressed that social welfare function achieved either by dictatorial manner or by democratic process depending on value judgments must be consistent. Thus, once the social welfare function has been decided upon by value judgments, the maximization technique is used to obtain maximum social welfare.
- Bergson-Samuelson social welfare functionis defined by grand utility possibility frontier. Grand utility possibility frontier is a locus of the various physically attainable utility combinations of two persons when the factor endowments, state of technology and preference orders of the individuals are given.
- Every point on the grand utility possibility curve refers the optimum position in case of the allocation of the products among the consumers, allocation of factors among different products and the production direction. Hence, every point on the grand utility possibility curve is a Pareto optimum and as we move through the curve from one point to another, the utility of one individual increases while the utility of the other falls.
- Point of constrained bliss lies in the grand utility possibility frontier and it is the highest possible position of social welfare which the society is capable of attaining.Hence, the point of constrained bliss means the unique or maximum distribution of goods between the individuals and maximum combination of factors employed to produce the goods.



14.7 FURTHER READING

1) Ahuja, H. L. (1998). *Microeconomic Theory*. Delhi: S .Chand and Company Ltd.

2) Koutsoyiannis, A (1979). *Modern Microeconomics.* London: Macmillan Press Ltd.



14.8 ANSWERS TO CHECK YOUR PROGRESS

Ans to Q. No. 1: Bergson defines social welfare as "a function either of the welfare of each member of the community or of the quantities of products consumed and services rendered by each member of the community".

Ans to Q. No. 2: Bergson-Samuelson social welfare function can be expressed as:

$W = F (U_1, U_2, U_3 \ldots\ldots\ldots\ldots , U_n)$

Where, W represents the social welfare, F refers for function and U_1, U_2, U_3, ..., Un represent the ordinal utility indices of individuals of the society, i.e. individuals 1, 2, 3.....n.

Ans to Q. No. 3: Main assumptions of Bergson-Samuelson social welfare function are-

- Social welfare depends on each individual's wealth and income.
- Presence of external economies and diseconomies with their consequent effects.
- Social welfare function is based on ordinal ranking of combinations of those variables which influence individual welfare.
- Interpersonal comparisons of utility involving value judgments are freely permissible.

Ans to Q. No. 4: The main features of the Bergson-Samuelson Social Welfare function are as follows-

- This function is based on explicit value judgements and involves interpersonal comparisons of utility cordially.
- Introduction of value judgements in distribution of welfare among individuals.
- Social welfare function changes with the change in value judgements.
- This social welfare function decided upon by value judgements, is Pareto optimum.
- Social welfare function enables to find a unique optimum solution at the point of constrained bliss.

Ans to Q. No. 5: Value judgment is the ethical beliefs of the people about the concept of judgement of what is good or bad based on some scientific approach.

Ans to Q. No. 6: Bergson and Samuelson expressed that value judgements can be achieved either by a dictator i.e. a "Superman" who decides value judgements about the changes in social welfare or by common consensus of democratic rule. The society has to accept the solutions of all these questions decided by the superman on the assumption that he will give value judgements which maximizes social welfare. Similarly, people themselves can decide their values by majority rule through voting.

Ans to Q. No. 7: Grand utility possibility frontier is a locus of the various physically attainable utility combinations of two persons given factor endowments, state of technology and preference orders of the individuals.

Ans to Q. No. 8: Point of constrained bliss signifies highest possible position of social welfare which the society is capable of attaining.It is the Pareto optimal point.



14.9 MODEL QUESTIONS

A) Short Questions (Answer each question in 150 words)

Q.1: Briefly define the Bergson-Samuelson social welfare function.

Q.2: What are the mains drawbacks of Bergson-Samuelson social welfare function?

Q.3: Explain the two dimensions of value judgements for determining social welfare.

Q.4: Briefly explain the role of a 'Superman' while determining social welfare as defined by Bergson and Samuelson.

Q.5: Why is social welfare maximum at the point of constrained bliss?

B) Long Questions (Answer each question in about 300-500 words)

Q.1: Critically explain Bergson-Samuelson social welfare function.

Q.2: Explain the role of value judgements in determining social welfare.

Q.3: Explain how the maximum social welfare is attained by grand utility possibility curve.

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UNIT 15: ECONOMICS OF INFORMATION

UNIT STRUCTURE

15.1 Learning Objectives

15.2 Introduction

15.3 Markets with Asymmetric Information

- 15.3.1 Market Failure
- 15.3.2 Market Failure and Asymmetric Information Problem
- 15.3.3 Types of Asymmetric Information Problem

15.4 Quality Uncertainty and the Market for Lemons

- 15.4.1 Meaning
- 15.4.2 The Affected Party in the Market for Lemons
- 15.4.3 Lemons Problem and Market Failure
- 15.4.4 Markets with Lemons Problem
- 15.4.5 Mitigating Lemons Problem

15.5 Adverse Selection Problem

- 15.5.1 Meaning
- 15.5.2 Adverse Selection Problem in Different Markets
  - 15.5.2.1 Life and Health Insurance Market
  - 15.5.2.2 Credit Market
  - 15.5.2.3 Labour Market

15.6 Social Insurance

- 15.6.1 Meaning
- 15.6.2 A Brief History of Social Insurance
- 15.6.3 Features of Social Insurance
- 15.6.4 Social Insurance in India

15.7 Let Us Sum Up

15.8 Further Reading

15.9 Answers to Check Your Progress

15.10 Model Questions

15.1 LEARNING OBJECTIVES

After going through this unit, you will be able to-

- comprehend the concept of asymmetric information problem and how it is related to market failure
- understand the different types of asymmetric information problems and the similarities and differences between lemons problem and adverse selection problem
- gauge the importance of social insurance for the populace.

15.2 INTRODUCTION

Market failure is a problem the economists have to deal with and it happens due to various reasons. It adversely affects the participants of the market. Information asymmetry is one of the causes of market failure. There are two types of asymmetric information problem- adverse selection problem and moral hazard. The adverse selection problem happens when one party to a transaction have better information than the other. Lemons problem is one of the variants of adverse selection problem. In case of moral hazard problem the one party to the transaction takes risk since the costs of assuming the risk has to be borne by the other party to the transaction. The different types of asymmetric information problem are a bane for the market economies. Hence, it needs to be checked for a proper and efficient functioning of the market.



In case of moral hazard problem the one party to the transaction takes risk since the costs of assuming the risk has to be borne by the other party to the transaction.

Social insurance sometimes mitigates the problem of adverse selection. The schemes of social insurance are compulsory in nature and an individual with limited income is immensely benefitted by it. The topics to follow in the succeeding sections will discuss in detail about asymmetric information problem, its different types and social insurance.

15.3 MARKETS WITH ASYMMETRIC INFORMATION

15.3.1 Market Failure

The market's inability to attain a specific result in employing resources is market failure. Market failure obstructs the growth and

development of the economy. Under consumption and over consumption are the resultant effects of market failure.The monopolists restricting the supply of the products so as to increase the prices lead to under consumption. Over consumption is due to predatory pricing, negative externalities and the tragedy of the commons. Hence, it can be stated that imperfect competition causes market failure. Unearthing the causes and impacts of market failure is a concern for the economists in general and micro economists in particular. Market failure also takes place due to insufficient information problem. The problem of insufficient information is also known as *information asymmetry*.



Tragedy of the commons is a scenario in which the limited resources are exhausted by the people despite knowing that in the long run the society has to bear the loss.

15.3.2 Market Failure and Asymmetric Information Problem

Asymmetric information problem affects both the party to a transaction.Asymmetric information problem takes place when one party to a transaction has better information than the other. It may also be possible that the party having lesser information is aware of the fact that the other party has adequate information. Asymmetric information is a fundamental problem in market economies. Having said that it must not be misconstrued that the quality of goods/services dealt in an asymmetrically informed market is inferior to a fully informed market.

One of the primary requirements of a perfectly competitive market is to have symmetric information between the buyers and sellers. The absence of symmetric information gives rise to market imperfection and finally it results in market failure.

15.3.3 Types of Asymmetric Information Problem

The two types of asymmetric information problem present in market economies are:

- **Adverse Selection Problem:** The concept of adverse selection will be discussed in length in the successive section.

- **Moral Hazard:** Moral hazard problem arises when one party to a transaction takes risk because he is aware of the fact that in the event of any adverse consequence of the risks the other party will bear the loss. Moral hazard is very common in insurance and lending businesses.For example, when a person takes life insurance he thinks that he needn't take care of his health since he is insured. He accordingly continues consuming excessive alcohol and cigarettes believing that if he dies the life insurance company will pay the insured amount to the family and hence he can do anything with his life.This behaviour of the insured person is an act of moral hazard because the loss of the insured person will be borne by the insurance company and not by the person himself.



CHECK YOUR PROGRESS

Q.1: When does asymmetric information problem take place? (Answer in about 20 words)

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Q.2: Name the two types of asymmetric information problems. (Answer in about 30 words)

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15.4 QUALITY UNCERTAINTY AND THE MARKET FOR LEMONS

15.4.1 Meaning

The inability to decide about the value of an investment or product/service due to asymmetric information of the buyers is known as lemons problem. The theory was propounded by George A. Akerlofin the year 1970 to relate quality and uncertainty. Akerlof took

automobile market as a model to understand the problem of lemons. The theory states that,since a buyer can't distinguish between a good car and a bad car, also known as *"lemons",* hence the lemons drive out the good cars from the market. The situation arises when in a used car market both good cars and bad cars (lemons) are traded at the same price. Unable to distinguish between the two a buyer with asymmetric information tend to pay an average price for a used car. This average price is determined by averaging the value of a good car and a bad car.The seller knows the quality of the car whether it is a good or bad car (lemon) hence a seller with a bad car (lemon) will be willing to sell the lemon at the average price offered by the buyer. On the other hand, a seller with a good car will intend to sell the car at a premium price and not the average price offered by the buyer. In this scenario the buyer, due to asymmetric information about the quality of both the cars, will buy the lemon by paying the average price and thereby the good cars will remain unsold in the used car market.

15.4.2 The Affected Party in the Market for Lemons

Lemons problem arise when a buyer suffers from inadequate information about the quality of the products/service he intends to buy. The risk of lemons problem will be present whenever a seller will have better information about the product/services than the buyer. This mismatch of information between the buyers and sellers affect the buyers as he is unable to decide which product/service to buy. Due to this mistrust between the buyers and sellers at most cases the sellers with inferior quality goods are able to sell their goods in the market. This happens because the seller of inferior quality goods will be able to sell his goods at the same price that of superior quality goods.

The question now arises as to why if price for both superior quality goods and inferior quality goods are same then only inferior quality goods (lemons) are traded in the market? This happens when the buyer offers the same price (average price) for the goods whether it is a superior quality good or a lemon. The same price for the two

different qualities of goods discourages the seller of the superior quality goods to sell at the price offered by the buyer. The sellers of superior goods want a premium price for their products. But, the buyers are unwilling to pay that price because of asymmetric information. The seller of superior quality goods thereby leave the market without selling the goods at the average price offered by the buyer. Their exit from the market leaves only the inferior quality goods for trading and hence it can be stated that in the market for lemons only inferior quality goods are traded. The buyer, instead of buying a good quality product/service, is satisfied by paying an average price to procure a lemon.

15.4.3 Lemons Problem and Market Failure

The seller of a lemon brings into the market its product to sell it at an average price knowing the fact that the buyers won't be able to identify that it is a lemon product and will thus be able to sell its product. This phenomenon continues till the point the buyers gets to know about the trick. The moment buyers understand that he is buying lemon good he will offer a lesser price than the price he offered earlier (the average price) for the goods available in the market.This will lead to sellers bringing into the market further lesser quality of goods to sell at the new low price offered by the buyers. Still the buyers would be unable to distinguish between the good product and a lemon product and will end up in buying a lemon product. Again the buyers will tend to offer a further lesser price for the available goods and in return the sellers will also fill the market with inferior (lemon) goods. This phenomenon continues till the point the market witnesses a complete stoppage of buying and selling of products resulting into market failure. The failure to acquire the full knowledge about the quality of a product restricts the buyers to procure the product. Thus, it leads to market failure. Hence, it can be stated that symmetric information between the buyers and sellers will correct the problem of lemons from the market.

The problem of lemons will always leave a group of less informed buyers in the market. These buyers will learn about the features and qualities of the product only after its purchase. Till the time the problem exists there will be a negative association between the transactions speed and rate of return.

15.4.4 Markets with Lemons Problem

The problem of lemons is present in different types of market economies. Some of the markets where lemons problem exists are listed below-

- Insurance market
- Securities market
- Medical profession
- Online market
- Job market
- Fruit market
- Credit market

15.4.5 Mitigating Lemons Problem

One of the primary ways to correct the problem of lemons is to add *guarantees* and *warranties* in the product. The products with warranties or guarantees will encourage the buyers to acquire the product. This is because the guarantee or warranty in the product classifies a product to be a good product and not a lemon. This will be an incentive to the buyers to procure the same in spite of inadequate information about the product. Moreover, the risk of attaching warranty or guarantee with a product rests with the seller and not the buyer.

Another way to counter the problem is to have good brand name. This ensures quality of the product. After purchasing if the buyer realises that quality of the product is inferior then he may stop any future purchase from that brand. This will jeopardise the brand name of the product.

Chain business and licensing are the other two popular methods to encounter quality uncertainty.



ACTIVITY 15.1

Study the problem of lemons in some other markets and thereby add to the literature of lemons problem.



CHECK YOUR PROGRESS

Q.3: What is meant by 'lemons problem'? (Answer in about 30 words)

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Q.4: Who and when propounded the theory of 'lemons problem'? (Answer in about 20 words)

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Q.5: What kind of information amongst the buyers and sellers will correct the problem of lemons from the market? (Answer in about 20 words)

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Q.6: Give some examples of the markets where lemons problem exists. (Answer in about 30 words)

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15.5 ADVERSE SELECTION PROBLEM

15.5.1 Meaning

Adverse selection problem arises when one party to a transaction has better information than the other. The party who has less

information will be at a risk while executing the transaction. The adverse selection problem may affect both the buyers and sellers of a transaction. Kevin Roberts in his research paper "Cartel Behaviour and Adverse Selection" has defined adverse selection as-*"adverse selection arises when it is the preferences of other agents which are unobservable"*. The lemons problem discussed above is a type of adverse selection problem. As already discussed, lemons problem affects the buyer whereas adverse selection problem affects both the buyer and seller of a transaction.

15.5.2 Adverse Selection Problem in Different Markets

The problem of adverse selection hampers different market economies. In this section we will try to put forward the affect of this problem across markets.

15.5.2.1 Life and Health Insurance Market

In case of life and health insurance market a prospective buyer approaches a life and health insurance company to insure his risk of life and health. The health condition is private information of the buyer and the company has to rely on the disclosures made by the buyer to accept his proposal of insurance. In this scenario the buyer has better information than the insurance company (seller). Hence, there is a challenge for the insurance company to gather as much information as possible to determine the insurability prospect of the buyer. The buyer may easily hide the private information and thus this private information led to the problem of adverse selection in an insurance market. Let us discuss it in detail to understand how this private information led to adverse selection problem.

Suppose there are two prospective buyers for a life or health insurance company. One is a smoker and the other is a non-smoker. This two buyer's mortality risk is not same. The person

with a habit of smoking is having more risk of life and health and hence an insurance company has to charge higher premium from him in comparison to the non-smoker buyer. The insurance company is aware that as it is private information of the buyer hence a smoker may also recognise himself to be a non-smoker to buy the policy by paying same amount of premium which a non-smoker pays.The insurance company say, intends to fix a premium of Rs. 20/- for a smoker and Rs. 15/- for a non-smoker buyer. But, recognising the fact that the company is unable to distinguish between a smoker and a non-smoker the company fixes an average amount of premium for the buyers. The average in this example comes to Rs. 17.5/-. Now the non-smoker buyer will be discouraged to pay higher amount to buy the policy. But there will be an incentive for the smokers to buy the policy at a lesser amount of premium. Hence, all the smokers will acquire the policy whereas the non-smokers will not buy the policies at a higher premium amount. Hence, due to adverse selection problem the company will end up in insuring only the smokers leaving out the non-smokers from the market. The resultant affect is that the insurance company ends up in taking more risks since smokers have more risk of life and health than the non-smokers. If suddenly all the smokers face problem of life and health and they submit their claims for return of insurance benefit then the company will be unable to meet their claims. This will happen because the company has insured the smokers at a lesser premium than what they should have actually charged which in this example is Rs. 20/-. Thereby the company's inability to meet the claims will result in market failure due to the problem of adverse selection. Thus,this problem of adverse selection indicates that the average price is not an actuarially fair price.

Adverse selection in life and health insurance can be corrected by asking the prospective buyers to undergo a Doctor's certificate in regard to his health condition. This can be done for

a certain age group of buyers who, as per the insurance company, is having high mortality risk factor. Another way, which may practically seem difficult, is to force everyone to have a life and health insurance. In that case in the pool of insured people both high risk and low risk people will be present and the company will be saved from adversely selecting only the high risk people for insurance.

15.5.2.2 Credit Market

- In a credit market the creditor may not be able to find out the private information about the borrower's ability to pay. Lending without being sure gives rise to adverse selection problem. If in future the loans turn bad then it will be proved that the creditor has adversely selected the borrowers. This will end up in loss for the credit market and will lead to market failure.
- Another example from credit market relates to financing an entrepreneur dealing in a project. The entrepreneur's ability to finish the project on time is private information and the banks may not be able to gauge that fact. The standard contracts for debt will bring into the bank both good and bad entrepreneurs. This standard contract may lead to banks granting loans only to the bad entrepreneurs and not the good ones resulting in adverse selection of entrepreneurs by the banks.

  In a credit market linking first contract of loan with an attractive second contact of loan may attract good entrepreneurs to the bank/credit institution. Thus the problem of adverse selection may be solved to an extent in a credit market.
- The risk type of a credit card holder is private information of the card holder. Hence, unable to find out the loan repaying capacity of a credit card holder may end up in issuing credit

cards to risky borrowers due to adverse selection. The problem can be mitigated provided the company is able to identify correctly the risk type of the credit card applicant.

15.5.2.3 Labour Market

- Due to absence of any mechanism to find out the productivity of an employee at the time of recruitment adverse selection problem takes place in a labour market. Same wage for the employees lead to better equipped employees opting out of the job and the employer is left only with average or poor quality workers.

  Performance linked wage is an answer to correct the problem of adverse selection in a labour market.



ACTIVITY 15.2

Study the problem of adverse selection in some other markets and thereby add to the literature of adverse selection problem.



CHECK YOUR PROGRESS

Q.7: What do you mean by adverse selection problem? (Answer in about 20 words)

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Q.8: Do you think that only buyers are always affected by the adverse selection problem? (Answer in about 20 words)

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Q.9: What can be one of the ways to correct the adverse selection problem in labour market? (Answer in about 20 words)

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15.6 SOCIAL INSURANCE

15.6.1 Meaning

The concept of providing social security against the economic changes because of old age and financial risks due to premature death, job related disabilities, loss of employment, income loss due to ill health and other emergencies is known as social insurance. The social insurance schemes are an utmost necessity to the individuals and families with limited income. The contribution to social insurance is compulsory. The types of social insurance vary from one nation to other. The social insurance schemes are implemented to safeguard against loss of income and thereby saving the individual from the clutches of poverty.

The contributors to the scheme of social insurance in some cases are the employee and the employer or an individual and the government or the employer and the government or only the employer, etc. In some cases government, employer and also the employees contribute to the common pool of fund. The benefits are paid as a right to the individual and also without conducting a *means test*. A means test is done to identify an individual's eligibility for government support. The test takes into consideration the resources (means) available with the individual. Then, based on the means, it determines whether the individual needs to be given the government support for survival or not.

15.6.2 A Brief History of Social Insurance

In Germany under the Chancellorship of Otto Von Bismarck health insurance in 1883, workmen's compensation in1884, and compulsory old-age and invalidity pensions in 1889 were introduced.

- In 1888 Austria and in 1891 Hungary introduced Sickness Insurance Law.
- In 1891 Denmark started the old age pension scheme.

- In 1905 France introduced voluntary unemployment insurance.
- Luxembourg and Austria introduced old age insurance in 1906, followed by France in the year 1910, Rumania in 1912, and Sweden introduced it in the year 1913.
- Compulsory state subsidy support to the departments providing pension was introduced in the year 1910 in France. From the year 1897 till 1910, this scheme was voluntary in nature.
- In 1910, Britain introduced national pension system followed by compulsory health insurance and unemployment insurance in 1911.
- In 1913, Netherland introduced a compulsory sickness insurance law.
- In India, The Employee's Compensation Act was enacted in the year 1923.
- In 1927, Germany started unemployment insurance.
- In 1930, France introduced compulsory sickness insurance law.
- In 1935, United States introduced Social Security Act covering retirement and survival benefit, health care to persons over 65 years of age and disability insurance coverage.
- In 1948, Employees' State Insurance Act was enacted in India.
- In India, first Employees' Provident Fund Scheme was launched on 1st November 1952 by Employees' Provident Fund organization (EPFO).
- In 1961, Maternity Benefit Act was introduced in India.

The history of social insurance depicts that social insurance have different variations and it is not a typical insurance only. Hence, the word social insurance and social security are often used interchangeably.

15.6.3 Features of Social Insurance

Social insurance schemes are compulsory in nature.

- The compulsory characteristic of social insurance schemes mitigates the adverse selection problem as both healthy and unhealthy individuals are covered.
- A common pool of fund is created by the contributions made by government, employer and the employees. Out of this fund the claims are being paid.
- The Major chunk of contribution is made by the government and the employer and employees' contribution is kept at the lowest. Hence, the claim amount paid to an individual is more than the contributions made by him.
- Social insurance takes care of those risks also which are not insurable with a commercial insurance company. For example, risk of unemployment cannot be insured with a commercial insurance company.
- The claim amount is considered to be a right to the individual and paid without conducting the means test.
- Social insurance is a corrective measure rather than a preventive one.
- Benefits of social insurance may be paid even to those individuals who have not contributed in the common pool of fund.
- Social insurance considers maintaining a minimum standard of living.
- Social insurance provides economic support to the whole population.

15.6.4 Social Insurance in India

The Government of India has introduced different social insurance/ social security schemes to take care of the needs of the country's population. India's social security schemes provide pension benefit, insurance, maternity benefit, disability benefit, gratuity, etc. Following are some of the social security measures implemented in India.

- **Employees' Provident Fund Organization:** The organization provides superannuation pension to the contributor and after

his death family pension to the spouse. The organization runs three schemes viz., The Employees'Provident Fund Scheme, 1952; The Employees' Pension Scheme, 1995; and, The Employees' Deposit Linked Insurance Scheme, 1976.

- **Employees' State Insurance Corporation:**The Corporation takes care of full medical expense of an insured person and his family members. It also provides sickness benefit, maternity benefit, disablement benefit, dependants benefit and other benefits such as funeral expenses and confinement expenses.
- **The Employee's Compensation Act, 1923:**The Act mandates an organization to compensate for the loss suffered by an employee at work which leads to either death or disability.
- **Maternity Benefit Act, 1961 as amended by Maternity Benefit (Amendment) Act, 2017:** The Act provides for paid maternity leave of 26 weeks for first two children to a woman engaged in organized sector. For the third child the leave is for 12 weeks.
- **Gratuity:** An amount paid by an organization to its employees for rendering service to the organization.
- **Pradhan Mantri Jan Dhan Yojana (PMJDY):** A bank account can be opened without the requirement of any minimum balance. The account holders are given a RuPay debit card with an inbuilt accidental coverage of Rs. 2 lakhs. Overdraft loan facility is also available in this account.
- **Pradhan Mantri Jeevan Jyoti Bima Yojana (PMJJBY):** It is a term insurance policy. The life cover is for Rs. 2 lakhs and renewable every year at a premium Rs. 330/- which gets directly debited from the policyholder's bank account.
- **Pradhan Mantri Suraksha Bima Yojana (PMSBY):** The insurance coverage is for Rs. 2 lakhs for accidental deaths or full disability and Rs. 1 lakh for partial disability. The insurance is auto renewed every year by debiting the bank account at a premium of Rs. 12/-

- **Atal Pension Yojana (APY):** The scheme's pension benefit depends upon the contributions made by the contributor. The pension starts at the age of 60 years. The scheme also has the feature of government's commitment to minimum guaranteed pension amount.
- **Pradhan Mantri Mudra Yojana:** Loans are given to the young, educated and skilled workers under three different schemes viz., Shishu, Kishore and Tarun. The loans are approved without any collateral.
- **Stand Up India Scheme:** Granting loans to at least one SC/ST and one woman borrower per branch to set up a Greenfield enterprise. The loan under this scheme is also sanctioned without any collateral.
- **Pradhan Mantri Vaya Vandana Yojana:** It is a scheme for providing social security at old age. A person over the age of 60 years and above is covered by the scheme for any future loss of interest income due to uncertain behaviour of the market.



CHECK YOUR PROGRESS

Q.10: What do you mean by social insurance? (Answer in about 40 words)

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Q.11: What is 'means test'? (Answer in about 60 words)

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15.7 LET US SUM UP

- The market's inability to attain a specific result in employing resources is market failure.
- Information asymmetry is one of the causes of market failure.
- Asymmetric information problem affects both the party to a transaction. Asymmetric information problem takes place when one party to a transaction has better information than the other.
- Adverse selection problem and moral hazard are the two types of asymmetric information problem.
- Lemons problem is a type of adverse selection problem.
- The inability to decide about the value of an investment or product/ service due to asymmetric information of the buyers is known as lemons problem. The theory was propounded by George A. Akerlof in the year 1970 to relate quality and uncertainty.
- The risk of lemons problem will be present whenever a seller will have better information about the product/services than the buyer. This mismatch of information between the buyers and sellers affect the buyers as he is unable to decide which product/service to buy.
- The problem of lemons is present in different types of market economies.
- Warranties, guarantees, brand name, chain business and licensing are some solutions for lemons problem.
- Adverse selection problem arises when one party to a transaction has better information than the other. The party who has lesser information will be at a risk while executing the transaction. The adverse selection problem may affect both the buyers and sellers of a transaction.
- Adverse selection problem is present in different market economies and insurance business is severely affected by this problem.

- The concept of providing social security against the economic changes because of old age and financial risks due to premature death, job related disabilities, loss of employment, income loss due to ill health and other emergencies is known as social insurance. The social insurance schemes are an utmost necessity to the individuals and families with limited income. The contribution to social insurance is compulsory.
- The benefits of social insurance are paid as a right to the individual and also without conducting a *means test*.
- Social insurance is different from commercial insurance. The term social insurance and social security are often used interchangeably.



15.8 FURTHER READING

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15.9 ANSWERS TO CHECK YOUR PROGRESS

Ans to Q. No. 1: Asymmetric information problem takes place when one party to a transaction has better information than the other.

Ans to Q. No. 2: The two types of asymmetric information problem present in market economies are adverse selection problem and moral hazard.

Ans to Q. No. 3: The inability to decide about the value of an investment or product/service due to asymmetric information of the buyers is known as lemons problem.

Ans to Q. No. 4: The theory was propounded by George A. Akerlof in the

year 1970 to relate quality and uncertainty.

Ans to Q. No. 5: Symmetric information between the buyers and sellers will correct the problem of lemons from the market.

Ans to Q. No. 6: Some of the markets where lemons problem exists are- Insurance market, Securities market, Medical profession, Online market, Job market, Fruit market, Credit market etc.

Ans to Q. No. 7: Adverse selection problem arises when one party to a transaction has better information than the other.

Ans to Q. No. 8: No.The adverse selection problem may affect both the buyers and sellers of a transaction.

Ans to Q. No. 9: Performance linked wage is an answer to correct the problem of adverse selection in a labour market.

Ans to Q. No. 10: The concept of providing social security against the economic changes because of old age and financial risks due to premature death, job related disabilities, loss of employment, income loss due to ill health and other emergencies is known as social insurance.

Ans to Q. No. 11: A means test is done to identify an individual's eligibility for government support. The test takes into consideration the resources (means) available with the individual. Then, based on the means, it determines whether the individual needs to be given the government support for survival or not.



15.10 MODEL QUESTIONS

A) Short Questions (Answer each question in about 150 words)

Q.1: What is meant by market failure?

Q.2: **'**Absence of symmetric information gives rise to market imperfection and finally it results in 'market failure'. Explain in brief.

Q.3: Discuss some of the ways to correct the problem of lemons.

Q.4: Explain the affect of adverse selection problem in credit market.

Q.5: Write some of the features of social insurance.

B) Long Questions (Answer each question in about 300-500 words)

Q.1: "Since a buyer can't distinguish between a good car and a bad car, also known as *"lemons",* the lemons drive out the good cars from the market". Explain the statement.

Q.2: Discuss about the affected party in the market for lemons.

Q.3: Explain how lemons problem leads to market failure.

Q.4: Elaborate the affect of adverse selection problem in life and health insurance market.

Q.5: Write a brief history of social insurance.

Q.6: Discuss about the different social insurance/social security schemes introduced by the Government of India.

*** ***** ***



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VIII)	The self check questions are very helpful					
IX)	The Possible/model questions and the answers to check my progress have benefited me a lot					

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.....

.....

2) What sort of changes/improvements do you feel KKHSOU could implement to improve the overall quality of the SLM?

.....

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Thank you for taking the time to complete this form.