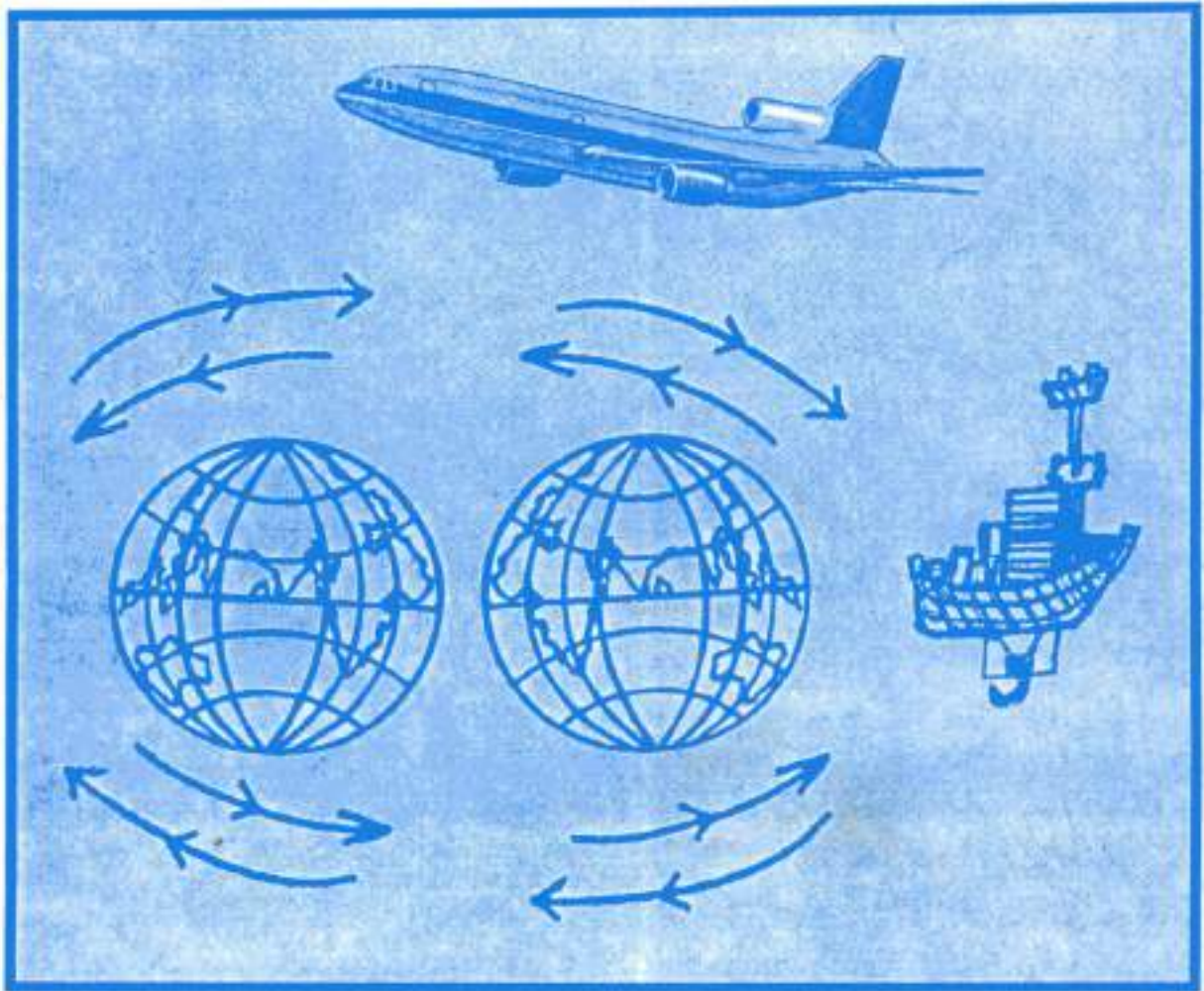


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KARNATAKA STATE OPEN UNIVERSITY
Mukthagangothri, Mysore - 570 006

Economics
Final Year M.A.
International Trade and Finance



Course - 3

Block - 1

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**M.A Economics
Course - III**

BLOCK

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M.A. FINAL (ECONOMICS)

BLOCK - 1

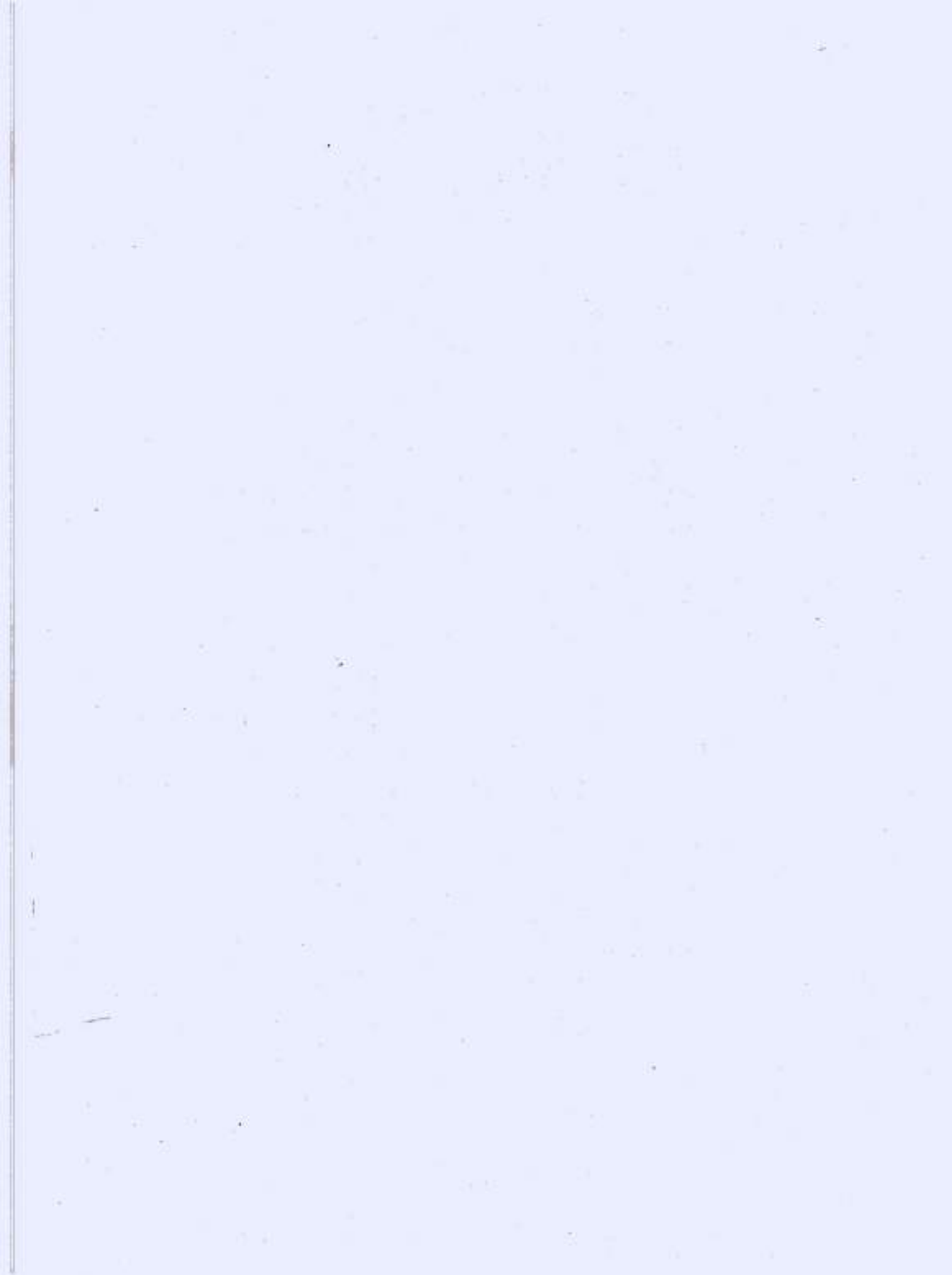
THEORIES OF INTERNATIONAL TRADE

BLOCK INTRODUCTION

There are certain basic differences between internal trade and external trade. It was on the basis of these differences that the old classical economists built up a separate theory known as the classical theory of comparative costs and other modern theories to explain the emergence of international trade.

The capital and labour between two countries are not so mobile as between two different parts of the same country. It is on account of the greater mobility of labour and capital within the country that there is a tendency for the equalization of interest and wage rates. Consequently, there comes to be established an equality in the production costs of a commodity in different parts of the country. But due to the comparatively less mobility of labour and capital, the production costs of the same commodity become different in the two countries. It is account of the differences in production costs that international trade takes place.

The Block 1 has six Units, Unit - 1 explains the salient features and determinants of the process of international trade. Unit - 2 studies comparative cost theory of International trade, Unit - 3 throws light on modern theory of International trade, Unit - 4 deals with Heckscher-Ohlin theory of trade, Unit - 5 discusses Kravis and Linder's theory of trade, and Unit 6-focuses on Rybczynski theory.



UNIT: 1 NEED FOR INTERNATIONAL TRADE

Need – International trade and Internal trade – specialization and trade – effects on efficiency – trade and economic development.

Structure

- 1.0 Aims and Objectives
- 1.1 Introduction
- 1.2 Need or basis of International trade
- 1.3 Internal trade and International trade
- 1.4 Specialization and trade or Advantages of trade
- 1.5 Effects on efficiency or disadvantages of trade
- 1.6 Trade and economic development
- 1.7 Summary
- 1.8 Key words
- 1.9 Check your progress
- 1.10 Questions for Self – Instruction exercises
- 1.11 Suggested Books

1.0 AIMS AND OBJECTIVES

The aim of this Unit is to explain the basis of international trade, concepts of internal and international trade and to analyse the advantages and disadvantages of trade and to discuss the trade and economic development.

After reading this unit you will be able to

- * discuss the basis of international trade
- * explain the difference between internal and international trade
- * examine some basic concepts relating to international trade
- * know the advantages and disadvantages of international trade and
- * understand the trade and economic development

1.1 INTRODUCTION

Internal trade refers to the exchange of goods and services within the geographical boundaries of a nation. Since a country may be divided into many regions, the trade between different regions within a country is sometimes referred to as inter-regional trade. It is the same thing as inter trade. International trade, on the other hand, refers to the trade or exchange of goods and services between two or more countries.

The simple reason for trade-whether between individuals or between regions within a country or between countries is that it enables people to enjoy those goods and services which they cannot produce themselves or produce only at a comparatively higher cost. This fact is ultimately based on the principle of division of labour. Just as each individual concentrates on the production of those goods and services for which he is most suited, so also each country tends to concentrate on the production of those goods for which it is most suited. Thus, the purpose and origin of international trade lie in the fact that human needs, both natural and acquired and natural resources do not coincide. This is specially marked in the case of minerals, coal, copper, tin gold etc, - and in agricultural products such as rice, tea, raw cotton, jute etc. Some countries have too much while others are deficient and the purpose of international trade is to make the necessary adjustment in the most economical manner.

1.2 NEEDS OR BASIS OF INTERNATIONAL TRADE

Given its special features, it would be possible now to explain the need or basis of international trade. The fundamental basis of trade whether internal or international is that all different regions within a country and different countries are not equally efficient in the production of all goods. It is therefore advantageous for each region and each country to specialize in the production of goods in which it is specially suited and in exchange obtain those goods in which it is less suited to produce. Now a very important question arises why does a country specialize in the production of certain goods?

a. differences in geographical factors like climate availability of national and manpower resources constitute the natural basis of specialization of trade. Given its peculiar geographical and other natural conditions a country can produce certain goods more efficiently than others eg., Arab countries have a natural advantage in the production of petroleum products and Afghanistan in dry fruits. Australia and North America possess vast areas of fertile land which enable them to produce wheat. And other crops efficiently. So also tropical climate is found more suitable for the production of rubber tobacco, cotton efficiently. So also tropical climate is found more suitable for the production of rubber tobacco, cotton tea and coffee than temperate regions. Therefore geographical differences is one of the important causes of trade.

b. differences in skills, techniques of production and labour force also create a basis for specialization and trade. Countries with abundance of labour might be able to use labour intensive techniques efficiently, countries like Switzerland having skilled workers would specialize in the production of goods requiring such skills. Likewise countries endowed with abundance of capital might be able to use capital intensive techniques efficiently.

c. differences in tastes, preferences and incomes may give rise to differences in demand conditions and thus trade between nations. A rich country with high consumption standards needs a wider variety of goods than a poor country and therefore its dependence on other countries for both exports and imports would be high.

d. differences in the level of development of different countries create a basis for trade. Less developed countries will at first have to import machines and technical know – how from industrialized countries. After they achieve industrial development they may be in a position to export capital goods to other countries.

e. it must be emphasized that some of the countries are producing and exporting certain goods mainly because of historical reasons. For eg., production of jute, tea and rubber in India was started on the initiative of the British rulers in the 19th century at the cost of other goods.

In short, differences in relative prices between countries is the basis of international trade. The reason for the basis of international trade. The reason for the cheapness of one commodity and dearness of another relatively at home than abroad may be due to the differences in either the supply conditions or the demand conditions in the two countries. It may be noted that the classical economists, however stressed only differences in the supply conditions at home and abroad as the basis of international trade and the lacuna of the classical theory was filled up by Heckscher and Ohlin who stressed that differences in the relative prices will depend on differences in the demand for and the supply of the goods of the commodity in the two regions.

1.3 INTERNAL TRADE AND INTERNATIONAL TRADE

It should be noted that the difference between interregional trade and international trade is only one of degree and not of kind. The fundamental principles in both cases are the same international trade

like inter regional trade is the result of division of labour. In internal or inter regional trade, people specialize in producing goods in which they have a comparative advantage, the same thing happens in international trade. In the words of Prof. Haberler "strictly speaking, it is neither possible nor essential to draw a sharp distinction between the problems of foreign and domestic trade. If we examine the alleged peculiarities of foreign trade, we find that we are dealing with differences in degree rather than with such basic difference of a qualitative nature as would warrant sharp theoretical divisions".

There are nevertheless, general differences between internal and foreign trade which necessitates the formulation of a separate theory of international trade. Some of these differences are practical some pedagogic. Perhaps the most obvious justification for a separate study arises from the barriers between countries which present completely free movement of goods, persons and capital. These barriers may be political, social or linguistic, as well as economic which takes the form of custom duties, direct trade restrictions or exchange controls. Such trade barriers are rarely important enough to impede the flow of trade within a country, but to the extent that they are important between countries they give rise to a number of problems which form part of the study of international economics.

Difference between internal and international trade arises because trade within the country is conducted in terms of a single currency. But in the case of international trade, it is found that every country has its own currency since the nationals of each country execute their transactions whether domestic or foreign in their national currency, this raises the problem of foreign exchange i.e., of converting international payments and receipts from one currency into another. But these specific problems of converting currencies does not arise in internal trade.

The most distinguishing characteristic of international trade arises from the fact that 'the existence of political boundaries carries with it controls and regulations of international trade and payments, in the form of customs duties, exchange control, foreign trade monopolies and so forth Which do not generally exist in the domestic trade area.

Another factor perhaps the most significant one which distinguishes international from internal economic transaction is that at any point time, over all economic conditions and policies are likely to differ much more markedly between countries than with in a country. For instance if two or more regions form part of the same country it is likely that similar broad economic policies will be followed in all areas and is unlikely the central government to follow a policy of expansion involving low interest rates in one region while pursuing a policy of contraction in another involving high interest rates.

Further in case of international transactions Governments always intervene and try to maintain a balance between exports and imports or at least minimize the bad effects of a deficit. Henry Sidgwick correctly remarked that it is only in the case of foreign trade that the investigation of the conditions of favourable interchange excite practical interest, because it is only in the case that there has been a serious questions of governmental interference with a view to making the interchange more favourable. But in the case of internal trade such problems do not arise as at the national level.

Another important feature of internal trade lies in the existence of greater geographical distances and the consequent increases in the transport costs. According to Henry Sidgwick, the fact of distance which renders international exchange costly, necessitates a special theory for the determination of international values. For instance transport costs become an important input in the case of international trade, while these can be ignored in internal trade. Not only goods have to be transported over longer distances but distinct problems of packing, insurance, banking and freight which are generally absent in the case of domestic trade, require special attention in the case of international trade.

At the end, inter regional trade differs from international trade in that trade between different regions in the same country is among members of the same group. Where as trade between countries is between different cohesive units. In the words of Friedrich List "domestic trade is among us international trade is between us and them".

To conclude, the differences between international and interregional trade arise from factor immobility, different currencies, different national policies, separate markets, politically different units and economic nationalism. All these causes give rise to a separate theory of international trade.

1.4 SPECIALIZATION AND TRADE OR ADVANTAGES OF TRADE

Nations trade with each other because they benefit from it. Other motives may be involved of course, but the basic motivation for international trade is that of gain. A country need not produce all the goods which it requires, it will produce only those in which it has a natural and imperative advantage and it will import commodities in which it has a comparative disadvantage. When every country follows this principle, goods are produced more efficiently and countries gain from trade. Thus international trade provides maximum scope for the optimum exploitation and allocation of world's scarce resources.

International trade widens the scope for division of labour and specialization by widening the market. Trade expands the market beyond the frontiers of a country with increasing scope for division of labour and specialization will further increase efficiency and reduce costs of production. This would lead to a more efficient and fuller utilization of a country's resources. Further by ensuring free competition, international trade reduces the dangers of monopolistic exploitation of consumers because goods and services are produced at lowest per unit cost and price is not higher than the average cost of production. Thus trade increases units of production and consumption, real income and national well being of all the participating countries.

Trade enables a country to sell goods in which it has excess production and buy goods which it cannot produce at all or produce inefficiently because of national and other factors. For example countries like Japan without any oil resources can buy the same from other countries for its domestic requirements. So also the unprecedented prosperity enjoyed by some nations would have been impossible but for the heavy world demand. To illustrate this point it can be noted that the development of OPEC countries would not have taken place but for international trade. The vast petrol reserves of these countries would

have remained unexploited making them the worlds poorest desert countries.

Likewise a country can acquire knowledge of new techniques of production and new goods through trade. International trade provides maximum scope for a country to sell her products in those world markets where she can get the best prices for her products and buy essential raw materials and other consumer goods from the cheapest sources of supply. Consequently, trade enables a country to enjoy maximum advantage both as a consumer and as a producer. So also an underdeveloped country can use trade as a means or as an engine of growth. It enables the underdeveloped countries to import capital goods and essential raw materials which are required for their economic development. It also enables these countries to import the technical know-how, managerial talents, entrepreneurship etc., from the developed countries at the most competitive terms. Trade changes the quality of the people in less developed countries teaches them to consume new and to use old things in new ways. More important than these advantages of material benefit are the advantages of international trade which may go a long way in promoting greater independence, co-operation and peace among nations. Thus international trade is pre-requisite of international economic co-operation and brotherhood.

1.5 EFFECTS ON EFFICIENCY OR DISADVANTAGES OF TRADE

Trade instead of being a source of gain may become a source of some undesirable effects and exploitation, international trade inflict losses on those home industries whose products are displaced by imports. The classic example of India during the 19th century could be cited where in the indigenous handloom industry was destroyed because of cheap imports of mill made clothes from U.K several third world countries of Africa, Asia and Latin America have also had similar bitter experience.

There is also the danger of trade becoming an obstacle to development. A country may not think of its long term development if imported goods are available at low prices. Its dependence on other countries may increase which in times of war will prove dangerous. Further a country which establishes industries to instability and uncertainty in the country. Finally trade may produce a demonstration effect whereby foreign consumption habits are imitated blindly by local population. This would distort the saving and investment patterns of a country and create artificial demand for imported goods. Thus foreign trade is not an unmixed blessing. Its many advantages must be balanced against its disadvantages, otherwise a country instead of benefiting from foreign trade may actually suffer irreparable losses.

1.6 TRADE AND ECONOMIC DEVELOPMENT

There is no country in the world which functions as a closed economic system; nor does anybody advocate autarchy. While the cold war between the communist economies and market economies persists, attempts have been made to expand the East-West trade. Though many communists still regard the multinational corporations as instruments of capitalist imperialism a number of them, including the USSR, have taken the assistance and resources of these transnational corporations to accelerate the pace of their economic growth. The communists had a tendency to dub such international institutions as the IMF and World Bank as capitalist organs; but today a number of communist countries, including

China, are members of such institutions and are utilizing the assistance extended by them. In short, international economic transactions have increasingly transcended the political barriers.

1.7 SUMMARY

International trade is important, quantitatively and otherwise to most nations. World trade is vital to India in several respects, the absolute volumes of India's imports and exports exceed those of many nations. India is heavily dependent upon trade for certain goods and materials which either cannot be obtained domestically or can be produced domestically in limited quantities only. Changes in the volume of net exports can have a magnified effect upon the domestic levels of output and income.

International and domestic trade have some difference, resources are less mobile internationally than domestically. Each nation uses a different currency and international trade is subject to more political controls.

World trade is ultimately based on two considerations; the uneven distribution of economic resources among nations and the fact that the efficient production of various goods requires particular techniques or combinations of resources.

An increase in a country's exports or a decrease in its imports will have an expansionary effect upon its NNP. Conversely a decline in exports or an increase in imports will have a contractionary impact on NNP.

1.8 KEY WORDS

Abrasion: This refers to the loss of weight suffered by a coin during circulation as a result of wear and tear

Multilateral Trade: This takes place when countries are perfectly free to trade with one another, thus extending international division of labour to the fullest extent.

Interregional trade: It is also called domestic or internal trade, since it takes place within a country, but may involve her various regions.

Bilateral Trade: This takes place when every Country tries to balance its payments and receipts separately and individually with every other country. Bilateral trade, in the ultimate analysis, has the effect of reducing the total volume of trade of all countries.

Beggar my neighbours policy: It is a policy of increasing the exports of the country at the expense of those of other countries

Factor – mobility: It means movements of factors of production occupational and regional within a country. The factors of production include land labour, capital and entrepreneurship

Factor-immobility: It implies absence of occupational spatial mobility of different factors of production within a country or between countries

Trough: It means the lowest point of economic activity reached in a country, it comes after a period of contraction but before the period of recovery begins.

1.9 CHECK YOUR PROGRESS

1. What are the fundamental reasons for international trade?

2. Explain the need for a separate theory on international trade.

3. Is international trade different from internal trade?

4. List the advantages and disadvantages of international trade.

1.10 QUESTIONS FOR SELF-INSTRUCTION EXERCISES

1. Distinguish between Inter regional and International trade
2. Explain the scope and significance of the study of international economics
3. Answer the following question in about 15 lines each

- a. Factor mobility and immobility
- b. Different moneys
- c. Different political units.

1.11 SUGGESTED BOOKS

- | | | | |
|----|--------------------|---|-------------------------|
| 1. | Bo Sodersten | : | International economics |
| 2. | David Young | : | International economics |
| 3. | Enke & Salera | : | International economics |
| 4. | Francis Cherunilam | : | International economics |
| 5. | S.S.M. Desai | : | International economics |

Note

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UNIT : 2 CLASSICAL THEORY OF INTERNATIONAL TRADE

Structure

- 2.0 Aims and Objectives
- 2.1 Introduction
- 2.2 Absolute advantage
 - 2.2.1 Assumptions
- 2.3 Comparative cost theory of international trade
 - 2.3.1 Introduction
 - 2.3.2 Comparative cost difference
 - 2.3.3 Assumptions
 - 2.3.4 Comparative cost advantage-illustration
 - 2.3.5 Criticism
- 2.4 Opportunity cost
 - 2.4.1 Introduction
 - 2.4.2 Opportunity cost and substitution curve
- 2.5 Empirical testing of the theory / Limitations
- 2.6 Summing up
- 2.7 Key words
- 2.8 Questions for self-instruction exercises
- 2.9 Suggested Books

2.0 AIMS AND OBJECTIVES

This Unit aims to examine the classical theory of trade.

After reading the Unit, you will be able to

- * discuss the classical theory of international trade
- * explain the opportunity cost theory of international trade
- * understand the empirical testing of the theories
- * analyse the concept of comparative cost difference
- * understand the production of goods and services between countries which provide the real basis for international trade
- * analyse the limitations of comparative cost differences.

2.1 INTRODCUTION

Theories of trade seek to explain the pattern of trade of countries trading with one another. They explain why a country exports certain commodities and import others. Several economists have attempted and many theories have been formulated to explain the basis of International trade.

The classical economists have attempted to explain the foundation of international trade by putting forward the principle of International division of labour based on differences in costs of production. While Adamsmith stressed the absolute cost difference and David Ricardo exhibited that even under the condition of comparative cost of advantage, international trade can take place to the reciprocal benefit of trading economies. Let us concentrate on the theory of absolute advantage by Adamsmith and comparative cost theory of Ricardo.

2.2 ABSOLUTE ADVANTAGE

Adam smith developed the theory of absolute advantage to explain the basis of trade. Given its natural resources and skills, a country produces certain commodities more efficiently than others. For example, India and Brazil, specialized in two commodities, wheat and sugar. Their cost conditions may be worked out as under:

	Wheat	Sugar
India :	10 labour hours	20 labour hours
Brazil :	20 labour hours	10 labour hours

It is clear that India required only 10 labour hours to produce a quintal of wheat while Brazil requires 20 labour hours to produce the same. In respect of sugar, Brazil required 10 labour hours while India needs 20 labour hours. India has an absolute advantage in the production of wheat and Brazil in the production of sugar. Trade will benefit both the countries if India specializes in the production of wheat, Brazil in the production of sugar exporting their respective products of each other. Suppose in

each of them there are 30 labour hours worth of resources; in the absence of trade they may be utilized to produce one quintal of wheat or sugar in which case the total world production of wheat and sugar would be 2 quintals each. With specialization India would devote all its resources to the production of wheat and thus produce 3 quintals of it, similarly Brazil will be able to produce 3 quintals of sugar. It can be seen that with the same resources, production levels in both the countries increase because of specialisation trade.

2.2.1 ASSUMPTIONS

The classical theory of international trade is based on the following main assumptions:

- a. There is perfect mobility of factors of production like labour and capital within a country. But between countries these factors are assumed to be immobile.
- b. Costs are measured in terms of labour units used in the production of goods. The classical economists developed the labour theory of value according to which relative prices would be determined by labour costs.
- c. Production is governed by the law of constant returns. Costs per unit will remain constant whether production is on a large or a small scale.
- d. Techniques of production are given. There is zero technical progress.
- e. All the factors of production are given in supply. There is full employment of resources. Factors of production are homogeneous.
- f. It is assumed that there are conditions of perfect competition within a country and free and unrestricted trade between countries.
- g. Costs of transport between countries are supposed to be zero.
- h. Tastes and preferences of consumers are assumed to be similar in all the countries.

2.3 COMPARATIVE COST THEORY OF INTERNATIONAL TRADE

David Ricardo extended the classical theory of trade further to show that even in the absence of absolute differences in costs, international trade is possible and beneficial to all the countries. His theory is called the theory of comparative advantage. In the example cited by him there are two countries Portugal and England, and two commodities-cloth and wine.

Countries	Cloth	Wine
Portugal	90 Labour hours	80 Labour hours
England	100 Labour hours	120 Labour hours

England requires more of labour hours than Portugal to produce a given unit of cloth or wine. Portugal has absolute advantage over England in the production of both the commodities. It means that according to Adam Smith's theory, specialization and trade are not possible. However, Ricardo Proves

that specialization is still possible in each of these countries. Though Portugal can produce both wine and cloth with less of labour cost than England, it has comparatively greater advantage in the production of wine (80 Labour hours) than in that of cloth (90 labour hours). Similarly, though England has absolute disadvantage in both wine and cloth its disadvantage is comparatively less in the case of cloth (100 labour hours) than in that of wine (120 labour hours) According to Ricardo, it would be to the advantage of both the countries if Portugal specializes in the production of wine and England in the production of cloth. Portugal will export its surplus wine to England and import cloth from it.

The main difference between the theories of Adam Smith and Ricardo is that in the former, the respective costs of production of the two countries are compared, while in the latter comparisons are made between commodities within the same country. Within Portugal wine is produced with greater efficiency than cloth. It will devote all its resources to the production of wine and will exchange its surplus wine for cloth from England. Similarly, within England cloth is produced more efficiently than wine. Specialisation based on comparative advantage leads to greater efficiency in the utilization of resources in each country. Thus both the countries gain from trade. In the absence of trade Portugal will produce cloth and wine. According to their labour costs, an unit of wine (80 labour hours) would be equal in value to 0.9 units of cloth. In England one unit of wine (120 labour units) would be equal to 1.2 units of cloth. When trade begins, Portugal will produce only wine and for every unit of surplus wine it would get upto 1.2 units of cloth from England. Thus, Portugal is able to buy cloth cheap; for every unit of wine exchange it would get 1.2 units of cloth instead of 0.9 units.

Similarly, England will produce cloth and wine in the absence of trade; one unit of cloth (100 labour hours) would be exchanged for 0.8 units of wine. With trade it will produce only cloth and exchange a unit of surplus cloth for upto 1.1 units of wine. Thus, for every unit of cloth it would get from Portugal 1.1 units of wine instead of 0.8 units in the absence of trade.

Ricardo's theory of comparative advantage has been modernized by Haberler. He has abandoned the labour theory of value and introduced in its place the concept of opportunity costs. This includes all the factors of production. Ricardo's theory is based on the assumption of constant returns. Haberler extended it to cover increasing and diminishing returns also. Further, the classical theory ignores demand conditions and concentrates only on production costs as an explanation of trade. Haberler has introduced social indifference curves to represent demand conditions. In this way the Ricardian theory has been sufficiently modified. In spite of this, it may be noted that there is no change in the basic conclusions of the theory of comparative advantage. The essence of the theory has remained intact.

2.3.1 INTRODUCTION

David Ricardo has formulated systematically a theory of comparative cost difference in the production of goods and services between countries, which opens up the scope for international trade. Ricardo was the first economist to establish the important benefits of foreign trade.

Ricardo's trade theory in the frame work of free trade, competitive open economics explains the

determination of international trade. In brief, the comparative cost doctrine is two commodities, two countries, and single factor of production trade model. It could be extended to include any number of goods and multiple countries. Thus, Ricardo is a pioneer in the analysis of international trade.

2.3.2 COMPARATIVE COST DIFFERENCE

International trade theory advocated by classical school of thought is widely known as comparative cost or advantage theory. Torrens, in fact, was the first economist to explain the existence of comparative cost differences as the basis for international trade. This was done by Torrens in his book "An Essay on external corn Trade". However, it was David Ricardo, the famous British economist who explained very systematically the comparative cost doctrine as the basis for international trade in his "The principles of political economy and Taxation" published in 1819. Later this theory was reformulated by other classicists like J.S.Mill, Cairness and Bastable. In the 20th Century Tanssig and Haberler have reformulated the comparative costs advantage principle and enhanced its practical usefulness.

David Ricardo has tried to raise and answer two major questions: What determines international trade? Why countries trade? Or what gains countries derive from trade?

Before Torrens and David Ricardo, the Father of Economics, Adam Smith advocated the principle of Absolute cost difference (or advantage) as the real basis for international trade. For instance petrol-producing countries have absolute cost advantage over other non-oil countries. The non-oil producers may have absolute advantage in some other commodities like the production of food grains or some kind of industrial goods. Under these situations, the different countries enjoying absolute cost difference in different goods can mutually benefit by trading with each other. The absolute advantage principle does not hold for a wide range of tradable since they manifest only relative or comparative cost differences, but not absolute cost differences. Thus, Adam Smith's absolute advantage principle being limited in its relevance and application has been replaced by most widely relevant of comparative cost advantage of explain international trade.

David Ricardo defined the concept of comparative cost advantage as a situation of the existence of relative cost differences in the production of goods and services between different countries. The extent of relative cost difference shall determine the basis for international trade between nations. The costs of production were measured and expressed in labour units. This was a classical tradition. Further, Ricardo believed that of value embodies labour".

2.3.3 ASSUMPTIONS

Ricardo's theory of international trade is based on the following assumptions:

1. The law of constant returns to scale operates in the production system of all countries participating in foreign trade;
2. labour alone determines the factor of production value embodies labour. Further, the labour is homogenous;

3. No transportation costs
4. All countries participating in foreign trade are following free trade policy;
5. There are two countries and both of them exchange each others goods;
6. Factors of production are perfectly mobile within countries, but they are perfectly immobile between countries.
7. Two countries involved in trade are on same monetary standards and the quantitative theory of money is in operation
8. The international capital movements and other invisible items of balance of payments are excluded from the trade analysis.

Thus, Ricardo formulates a two country, two commodities, single factor of production, free trade based model of trade using the existence of comparative cost advantage as a major explanatory variable or hypothesis.

2.3.4 COMPARATIVE COST ADVANTAGE-AN ILLUSTRATION

David Ricardo takes the examples of England and Portugal producing both wine and cloth at different relative or comparative costs. He illustrates this principle with a numerical example stated below:

A Comparison of costs of production

Countries	Labour cost of production (in Hrs)	
	One unit of Wine	One Unit of Cloth
Portugal	90	80
England	100	120

In the above example, Ricardo assumes Portugal to be more efficient than England in the production of both cloth and wine. Thus, Portugal enjoys relatively more cost advantage over U.K in the production of both the goods Portugal's case is one of absolute advantage since it uses less quantity of labour in her cloth and wine production than England.

Under the above kind of cost differences also Ricardo argues and shows that it would be advantageous to take up trade for both Portugal and England. Ricardo argued rationally that Portugal has relatively a high cost advantage in the production of wine where as England's least cost disadvantage is found in the production of cloth. Given this cost difference Portugal can export her wine to England in exchange for British cloth. Like this by trading with England, the Portugal can economize in the use of labour by 10 hours; where as England may economize by 20 hours of labour. So Portugal's exportable is wine and England's exportable is cloth. This way the relative or comparative cost difference between any two countries determines the scope for international trade. Ricardo unknowingly introduced the opportunity costs nation in his analysis which was subsequently developed by G. Haberler.

2.3.5 CRITICISM

In recent years, this theory has come in for scathing criticism at the hands of eminent economists like Bertil Ohlin and Frank Graham. The main criticisms leveled against the theory are as follows:

- a. **Assumption of labour costs:** The most fundamental criticism against this theory is that it has its roots in the labour-cost theory of value. The classical economists sought to explain domestic exchanges of goods in terms of comparative labour cost. This theory was rejected even in the 19th century as an explanation of relative values of several grounds.
- b. **Assumption of Fixed proportions:** Based on the labour-cost theory of value, this theory requires the further assumption that the various factors of production are always combined in the same fixed proportion. If costs other than the labour costs are admitted into the analysis of relative values, then they must always constitute a constant percentage of total costs, otherwise value would be determined by something other than labour costs. Now this assumption of fixed factoral proportions is totally wrong and unrealistic. In the real world, there is a wide variation in the proportion in which the factors of production are combined with each other.
- c. **Assumption of constant Costs:** Another criticism of this theory relates to its assumption of constant costs. According to the classical economists the law of constant costs prevails in every industry so that additional units of the same commodity can be produced at a constant labour cost per unit. But this assumption of constant costs is totally wrong and unrealistic.
- d. **Assumption of internal mobility and external immobility:** Another drawback of the classical theory of comparative costs is to be found in its basic assumption that, internally, factors of production are completely mobile but internationally they are wholly immobile. The assumption is totally wrong, unrealistic and contrary to facts. Internally, the factors of production are never perfectly immobile as assumed by the theory.
- e. **Absence of transport Costs:** Still another criticism of this theory relates to its assumption that transport costs do not exist. This is manifestly a wrong and unrealistic assumption. There are several branches of production in which transport costs are even higher than production cost. A particular commodity cannot enter into international trade unless the difference in production costs between the two countries is higher than the cost of transporting it from one country to another. Transport costs are, thus, too important to be ignored.
- f. **Unrealistic theory:** The theory of comparative cost is unrealistic in the sense that actual production in a country may not accord with the principle of comparative advantage. In other words, a country may produce even those goods in which it does not possess any comparative advantage. In these days of autarchy or national self-sufficiency, every country tries as best as it can be self-sufficient in the production of important commodities on military and strategic grounds.

- g. Complete specialization impossible: This theory has been criticized on the ground that complete division of labour and specialization would not be possible even on the assumptions of the classical economists we can illustrate this point by taking the example of two countries, one small-sized and the other large sized. In view of its small size, the former country will possess limited natural resources. It could therefore, specialize in the production of one commodity. It would devote all its resources to the production of that particular commodity. Despite this, its production of that commodity would not be adequate to meet the requirements of both the countries. The large-sized country, on the contrary, would have to produce both the commodities. In other words, it would produce even that commodity in the production of which it possesses no comparative advantage merely because the small-sized country cannot, in view of its limited resources, produce that commodity in abundance to meet the full requirements of both the countries.
- h. Clumsiness of the theory: This theory has been castigated by Bertil Ohlin as unduly cumbersome and unreal. The major drawback of this theory is that it does not take into account cost differences in the two countries in their entirety. The theory leaves out interest on capital, transportation charges and other items from the production costs. This is obviously a wrong and unrealistic treatment of the subject. The theory concentrates on wage cost only. Bertil Ohlin considers the theory not only cumbersome and unreal but also dangerous in the extreme. The theory starts with two commodities and two countries, but the conclusions drawn are later extended to situations involving several commodities and several countries.

2.4 OPPORTUNITY COST

One of the main drawbacks of the Ricardian comparative cost theory was that it is based on the labour theory of value which states that the value or price of a commodity is equal to the amount of labour embodied in the production of the commodity. This assumption restricts the generality of the theory. In reality labour is not homogeneous, but heterogeneous. It is not the only factor of production. Commodities are produced by the combination of various factors. Most of the factors are specific, they can be used only for specific purpose and they would yield less output if transferred to other use. In view of these shortcomings, in 1930's number of economists attempted to reformulate the theory of comparative cost. One such attempt was made by Prof. Gohfried Von Haberler in his work "The theory of international trade" Published in 1933. Haberler gave a new life to the theory of comparative cost by restating it in terms of opportunity costs. He has thus, replaced "real cost" (labour-cost) by "opportunity cost" in international trade theory.

Haberler's reformulation is an exercise in the frame work of general equilibrium or multiple commodity market equilibrium and he has been successful in keeping out the restrictive as well as unrealistic assumptions of Ricardian theory of international trade.

2.4.1 INTRODUCTION

Attempts of reformulate the classical theory or the cost theory of international trade in the frame work of general equilibrium or multiple market equilibrium were made by a host of economists in 1930's. One such attempt has been made by Prof. Gottfried Von Haberler in his work. 'The theory of international trade'. Prof. Haberler has reformulated the classical theory of international trade i.e., the comparative cost theory in terms of 'opportunity cost'. He has thus replaced 'real cost' by opportunity cost, in international trade theory in line with the replacement of real cost theorizing by opportunity cost in general economic analysis. In short, opportunity cost theory of Haberler has lifted the classical trade theory out of real cost strait Jacket and thus, succeeded in offering a general theory of international trade.

Prof. Haberler has maintained that the assumption of labour theory value employed by Ricardo to explain the theory of comparative costs or the classical theory of comparative costs or the classical theory of international trade is untenable and this assumption restricts the generality of the theory. In the first place, labour is not homogeneous. In reality labour is heterogenous implying that there exists different grades or kinds of labour and each kind of labour constitutes a non-competing group second labour is not the only factor of production used in the production of the commodity. Commodities are produced by the various combinations of different factors of production like land, capital and others. Hence, it is impossible technically to measure diverse factors of production in terms of single factors namely labour. Third most of the factors of production are specific. It means they can be used only for one specific purpose and they would yield less output if transferred to other use. In view of these shortcomings the assumption of labour theory of value has been dropped by Haberler. Instead, he has employed the concept of opportunity cost to explain the comparative cost theory of international trade.

2.4.2 OPPORTUNITY COST AND SUBSTITUTION CURVE

Opportunity cost is an Austrian concept theory and it is now the corner stone of modern cost theory. Opportunity cost is defined as the value of the foregone. It is the cost of the relinquished alternative. Since resources are scarce and capable of alternative application production of one commodity entails the sacrifice of the production of one commodity entails the sacrifice of the production of next best alternative. Thus, the displacement of the possible product, the foregoing of the alternative opening, in the process of getting some particular thing is the opportunity cost. An illustration makes the point clear. The opportunity cost of good 'X' is the amount of other goods which have to be given up in order to produce one additional unit of X.

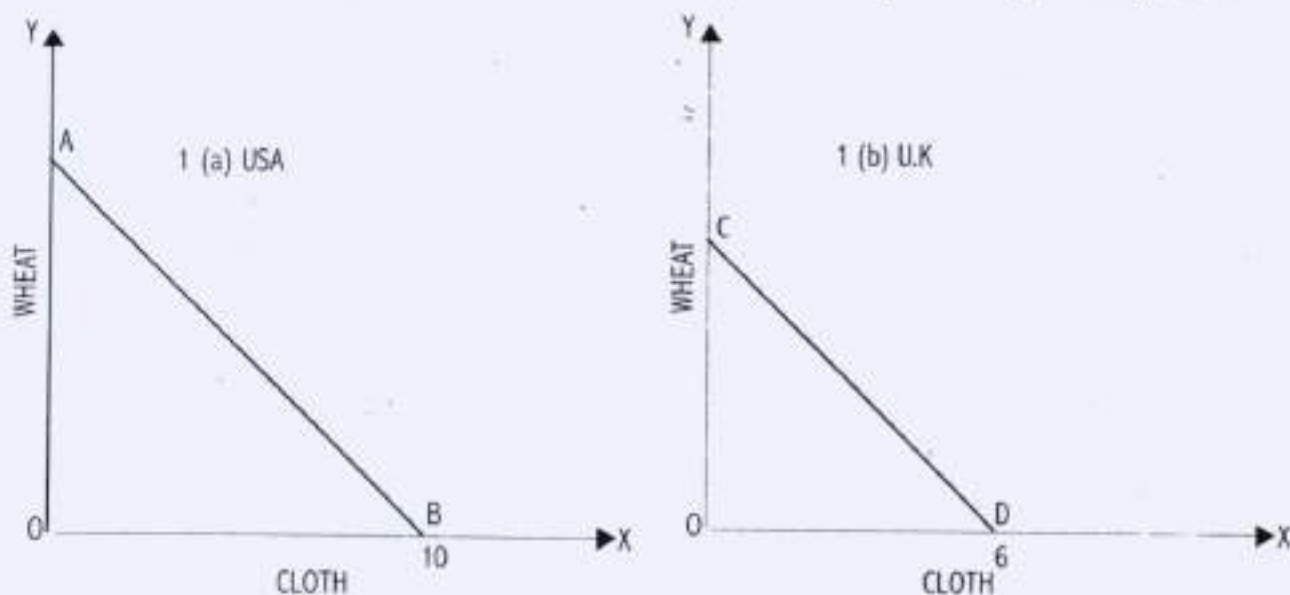
The notion of opportunity cost is illustrated in international trade theory with the substitution curve on production possibility curve or transformation curve of production frontier. Given the factor endowments and technology, substitution curve shows the various combinations of two goods that could be produced. Production possibility curve makes possible to arrive at substitution ratio between two commodities, when many factors of production are available just as well as when there is only one factor production. Thus, the concept of opportunity cost as well as the geometrical tool. Production-Possibility

curve enables us to reformulate the theory of comparative costs was dropping the assumption of labour theory of value.

Production possibility curve shows the different combinations of goods and services which a country can produce using all available resources and the most efficient techniques of production. The slope of the PPC indicates the marginal rate of transformation or substitution, i.e., the rate at which one commodity can be transformed into the other or the rate of substitution between commodities. In other words, the slope of the PPC denotes the nature of opportunity costs-constant or increasing and also the shape of the production possibility curve. When marginal rate of substitution or transformation differs between countries opportunity cost ratio will differ between countries and there will be incentive for trade.

Prof. Haberler has shown that trade is possible as well as profitable so long as the production possibilities differ between countries. Alternatively as long as opportunity costs differ across countries there will be incentive to trade. Now, with the help of opportunity cost, we can restate the comparative cost theory of trade. If two countries have different opportunity costs of producing a commodity then the country with a lower opportunity cost will have comparative advantage in the commodity.

Under constant costs production possibility curve will be a straight line. A straight line production possibility curve denotes that all the factors of production are equally efficient in all the lines of production. As a result the opportunity cost will be constant at all the points on the production possibility curve.



In the above figures (a) and (b) represent the production frontiers of the U.S and the U.K respectively. Production possibility curves in both the countries are straight lines implying that production is governed by constant costs. In the USA all the factor endowments or factors of production will enable it to produce either 5 bushels (OA) of wheat and 10 yards (BO) of cloth. The opportunity cost of wheat is 2 yards of cloth. It means an increase in wheat output by one bushel will necessitate the sacrifice of 2 yards cloth. On the other hand, factor endowments in the U.K will make it possible to produce either

bushels of wheat (OC) or 6 yards of cloth (OD). As a result the opportunity cost of 1 bushel of wheat is 3 yards of cloth. Note that the opportunity costs in both the countries remain constant at all points on the production frontiers. This implies that an additional unit of one commodity can be secured by sacrificing or giving up the same amount of another commodity at any point on the production possibility curve.

2.5 Empirical Testing of the theory limitations Jacob Viner has stoutly defended the Ricardian real cost theory of international trade and vigourously attacked the opportunity cost theory. According to viner, opportunity cost theory is inferior as a tool of welfare evaluation, to the real cost approach of the classical economists. Further, the doctrine of opportunity costs fails to measure real cost in the form of sacrifices, dis utilities, as irk someness involved. All the same, the opportunity cost theory depicted with the help of production possibility curve cannot take into consideration changes in factor supply, preferences for leisure against income and preference for one occupation against another offering the same wage rate. But some of the economists like walsh vanek have helped in showing that opportunity cost and real cost approaches are alternative simplifications of the same problem. Also the theory of opportunity cost can be made to include changes in factor supplies and preferences for leisure against income. Hence, viners criticisms appear to be farefetched. Despite several weaknesses the opportunity cost theory has been regarded as simplified version of general equilibrium level. It is worth observing the opinion of Prof. Samvelson "the opportunity cost approach is more fertile because it can be readily extended into a general equilibrium system. It is therefore not surprising that the opportunity cost approach has gained more and more popularity and it is used even by those who in principle attack it".

2.6 SUMMING UP

Our study of classical and opportunity cost theories has shown that none of these explains satisfactorily trade as it actually take place. It is so mainly because a country's exports and imports are determined by a number of factors like historical conditions, government policy the state of its development, international political situation as well as its geographical conditions and factor endowments.

2.7 KEY WORDS

Absolute differences in costs: Adam Smith extolled the virtues of free trade. These are the result of the advantages of division of labour and specialization both at the national and international levels.

Comparative cost difference: According to David Ricardo, it is not the absolute but the comparative differences in costs that determine trade relations between two countries. Production costs differ in countries because of geographical division of labour and specialization in production.

Factor immobility: This refers to the rigidity in the movement of factors of production. The international trade theories presumed that the factors of production are freely mobile within countries and they are immobile between countries.

Labour theory of value: This theory treats labour alone as a contributory factor in value creation. 'labour embodies value' is a very popular statement of David Ricardo. However, this concept was discarded later since it is erroneous.

Cobweb Theorem: It is a theory which explains the regularly recurring cycles observed in the production and prices of some agricultural commodities. This theorem was evolved after 1930 by three eminent economists. H. Schultz of the USA, Tinbergen of the Netherlands and U. Ricci of Italy working independently of each other. Prof. Nicholas Kaldor first christened it as cobweb Theorem because the pattern traced by the price movements resembled a Cobweb.

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2.8 QUESTIONS FOR SELF INSTRUCTION EXERCISE

1. Explain Ricardo's theory of comparative advantage
2. Explain Adam Smith's theory of Absolute advantage
3. What are the assumptions of the classical theory of trade.
4. Explain a country's pattern of trade in the light of the opportunity of cost theory.
5. Define 'comparative Cost Difference' principle, and illustrate it with an example.

2.9 SUGGESTED BOOKS

- | | | | |
|----|--------------------|---|-------------------------|
| 1. | Bo Sodersten | : | International Economics |
| 2. | David Young | : | International Economics |
| 3. | Enke & Salem | : | International Economics |
| 4. | Francis Cherunilam | : | International Economics |

UNIT 3: MODERN THEORY OF INTERNATIONAL TRADE
FACTOR-PRICE EQUALIZATION, SAMUELSON THEORY

Structure

- 3.0 Aims & Objectives
- 3.1 Introduction
- 3.2 Factor-Price Equalisation Hypothesis meaning
- 3.3 Assumptions
- 3.4 A diagrammatic representation
- 3.5 Critical evaluation of the theorem
- 3.6 Summary
- 3.7 Key words
- 3.8 Suggested books
- 3.9 Model examination questions

3.0 AIMS AND OBJECTIVES

The purpose of this unit is to explain the concept of factor price equalisation theorem and to give an idea of components of samuelson theory.

After reading the unit, you will be able to

- * understand the factor price equalization theorem.
- * know the important assumptions of the factor price equalization theory.
- * analyse graphic exposition of the factor price equalization theory
- * throw light on critical evaluation of the theory.

3.1 INTRODUCTION

One of the important propositions of Heckscher-Ohlin theorem is that free international trade tends to equalize factor prices between countries, thereby serving in some measure as a substitute for factor mobility. While Heckscher and Ohlin admit the possibility of partial equalization of factor prices, Prof. P.A.Samuelson has attempted to show that under certain strict conditions factor price equalization will be complete. A stronger form of this proposition has come to be popularly known as "Factor price equalization theorem".

3.2 FACTOR-PRICE EQUALIZATION HYPOTHESIS-MEANING

Heckscher in his article "The effects of foreign trade and distribution of income" published in 1919, has suggested that under the assumption of the same technique of production and production function in the two countries international trade would lead to factor price equalization without the actual mobility of factors. But he believed that techniques of production and production functions are not likely to be similar in the countries in reality. Therefore, complete factor price equalization would not occur. On the other hand, Bertil Ohlin in his book "inter regional and international trade" Published in 1933, has maintained that free trade in commodities tends to equalize the factor prices and hence commodity prices. In other words, international trade will bring about factor redistribution as well as income redistribution and thus it will tend to equalize the factor prices between countries. But Ohlin himself has admitted that trade will lead to partial factor price equalization. According to him complete factor price equalization can be attained only when factors move freely between the countries.

3.3 ASSUMPTIONS

The factor-price equalization theorem is based on a set of assumptions. There assumptions are formulated by Prof. Paul. A Samuelson.

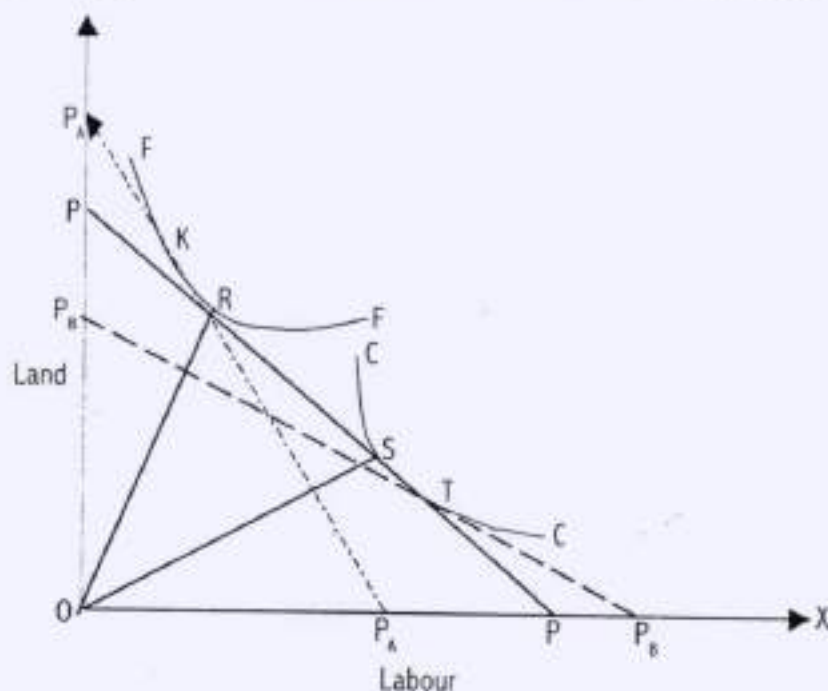
- (a) There are only two countries namely USA and UK
- (b) They produce only two commodities, food and clothing
- (c) Each commodity is produced with two factors of production. The production function of

- each commodity is homogeneous of the first degree which implies constant returns to scale.
- (d) The factors of production are subject to the law of diminishing marginal productivity.
 - (e) Factor intensities differ between commodities and factor reversals are ruled out. Food is relatively land-intensive and clothing is labour intensive.
 - (f) Land and labour are assumed to be qualitatively, identical inputs in the two countries and production function for each commodity is the same in the two countries.
 - (g) There is perfect competition with the absence of transport costs and tariffs such that free commodity movements exist between the two countries.
 - (h) Both countries produce both commodities with both factors of production. No country has complete specialization in one commodity.

3.4 A DIAGRAMMATIC REPRESENTATION

If assumptions are fulfilled, the free international trade leads to factors price equalization. According to Samuelson, "under the circumstances the real prices of factors of production precisely are at the same level in both the countries in addition, the quantity of factors of production used for food grains production in USA is equal to the quantity of factors of production used for food grains production in UK. In the same manner then in textile production the same quantity of factors of production are used in both the countries)"

Factor price equalization theorem could be better understood from the following diagram.



In the above diagram, the factor price equalization theorem has been slightly modified by Prof. Lerner. FF and CC are the isoquants for food and clothing. They denote the production functions of the two commodities for both countries. OR and OS rays form what chip man calls the 'cone of diversification, which is ROS in the figure. The post trade price ratio is P denoted by the line PL, which is tangent to FF

isoquant at point R and to CC at point S. Pre-trade price line for USA is indicated by the dotted line PA PA which is tangent to isoquant FF at point K. The ray OK is the endowment ray of USA. Likewise, the pre-trade price line for UK is shown by the dotted line $P_B P_B$, which is tangent to the isoquant CC at point T. The endowment ray OK in USA is outside the cone ROS indicating that it is specializing completely in the production of food. Complete specialization will not ensure factor price equalization. At the point K the cost of producing food is high in USA. This is evident from the fact that marginal productivity of land in value terms is lower than its rent, whereas the marginal productivity of labour is higher than the wage. Thus, the pre-trade price ratio is inconsistent with the post-trade price ratio. It is only by changing the factor of production i.e., by using more labour and less land at the point R, on the international price line PL than at KON PALA marginal productivities of both land and labour could be made equal to rent and wages respectively.

Similarly the endowment ray OT in UK is outside the cone ROS, showing that it is specializing completely in the production of clothing. But factor prices will not be equalized. At the pre-trade position T, marginal productivity of labour is lower than its wage and marginal productivity of land is higher than its rent with the result the cost of production of clothing is high. Thus, the domestic prices in UK are inconsistent with international prices. Only when UK moves to the point S on the international price line, the marginal productivities of labour and land will be respectively equal to wages and rent. This is possible if UK decreases the proportion of labour to land in the production of clothing.

At points R and S the necessary conditions for factor price equalization are fulfilled only by employing OR land/labour ratio in clothing. Factor prices are equalized in USA and UK. At points R and S, ratio of marginal productivity of land to labour is equal to the ratio of rent to wages in each country in both food and clothing. As a result, there will be a unique factor price ratio, implying equalization of relative factor prices in both countries.

Factor price equalization theorem has largely fascinated several trade theories. The Proofs offered for the factor price equalization theorem are dependent upon rigorous assumptions which are highly unrealistic. The existence of widening inequalities in income, productivity and prices between countries, in spite of substantial foreign trade undermines the practical significance of the theorem. However, it cannot be dispensed with as an intellectual toy. Factor price equalization theorem is still useful in analyzing the effects of trade on income factor prices and the production structure of similarly placed countries.

3.5 CRITICAL EVALUATION OF THE THEOREM

Factor price equalization theorem has largely fascinated several trade theories. The proofs offered for the theorem are dependent upon rigorous assumptions which are highly unrealistic. Economists like Ellsworth, Mead and many others have severely criticized Samuelson's theorem. They argue that factor price equalization can only be partial and not complete for the following reasons:

- a. It is assumed that the two factors of production are available in both countries. But it is

possible that only one factor is available in one country. In that case the marginal productivities of the factor common to both countries will differ and its prices can not be equalized in the countries.

- b. It is assumed that production functions are the same in both countries. As a matter of fact, production functions are never identical, even if resources are the same in both countries, they would not necessarily produce the same commodity in them. As pointed out by Mead "the same text books and the same brains would not produce the same thoughts in Chicago and London. This is because physical climate and social and intellectual atmosphere for the production of commodities differ from country to country".
- c. The Samuelson's theorem is based on the assumption of constant returns to scale. Mead has demonstrated that if there are economies of production in the manufacture of one of the commodities factor price equalization will not take place. Suppose Britain enjoys more economies of large scale production in the manufacture of clothing than USA. Therefore, the marginal productivity of labour would be higher in UK and lower in USA. It is possible for commodity prices to be the same in the two countries, but factor price would differ in them.
- d. It is further assumed that no country specializes completely in the production of a single commodity. But there is a likelihood of one of the countries to completely specialize in the production of one commodity before price equalization occurs. This is especially so if the other industry, say wheat in UK, happens to be very small in relation to the specialized industry-clothing. In this situation, factor price equalization will not take place till all factors engaged in the wheat production move to the other country USA.
- e. The factor price equalization theorem is based on the two commodity and two factor assumption. If the number of factors of production is more than the number of commodities, the theorem would break down. It is difficult to extend the theorem to more than two factors and two goods.
- f. The Samuelson theorem is a completely static theory. "It only studies some characteristics of given equilibrium situation at a given point of time. It says only what the effects of trade will be with a given technique with a given factor endowments and so on. But the real world is not in a given equilibrium for ever; all sorts of changes occur".
- g. Myrdal, Kindleberger, Sodersten and others opine that in the real world there is increasing inequalities in factor incomes rather than equalities in them. According to Myrdal, a cumulative process away from equilibrium in factor proportions and factor prices engendered by technological trade has been taking place. To quote Kindleberger, "trade between developed and less developed countries widens the gap in living standards (and factor price such as wages) and it is evident after centuries of trade that there are still poor as well as rich countries.

The existence of widening inequalities in income, productivity and prices between countries, inspite of substantial foreign trade undermines the practical significance of the theorem.

3.6 SUMMARY

The factor-price equalization theorem is a second component of H- O trade model. Given a set of assumptions of a standard H- O trade model the process of international trade has a tendency in the long run to bring about a factor-price equalization even when there is an incomplete specialization in the production of tradables. Bertil F – Ohlin the major proponent of the factor-price equalization also pointed out that the introduction of transport costs cause barriers in achieving complete factor price equalization so it is only a theoretical possibility.

The factor – price equalization theorem is based upon a set of highly restrictive assumptions like perfect competition. Constant returns to scale, homogenous factors of production, similarity in factor-intensities in the production of tradeables between countries etc., any change in any one or all of these assumptions create barriers for factor price equalization to take place.

The factor – price equalization theorem is severally criticized for its restrictive assumptions and also for its static nature in theorization. This theory is, however, not capable of being inclusive, so as to incorporate changing conditions of trading world.

3.7 KEY WORDS

Equilibrium: A term used to describe a situation of economic agents or of aggregates of economic agents such as market. Applied to an individual agent, such as a consumer or firm, it is used to describe a situation in which the agent is under no pressures or incentives to alter current levels or states of economic action because given his aspirations and the constraints he faces he fails to improve his position in terms of any economic criteria. When applied to markets, equilibrium is used to denote a situation in which, in the aggregate buyers and sellers get satisfied with the current combination of prices and quantities bought or sold, and so are under no incentive to change their present actions.

Heterogeneity: Means the quality of goods, services or factors which permits their distinction in the minds of consumers and producers.

Homogeneous product: If the commodities or services supplied by economic agents in a given market are having attribute combinations which are identical in the eyes of buyers, the product is considered to be homogeneous.

Factor cost: Refers to the price net of indirect taxes and subsidies. It is being the amount received by the factors of production during the manufacture of a good. National income has been equal to the incomes received in the economy valued at factor cost.

Factor Demand Curve: Refers to a curve which represents the quantities of a factor of production that business firms will want to purchase or hire at various hypothetical prices per unit of the factor.

Factor Markets: Refer to the markets in which factors of production or inputs have been bought and sold, e.g., the labour market, the capital market.

Factor Reversals: One of the assumptions of the Heckscher Ohlin approach to international trade has been that the production functions for commodities are different in the ratios in which they use factors of production and that a commodity which uses a higher ratio of say, labour to capital than another will do at all possible relative factor prices.

Factor-price equalization: This is stated as a possibility in H-O trade model. The process of international trade creates more demand for surplus factor leading to its price rise. The comparative advantage found earlier in an abundantly available factor is wiped-out in the long-run making factor prices equal in all countries.

Imperfect Competition: In reality modern markets are less competitive and more monopolistic. This is called imperfect competition. The existence of imperfect competition creates a hurdle for free trade and factor-price equalization, since it embodies all disadvantage of monopolistic markets.

Equilibrium price: Means the price at which a market has been in equilibrium.

-S.SHIVANNA,

3.8 Suggested Books

1. BO Sodersten - International Economics
2. Davind Youn - International Economics
3. Enke and Salem - International Economics
4. Francis Cherunilam - International Economics

3.9 Questions for Self-Instruction exercises

1. Discuss to what extent free movement of goods can bring about equalization of international factor prices.
2. State and explain the conditions under which Ohlin's factor price equilisation theorem is valid.
3. What do you mean by factor-price equalization illustrate with the help of a suitable diagram.
4. "Factor-price equalization is a long run tendency, that's all!" discuss
5. Discuss to what extent free movement of goods can bring about equalization of international factor prices.

UNIT 4: HECKSCHER – OHLINE THEORY OF INTERNATIONAL TRADE

Structure

- 4.0 Aims and Objectives
- 4.1 Introduction
- 4.2 Assumptions
- 4.3 Factor abundance
- 4.4 Factor Price-factor intensity reversal
- 4.5 A diagrammatic representation of H-O theory
- 4.6 Leontief method of testing-Leontief paradox
- 4.7 An evaluation/Limitations
- 4.8 Summing up
- 4.9 Key words
- 4.10 Suggested Books
- 4.11 Questions for self-instruction exercises

4.0 AIMS AND OBJECTIVES

This unit aims to examine the modern theory of international trade, i.e., the Heckscher-ohlin theory.

After reading the unit, you will be able to

- * explain the cost differences in terms of availability of factors of production in each country.
- * understand certain countries have abundance of labour in relation to capital and viceversa.
- * explain briefly the empirical tests, in particular the Leontief's paradox about the relevance of the predictions of the H-O trade model.
- * know certain commodities are produced by labour intensive techniques while others are produced by capital intensive techniques.
- * realize a country exports those commodities which use its relatively abundant factor more intensively and imports those commodities which use its relatively scarce factor more intensively.

4.1 INTRODUCTION

Bertil Ohlin in his famous book *Interregional and international trade* (1933) criticized the classical theory of international trade and formulated the general equilibrium or Factor endowment or Factor proportions theory of international trade. It is also known as the modern theory of international trade or the Heckscher-Ohlin theorem. IN fact, it was Eli Heckscher, Ohlin's teacher, who first propounded the idea in 1919 that trade results from differences in factor endowments in different countries, and ohlin carried it forward to build the modern theory of international trade.

The two very important propositions that go by the name popularly called Heckscher-ohlin theorem or model are (a) the major cause of comparative cost differences and trade between countries is to be found in differences in their relative factor endowments, this has come to be known as the 'Factor endowment theory or Factor proportions theory'. And free international trade in commodities tends to equalize factor prices between nations thereby serving to some extent as a substitute for factor movements.

4.2 ASSUMPTIONS

H-O theory is based on a number of assumptions.

- (a) for the sake of convenience, it is assumed that there are only two commodities, two countries and two factors of production labour and capital are the only two factors of production taken into consideration. They are homogeneous all over the world.
- (b) Perfect competition prevails among producers and buyers
- (c) It is assumed that the supply of factors of production is given and that they are fully employed.
- (d) There is complete mobility of factors within the country and immobility between the countries.

- (e) The production functions are on constant returns to scale in both countries.
- (f) There are no internal or external economies of scale in production.
- (g) Transport costs are non-existent
- (h) Free trade exists. Thus, there are no tariff and non-tariff barriers upon trade between countries
- (i) The international transactions are confined only to commodity trade; thus, the capital movements, and transfers of dividends and other types of invisibles are excluded from trade analysis.
- (j) It is assumed that there are no factor reversals. IT means there is no one to one relationship between factor intensities and factors prices.

4.3 FACTOR ABUNDANCE

The factor-endowments implies the possession of various factors of production by different countries. According to Heckscher –Ohlin the endowment of factors of production tends to vary both by natural and human efforts differences. In other words the endowment of factors of production tends to change and is different among nations both at a point of time or over a period of time. As a result the nature of commodities produced and the methods of production used tends to vary among nations. Thus, each country tends to produce output of such goods for whose production the country concerned has the suitable factor of production in relative abundance, and further so produced goods are exported. For this reason the Heckscher-ohlin trade model is also called the factor endowments theory of international trade or modern theory of international trade general equilibrium theory in international trade.

Bertil-ohlin considers international trade “as a special case of inter local or inter-regional trade”. Because international trade to a very large extent is governed by the same forces determining domestic trade therefore, the most prominent determinant of international trade or international specialization and trade pattern is the difference in the relative endowment or availability of factor of production. Bo soderstein states that the H-o trade model at “countries that are rich in capital will export labour intensive goods”. Here the word ‘rich’ imply only a relative abundance of the concerned factor and not an absolute abundance. In brief, the variations in factor endowments between countries lead to variations in comparative costs in the production of goods which determine the basis for international trade between countries. In this sense the H-O trade model is an attempt to reformulate the famous Ricardian comparative cost advantage principle of international trade.

4.4 FACTOR PRICE – FACTOR INTENSITY REVERSAL

In the H-O model, factors of production are regarded as scarce or abundant in relative terms and not in absolute terms. That is, one factor is regarded as scarce or abundant in relation to the quantum of other factors. Hence, it is quite possible that even if a country has more capital, in absolute terms, than other countries, it could be poor in capital. A country can be regarded as richly endowed

with capital only if the ratio of capital to other factors is higher when compared to other countries. For example, let us suppose country A has 25 units of labour and 20 units of capital and country B has 12 units of labour and 15 units of capital. Therefore, the capital labour ratios in A and B countries are 0.8 and 1.25 respectively. Even though country A has more capital in absolute terms, country B is richly endowed with capital because the ratio of capital to labour in country A (0.8) is less than in country B (1.25).

According to the Heckscher-ohlin theory, the pattern of international trade is determined by factor endowments and factor intensities. But, changes in the relative factor endowments and factor intensities is possible over time. Such changes could change or even reverse the pattern of trade.

A growth in factor supplies may eventually make the scarce factor abundant and vice versa. This relative change in factor endowments may change the commodity composition of trade.

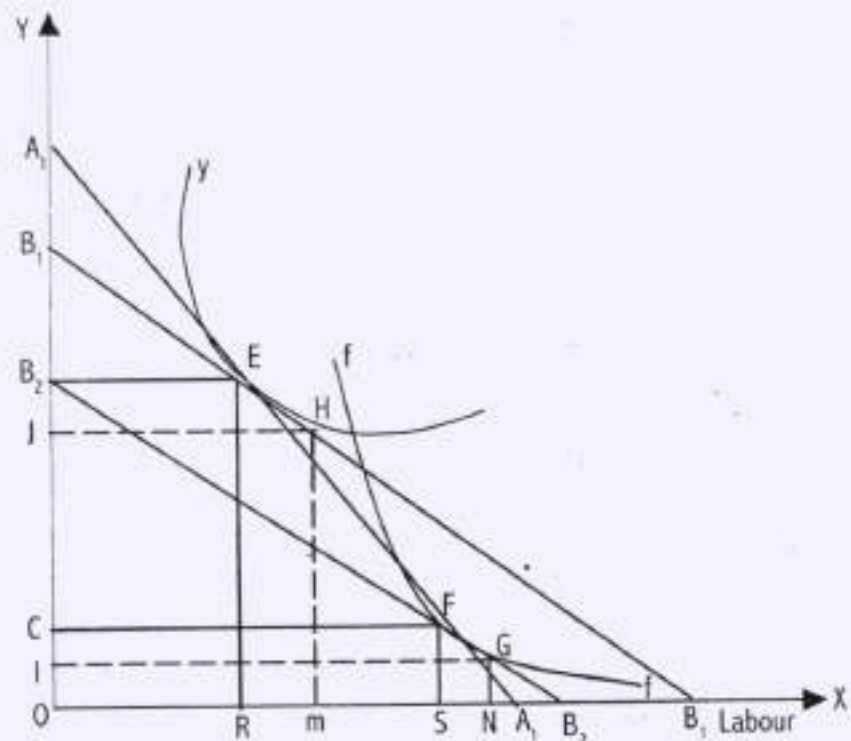
The commodity composition of trade may be reversed also by changes in production functions. For example, a technological change may make a labour intensive good and capital intensive one. Again, some technological change or government policy in favour of labour intensive production techniques could make the production of certain capital intensive production techniques could make the production of certain capital intensive goods more labour intensive.

The factor endowment theory assumes that production function is decidedly biased i.e., a given commodity uses a particular factor of production intensively. But we can show that production intensity need not be biased at all or that reversal in factor intensities is possible.

4.5 A DIAGRAMMATIC REPRESENTATION OF H-O

The following figure explains the Heckscher-ohlin theorem expressed in terms of price-definitions of factor abundance. Isoquants YY and XX show that Y is the capital-intensive good and X is the labour intensive good. Each isoquant represents 1 unit of the respective good. Relative factor prices in country A are shown by the factor price line AA_1 , which is the same for both the commodities. In country A one unit of Y requires OD of capital and OR of labour. To produce one unit of X, it requires OC of capital and OS of labour. It is evident therefore that in country A, Y is capital intensive good and X is labour intensive good.

FIGURE



The factor price line AA_1 in country, A as compared with either B_1B_1 or B_2B_2 (which are both parallel and hence have the same slope) is steeper indicating that capital is relatively cheap or capital is relatively abundant. Since capital is cheap in country A_1 it specializes in the production of commodity Y, which is a capital intensive good.

Now take the case of country B its equilibrium positions in respect of both the commodities are H and G. Note that the factor-price lines B_1B_1 and B_2B_2 are parallel and they are flatter or less steeper than the factor-price line AA_1 indicating that country B is relatively labour abundant economy. It means in country B labour is cheap and capital is dear. Now the cost of the each unit of good in country B is to be measured. To produce one unit of X country B requires OI amount of capital and ON amount of labour; likewise, to produce one unit of Y, country B requires OJ amount of capital and OM amount of labour. A comparison of costs shows that Y is capital-intensive and X is labour intensive. Since the country B is labour abundant and since X is labour-intensive, it follows that country B must specialize in the production of X and trade in that commodity. In sum, country A which is abundant in capital will export capital intensive good and country B which is a labour abundant economy will export labour intensive commodity and hence Heckscher – ohlin theorem is established.

4.6 LEONTIEF METHODS OF TESTING- LEONTIEF PARADOX

Leontief starts from the observation that America is relatively abundant in capital and relatively scarce in labour as compared with the rest of the world. He assumes that USA reduces exports and imports by an equal amount and shifts the resources formerly engaged in export industries to import replacement or import-substitute industries. Following the Heckscher-ohlin theorem export contraction must release in relatively more capital and relatively less labour than import substitute industries absorb. But leontief's results showed that export industries released more labour than capital. It follows from this that American exports are labour-intensive or American import replacement industries require more capital than labour. Thus, Leontief concludes that American participation in the international division of labour is based on its specialization in labour intensive rather than capital intensive lines of production. In otherwords this country resorts to foreign trade in order to economize its capital and dispose of its surplus labour rather than vice-versa.

A number of criticisms have been leveled against Leontief's study on statistical and methodological grounds. The most important criticism of Leontief is that of Prof. P.T.Ellsworth is that the capital intensity of U.S. import replacement industries is irrelevant to the comparison. His argument is that a comparison of capital intensity in U.S. exports industries is to be made with the capital intensity in the countries which produce U.S imports since, USA is being abundant in capital, it will employ capital-intensive techniques to produce import substitutes even in import-replacement industries. As a result, Leontief's study has shown higher capital labour in import replacement industries. Ellsworth has maintained that Leontief should have studied whether goods imported into USA are capital or labour intensive in the countries of origin. The point of view of difference between Leontief and Ellsworth is that Leontief assumed identical production functions in tune with Heckscher-ohlin model, while Ellsworth has argued that production

functions in tune with Heckscher-ohlin model, while Ellsworth has argued that production functions in reality differ between countries. Ellsworth's contention is more plausible for much of the explaining of the Leontief's paradox highlights the differences in production function between countries.

Leontief's paradoxical results have stimulated similar studies for other countries. Bharadwaj's study on India and Wahl's study for Canada refute the Heckscher-ohlin analysis. The Tatemote and Ichimura study of the foreign trade of Japan with the world as a whole refutes the Heckscher-ohlin theorizing, while the disaggregation suggest a result in line with Heckscher-ohlin theory. A study of East German trade by W. Stotper and K. Roskamp has yielded results consistent with Heckscher-ohlin theory.

Leontief's paradox has not only stimulated similar studies but also brought forth a number of explanations. These explanations have attempted to bring about reconciliation of the Leontief Paradox with the Heckscher-ohlin theory.

- a. **Productivity of U.S. labour:** Leontief himself has attempted to reconcile his findings with the Heckscher-ohlin theory. He has argued that USA is relatively abundant in labour and hence exports labour-intensive goods. The basis for his argument is that the productivity of American labour is three times higher than foreign workers. If the labour is measured in terms of efficiency units or standard units, then American labour supply will be a certain multiple of the apparent labour supply. Hence America is rich in labour and hence exports labour intensive goods.
- b. **Human capital:** Leontief's study has not considered human capital. However, his study shows that more skilled labour is used in U.S. export industries than in import substitute industries. The study made by Perier B. Kenen, has shown that the consideration of both human capital and physical capital in the analysis of factor intensities of U.S. export industries and import replacement industries will reverse Leontief paradox.
- c. **Natural resources:** Leontief has neglected the role of natural resources in relation to the U.S. trade pattern. J. Vanek and others have shown that natural resources and capital are complementary in production. In view of the scarcity of several natural resources, capital abundant USA has tended to import capital-intensive goods from other countries. The U.S. trade pattern-the import of natural resources products like minerals and forest products which have high capital labour ratio and exports of farm products having low capital-labour ratio explains the Leontief paradox.
- d. **Factor intensity reversals:** Heckscher-ohlin theorem breaks down in the context of factor reversals between countries and one of the countries will show the results of Leontief paradox. Prof. B.S. Minhas study of production functions in several countries reveals that factor reversals are common due to the fact that the elasticities of substitution between factors differs between industries. These factor reversals occur in the empirically relevant range of factor prices.

Minhas investigation of twenty four industries in 19 countries has revealed factor reversals in five industries. The possibility of factor reversals explains the Leontief paradox. However, Leontief recalculation of Minhas results shows that factor reversals are less common.

4.7 AN EVALUATION/LIMITATION

From the discussion set forth above it can be seen that the modern theory offers a more scientific explanation of cost differences than the classical theory. But it must be emphasized that it is equally static and unrealistic in its assumptions. The assumptions of given resources, techniques and assumptions of given tastes and preferences and conditions of perfect competition. The modern theory suffers from the assumption of identical techniques all over the world for a given commodity. It can be seen that cloth can be produced by different techniques like handlooms, powerlooms and mechanized mills. As against this, the theory assumes that cloth is produced by only one technique which is the same in every country. Because of its static character, the theory cannot explain satisfactorily the pattern of trade between developed and underdeveloped countries. Leontief tested this theory for the U.S.A. It is generally believed that the USA is capital rich and labour scarce country. Therefore, its exports should be capital intensive and imports labour-intensive. Leontief found that the America exports and imports were just contrary to this. If exports were labourintensive and imports capital intensive. These strange results are described as 'Leontief's paradox.

4.8 SUMMING UP

Our study of the classical and modern theories has shown that none of these explains satisfactorily trade as it actually takes place. It is so mainly because a country's exports and imports are determined by a number of factors like historical conditions, government policy, the state of its development, international political situation as well as its geographical conditions and factor endowments.

4.9 KEY WORDS

Elasticity of Substitution: It means the extent to which one commodity can be substituted for the other. Perfect elasticity of substitution would occur if the two commodities were perfect substitutes of each other.

Variations in factor – Endowments: This concept is used by Heckscher – ohlin as the basis for explaining determination of international trade. The variations imply differences in the possession of factors of production between various countries at a point of time and over a period of time.

Assumptions: Assumptions are conditions under which a theory holds good. They are instruments facilitating reasoning in a theory. They may be discarded and changed.

Capital-intensive: It refers to that which uses large amounts of capital equipment in relation to its labour force or its output.

Labour – intensive: A process of technique of production A is considered to be more labour intensive

than an equivalent process of technique B if the ratio of labour to capital used has been greater in A than in B.

Leontief's Paradox: The prediction of the H-O is that a country relatively abundant in capital will export will export capital-intensive good and import the goods whose domestic production requires relatively large amount of its relatively scarce factor namely labour. Contrary to the prediction of H-o theorem, Leontief's exhaustive study of America's domestic production and trade that come out with the startling result, that America, being relatively capital abundant economy exports labour-intensive goods. The result of the study Leontief has come to be known as Leontief of paradox

-S. SHIVANNA,

4.10 SUGGESTED BOOKS

- | | | | |
|----|--------------------|---|-------------------------|
| 1. | Bo Sodersten | : | International Economics |
| 2. | Daivd Young | : | International Economics |
| 3. | C.P. Kindle Berger | : | International Economics |
| 4. | S.S.M. Desai | : | International Economics |
| 5. | Francis Cherunilam | : | International Economics |
| 6. | M.L. Jhingan | : | International Economics |

4.11 QUESTIONS FOR SELF INSTRUCTION EXERCISES

1. State and explain the Heckscher – ohlin theory of international trade. To what extent is jt superior over the classical theory?
2. Explain the main assumptions of the H-o theory.
3. What is meant by 'Leontief's paradox'? Does it invalidate H-o trade theory
4. Explain a country's pattern of trade in the light of the factor endowments theory.

UNIT 5: KRAIVS AND LINDER'S THEORY OF TRADE

Structure

- 5.0 Aims and Objectives
- 5.1 Introduction
- 5.2 The availability approach - Kravis
- 5.3 Linder's representative demand hypothesis-overlapping demand
- 5.4 An evaluation
- 5.5 Key words
- 5.6 Suggested Books
- 5.7 Questions for Self-Instruction exercises

5.0 AIMS AND OBJECTIVES

The unit aims to examine a rival doctrine to the theory of comparative advantage and the main argument about how income growth affects demand and trade.

After reading the unit, you will be able to

- * explain the pattern of trade in terms of domestic availability and non-availability of goods-Kravis
- * understand how availability influences operation through both demand and supply forces.
- * know Linder's representative-demand hypothesis.
- * analyse the demand pattern towards luxuries, when per capita income shifts.

5.1 INTRODUCTION

The availability approach to the theory of international trade seeks to explain the pattern of trade in terms of domestic availability and non-availability of goods. In a nutshell, the availability approach explains that a nation would tend to import those commodities which are not readily available domestically and export those whose domestic supply can be easily expanded beyond the quantity needed to satisfy the domestic demand.

Swedish economist Linder's representative demand hypothesis draws casual arrows from income to tastes and from technology to trade when per capita income shifts.

5.2 THE AVAILABILITY APPROACH-KRAVIS

Kravis argues that Leontief's findings that the USA's exports have a higher labour element and a lesser capital factor than its imports may be explained better and more simply by the availability factor. Goods that happen to have a high capital content are bought abroad because they are not available at home. Some are unavailable in the absolute sense (for instance, diamonds); others in the sense that an increase in output may be achieved only at much higher costs (i.e., the domestic supply is constant). When unavailability at home is due to lack of natural resources (relative to demand), the comparative advantage argument is perfectly adequate.

According to Kravis, there are other facts of the availability explanation of commodity trade pattern that cannot be so readily subsumed under the rubric "Comparative advantage". One of these is the effect of technological change. Historical data for the USA indicate that exports have tended to increase most in those industries which have new or improved products that are available only in USA or in a few other places at the most. Product differentiation and government restrictions are the other factors tending to increase the proportion of international trade that represents purchases by the improving country of goods that are not available at home.

According to Kravis, there are, thus, four bases of the availability factor, namely;

- (a) Natural resources;

- (b) Technological progress
- (c) Product differentiation; &
- (d) Government policy.

The first three of four bases – natural resources, technological progress and product differentiation probably tend, on the whole, to increase the volume of international trade. The absence of free competition, a necessary condition for the unfettered operation of the law of comparative advantage, tends to limit trade to goods that cannot be produced by the importing country, argues Kravis. The most important restrictions on international competition are those imposed by the governments and by cartels. Those imports that are unavailable or available only at a formidable cost are subject to the least governmental interference. Kravis is of the opinion that the quantitative importance of the availability factor in international trade is considerable. This appears to apply especially to half of world trade that consists of trade between the industrial areas on the one hand and the primary producing areas on the other.

The availability avenue is really novel in describing the trend of the international trade.

5.3 LINDER'S REPRESENTATIVE – DEMAND HYPOTHESIS – OVERLAPPING DEMAND

The other main argument about how income growth affects demand and trade is an imaginative conjecture advanced by the Swedish economist Linder. Linder's representative demand hypothesis draws casual arrows from income to tastes and from technology to trade, for example, a rise in per capita incomes shifts a nation's representative – demand pattern toward luxuries that the nation can now afford, as Engel's law also implied, this new concentration of demand on affordable luxury manufactures causes producers to come up with even more impressive improvements in the technology of supplying those goods in particular; their gains in productivity actually outrun the rises in demand that caused them, leading the nation to export these very luxury goods and to lower prices. Thus we should expect to see nations exporting goods in which they specialize in consuming. Linder's argument does not rest on any one explicit set of assumptions but would be helped along if there were economies of scale or of learning by doing in luxury manufacturing.

His view has not yet received a definitive test. Its prediction of exports and lower prices for representative- demand goods fit the rough look of the automobile market, where nations tend to export the types of autos most appropriate to the income levels in their own economies. It also prepares us for the possibility that luxury manufactures may become increasingly cheap even though income growth shifts demand towards them.

5.4 AN EVALUATION

Why does Saudi Arabia export oil or Chile, copper, the simple minded answer to the question is that it is because Saudi Arabia has oil fields and Chile has copper deposits. An American economist, I.B. Kravis has put forward the availability of scarce resources like the one discussed above as a rival

doctrine to the theory of comparative cost.

The other main argument about how income growth affects demand and trade is an imaginative conjecture advanced by the Swedish economist Linder.

5.5 KEY WORDS

Engel's law: According to this law, the smaller a person's income the greater the proportion of it that he will spend on food.

Cartels: It is a monopolistic organization established for the purpose of restricting the output of member-firms in order to keep up the price of their products. The cartels first made their appearance in Germany.

A Priori: Relates to speculation or reasoning which has been prior to actual experience. As reasoning it proceeds deductively from cause to effect; such speculation or reasoning stands in contrast to an appeal in evidence. The term is often used as a synonym for 'on theoretical grounds'.

Bandwagon effect: Refers to the effect where by as the price of a good falls and demand by some sections or individuals in the community expands other individuals or sections 'imitate' the reaction and expand their demand also.

Gibson Paradox: According to this, the level of prices and the level of interest rates move in the same direction over a long period of time. The period 1939-1946 was, however, an exception because the prices and interest-rates moved in opposite directions during this period.

Kondratieff cycle: It refers to a series of long waves of fluctuations in business activity. It is named after N.D.Kondratieff, a Russian economist, who first analysed this aspect of the business cycle. Kondratieff cycle consists of waves in prices, production and employment lasting from fifty to sixty years.

Moonlighting: It is holding of more than one job by an individual worker. A moonlighter may do one job during daytime and take up another in the evening hours.

Variations in Factor-intensity in production:

This refers to technical co-efficients of production implying which type of factor is used in what type of commodity production. Forex, cloth production may be capital or labour intensive. Of the two, which one a country would choose, depends ultimately on its factor endowments.

Factor-demand reversal: This refers to a foreign trade pattern in which a country tends to import such goods whose production requires the factor of production which the country concerned possess in relative abundance. For ex., USA a relatively capital abundant country importing capital intensive goods from other countries.

-S. SHIVANNA,

5.6 SUGGESTED BOOKS

1. Bo Sodersten : International Economics
2. David young : International Economics
3. El'ie & Salern : International Economics
4. Francis Cherunilam : International Economics
5. Jhingan : International Economics
6. S.S.M. Desai : International Economics

5.7 QUESTIONS FOR SELF-INSTRUCTION EXERCISES

1. Critically examine Kravis and Linder's theory of trade
2. Distinguish between availability and non-availability approach
3. Examine Engel's law
4. Discuss Linder's representative demand hypothesis.

Note

UNIT 6: RYBCZYNSKI THEORY

Structure

- 6.0 Aims and Objectives
- 6.1 Introduction
- 6.2 Assumptions
- 6.3 Rybczynski theory
- 6.4 Policy implications of immiserising growth
- 6.5 Causes of emergence and measurement of intra-industry trade and its impact on developing countries
- 6.6 An evaluation
- 6.7 Key words
- 6.8 Suggested Books
- 6.9 Questions for Self-instruction exercises

6.0 AIMS AND OBJECTIVES

This unit tries to analyse that what happens if one of the factors of production increases and other being the constant. The output of the good using the accumulating factor intensively will increase and the output of the other good will decrease in absolute terms, provided that commodity and factor prices are kept constant.

After reading this unit, you will be able to

- * know the position of supply of factors of production
- * understand the trend of price.
- * analyse the consumption pattern
- * realize the international commercial exchange rate.

6.1 INTRODUCTION

According to Rybczynski the importance of differences in factor proportions extends even further keeping one factor growth relative to others does not just raise the output shares of the sectors using it intensively. It actually reduces the outputs of the other sectors if world prices remain the same. The Rybczynski result suggests that the development of a few natural resource, such as oil or gas in Canada or UK may retard the development of other lines of production such as manufactures. Conversely the rapid accumulation of new capital and skills in a fast-growing trading country can cause a decline in domestic production of natural resource products and make the more reliant on imported materials. This happened to USA, which was transformed from a net exporter to a net importer of minerals as it grew relative to the rest of the world, perhaps partly because of the accumulation of skills and capital.

6.2 ASSUMPTIONS

This theorem is based on the following assumptions.

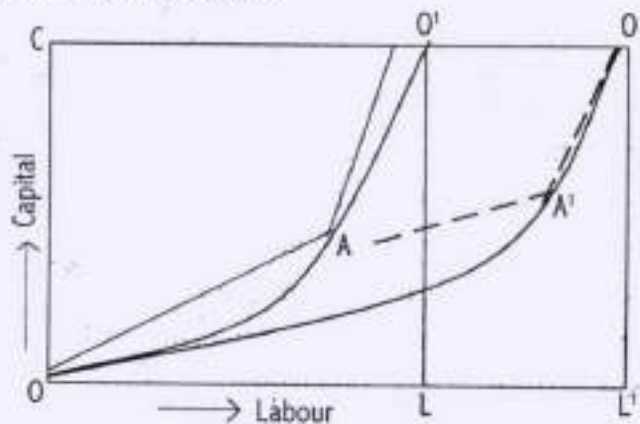
- a. There are two countries which trade with each other. But the analysis is geometrically confined to one country.
- b. This country produces only two commodities X and Y.
- c. These commodities are produced with two factors, labour and capital.
- d. These two factors are perfectly divisible, perfectly mobile and are substitutable in some degree
- e. The production functions of both commodities are linear and homogeneous
- f. The factor intensity of each commodity is different. Commodity X is relatively labour-intensive and commodity Y, is relatively capital-intensive.
- g. Both commodity and factor prices are constant.

- h. There is perfect competition in commodity and factor markets.
- i. Only the supply of one factor is changed while keeping that of the other as constant.

6.3 RYBCZYNSKI THEORY

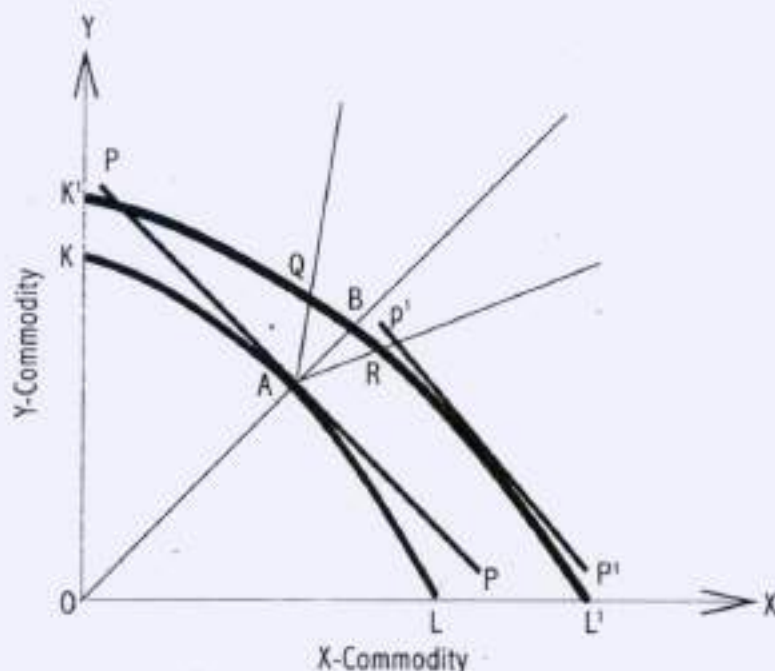
The Heckscher-ohlin theory and the factor price equalization theorem are based on the assumption of constant factor endowments. Rybczynski demonstrated in a paper published in 1955, the effect of change in one factor, keeping the other constant on the outputs of the two commodities entering into international trade. This has come to be known as the Rybczynski theorem. The Rybczynski theorem states that in a two factor-two commodity economy a rise in the supply of one factor, keeping the supply of the other factor constant, leads to an increase in the output of the commodity that uses the increased factor intensively, and to a decline in the output of the other commodity. For instance, if the supply of labour increases, the output of the capital-intensive commodity declines. On the contrary, if the supply of capital increases, the output of capital-intensive commodity increases and the output of the labour-intensive commodity declines.

Given these assumptions the Rybczynski theorem is analysed in the following picture with the aid of the box diagram where the origin of commodity X production is O and that of commodity Y production is O'. The country's original factor endowments are measured by the box OLO'C. On the box, labour is measured on the horizontal axis and capital on the vertical axis. Suppose A is the initial production point lying on the contract curve OAO' so that the capital-labour ratio for each commodity is given by the slopes of OA and O'A. The slope of OA shows that commodity X (on the horizontal side) is labour intensive relative to commodity Y. Similarly the slope of O'A shows that commodity Y is capital intensive relative to commodity X. OA also reflects the output of X and O'A the output of Y. OL is the supply of labour and OC the supply of capital.



Suppose the supply of labour increases from OL to O'L', with the increase in labour by LL' the new box is OL'O''C. Since the capital labour ratio in each commodity is unchanged at constant commodity prices, the new production point is A' which lies on the extension of ray OA and the new ray O''A' drawn parallel to O'A. The new production point A' which lies on the contract curve OA'O'' shows that the output of the labour-intensive commodity X increases from OA to OA', and the output of the capital-intensive commodity Y declines from O'A to O''A'.

Rybczynski carries over the above proposition into a diagram showing PPC. In the next diagram the horizontal axis measures quantities of the labour-intensive commodity Y. The production possibility curve KL is derived from the box OLO'C in the figure. The equilibrium exchange rate between X and Y is at point A on the initial production possibility curve KL. When the supply of labour is increased, the new production possibility curve is K'L' derived from the box OL'O''. The new equilibrium position is at point A' where the price line P'P' is parallel to the initial price line PP. But this point A' cannot possibly be an equilibrium position at the new higher national income level unless Y is an inferior good. The increase in the supply of labour leading to the higher production possibility curve K'L', implies an increase in the national income.



As a result the demand for both commodities will increase. Therefore, the new equilibrium point must lie within the quadrant QAR on the new production possibility curve K'L'. For instance, the slope of a price line tangent to the production possibility curve K'L' at any of the points Q, B or R must be flatter than at A. This implies that the terms of trade of the labour-intensive commodity Y. This proves the proposition that the terms of trade of the commodity using relatively much of the factor whose quantity has increased must deteriorate. Accordingly in an open economy, concludes Rybczynski, 66. If it is now assumed that the commodity using relatively much of the factor, the quantity of which has been increased, is an item of export, this means that external terms of trade will deteriorate, conversely, should the commodity be an import, the terms of trade must improve". If the country happens to be a small and is not in a position to influence, world price ratios by its internal adjustments, then, unambiguously, the output of commodity X will increase and that of commodity Y will decline and the equilibrium will take place at point 'A' on the production possibility curve K'L' given the same price ratio.

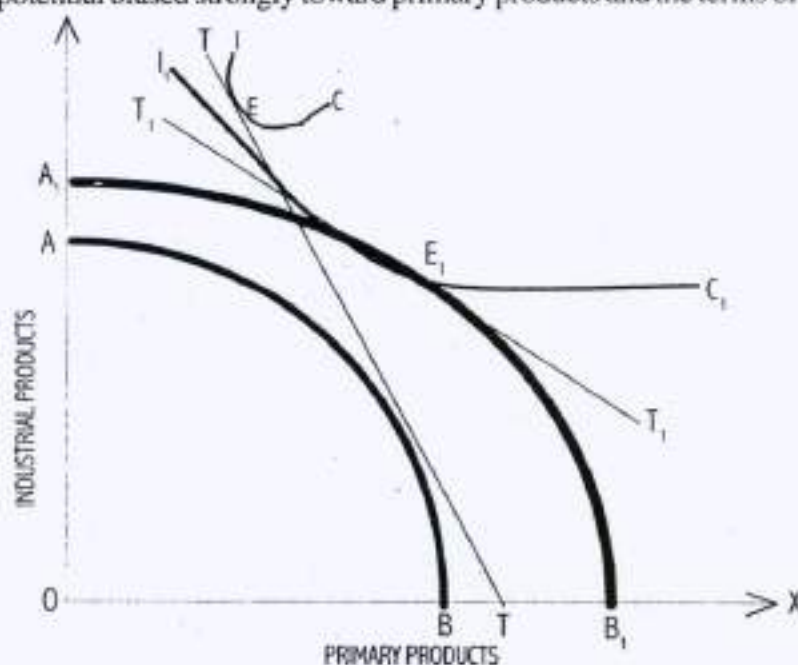
If, on the other hand, the country is capital-rich, there could be ultra-anti-trade biased growth intrade, and so an increase in the relative price of X. The relative and the absolute wage rate would then increase, and the relative and absolute return to would decline.

6.4 POLICY IMPLICATIONS OF IMMISERISING GROWTH

Our discussion of the possible effects of growth on the volume of trade has so far been conducted on the assumption that relative prices do not change. If we were dealing with a small country then that would in fact be the case, and growth of any form would lead to an increase in welfare for the growing country. But if the growing is large then any change in its volume of trade must bring about a change in the terms of trade. If the volume of decreases then the terms of trade will move in favour of the growing country (as they do for a large country imposing a tariff), and this will increase the gain in welfare for the growing country. If however growth increases the volume of trade then the terms of trade will move against the growing country, and so reduce the gain in welfare. In the extreme case, the terms of trade could move against the growing country to such an extent that its welfare is actually reduced.

The theory of immiserising growth which explains that under certain circumstances economic expansion and trade may harm the developing country has been put forward by Jagdish N. Bhagwati. Immiserising growth refers to a case where growth (due to technical progress & or factor accumulation) leads to a sufficiently acute deterioration in the terms of trade which imposes a loss of real income outweighing the primary gain in real income due to the growth itself.

The following diagram depicts a case of immiserising growth. In the diagram we represent an underdeveloped country exporting primary products and importing industrial goods originally, with the AB- production possibility curve, TT-terms of trade, the country is on the consumption point E on the indifference curve IC. Now suppose that the PPC shifts from AB to A_1B_1 reflecting an increase in the production potential biased strongly toward primary products and the terms of trade become T_1T_1 .



Which is flatter than TT, implying a deterioration for the country. Now the country is on the consumption point E_1 on the indifference I_1C_1 , which represents a longer level of welfare than IC. This implies that the production gain is more than offset by the dealing terms of trade, resulting in a decreased

welfare point. Thus, the phenomenon of immiserising growth can take place, in reality wherever distortions appear in any society.

6.5 CAUSES OF EMERGENCE AND MEASUREMENT OF INTRA-INDUSTRY TRADE AND ITS IMPACT ON DEVELOPING COUNTRIES

Economists like Gunnar Myrdal, Raul prebisch and Hans singer have argued that the primary exporting countries, particularly those of the Third world, have been experiencing a secular deterioration in the terms of trade. The implications of this argument, which is often referred to as the prebisch-singer thesis, is that less developed countries had to export increasing amounts of their primary products, in exchange for imports of manufactured goods from the industrially advanced countries. The secular deterioration in the terms of trade was considered as one of the important reasons for these countries economic backwardness.

This deterioration in the terms of trade causes large transfer of income from developing to developed countries, as indicated towards the end of this section.

In support of the secular deterioration thesis it has been claimed, for instance, that between the latter part of the last century and 1939, there was a fall in the prices of primary goods relative to the prices of manufactured goods. On the average, a given bundle of primary goods reduced, in exchange, to 60 percent of the quantity of manufactures that could be secured earlier. From this, it has been deduced that there must have been a comparable worsening of the terms of trade of the underdeveloped countries. Some studies have indicated that the terms of trade of the developing countries have deteriorated in the recent decades also.

The prebisch-singer thesis points out three causes for the deterioration of the terms of trade of the primary exporters.

(a) **Differences in the elasticity of demand:** The demand for primary products is relatively income inelastic, i.e., as income increases, the demand for primary products increases less than proportionately. The demand for manufactured goods on the otherhand, is relatively income elastic i.e., as income increases, the demand for manufactured goods increases more than proportionately. Other things remaining equal, such a demand bias causes terms of trade primary product exporters to deteriorate over time.

(b) **Technological Change:** Raw material saving innovations have tended to reduce the demand for primary products (for ex, the development of low-cost synthetic rubber can substitute natural rubber in some areas). Fall in the demand for primary products due to such innovations naturally cause a fall in their prices.

(c) **Monopoly Power:** The higher degree of monopoly power that exists in industry than in agriculture makes it possible to charge a higher price for the manufactured products as compared to the agricultural products.

The South commission points out that by 1988 the terms of trade of developing countries had deteriorated by 29 percent as compared to 1980 and those of oil exporters among them by 49 percent. The transfer of resources from the developing to the developed countries that this deterioration involved is massive taking 1980 levels of exports and prices as a base, for the eighteen main non-oil commodities exported by developing countries it amounted to nearly \$83 billion between 1981 and 1986. To put these figures in a secular perspective, the average real price of non-oil commodities for the entire period 1980-88 was 25 percent below that of the previous decades.

6.6 AN EVALUATION

E.J. Mishan has pointed towards two weaknesses of the Rybczynski theorem. a. If the supply of the other factor of production is increased simultaneously, then no such clear quantitative results emerge. b. It is very difficult to extend Rybczynski result to a multifactor model.

A critical assumption for establishing the Rybczynski theorem is that production functions are homogeneous of the first degree. Then the effects on commodity prices hinge, as we have seen, in a critical fashion on which industry is labour intensive and which is capital intensive. It is not possible to generalize this result to the case of less-constrained production functions. For the case of unspecified production functions, no clear-cut result about the change in relative commodity prices can be established.

6.7 KEY WORDS

Product market : Means the market in which goods and services have been bought and sold in a private economy. The main sellers have been privately - owned and publicly owned business firms and the main buyers are private consumers or householders. To be distinguished from the factor market.

Rybczynski, theorem: Theorem developed by economist of that name, to the effect that if in the H-O frame work one of the two factors of production gets increased, to maintain constant commodity and factor price it becomes necessary for the output of the good intensive in the use of the constant.

Shadow price: Refers to a price or value which is imputed to unpriced social benefits or losses or to resources which are not satisfactorily priced in commercial markets. The concept has been much used in cost-benefit analysis. In evaluating any project, the economist may adjust a number of market prices and attribute prices to unpriced gains and losses likely to arise.

Stolper – Samuelson Theorem: Using the H-O frame work, Stolper and Samuelson showed that on certain restrictive assumptions international trade necessarily lowers the real wage of the Scarce factor of production without it being necessary to specify its pattern of consumption. A corollary to this proposition has been that protection necessarily raises the real wage of the Scarce factor.

Trade: Means the exchange of commodities between individuals or groups either directly or through barter or indirectly through a medium such as money.

Tying contract: Refers to a condition of sale needing the buyer of a given product to purchase another product, usually complementary to the first product. For example, a seller of stapling machines might needs buyers to purchase his staples as a condition of buying the machines. The contract may be the Seller's means of leveraging his monopoly of the first product; of exploiting the interdependence of the two products demand function, of applying price discrimination among buyers with different intensities of demand; of ensuring that the reputation of the desired product has been not damaged by buyers; use of inferior copies of the product not desired; and of avoiding the effects of price control on the desired product (assuming no control on the product not desired. Those agreements may be illegal.

Affluent Society: A term used to refer to the high standard of living achieved in many countries in western Europe and the U.S.A in the 1960's. This Phrase was popularized by Prof. J.K.Galbraith with particular reference to the U.S.

Dominant Firm: A business concern so powerful that smaller concerns in the industry are afraid of taking independent action in trade policy.

Duopsony: A market structure in which there are only two buyers for a commodity or a service.

-S.SHIVANNA.,

6.8 SUGGESTED BOOKS

- | | | | |
|----|---------------------|---|--|
| 1. | KINDLEBERGER, C.P. | : | International Economics |
| 2. | Ellsworth, P.T. | : | International Economics |
| 3. | BO Soderstain | : | International Economics |
| 4. | Jan Tinbergen(1954) | : | International Economics
Integration (Amsterdam) |
| 5. | Francis Cherunilam | : | International Economics |
| 6. | Jhingan | : | International Economics |

6.9 QUESTIONS FOR SELF-INSTRUCTION EXERCISES

1. Critically examine the Rybczynski theorem.
2. What are the assumptions of Rybczynski theorem.
3. Discuss the policy implications of immiserising growth.
4. Analyse the intra-industry trade and its impact on developing countries.

ಆದೇಶ ಸಂಖ್ಯೆ : ಕರಾಮವಿ/ಅಸಾವಿ/4-061/2013-2014 ದಿನಾಂಕ : 24-09-2013

ಒಳಪುಟ : 80 GSM ವೆಸ್ಟ್‌ಕೋಲರ್ಸ್ ವೇಪರ್ ಮತ್ತು ಹೊರಪುಟ : 170 GSM ಇಂಡಿಯನ್ ಮ್ಯಾಟ್ ಆರ್ಟ್ ಕಾರ್ಡ್

ಮುದ್ರಕರು : ಪೂರ್ವಮಾ ಪ್ರಿಂಟರ್ಸ್, ಬೆಂಗಳೂರು. ಪ್ರತಿಗಳು : 600



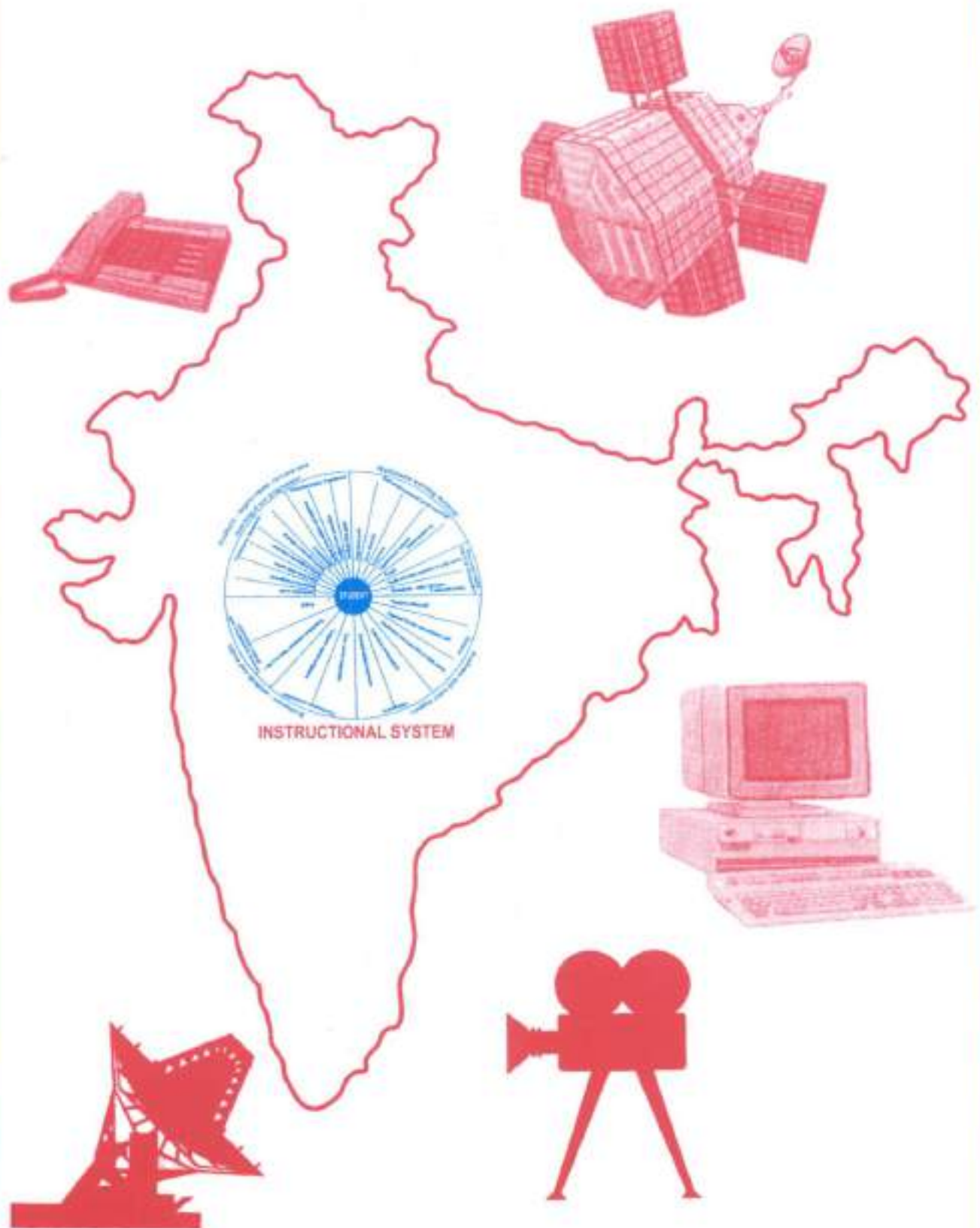
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The Open University system has been initiated in order to augment opportunities for higher education and as an instrument of democratizing education.

National Education Policy, 1986





INSTRUCTIONAL SYSTEM