
# MOUNTAIN TOP UNIVERSITY

*E-Courseware*

## SCHOOL OF HUMANITIES,

## MANAGEMENT AND SOCIAL SCIENCES

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# COURSE GUIDE

**COURSE TITLE: International Economics I**

**COURSE CODE: ECO 303**

**LECTURER(S): Mojeed, M OLOGUNDUDU (Ph.D)**

# COURSE OBJECTIVES

**GENERAL INTORDUCTION AND COURSE OBJECTIVES**

To achieve the aims of this course, there are overall objectives which the course is out to achieve though, there are set out objectives for each unit. The unit objectives are included at the beginning of a unit; you should read them before you start working through the unit. You may want to refer to them during your study of the unit to check on your progress. You should always look at the unit objectives after completing a unit. This is to assist the students in accomplishing the tasks entailed in this course. In this way, you can be sure you have done what was required of you by the unit. The objectives serves as study guides, such that student could know if he is able to grab the knowledge of each unit through the sets of objectives in each one. At the end of the course period, the students are expected to be able to:

- Understand the Heckscher-Ohlin theorem
- Understand the meaning of Stolper Samuelson and Rybesynski theorem
- Define and understand the meaning of trade theory with many goods and factors.
- Understand the factor-content theorem.
- Understand the meaning of Productivity of labour

- Know how to determine the Marginal Productivity, commodity prices and factor prices.
- Define and understand the meaning of trade theory with many goods and factors.
- Understand the factor-content theorem.
- Understand the meaning of endowments changes, factor endowments and factor prices
- Define and understand the meaning of endowment changes and outputs.
- Understand the Pattern of trade.
- Understand the meaning of Stolper Samuelson and Rybesynski theorem
- Define and understand the meaning of trade theory with many goods and factors.

**COURSE CONTENTS**

**LECTURE ONE**

**ECONOMY AND GLOBAL TRADE (Weeks 1-2)**

## 1.0 INTRODUCTION

This course starts his discussion with introduction to the history of trade in recent years. International economics issues have taken centre stage in the news. For example, on January 1,1994 the United State, Canada and Mexico entered into a Joint compact called the North American Free Trade Area (NAFTA) that would gradually reduce trade barriers among them.

## 1.1 OBJECTIVES

At the end of this unit, you should be able to:

- Define and understand the meaning of Global Economy
- Define and understand the meaning of international trade theory
- Know the importance of international trade
- Understand the Sectoral Structure of trade

**PRE-TEST**

i. Discuss the global trend in national economy
ii. Discuss the theory of International trade
iii. Discuss the importance of International Trade

**CONTENT**

## 1.2 PERSPECTIVE ON THE THEORY OF INTERNATIONAL TRADE

In this unit we study international trade, which is the exchange across national borders of goods, services, and factors, and the impacts of this trade on domestic and global economies. We will study decision-making in a national context and examine whether nations can work to maximize some measure of collective well-being. In doing so, we will consider decisions at both the individual and the governmental levels.

Within each nation is an aggregate of individuals acting in the economic arena. International trade results from the interactions among those individuals and with persons in other nations. Thus, understanding the theory of the firm and the theory of consumer behavior is important in studying this level of international economics.

## 1.3 THE IMPORTANCE OF INTERNATIONAL TRADE

To justify a careful examination of international trade it is important to demonstrate that such trade is an important part of the overall economic activity of nations. There are numerous dimensions to this issue, including the growth, levels, and structure of trade in relation to domestic production. Globally, international trade has grown considerably in recent decades. For example, over the period between 1963 and 1979, the rate of expansion of real merchandise exports (that is, the value of exports deflated by changes in export prices) in the world averaged 11.8 percent per year, a remarkably high growth rate by historical standards.

## 1.4 TRADE AND NATIONAL CHARACTERISTICS

Some particular features of the data are worth mentioning. Note that Singapore‘s exports were almost half again as large as its GDP in 1991. This fact reflects Singapore's status as a center for entrepot trade, involving the provision of warehousing, transport facilities, and services in transshipping goods from one market to another. For example, much of Malaysia's exports are processed through Singapore to their ultimate destinations elsewhere. In principle, it is possible for any nation to have a level of exports greater than GDP, though this is unusual in practice. Note also that Canada has long had a high proportion of its GDP devoted to exports, with a slight rise to nearly one quarter by 1990.

## 1.5 THE SECTORAL STRUCTURE OF TRADE

Levels of trade can be significant in particular sectors of the economy even if the overall trade ratios are modest. For instance, the United States imports all of its consumption of certain tropical products, such as cocoa. Looking at two major domestic sectors, in 1990 the United States exported over 45 percent of its agricultural production and imported over 43 percent of its consumption of motor vehicles and automobile parts. Clearly, changes in the international economy that affect these sectors bear potentially significant impacts on domestic prices, output, and employment. Further, such impacts can spill over into other portions of the economy through their effects on consumer demand and input purchases.

## 1.6 CONCLUSION

Fundamental changes are taking place in the global trade landscape. In the process, significant transformations are underway in relation to the sources of growth of world trade, its direction of flows and patterns and, in turn, individual countries‘ comparative and competitive advantages. These changes are being driven mainly by such factors as the rapidly growing trade of developing countries; growing trade interconnectedness through global value chain (GVC)-led fragmentation of production processes; proliferation of regional trading arrangements (RTAs); lack of dynamism in multilateral trade negotiations; and the impending need for actions to combat climate change.

## 1.7 SUMMARY

In this unit, we have learnt a lot on global economy and with the progress of the IT revolution, advances in transportation and communication technology, the evolution of financial techniques, and the easing of restrictions on trade and investment, there has been a geometric increase in the international movement of people, products, money and information. Under these circumstances, businesses make strategic choices such as where to establish the bases of their business activities from a global perspective, and attempt to create optimal global value chains.

## POST-TEST

i. Discuss the analysis of Global Economy in the world
ii. Briefly discuss the importance of International Trade
iii. Discuss the sectoral structure of trade.

## 1.8 BIBLIOGRAPHY

Balance, R.H., Forstner, H. and Murray T. (1987) ―Consistency Tests of Alterative Measures of comparative advantage‖ review of economics and statistics 69: 157 – 161.

Council of Economic advisors (1992) Economic report of the persistent Washington D.C; Government Printing Office.

International Monetary Fund (1992), International Finance statistics year book: Washington, D.C.: International Monetary Fund.

**LECTURE TWO**

**SUPPLY AND PRODUCTION POSSIBILITIES (Weeks 3-4)**

## 2.0 INTRODUCTION

The production possibility frontier (PPF) represents the point at which an economy is most efficiently producing its goods and services and, therefore, allocating its resources in the best way possible. If the economy is not producing the quantities indicated by the PPF, resources are being managed inefficiently and the production of society will dwindle. The production possibility frontier shows there are limits to production, so an economy, to achieve efficiency, must decide what combination of goods and services can be produced.

## 2.1 OBJECTIVES

At the end of this unit, you should be able to:

- Define and understand the meaning of Production functions
- Define and understand the meaning of Returns to Scale
- Know the analysis of equilibrium for a single producer

**PRE-TEST**

i. Discuss the relationship between the supply and production function
ii. Discuss the analysis of return to scale
iii. Discuss the tests of a Good Governance.

**CONTENT**

## 2.2 PRODUCTION FUNCTIONS

Many of the causes of international trade are found in countries‘ differing abilities to produce certain good. These varying abilities are in turn related to underlying aspects of production such as technologies, factor endowments, competitive conditions, government taxes and subsidies, and returns to scale. An understanding of these considerations will ultimately help explain why the United States exports aircraft and cereal grains and imports clothing. These same considerations will help us understand the consequences of trade, including overall welfare gains and the distribution of those gains among the members of a society. The ideas developed here will he used repeatedly throughout, the course material, so your investment should pay off.

The basic building block of the supply side of our model will be the production function,

$X = F(K,L)$

## 2.3 RETURNS TO SCALE

Another particularly important characteristic of production functions such as that it relates to the response of output to equal-proportional changes in both of the inputs. A very common assumption in economics is that of constant returns to scale, the

assumption that proportional changes in all inputs lead to the same proportional change in output. This assumption is referred to somewhat more formally as homogeneity of the first degree. It is such an important concept in economics and in the discussion of this material that a formal definition seems worthwhile.

Definition. Let $\lambda > 0$. The function $X = F(K, L)$ is said to be homogeneous of degree k if $X = F(\lambda K, \lambda L)$. If $k = 1$, the function is said to be homogeneous of degree 1, and production is characterized by constant returns to scale.

The making of things which are not needed or without any usefulness does not qualify as production. However, all activities such hair-dressing, soliciting, banking, and so on,aim at satisfying wants are part of production. Thus, the test of whether or not any activity is productive is whether or not anyone will demand its end-product.

## 2.4 EQUILIBRIUM FOR A SINGLE PRODUCER

To this point, attention has been focused entirely on the physical characteristics of the production functions; no behavioral assumptions of any kind have been made about our producers. This unit presents a very brief summary of those parts of production theory that will be central to our discussion of competitive models. The behavioral assumptions for an individual producer can be stated in either of two entirely equivalent ways: The producer can be thought of as maximizing output subject to a cost constraint or as minimizing costs subject to a production constraint. We will employ the first approach, but the equivalence of the two will become obvious as we proceed.

## 2.5 CONCLUSION

In this unit, we can conclude that an economy can be producing on the PPF curve only in theory. In reality, economies constantly struggle to reach an optimal production capacity. And because scarcity forces an economy to forgo one choice for another, the slope of the PPF will always be negative; if production of product A increases then production of product B will have to decrease accordingly.

## 2.6 SUMMARY

In this unit, we have learnt that a production–possibility frontier (PPF) or production possibility curve (PPC) is a graphical representation of possible combination of two goods with constant resources and technology. It is a graph representing production tradeoffs of an economy given fixed resources. In its microeconomic applications, the graph shows the various combinations of amounts of two commodities that an economy can produce per unit of time (such as number of guns vs. kilograms of butter) using a fixed amount of each of the factors of production, given the production technologies available. At the macroeconomic level, it can be used to depict other rivalries trade-offs like production of fixed capital versus production of consumer goods.

**POST-TEST**

i. Differentiate between Good Governance and Good Policy

ii. The civil society are the checkmate of the public servant. Discuss.

## 2.7 BIBLIOGRAPHY

Balance, R.H., Forstner, H. and Murray T. (1987) ―Consistency Tests of Alterative Measures of comparative advantage‖ review of economics and statistics 69: 157– 161.

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**LECTURE THREE**

**GOOD AND FACTOR MODEL (Weeks 5-6)**

## 3.0 INTRODUCTION

The specific factor (SF) model was originally discussed by Jacob Viner and it is a variant of the Ricardian model. Hence the model is sometimes referred to as the Ricardo-Viner model. The model was later developed and formalized mathematically by Ronald Jones (1971) and Michael Mussa (1974). Jones referred to it as the 2 good-3 factor model. Mussa developed a simple graphical depiction of the equilibrium which can be used to portray some of the model results.

The model's name refers to its distinguishing feature; that one factor of production is assumed to be "specific" to a particular industry. A *specific* factor is one which is stuck in an industry or is immobile between industries in response to changes in market conditions. A factor may be immobile between industries for a number of reasons. Some factors may be specifically designed (in the case of capital) or specifically trained (in the case of labor) for use in a particular production process. In these cases it may be impossible, or at least difficult or costly, to move these factors across industries.

The specific factor model is designed to demonstrate the effects of trade in an economy in which one factor of production is specific to an industry. The most interesting results pertain to the changes in the distribution of income that would arise as a country moves to free trade.

## 3.1 OBJECTIVES

At the end of this unit, you should be able to:

- Define and understand the meaning of two good and two factor model
- Know how to analyze the shape of the production possibility frontier
- Understand the meaning of Competitive Equilibrium
- Understand the meaning of increasing returns to scale

**PRE-TEST**

i. Discuss the analysis of two good and two factor model.

ii. Derive the two goods and two factor model algebraically

**CONTENT**

## 3.2 THE TWO-GOOD, TWO-FACTOR MODEL

Here, we will develop the simple general-equilibrium model that will be used throughout much of the course material. We assume that two commodities, X and Y, are produced using two factors, capital and labor, with technologies described by the production functions shown in Eqs.

$X = F_x, (K_x, L_x)$

$Y = F_y, (K_y, L_y)$

Note that subscripts are now being used to distinguish the two production functions and the inputs, used by each. These production functions are assumed to be homogeneous of the first degree and are assumed to be increasing functions of both inputs. It is further assumed that positive outputs imply positive inputs of both factors. The economy is assumed to have fixed total supplies of both capital and labor, and these two constraints are represented by Eqs.

$$K = K_x + K_x$$

$$L = L_y + L_y$$

As well as showing the allocation of the two factors between the two production processes, the equality sign in these two equations implies that, these two processes use all the available K and L. Full employment is, therefore, implicitly assumed. Also implicit in our analysis is the assumption that both factors of production are completely divisible and are homogeneous in the sense that the units are identical.

## 3.3 THE SHAPE OF THE PRODUCTION POSSIBILITY FRONTIER

The production possibility frontier, as its name implies, is a locus that shows all possible efficient production points. It is important to note that two kinds of efficiency are being assumed here. The first, which we might call engineering efficiency, implies simply that for either of the production functions and for any bundle of inputs, output is as large as it could possibly be. In other word, we are assuming that there is no waste involved in the production process. The second kind of efficiency, which we could call market efficiency, is concerned with the way in which factors are combined in the production processes.

## 3.4 COMPETITIVE EQUILIBRIUM

Now we turn to the questions of (1) whether or not production will actually take place on the production frontier and (2) if so, at what point on the transformation frontier production will take place. It has been shown that the efficient allocation of resources requires that production take place at a point where an isoquant from one industry is tangent to an isoquant from the other. It has also been shown that for the individual producer, the maximization of production subject to the cost constraint requires that the ratio of factor prices be equal to the slope of the isoquants. Since this condition is true for both industries, the isoquants for the two industries will be tangent to each other if the two industries face the same factor prices for w and r.

## 3.5 INCREASING RETURNS TO SCALE

Many industries are characterized by increasing return to scale. Although these scale economies may eventually diminish, they can be very important relative to the size of

the market in small economies, and even in the United States‘ very large economy, they are important for a few industries including aircraft and mainframe computers. There are many respects in which economies of scale in an industry lead to important differences relative to the constant-returns case that we have been discussing. Therefore, this look will spend considerable time discussing technologies of both constant and increasing returns. As we showed in the previous discussion, differences in factor intensities between industries tend to make the production frontier concave or ―bowed out‖ (the set of feasible production points is convex). Here we will show that scale economies make the production frontier convex or ―bowed in‖ (the production set is non-convex). An analysis including both scale economies and factor-intensity effects thus tends to get messy, with the former tugging the production frontier in and the latter tending to pull it out.

## 3.6 CONCLUSION

The specific factor model is used to demonstrate the effects of economic changes on labor allocation, output levels and factor returns. Many types of economic changes can be considered including a movement to free trade, the implementation of a tariff or quota, growth of the labor or capital endowment, or technological changes. This section will focus on effects that result from a change in prices. In an international trade context, prices might change when a country liberalizes trade or when it puts into place additional barriers to trade.

When the model is placed into an international trade context, differences between countries, of some sort, are needed to induce trade. The standard approach is to assume that countries differ in the amounts of the specific factors used in each industry relative to the total amount of labor. This would be sufficient to cause the PPFs in the two countries to differ and could potentially generate trade. Under this assumption the specific factor model is a simple variant of the Heckscher-Ohlin model. However, the results of the model are not sensitive to this assumption. Trade may arise due to differences in endowments, differences in technology, differences in demands or some combination. The results derive as long as there is a price change, for whatever reason.

## 3.7 SUMMARY

In this unit, we have learnt and discuss on the two goods two-factor model, the shape of the production frontier, competitive returns to scale and final we look at the increasing returns to scale.

**POST-TEST**

i. With the aid of diagram, discuss the shape of the production possibility frontier

ii. Write short note on the following:

a. Competitive Equilibrium

b. Increasing Returns to Scale

**BIBLIOGRAPHY**

Melvin, J. R. (1971). On the Derivation of the Production Possibility Curve. Economics 39:287-294.

Savosnick, K. M. (1958). The Box Diagram and the Production Possibility Curve, Swedish Economic Journal 60, 183-197.

**LECTURE FOUR**

**GENERAL EQUILIBRIUM IN THE CLOSE ECONOMY(Weeks7-8)**

## 4.0 INTRODUCTION

In economics, general equilibrium theory attempts to explain the behavior of supply, demand, and prices in a whole economy with several or many interacting markets, by seeking to prove that the interaction of demand and supply will result in an overall general equilibrium. General equilibrium theory contrasts to the theory of partial equilibrium, which only analyzes single markets.
General equilibrium theory studies economies using the model of equilibrium pricing and seeks to determine in which circumstances the assumptions of general equilibrium will hold. The theory dates to the 1870s, particularly the work of French economist Léon Walras in his pioneering 1874 work Elements of Pure Economics. It is often assumed that agents are price takers, and under that assumption two common notions of equilibrium exist: Walrasian, or competitive equilibrium, and its generalization: a price equilibrium with transfers. Broadly speaking, general equilibrium tries to give an understanding of the whole economy using a "bottom-up" approach, starting with individual markets and agents. (Macroeconomics, as developed by the Keynesian economists, focused on a "top-down" approach, where the analysis starts with larger aggregates, the "big picture".) Therefore, general equilibrium theory has traditionally been classified as part of microeconomics.

## 4.1 OBJECTIVES

At the end of this unit, you should be able to:

- Define and understand the meaning of Good Governance and Good Policy
- Define and understand the meaning of Corruption
- Know the importance of civil society
- Understand the test of Good Governance

**PRE-TEST**

i. Discuss the in details the international general equilibrium

ii. What do you understand the term general equilibrium in the open (trading) economy?

iii. Suppose that the production frontier for a country is linear. Construct its excess demand curve.

**CONTENT**

## 4.2 GENERAL EQUILIBRIUM ANALYSIS

The above discussion developed the tools of production and consumption theories. The purpose of this unit is to combine the production and demand sides of the economy to arrive at an overall or general equilibrium analysis. This section considers general

equilibrium in a closed economy, one that is self-sufficient and does not trade. Such an economy is said to be in autarky.

Throughout this discussion producers and consumers are assumed to be competitive. In other units to come in this course material, we will consider many cases of imperfect competition and other distortions. Of the three conditions that determine general equilibrium in a closed economy, the first two are optimization conditions for producers and consumers: (1) Competitive, profit-maximizing producers pick outputs such that, at given commodity prices, the marginal rate of transformation is equal to the producer price ratio; this condition was given as Px/Py = MRT. Consumer pick commodities such that, at given commodity prices, their marginal rate of substitution 'in consumption is equal to the consumer price ratio; assuming that consumer and producer prices are the same, this condition was given in Eq. (3.4) as Px/Py = MRS. The third condition is a market clearing condition: (3) The supply and demand for each commodity must be equal; let subscript c denote consumption of a commodity and subscript p denote production of a commodity.

## 4.3 GENERAL EQUILIBRIUM IN THE OPEN (TRADING) ECONOMY

Now assume that an economy can engage in trade at fixed world price ratio, which we will denote p* = P*x/P*y. The first two optimization conditions mentioned in our previous discussion remain unchanged. The only differences is that world prices will generally be different from the prices determined in autarky. Producers optimize by equating the marginal rate of transformation to whatever prices prevail, and, similarly, consumers optimize by equating their marginal rate of substitution to those prices.

The difference in equilibrium between the closed and the open economy lies in the third condition, market clearing. With international trade, an economy is no longer constrained to consume only what it can produce. The loosening of this constraint is the very source of gains from trades, as we shall see. A trading economy is able to sell some of one good at world prices and use the proceeds to buy the other commodity. Instead of market clearing, we have what we call a trade balance condition: the value of what a country sells on world markets must be equal to what it buys.

## 4.4 THE EXCESS DEMAND FUNCTION

We now turn to the larger question of the determination of world prices and an international general equilibrium (our world will consist of two countries). Consider Fig. 4.3. The autarky price ratio $P_a$ is shown for reference. At the price $P^*_1 < P_a$, the country produces at $Q_1$ and consumes at $C_1$. Excess demand for good X is positive; i.e., X is imported. This makes economic sense, recalling that $p^* = p^*_x/p^*_y$. If the relative price of X is lower on the world markets than on the domestic market, then buying from the low-cost source would mean importing the good. Similarly, if Y is relatively more valuable on the world market than at home, then export of Y are in order. At the price ratio $p^* = P_a$ producers pick point $Q_2$ and consumers pick point $C_2$. With the price ratio greater than the autarky price ratio, the time country exports X (the relatively valuable good oh the world markets) and imports Y (the relatively cheap good on the world market).

## 4.5 THE SHAPE OF EXCESS DEMAND CURVES

What are the factors leading to the specific shape that an excess demand curve assumes? Essentially, the excess demand curve takes its shape from the reactions of producers and consumers to new prices. Any price movement away from $p_a$ will elicit a response from producers and consumers. The production effect is the most straightforward. Suppose p* < pa. Producers will choose to move resources out of the production of X and into the production of Y.

This will exacerbate any given excess demand for X at P* < Pa, leading to the negative slope of the excess demand curve. Similarly, p* < pa leads to a substitution effect in consumption. The falling price of X makes consumers willing and able to buy more of it, and again the excess demand for X grows as its price falls. Furthermore, the concavity of the production possibilities curve and the concavity of community indifference curves will combine to ensure that the excess demand function will itself be convex.

## 4.6 INTERNATIONAL GENERAL EQUILIBRIUM

Now let us introduce a second country, referring to it as Country F, and call the original Country H. It shows an excess demand curve for Country F, $E^*_x$, placed arbitrarily above the excess demand curve for Country H, $E_x$, The autarky price ratio in Country F is $p^*_a$, greater than Country H‘s autarky price ratio, $p_a$.

General equilibrium in the world economy is then determined at an international price ratio where the excess demands of the two countries are equal and opposite. This occurs at price ratio $p^*$. At that price, the positive excess demand (imports) of the Foreign country are equal to the negative excess demand (exports) of the Home country. The market for X clears, which is a condition for international equilibrium: $E_X + E^*_X = O_*$[2]

## 4.7 CONCLUSION

General equilibrium theory tried to show how and why all free markets tended toward equilibrium in the long run. The important fact was that markets didn't necessarily reach equilibrium, only that they tended toward it. As Walras wrote in 1889, ―The market is like a lake agitated by the wind, where the water is incessantly seeking its level without ever reaching it.‖

General equilibrium theory builds on the coordinating processes of a free market price system, first widely popularized by Adam Smith's ―The Wealth of Nations‖ (1776). This system says traders, in a bidding process with other traders, create transaction by buying and selling goods. Those transaction prices act as signals to other producers and consumers to realign their resources and activities along more profitable lines. Walras, a talented mathematician, believed he proved that any individual market was necessarily in equilibrium if all other markets were also in equilibrium. This became known as Walras‘ Law.

## 4.8 SUMMARY

In this unit, we have learnt and discuss on the following;

1. Equilibrium in a closed economy is determined by UN (a) producer optimization, (6) consumer optimization, and (c) market clearing.
2. If production and consumption are competitive, the closed economy equilibrium is efficient in the sense that the economy attains the highest community indifference curve subject to the feasibility of production.
3. International trade removes the constraint that an economy consumes only what it produces. It also replaces the market clearing condition for equilibrium with the much weaker condition that the value of total production must equal the value of total consumption. We show that this restriction is exactly equivalent to the restriction that the value of imports must equal the value of exports. Open economy equilibrium determined by the producer and consumer optimization conditions plus the trade balance condition.
4. A country‘s willingness to trade with the rest of the world can be summarized by an excess demand function for one of the two goods (we chose X). This function gives the country's desired imports or exports at all possible price ratios. This curve slopes downward like a conventional demand curve, except that the quantity demanded can be either positive or negative. A negative excess demand simply mean that the country wishes to export at a given price. Excess demand is zero at the country‘s autarky price, and movement away from autarky is welfare improving.
5. A second country can be introduced and its excess demand curve derive International equilibrium is found at the price where the exports of one country match the imports of the other country. This price is between the autarky price levels of the two countries. The autarky price differences determine the direction of trade, with the low-price country exporting the good and the high-price country importing the good.
6. We noted that, because of the trade balance restrictions, we need consider only one market to determine general equilibrium. If that market clears, so does the other market.

**POST-TEST**

i. Discuss the analysis of General Equilibrium

ii. With the aid of a diagram discuss the analysis of excess demand curve.

iii. Assume that a single consumer has an initial endowment of good X rather

than a money income. Show the consumer‘s desired consumption bundles (and therefore desired trades) as the price ratio changes. Is it possible that the consumer may wish to sell less X as the relative price of X rises?

If you succeed in answering question 2, can you show that less X will be supplied as its price rises because the income effect of the price increase outweighs substitution effect?

## 4.9 BIBLIOGRAPHY

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**LECTURE FIVE**

**THE THEORY OF GAINS FROM TRADE (Weeks 9-10)**

## 5.0 INTRODUCTION

In economics, gains from trade refers to the net benefits to agents from allowing an increase in voluntary trading with each other. In technical terms, it is the increase of consumer surplus plus producer surplus from lower tariffs or otherwise liberalizing trade.

Gains from trade are commonly described as resulting from specialization in production from division of labor, economies of scale, scope, and agglomeration and relative availability of factor resources in types of output by farms, businesses, location and economies, a resulting increase in total output possibilities, trade through markets from sale of one type of output for other, more highly valued goods.

Market incentives, such as reflected in prices of outputs and inputs, are theorized to attract factors of production, including labor, into activities according to comparative advantage, that is, for which they each have a low opportunity cost. The factor owners then use their increased income from such specialization to buy more-valued goods of which they would otherwise be high-cost producers, hence their gains from trade. The concept may be applied to an entire economy for the alternatives of autarky (no trade) or trade. A measure of total gains from trade is the sum of consumer surplus and producer profits or, more roughly, the increased output from specialization in production with resulting trade. Gains from trade may also refer to net benefits to a country from lowering barriers to trade such as tariffs on imports.

## 5.1 OBJECTIVES

At the end of this unit, you should be able to:

- Define and understand the meaning of Gains from trade
- Define and understand the meaning of gain from trade theorem
- Understand the factor affecting gain from trade

**PRE-TEST**

i. Discuss the analysis of Gain from trade
ii. Discuss the analysis of Gains from exchange
iii. Discuss the distribution of gains with heterogeneous tastes.

**CONTENT**

## 5.2 GAINS FROM TRADE

We are now in a position to address one of the most fundamental issues in the study of international trade: the gains from trade. We will be able to show that under certain circumstances, a country's overall welfare is in some sense improved by international trade, which should thus be viewed as desirable. Yet the popular press often seems to assert that imports and trade are not beneficial for the national economy. Another

popular view is that if one country gains through trade, the other country must lose. This is what economists would call a ―zero sum game‖: the gains to one player equal the losses to the other player. We will show that there is a wide range of circumstances in which all countries gain mutually from trade, circumstances in which trade is a ―positive-sum game‖. However, we will also show that not all individuals within a country will necessarily benefit from trade. In other words, while a country's total income is increased by trade, these gains may be very unevenly distributed to the point where some individuals or groups are worse off. A solid academic understanding of the gains from trade will have practical applications in evaluating various anti-trade arguments put forward by business, labor, and even government groups.

## 5.3 THE GAINS-FROM-TRADE THEOREM

We will now present a somewhat more formal treatment of the gains from trade. In particular we present a simple proof of what is called the gains-from-trade theorem. This helps make clear the assumptions necessary to ensure that a country gains from trade.

We have presented up to this point make use of the result from previous discussion above in competitive equilibrium, the economy maximizes the value of production at equilibrium prices. That is, the economy gains the highest possible national budget line at equilibrium prices. The world price p* result in production at point Q for reasons discussed earlier. The value of production resulting from producing at any other point in net at price ratio p* must be less than or equal to the value of producing at Q. In particular, we see that the value of production at Q is greater than the value of production at A, the autarky equilibrium.

## 5.4 FACTORS AFFECTING GAINS FROM TRADE

There are several factors which determine the gains from international trade:

1. Differences in cost ratio: The gains from international trade depend upon the cost ratios of differences in comparative cost ratios in the two trading countries. The smaller the difference between exchange rate and cost of production the smaller the gains from trade and vice versa.

2. Demand and supply: If a country has elastic demand and supply gains the gains from trade are higher than if demand and supply are inelastic.

3. Factor availability: International trade is based on the specialization and a country specializes depending upon the availability of factors of production. It will increase the domestic cost ratios and thereby the gains from trade.

4. Size of country: If a country is small in size it is relatively easy for them to specialize in the production of one commodity and export the surplus production to a large country and can get more gains from international trade. Whereas if a country is large in size then they have to specialize in more than one good because the excess production of only one commodity cannot be exported fully to a small sized country as the demand

for good will reduce very frequently. So the smaller the size of the country, the larger the gain from trade.

5. Terms of Trade: Gains from trade will depend upon the terms of trade. If the cost ratio and terms of trade are closer to each other more will be the gains from trade of the participating countries.

6. Productive Efficiency: An increase in the productive efficiency of a country also determines its gains from trade as it lowers the cost of production and price of the goods. As a result, the country importing gains by importing cheap goods.

## 5.5 CONCLUSION

Nations exchange goods with each other when they expect to gain from the exchange. We call that gains from trade. Adam Smith, a famous economist from the 18th century, talked about this in his book, Wealth of Nations, and so did economist David Ricardo. The theory of comparative advantage teaches us that nations should specialize in the production of the goods in which they have the lowest opportunity cost, and trade with other nations. The reason is because nations tend to have different resources, and they're not equally efficient when they are producing goods, which means they have different opportunity costs. When they have different opportunity costs of producing goods, it is possible to gain from trading. When both nations trade, they both will experience an increase in output, because they don't have to switch between one task and another. They also increase their skill level because they are doing the same task over and over again. This makes them more productive, and empowers them to produce at a level that goes beyond their production possibilities curve.

## 5.6 SUMMARY

In this unit, we have learnt and discuss on the analysis of gains from trade, the gains from trade theorem and the factors affecting gains from trade. Therefore, I belief you must have learnt a lot from this unit and understand all the rudiment of gains from trade analysis.

## POST-TEST

i. Discuss briefly on the gains from trade theorem
ii. List and explain the factors affecting gains from trade.
iii. What do understand by the term Gain from specialization‘?
iv. Discuss the distribution of gains with heterogeneous endowments.

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## LECTURE SIX

## CAUSES AND CONSEQUENCES OF TRADE (Weeks 11-12)

### 6.0 INTRODUCTION

International trade is trade carried on between the inhabitants of different countries and is due to the same causes as domestic trade; that is, trade carried on within a country. Exchanges may be carried on between two localities in the same country because the two localities are differently endowed by nature. One locality may contain mineral deposits, for instance, and the other locality may be especially adapted for agricultural production. It will, therefore, be to the interest of both localities to exchange, inasmuch as both localities may need the minerals and the agricultural produce, whereas the agricultural community cannot produce the minerals at all, and the mining community can perhaps produce the agricultural produce only with great difficulty.

The situation is not changed if the mining community happens to be in one country and the agricultural community in another. Thus, for example, tin is mined in Wales and not in the United States. On the other hand, the United States can produce wheat at much less cost than can the Welsh. For this reason an exchange of wheat and tin between Wales and the United States may be found desirable. An exchange of tropical products for those of the temperate zone will be found advantageous for the same reason. Bananas might be produced in the United States under glass covers, but such production would be at a great disadvantage. On the other hand, many products of the United States cannot be conveniently produced in the tropics. It will, therefore, often be found convenient and desirable to carry on an exchange of goods between the United States and tropical countries.

### 6.1 OBJECTIVES

At the end of this unit, you should be able to:

- Define and understand the meaning of No-trade model
- Define and understand the meaning Methodological Considerations
- Know the Consequences/Effect of international trade

**PRE-TEST**

i. Discuss on the term-No Trade Model
ii. Briefly discuss the consequences of international trade

**CONTENT**

### 6.2 THE NO-TRADE MODEL

In our previous discussion, you recall that we make emphasizes that a countries gain from trade by importing what is relatively costly to produce at home and by exporting what is produced relatively cheaply (efficiently) at home. But what are the underlying characteristics of an economy that give it its pattern of comparative advantage? In fact, the trade of any country is a complex outcome of many causes all operating at the same

time. There is generally no single cause of trade, but in order to understand the overall picture, we need to study how each possible cause of trade operates in isolation. A convenient method of examining the causes of trade is to first imagine a world in which there is no trade. In terms of our simple model, this would be true if all autarky price ratios were identical and there were no scale economies. Thus, we begin by imagining a situation in which all countries have identical, convex production sets and in which the same set of community indifference curves prevails in all countries.

## 6.3 METHODOLOGICAL CONSIDERATIONS

In the last unit it was argued that the relaxation of any one of five will give rise a situation in which international trade can take place. To illustrate this, we will relax each of the assumptions in turn, maintaining all four of the others, and examine the implications for international trade. This approach is sometimes criticized as being unrealistic in the sense that the models generated do not accurately describe the real. To assess the relevance of this criticism, we must understand why this approach is being employed and what kinds of conclusions we expect to draw from the analysis.

It is clear that no conclusions about a specific cause of trade can be derived unless we can be sure that no other things are causing trade at the time. For example, we could not identify the effects of demand differences in a model in which endowments were also different, for it would generally be impossible to separate the effects of these two variables. This is the situation where the two conditions are offsetting, resulting in identical autarky prices. Our analysis can be thought of as a kind of theoretical experiment in which, in order to study the effects of one variable, all other variables are neutralized.

## 6.4 CONSEQUENCES/EFFECT OF INTERNATIONAL TRADE

The following five points will highlight the five harmful effects of International Trade. They are: 1. Dual Economies 2. Not Much Beneficial for Poor Countries 3. Limited Possibility of Gain 4. Adverse Effect on Demonstration Effect ‘and 5. Secular Deterioration in the Terms of Trade.

### 1. When there is Dual Economies:

International trade has resulted in creating ‗dual economies‘ in underdeveloped countries as a result of which the export sector became an island of development while the rest of the economy remained backward. The effects of foreign factor movements have been that
of creating a highly unbalanced structure of production of these countries. No doubt, the opening up of the export markets gave a fillip to their export sector which led to the development of this sector while ignoring other sectors of the economy.

Although export increased but they did not contribute much to the development of the rest of the economy. Moreover, excessive dependence on exports leads to cyclical fluctuations in the advanced countries. During depression, terms of trade become adverse and their foreign exchange earnings fall steeply.

They are also not able to take advantage of world boom because any improvement in their balance of payment does not lead to increased output and employment due to market imperfections and non-availability of capital goods.

**2. When the Poor Countries Benefit Nothing:**

The foreign trade has also not been entirely beneficial to poor countries because of the adverse effects of foreign investments on their economy. It has been maintained that the inflow of foreign capital and developed a country‘s natural resources only for export purposes, to the neglect of production in the domestic sector. In these countries the export sector remains an island of development surrounded by a backward low-productivity sector. Thus, the inflow of foreign capital in underdeveloped countries has not resulted either in the development of the domestic sector or of the people in these countries. Despite huge foreign investments, the people have remained backward in their countries.

Prof. H.W. Singer is also of the opinion that the benefits of technological progress have gone disproportionately to the advanced countries. According to him, ―Benefits of foreign trade and investment have not been equally shared between the two groups of countries.

The capital exporting countries have received their repayment many times. Thus foreign investment of the traditional type has formed part of a system of _economic imperialism‘ and exploitation.‘

**3. When there is Limited Possibility of Gain:**

According to Prof. Nurkse the possibility of gain from foreign trade to underdeveloped countries is restricted or limited. It is simply due to the reason that underdeveloped countries export mainly primary goods. These exports suffer losses on account of:

(i) Fall n their demand due to the tendency on the part of developed countries to establish heavy industries,

(ii) Contribution of services in the aggregate production of developed countries has been increasing,

(iii) Income elasticity of demand for agricultural production is less in developed countries,

(iv) Many developed countries have been adopting policy of protection in respect of agricultural products,

(v) Use of synthetic goods in place of agricultural products has been on the increase.

On account of these reasons, income of underdeveloped countries from the export of primary products has been diminishing constantly. Under these circumstances, it is totally wrong to call trade as _an Engine of Growth‘.

**4. When there is an Adverse Effect on ‘Demonstration Effect’:**

Another harmful effect is that the international operation of the _demonstration effect‘ has been a handicap for the poor countries. It has been responsible for reducing the

capacity for capital formation. The desire for luxury, show-off for higher standard of living and patterns of consumption of advanced countries has been an important factor responsible for low level of domestic savings in underdeveloped countries.

Higher income groups in these countries are trying to adopt the consumption standards of advanced countries which have pushed up their propensity to consume and thereby limited capital accumulation and economic growth. This leads to corruption and black marketing. Thus, these evils have adverse effect on the economy.

**5. When there is Secular Deterioration in the Terms of Trade:**

Another important criticism of foreign trade has been that it has resulted in an international transfer of income from the poor to the rich countries through a secular deterioration in the commodity terms of trade of the poor countries. In the opinion of Prof. Raul Prebisch, there has been a secular deterioration in the terms of trade of underdeveloped countries. How maintains that underdeveloped countries have suffered with fatal effects of a continuous weakening in their capacity to import. It has lead to the weakening of the capacity of their existing primary producing industries to support their growing population. It has resulted in a failure to transmit to them the benefits of technical progress.

This deterioration in terms of trade for underdeveloped countries has been the result of differences in the distribution of gains from increased productivity, diverse cyclical movements of primary product and industrial prices, and disparities in the rates of increase in demand for imports between the industrial and primary producing countries.

As a result, their secular terms of trade have deteriorated, unemployment increased and balance of payments turned adverse.

## 6.5 CONCLUSION

Causes of international trade can been seen as dual economies, in underdeveloped countries as a result of which the export sector became an island of development while the rest of the economy remained backward. Also it also not been entirely beneficial to poor countries because of the adverse effects of foreign investments on their economy and limited possible gain etc.

## 6.6 SUMMARY

In this unit, we have learnt and discuss on the no trade model, the methodological considerations and the consequences/effect of international trade. Therefore, we can say that the consequences of international is sometimes harmful to the developing countries rather than gain, making them worse off in the international trade business in the world.

**POST-TEST**

i. List and explain the consequences/effect of international trade to the underdeveloped countries in the world.

ii. Do you think Nigeria has gain so much in the trade of crude oil with other developed countries in the world?

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## LECTURE SEVEN

## THE HECKSCHER-OHLIN MODEL (Weeks 13-14)

### 7.0 INTRODUCTION

In the previous unit we analyzed the effects of international differences in technologies on trade and welfare. A number of powerful conclusions were drawn about the concepts of comparative advantage and the gains from trade. However, the Ricardian theory employed present a highly stylized model of technology differences. It assumes the existence of a single factor of production, labor, that exhibits constant productivities in generating commodity outputs. This simple specification led our analysis to some sharp theoretical predictions, including constant opportunity costs, the likelihood of complete specialization in trade, and the existence of positive income gains from trade for all workers in both countries (unless our country is much larger than the other and does not specialize completely). -In practice, of course, we rarely observe such outcomes from trade. As a simple example, it surely cannot be true that all workers are made better off by engaging in international trade, for we observe that representatives of labor interests tend to oppose freer trade in the United States and other high-wage economies. Thus, we need to move beyond the Ricardian theory to develop models that make more realistic predictions about trade.

In this unit we make a substantial move in that direction by presenting the famous Heckscher-Ohlin model, which has served as the pre-eminent trade theory in the 20th century. The Heckscher-Ohlin model, which was named for the two Swedish economists who developed its essentials, departs from the Ricardian model in two fundamental ways. First, it assumes the existence of a second factor, which we will call capital, allowing for a much richer specification of production functions. Second, rather than assuming different technologies, the model rests on the notion of identical production functions in both nations. This assumption is made explicitly to neutralize the important possibility that trade is based on international technological variations in favor of the possibility that trade is based solely on difference in supplies of capital and labor.

### 7.1 OBJECTIVES

At the end of this unit, you should be able to:

- Define and understand the meaning of factor endowments and factor intensities
- Know the effect of endowment differences
- Understand the Heckscher-Ohlin theorem

**PRE-TEST**

i. Briefly discuss the Heckscher Ohlin Model

ii. Discuss on the effects of endowment Differences

**CONTENT**

## 7.2 THE EFFECTS OF ENDOWMENT DIFFERENCES

The Heckscher-Ohlin trade model builds on the neoclassical supply-side theories. It adopts and maintains three assumptions about production characteristics in each country. First, the production functions for goods X and Y exhibit constant returns to scale. These production functions, which are the same in both countries, differ in relative usage of capital and labor. Specifically, we will always take good X to be labor-intensive and good Y to be capital-intensive. Second, there are fixed total supplies of the two factors, labor and capital, which are homogeneous and perfectly mobile between industries within each country. Thus, a single wage rate and a single rental rate on capital prevail within each economy. However, labor and capital arc assumed to be perfectly immobile between countries. Third, there are no market distortions such as imperfect competition, labor unions, or taxes that would influence production or consumption decisions. Note that these assumptions guarantee that factors are fully employed. When expanding the model to allow for trade, two additional assumptions are required. First, preferences in both countries are taken to be identical and homogeneous. This assumption eliminates the possibility that comparative advantage can be based on differences in demand behavior.

The last assumption is the defining characteristic of the Heckscher-Ohlin model. Countries are assumed to differ in their relative factor endowments. Because the model assumes identical technologies, constant returns to scale, and common tastes, this is the only meaningful difference between the countries.

## 7.3 FACTOR ENDOWMENTS

We need to be clear on the meaning of factor abundance and factor scarcity in this relative sense. We define factor endowments specifically in terms of the ratios between capital stocks and labor forces in the two countries. Thus, if the capital-labor ratio in Country II is greater than it is in Country F, we say that Country H is relatively capital-abundant (and labor-scarce) while Country F is relatively labor-abundant (and capital-scarce), This physical definition gives Eq. (8.1):

$$(K/L)_h > (K/L)_f \qquad (8.1)$$

To understand the concept of relative factor endowments, consider the estimates of real capital endowments and labor forces presented in Table 8.1, Capital stocks wore computed as the cumulative sum of gross fixed capita! formation in the 15-year period through 1984, corrected for depreciation and inflation, and converted to U.S. dollars using a consistent set of international price and exchange rate comparisons." Thus, capital stocks are in billions of 1984 dollars. The labor force in each country is defined to be the economically active population (that is, those employed and those looking for work) in

TABLE 8.1
**Capital and labor endowments for selected** countries, 1984

| | Capital | | Capitalper |
|---|---|---|---|

| Country | stock ($b) | Labor force (m) | Worker {$) |
|---|---|---|---|
| India | 482 | 254 | 1,898 |
| Brazil | 507 | 53 | 9,566 |
| Rep. of Korea | 204 | 14 | 14.571 |
| Mexico | 353 | 23 | 15,348 |
| U.S. | 3,696 | 116 | 112,421 |
| Canada | 119 | 12 | 34,917 |
| Germany" | 1,018 | 26 | 39,154 |
| Japan | 2,336 | 59 | 39,593 |
| Switzerland | 120 | 3 | 40,000 |

Source: World Development indicator

Millions of workers the final column shows the ratios of capital to labor. Several features of these data are worth discussing. First, note that it is relative endowments that affect the measurement of factor abundance for example, although the United States has a larger labor force than either Brazil or Mexico, it is capital-abundant and labor-scarce because it has a comparatively larger capital supply.

## 7.4 FACTOR INTENSITIES

It is useful Lo reintroduce the concept of factor intensities discussed in our previous discussion, because they also play a central role in the Heckscher-Ohhn theory. Good Y is relatively capital-intensive and good X is relatively labor-intensive if the capital-labor ratio used in production is higher in the former sector:

$$(K/L)_y > (K/L)_x \quad (8.2)$$

Recall that in equilibrium both sectors choose capital-labor ratios that minimize costs for the prevailing relative factor price, w = w/r, where w is the wage rate and r is the rental rate on a unit of capital. In principle, it is possible that at different relative factor prices, the rankings in Eq, (8.2) can be reversed if one industry finds it technically easier to substitute capital for labour along an isoquant than does the other. This possibility, termed a factor-intensity reversal (FIR), poses certain problems for the Heckricher-Ohlin trade theory, which we will note briefly as we proceed

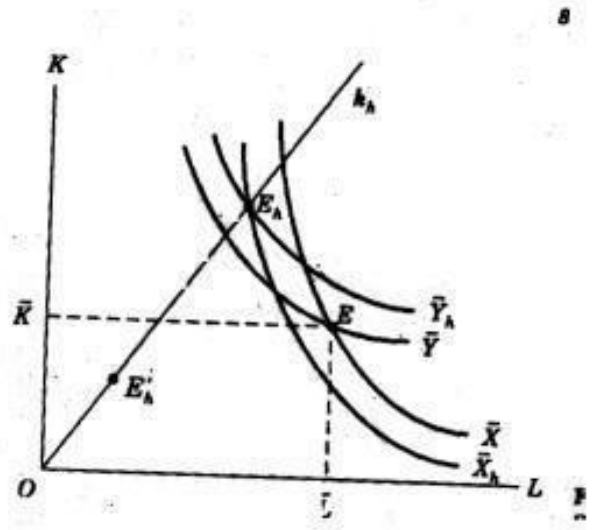
The model must therefore make the further assumption that there are no factor- intensity reversals,

**Table 8.2** presents estimates of capital-labor ratios in certain U.S. manufacturing industries in 1984. Again, capital stocks were computed as the real value of accumulated capital, accounting for depreciation. Our selected industries represent wide disparities in factor intensities, ranging from the most capital-intensive industries (petroleum refining and paper products) to the most -labor-intensive industries (footwear and wearing apparel).

## IMPLICATIONS

To illustrate the effect of endowment differences we begin by considering the case in which endowments are the same for two countries, H and F, This level of endowment is represented by point E of Fig. H.I, with endowments L and K . For this point, the maximum producible quantities of X and Y are X and Y. These two maximum output

points are shown In Pig. 8,2, where the corresponding production possibility curve is YX. Now consider the effect of changing the endowment point for one of the, two countries. Specifically, assume that the endowment point for country H is $E_h$. Note that, because we have increased the capital endowment and reduced the labor endowment for country H, point $E_h$ and E = $E_f$ satisfy Eq. (8.1). The isoquants passing through point $E_h$ give the maximum level of output of the two commodities in H. The diagram is drawn so that the isoquant through $E_h$, for commodity Y lies above $Y_t$ whereas the isoquant for commodity A" lies below A'. These new isoquants are represented by $Y_h$/, and Xf,, respectively**,** and produce the two endpoints $Y_h$ and X , of Fig. 8.2. Here, the increase' in the endowment of capital and the reduction in the endowment of labor result in a rise in the maximum output of Y, the capital-intensive commodity, and a reduction in the maximum output of X, the labor-intensive commodity. As one would expect, the production frontier




for the labor-abundant Country F is biased toward the X"-axis, and the production frontier for the capital-abundant Country H is biased toward the Y axis.

## 7.5 THE HECKSCHER-OHLIN THEOREM

Given the assumption of the model, a country will export the commodity that intensively uses its relatively abundant factor. Note carefully the implication of this theorem. The important characteristics distinguishing each country the its relative supplies of capital and labor, By virtue of exporting the capital-intensive good and importing the labor-intensive good, Country H implicitly exports the services of capital, its abundant factor and imports the services of labour its scarce factor. Thus, international trade in commodities accomplishes the task of exchanging surplus factor services between countries. This is an important phenomenon for understanding the effects of trade on factor incomes.

An interesting question regarding the Heckscher-Ohlin theorem relates to how far we can relax the underlying assumption find still ensure that the result holds. Non-constant returns to scale would clearly invalid air the notion that country size is irrelevant for trade patterns, and allowing arbitrary international differences in technology would also render the theorem generally invalid. If factors were not homogeneous, meaning that

labor was distinguished by skills and that capital came in different types, the simple two-factor theorem would no longer be relevant. However, as we discuss in point 8.6, an important variant of the fundamental message of the model that countries export the services of their abundant factors is still valid. If factors are not mobile between industries but instead must remain lived in employment for some period of time, the model must depart from the long-run nature of the Heckscher-Ohlin theorem in favor of a short-run view.

## 7.6 CONCLUSION

In this unit, we can conclude that the exports of a capital-abundant country will be from capital-intensive industries, and labour-abundant countries will import such goods, exporting labour-intensive goods in return. Competitive pressures within the H–O model produce this prediction fairly straightforwardly. Conveniently, this is an easily testable hypothesis.

## 7.7 SUMMARY

In this unit, it is possible to extend the Heckscher-Ohlin theory to the case of large numbers of goods and factors. The factor-con tent theorem predicts that the implicit trade in factor services depends on rankings of factors, even if the trade patterns for particular commodities are not determinate.

## POST-TEST

i. Briefly make a clear distinction between factor endowments and factor intensities.
ii. Discuss the Heckscher Ohlin Model in details.

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