

# International Trade and Finance

Kshyama Sagar Meher

This reference book can be useful for  
BBA, MBA, B.Com, BMS, M.Com, BCA, MCA  
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# **Sample Preview of The Chapter**

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# INTERNATIONAL TRADE & FINANCE

INTERNATIONAL TRADE: THEORY



## Free Trade Theory

### **INTRODUCTION**

In the context of trade liberalization and globalization, knowledge of trade theories is important to making the trade policy. An attempt has been made in this chapter to present different classical theories in a simple manner. The theories show how different theorists focus on different determinants to emphasize on the political gains from global trade. Major limitations are also pointed out to give a comparison of different theories. In the beginning, the pure theory of International Trade propounded by Adam Smith is explained along with the theory of absolute advantage. The theory has been compared with the Ricardian comparative costs concepts. Other theories discussed are Heckscher-Ohlin theorem, Stolper-Samuelson theorem, Rybczynski's theorem and factor price equalization theorems. The empirical testing of comparative cost and the Heckscher-Ohlin theorems are discussed briefly at the end.

### **CHAPTER AT A GLANCE**

#### **THE PURE THEORY OF INTERNATIONAL TRADE-THEORIES OF ABSOLUTE ADVANTAGE**

The pure theory of international trade is based on the concept of absolute advantage. According to Adam Smith, two countries can gain through international trade if they have absolute advantage in producing different goods.

What is absolute advantage? Absolute advantage is the ability of a country to produce more good or service than competitors, using the same amount of resources.

For example, Country A can produce 1000 parts of product X with 200 workers. Country B can produce 2500 parts of product X with 200 workers. On the other hand, Country A can produce 2500 parts of product Y with 200 workers. Country B can produce 1000 parts of product Y with 200 workers. Here country A has the absolute advantage over Country B in producing product Y, while Country B has absolute advantage over Country A in producing product X. So, if the country A exports product Y to country B and gets X from country B, both the countries will gain.

#### **RICARDIAN COMPARATIVE ADVANTAGE AND OPPORTUNITY COST**

David Ricardo explains how a country can gain through International Trade even if the country does not have comparative advantage in any goods. In that situation, he demonstrates in his comparative advantage theory how a country would benefit by comparative advantage.

To explain this theory, he has taken the example of England and Portugal. In Portugal it is possible to produce both wine and cloth with less labour than it would take to produce the same quantities in England. So Portugal has absolute advantage in the production of both wine and cloth. So how can England gain from trade with Portugal?

Both England and Portugal would gain from trade and one can understand through the concepts of the opportunity costs manifested in comparative advantages.

For example, the cost conditions in the two countries are as given in the Table 1.1. So, Portugal has advantage over both wine and cloth.

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**Table 1.1: Labour Cost and Opportunity Cost Comparisons**

Country	Labour cost of production (in hours)		Opportunity cost of production	
	1 unit of cloth	1 unit of wine	1 unit of cloth	1 unit of wine
England	100	120	$100/120 = 0.83$	$120/100 = 1.2$
Portugal	90	80	$90/80 = 1.12$	$80/90 = 0.89$

If we calculate the opportunity costs, Portugal has lower opportunity costs (0.89) of the two countries in wine production, while England has lower opportunity costs (0.83) in cloth production. So, Portugal has comparative advantage over wine and England has over cloth and both the countries would gain if they export these respective products to the other country.

**HECKSCHER-OHLIN THEOREM AND ITS EXTENSIONS**

Two Swedish economists, Eli Heckscher and Bertil Ohlin, have improved upon the Ricardian theory comparative advantage. In their framework, known as Heckscher-Ohlin (H-O) model, trade between two countries is caused because of differences in relative factor endowments of those countries. It is a theory of long-term general equilibrium in which two factors are mobile between sectors. As per this model, there are factors use and factor rewards.

Paul Samuelson and Ronald Jones have further improved the H-O model. According to their framework, known as Heckscher-Ohlin-Samuelson (H-O-S) model, the free movement of goods between countries may bring about the factor-price equalization.

There are also two other theories in this line—the factor-price equalization theorem and the Rybczynski theorem. Here we discuss all the four models in detail.

**H-O Theorem:** According to H-O Theorem, a country specializes in and exports that product which intensively uses its most abundant factor. For example, if a country like the United States is abundant in capital, it would specialize in capital-intensive goods that would form a large share of its export basket. In the same way, the US would import labour-intensive products from countries that are labour-abundant.

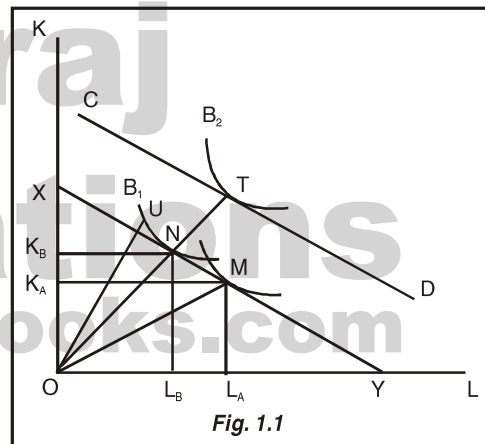
This model is also called the factor-proportions model because it is based on the ratio or proportion of one factor to another. Thus, it can be capital and labour ratio that would determine the trade between two countries.

Suppose two countries produce electronics and textiles. If electronics production uses more capital per

unit of labour than is used in textiles production, electronic production is capital intensive and textile production is labour-intensive.

Countries are different in quantities or endowments of factors capital and labour available for use in the production process. Some countries are well-endowed with labour force compared to capital, while some other countries have a large capital compared to labour force.

According to H-O model, two countries can trade gainfully when the countries differ in their relative factor endowments and when different industries use factors in different proportions.



**Fig. 1.1 Equilibrium in production in free market**

If two goods, A and B, are produced with different production functions, an equilibrium situation is presented in Figure 1.1. At points M and N, the quantities specified by the isoquants (A1 of A and B1 of B) are produced at the lowest possible cost given the factor prices. Thus, M and N are two isoquants tangential to the lowest possible isocost line, which has a slope equal to the factor price ratio, the line XY. It follows that the ratio of the marginal product of labour to the marginal product of capital is the same for the two products.

Points M and N show another possible equilibrium. At these points, the slope of A isoquant at M is equal to the slope of B isoquant at T and both are equal to the given factor ratio.

There is another factor to get these results – when a producer facing given factor and producer prices will maximize his profits by purchasing factors to the point where the value of the marginal product of each factor (the marginal product times the price of the good) is equal to the price of the factor. Algebraically, in order to maximize profits, the producer must combine capital and labour so that:

$$\frac{MPL_y P_y}{MPK_y P_y} = \text{or} \frac{MPL_y}{MPK_y} = \frac{w}{r}$$

Here P is price, w is the wage rate, r is the return to capital,  $MPL_y P_y = w$  and  $MPK_y P_y = r$ .

As shown in Figure 1.1, suppose the good B is produced at a point U instead of point N, profits will not be maximized. This is because, at U the marginal product of capital in producing B is lower than it is at point N, so the value of the marginal product of capital in producing B at point U (the marginal products times the price of B) is lower than the cost of the unit of capital. Similarly, the value of the marginal product of labour at point U is higher than the cost of the labour. Profits would be increased by employing more labour and less capital, the capital-labour ratio would decrease, and we would move to a point such as N and T.

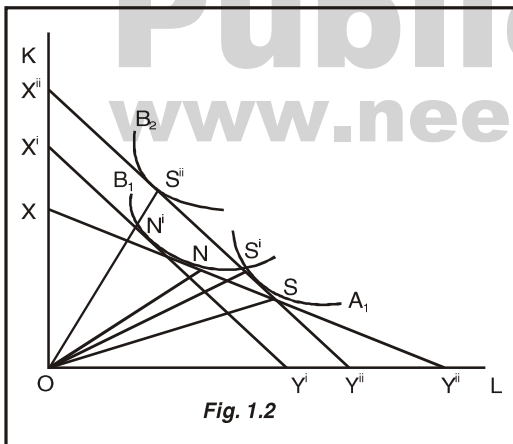


Fig. 1.2: Factor prices, factor intensities and production costs

In case of a change in the factor prices, there will also be change in factor intensities. For example, if the labour prices compared with capital prices increases, then more capital-intensive methods of production will be used in both lines of production as given in Figure 1.2. Before the change in price, OX of capital cost the same to purchase as OY of labour, but after the change

OX' of capital costs the same as of OY' of labour and OX'' of capital costs OY'' of labour. As the cost of labour increases, the production becomes more capital-intensive for both the goods.

The H-O theorem states that a country will export goods that use its abundant factors intensively, and import goods that use its scarce factors intensively. In the two-factor case, it states A capital-abundant country will export the capital-intensive good, while the labour-abundant country will export the labour-intensive good.

When the countries are not trading, the price of capital-intensive good in capital-abundant country will be bid down relative to the price of the good in the other country, the price of labour-intensive good in labour-abundant country will be bid down relative to the price of the good in the other country.

Once trade is allowed, profit-seeking firms will move their products to the markets that have (temporary) higher price. As a result: the capital-abundant country will export the capital-intensive good, the labour-abundant country will export the labour-intensive good. The trade flow will rise until the prices of both goods are equalized in the two markets.

#### Difference in assumption as compared to the Ricardian Model

In Ricardian Model, the production technologies differ between countries. Production technology means the productivity of labour. On the other hand, the H-O model assumes that production technologies are the same.

**The Stolper-Samuelson Theorem:** The Stolper-Samuelson theorem describes a relation between the relative prices of output goods and relative factor rewards, specifically, real wages and real returns to capital within the context of H-O model.

The theorem states that a rise in the relative price of a good will lead to a rise in the return to that factor which is used most intensively in the production of the good and conversely, to a fall in the return to the other factor. If the prices of the labour-intensive good were to rise then the wage rate would rise while the rental will fall.

**Magnificent Effect:** Jones later on generalized the Stolper-Samuelson theorem. He constructed the magnificent effects for prices in the context of H-O model. In magnificent effect, an analysis is made on change in the prices of both the goods and we get information is derived about the magnitude of the effects on the wages and rents. As the real returns indicate the purchasing power of wages and rents after accounting

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for the price change, we can know the policy-impact. This is also a better measure of well-being.

This theorem is relevant mainly in the time of trade liberalization. The magnificent effects can be applied to know the result after the price change as an impact of the trade liberalization. A trade liberalization leads to rise in the real returns of a country's abundant resources. For example, if the United States is capital-abundant and India is labour-abundant and the two countries trade, the capital owners in the US will see an increase in the purchasing power of their rental income while workers will experience a decline in the purchasing power of their wage income. Similarly, workers will gain in India but capital owners will lose.

In case of free trade, the price of an exported product rises and that makes profit-seeking firms to raise the production of that goods. On the other hand, the prices of imported products will fall. There will be less production, resulting in laid-off in the import competing sector.

The export sector is intensive in the country's (US) abundant factor, for example capital. This means that the export industry wants relatively more capital per worker than the ratio of factors that the import-competing industry is laying-off. In this process, demand for capital will rise leading to increase in its prices and supply of labour will cross the limit leading to fall in its prices. Thus, the capital owners in both countries will register an increase in their rents, while worker will experience a decline in their wages.

This theory was originally developed to highlight the issue of how tariffs would affect the incomes of workers and capitalists within a country since tariffs raise the domestic price of important goods.

**The Factor-Price Equalization Theorem:** Factor price equalization theorem says that when the prices of the output goods are equalized between countries as they move to free trade, then the prices of the factors (capital and labour) will also be equalized between countries.

The theory is based on the assumption that the two countries share the same technology and the markets are perfectly competitive. In a competitive market, factors are paid on the basis of their value of marginal productivity which in turns depends on the prices of goods. Thus, when prices differ between countries, their marginal productivity will also differ. That will lead to differ on wages and rent. However, once the output of

goods are equalized between countries as they move to free trade, then the prices of the factors (capital and labour) will also be equalized between countries. This theory is unlikely to apply in the real world.

**The Rybczynski Theorem:** The Rybczynski theorem states that a rise in the endowment of one factor will lead to a more than proportional expansion of the output in the sector which uses that factor intensively, and a decline of the output of the other good.

Suppose there is an increase in the labour endowment. Production of labour-intensive goods such as textiles will rise and there will be a fall in the output of capital-intensive goods like electronics. This theory is useful in addressing issues like population growth, investment, labour force growth and immigration and emigration within the context of H-O model.

#### EMPIRICAL TESTING OF COMPARATIVE COST AND THE HECKSCHER-OHLIN THEOREMS

Attempts have been made to test the comparative costs and H-O theorems. Most studies have emphasized on testing the comparative advantage predictions within the H-O models. Leontief Paradox is one of the most important empirical critiques of the H-O theorem.

**The Leontief Paradox: the Factor-intensity Reversal:** Leontief's paradox undermined the validity of the H-O theorem. In 1953, Leontief found in a study that the US, which was the most capital-abundant country in the world, exported labour-intensive commodities and imported capital-intensive commodities, in contradiction with Heckscher-Ohlin theory. This shows the situation of factor-intensity reversal.

Economists however argue that this is not a paradox and the profile of the trade of the USA was consistent with the propositions of the H-O theorems. They argued that the US exported products that are more skilled-labour intensive and technological intensive than the products imported.

**Testing the 'factor content' version:** When a country indirectly exports (imports) the services of factors which are embodied in its exported (imported) goods is called 'factor content' of trade. This view contradicts H-O model which implies that a country should only export (import) that factors for their factor share is higher (lower) than their income share.