

Implications of The Heckscher- Ohlin (H-O) Model of Modern International Trade in the Textile and Automobile sector in Case of India and USA

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Abstract

This study investigates the Heckscher-Ohlin (H-O) model of modern international trade theory to understand the trade of textile and automobile in two different countries, using different factors of production. The study provides for a tri-facet view on trade between the two countries i.e., India and USA, through Factor intensity, factor abundance and flow of goods and services. The study proves the working of H-O model of international trade through the presentation of estimations and findings upon the implementation of trade that favor the theory. However, to the end, the study also mentions certain points of criticism that takes the form of Leontief's Paradox.

Keywords- Heckscher-Ohlin Theory of Modern International Trade; Modern International Trade; Factor Intensity; Factor Abundance; Leontief's Paradox

1. Introduction-

Eli Philip Heckscher and Bertil Ohlin were both Swedish economists, and known for their major contribution in the field of economics for developing the foundation of modern trade theory also known as General Equilibrium theory of international trade or Factor endowment theory of international trade. Ohlin was the disciple of Heckscher and is supposed to have been redefined the findings of his professor.

Eli Philip Hecksher was economic historian (1879-1952). His work on Sweden's Economy analysis is considered as an important Economic analysis. In 1919, Heckscher published an essay on the Effect of foreign Trade on the distribution of income in which he explained his modern theory of international trade. Bertil Ohlin was a student of Eli Heckscher (1899-1979). He explained his trade related views in the book "Inter-regional and International Trade" in 1933.

Heckscher Ohlin (H-O) International Trade Theory is known as Modern Theory of trade because this theory for the first time explained the following two important aspects of Trade: -

- i. There are many factors of production (land, labor, capital, organization)
- ii. Different combinations can be used in different units of various factors of production.

This modern theory explains that there are basic reasons behind Comparative Advantage in the trade. The H-O Theory is simple and practically applicable to understand the relative prices at domestic as well as at international level.

2. Research Objectives-

1. To study the practicality of implications of Heckscher-Ohlin theory of Modern International Trade
2. To bring out how international trade takes place
3. To understand the role factor intensity, factor endowment and factor abundance in international trade.
4. To learn how trade takes place between capital rich and labor rich nations.
5. To study Automobile and textile sector trade of India and USA.
6. To draw conclusions of Leontief's paradox in the contemporary situation.

3. Research Study

This work is based on the H-O Theory and hence, the two countries taken for the study and India and USA, along with two commodities from two sectors that is Cotton from textile and Car from Automobile Sectors, and two factors of production being, Labor and Capital. Hence, it is a 2*2*2 model.

4. Assumptions to the Theory-

1. The H-O theory assumes two countries, two factors and two commodities model (i.e., India- USA, Labor-Capital and Cotton-car, as mentioned above)
2. To produce different commodities, different combinations of different factors of production are necessary.
3. Availability of factors of production is different in different nations.
4. Countries use those factors of productions which are abundantly available. (For example, labor is abundantly available in case of India while land is abundant in case of USA)
5. Factor Abundance and factor intensity are two important aspects in international trade
6. Level of technology is same in the two countries.
7. The H-O theory assumes constant returns to scale in the production function.
8. The H-O theory assumes strong factor intensity in the production process.
9. The H-O theory assumes incomplete specialization, meaning no single country specializes in the production of only one commodity, rather both the countries produce both the commodities.
10. The H-O theory assumes Perfect Competition Market.
11. Factors are Mobile within the economy but they are immobile at international level.
12. Tastes and preferences of the people remain same.
13. Free Trade is assumed in the H-O theory.
14. H-O theory assumes Zero Transportation Cost.

5. The H-O theory can be explained in the following three points: -

- I. The Factor Intensity
- II. The Factor Abundance
- III. The Import-Export Mechanism- How trade takes place?

The Factor Intensity: -

Country	Product	Inputs used per unit of production			
		Capital Ratio	Labor	Capital	Labor
India	Cotton	2:3	6	9	
USA	Car	4:5	8	10	

Table 1.1: Showing the factor intensity of factors of production through estimates.

The above table demonstrates the two countries India and USA, producing Two distinct commodities, i.e., Cotton and Car respectively, using two different combinations of factors of production. However, the above mentioned are not the exact figures through micro analysis, but a part of Macro research, and mere estimates to only understand the concept of Factor intensity. Factor Intensity explains how intensely the factors are being used in the production process. As per the above table, and the H-O theory model considers one commodity is labor intensive and the other is capital intensive.

The Heckscher-Ohlin have explained this through the Capital labor ratio. Capital Labor ratio explains the combinations of the use of labor input for one unit of capital in the production process. It is the ratio of how intensely labor is being used to that of the capital. A high capital labor ratio denotes that the country is capital intensive country, meaning it is highly equipped with machinery and technology, and a low capital labor ratio signifies a labor-intensive country, meaning a country where labor is used in large quantity.

Conclusions on factor intensity

- As per the above table, if India is using 6 units of capital and 9 units of labor to produce 1 bale of cotton then the capital labor ratio would be, 2:3.
- As per the above observations, in USA, 10 units of labor are used against 8 units of capital for the production of 1 car, so the capital labor ratio would be 4:5.
- The capital labor ratios for the cotton and car reflects the factor intensity in their production process.
- The capital labor ratio of USA is higher denoting that USA is a capital-intensive country, i.e., capital is used intensely in car production in the automobile sector.
- Whereas the capital labor ratio of India is low, which signifies that India is a labor-intensive county i.e. labor is used intensely in cotton production in the textile sector.

Factor Abundance

The H-O theory is also known as the factor endowment theory. H-O says that the abundance in the number is physical abundance but the economic abundance is another aspect that plays a key role. Economic abundance is related with the demand and supply as well as on capital-labor ratio. Demand for the product may reduce the economic abundance but not its physical abundance.

1. Physical abundance- Physical abundance shows that in how much quantity a factor is available in one nation that another. It expresses the total quantity of available factors of production. For example- In

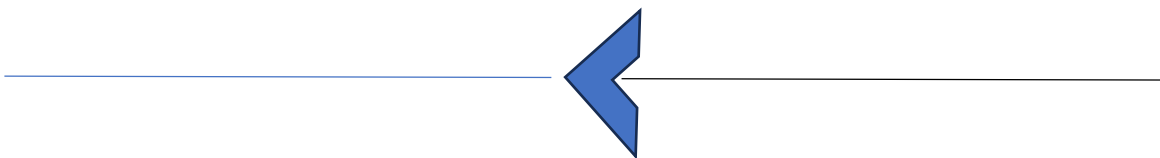
India, the labor factor is abundant, i.e., available in huge quantity, whereas in USA, the land factor is abundant.

2. Economic Abundance- Economic Abundance shows that what will be the capital labor ratio, wage-profit ratio for two different products in two different countries. It is widely depended on demand and supply. The demand and supply for a commodity drives the economic abundance of that commodity.
3. Explanation of a Capital rich and labor rich country by Ohlin: -
H-O theory explains that if the remuneration for capital is more than the remuneration for labor in one country than another country then we can say that it is a capital rich country. This is explained with the help of following equation: -

Factor payment for Capital in country 1
Factor payment for labor in country 1

Factor payment for capital in country 2
Factor payment for labor in country 2

Remuneration for capital is more in USA than remuneration of labor, as compared to India hence, it can be said that USA is a capital rich country.



The Import-Export Mechanism- How trade takes place?

The H-O theory explains the import-export mechanism through the following diagram. According to H-O, a capital rich country like USA will export capital intensive goods like car to a labor rich country like India, and import labor intensive goods like cotton from the labor rich country. And on the other hand, the labor rich country, India will export its labor-intensive goods, like cotton to a capital rich country i.e., USA, and in return would import capital intensive goods from USA.

H-O explains that this way the trade will take place between the capital rich and labor rich countries for specific commodities whose factor intensity and factor abundance is more in their nations.

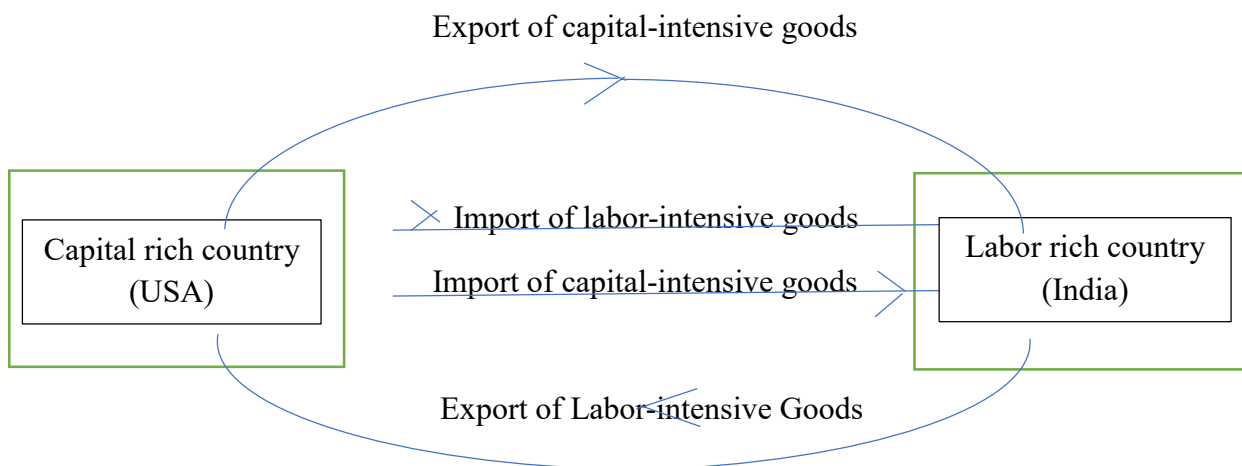


Fig-1: How trade takes place as per the H-O model

Leontief's Paradox: -

Vassily Leontief, one of the statisticians explained the limitations of H-O theory. According to Leontief in the practical world, labor rich nations export capital intensive goods and capital rich nations export labor intensive goods. This is the paradoxical situation that is exactly paradoxical to what H-O theory states.

Leontief explained this paradoxical situation with the help of input output table in statistical analysis. In the year 1947, Leontief prepared input output table with the help of information available in American industrial sector. He divided industries in American economy in 50 sectors. Leontief classified these 50 sectors in two factors- Labor and capital. After this classification Leontief calculated the capital labor ratio among, import competitive industries and exporting industries. He found that in exporting industries 14,000\$ are being invested per unit of labor while 18,000\$ are being invested in import substituting industries per unit of labor. He found that exporting industries in America, were using less capital per unit of labor while import substituting industries were using more capital per unit of labor.

But Leontief was criticized by the economists that he has used the year 1947 which was not normal in the background of World War II. So, he again used the same method for analysis in 1956. This time he used statistics for the year 1951 and classified American industries into 192 sectors and again the observations were similar. Leontief provided a deeper statistical face to the study of H-O theory.

6. Conclusion

Yet, in the light of Leontief's Paradox, the outcomes of H-O theory can't be denied or be exclaimed as wrong, because it is indeed true that a capital rich country exports labor intensive goods, subjected to the availability of labor and skills of labor, yet it cannot be denied that a capital rich country will also export capital intensive products.

In the present scenario, trade has expanded, global markets have compounded, providing for a space to trade numerous goods. Hence, in the contemporary situation, a capital rich country like USA, produces and exports both a capital intensive as well as labor intensive products, and a labor rich nation also exports both, capital and labor-intensive goods, subjected to their demand and supply.

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