INTERNATIONAL ECONOMICS

COURSE CODE: M23EC08DC

Postgraduate Programme in Economics

Discipline Core Course

SELF LEARNING MATERIAL

SREENARAYANAGURU OPEN UNIVERSITY

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The State University for Education, Training and Research in Blended Format, Kerala

SREENARAYANAGURU OPEN UNIVERSITY

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International Economics

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Semester - II

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MESSAGE FROM VICE CHANCELLOR

Dear learner,

I extend my heartfelt greetings and profound enthusiasm as I warmly welcome you to Sreenarayanaguru Open University. Established in September 2020 as a state-led endeavour to promote higher education through open and distance learning modes, our institution was shaped by the guiding principle that access and quality are the cornerstones of equity. We have firmly resolved to uphold the highest standards of education, setting the benchmark and charting the course.

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Rest assured, the university's student support services will be at your disposal throughout your academic journey, readily available to address any concerns or grievances you may encounter. We encourage you to reach out to us freely regarding any matter about your academic programme. It is our sincere wish that you achieve the utmost success.

Regards,
Dr. Jagathy Raj V. P.

01-09-2024

Contents

MASTER OF ARTS ECONOMICS

Foundations of International Trade

Block 1

UNIT 1
General Equilibrium in Closed and Open Economies

Learning Outcomes

After completing this unit, the learner will be able to:

- describe a basis for trade between nations
- identify different international trade theories
- analyse the practical trade situations

Background

Equilibrium is a central concept in economics. It can occur in various markets, including goods markets, labour markets, and financial markets. Equilibrium represents a state of balance and coordination in an economy, where supply, demand, prices, and resource allocation harmonise. Closed economies do not engage in international trade. They consume whatever they produce, and there is no export and import of goods and services. But in open economies, countries engage in international trade. These countries can trade goods and services with other nations. Understanding both closed and open economy equilibrium provides insights into the impact of international trade on domestic economies. Let us examine the equilibrium and various trade theories in detail.

Keywords

General Equilibrium, Open Economy, Autarky, Optimisation, Market Clearing, Absolute Advantage, Comparative Advantage

Discussion

1.1.1 General Equilibrium in Closed and Open Economies

International trade is a fundamental aspect of the modern global economy; countries exchange goods and services to make the best use of their resources, like the U.S. importing cloth from the U.K. and exporting wheat in return. This interconnected trade allows nations to access a variety of products, boosting economic growth and interdependence. In contrast, autarky refers to a self-sufficient economy that does not rely on trade, using only its domestic resources. Though no country today practices full autarky, it offers insight into how economies might operate without external trade. When we look at these concepts through the lens of general equilibrium, we can see how trade balances out supply and demand in open economies. In autarky, equilibrium occurs when domestic production meets domestic demand, while in open economies, equilibrium involves balancing what is produced and consumed at both national and world prices, ensuring that trade flows remain balanced.

1.1.1.1 Autarky and Open Economy

In a real-world scenario, we can see many countries trade with each other. India trades with China, the U.S. and so on. The U.S. has trade relations with Canada, China, the U.K., etc. Nowadays, countries rely on each other as they are not entirely self-sufficient. When these countries exchange goods with other countries, they are said to be engaging in international trade. Considering the case of the U.S. and U.K, if the U.K is purchasing wheat from the U.S and U.K is exchanging Cloth to the U.S. then there is international trade. Assume that these countries are entirely self-sufficient and have no trade relations with each other or any other nation. The people in these countries live in isolation from the rest of the world by relying solely on the resources within their borders to meet their needs, we can say that these countries are operating as closed economies. In this scenario, both the U.S. and U.K, exist in a state of 'autarky'. The definition of autarky comes from the Greek- 'autos' meaning "self" and 'arkein' meaning "to ward off". Thus, autarky refers to a nation which self-reliantly operates. Simply put, autarky means the absence of international trade. In practice, there is no fully autarkic

- Autarky is a situation when a country self-reliantly operates

nation.

Imagine a country with a prosperous economy, actively engaging in trade and investment with other nations. In this scenario, imports and exports play a crucial role, allowing the country to access a diverse range of products from around the world while also selling its own goods and services abroad. The prices of the products and services are determined on the basis of demand and supply with minimum trade restrictions. In such an economy, businesses have the opportunity to utilise international markets, expanding their customer base beyond domestic borders. Assume that the U.S. freely trades with its neighbouring countries. If the US imports cloth from the U.K which the U.S cannot produce locally, and exports wheat to the U.K; then there is a case of international trade. This exchange of goods between countries makes the U.S and the U.K. open economies, where trade flows in and out, benefitting everyone involved. Thus, we can define an open economy as a market place where goods, services and capital flow freely across borders, representing interconnectedness and interdependence between nations.

- A country can access a diverse range of products from other countries

1.1.1.2 General Equilibrium in a Closed Economy

Let us first consider the general equilibrium in a closed economy. The closed economy means that the country does not have any trade relationship with the rest of the world. Imagine that both consumers and producers are trying to make the most out of their resources in that country. Suppose, on the production side, both farmers and factory workers optimise their resources to produce wheat and cars, respectively. They allocate their land, labour, and capital efficiently to maximise output. At the same time, consumers maximise their utility by choosing the optimal combination of wheat and cars to purchase, considering their preferences and budget constraints.

- Producers seek profit, and consumers seek satisfaction

In a general equilibrium scenario, three key things are happening. First, producers aim to maximise their profits. They achieve this by ensuring that the cost of producing one more unit of a product is equal to the price they can sell it for. This balance is represented by the marginal rate of transformation (MRT) being equal to the price ratio of the two products (P_1/P_2). The marginal rate of transformation (MRT)

represents the rate at which one good must be sacrificed to produce an additional unit of another good while keeping total production constant. The producer's optimisation condition can be written as:

- Producer equilibrium when MRT= P_1/P_2

P_1/P_2 = MRT. Where MRT refers to the marginal rate of transformation and P_1/P_2 is the Price ratio of the two products.

Secondly, consumers want to maximise their satisfaction. They pick what to buy based on how much pleasure or utility they get from each item, making sure that the extra satisfaction they get from buying one more of something is equal to the extra cost. This balance is represented by

- Consumer equilibrium when P_1/P_2 =MRS

P_1/P_2= MRS.

Where P_1/P_2 is the Price ratio of the two products and MRS is the marginal rate of substitution.

The third condition is the market clearing condition. In a well-functioning economy, what is produced should be exactly what is needed or wanted by consumers. For every product, what is produced (supply) should be exactly what is wanted (demand). Let us call what is produced "X" and what is wanted "D". So, for every product, X should equal D. These three things together - smart choices by producers and consumers, and the balance between supply and demand - create a kind of equilibrium, where everything is in balance. That is what we call general equilibrium in economics. These 3 conditions can be summarised as;

- In the market clearing, demand is equal to supply

the producer optimisation is P_1/P_2 = MRT

the consumer optimisation is P_1/P_2= MRS

and the market clearing $X_1=D_1$ $X_2=D_2$

Let us illustrate general equilibrium in a closed economy that satisfies the three conditions with the help of the following figures.

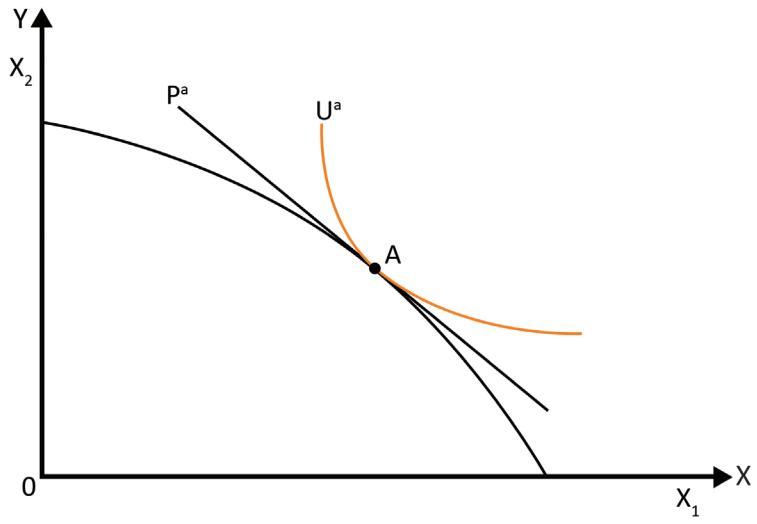

Fig 1.1.1 Closed Economy General Equilibrium

- Market clearing equilibrium in a closed economy is at point A

At point A, producers operate optimally. Here, slope of the production frontier is tangent to the price ratio line, ie, $P^a = P_1{}^a/P_2{}^a$ ('a' is labelled for autarky). Similarly, consumers are making optimal choices at point A as well. At this point, the slope of their indifference curve, matches the price ratio P^a. Moreover, the equilibrium at point 'A' ensures that all markets clear themselves at this point. The equilibrium point A is the best possible one. It represents the economy consuming on the highest possible community indifference curve, which basically means the economy is getting the most utility or satisfaction possible, given the available resources and production constraints.

1.1.1.3 General Equilibrium in an Open Economy

- In an open economy, economic agents can buy and sell goods and services globally

Next, we will look into the concept of general equilibrium in an open economy. Imagine an economy that is now part of the global market. In this setup, it can trade with other countries at a fixed rate determined by world prices denoted by $P^* = P_1{}^*/P_2{}^*$. The first two optimisation conditions we talked about earlier section stay the same. The only change is that now the prices at which things are traded internationally might be different from what they were when the economy was self-sufficient (autarky). In a closed economy, everything had to balance out within the country itself. But with international trade, things

open up. The economy is not limited to only consuming what it produces; it can buy and sell goods on the world market.

Instead of just making sure that what is produced equals what is consumed within the country, we now have something called the "trade balance condition." This means that what a country sells to the rest of the world must be equal to what it buys. Now, let us define *excess demand* for goods X_1 and X_2 as $(D_1\text{-}X_1)$ and $(D_2\text{-}X_2)$ respectively. If there is positive excess demand, it means the country is importing more than it is exporting because it is buying more than it is selling. On the other hand, if there is negative excess demand, it means the country is exporting more than it is importing because it is selling more than it is buying. The trade-balance constraint basically says that the value of what a country imports should be exactly equal to the value of what it exports or the sum of the value of the country's excess demands must equal zero.

- Trade balance is equal exports and imports

The trade-balance condition is given by

$$P_1^* (D_1\text{-}X_1) + P_2^* (D_2\text{-}X_2) = 0$$

Rearranging this equation,

$$P_1^* X_1 + P_2^* X_2 = P_1^* D_1 + P_2^* D_2$$

The left-hand side illustrates the value of production at world prices and the right-hand side shows the value of consumption at world prices. Thus, the equation says that the value of what is produced in the country, evaluated at world prices, should be the same as the value of what is consumed, also evaluated at world prices. Now, think of it this way: the value of what is produced is essentially the income of the country. We can represent this as a line on a graph, with the slope being the world price ratio. This line is like a budget line for the whole nation, showing what it can afford to buy and sell on the global market. Consumers in the country can then choose any point along this budget line for their consumption since the value of consumption is equal to production. This ensures that what is consumed does not exceed what is produced, keeping the trade balanced. This is shown in the figure1.1.2

- Open economy general equilibrium-Production equals consumption at world prices

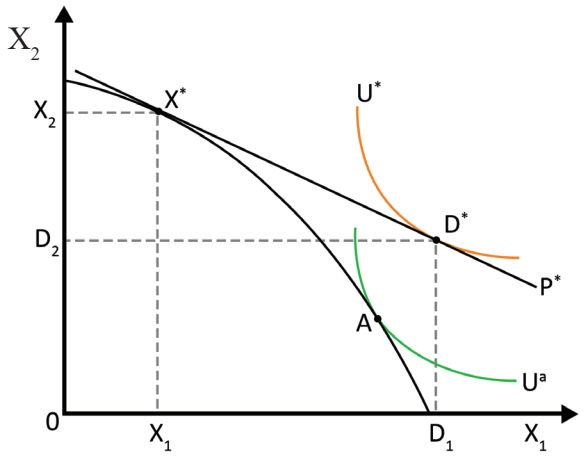

Fig 1.1.2 Open-Economy General Equilibrium

- Producers optimise at X^*, consumers at D^*. Import is X_1 and export X_2

Here, the fixed world price ratio is given by P*. Producers optimise their production at point X*, while consumers optimise their consumption at point D*. The country imports X_1 ($D_1 > X_1$) and exports X_2 ($D_2 < X_2$), with import quantity being X_1 D_1 and export quantity being X_2 D_2, thus balancing out the trade. In short, the conditions for general equilibrium in an open economy are given as follows;

$P_1^*/P_2^* = MRT$ producer optimisation

$P_1^*/P_2^* = MRS$ consumer optimisation

$P_1^*(D_1 - X_1) + P_2^*(D_2 - X_2) = 0$ market clearing

- Autarky equals self-sufficiency in prices

The autarky market-clearing condition is basically a simpler version of the trade balance concept. In autarky, the country is self-sufficient, so there is no need for trade. In this case, both terms in the trade-balance equation are zero because there is no importing or exporting happening. Now, if by chance the world prices happened to be exactly the same as the country's autarky prices, then the trading equilibrium would be exactly the same as the autarky equilibrium. This means that if the prices internationally are the same as what the country naturally sets for itself, then there is no real difference between trading with other countries and being self-sufficient.

1.1.2 International Trade Theories

In the global market, countries engage in trade relations, meaning that in an open economy, nations exchange goods

and services. Consider two countries, each specialising in producing different commodities in which they excel. In this global marketplace, countries trade these goods and services to access what they need while offering what they produce most efficiently. This mutual exchange benefits both economies and consumers by providing access to goods that would otherwise be unavailable or more costly to produce domestically. International trade, therefore, refers to the exchange of goods and services between one country or region and another. It is also sometimes known as "inter-regional" or "foreign" trade. More specifically, international trade involves trade across political frontiers, distinguishing it from trade within a single nation.

- Two countries trade goods they excel in, mutually benefiting

Theories of international trade explore the principles underlying trade practices, aiming at understanding why countries engage in trade, how they determine the exchange ratios between products (known as the terms of trade), and the benefits they derive from these exchanges. These theories are also instrumental in predicting the size, composition, and direction of trade flows. Over time, economists have developed various models to explain trade patterns. The classical phase of trade theory, supported by economists such as Adam Smith, David Ricardo, and John Stuart Mill, introduced foundational ideas. Smith's theory of absolute advantage demonstrated the benefits of specialisation, where a country focuses on producing goods that it can create most efficiently. Ricardo's theory of comparative advantage went further, explaining that even when one country can produce everything more efficiently than another, both nations can still benefit from trade due to differences in opportunity costs. In short international trade theories not only help us understand why and how countries trade but also reveal the advantages of such exchanges, which ultimately contribute to global economic growth. Let us examine the theories in detail.

- International trade theories analyse the basis of trade and gain from trade

1.1.2.1 Absolute Advantage Theory

This theory was developed by the Scottish Economist Adam Smith in 1776 through his famous book 'An Enquiry into the Nature and Causes of Wealth of Nations'. According to him, trade between two nations is based on absolute advantage, which refers to a nation's ability to produce more of a good or service than its competitors using the same amount of resources. When one nation is more efficient (or has an absolute advantage) in the production of one commodity

• Countries specialise in the commodities of their absolute advantage

and is less efficient (or has an absolute disadvantage) in the production of the second commodity, both nations can gain by each specialising in the production of the commodity of its absolute advantage and exchanging part of its output with the other nation. Through this process, resources are utilised most efficiently and the output of both commodities will increase. The theory rests on the following assumptions:

- Free Trade and Laissez-Faire Policies: No government intervention in trade.
- Two-Commodity Model: The model focuses on two goods being traded between two nations.
- Single Factor of Production: Labour is the only input considered in production.
- Constant Technology: Technology levels are assumed to remain unchanged during trade.

• The U.S- absolute advantage in wheat, the U.K absolute advantage in cloth

Let us consider a numerical example to illustrate this concept. Suppose there are two countries the United States and United Kingdom producing wheat and cloth. The table shows that by employing one hour of labour, the U.S can produce six bushels of wheat and U.K. can produce only one bushel of wheat. On the other hand, one hour of labour time produces five yards of cloth in the U.K but only four in the U.S. Thus, the U.S has an absolute advantage or is more efficient than the U.K in the production of wheat, while the U.K has an absolute advantage or is more efficient in the production of cloth.

Table 1.1.1 Absolute Advantage

	U.S	**U.K**
Wheat (bushels/hour)	6	1
Cloth (yards/hour)	4	5

• The U.S and the U.K exchange the commodities in which they specialise

With trade, both nations can benefit by fully channelling their resources to commodities in which they have an absolute advantage. The U.S would specialise in the production of wheat and exchange portion of it for British cloth. Conversely, the U.K would specialise in the production of cloth and exchange a portion of it for U.S wheat.

The domestic exchange ratio of the U.S between wheat and cloth is 6W for 4C. If the U.S is ready to exchange six bushels

of wheat in return for six yards of British cloth (6W for 6C), the U.S will gain 2 C or save 30 minutes of labour time. On the other hand, while obtaining 6W from the U.S, the U.K will gain 24C or save almost five labour hours. This is because the U.K needs six labour time to produce 6W domestically. The U.K can use these same six hours to produce 30C domestically (6 hours times 5 yards of cloth per hour). By being able to exchange 6C for 6W with the U.S, the U.K gains 24C.

- With trade and specialisation in production, both nations can gain

With trade and specialisation in production, both nations can gain. Which nation gains more is not the crucial issue. However, there are some problems with the theory of Absolute advantage. It can only explain a very small part of the world trade today, such as some of the trade between developed and developing countries. In reality, trade involves many countries. David Ricardo with his Law of Comparative Advantage truly explained the basis for the real gains from trade.

1.1.2.2 Comparative Advantage Theory

- Law of comparative advantage enables mutually beneficial trade

David Ricardo in his book 'Principles of Political Economy and Taxation' published in 1817 presented the Law of Comparative Advantage. This theory has many practical applications even today. The law of comparative advantage states that even if one nation is less efficient (absolute disadvantage) than another in the producing of both commodities, there is still a basis for mutually beneficial trade. The nation with absolute disadvantage will specialise in the production and export of the commodity in which it has smaller absolute disadvantage (commodity of its comparative advantage). It will import the commodity in which it has greater absolute disadvantage (commodity of its comparative disadvantage).

- 2x2 model

This theory is a 2x2 model (2 countries 2 commodity) with labour (homogenous) as the sole factor of production. This theory assumes constant technology. Considering two countries the U.S. and U.K., two commodities as wheat and cloth, the statement of the law can be clarified by looking at the following table.

Table 1.1.2 Comparative Advantage

	U.S	U.K
Wheat (bushels/hour)	6	1
Cloth (yards/hour)	4	2

It is evident from the table that the U.S. has an absolute advantage in the production of both wheat and cloth, as it can produce six bushels of wheat or four yards of cloth with one hour labour time. Conversely, the U.K. faces an absolute disadvantage in the production of both commodities. Considering labour productivity, since U.K. labour is only half as productive in cloth but six times less productive in wheat; compared to the U.S, the U.K possesses a comparative advantage in cloth. On the other hand, the U.S has an absolute advantage in the production of both wheat and cloth as compared to the U.K. Its absolute advantage in wheat production (6:1) exceeds that in cloth production (4:2), indicating a comparative advantage in wheat for the U.S.

- U.S -absolute advantage in both commodities. U.K an absolute disadvantage in both

In summary, the U.S.'s absolute advantage is greater in wheat, so its comparative advantage lies in wheat. Conversely, the U.K.'s absolute disadvantage is smaller in cloth, so its comparative advantage lies in cloth. According to the law of comparative advantage, through trade, both nations can gain if the U.S. specialises in the production of wheat and the U.K. specialises in the production of cloth, facilitating exchange between them.

- U.S. has comparative advantage in wheat and U.K. has comparative advantage in cloth

In order to prove the law of comparative advantage, we have to show that both the U.S. and U.K. can gain by each specialising in the production and exporting of the commodity of its comparative advantage. We know from the table that domestically one labour time in the U.S. can produce either 6W or 4C. So, the U.S. would be indifferent to trade if the U.K. offers 4C in exchange for 6W. The U.S would certainly not engage in trade if it received less than 4C in exchange for 6W. Likewise, the domestic exchange rate of the U.K. is 1W=2C, the U.K. would be indifferent to trade if it had to give up 2C for each 1 W it obtained from the U.S. The U.K. would definitely not engage in trade if it had to give up more than 2C for 1 W.

- U.S. indifferent to trade at 4C for 6W. U.K. indifferent at 1 W for 2 C

Let us explore how both nations gain from trade. Imagine the U.S. is willing to exchange 6 units of wheat for 6 units of cloth with the U.K. In this scenario, the U.S. would gain 2 units of cloth (since the domestic exchange rate is 6 units of wheat for 4 units of cloth) or save half an hour of labour time. Conversely, if the U.S. sent 6 units of wheat to the U.K; it would take the U.K. six hours to produce the same amount domestically. However, by engaging in trade, the U.K. can utilise these six hours to produce 12 units of cloth instead.

- The range of mutually advantageous trade is $4C < 6W < 12C$

By only exchanging 6C for 6 units of wheat with the U.S., the U.K. would gain 6 units of cloth or save three hours of labour time. There are other exchange rates at which mutually beneficial trade can take place.

The range for mutually beneficial trade is

$$4C < 6W < 12C$$

When the exchange rate is closer to 4 units of cloth for 6 units of wheat, the United States receives a smaller share of the gain, and the United Kingdom receives a larger share. Conversely, when the exchange rate is closer to 6 units of wheat for 12 units of cloth, the United States gains more relative to the United Kingdom. Considering an example, if the United States exchanged 6 units of wheat (6W) for 8 units of cloth (8C) with the United Kingdom, both nations would gain 4 units of cloth (4C each), resulting in a total gain of 8 units of cloth. However, if the United States exchanged 6 units of wheat (6W) for 10 units of cloth (10C), it would gain 6 units of cloth (6C), leaving the United Kingdom with only a 2-unit cloth gain (2C). Thus, trade enables each country to specialise in what it does best and exchange those products for items it is less efficient at producing.

- Trade enables nations to specialise in the commodities of their comparative advantage, and gain from trade

Summarised Overview

The general equilibrium in closed and open economies analyses how producers, consumers and market clearing are balanced in each economy. An autarky or closed economy is self- sufficient and has no trade relations with the rest of the world, while an open economy buys and sells goods globally. Two international trade theories applicable to an open economy: the absolute advantage theory propounded by Adam Smith and the Comparative advantage theory propounded by David Ricardo. Both theories are 2x2 models with labour as the only factor of production. The absolute advantage theory advocates that nations specialise in producing the commodities in which they have an absolute advantage, while comparative advantage doctrine states that countries specialise in the production of the commodities of their comparative advantage. Trade occurs on the basis of comparative advantage, and both nations mutually benefit from trade.

Assignments

1. Differentiate between general equilibrium in closed and open economies.
2. What is autarky?
3. Explain absolute advantage theory of international trade.
4. Explain comparative advantage theory of international trade.
5. Does the Ricardian model accurately reflect the real world? Does the Ricardian model provide accurate predictions for real-world international trade flows?

Suggested Reading

1. A. Smith, *The Wealth of Nations* (New York: The Modern Library, 1937), Book I, ch. 3; Book IV, chs. 1–3, 6–8.
2. D. Ricardo, *The Principles of Political Economy and Taxation* (Homewood, Ill.: Irwin, 1963), ch. 7.

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UNIT 2
Opportunity Cost

Learning Outcomes

After completing this unit, the learner will be able to:

- identify about the production possibility curve
- discuss the basic knowledge of offer curve
- evaluate the different types of terms of trade

Background

We have discussed Ricardo's Comparative advantage theory which suggests that even if one nation has an absolute advantage in producing both commodities while the other has an absolute disadvantage, mutually beneficial trade can still occur based on comparative advantage. This Ricardian theory is rooted in the labour theory of value, which determines the value of a good by the average number of labour hours needed for its production. However, this theory was later contested and rejected. Gottfried Haberler later refined and elucidated this theory using the concept of *opportunity cost theory* as demonstrated in production possibility frontiers or transformation curves. As we already know, opportunity cost is the next best alternative forgone to produce a commodity. The theory calculates the cost of producing a commodity by considering the other production options that must be sacrificed to produce that specific commodity.

Keywords

Specialisation, Production Possibility Curve, Offer Curve, Export, Import, Terms of Trade

Discussion

1.2.1 Opportunity Cost

- Opportunity cost of one commodity is the sacrifice of producing another

In 1936, Haberler revised the comparative advantage theory focusing on opportunity cost. He abandoned the labour theory of value and used the tool of opportunity cost to explain the comparative advantage model. He emphasised that the cost of producing one commodity (let us call it X) is determined by what is sacrificed for the production of another commodity (let us call it Y). This sacrifice, known as opportunity cost, represents what is given up to get more of one thing. For example, if more of commodity X is produced, resources are diverted from producing commodity Y, resulting in a decrease in the quantity of Y available, which is the opportunity cost of producing more of commodity X.

- Lower or smaller opportunity costs indicate a comparative advantage

A country will have a comparative advantage in the production of commodities with lower opportunity costs. Therefore, lower or smaller opportunity costs indicate a comparative advantage. Let us revisit the example presented in the comparative advantage theory to illustrate the concept of opportunity cost. According to the Comparative advantage doctrine, the U.S. holds an absolute advantage in producing both commodities while the U.K. faces an absolute disadvantage. As per the comparative advantage doctrine, the U.S. must specialise in the production of wheat where its comparative advantage is greater, while the U.K. should focus on the cloth where its disadvantage is smaller.

Table 1.2.1 Comparative Advantage

	U.S.	U.K.
Wheat (bushels/hour)	**6**	**1**
Cloth (yards/hour)	**4**	**2**

We can incorporate the opportunity cost into the concept of comparative advantage. The opportunity cost of producing wheat is measured in terms of what must be sacrificed in cloth production. Take the example of the U.S. from the table: it is evident that 1W = $\frac{4}{6}$ C. Simplifying, we find that1W = 0.66 C (ie; from the table, 6W=4C; thus, $\frac{6}{6}$W = $\frac{4}{6}$ C, which equals 1W =0.66C). Similarly, 1C = 1.5W for the U.S. (i.e., from the table, 4C= 6W. Thus, $\frac{4}{4C}$ = $\frac{6}{4W}$, which equals 1C = 1.5W).

Likewise, for the U.K., it can be observed 1W=2C and 1 unit of cloth (1C) is equal to 0.5 units of wheat (0.5W) (i.e., from the table, 2 units of cloth (2C) = 1 unit of wheat (1W); thus, $\frac{2}{2C} = \frac{1}{2W}$, which equals 1C = 0.5W).

- Country specialises in commodities with lower opportunity costs

The fundamental idea behind the principle of opportunity cost is that a country should specialise in producing those commodities for which the opportunity cost is lower compared to other commodities. This is because opportunity cost reflects the comparative advantage, according to the Haberler model of opportunity cost. When producing wheat, the opportunity cost is lower, at 0.66 in the U.S. Here, the country only needs to forgo 0.66 units of cloth to produce 1 unit of wheat. Conversely, in the case of the U.K., it must sacrifice 2 units of cloth to produce 1 unit of wheat. However, when producing cloth, the situation is reversed: The U.K. has a lower opportunity cost. It only needs to sacrifice 0.5 units of wheat for 1 unit of cloth.

- A smaller opportunity cost indicates a comparative advantage

In the Comparative Advantage model, Ricardo emphasises the concept of comparative advantage, while Haberler focuses on opportunity cost. A smaller opportunity cost indicates a comparative advantage. For example, the U.S. possesses a comparative advantage in wheat production because it incurs a smaller opportunity cost (requires less sacrifice). Similarly, the U.K. has a smaller opportunity cost in cloth production, giving it a comparative advantage in cloth production. This conclusion aligns with Ricardo's findings. Whenever there is a disparity in opportunity costs, there's potential for gain from international trade.

1.2.2 Production Possibility Frontier or Production Possibility Curve

- PPC shows possible commodity combinations with resources and technology

Opportunity costs can be demonstrated using the production possibility frontier or transformation curve. Imagine a nation with resources to produce two different goods: wheat and cloth. As the country has limited resources, it can only produce a certain amount of each commodity at any given time. In order to visualise this phenomenon, economists often use a production possibility curve. Initially, the nation efficiently allocates its resources to produce a particular quantity of wheat and cloth. For example, let us say the country decides to devote more resources to produce wheat. As a result, it can produce more wheat, but the production of cloth decreases because resources are diverted away from cloth production.

This trade-off is illustrated with the help of the production possibility curve. The production possibility curve indicates different combinations of two commodities a country can produce given its factor endowments and technology. Or, it is the boundary of all those combinations of the two goods which the country can produce.

- PPC slopes is downward from left to right

The production possibility curve sloping downwards from left to right, indicates that as more of one commodity is produced, the opportunity cost of producing the other commodity increases (it occurs in the concave PPC as shown in figure 1.2.1). The slope of the production possibility curve is determined by the ratio of units of the commodity sacrificed to produce one unit of the other commodity. This ratio is known as a marginal rate of transformation (MRT). An example of a concave PPC is shown in figure 1.2.1. Here, the opportunity cost curve AB is a concave curve sloping towards the origin, indicating an increasing MRT_{cw}.

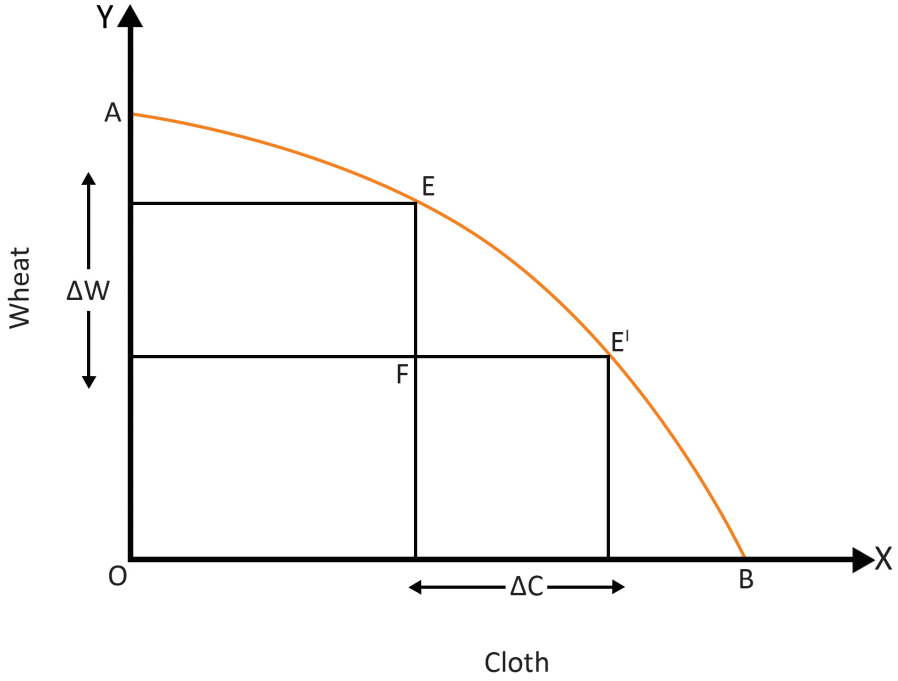

Fig 1.2.1 Concave PPC

- The slope of the PPC represents the Marginal Rate of Transformation (MRT)

In the figure, the country producing inside its production-possibility curve, say at point F, must be using its resources inefficiently, since by moving towards the boundary, such as to point E, the economy could produce more of at least one good. Suppose now that the country is producing at point E, on the production-possibility curve. It can increase its output of cloth only by switching factors of production from the wheat sector

to the cloth sector, and if it does so efficiently then it will move along the production possibility curve from E to, say, E′.

1.2.2.1 Production Possibility Frontier Under Constant Opportunity Costs

The shape of the PPC curve varies with the opportunity cost. The PPC curve shows the different combinations of two commodities that a nation can produce when it fully utilises its available resources and technology. In the case of constant opportunity costs the shape of PPC is negative or downward shape. Here, the ratio of the units of one commodity given up to produce one additional unit of another commodity remains constant throughout the production process. This implies that resources are perfectly interchangeable between the production of different goods, resulting in a straight-line production possibility curve. This can be explained with the help of figure.

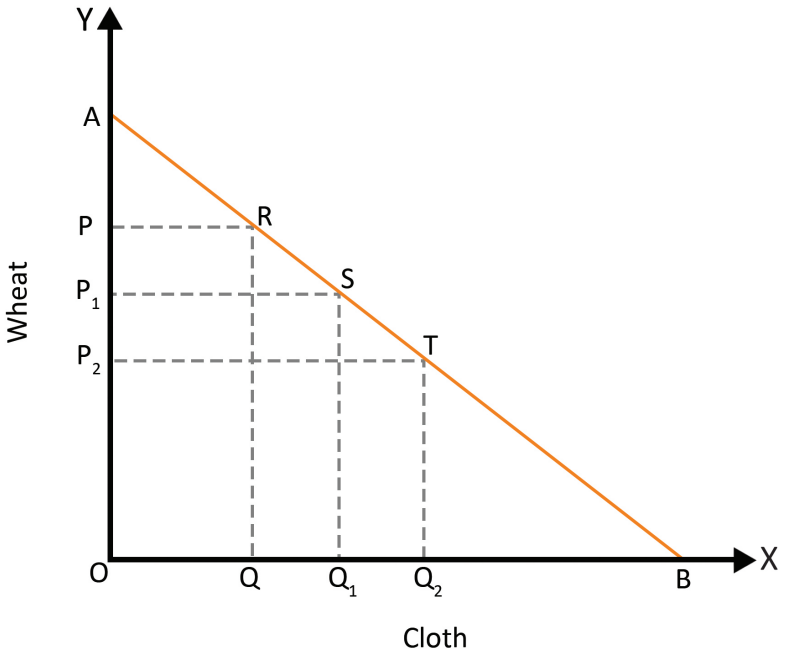

Fig. 1.2.2 Straight Line Production Possibility Curve

- Straight line PPC: Constant opportunity cost

In the figure, the X-axis represents cloth, and the Y-axis represents wheat. Given the available resources, the economy can produce a maximum of either OA amount of wheat or OB amount of cloth. Points R, S, and T in the figure represent alternative combinations of the two commodities that the nation can produce. At point R, the nation produces OQ amount of cloth and OP amount of wheat. Point S indicates that if the nation wants to increase cloth production to OQ_1,

it must reduce wheat production from OP to OP_1. Point T shows that if the nation wishes to produce OQ_2 amount of cloth, it must further reduce wheat production from OP_1 to OP_2. Connecting points R, S, and T form a downward-sloping production possibility curve.

1.2.1.2 Production Possibility Frontier Under Increasing Opportunity Costs

The concept of increasing opportunity costs refers to a situation where, as a country produces more of one good, it must sacrifice more and more quantities of another good to produce each additional unit. This happens because resources are not perfectly adaptable to the production of all goods; some resources are better suited to producing one good than another. So, when a nation reallocates resources from one good to another, it becomes progressively more costly in terms of the sacrificed good. This concept is illustrated by a concave production possibility frontier (PPF). A concave PPF reflects that as more resources are shifted toward producing one good, the opportunity cost of producing each additional unit increases.

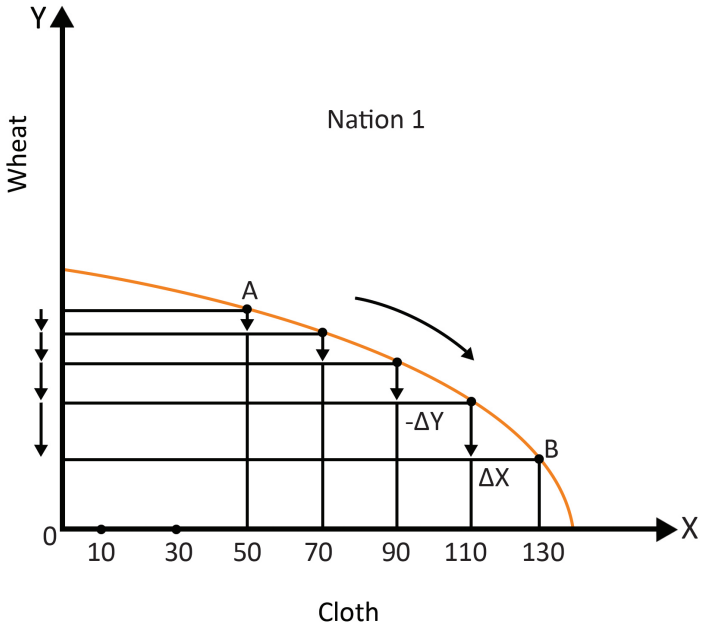

Fig. 1.2.3 Concave Production Possibility Curve

In the above figure the X-axis represents cloth, and the Y-axis represents wheat. The figure illustrates the shape of the Production Possibility Curve (PPC) in the case of increasing opportunity cost. The PPC is concave because, as more cloth is produced, progressively larger amounts of wheat must be

sacrificed. This occurs due to resource specialisation—some resources are more efficient in producing wheat, while others are better suited for cloth. As a result, producing additional units of cloth requires using less suitable resources, leading to higher costs. At point A represents a combination where a relatively high quantity of wheat is produced compared to cloth. Moving from point A to point B increases the production of cloth but decreases the amount of wheat produced. At point B: represents a combination where more cloth is produced at the expense of wheat. The increasing steepness of the curve from left to right reflects that producing additional units of cloth requires sacrificing increasingly larger quantities of wheat.

- Producing additional unit of one commodity requires sacrificing of another commodity

1.2.3 Gains From Exchange Versus Gains From Specialisation

In modern trade theory, the benefits of international trade are divided into gains from exchange and gains from specialisation. Gains from exchange refer to the benefits that occur when countries trade goods and services with each other. Take the example of two countries, the U.S. and the U.K. Assume that the U.S. is known for its fertile farmland and skilled agricultural workers, while the U.K. has advanced technology and a highly educated workforce. Due to these differences, the U.S. excels in producing agricultural goods like wheat, while the U.K. specialises in manufacturing cloth. When these two countries engage in trade, they can benefit from gains in both exchange and specialisation. Gains from exchange occur because the U.S. can trade its surplus wheat with the U.K. in exchange for cloth. Similarly, the U.K. can obtain wheat from the U.S. at lower prices than it would cost to produce domestically. This exchange allows both countries to access a wider variety of goods than they could produce on their own, leading to increased consumer welfare and economic efficiency.

- Gains from the exchange: Benefits from international trade

Meanwhile, gains from specialisation occur because each country focuses on producing the goods in which it has a comparative advantage. The U.S. devotes its resources to wheat, where it can produce more efficiently than the U.K. While the U.K. concentrates on manufacturing cloth, where its advanced technology and skilled workforce give it a competitive edge. This specialisation leads to increased productivity, as each country can focus on what it does best, ultimately resulting in higher levels of output and economic

- Specialisation yields gain by focusing on comparative advantages

growth. Furthermore, specialisation allows both countries to take advantage of economies of scale. Thus, gains from exchange and specialisation enable countries to maximise their economic potential by trading goods and services, focusing on their comparative advantages, and harnessing the benefits of specialisation and economies of scale.

1.2.4 Offer Curve

- Offer curve displays trade willingness between countries

Offer curve, also referred to as reciprocal demand curve was introduced by Alfred Marshall and Francis Ysidro Edgeworth. It shows how much of one product a country is willing to give in exchange for different amounts of another product from another country. The offer curve tells us the quantities of a specific item one country wants from another at different prices. This concept incorporates elements of both demand and supply. Alternatively, we can describe the offer curve of a nation as indicating the nation's readiness to import and export at different relative commodity prices.

To derive a country's offer curve, let us consider two countries, A and B. Country A exports cloth (which B imports) and imports steel (which B exports). Meanwhile, Country B exports steel (which A imports) and imports cloth (which A exports). When the price of cloth rises compared to steel, we can derive Country A's offer curve under constant cost conditions, as shown in the following Figure 1.2.4.

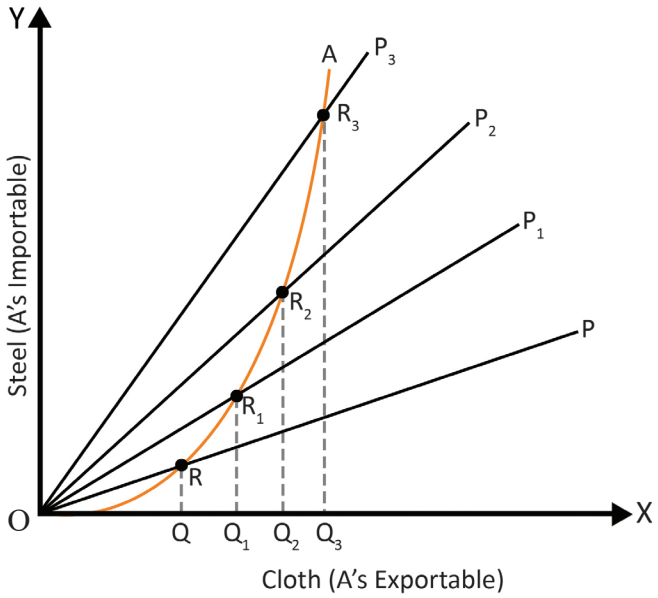

Fig 1.2.4 (a) Offer Curve of Country A

- Connecting R, R_1, R_2, and R_3 allows us to establish country A's offer curve, OA

In Figure 1.2.4 (a), cloth (A's export) is shown on the horizontal axis, while steel (A's import) is shown on the vertical axis. Initially, the price ratio of the two commodities is represented by the slope of the line OP. When the price of cloth increases more than steel, the slope of the price-ratio line or international exchange ratio line becomes steeper, as seen with lines OP_1, OP_2, and OP_3. As the price of cloth rises relative to steel, the demand for cloth in Country B increases at a decreasing rate. On the flip side, country A can take in more steel at an accelerating pace. At the exchange points R, R_1, R_2, and R_3, quantities are traded between A and B: OQ of cloth and RQ of steel at R, OQ_1 of cloth and R_1Q_1 of steel at R_1, OQ_2 of cloth and R_2Q_2 of cloth at R_2, and OQ_3 of cloth and R_3Q_3 of steel at R_3. As country A offers additional quantities of cloth, the amount decreases in exchange for additional quantities of steel. By connecting R, R_1, R_2, and R_3, we can establish the offer curve OA of country A, which slopes positively at an increasing rate.

Then the derivation of the offer curve of country B can be explained with the help of the figure.

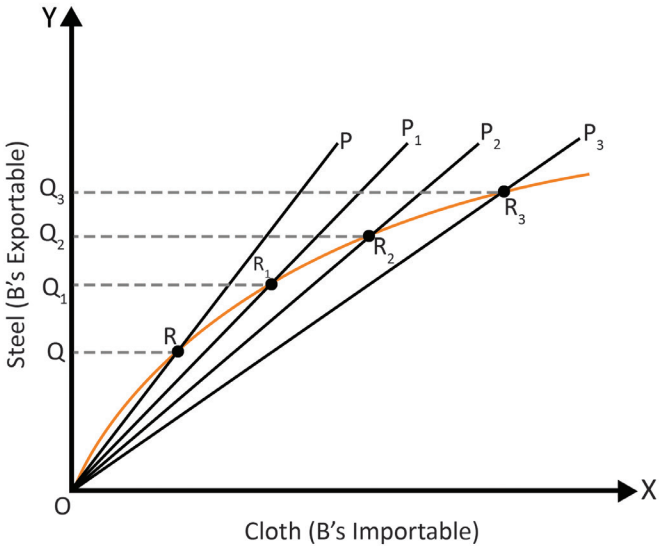

Fig 1.2.4(b) Offer Curve of Country B

In Fig.1.2.4(b) cloth (B's import) is shown on the horizontal scale and steel (B's export) on the vertical scale. As the price of steel increases compared to cloth, the steepness of the price ratio lines decreases. OP, OP_1, OP_2, and OP_3 represent these price-ratio lines. Since the price of steel has been rising at a faster rate, the demand for it in country A may increase at a slower rate over time. The additional quantities of steel offered

- Offer curve of B is OB joining the points R, R_1, R_2, and R_3

by Country B become smaller and smaller given certain quantities of cloth offered by Country A. At exchange points R, R_1, R_2, and R_3 along the price ratio lines OP, OP_1, OP_2, and OP_3, the quantities of steel offered are OQ, OQ_1, OQ_2, and OQ_3 respectively for the quantities of cloth RQ, R_1Q_1, R_2Q_2, and R_3Q_3 respectively. By connecting points R, R_1, R_2, and R_3, we can establish the offer curve OB of country B. The offer curve slopes upward more steeply for Country B but less steeply for Country A. The following diagram demonstrates where the terms of trade is actually settled between the two countries.

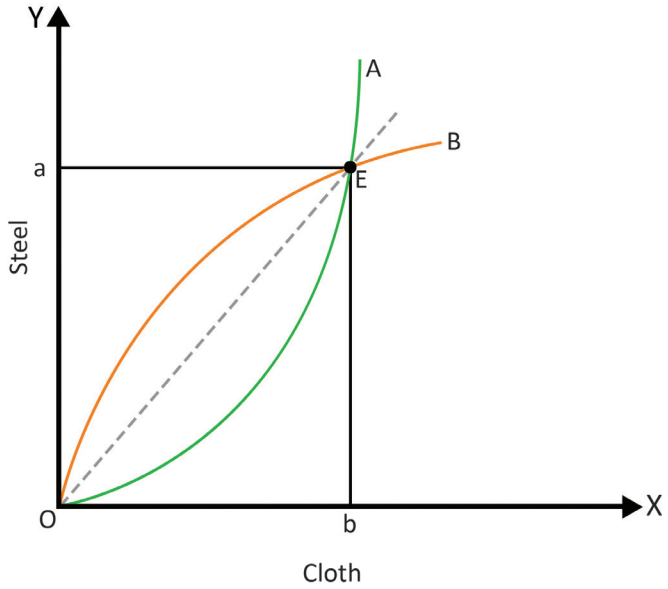

Fig 1.2.5 Offer Curves Equilibrium

- World equilibrium is at point 'E'

OA and OB represent the offer curves of countries A and B, respectively. These curves intersect at point E, where the world attained equilibrium position. Country A is prepared to offer a quantity of steel represented by Oa in exchange for a quantity of cloth imports represented by Ob.

1.2.5 Terms of Trade

Let us reconsider the example of the U.S and the U.K. The U.S exports wheat and imports cloth from the U.K. The terms of trade (TOT) between the U.S and the U.K represent the ratio at which the U.S can trade its wheat for cloth from the U.K. For example, if the U.S can trade 10 tons of wheat for 5 units of cloth from the U.K, the terms of trade would be 2:1 (10 tons of wheat for 5 units of cloth). This means that for every ton of wheat the U.S exports, it can import 0.5 units of cloth from the U.K. Thus, we can define terms of trade as the ratio

of the price of its export commodity to the price of its import commodity or the rate at which the goods of one country is exchanged for goods of another country. These terms of trade can be favourable or unfavourable for a nation. Favourable terms of trade refer to a situation where a country can trade its exports for a greater quantity of imports or where the price of its exports increases relative to the price of its imports. Unfavourable terms of trade, on the other hand, occur when a country can trade its exports for a lesser quantity of imports or when the price of its export's declines in comparison to the price of its imports.

- T o T represents the ratio of export prices to import prices

1.2.5.1 Types of Terms of Trade

The terms of trade can be categorised by Jacob Viner and G.M. Meier based on their focus on different aspects of trade. Let us discuss them in the following sections.

1. Commodity or Net Barter Terms of Trade (NBTT)

- Price ratio of the country's export and import

It refers to the price ratio between a country's export prices and import prices. It measures the change in the purchasing power of a country's exports relative to its imports over a specific period of time. Symbolically, $N=\left(\frac{P_x}{P_m}\right)100$

Where, N stands for the commodity or net barter terms of trade, P_x for export prices, and P_m for import prices. An increase in NBTT shows an improvement in the country's ToT and a decrease in NBTT indicates a deterioration in the terms of trade.

2.Gross Barter Terms of Trade

- Ratio of total physical quantities of imports to the total physical quantities of exports

It is the ratio of total physical quantities of imports to the total physical quantities of exports of a given country. Symbolically $G=\left(\frac{Q_m}{Q_x}\right)100$

Where, G stands for gross terms of trade, Q_m for quantities of imports and Q_x for quantities of exports. The higher the ratio, the better will be the gross terms of trade. The same volume of exports can fetch a greater quantity of imports.

3.Income Terms of Trade

G.S Dorrance refined the concept of net barter terms of trade

by incorporating quantity index of exports into it. Thus, it corresponds to the net barter terms of trade of a country multiplied by the volume of exports. Symbolically,

$$I = N(Q_x) = \left(\frac{P_x}{P_m}\right) Q_x$$

- $I = N(Q_x) = \left(\frac{P_x}{P_m}\right) Q_x$

Where, I stands for income terms of trade, N (P_x/P_m) for net barter terms of trade and Q_x for quantities of exports. An increase in the income terms of trade index suggests that a country can import more goods in exchange for its exports. This index is called the capacity to import. Other things remaining the same, a country's capacity to import increases if (1) the P_x rises or (2) the P_m falls or (3) the Q_x rises. This concept holds significant practical importance.

4.Single Factorial Terms of Trade (SFTT)

To estimate changes in the domestic export sector, Jacob Viner developed the concept of single factoral terms of trade which considers productivity changes in export industries. It can be expressed as,

$$S = N(F_x) = \left(\frac{P_x}{P_m}\right) F_x$$

- $S = N(F_x) = \left(\frac{P_x}{P_m}\right) F_x$

Where, N (P_x/P_m) is the net barter terms of trade and F_x is the productivity index of the export industries. SFTT demonstrates how the efficiency of the export sector impacts the purchasing power of a country's exports.

5.Double Factoral terms of Trade

This concept was developed by Jacob Viner. It takes in to account productivity changes in both domestic export industries and foreign export industries. The concept can be expressed as,

$$D = N\left(\frac{F_x}{F_m}\right) = \left(\frac{P_x}{P_m}\right)\left(\frac{F_x}{F_m}\right)$$

- $D = N\left(\frac{F_x}{F_m}\right) = \left(\frac{P_x}{P_m}\right)\left(\frac{F_x}{F_m}\right)$

Where, D represents double factoral terms of trade, N (P_x/P_m) is the net barter terms of trade, F_x export productivity index, and F_m is the import productivity index. An increase in the index of double factoral terms of trade implies that the productive efficiency of the factors producing exports has increased relatively to the factors producing imports in the other country.

6.Real Cost Terms of Trade

Jacob Viner developed real cost terms of trade to measure the real gain from international trade. It is computed by multiplying the single factoral terms of trade by the index of the amount of disutility per unit of productive resources utilised in producing export commodities. it can be shown as;

- $R = S(Z_x) = \left(\frac{P_x}{P_m}\right)(F_x)(Z_x)$

$$R = S(Z_x) = \left(\frac{P_x}{P_m}\right)(F_x)(Z_x)$$

Where, R is the real cost terms of trade, S is the single factoral terms of trade and Z_x is the index of disutility per unit of productive resources utilised in producing export commodities.

7.Utility terms of Trade

The utility terms of trade show how much utility is given up by importing goods compared to what's gained from exporting goods. It is measured by multiplying the real cost terms of trade index with an index of the relative average utility of imports and of the domestic commodities forgone. Symbolically

- How much utility is given up by importing goods compared to what is gained from exporting goods

$$TU = R \times u = \left(\frac{P_x}{P_m}\right)(F_x)(Z_x) \times u$$

As both the real cost terms of trade and utility terms of trade index measures disutility in terms of pain and sacrifice, it is not possible to quantify disutility or utility in concrete terms.

Summarised Overview

The opportunity cost theory which was introduced by Haberler reconstructs the comparative advantage theory by incorporating the concept of opportunity cost. According to theory, a country will specialise in producing goods in which its opportunity cost is lower than that of the other countries. This opportunity cost can be illustrated using a production possibility curve (PPC), which depicts various combinations of two goods that a country can produce with its available resources and technology. The PPC can take different shapes such as concave, convex or straight lines. Another important topic introduced in the chapter is the offer curve which was developed by Marshall and Edgeworth. This concept considers both the demand and supply of nations in international trade. Furthermore, the chapter discusses terms of trade, which refer to the ratio of the price of a country's export commodity to the price of its import commodity. Terms of trade come in various types, including commodity terms of trade, gross barter terms of trade, income terms of trade etc.

Assignments

1. Explain opportunity cost concept with numerical illustration
2. Examine different types of PPCs with diagrams
3. Differentiate between gains from exchange and gains from specialisation
4. What is offer curve? Show the equilibrium export and import of two countries with a diagram.
5. Which are the different types of terms of trade?
6. Analyse how the concept of opportunity cost operates for different countries across various commodities. Evaluate its practical relevance for international trade.
7. Evaluate the relevance of offer curves.
8. Calculate different terms of trade using numerical examples

Suggested Reading

1. Krugman P R and Obsfeild M (2009) - *International Economics- Theory and Policy,* (8th Edition) Pearson, Dorling Kindersley (India) Pvt. Ltd, New Delhi
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3. J. Viner, *Studies in the Theory of International Trade* (New York: Harper & Brothers, 1937), ch. 7.

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2. Sodersten, Bo and Geoffrey Reed (1994) - *International Economics* (3rd ed.), Macmillan Press Ltd. London

UNIT 3
Factor Models and Trade Theories

Learning Outcomes

After completing this unit, the learner will be able to:

- describe how resource differences in countries lead to international trade
- analyse trade's impact on factor prices within and across nations
- describe the impact of factor endowment change on growth, trade and welfare

Background

In the previous chapter, we studied the Ricardian model, which suggests that international trade arises due to comparative advantage, stemming from differences in labour productivity across nations. However, in real-world scenarios, disparities in resources also play a crucial role. Variations in factor endowments coupled with differences in factor intensities across goods play an important role in determining trade. While maintaining the assumption of identical technologies, we must relax the assumption of identical relative factor endowments. Similarly, we continue to consider two countries, as in the Ricardian model. The following section examines a model where resource disparities serve as the sole driver of trade. A comprehensive understanding of trade necessitates the incorporation of other factors of production such as land, labour and mineral resources in addition to labour. Next, we consider how trade leads to the equalisation of factor prices. Empirical tests for these theories and their relevance are also discussed in this chapter.

Keywords

Labour Intensive, Capital Intensive, Factor Intensity, Factor Abundance, Relative Factor Prices, Factor Endowments

Discussion

1.3.1 Heckscher -Ohlin (H-O) Model

The H-O theorem or the factor endowment theorem, which is one of the most influential theories in international economics, was developed by Swedish economist Eli Heckscher and his student Bertil Ohlin. This theorem deals with and predicts trade patterns. It is based on various assumptions.

1. This is a 2x2x2 model; two countries (Nation-1 and Nation-2), two commodities (X and Y) and two factors of production (labour and capital).
2. Technology remains the same in both countries
3. In both nations, X relies on labour- intensive methods while, Y on capital-intensive methods.
4. There are constant returns to scale in both nations for the production of both commodities.
5. Both nations exhibit incomplete specialisation in production.
6. The taste in both nations is equal.
7. Perfect competition exists in both commodities and factor markets in both nations.
8. There is perfect mobility within each nation but no international factor mobility.
9. There are no transportation costs or other trade restrictions between the nations.
10. Both nations fully employ all resources.
11. The international trade between the two nations is in balance.

- HO theorem focuses on factor intensity and factor abundance of a nation

The H-O theorem can be explained by using the concepts of factor intensity and factor abundance. Let us discuss both before explaining the theorem.

1.3.1.1 Factor Intensity

Factor intensity indicates the ratio of capital to labour (K/L) or labour to capital (L/K) used in the production of a good. A good is said to be capital-intensive if it requires a higher ratio of capital relative to labour in its production, and labour-intensive if it requires more labour relative to capital. From the assumptions, we know that Y is a capital-intensive commodity. This implies that the capital labour ratio (K/L) employed in

- Ratio of capital to labour (K/L) or labour to capital (L/K) used in the production

producing Y exceeds that used in the production of X at all possible relative factor prices. If Nation 2 uses a higher capital labour ratio (K/L) in producing both commodities, it means the relative price of capital is lower in Nation 2 than in Nation 1. If the relative price of K declines, producers will substitute K for L in the production of both commodities to minimise their costs of production. Consequently, the K/L will rise for both commodities, but Y continues to be the capital-intensive commodity.

1.3.1.2 Factor Abundance

Factor abundance can be defined in two ways: either in terms of physical units (by considering the total amount of capital and labour available in each nation) or by looking at the relative prices of capital and labour in each nation. Let us now examine the concept in detail.

1. In terms of Physical Units

In the context of defining factor abundance based on physical units, if Nation 2 possesses a higher ratio of total capital to total labour (TK/TL) compared to Nation 1, then Nation 2 can be called capital-abundant, regardless of the absolute amount of capital and labour available in each nation.

- Physical units: By considering the total amount of K and L

$$\frac{TK_2}{TL_2} > \frac{TK_1}{TL_1}$$

This can be illustrated with an example. If the labour supply in Nation 1 is 25 units and the capital supply is 20 units, the capital-labour ratio (K/L) is 20/25= 0.8. Conversely, if the labour supply in Nation 2 is 12 units and the capital supply is 15 units, the capital labour ratio (K/L) is 15/12= 1.25. It is evident that despite Nation 1 having more capital in absolute terms, Nation 2 is considered rich in capital because the capital labour ratio (K/L) in Nation 2 (1.25) exceeds that of Nation 1 (0.8).

2. In terms of Relative Factor Prices

Nation 2 is considered capital abundant if the ratio of the rental price of capital to the rental price of labour time (PK_2/PL_2) is lower in Nation 2 than in nation 1.

$$\frac{PK_2}{PL_2} < \frac{PK_1}{PL_1}$$

- Factor abundance can be defined in physical units and relative factor prices

Since the rental price of capital is the interest rate (r) and the rental price of labour is wage rate (w),

$$\frac{PK_2}{PL_2} = \frac{r}{w}$$

$$\text{Therefore, } \frac{r_2}{w_2} < \frac{r_1}{w_1}$$

This is also expressed in relative terms rather than absolute terms.

1.3.1.3 Factor Abundance and the Shape of the Production Possibility Frontier

- Nation 1's PPF is flatter and wider than Nation 2's

Since Nation 2 is capital-abundant and commodity Y is capital-intensive, Nation 2 can relatively produce more of commodity Y than Nation 1. Conversely, since Nation 1 is labour-abundant and commodity X is labour-intensive, Nation 1 can relatively produce more of commodity X than Nation 2. This results in a production frontier for Nation 1 that is relatively flatter and wider than the production frontier of Nation 2 when measuring commodity X along the horizontal axis. The figure 1.3.1 displays the PPF of both nations.

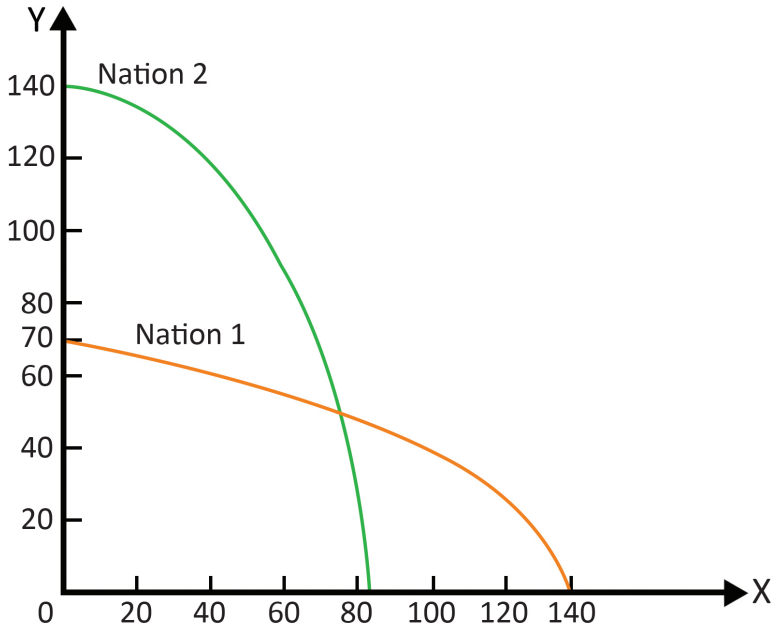

Fig 1.3.1 The shape of the Production Frontier of Nation 1 and 2

Since Nation 1 is the L-abundant nation and commodity X is the L-intensive commodity, Nation 1's production frontier is skewed toward the horizontal axis, which measures commodity X. On the other hand, since Nation 2 is the K-abundant nation

- Nation 1: more labours, more X. Nation 2: more capital, more Y

and commodity Y is the K-intensive commodity, Nation 2's production frontier is skewed toward the vertical axis measuring commodity Y.

1.3.1.4 Factor Endowments and the Heckscher-Ohlin Theory

- A nation exports goods with abundant and cheap factors

Keeping the assumptions in mind, we can state the H-O theorem as: A nation will export the commodity whose production requires the intensive use of its relatively abundant and cheap factor and import the commodity that requires the intensive use of its relatively scarce and expensive factor. In short, the nation abundant in labour (Nation 1 in our example) export labour-intensive commodities (commodity X) and import capital-intensive ones (commodity Y).

1.3.1.5 General Equilibrium Framework of the H-O Theorem

The H-O Theorem provides a general equilibrium framework to understand how factor prices, commodity prices, and trade flows are interconnected across nations. Let us explain the general equilibrium framework with the help of a following figure

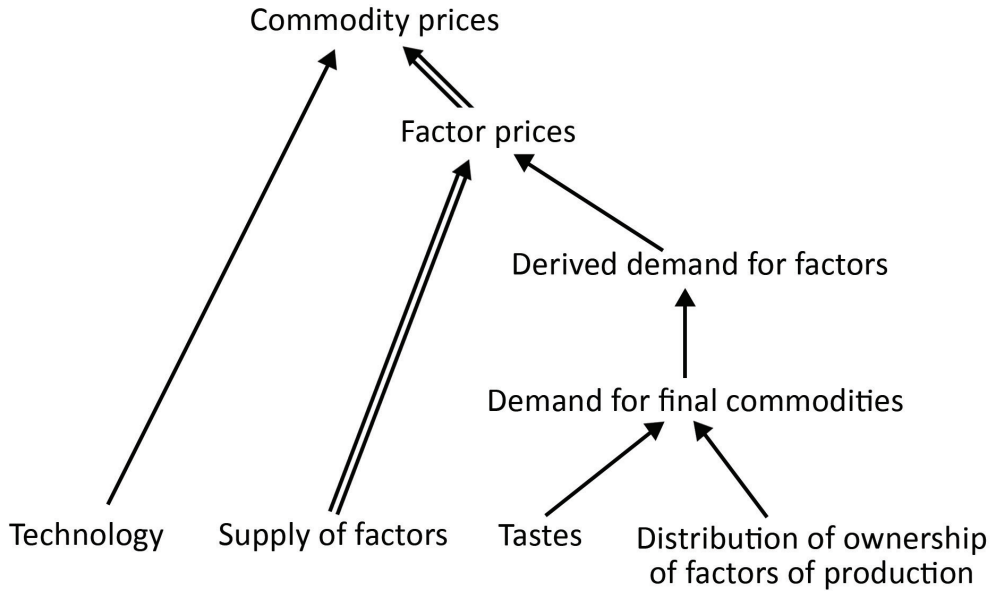

Fig 1.3.2 General Equilibrium Framework of the Heckscher–Ohlin Theory

Starting from the bottom right corner of the diagram, we observe that commodity demand is influenced by factors of

- Difference in factor supply affects prices

production ownership and consumer preferences. This demand drives the need for factors of production necessary for the manufacture. Factor demand is derived from the demand for final commodity. Factor prices are determined by the interplay between demand and supply. These factor prices, along with technological advancements, shape final commodity prices. Differences in commodity prices among nations define their comparative advantages and trade patterns.

1.3.1.6 Illustration of the Heckscher–Ohlin Theory

- Illustrate H-O theorem with production frontiers

Now we can illustrate the H-O theorem using diagrames. The left panel of the Fig.1.3.3 illustrates the production frontiers of Nation 1 and Nation 2. As mentioned earlier, the PPF of Nation 1 is skewed along the X axis because commodity X is labour-intensive and Nation 1 is abundant in labour. Conversely, the PPF of Nation 2 is skewed along the Y axis because commodity Y is capital-intensive and Nation 2 is abundant in capital.

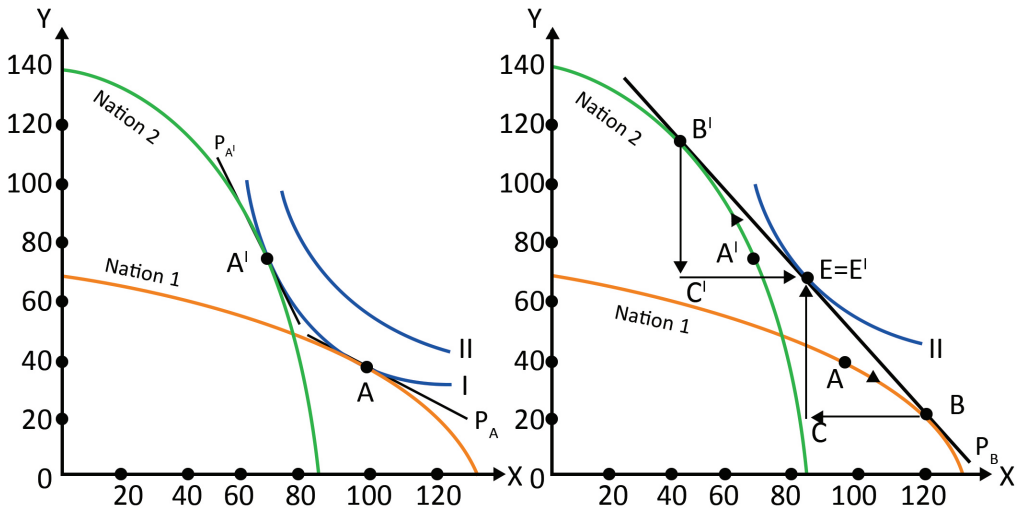

Fig 1.3.3 The Heckscher Ohlin model

- Explains how trade influences specialisation and consumption

In the left panel, both nations share Indifference curve 'I' due to the assumption of equal tastes. This curve touches Nation 1's production frontier at point A and Nation 2's at A'. This sets the no-trade (autarky) equilibrium commodity price at P_A in Nation 1 and $P_{A'}$ in Nation 2. Since $P_A < P_{A'}$, Nation 1 has a comparative advantage in producing commodity X, and Nation 2 in commodity Y. In the right panel, with trade, Nation 1 focuses on producing commodity X, and Nation 2 on producing commodity Y. Specialisation continues until

Nation 1 reaches point B and Nation 2 reaches point B′, where their transformation curves touch the common price line PB. Nation 1 then exports X for Y and consumes at point E on indifference curve II (trade triangle BCE). Conversely, Nation 2 exports Y for X and consumes at point E′, coinciding with point E (trade triangle B′C′E′).

Note that Nation 1's exports of commodity X matches with Nation 2's imports of commodity X (BC = C′E′). Similarly, Nation 2's exports of commodity Y matches with Nation 1's imports of commodity Y (B′C′ = CE). When $P_X/P_Y > P_B$, Nation 1 wants to export more X than Nation 2 wants to import, causing P_X/P_Y to decrease towards P_B. Conversely, when $P_X/P_Y < P_B$, Nation 1 wants to export less X than Nation 2 wants to import, causing P_X/P_Y to increase towards P_B. This trend can also be seen with commodity Y. Furthermore, point E has more Y but less X than point A, yet Nation 1 benefits from trade as it lies on a higher indifference curve II. Similarly, point E′ has more X but less Y than point A′, yet Nation 2 also gains as it lies on a higher indifference curve II. This specialisation and trade pattern persist unless there are changes in demand or supply conditions in commodity and factor markets in either or both nations.

- Trade equilibrium maintained, benefits both nations, subject to market shifts

1.3.2 Factor Price Equalisation or (Heckscher Ohlin Samuelson Model)

The Factor price equalisation theorem is primarily associated with the Heckscher-Ohlin model. This theory is introduced as an extension of the Heckscher-Ohlin model. The Factor Price Equalisation Theorem, often called the Heckscher–Ohlin–Samuelson theorem (H–O–S theorem), was solidly proven by Paul Samuelson, who won the Nobel Prize in Economics in 1970.

- H-O-S theorem was propounded by Paul A Samuelson

This theory holds all the assumptions as stated in the H-O model. We have seen in the H-O theorem that in the absence of trade, commodity X is cheaper in Nation 1 than in Nation 2 because the relative price of labour, ie. the wage rate, is cheaper in Nation 1. As Nation 1 specialises in producing X (which requires more labour) and reduces production of Y (which requires more capital), the demand for labour increases, leading to higher wages (w), while the demand for capital decreases, lowering the interest rate (r). The opposite happens in Nation 2. With trade, as Nation 2 specialises in producing Y and reduces the production of X, the demand for labour decreases,

- Trade equalises wages, interest rates between nations, bridging disparities

causing wages to fall, while the demand for capital increases, leading to higher interest rates. In short, international trade raises wages in Nation 1 (where wages are low) and lowers them in Nation 2 (where wages are high), reducing the wage gap between the two nations. Similarly, trade lowers interest rates in Nation 1 (where capital is expensive) and raises them in Nation 2 (where capital is cheap), thus narrowing the gap in interest rates between the two nations. This demonstrates that international trade tends to diminish the wage and interest rate disparities between nations.

- Trade equalises factor prices globally, acting as factor mobility substitute

International trade, does not just decrease differences in factor prices between nations—it can make them completely equal if all assumptions are met. When factor prices differ between countries, so do commodity prices, leading to more trade. However, as trade expands, the gap in factor prices shrinks. So, trade continues until commodity prices become entirely the same, showing that factor prices are also equal. Thus, we can define the H-O-S theorem as follows: International trade will bring about equalisation in the relative and absolute returns to homogeneous factors across nations. As such, international trade is a substitute for the international mobility of factors.

The relative factor price equalisation can be shown graphically.

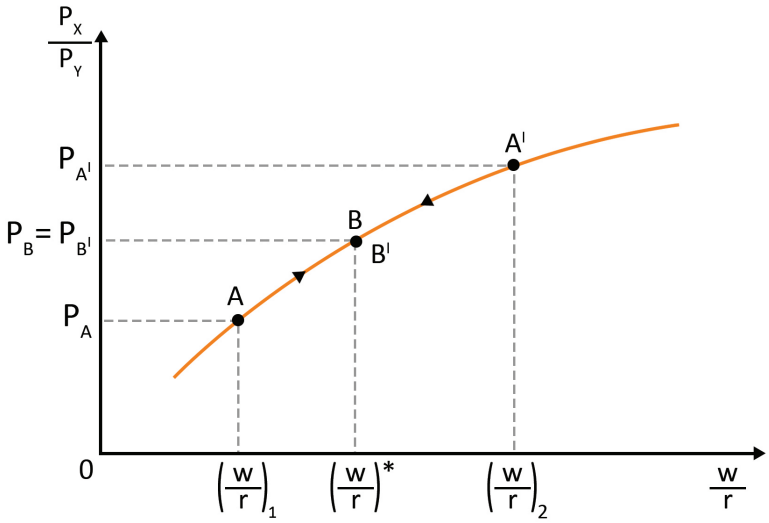

Fig 1.3.4 Relative Factor- Price Equalisation

On the horizontal axis, we measure w/r, and on the vertical axis, we measure P_X/P_Y. Before trade, Nation 1 is at point A, where $w/r = (w/r)_1$ and $P_X/P_Y = P_A$, while Nation 2 is at point A', where $w/r = (w/r)_2$ and $P_X/P_Y = P_{A'}$. As w/r is lower

- Nation 1 specialises in the production of X and Nation 2 specialises in Y

in Nation 1 than in Nation 2, P_A is lower than $P_{A'}$, indicating that Nation 1 has a comparative advantage in commodity X. With trade, Nation 1 specialises in producing X, increasing the demand for labour relative to capital, causing w/r to rise. Nation 2 specialises in producing Y, increasing its demand for capital relative to labour, causing w/r to fall. This continues until point B = B′, where $P_B = P_{B'}$ and w/r = (w/r) * in both nations. Thus, trade serves as a substitute for the international mobility of factors of production, influencing factor prices.

1.3.3 Leontief Paradox

- Leontief empirically tested H-O theorem

The H-O theorem has been a dominant paradigm in the trade theory. The Heckscher-Ohlin theorem predicts that a country will tend to export commodities that intensively use its abundant factor of production and import those that use its scarce factor intensively. So, a capital-intensive nation will export capital intensive commodities and import labour intensive commodities and a labour-intensive nation export labour intensive commodities and import capital intensive commodities. The H-O theorem, as we have already discussed, assumes that tastes and technology are identical between countries. Many economists have empirically tested the relevance of the H-O model. The Leontief Paradox, named after economist Wassily Leontief (winner of Nobel Prize in 1973), challenges the predictions of the Heckscher-Ohlin model in international trade theory.

- The empirical study was based on the U.S. economy, considering input- output table

It was widely agreed that the United States was the country most abundant in capital. Hence, one would have anticipated the United States to export capital-intensive goods and import labour-intensive ones. Leontief's study was conducted in 1953 based on input -output table for the United States data for the year 1947. To examine the H-O theorem, Leontief utilised the 1947 input-output table of the U.S. economy. He grouped 200 industries into 50 sectors, of which 38 directly traded their products internationally. Leontief considered two factors: labour and capital. He calculated the labour and capital needs for producing one million dollars' worth of U.S. exports and one million dollars' worth of U.S. import-competing goods.

Leontief discovered that U.S. exports had a capital-labour ratio of $13,991 per worker per year, while import substitutes had a ratio of $18,185 per worker per year. Therefore, his findings revealed that the capital-labour ratio in U.S. import-competing industries was 30% higher than in export industries.

- Leontief discovered that the U.S exports were less capital intensive than imports

This indicates that import-competing industries in the U.S. are relatively more capital-intensive than export industries. Thus, Leontief's study led to the paradoxical finding that the United States, despite having a relatively large amount of capital and a relatively small amount of labour compared to the rest of the world, exported labour-intensive goods and imported capital-intensive ones. This contradicts the Heckscher-Ohlin theorem. This result is recognised as the Leontief Paradox.

- The Leontief Paradox faced criticism on multiple fronts

Many economists questioned the accuracy and appropriateness of Leontief's test, criticising various aspects of his study. Leontief himself provided two reasons for this paradox. Initially, in 1947, he argued that U.S. labour productivity was three times higher than in other countries, leading to the assumption that the U.S. was labour-abundant. However, this reasoning lacked a solid basis and was later withdrawn by Leontief. The second reason was that as a rich country, the tastes and preferences of the U.S citizens are highly biased in favour of capital-intensive commodities, leading to high relative prices and an inability to export despite high production. These two reasons were provided by Leontief himself. However, there are certain other limitations to consider. The year 1947 was not a typical year as it was too close to World War II. This argument was later challenged by Leontief himself when he conducted a study using U.S. trade data from 1951. Even in this later study, he found that U.S. exports were six times more labour-intensive than U.S. imports. Thus, while there has been some reduction in the paradox, it has not been completely eliminated. There are also issues associated with the input-output model. Leontief neglected the role of natural resources in determining trade patterns and he only considered physical capital alone in his measure of capital. He ignored trade restrictions like tariff among nations. He argued that U.S was perceived as a labour abundant nation because the productivity of U.S workers was three times that of foreign workers. Moreover, his study considered only one country. These are some of the issues related to Leontief's empirical study.

1.3.4 Factor Intensity Reversal

From the analysis of H-O theorem, we have seen that the trade pattern is determined by the factors like factor intensities and factor endowments. However, changes in these two aspects can substantially influence the pattern and direction of trade. We are going to examine one particular case when there are

changes in the factor intensity. One of the crucial assumptions in the H-O model is that production functions are different for two commodities (X and Y) but are identical across two countries (Nation 1 and Nation 2). What does it mean by production functions are different for 2 commodities? As we explained in H-O theorem, we have 2 commodities, commodity X and commodity Y. The production functions are different because, as we said earlier, commodity X requires labour intensive production process and commodity Y requires capital intensive production process. However, they are identical in both countries meaning that commodity X is labour intensive in both Nation 1 and Nation 2, while commodity Y is capital intensive in both countries.

- X labour-intensive; Y capital-intensive in both nations

When this assumption is reversed, meaning one commodity becomes labour intensive in the labour abundant country and capital intensive in the capital abundant country, there occurs a reversal of factor intensities. For example, if commodity X is labour intensive in Nation 1 but capital intensive in Nation 2, then both nations will produce the same commodity X. This leads to a situation where both countries possess commodity X as a homogenous product. So, there is a reversal and the H-O theorem will remain invalid. Consequently, there is no possibility of exchange because both nations are producing commodity X. This situation illustrates factor intensity reversal. Thus, factor-intensity reversal refers to the situation where a given commodity is L-intensive in the L-abundant nation and K-intensive in the K-abundant nation.

- Factor-intensity reversal: commodity's intensity changes between nations

To determine the occurrence and reasons behind factor-intensity reversal, we can rely on the coefficient of elasticity of substitution of factors in production. It is the degree or ease with which we can substitute one factor for the other in the production of both commodities. If the value of the elasticity of substitution is substantially differs between two countries, and is notably higher for commodity X, certain consequences follow.

- Factor intensity reversal is determined on the basis of elasticity of substitution

Let us assume that the value or the coefficient of the elasticity of substitution of factors of production is much higher for commodity X than that of commodity Y. Then, what will happen? In this case, Nation 1 will obviously use labour intensive technique for the production of commodity X because its wages are low. On the other hand, Nation 2 will use capital intensive technique for the production of X, because its wages are high. So, both countries will use their abundant factor

- Higher elasticity of substitution for X, and both nations produce X

because substitution is possible. The value of the elasticity of substitution is much higher in the case of commodity X, and so both countries will end up with commodity X. At the same time, the ability to switch between labour and capital is limited when producing commodity Y, both nations will end up using similar methods to produce it, regardless of differences in their wages or resources. This means that commodity X becomes labour-intensive in Nation 1 and capital-intensive in Nation 2. This switch in roles of the factors marks a case of factor-intensity reversal, and we can see this by looking at how easily labour and capital can be exchanged between the production of commodities X and Y.

- No trade between nations as both produce the same commodity

When this is the case when one commodity is labour intensive in the labour abundant country and capital intensive in the capital abundant country-both countries end up producing the same commodity. There is no opportunity for trade between them. When factor-intensity reversal occurs, neither the H–O theorem nor the factor–price equalisation theorem holds good. The H–O model fails because it suggests that Nation 1 (the L-abundant nation) would export its labour-intensive commodity X while Nation 2 (the K-abundant nation) would also export commodity X. Since the two nations cannot export the same identical commodity to each other, the H–O model does not predict the trade pattern accurately.

- Empirical studies show that factor intensity reversal is uncommon

There is no doubt that factor-intensity reversal occurs in the real world. The question is, how prevalent is it? One of the first empirical studies was conducted by Minhas in 1962. He found that factor intensity reversal is, in fact, prevalent in the world, occurring in about one third of the cases that he studied. Later, in 1964, Leontief found that factor intensity reversal is not very common occurring in only about 8 per cent of the cases studied. Similarly, Ball's 1966 study yielded the same result, indicating that factor intensity reversal is not a common pattern and rarely occurs in the real world.

1.3.5 Rybczynski Theorem

- Rybczynski linked growth to increase in factor endowments

The H.O. theorem and the factor-price equalisation theorem rely on the assumption of constant factor endowments. The British Economist P. M Rybczynski in his 1955 work entitled *Factor Endowments and International Relative Prices*, published in Economica pointed out the biased effect of resource changes on production. This work of Rybczynski essentially focuses on the economic growth as a result of

increase in the endowments of one of the factors of production. There are 2 sources of economic growth. One is as a result of increase in the endowments of factors of production and the other is as a result of technological progress. Rybczynski focuses on the first case.

- Consider all the assumptions in the H-O theorem

Rybczynski examined how output changes when economic growth happens as a result of the increased endowments of one of the factors of production. By 'endowments of factors', we mean an increase in the factors. The theorem follows all the assumptions of the H-O theorem that involves two countries, two commodities and two factors of production. Additionally, it assumes stability in both commodity prices (P_x and P_y) and factor prices, (w and r). Based on these assumptions, it focuses on the impact of factor growth on output of commodities.

- Theorem: Factor increase boosts intensive commodity output, lowers the other

To understand the theory, let us consider an example. Suppose there is an increase in the labour endowment meaning there is an increase in the quantity of labour available. Consequently, the output of labour-intensive commodity will increase. Based on the assumptions of the Heckscher- Ohlin theorem, X is the labour-intensive commodity and Y is the capital-intensive commodity. Thus, with constant commodity prices (P_x and P_y) and factor prices (w and r), the output of commodity X will increase while that of commodity Y will decline. Given these premises of constant commodity and factor prices, an increase in the endowment of a particular factor of production leads to increased output of those commodities that utilises the accumulating factor intensively. The Rybczynski theorem says that when there is an increase in the endowment of one of the factors of production, then the output of the commodity using the accumulating factor in intensive manner will increase proportionately and that of the output of the other commodity will decline. Let us illustrate this with following figure.

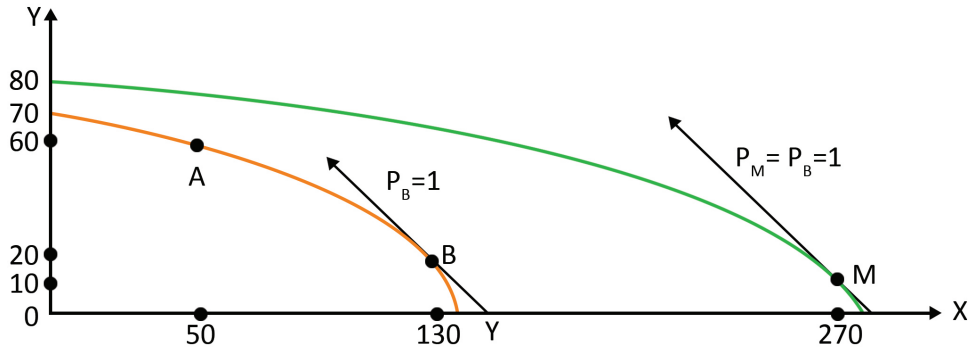

Fig 1.3.5 The Growth of Labour Only and the Rybczynski Theorem

- Labor growth shifts PPC towards the labour-intensive commodity

The figure shows the production frontier of Nation 1 which is a labour abundant nation specialising in the production of commodity X. Commodity X is measured on the X axis and commodity Y is measured on the Y axis. We can analyse the PPC of Nation 1 before and after labour doubles. With trade but before growth, the country operates at point B (i.e., 130X and 20Y) marking the initial production point. Now, assuming labour experiences growth or an increase in endowment, the PPC will shift rightward asymmetrically toward the labour-intensive commodity. In the case of labour growth, the PPC of Nation 1 shifts rightward asymmetrically in favour of commodity X, which is labour-intensive. The new production point becomes M, where Nation 1 produces 270 unit of commodity X and 10 unit of commodity Y. With labour growth, the PPC shifts rightward, and the Terms of Trade line becomes tangent to the PPC, resulting in the production of 270Y and 10X. The slopes of both lines are identical, with $P_x/P_y = 1$ for both, highlighting the assumption of constant commodity and factor prices. Accordingly, the output of commodity X increases while the output of commodity Y declines at constant commodity and factor prices. This phenomenon summarises the Rybczynski theorem.

- Constant PX/PY requires steady w, r, K/L ratio

To summarise the logic behind this theorem, we have seen that Rybczynski theorem assumes a constant relative price of commodities ie P_x/P_y. It also assumes that there is no change in the relative factor prices w/r. To keep P_X and P_Y constant, wages (w) and rents (r) must stay steady. But w and r can only remain constant if the ratio of capital to labour (K/L) remains the same in producing both goods. The only way to do this while accommodating the increased labour (L) is to reduce output of Y, freeing up capital (K/L) used more in Y and directing it with the added labour (L) to produce more X. Thus, X's output rises while Y's falls. Similarly, when only capital (K) increases, Y's output rises more than proportionately while X's falls.

Summarised Overview

The Heckscher-Ohlin Theorem (H-O) states that countries will export goods that intensively use the factors of production they have in abundance, while importing goods that use the factors they lack. The Heckscher-Ohlin-Samuelson (H-O-S) Model extends this by suggesting that trade can serve as a substitute for the movement of factors of production between countries. It demonstrates that international trade equalises wages and interest rates between nations. It says that international trade equalises factor prices between nations and acts as a substitute for the international mobility of factors. The Leontief Paradox emerged when the U.S., a capital-abundant nation, was found to export labour-intensive goods contrary to H-O predictions. This challenged the H-O theorem's applicability to the real-world trade patterns. But this paradox was later criticised by many economists. Factor Intensity Reversal describes a scenario where a commodity's factor intensity switches between countries, meaning it may be labour-intensive in one nation but capital-intensive in another. This phenomenon complicates the straightforward application of the H-O model to trade dynamics.

Assignments

1. The Heckscher-Ohlin theorem explains trade based on factor endowments. Illustrate diagrammatically.
2. Prove the relevance of the H-O theorem with empirical studies. Is it important to drop the assumption of the same technologies among countries to get accurate results? Substantiate.
3. Post some case studies showing wage equalisation due to migration as claimed by the H-O-S model.
4. Did the process of migration lead to real wage converge as mentioned in the H-O-S model? Post some case studies.
5. Give the empirical verification of H-O theorem
6. Explain factor intensity reversal.

Suggested Reading

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MASTER OF ARTS ECONOMICS

Trade Policies I

Block 2

UNIT 1
Tariff and Non-Tariff Barriers

Learning Outcomes

After completing this unit, the learner will be able to:

- identify the fundamental concepts of free trade and protectionism
- examine specific types of tariffs and non-tariff barriers
- evaluate the concepts of Immiserising growth and Dutch Disease

Background

The debate between free trade and protectionism has been a constant theme in international relations from mercantilism to the era of globalisation. Free trade promotes the unrestricted flow of goods and services between countries, encouraging competition and efficiency. On the other hand, protectionism utilises trade restrictions like tariffs and non-tariff barriers to protect domestic industries from foreign competition. While both approaches have their advocates, the best approach depends on each country's specific situation.

This unit deals with the world of international trade. It explains the tools governments use to influence trade relations like tariff and non-tariff barriers. These tools can be used for various purposes, such as protecting new industries or national security interests. However, international trade is not always mutually beneficial. The theory of immiserising growth explains that under specific circumstances, even overall economic growth can lead to a decline in well-being for certain segments of the population. This concept challenges the assumption that economic growth always benefits everyone. By examining these concepts, this unit gives you a deeper understanding of the relationship between trade policies and economic outcomes.

Keywords

Free Trade, Protectionism, Tariff, Import Quota, Immiserising Growth, Dutch Disease

Discussion

2.1.1 Free Trade and Protection

The commercial policy of a country involves various measures that influence its international trade and economic relations with other nations. Since the era of Adam Smith, economists have been engaged in a debate over the fundamental issue of whether a country should adopt a free trade policy or protectionism. Let us discuss below the importance of free trade and protection in the functioning of economies.

2.1.1.1 Free Trade

- No barrier on trade flow

The policy of free trade does not impose tariffs or non-tariff barriers on exchanging goods and services between countries. This policy allows a country to purchase goods that it either cannot produce or can only produce at a higher cost. Likewise, it enables the country to sell products or services in foreign markets without facing any restrictions, particularly those products or services in which it has a comparative cost advantage. According to Adam Smith, "the policy of free trade is a system of commercial policy which draws no distinction between the domestic and foreign commodities and thus neither imposes an additional burden on the latter nor grants any special favour to the former"

Arguments for Free Trade

The philosophy of laissez-faire in international trade came into prominence as a reaction to mercantilist advocacy of trade barriers. Locke, Hume, and Adam Smith raised the powerful voices supporting free trade. A renowned line of thinkers, including, J.S Mill, Bastable, Marshall, and Haberler lent strong support to the cause of free international trade. The main arguments in support of free trade are as follows:

- Maximisation of world output

Without trade barriers, like tariffs or quotas, countries naturally specialise in the production and export of goods in which it has the greater comparative advantage. This comparative advantage, where a nation excels in producing a certain good or service at a lower relative cost, allows all participating countries to reap the benefits of specialisation and division of labour. By focusing on their strengths and importing what is cheaper to buy abroad, nations can maximise their overall

output and ultimately raise the standard of living for their citizens.

- Optimum resource utilisation

Free trade promotes not just specialisation in production, but also the utilisation of resources. The diversion of all limited resources into industries where they are most efficient ensures their optimal use. Under free trade conditions, there is little possibility of resource under-utilisation, and wastage is minimal. Additionally, importing them from other countries can readily address any shortage of productive factors. Consequently, free trade facilitates the optimal use of productive resources worldwide.

- Optimum factor income and consumption

Under free trade conditions, resources can easily relocate either within the same country or across different countries to obtain higher compensation for their services. Consequently, incomes from wages, rents, interest, and profits tend to be higher in a free trade environment. Free international trade allows a country to import products from the most affordable sources, reducing domestic shortages. It also gives consumers access to superior product varieties from abroad. The increased availability of high-quality goods at lower prices ensures optimal consumption in the trading countries.

- Control over monopolies

The absence of restrictions upon trade results in an enlargement of the market size as every country can dispose of its surplus production in foreign markets. Products of all countries can have global demand. The extension in the market size gives strong incentive to raise production and investment, introduce improved techniques, and introduce new, superior, and cheaper varieties of products. Free trade promotes competition, with producers from various countries struggling to increase their market share abroad. This price competition and the introduction of new product varieties help prevent exploitative monopolies. However, it is important to note that free trade does not eliminate the risk of monopolies. Natural monopolies or powerful local and international cartels may still emerge, capable of restricting output and manipulating prices even in a free trade environment.

Haberler has strongly advocated for free trade as a means for accelerating the process of economic transformation in developing countries. He argues that free trade supports growth in several ways. First, it allows unrestricted import of raw materials and capital goods essential for industrial

- Accelerated development

expansion. Second, it facilitates the easy transfer of advanced technical knowledge and entrepreneurship from developed to developing nations. Third, free trade encourages significant international capital flows, accelerating growth. Lastly, it promotes competition, efficiency, and productivity, helping poorer countries achieve higher levels of production, employment, and income.

Arguments Against Free Trade

The main arguments against free trade are as follows:

- Free trade's ideal conditions rarely exist in reality
- It can destabilise less developed countries and promotes unbalanced growth

1. The ideal conditions that free trade requires, like perfect competition, unrestricted movement of resources (labour and capital), and a completely free market with minimal government intervention (laissez-faire), are often absent. So, it does not exist in real life.
2. Free international trade can create chaotic conditions as advanced countries aggressively seek to dominate foreign markets by selling their products at very low prices. This intense competition can have destabilising effects, especially on less developed countries (LDCs).
3. Free trade emphasises specialisation in industries where a country has a comparative cost advantage. This approach suggests that other industries and sectors may remain undeveloped. Less developed countries with a comparative advantage in agriculture might become predominantly agricultural, leading to unbalanced growth.
4. When a country adopts a free trade policy based on the principle of comparative cost advantage, it can become overly dependent on foreign countries for selling its products and importing various goods.

- Free trade leads to dependency and spreads economic fluctuations
- It causes unrestricted trade of harmful imports

5. Free trade can result in the transmission of prosperity or depression, from one country to another. For example, if country A experiences a recession, the decreased purchasing power leads to a reduction in its imports. This reduction means fewer exports for country B, resulting in a decline in income for country B. Consequently, economic fluctuations spread from one nation to another, potentially causing a global economic crisis.
6. When trade is unrestricted, there is a risk of a large inflow of harmful and sub-standard products from abroad. Importing such commodities can negatively impact people's health and efficiency, ultimately reducing

societal welfare.

2.1.1.2 Protectionism

- Challenged Adam Smith's free trade policy

Adam Smith's free trade policy was challenged by 18th and 19th century economists such as Alexander Hamilton, Friedrich List, and H.C. Carey. The ideas of these early thinkers inspired modern policymakers in both developed and developing countries, leading to the emergence of a strong protectionist movement. This school of thought advocates for protectionism to promote accelerated growth and optimal resource use. Protectionists argue that, given the significant underemployment and unemployment of productive factors in economies, protectionism can absorb these factors, resulting in increased output by productively employing previously underused resources.

- Trade protectionism

Protection refers to a commercial policy protecting domestic industries from international competition. This policy typically involves imposing import duties on foreign goods to make their prices comparable to the high-priced domestic products. Alternatively, protection can be achieved by limiting imports by banning them together or subjecting them to import quotas and licenses. The home country might also subsidise domestic production and exports, manipulate exchange rates, or implement foreign exchange controls. According to H.G. Johnson, protection refers to those "policies that create a divergence between the relative prices of commodities to domestic consumers and producers and their relative prices in world markets."

Arguments for Protection

- Protection for new industries

1. **Infant Industry Argument:** The newly established industries are incapable of facing intense competition from the low-cost foreign industries in their early stage of development. Writers like Alexander Hamilton, Friedrich List, J.S. Mill, and Bastable argue that the State should protect these industries until they mature enough to face world competition. This argument is based on the assumption that the given country has a comparative advantage in the industry or a group of industries to be protected. Protection allows the industry to grow to a size that can achieve efficiency and minimise costs, ultimately becoming a competitive force. The most important aspect of this argument is that the protection of the infant

industry should only be for a short period. Once they gain strength and overcome their initial cost disadvantage, the protection should be withdrawn and expose them to foreign competition.

- Protection encourages industrialisation and self-sufficiency

2. **Key Industries Argument:** Key industries are such industries which enable the development of various other industries. These include sectors like agriculture, iron and steel, heavy engineering, chemicals, heavy electrical, cement, machine tools, and petroleum. Countries often protect domestic production in these key industries, even if importing would be cheaper. Development planners strongly support this approach in less developed countries (LDCs). They believe that encouraging these industries is essential for initiating industrialisation. Developing countries aim to achieve industrial and overall economic self-sufficiency by protecting these crucial sectors.

- Temporary protection for competitiveness

3. **Sunset Industries Argument:** A recent argument from European countries is that their labour-intensive industries, such as textiles, clothing, footwear, and steel, have been losing competitiveness to countries like Japan, South Korea, Taiwan, Malaysia, and India since the 1970s. They argue that the European industries can regain their competitiveness only if they receive temporary protection. There are concerns that without protection, there would be significant displacement of labour and capital. Consequently, tariffs were imposed on imports of textiles, clothing, footwear, and other goods in several European countries. This "sunset industries" argument, aimed at addressing unemployment, is driven largely by political considerations. Additionally, once these industries are protected, removing the protection becomes extremely challenging.

- New job opportunities via protection

4. **Employment Argument:** A major argument in favour of protection is the employment argument. A country suffering from excess capacity or structural unemployment might rely on protectionism to create additional jobs in import-competing industries. When a tariff is imposed, there should be a reduction in imports. As a result, import-competing industries find opportunities to enlarge their sale in the home market. That assures the generation of additional employment directly in such industries. Keynes offered this type of logic to justify the British tariff during the 1930s. Although he did not advocate it as a general case for protection, he recognised moderate

tariffs as the only way of stimulating recovery without substantially reducing foreign competition.

5. **Anti-Dumping Argument:** Protection has a strong justification when foreign producers have been resorting to dumping. This practice means sales in a foreign market at a price lower than that received in the home market, after allowing transport and other charges involved in the transfer. Since dumping results in the flooding of a given market with low-priced foreign products, the import-competing firms are likely to be hit very hard. The protective tariff can be enforced to prohibit dumping by foreign producers. Although the members of General Agreement on Tariffs and Trade (GATT) agreed to curb such practices in 1967, this practice continues.

- Anti-dumping tariff

6. **Balance of Payment Argument:** Balance of payment is the systematic monetary record of all economic transactions of a country with the rest of the world. When a country experiences a balance of payments deficit, implementing a protective tariff can help address this issue. By limiting imports, a tariff can promote the development of domestic import-substitution industries. This measure may become necessary if the deficit country does not possess sufficient reserves of gold or foreign exchange to adjust the payments deficit.

- Protective tariff address deficit

Arguments against Protection

The main argument against protection can be summarised below:

1. **Reduced Choice:** Protectionism limits the quantity and variety of goods and services available to consumers.
2. **Increased Prices:** By reducing the supply of goods and services or imposing tariffs, protectionism leads to higher prices.
3. **Increased Costs:** Manufacturers relying on imported raw materials face higher production costs, potentially causing inflation and job losses.
4. **Reduction in Export Competitiveness:** Protectionism reduces the incentive to be efficient or innovative, leading to higher prices and poorer quality products, which can decrease export sales.
5. **Resource Misallocation:** Global welfare declines as

- Protectionism raises costs and lowers inefficiency
- Reduces competitivenes and choices, and increase prices

protectionism shifts production from more efficient foreign producers to less efficient domestic ones.

6. **Domestic Inefficiency Increases:** With less competition, domestic firms become less efficient and invest less in research, development, and innovation.

2.1.2 Trade Restriction

- Trade Restrictions- Tariff and non-tariff barriers

We have seen earlier that free trade increases world output and is advantageous for all countries. However, almost every nation enforces certain restrictions on international trade. These restrictions and regulations concerning a country's trade or commerce are referred to as trade or commercial policies. Although these policies are often justified in the name of national welfare, they are typically promoted by specific interest groups within the nation that benefit from these restrictions. The primary forms of trade restrictions have been tariffs and non-tariff barriers. They are discussed below.

2.1.2.1 Tariff

- Tax imposed on traded commodity
- Tariff- ad valorem, specific, compound

A tariff is a tax or duty levied on the traded commodity as it crosses a national boundary. Tariffs can be levied both up on exports and imports. An import tariff is a tax on imported goods, while an export tariff is a tax on exported goods. Import tariffs are generally more significant than export tariffs, and our discussion will primarily focus on import tariffs. While export tariffs are prohibited by the U.S. Constitution, developing countries often apply them to their traditional exports (such as cocoa in Ghana and coffee in Brazil) to secure better prices and generate revenue. Developing nations favour export tariffs for revenue generation due to their ease of collection. In contrast, industrialised countries tend to impose tariffs or other trade restrictions to protect certain industries, usually labour-intensive industries, and rely more on income taxes for revenue. Tariffs can be classified as ad valorem, specific, or compound. An ad valorem tariff is a fixed percentage of the value of the traded good. A specific tariff is a fixed amount per physical unit or according to the weight of the traded good. A compound tariff combines both an ad valorem tariff and a specific tariff

2.1.2.2 Non-Tariff Barriers

While tariffs have long been the most significant type of trade

- Barriers other than Tariffs
- Import Quotas, Voluntary Export Restraints, Anti Dumping Measures, Export Subsidies

restriction, various other trade barriers also exist, including import quotas, voluntary export restraints, antidumping measures, and export subsidies. During the Depression of the 1930s, the world began to rely on import quotas and other trade barriers as alternatives to tariffs. Organisations such as the General Agreement on Tariffs and Trade (GATT) and the World Trade Organisation (WTO) have pressured member countries to reduce tariff walls. Consequently, both developed and developing countries have increasingly turned to non-tariff trade barriers to achieve their specific economic and other objectives. Let us discuss non-tariff barriers and their impacts.

A) Import Quotas

- Direct quantitative restriction

A quota is the most important non-tariff barrier. It is a direct quantitative restriction on the amount of a commodity allowed to be imported or exported. An import quota sets a physical limit on the quantity of specific products that can be imported from other countries within a specified period, usually one year. The import quota can be fixed either in terms of quantity or the value of the products. For restricting imports, a country may adopt one of the following alternative ways.

1. Issue of import licence to the highest bidder in the open market.
2. Issue of import licence by calling for the tenders from prospective importers, the highest tender getting the licence.
3. Issue import licence on first come first serve basis.
4. Issue of import licence to some government agency such as the State Trading Corporation.

B) Voluntary Export Restraints

- Trade protection for industries

One of the important non-tariff trade barriers is voluntary export restraints (VERs). These occur when an importing country induces another nation to reduce its exports of a certain commodity "voluntarily" to avoid stricter trade restrictions, especially when those exports threaten a domestic industry. Since the 1950s, the United States, the European Union, and other industrialised nations have negotiated VERs to limit the export of textiles, steel, electronic products, automobiles, and other goods from countries like Japan, Korea, and China. These measures have targeted mature industries that have

experienced significant employment declines in industrialised countries over the past thirty years. Sometimes referred to as "orderly marketing arrangements," VERs have allowed the United States and other industrialised nations to maintain the appearance of supporting free trade. The Uruguay Round mandated the phasing out of all VERs by the end of 1999 and prohibited the establishment of new ones.

C) Dumping

Trade barriers can also arise from dumping. Dumping means exporting a commodity at low cost or selling it at a lower price abroad than domestically. Dumping can be persistent, predatory, or sporadic. Persistent dumping, or international price discrimination, occurs when a domestic monopolist continuously sells a commodity at a higher price domestically and at a lower price internationally to compete with foreign producers. Predatory dumping involves temporarily selling a commodity below cost or at a lower price abroad to eliminate foreign competition, then raising prices to exploit the new monopoly power. Sporadic dumping happens when a commodity is occasionally sold below cost or at a lower price abroad to clear an unexpected temporary surplus without reducing domestic prices.

- Sale of commodities at low price in abroad

D) Export Subsidies

Export subsidies involve direct payments, tax relief, and subsidised loans to support the nation's exporters and offer low-interest loans to foreign buyers to boost the nation's exports. These subsidies can be seen as a type of dumping. Despite being prohibited by international agreements, many countries continue to offer these subsidies, often in both concealed and unconcealed ways. For instance, major industrial nations often provide foreign buyers with low-interest loans to finance their purchases through agencies like the U.S. Export-Import Bank. These low-interest credits account for approximately 2 percent of U.S. exports, but a significantly larger share of exports from China, Japan, France, and Germany. This practice is a major trade grievance for the United States against other advanced nations. The subsidy amount can be determined by the difference between the interest that would have been paid on a commercial loan and the actual amount paid at the subsidised rate.

- Direct payments and tax reliefs to enhance a nation's exports

2.1.3 Theory of Immiserising Growth

- Increased trade can negatively impact the welfare

Economic growth can lead to an increase in output and potentially create a positive wealth effect. However, if the terms of trade deteriorate significantly, this can outweigh the benefits of increased wealth. In such cases, the overall welfare of the nation may decline, leaving it worse off than before. This phenomenon, where growth and trade result in decreased national welfare, is known as 'immiserising growth'. This is the term coined by Jagdish Bhagwati.

Assumptions

a. Two countries, the home country A and the foreign country B.

b. The home country experiences growth, while the other country does not experience any growth in real output.

c. There are two commodities X and Y.

d. X commodity is the exportable commodity of country A, whereas Y is its importable commodity.

e. There exist full employment of resources.

f. The technical progress is neutral.

g. The growth results in an expansion in the supply of abundant factors, such as labour.

h. Productive factors are mobile between the two countries.

The case of immiserising growth can be explained with the help of a diagram.

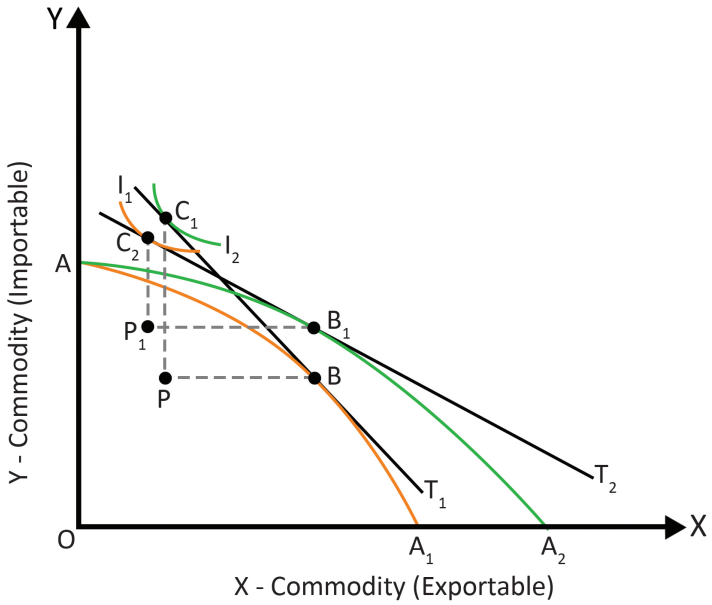

Fig 2.1.1 Immiserising Growth

In the above figure AA_1 is the original production possibility curve and T_1 is the terms of trade line. The production equilibrium is determined at B. The consumption equilibrium takes place at C_1 where terms of trade line T_1 is tangent to the indifference curve I_2. Country A exports 'BP' quantity of commodity X and imports C_1P quantity of commodity Y. The production possibility curve shifts to AA_2 as growth takes place and the labour supply increases. The price of labour-intensive commodity X falls relative to commodity Y so that the slope of the terms of trade line T_2 decreases. Production takes place at B_1 and consumption takes place at C_2 where the terms of trade line T_2 becomes tangent to the indifference curve I_1. Thus, after growth takes place, the BP_1 quantity of commodity X is exported and the C_2P_1 quantity of Y is imported. There is an increase in the production of importable commodities due to growth and its higher relative price. On the other hand, the consumption of importable commodities decreases due to a relative rise in the price. Of course, there is an increase in production but terms of trade for the home country become worsened to such an extent that the consumption point shifts from the higher indifference curve to the lower indifference curve. Consequently, the level of welfare reduces after growth. It signifies the immiserising growth.

- Growth reduces welfare through immiserising trade

2.1.4 Dutch Disease

- Discovery of natural resources causes imbalance

Consider a country that heavily relies on newly discovered natural resources (such as oil, gas, metals, or minerals) for its export revenue. When international demand for these resources is high, the country enjoys increased export revenue. This hike in revenue causes the value of the country's currency to rise. Due to this currency appreciation, other sectors like agriculture and manufacturing become less competitive in the global market as they struggle against cheaper imports. Consequently, these sectors start to decline. Thus, the reliance on natural resource exports creates an economic imbalance, demonstrating symptoms of Dutch disease.

- Resource wealth harms the economy

Dutch disease describes the economic challenges that arise when a country experiences a sudden increase in natural resource wealth, leading to a decline in other sectors. This phenomenon often follows the discovery of valuable resources such as oil, gas, or minerals. The inflow of revenue from exporting these resources can cause the national currency to appreciate, which in turn makes other industries, like manufacturing and agriculture, less competitive. Dutch diseases occur when this imbalance can lead to economic decline or instability in resource-rich countries due to the overemphasis on natural resource exports.

Summarised Overview

Free trade promotes the unrestricted exchange of goods and services across borders, while protectionism seeks to shield domestic industries through trade restrictions such as tariffs and non-tariff barriers. Tariffs, which are taxes on imports, and non-tariff barriers, including quotas and regulations, serve to protect local economies but can also lead to inefficiencies and higher consumer prices. The theory of immiserising growth reveals how economic growth can paradoxically result in a nation's welfare decline when the negative effects on terms of trade outweigh the benefits of increased production. Dutch disease further illustrates the problem of an overreliance on natural resource exports. The sudden rush of revenue from resources like oil or minerals can appreciate a country's currency, making other sectors such as manufacturing and agriculture less competitive internationally. This imbalance can lead to long-term economic instability and decline. Together, these topics highlight the balanced growth required in trade policy to encourage sustainable economic growth and stability.

Assignments

1. Define free trade and protectionism. Discuss the main differences between these two economic policies.
2. Explain the benefits and drawbacks of free trade. Provide examples of countries or regions that have successfully implemented free trade policies.
3. Describe various types of non-tariff barriers and explain how they differ from tariffs.
4. Explain immiserising growth.

Suggested Reading

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2. Soderston, B and Reed G.(1994) - *International Economics*, 3rd Edition, MacMillan Press Ltd. London
3. Robert C Feenstra (2016) - *Advanced International Trade: Theory and Evidence*, Princeton University Press (2nd edition)

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UNIT 2
Tariff

Learning Outcomes

After completing this unit, the learner will be able to:

- comprehend different types of tariffs and its effect on the economy
- familiarise with the relationship between tariff and the change in price of factors
- know about optimum tariff
- examine how import tariff act as a protection in the domestic economy

Background

We know that free trade means there are no restrictions in trade among nations and boundaries. In reality, every nation imposes some sort of restriction to the free flow of commodities across boundaries. These restrictions are part of the commercial or trade policies of the nation. Restrictions that the nations impose may be in the form of tax rate or tariffs on commodities imported and exported, or quantitative restrictions on import or export. This unit discusses the trade restrictions in the form of tariffs imposed by nations.

Tariffs are imposed by large and small nations. The impact of these tariffs is different for different nations. For example, an industrial nation like the USA may be resorting more to import tariffs as it imposes restrictions on the labour-intensive commodities from other nations. For small nations importing capital intensive commodities, it may not be able to do the same as they need these goods for their development, and domestic production may not be practical in the current period. Moreover, the effect of tariff imposed by large nations like USA on trading partners are mostly greater compared to that of the small nations. Let us discuss tariff and its effect in detail.

Keywords

Tariff, Relative Price Ratio, Stolper Samuelson Theorem, Metzler Paradox, Optimum Tariff, Effective Rate of Protection

Discussion

2.2.1 Tariff

- Tariff – tax on traded commodity

Tariff is the most important type of trade restriction practised. A tariff is a tax or duty levied on the traded commodity as it crosses a national boundary. Tariff can be essentially divided into import tariff and export tariff. An import tariff is a duty on the imported commodity, while an export tariff is a duty on the exported commodity.

- Three types of tariffs viz. ad valorem tariff, specific tariff, and compound tariff

There are especially three types of tariffs viz. ad valorem tariff, specific tariff, and compound tariff. An ad valorem tariff is a tariff expressed as a fixed percentage of the value of the traded commodity. The specific tariff is expressed as a fixed sum per physical unit of the traded commodity, and a compound tariff is a combination of an ad valorem and a specific tariff. For example, a 10 percent ad valorem tax on a Rs.2000 bicycle means the tax amount paid is Rs.200 to custom officials and Rs.300 on a Rs.3000 bicycle. In the case of a specific tariff, a Rs.100 charged on a bicycle means customs collects Rs.100 on each unit of bicycle crossed the boundary irrespective of the value of the bicycle. A compound tariff of 10 percent ad valorem and Rs.100 specific tariff mean customs collects Rs.300 on a Rs.2000 bicycle and Rs.400 on Rs.3000 bicycle.

Import tariffs are generally considered more important than export tariffs. Let us discuss some of the theories explaining import tariffs and their impact on the domestic and world economy.

2.2.1.1 Stolper-Samuelson Theorem

Stolper Samuelson Theorem holds its position when there is a tariff on import commodity by a nation. Let us assume that the nation A is capital abundant small nation with scarcity of labour. The two commodities produced are X and Y where X is labour intensive and Y is capital intensive. With capital abundancy, the nation A produces capital intensive Y commodity and

- Return on scarce factor increases with import tariff

imports labour intensive X commodity. Suppose the nation imposes an import tariff on the commodity X which is labour intensive. With import tariff, the price of X (P_X) increases. So, $\frac{P_X}{P_Y}$ rises for the domestic nation. With rise in $\frac{P_X}{P_Y}$, the nation will start to produce more of X domestically. When price of the labour-intensive commodity increases, the wage rate of the labour increases. We have already seen that the Nation A is capital abundant and labour scarce. With rise in wage due to import tariff on labour intensive commodity, the return to nation's scarce factor, labour increases. Therefore, the increase in the return of scarce factor with import tariff is advocated under Stolper-Samuelson Theorem. Therefore, the Stolper Samuelson theorem postulates that an increase in the relative price of a commodity due to import tariff rises the return or earning of the factor used intensively in the production of the commodity. Thus, the real return to the nation's scarce factor of production will rise with the imposition of import tariff.

The Stolper Samuelson theorem is explained graphically.

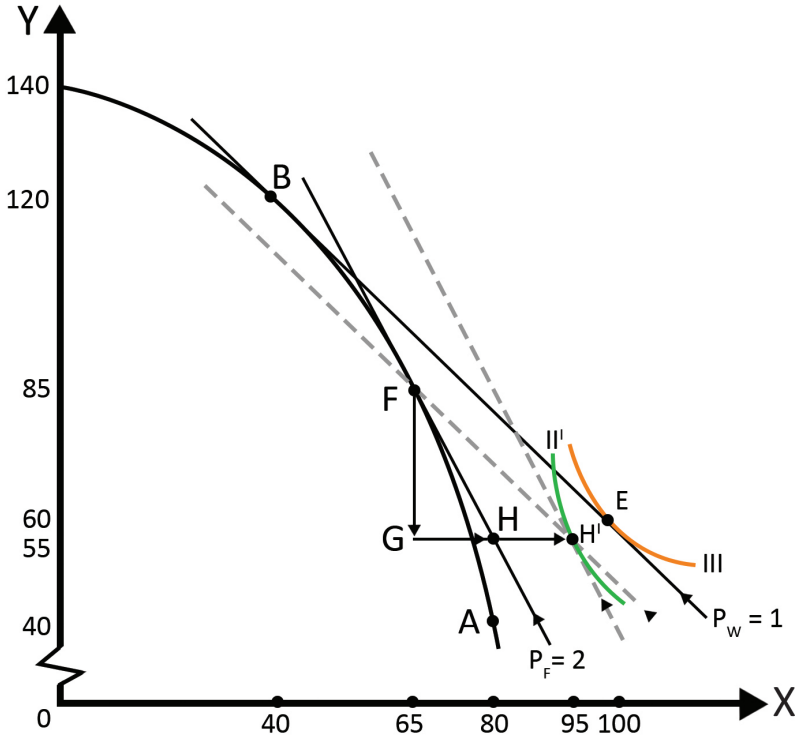

Fig 2.2.1 Stolper Samuelson Theorem

Here, the labour-intensive X commodity is measured along the horizontal axis and capital-intensive Y commodity on the vertical axis. Since nation A is capital intensive, the PPF is skewed towards the vertical axis measuring the capital-

- $\frac{P_X}{P_Y}$ = 1 and consumes at IC is III

intensive Y commodity. With specialisation in the production of Y, the nation A produces at B with 120 Y and 40 X. Here, it is clear that nation A exports Y and imports X. In the figure, $\frac{P_X}{P_Y}$ is equal to one, the nation exports 60 Y for the import of 60 X, and consumes at the indifference curve III. When an import tariff is imposed on the X commodity by Nation A, say it is 100 percent ad valorem tax, then the $\frac{P_X}{P_Y}$ becomes 2 for the nation. However, for the world market, the $\frac{P_X}{P_Y}$ is 1.

- With import tariff, specialisation in production falls

With $\frac{P_X}{P_Y}$ = 2, the nation produces at the point F. Here, 85 Y and 65 X are produced at F. Compared to B, the nation produces more of X, the import commodity and less of Y, the export commodity. In the figure, FG or 30Y is the export for the imports of GH^1 or 30X. Here, GH, or 15X, is for consumption and HH^1 or another 15X is collected as a part of import tariff. It is 100 percent in this case. With an import tariff, nation consumes at indifference curve, IC II. See the indifference curve that is tangential to the line which is parallel to the line P_F = 2. At the same time, the indifference curve is placed on the line which is parallel to the line P_W = 1 as nation as a whole still faces the world price, $\frac{P_X}{P_Y} = 1$. Therefore, after the imposition of tariff, the nation produces at F and consumes at H, and exports 30 Y and imports 30 X. So, with import tariff, the specialisation in production reduced leading to fall in gains from trade.

- Substitution of capital for labour rises productivity of labour

We know that the Stolper-Samuelson theorem states that, with import tariff, nation's scarce factor's return increases. The reason is that the import tariff leads to the production of import commodity domestically, and the production of import commodity requires the intensive use of the scarce factor. When the domestic production rises for the import commodity, the return for the scarce factor intensively used also increases. Since X is the import commodity (labour intensive commodity), with increase in the domestic production of X, the labour-capital ratio, $\frac{L}{K}$ is needed in higher proportion than the labour-capital ratio released via the reduction in the production of commodity, Y. So, the w/r rises. Since capital is abundant in nation A, K is substituted for L and $\frac{K}{L}$ rises. Here, labour is combined with more units capital, and productivity of labour increases leading to increase in wage. Therefore, when tariff is imposed on the commodity X, the return of scarce factor, L increases.

When productivity of labour increases with the addition of capital to labour, it increases the productivity of labour used for both the commodities. Moreover, this results in the increase in real wage along the money wage. It is important to note that the labour is fully employed leading to greater total earning of labour and share in national income. With import tariff, national income falls from E to H^1, labour share in national income increases, and interest rate and capital share falls. So, small nation as a whole is harmed by tariff, but the scarce factor benefits. This is the reason that the labour unions in the industrial nations favour import tariffs. Considering benefits to scarce factor and cost to abundant factor, the cost exceeds the benefit, and nation as a whole loses. The theorem is true for small and large nations, but under large nations case, the changes in the nation affects world prices, but not under small nations case.

- For labour scarce nation, import tariff increases labour share in national income

2.2.1.2 Metzler Paradox

Metzler Paradox explains the situation where Stolper Samuelson theorem does not work. It is an exception to Stolper Samuelson theorem. We have seen that under Stolper Samuelson theorem, the imposition of import tariff increases the relative price of the import commodity in the nation and the income or return to the scare factor which is used for the production of the import commodity domestically. Here, the Metzler Paradox explains the unusual situation that the imposition of import tariff reduces the return to the scare factor rather than increasing, leading Stolper Samuelson theorem no longer holds.

- Exception to Stolper Samuelson theorem
- Tariff reduces the income of scarce factor

The Metzler Paradox is explained in the below figure.

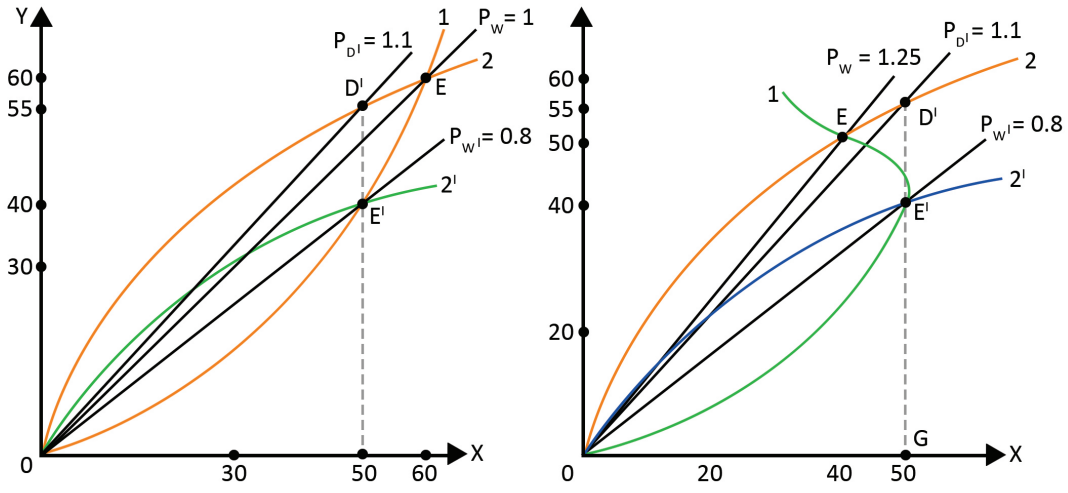

Fig 2.2.2 Metzler Paradox

The Metzler paradox is explained using the imposition of export tariff for a straightforward analysis of the graph. Look at the left panel of the diagram. The equilibrium point is at E when 60 Y is exchanged(exported) for 60 X and $\frac{P_X}{P_Y} = 1$. When export tariff is imposed on the commodity Y (since Nation A exports Y as the nation is capital abundant nation and Y is a capital intensive commodity), the figure shows that the individual exporters in Nation A export 55 Y for 50 X. Here, 40 Y is actually exchanged for 50 X shown at E^1 and the rest 15 Y (55-40) or $D^1 E^1$ is collected as a part of the export tariff by the government. So, for the nation as a whole, the relative price ratio is $\frac{P_X}{P_Y} = P_{W*} = 0.8$ i.e., when 40 Y is exchanged for 50 X. P_{W*} is the world price ratio. However, the relative price ratio for individual exporters in Nation A is calculated on the basis of 55 Y. Then, the relative price ratio is $\frac{P_X}{P_Y} = 1.1$ when 55 Y is exchanged for 50 X instead of the $\frac{P_X}{P_Y} = 1$ under free trade position. So, with export tariff on commodity Y, less of commodity Y is exchanged for commodity X, the relative price ratio increases, factors viz. labour and capital are shifted from the production of commodity Y to commodity X domestically, leading to increase in K-L ratio. This increases the productivity of labour which in turn helps in raising the wage. So, more of commodity X is produced in Nation A using the scarce factor, L, leading to increase in the price of this factor. Hence, Stolper Samuelson theorem holds in left panel.

- With tariff, relative price of scarce factor increases

Now, see the right panel. The equilibrium point, E is at $\frac{P_X}{P_Y}$ = 1.25. Here, 50 Y is exchanged for 40 X at free trade position. When an export tariff is imposed, equilibrium point moves to E^1 shown by the shift in the offer curve to 2′, 40 Y is exchanged for 50 X, and $\frac{P_X}{P_Y}$ become 0.8 for Nation A as a whole. As individuals in the Nation A has to pay tariff equal to 15 Y or $D' E'$, then $\frac{P_X}{P_Y}$ = 1.1. With tariff, the relative price falls from free trade position of 1.25 to export tariff situation of 1.1. Here, with tariff, the Nation A produces less of commodity X and more of commodity Y. Factors are shifted from the production of X to Y. Since Y is capital intensive, K-L ratio falls, leading to falling productivity and wage rate. So, instead of increasing price of scarce factor due to tariff as per Stolper Samuelson theorem, imposition of tariff reduces the price of scare factor. This is because, the offer curve of Nation B bends

- Backward bending offer curve causes fall in price ratio after tariff for the nation

backward, negatively inclined, and inelastic after the point may $\frac{P_X}{P_Y}$ fall instead of rising for individual exporters of Nation A leading to Stolper Samuelson no longer holds. Here, all the export tariff collected by the government will be spent on the consumption of the importable commodity.

2.2.1.3 Lerner Symmetry Theorem

- Effect of ad-valorem export and import tariff is same

Learner showed that in a long run static equilibrium, an ad-valorem tax on export has the same effect as an ad-valorem tariff on import with both having same rate. The essence of the theorem is that the effect of both an ad valorem export tax and import tariff have the same effect on the relative price of imports and terms of trade.

Take the case of Nation B where it imports Y and exports X. Suppose the nation imposes a non-prohibitive export tax at the rate of 'I' on the commodity X. For the import good, the domestic price $P^B{}_Y$ will be same as the world price, $P^B{}_W$. The domestic price of export good, $P^B{}_X$ is lower than the world price of the good, $P^W{}_X$ the relationship is

- With non-prohibitive tax on B's export good- $\frac{P^B{}_X}{P^B{}_W} = \frac{P^B{}_W}{1+I}$

$$\frac{P^B{}_X}{P^B{}_W} = \frac{P^B{}_W}{1+I}$$

The domestic price ratio in B is

$$\frac{P^B{}_X}{P^B{}_Y} = \frac{P^W{}_X}{P^W{}_X(1+I)}$$

This is the exact result one could obtain if an ad valorem import tariff is imposed at the rate I on the commodity Y. Both the export tax and import tariff will increase the relative price of import good in domestic market and if the country is large, it will reduce the relative price of import good on world market. Both will reduce the volume of trade. Given that the revenue from export tax is spent in the same way as revenue from import tariff, the effect of the two policies are the same.

- Effect of policies changing export and import tariff and subsidy are the same

In the case of subsidy, there is an equivalent symmetry between subsidy on imports and subsidy on exports. Both the subsidy will reduce relative price of import good in domestic market and increase the volume of imports and exports.

2.2.1.4 Optimum Tariff

- Optimum tariff benefits imposer and cause loss to other nations

The concept of optimum tariff shows the general fact that when a large nation imposes tariff, it can increase its welfare over the free trade position by fixing an optimum tariff. It is already clear that the imposition of tariff and gain of the nation come at the expense of the loss of other nations. There are always chances of retaliation by other nations usually causing all nations to lose at end.

- Optimum tariff - tariff that maximises nation's welfare

When a nation imposes tariff, the volume of trade measured in terms of the size of the trade falls. However, the nation's terms of trade measured in terms of price ratio of export commodity to import commodity improves. Though the fall in volume of trade reduces the welfare, the improvement in terms of trade increases the welfare of the nation. Optimum tariff is defined as the rate of tariff which maximises the net benefits resulting from the improvement in nation's terms of trade against the negative effect of reduction in nation's volume of trade. When a nation impose tariff, its welfare increases comparing to free trade position, reaches maximum at optimum tariff rate, and then declines as tariff rate increases above the optimum level. With increasing tariff, the nation reaches the prohibitive tariff and push to autarky position.

- With tariff, reduction in welfare of partner is higher than increase in welfare of imposition nation

With tariff, the nation imposing it improves the terms of trade, but trade partner's terms of trade deteriorates. Seeing terms of trade increasing for tariff imposition nation, the partner retaliates by imposing own tariff. This move is countered by the first nation by changing the tariff rate. The retaliations in the form of changing tariff rates of trading partners continue until all end up losing any gain from imposing tariff and trade. It is important to consider the fact that, even if the trade partner does not retaliate to the imposition of tariff by the first nation, the reduction in the welfare of the partner is higher than the increase in the welfare of the nation via imposing tariff. So, in effect, the world as a whole worse off with increasing tariff. Therefore, in this sense, free trade position is considered to maximise world welfare.

The below figure explains these points.

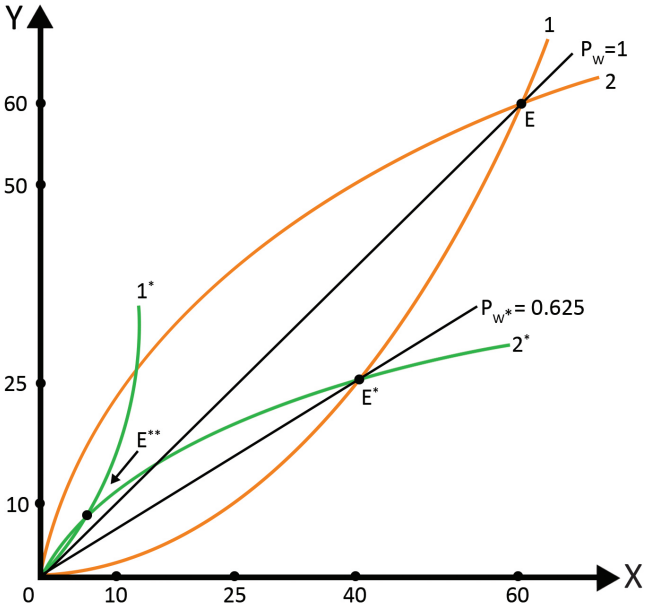

Fig 2.2.3 Optimum Tariff

- Continuous retaliation in-terms of changing tariff leads to autarky position

Offer Curve 1 and 2 define free trade equilibrium at E when $\frac{P_X}{P_Y} = 1$. When Nation A imposes optimum tariff, the offer curve for A becomes 2^*. The new equilibrium is at E* where A exchanges 25 Y for 40 X. Then, the $\frac{P_X}{P_Y} = P_{W*} = 0.625$. Nation A's terms of trade improve to $\frac{P_X}{P_Y} = \frac{1}{P_{W*}} = \frac{1}{0.625} = 1.6$. This position is the optimum tariff position of Nation A. But Nation B faces fall in terms of trade and face worse off position than free trade. It retaliates through imposition of own tariff shown by the shift in the offer curve of B from 1 to 1^* and equilibrium to E^{**}. When Nation B's terms of trade increases and Nation A's fall, Nation A retaliates, and at the end both nation end in autarky position and gains from trade are lost.

Optimum tariff can be calculated as

$$t^* = \frac{1}{(e-1)}$$

- $t^* = \frac{1}{(e-1)}$
- Optimum tariff for small nation is zero

where e is the elasticity of partner's offer curve.

When elasticity is infinity, the optimum tariff will be zero. This is the case of small nation. As a tariff will not affect the terms of trade of small nation and only reduces the volume of trade, no tariff can be said to increase the welfare of the small nation. Hence, optimum tariff is zero for small nation even when the partner does not retaliate.

2.2.1.5 Rate of Effective Protection

- Low tariff imports of raw materials for the domestic production of import commodity

Rate of effective protection is a relatively new concept developed in 1960. When imposing tariff on imports, the domestic nation may import raw materials used for the production of the import commodity duty free or with low tariff than the tariff on the final commodity. Nations resort to such duty free or low tariff import of raw materials to encourage the domestic production of commodities which are usually imported. This act of protection resorted by the domestic nation is used as the concept of rate of effective protection.

- Domestic Value addition = value of final commodity – cost of imported input

When a raw material is imported for using it in the production of a final commodity, additional production processes done on the raw materials to make it the final output (referred to as value addition) happens in the domestic nation. It is calculated as the difference between the value of final commodity and the cost of imported inputs. The rate of effective protection or the protection on domestically producing the import commodity is evaluated based on the proportion of the import tariff on the raw material to the domestic value added to the imported raw material. The concept of rate of effective protection can be explained using an illustration.

- Rate of Effective Protection – on domestic value added
- Nominal tariff – on value of final commodity

Suppose, a nation usually imports suits. The price of the suit is Rs. 1000, and an import tariff of 10 percent makes the price of the suit domestically into Rs. 1100. However, as a part of encouraging domestic production of suits, the nation imports wool. The price of the raw material wool is Rs. 800. In order to make the wool into the Rs. 1000 worth of suits, the domestic value added is Rs. 200. We know that the nation collects Rs. 100 as nominal tariff which is 10 percent of the value of the imported suit. The nominal tariff is calculated on the value of final commodity. The same Rs.100 nominal tariff is 50 percent of the domestic value added (Rs. 100 is 50 percent of domestic value added, Rs. 200). This 50 percent is the Rate of effective protection. It is calculated on the value added domestically.

- Import tariff of output > Input leads Effective rate of protection > Nominal Tariff

Here, the nominal tariff and rate of effective protection are considered differently. A consumer is mainly concerned about the nominal tariff since change in nominal tariff affects final price of the commodity. For a producer, rate of effective protection is important. See that the Rs. 100 is the 10 percent nominal tariff. The same Rs. 100 tariff is the 50 percent of the Rs. 200 values added domestically. The 50 percent rate of effective protection is considered 5 times more degree of

protection compared to the 10 percent nominal tariff. This 50 percent protection is important for producers in enhancing the domestic production of suits compared to the competition from imports of suits. If the input is imported duty free or under low tariff with respect to the tariff on the final commodity using the imported input, the effective rate of protection will exceed nominal tariff rate.

The mathematical expression for calculating rate of effective protection is given below.

$$\mathbf{g} = \frac{t - a_i t_i}{1 - a_i}$$

Here, g is the rate of effective protection towards the producers

t is the nominal tariff rate on consumers of the final commodity

a_i is the ratio of imported input cost to the price of final commodity in the absence of tariffs

t_i is the nominal tariff on imported input

- $\mathbf{g} = \frac{t - a_i t_i}{1 - a_i}$

Let us substitute the values mentioned in our example in the above equations

The nominal tariff on final commodity, t is 10% = 0.1

Ratio of imported input cost to price of final commodity without tariff, a_i is 800/1000 = 0.8

When input is imported tariff free, t_i is 0

So, $\mathbf{g} = \frac{t - a_i t_i}{1 - a_i}$

$= \frac{0.1 - 0.8 \times 0}{1 - 0.8}$

$= \frac{0.1}{0.2} = 0.5$. This is 50 % in percentage terms

Now, suppose the input is not imported tariff free, but with 5 percent nominal tariff, then, t_i is 0.05. Here, the rate of effective protection is calculated as:

$$\mathbf{g} = \frac{\boldsymbol{t - a_i t_i}}{\mathbf{1 - a_i}}$$

$$= \frac{0.1 - 0.8 \times 0.05}{1 - 0.8}$$

$$= \frac{0.1 - 0.04}{0.2}$$

$$= \frac{0.06}{0.2} = 0.3 \text{ which is 30 percent}$$

If the nominal tariff on imported input increases to 15 percent, then, the rate of effective protection will be

$$\mathbf{g} = \frac{\boldsymbol{t - a_i t_i}}{\mathbf{1 - a_i}}$$

$$= \frac{0.1 - 0.8 \times 0.15}{1 - 0.8}$$

$$= \frac{0.1 - 0.12}{0.2}$$

$$= \frac{-0.02}{0.2} = -0.1 \text{ which is } -10 \text{ percent}$$

- Increasing nominal tariff on imported input reduces rate of effective protection

When nominal tariff on imported input becomes 30 percent, then, rate of effective protection becomes

$$\mathbf{g} = \frac{\boldsymbol{t - a_i t_i}}{\mathbf{1 - a_i}}$$

$$= \frac{0.1 - 0.8 \times 0.30}{1 - 0.8}$$

$$= \frac{0.1 - 0.24}{0.2}$$

$$= \frac{-0.14}{0.2} = -0.7 \text{ which is } -70 \text{ percent}$$

By evaluating the value of rate of effective protection in regards to the value of nominal tariff on final commodity, on imported input, cost of imported input, and price on final commodity without tariff, following relationships can be formulated:

i. **When t_i becomes greater than t, the value of g becomes smaller than t, and vice versa. When t = t_i leads to g = t**

For example, when t_i is 5 percent with t equals 10 percent, the

'g' was 30 percent. When t_i becomes 15 percent with same t (equals 10 percent), the 'g' became – 10 percent, and when t_i became 30 percent with t equals 10 percent, the value of 'g' became – 70 percent. So, with increase in t_i in compared to 't', the value of 'g' decreases in compared to 't'. The opposite case can also be true.

ii. When $a_i t_i$ are greater than 't', the rate of effective protection becomes negative

iii. If a_i is zero, rate of effective protection, 'g' is equal to nominal tariff on final commodity, 't'

- Tariff on imported input increses cost

i.e., as $a_i = 0$, g = t

iv. When the values of 't' and 't_i' are given, 'g' changes with a_i and g is larger the greater is the value of a_i

v. When the values of 'a_i' and 't_i' are given, 'g' changes with 't' and is larger the greater is the value of t

From above, it is clear that the tariff on imported input is an addition on cost of production for domestic producers which negatively affects the rate of effective protection. Increase in tariff on imported input discourages the domestic production of import competent commodity or the commodity using the imported input.

Summarised Overview

Tariff is one of the most important types of trade restriction. A tariff is a tax or duty levied on the traded commodity as it crosses a national boundary and can be divided into export tariff and import tariff. There are, especially three types of tariffs viz. ad valorem tariff, specific tariff, and compound tariff. An ad valorem tariff is a tariff expressed as a fixed percentage of the value of the traded commodity, where a specific tariff is expressed as a fixed sum per physical unit of the traded commodity, and a compound tariff is a combination of an ad valorem and a specific tariff.

Stolper Samuelson Theorem holds its position when there is a tariff on import commodity by a nation. Stolper Samuelson theorem postulates that an increase in the relative price of

a commodity due to import tariff rises the return or earning of the factor used intensively in the production of the commodity. Thus, the real return to the nation's scarce factor of production will rise with the imposition of import tariff. Metzler Paradox is an exception to Stolper Samuelson which explains the unusual situation that the imposition of import tariff reduces the return to the scare factor rather than increasing, leading Stolper Samuelson theorem no longer holds. Learner symmetry theorem showed that an ad-valorem tax on export has the same effect as an ad-valorem tariff on import.

Optimum tariff is the rate of tariff which maximises the net benefits resulting from the improvement in nation's terms of trade against the negative effect of reduction in nation's volume of trade. Nations resorting to duty free or low tariff import of raw materials to encourage the domestic production of commodities which are usually imported are considered under the concept of rate of effective protection.

Assignments

1. Explain Stolper Samuelson theorem and critically discuss on the presence of Metzler paradox.
2. Elucidate on Optimum tariff. Differentiate between its effect on small and large nation.
3. Discuss in detail on rate of effective protection with suitable numerical examples.

Suggested Reading

1. Krugman P R and Obsfeild M (2009) - *International Economics*- Theory and Policy, (8th Edition) Pearson, Dorling Kindersley (India) Pvt. Ltd, New Delhi
2. Soderston, B and Reed G.(1994) - *International Economics*, 3rd Edition, MacMillan Press Ltd. London

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1. Salvatore, D (2008) - *International Economics*, (8th Edition). Wiley India, New Delhi

UNIT 3
Economic Integration and Global Trade

Learning Outcomes

After completing this unit, the learner will be able to:

- comprehend the concept of economic integration
- familiarise the concept of customs union, common market and economic union
- differentiate between trade-creating and trade-diverting customs unions
- discuss the theory of second best

Background

Just imagine a group of neighbouring countries, each with its own way of doing business. To make things easier and boost their economies, they decide to work together more closely. This teamwork is called economic integration. It is all about breaking down barriers to trade and investment between these countries to help their economies grow and stay stable.

As you may commonly come across in newspapers and academic literature, there are several types of economic integration viz. Free Trade Area, Customs Union, Common Market, and Economic Union. These are like steps on a ladder, each one bringing the countries closer together economically. The most basic form of economic integration is a Free Trade Agreement (FTA). In Free Trade Agreement, participating countries agree to reduce or eliminate tariffs, quotas, and other barriers to trade on certain goods and services traded between them. By doing so, they aim to increase trade volumes and economic efficiency, leading to mutual benefits for all involved.

Similarly, in a Customs Union, in addition to the provisions of an FTA, member countries also adopt a common external tariff policy. Common Markets take integration a step further by not only eliminating barriers to trade in goods and services but also allowing for the free movement of factors of production, such as labour and capital, among member countries. Economic Unions represent an even higher level of integration. In addition to

the features of a Common Market, Economic Unions involve further coordination of economic policies among member nations.

As countries aspire deeper forms of economic integration, they often experience both benefits and challenges. One concept that comes into play is the theory of Trade Creation and Trade Diversion. According to this theory, economic integration can lead to both the creation of new trade opportunities and the diversion of trade away from more efficient producers outside the integrated area. In this unit, learners will come across the various forms of economic integration and other related topics in detail.

Keywords

Economic Integration, FTA, Customs Union, Common Market, Economic Union, Trade Creation, Trade Diversion, Second Best

Discussion

2.3.1 Economic Integration

- Economic integration combines economies for larger markets

The modern industrial system depends on cost-effective production techniques that require large-scale manufacturing, which in turn needs bigger markets and more consumer spending power. To make the most of these techniques, countries with smaller markets often join together in regional groupings. Economic integration is the process of combining separate economies into one larger economy. This integration involves selectively applying trade tariffs and restrictions, leading to two types of discrimination viz. country-discrimination, where tariffs vary between countries, and commodity-discrimination, where tariffs differ based on the type of goods.

- Reduces trade barriers between member nations

In the words of Dominick Salvatore, economic integration, is the "commercial policy of discriminatively reducing or eliminating trade barriers only among the nations joining together." Thus, the economic integration refers to an arrangement whereby two or more countries combine into a larger economic region through the removal of discriminations existing along national frontiers, while following a common tariff and trade policies against the countries outside the group. Jan Tinbergen has defined economic integration as "the creation of the most desirable structure of international

economy, removing artificial hindrances to the optimum operation and introducing deliberately all desirable elements of co-ordination and unification".

- Economic integration involves free trade and common tariffs

Two key features define economic integration are:

I. The re-introduction of free trade among member nations and

II. The imposition of a common external tariff policy against non-member countries.

Thus, economic integration combines elements of free trade and tariff protection.

2.3.1.1 Benefits of Economic Integration

Economic integration between two or more countries offers several significant benefits, leading to economic growth and development. Let us look into that.

- Integration enables to lower cost per unit of output

1. Economies of scale: In small countries with limited internal markets, production capacity is often restricted. Economic integration provides unrestricted access to products produced by any member country, incentivising expansion and allowing countries to fully exploit economies of scale. This leads to increased production efficiency and lower costs per unit of output.

- Promotes comparative advantage specialisation

2. International specialisation : Economic integration allows member countries to specialise in products and processes where they have a comparative cost advantage. This specialisation can lead to substantial increase in production as countries focus on what they produce best and trade with other member countries for other goods and services. Specialisation enhances productivity and resource allocation, which in turn contributes to economic growth.

- Improves output quality and competitiveness

3. Qualitative improvement in output : Regional economic cooperation among countries facilitates rapid technological changes and easier capital movements. Under these favourable conditions, member countries can achieve higher quality in production. Access to advanced technology and increased investment leads to better quality goods and services, which improves the competitiveness of member countries in the global market.

- Promotes regional employment growth

4. Expansion of employment: By allowing the unrestricted flow of labour within the region, countries can maximise employment and income. Workers can move to areas where their skills are in demand, which in turn reduce unemployment and underemployment. This mobility helps in optimising the use of human resources, leading to higher productivity and economic growth.

- Regional economic groups increase collective bargaining power

5. Improvement in terms of trade: When countries unite together in regional economic groups, their collective bargaining power increases significantly. This increased bargaining power can lead to better terms of trade with the rest of the world, which means member countries can obtain more favourable prices for their exports and reduce the cost of their imports. Improved terms of trade can contribute to higher national income and better economic welfare.

- Competition improves efficiency and benefits consumers

6. Economic efficiency: By promoting competition within the region, it ensures that businesses operate more efficiently to survive and prosper. Increased competition leads to better products and services at lower prices, benefiting consumers and improves the economic performance of the member countries.

- Economic integration improves living standards

7. Improvement in living standards: As countries integrate economically, superior varieties of goods become more readily available at competitive prices. Consumers thus have access to a wider range of products and services. This increased availability, combined with the rise in employment opportunities and purchasing power, significantly improves the living standards of people in the member countries.

- Increased mobility boosts economic growth

8. Boosts factor mobility: The dismantling of barriers to the movement of labour and other factors of production among member countries leads to increased mobility. This mobility helps to enlarge employment opportunities, lowers factor costs, and promotes productive activity throughout the region. Workers can move to where jobs are available, and capital can flow to where it is most needed, which in turn optimises resource allocation and boost economic growth.

2.3.2 Forms of Economic Integration

Economic integration has emerged as an alternative to free trade policies. It involves countries with shared economic interests and similar political systems agreeing to reduce or eliminate

tariffs and trade barriers among themselves while maintaining these barriers against other countries. This approach has gained significant support in recent decades, leading to the formation of regional economic groups. Economic integration progresses through several stages. Initially, countries form a Preferential Trade Agreement (PTA) to reduce tariffs and trade barriers on selected goods, for encouraging closer economic ties. This often leads to a Free Trade Area (FTA), where tariffs on a broad range of goods are eliminated, but each country maintains its own external trade policies. Next is the Customs Union, which removes internal tariffs and adopts a common external trade policy. Finally, a Common Market allows free movement of goods, services, labour, and capital across member countries. Let us look in to the details.

- Economic integration reduces internal tariffs and barriers

2.3.2.1 Preferential Trade Agreement (PTA)

Preferential trade arrangements (PTAs) are agreements where participating countries reduce trade barriers like tariffs and quotas among themselves, making it easier and cheaper to trade with each other compared to non-member nations. This means that goods and services can move more freely between these member countries, boosting trade and economic cooperation. PTAs are the simplest form of economic integration. Unlike other, more complex forms of economic integration, PTAs do not require countries to adopt common policies or regulations, making them relatively easy to establish and maintain.

- PTAs reduce trade barriers and boost cooperation

A prime example of a PTA is the British Commonwealth Preference Scheme. This scheme was set up in 1932 by the United Kingdom and included various members and former members of the British Empire. The idea was to promote trade within the British Commonwealth by offering lower tariffs and fewer trade restrictions on goods traded among these nations. This helped to strengthen economic ties and a sense of cooperation within the Commonwealth.

- The British Commonwealth Preference Scheme reduces tariffs

2.3.2.2 Free Trade Area

A free trade area is a type of economic integration where countries agree to eliminate all trade barriers, such as tariffs and quotas, among themselves. This makes it easier and cheaper for member countries to trade with each other. However, each country in the free trade area still maintains its own individual trade policies and barriers when dealing with nonmember countries. This means that while member countries enjoy free

- Free trade areas eliminate internal trade barriers

trade amongst themselves, they can set different tariffs and trade rules for countries outside the free trade area.

There are several notable examples of free trade areas. The European Free Trade Association (EFTA) was established in 1960 by the United Kingdom, Austria, Denmark, Norway, Portugal, Sweden, and Switzerland to promote free trade among these European countries. Another well-known example is the North American Free Trade Agreement (NAFTA), created in 1993 by the United States, Canada, and Mexico, which aimed to eliminate trade barriers between these North American nations. Additionally, the Southern Common Market (Mercosur) was formed in 1991 by Argentina, Brazil, Paraguay, and Uruguay to facilitate free trade and economic cooperation in South America. These agreements have helped to increase trade and economic integration among their member countries.

- Free trade areas increase trade and integration

2.3.2.3 Customs Union

A customs union is a form of economic integration where member countries remove all tariffs and trade barriers among themselves, just like in a free trade area. However, a customs union goes a step further by harmonising their trade policies towards nonmember countries. This means that all member countries agree to set the same tariffs and trade rules when dealing with countries outside the union. One of the most well-known examples of a customs union is the European Union (EU), originally known as the European Common Market. The EU was formed in 1957 by six countries viz. West Germany, France, Italy, Belgium, the Netherlands, and Luxembourg. These countries eliminated trade barriers among themselves and adopted common external tariffs, making it easier to trade both within the EU and with the rest of the world under a unified trade policy.

- Customs unions unify internal and external trade policies

Another historical example of a customs union is the Zollverein, established in 1834. It included numerous sovereign German states and played a crucial role in the economic and political unification of Germany. The Zollverein helped to create a single economic space in the German region by standardising tariffs and trade regulations, which significantly contributed to Otto von Bismarck's efforts in unifying Germany into a single nation in 1870.

- Zollverein unified tariffs for German economic integration

2.3.2.4 Common Market

- Common market allows free movement of factors

A common market represents a higher level of economic integration among countries compared to a customs union. In a common market, member countries not only eliminate all tariffs and trade barriers among themselves and adopt a common external tariff for trade with nonmember countries, but they also allow for the free movement of labour and capital across their borders. This means that people and companies can move freely between member countries, making it easier for workers to find jobs in different member countries and for companies to invest and operate anywhere within the common market. The free movement of goods, services, labour, and capital creates a more integrated and unified economic area, promoting greater economic cooperation and efficiency.

- EEC allowed free movement and boosted economic growth

The European Common Market, also known as the European Economic Community (EEC), is a prime example of a common market. Established by the Treaty of Rome in 1957, the EEC initially included six countries viz. West Germany, France, Italy, Belgium, the Netherlands, and Luxembourg. These countries abolished trade barriers among themselves, adopted a common external tariff, and allowed free movement of labour and capital. This integration helped to boost economic growth, increase job opportunities, and increases investment across member nations, laying the foundation for what is now the European Union (EU).

2.3.2.5 Economic Union

- Economic union integrates policies and adopts common currency

An economic union represents the highest level of economic integration among countries, characterised by extensive cooperation in various economic aspects. In an economic union, member countries not only establish a common market by eliminating trade barriers and allowing free movement of goods, services, labour, and capital but also take further steps to unify their fiscal, monetary, exchange rate, industrial, and socio-economic policies. One of the key features of an economic union is the pursuit of a common currency and banking system among member countries. This means that they aim to adopt the same currency for transactions and have a unified banking framework to facilitate economic transactions seamlessly across borders.

A notable example of an economic union is BENELUX, comprising Belgium, Netherlands, and Luxembourg. Initially

formed as a customs union in 1948, it evolved into an economic union by 1960. These countries, which have since become part of the European Union (EU), represent the deep level of economic integration achieved through harmonised policies and common currency objectives. Similarly, the European Economic Community (EEC) transformed into the European Union (EU) in 1991, representing a significant advancement towards economic union. Through this transformation, the EU has sought to integrate policies, adopt a common currency (the euro), and establish a unified banking system.

- BENELUX achieved economic integration with common policies

2.3.3 Trade Creation

Trade creation refers to the positive impact of forming a customs union, where member nations replace some of their domestic production with lower-cost imports from other members. When countries within a customs union specialise in producing goods for which they have a comparative advantage, they can produce these goods more efficiently. This increased efficiency leads to an increase in the overall real income of the member countries because they can produce more with the same amount of resources. Additionally, nonmember countries benefit as well because, as the real income of member countries rises due to greater specialisation and efficiency, their demand for goods, including those from nonmember countries, also increases. Even though nonmember countries might face common external tariffs, the increased income and economic activity within the customs union lead to higher overall demand for imports from all sources, including nonmember countries. In essence, trade creation enhances economic efficiency and promotes greater welfare for both member and nonmember nations within the customs union.

- Customs union create trade and welfare

2.3.3.1 Trade Creating Customs Union - An Illustration

In understanding the concept of trade-creating customs union, it is essential to know its impact on trade flows and welfare. Imagine a scenario where two countries, let us call them Country A and Country B. Initially, Country A imposes a high tariff on imports of a particular product, electric cars, from Country B. This high tariff restricts the flow of cars from Country B into Country A, leading to limited trade between the two nations. However, upon forming a customs union, the tariff barriers between the two countries are eliminated. As a result, the price of cars imported from Country B into Country A decreases

- Customs union lowers tariffs, increases car imports

significantly, making them more affordable for consumers in Country A. This leads to an increase in the quantity of cars imported from Country B into Country A, as consumers now prefer the lower-priced imports over domestically produced cars.

The European Union (EU) is an example of a trade-creating customs union. Before the formation of the EU, individual member countries had their own trade barriers, such as tariffs and quotas, which restricted the flow of goods and services between them. However, with the establishment of the EU and the implementation of its common market policies, these trade barriers were removed, allowing for the free movement of goods, services, capital, and labour across member countries. As a result, trade between EU member countries increased significantly, leading to greater specialisation and efficiency in production. For instance, a country like Germany, known for its automobile industry, could specialise in producing cars more efficiently, while countries like France could focus on producing agricultural products. This specialisation based on comparative advantage allowed member countries to maximise their production capabilities and improve their economic welfare.

- EU formation removed barriers and increased trade

As mentioned earlier, the elimination of tariff barriers leads to an increase in trade between member countries. In our example, the increase in car imports from Country B into Country A signifies trade creation. This trade creation occurs because consumers in Country A can now purchase cars from Country B at a lower price than domestically produced cars. As a result, there is a shift in consumption patterns towards imported cars, leading to a reallocation of resources within Country A's economy. This reallocation is beneficial because it allows Country A to allocate its resources more efficiently, focusing on industries where it has a comparative advantage, while importing goods where other countries have a comparative advantage.

- Eliminating tariffs increases trade and economic efficiency

Furthermore, the increase in trade resulting from the customs union leads to several welfare gains for both member countries and the union as a whole. Firstly, consumers in Country A benefit from access to cheaper imported cars, leading to an increase in consumer surplus. Additionally, producers in Country B benefit from expanded export opportunities to Country A, leading to an increase in producer surplus. Moreover, the increase in trade between the two countries

- Customs union boosts trade, welfare, and economic growth

stimulates economic growth and creates job opportunities in both countries. Thus, the trade-creating customs union enhances economic welfare by promoting greater efficiency, specialisation, and economic integration among member countries.

This can be explained with the help of the following figure.

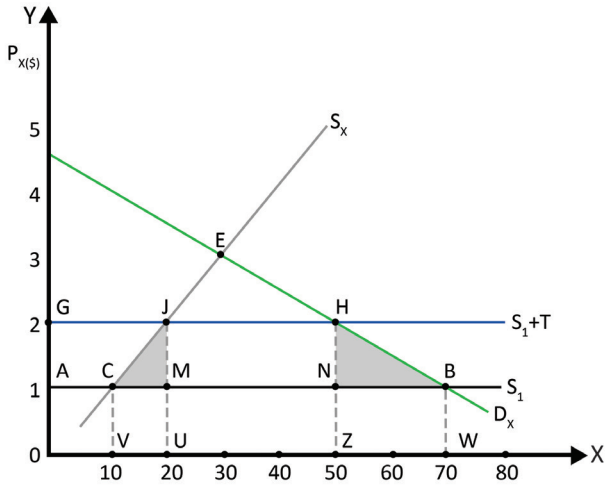

Fig 2.3.1 Trade-Creating Customs Union

- Tariff increases prices and it affects imports

Suppose there are 3 nations and in the above figure, D_X and S_X are Nation 2's domestic demand and supply curves of commodity X. If commodity X costs \$1 in Nation 1 and \$1.50 in Nation 3, and Nation 2 imposes a 100% import tax, the price in Nation 2 will be \$2 from Nation 1 and \$3 from Nation 3. Thus, Nation 2 will import from Nation 1 at \$2. Then, the price (P_X) in Nation 2 is \$2 due to the tariff. At this tariff rate, they consume 50 units (GH), importing 30 units (JH) from the cheaper Nation 1 and producing 20 units (GJ) domestically. The tariff generates revenue (MJHN) for Nation 2. In the figure, S_1 represents Nation 1's perfectly elastic supply curve of commodity X to Nation 2 under free trade conditions. When a tariff is imposed, the supply curve shifts to S_1 + T. Nation 2 does not import commodity X from Nation 3 because, after including the tariff, the price of commodity X from Nation 3 would be \$3, which is higher than the tariff-inclusive price from Nation 1.

Now imagine they form a customs union with Nation 1, eliminating tariffs. The price in Nation 2 drops to the world price of \$1 (P_X). Consumption rises to 70 units (AB), with

- Customs union lowers prices and increases welfare

60 units (CB) imported from Nation 1 and just 10 units (AC) produced domestically. However, Nation 2 loses tariff revenue. When Nation 2 forms a customs union, the overall benefit to its consumers is represented by the area AGHB. However, not all of this benefit translates into a net gain for the nation. Specifically, AGJC indicates a decrease in producer surplus, and MJHN shows the loss of tariff revenues. The net welfare gain for Nation 2 is the combined area of the shaded triangles CJM and BHN, which totals $15.

- Trade creation boosts efficiency and consumption

Triangle CJM represents the production-related gain from trade creation. This gain occurs because Nation 2 shifts the production of 10 units of good X from its less efficient domestic producers to more efficient producers in Nation 1. This shift reduces production costs from VUJC to VUMC. Triangle BHN represents the consumption-related gain from trade creation. This gain comes from an increase in the consumption of 20 units of good X in Nation 2. The benefit of this increased consumption is represented by ZWBH, while the expenditure is only ZWBN.

- Customs union theory evolved to include consumption effects

In 1950, Jacob Viner developed the theory of customs unions, focusing on the production effect of trade creation and neglecting the consumption effect. In 1955, James Meade extended this theory by considering the consumption effect. Later, Harry Johnson combined both the production and consumption effects, represented by the two triangles, to calculate the total welfare gain from a customs union.

2.3.4 Trade Diversion

- Importing costlier goods over cheaper ones

Trade diversion happens when a country starts importing goods from a member of a customs union, even though they are more expensive than similar goods from non-members. This switch occurs because of the preferential treatment given to union members. As a result, trade diversion lowers overall welfare by moving production from more efficient producers outside the union to less efficient ones inside the union. This shift disrupts the optimal use of global resources and goes against the principle of comparative advantage, leading to a less efficient allocation of production.

A trade-diverting customs union results in both trade creation (benefiting union members) and trade diversion (potentially harming union members). The impact on the welfare of union members depends on which effect is stronger. However,

- Trade-diverting customs union harms nonmembers

nonmembers are likely to suffer because their goods are no longer being imported as much, leading to less efficient use of their resources. In contrast, a trade-creating customs union only leads to trade creation, which clearly increases the welfare of both members and nonmembers. Thus, while a trade-diverting customs union has mixed effects, a trade-creating one is beneficial for everyone involved.

2.3.4.1 Trade-Diverting Customs Union - An Illustration

- Country Y imports from less efficient producer

Let us consider three countries namely Country X, Country Y, and Country Z. Each of these countries produces a commodity, Desktop computer. Country X produces desktop computer most efficiently, followed by Country Y, and then Country Z. Initially, Country Y imposes a tariff on all imports of desktop computers, making it more expensive to import. As a result, Country Y imports desktop computers from Country X, despite the tariff, because it is still cheaper than buying from the less efficient Country Z. Now, suppose Country Y forms a customs union with Country Z. This means Country Y removes the tariff on imports from Country Z but keeps it for imports from Country X. Consequently, Country Y starts importing desktop computers from Country Z at a lower price because there is no tariff. The price drop leads to increased consumption in Country Y, with some desktop computers produced domestically and a larger number imported from Country Z. As a result, Country Y no longer collects any tariff revenue since imports from Country Z are tariff-free.

- Trade diversion reduces efficiency but increases consumption

This customs union results in trade diversion because Country Y shifts its imports from the more efficient producer, Country X, to the less efficient producer, Country Z, due to the preferential treatment within the union. Trade creation occurs because the overall consumption of desktop computers in Country Y increases due to the lower price. To understand the welfare effects, we can analyse it as follows. Initially, Country Y was importing a certain number of desktop computers from Country X, generating tariff revenue. When Country Y shifts to importing more computers from Country Z at a lower price, it experiences a gain in consumer surplus because of the lower price. However, this gain includes a transfer of surplus from domestic producers to consumers, which does not contribute to net welfare gain. The net welfare gain from trade creation is represented by the increased consumption of

desktop computers. On the other hand, the welfare loss from trade diversion is calculated by considering the initial imports diverted from Country X to Country Z. This loss arises because Country Y is now importing from a less efficient producer.

- Net welfare depends on trade creation versus diversion

Therefore, the net effect on Country Y's welfare is the difference between the welfare gain from trade creation and the welfare loss from trade diversion. In this example, the net welfare impact depends on the balance between these two effects. However, this outcome can vary. If Country Y's demand and supply conditions are such that the increased imports from Country Z are not significantly less efficient than those from Country X, the welfare gain from trade creation might increase, and the welfare loss from trade diversion might decrease. This could lead to a net welfare gain for Country Y, even in a trade-diverting customs union.

The effects of a trade-diverting customs union are illustrated in the below figure.

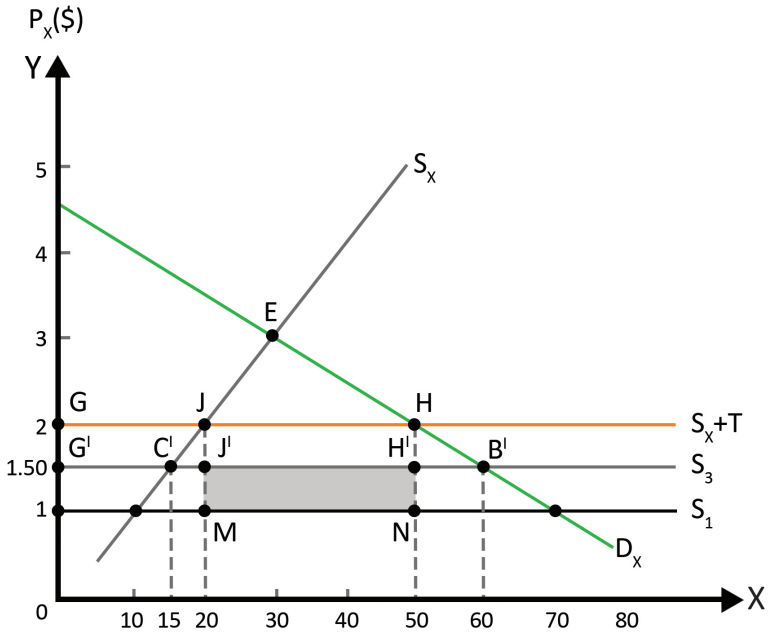

Fig 2.3.2 Trade-Diverting Customs Union

Suppose there are 3 nations and the above figure illustrates the effects of a trade-diverting customs union on Nation 2's welfare. In the figure, D_X and S_X are Nation 2's domestic demand and supply curves of commodity X, while S_1 and S_3 are the free trade perfectly elastic supply curves of Nation 1 and Nation 3, respectively. Initially, with a 100 percent nondiscriminatory tariff on commodity X, Nation 2 imports X from Nation 1 at P_X = $2. At this price, Nation 2 consumes 50X

- Trade diversion shifts imports to less efficient nation

(GH), producing 20X (GJ) domestically and importing 30X (JH) from Nation 1. Thus Nation 2 generates $30 (JMNH) in tariff revenue. When Nation 2 forms a customs union with Nation 3, removing tariffs on imports from Nation 3, the price of X drops to P_X = $1.50. At this new price, Nation 2 consumes 60X (G′B′), producing 15X (G′C′) domestically and importing 45X (C′B′) from Nation 3, while collecting no tariff revenue. This results in trade diversion, as imports shift from the more efficient Nation 1 to the less efficient Nation 3 due to the tariff discrimination against Nation 1.

- Welfare impact is analysed through trade creation and diversion

The welfare impact on Nation 2 can be analysed through the shaded areas in the graph. The sum of the areas of the shaded triangles (C′JJ′ and B′HH′) represents a welfare gain of $3.75 from pure trade creation. However, the shaded rectangle (MNH′J′) represents a $15 welfare loss from diverting 30X (JH) of imports from lower-cost Nation 1 to higher-cost Nation 3. Of the gain in consumer surplus (G′GHB′), the area G′GJC′ represents a transfer from producer to consumer surplus within Nation 2, resulting in no net gain or loss for the nation. Additionally, part of the initial tariff revenue JMNH ($30) becomes a transfer to consumers in the form of lower prices (J′JHH′), leaving only the shaded triangles (C′JJ′ & B′HH′) as the net gain and the shaded rectangle (MNH′J′) as the unaccounted loss of tariff revenue.

- Loss from trade diversion exceeds gain

The overall net welfare effect for Nation 2 is a loss of $11.25, as the welfare loss from trade diversion ($15) exceeds the welfare gain from trade creation ($3.75). However, this outcome is not always the case. If the domestic demand and supply curves of Nation 2 (D_X and S_X) are more elastic, and if the supply curve of Nation 3 (S_3) is closer to that of Nation 1 (S_1), the welfare gain from trade creation could potentially exceed the welfare loss from trade diversion, resulting in a net welfare gain for Nation 2.

2.3.5 The Theory of Second Best

- Customs unions may not maximise welfare

The traditional concept of free trade suggests that removing trade barriers leads to the most efficient use of global resources, maximising global output and welfare. However, Jacob Viner's influential work on customs unions in 1950 challenged this belief. Viner discovered that when member countries of a customs union remove trade barriers among themselves but keep tariffs on non-members unchanged, it does not always lead to an increase in overall welfare. This finding illustrates

the theory of the second best.

The theory of the second best, a concept in welfare and public economics, essentially states that if one optimal condition for achieving a Pareto optimum (a state where resources are allocated so that no one can be made better off without making someone else worse off) cannot be met, then trying to satisfy the remaining conditions does not necessarily lead to the next best outcome. In simpler terms, achieving a Pareto optimum requires several conditions, such as perfect competition, absence of externalities, and perfect information. If one of these conditions cannot be fulfilled, merely satisfying the others might not bring you closer to the optimum and could result in a less efficient outcome. Thus we can say that, when you cannot achieve the ideal scenario or the first best, making improvements in some areas may not necessarily improve overall welfare or you might end up in a 'second best' scenario.

- Partial improvements lead to second best outcome

Applying this theory to customs unions, removing trade barriers only among member countries does not automatically improve welfare. The welfare of both member nations and the rest of the world can either increase or decrease, depending on various circumstances. This finding has significant implications for international economics, as it challenges the straightforward assumption that movements towards free trade are always beneficial.

- Customs unions' impact on welfare varies widely

The theory of the second best was further elaborated by James Meade in 1955 and later generalised by economists Richard Lipsey and Kelvin Lancaster in 1956. They provided a broader framework for understanding the theory's applications, highlighting the complexity of economic policies and their impacts. This theory emphasises that partial reforms or improvements do not necessarily guarantee better overall outcomes. Viner's findings also revealed that the effects of customs unions are more complex. For example, trade creation within the union might be offset by trade diversion from more efficient producers outside the union, potentially leading to a net welfare loss. Therefore, the formation of a customs union can have both positive and negative effects, with its impact on welfare depending on specific economic conditions and the customs unions structure. From this consideration, the theory of customs union can be treated as a theory of the second best.

- Customs unions' impact varies based on its structure

2.3.5.1 Conditions More Likely to Lead to Increased Welfare

A customs union is more likely to increase welfare and create beneficial trade under the following conditions.

1. **High Pre-Union Trade Barriers:** If member countries had high trade barriers before forming the union, removing these barriers is more likely to increase trade among members instead of diverting trade from nonmembers.
2. **Low External Barriers:** If the union maintains low barriers on trade with the rest of the world, it reduces the risk of harmful trade diversion.

- Customs unions' welfare enhancement depends on various conditions

3. **Large Size and Number of Members:** A larger customs union with more countries increases the chance that low-cost producers are included, which will boost trade efficiency.
4. **Competitive Economies:** If member economies are competitive rather than complementary, there are more opportunities for specialisation and trade creation.
5. **Geographical Proximity:** Closer geographical proximity among members reduces transportation costs, and facilitates trade creation.
6. **Strong Pre-Union Trade Relations:** Strong existing trade and economic relationships among potential members lead to greater welfare gains when the union is formed.

The European Union (EU) has been more successful than the European Free Trade Association (EFTA) because EU member nations were more competitive, geographically closer, and had stronger pre-union trade relations.

Summarised Overview

Economic integration merges separate economies into a unified economic region by selectively reducing or eliminating trade barriers among member countries while maintaining common external tariffs against non-member nations. Various forms of economic integration exist. Preferential Trade Agreements (PTAs) reduce trade barriers among member countries without common external policies. Free Trade Areas (FTAs) eliminate internal trade barriers while each country maintains its own external trade policies. Customs Unions remove internal tariffs and adopt a common external tariff. Common Markets go further by allowing the free movement of goods, services, labour, and capital in addition to a common external tariff. Economic Unions extend to unified fiscal, monetary, and socio-economic policies, often including a common currency, such as BENELUX and the EU.

Trade creation occurs when forming a customs union leads member countries to replace domestic production with lower-cost imports from other members. Likewise, trade diversion happens when a country within a customs union imports goods from a member rather than a more efficient non-member, due to preferential treatment within the union. This leads to a less efficient allocation of resources and reduced welfare.

The Theory of Second Best, introduced by Jacob Viner in 1950, states that if one optimal condition for economic efficiency cannot be met, fulfilling other conditions may not lead to a better outcome or might end up in a 'second best' scenario. Applying this theory to customs unions, removing trade barriers only among member countries does not automatically improve welfare. From this consideration, the theory of customs union can be treated as a theory of the second best.

Assignments

1. Define a Free Trade Agreement (FTA) and explain how it differs from a Customs Union.
2. What are the main differences between a Common Market and Economic Union in terms of economic integration?
3. How does a Trade Creating Customs Union differ from a Trade Diverting Customs Union? Provide examples to illustrate each.
4. Explain the concept of the Theory of Second Best in the context of economic integration. How does it apply to customs unions?
5. Discuss the conditions under which a Customs Union is more likely to increase welfare and create beneficial trade among member countries.

Suggested Reading

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UNIT 4
Effects of Tariffs

Learning Outcomes

After completing this unit, the learner will be able to:

- analyse the concept of export promotion vs import substitution
- identify the effect of tariffs under partial equilibrium
- explain the concept of general equilibrium

Background

Today, we live in a dynamic era where new and innovative goods and services are being introduced from every corner of the world. People are constantly searching for new ways to make life easier and are willing to spend large amounts of money to achieve a better standard of living. However, while human needs are unlimited, resources are scarce, meaning we might not always have the resources to meet these demands. This often leads people to look for goods and services outside their own countries, opening up trade opportunities. But with these opportunities come challenges. Importing goods from other countries can threaten the nation's balance of payments (BOP). When we spend more on imports than we earn from exports, it can create a deficit, weakening our economy. Additionally, domestic industries might struggle to compete with foreign companies that may offer cheaper or more innovative products. To protect our nation's financial security and support our local industries, one effective solution is to impose tariffs. Tariffs are taxes on imported goods that make them more expensive. By doing this, we can encourage people to buy domestically produced goods, helping our own industries to grow and compete. In this unit, we will learn about the effects of tariffs on a nation's economy, including both positive and negative impacts.

Keywords

Export Promotion, Import Substitution, Tariff, Partial Equilibrium, General Equilibrium

Discussion

2.4.1 Export Promotion vs. Import Substitution

- Export Promotion and Import Substitution reduces foreign dependency

Developing nations adopt export promotion and import substitution policies to reduce dependence on foreign imports, create employment opportunities, and foster technological advancement. These strategies help to achieve economic growth in easy ways. Export promotion is a strategy where a nation produces goods for export markets, aiming to generate foreign exchange earnings, access larger markets, and promote technological advancement. However, it may also create negative impacts on the economy, such as vulnerability to global market fluctuations and reliance on external demand. Import substitution involves producing goods domestically that were previously imported. Adopting this strategy helps in reducing dependency on foreign imports, promoting domestic industries, and achieve self-sufficiency in key goods. However, disadvantages can include inefficiencies, lack of competitiveness, and limited market diversification.

2.4.1.1 Development through Import Substitution

- Developing nation adopts industrialisation to achieve economic growth

During the 1950s, 1960s, and 1970s, developing nations focused on industrialisation rather than the production of primary commodities like food, raw materials, and minerals. They preferred industrialisation because it ensured faster technological advancement, created more employment opportunities, provided greater backward and forward linkages in production, offered more stable export prices and earnings, and resulted in better terms of trade compared to primary commodities. Additionally, it served as a solution to balance-of-payments issues. For the industrialisation purpose developing nations had to choose between two strategies: import substitution industrialisation (ISI) and export-oriented industrialisation.

Import Substitution is a strategy aimed at promoting domestically produced goods and reducing dependency on foreign imports by stimulating domestic industries. Let us discuss some advantages of import substitution.

- When a nation starts producing import substitute goods, it leverages an already established market demand. This reduces the cost and risk associated with setting up new industries because there is already evidence of consumer

demand for the products through imports. For example, suppose India imports goods X from the US. After implementing import substitution, they begin producing goods X within the nation. They may not need to find new markets because they already know about the existing consumers.

- Import substitution paved the way for the economic development

- When a nation starts to produce import substitute goods, they often impose tariffs, quotas, and other trade barriers. This protection helps shield domestic industries from external competition, allowing them to grow and develop.
- When a domestic nation promotes import substitution goods, it often imposes tariffs to prevent foreign competition. For example, India imposed high tariffs on imported automobiles to protect its domestic automotive industry and promote local manufacturing. Due to these tariffs, the price of imported cars became more expensive than domestically produced vehicles. In response, foreign automakers established manufacturing plants in India, known as "tariff factories," to assemble vehicles locally and mitigate the impact of high import tariffs. This strategy not only helps to create jobs for local workers but also facilitates technology transfer and skill development in the host country.

Import substitution goods create some negative impacts on the domestic economy Let us discuss them one by one.

- Import substitution raises the cost of production

- Protection from foreign competition through government policy can lead to a lack of incentives among domestic industries. This may cause them to become complacent and inefficient, thereby limiting productivity gains.
- Developing nations often contend with relatively small domestic markets, which present challenges related to economies of scale. As a result, they frequently encounter higher production costs due to limited access to foreign goods.
- Due to import substitution, many developing nations rely more on labour-intensive goods rather than capital-intensive ones. As a result, they often face high levels of protectionism, which can lead to inefficiencies and higher production costs.

2.4.1.2 Development through Export Promotion

Export promotion refers to government policies, strategies,

and initiatives aimed at encouraging and supporting businesses to increase their exports of goods and services to foreign markets. The primary goal of export promotion is to stimulate economic growth, enhance foreign exchange earnings, create jobs, and improve the overall competitiveness of a country's economy on a global scale. The major advantages of the export promotion policies are:

- Export promotion creates a ripple effect in the economy

- As part of export promotion, the government supports producers to achieve economies of scale, enabling them to produce goods at lower costs.
- Export promotion policies create a ripple effect within the nation, enhancing productivity. This is particularly beneficial when outputs from one industry serve as inputs for others, fostering economic linkages and synergies.
- Export promotion facilitates the expansion of manufactured exports without being constrained by domestic demand growth. It opens access to global markets, allowing businesses to capitalise on international demand.

Let us discuss some of the disadvantages of export promotion:

- Developing nations often struggle to compete with developed nations

- Developing nations often struggle to establish competitive export industries due to the presence of established giants in developed countries. These industries benefit from advanced technology, extensive infrastructure, and established global networks, posing difficult barriers for emerging industries in developing nations. For instance, developed countries like Japan, South Korea, and the United States maintain long-standing dominance in the electronics industry. Their firms possess extensive research and development capabilities, enjoy strong brand recognition, and operate highly efficient production processes. Competing with these industry leaders presents scary challenges for electronics sectors emerging in developing nations.
- Developed nations often use protective measures to support their domestic industries that produce simple labour-intensive goods. These measures are intended to shield their local producers from foreign competition, particularly from developing countries. This protection aims to maintain jobs and economic stability in their own countries, but it creates higher costs for consumers and limited market access for producers in developing countries.

2.4.2 Tariff

- Tariff is a tax levied on goods imported

The tariff is the oldest form of trade policy. It refers to a tax levied on goods imported. Many governments have used tariffs as a source of income. For instance, the U.S. government raised a large part of its revenue from tariffs until the introduction of the income tax. They implemented tariffs mainly for two purposes: to generate revenue and to protect domestic sectors from foreign competition. The U.K. government followed a tariff system to protect the agricultural sector from foreign competition, while Germany and the United States imposed tariffs on imported manufactured goods to protect their emerging industrial sectors. In the modern world, the importance of tariffs has declined. Instead, modern governments usually adopt non-tariff barriers such as import quotas and export restraints to protect their domestic industries. Import quotas refer to restrictions on the quantity of imports. Export restraints are usually imposed by exporting countries at the request of importing countries.

2.4.2.1 Effects of Tariff under Partial Equilibrium

- Partial equilibrium associated with the single sector equilibrium

Partial equilibrium analysis focuses on a single market or sector equilibrium, rather than the entire economy. For instance, we might analyse how a tariff on imported cars affects the car market, without considering its impact on other markets or overall economic conditions. Here, we consider the effects of tariffs under a partial equilibrium. We know that a tariff is a tax on imported goods. When a small country imposes a tariff on imported goods, it does not influence the international price as well as the rest of the economy. In this context, the partial equilibrium analysis is suitable to explain the effects of tariffs in a small country. The effects of tariffs under partial equilibrium can be elaborated on the basis of certain assumptions. They are as follows:

1. The demand and supply curves of the given commodity are concerned with a home country that imposes import tariffs.
2. The given demand and supply curve remain constant
3. There is no change in consumers' taste and preference
4. The price of other commodities and the money income of the consumers remain constant.
5. Here we assume the absence of technological improvements.

6. Due to the changes in the cost conditions creates externalities.
7. The home country is not imposing a tariff on the imported material because it is required for producing the given commodity.
8. Perfect substitutability between the imported product and home-produced product
9. Assumes that the transportation cost is the absence
10. Perfectly elastic supply curve of commodity
11. Domestic production of commodities takes place increasing the cost.

C.P. Kindelberger has identified eight effects of tariffs under the partial equilibrium approach. They are:

- Protective or production effect
- Consumption effect
- Revenue effect
- Redistribution effect
- Terms of trade effect
- Competitive effect
- Income effect
- Balance of payments effect. These effects can be explained with the help of the following figures

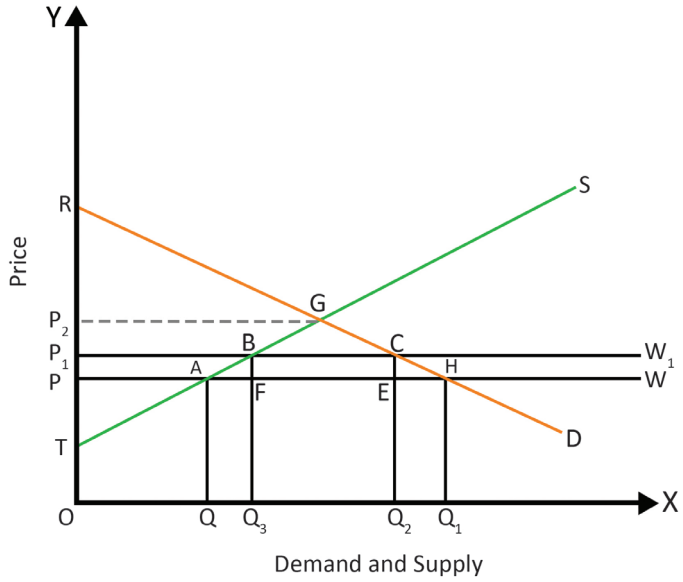

Fig 2.4.1 Tariffs Effect under Partial Equilibrium Analysis

- World supply curve is perfectly elastic

In the figure, the X-axis denotes the demand and supply of commodities, while the Y-axis shows the price of the commodities. The D and S curves represent the domestic demand and supply of the given commodity, respectively. The domestic supply curve is upward-sloping due to increasing production costs. As usual, the domestic demand curve is downward sloping. The horizontal line PW represents the world supply curve, which is perfectly elastic reflecting constant prices for foreign goods. OP is the pre-tariff price. Next, we will consider the effect of a tariff under partial equilibrium analysis with the help of the above figure.

i. Protective or Production Effect

- If tariffs imposed on imported goods would protect domestic production

When a nation imposes a tariff to protect its home industry from foreign competition, this is referred to as the protective or production effect of a tariff. This type of tariff is intended to restrict the flow of foreign products, thereby helping domestic producers increase their production of imported substitute goods. According to Ellsworth, this protective or production effect of a tariff is also known as the import substitution effect. In Figure 2.4.1, at the price OP, the domestic demand for goods is OQ_1, and the domestic supply of goods is OQ. The excess demand, QQ_1, is met by the nation through imports of goods. If a nation imposes a tariff of PP_1 per unit on imported goods, the price rises from OP to OP_1. As a result, the supply of foreign goods increases from PW to P_1W_1. Due to the higher price, the demand falls from OQ_1 to OQ_2, whereas domestic supply increases from OQ to OQ_3. Consequently, the domestic production of imported substitute goods rises to OQ_3. This leads to a reduction in the demand for foreign products from OQ_1 to Q_2Q_3. This effect is known as the protective, production, or import substitution effect. In the case of a per unit tariff of PP_2 causing the price to rise to OP_2, domestic production expands, and it is able to meet domestic demand. In this situation, imports are reduced to nearly zero.

ii. Consumption Effect

If a nation imposes a tariff on imported goods, the result will be a rise in the price of imported commodities. Due to the higher price, consumers reduce their consumption, which also reduces their net satisfaction. According to Figure 2.4.1, OP is the price before the tariff, where the total consumption is OQ_1. This includes OQ as home consumption and QQ_1 as the consumption of foreign-produced goods. When the price rises

- Tariff raises the price of imported goods

from OP to OP_1 due to the tariff, consumption is reduced from OQ_1 to OQ_2. The consumption of home-produced goods is OQ_3, and the consumption of foreign-produced goods is Q_2Q_3. Thus, $OQ_1 - OQ_2 = Q_1Q_2$ represents the loss of consumption, and the area $PHCP_1$ shows the net loss in consumer satisfaction. This is the consumption effect after imposing the tariff. Kindelberger called the combined effect of protection and consumption effects the trade effect. Subsequently, the nation imposing the tariff will reduce the volume of international trade from QQ_1 to Q_2Q_3.

iii. Revenue Effect

- Government imposes tariffs to generate revenue

When the government imposes tariffs on imported goods to generate revenue, it is referred to as the revenue effect of tariffs. The revenue can be calculated by multiplying the tariff per unit by the quantity of imports. According to Figure 2.4.1, at the original price OP (the price before the tariff), the government earns no revenue. When the government imposes a tariff of BF per unit on the imported quantity EF (Q_3Q_2). Consequently, the government earns tariff revenue represented by the area BCEF. This is calculated as the product of the tariff (PP_1) and the quantity of imports (Q_3Q_2), which equals BF × EF = BCEF. This is the revenue effect of the tariff.

iv. Redistribution Effect

- Tariffs decrease consumer surplus while increasing producer surplus

The redistribution effect explains the impact of tariffs on the economy. When the government imposes tariffs on imported goods, it reduces consumer satisfaction but provides a larger producer surplus or economic rent to producers and generates revenue for the government. In Figure 2.4.1, when the government imposes a tariff, the price of the commodity rises, leading to a decrease in consumer surplus, which is represented by the area $RHP - RCP_1 = PHCP_1$. However, producers earn a surplus due to the tariff, which is shown by the area $TBP_1 - TAP = PABP_1$. Due to the tariff, the government gains revenue, represented by the area BCEF. However, the net loss after the implementation of the tariff is calculated as $PHCP_1 - (PABP_1 + BCEF) = \delta BAF + \delta$ CEH. This net loss due to the tariff is referred to as deadweight loss, as described by Kindleberger. These deadweight losses illustrate the cost of tariffs. While tariffs can help redistribute income within a country, consumers suffer losses while producer's benefit. This redistribution emphasizes that tariffs can be a double-edged

sword, offering protection and profits to domestic producers at the expense of consumer welfare and overall economic efficiency.

v. Balance of Payments Effect

- Tariffs remove the bop deficit

By imposing a tariff on imported goods, the prices of these goods increase. This higher price causes the demand for imported goods to decrease and the demand for domestic products to rise. Consequently, the increased demand for domestic goods leads to higher domestic production, reducing the need for imports. This results in a reduction in the nation's imports and potentially an increase in exports as domestic goods become more competitive internationally. As a result, the trade balance improves and helps address the Balance of Payments (BOP) deficit.

vi. Terms of Trade Effect

- Effects of the tariff implementation depend on the elasticity of the supply of goods

The terms of trade effect in the economy can be understood from two perspectives: the traditional theory and the modern theory.

Traditional Theory: According to this theory, a nation imposing a tariff improves its terms of trade. This occurs because the tariff raises the price of imported goods, potentially leading to an improvement in the relative price of exports versus imports.

Modern Theory: The modern theory states that the effect of tariffs depends on the elasticities of demand and supply of products from the two trading countries. When foreign suppliers sell a product at a constant price, represented by a perfectly elastic supply curve, the imposition of a tariff does not improve the terms of trade for the nation imposing it. However, if the supply of goods is not perfectly elastic, the results of tariff implementation will depend on the specific elasticities of demand and supply in the two trading countries. Let us illustrate the terms of trade effect with the help of a diagram.

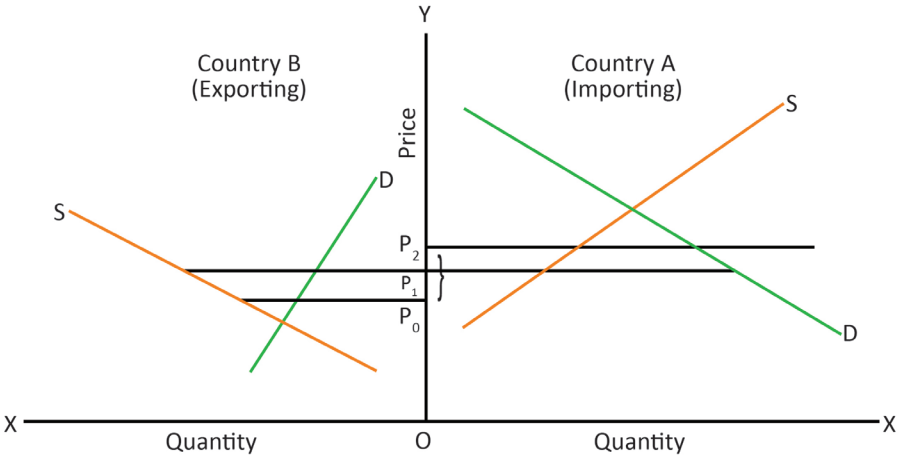

Fig 2.4.2 Terms of Trade Effect

- Tariff-imposing country gets favourable terms of trade

Here we consider two countries: Country A and Country B. Country A is the importing nation and Country B is the exporting nation. Country A imports a commodity from Country B. Country B has less elastic domestic demand and supply curves, meaning changes in price will lead to smaller changes in the quantity demanded or supplied within Country B. The initial price at which the commodity is traded is P_0. Country B imposes a tariff of P_0P_2 per unit on the exported commodity to reduce imports. This tariff causes a reduction in the import quantity from Country B to Country A. The tariff causes the price received by exporters in Country B to drop from P_0 to P_1. The price in Country A increases from P_0 to P_2. Here the tariff burden borne by exporters in Country B is P_0P_1 and importers in Country A is P_1P_2. If P_1P_2 (the part of the tariff borne by importers in Country A) is less than P_0P_1 (the part of the tariff borne by exporters in Country B), then the rise in the price of the commodity in Country A is less than the fall in the export price of the commodity in Country B. In such a situation the terms of trade become favorable tariff imposing nation, country A.

vii. Competitive Effect

- Tariff creates competitiveness within the domestic economy

If a nation imposes a tariff, it can prevent foreign competition and protect its infant industries. When tariffs are applied, the price of foreign products increases, and the results will decrease the demand for that product. This provides an opportunity for domestic industries to grow and strengthen. This can foster a competitive spirit within the nation. Once these infant industries mature, the tariffs can be removed. The positive impact of tariffs in boosting the competitiveness

of domestic industries is known as the competitive effect. Economist Charles Kindleberger argues that by imposing tariffs on imported goods a domestic economy can become lazy, sluggish, and inefficient. In his view, tariffs tend to create an anti-competitive effect rather than a competitive one.

viii. Income Effect

- Tariffs raise the productive capacity of a nation

When a nation imposes a tariff on foreign products, it reduces the quantity of imported goods. Consequently, the nation can either save money or spend it on goods produced domestically. If there is surplus productive capacity within the home country, it can switch from foreign goods to domestically produced goods which leads to increased production, employment, and income. The savings from reduced imports lead to greater capital accumulation, which can further enhance the nation's productive capacity and overall income. This process is known as the income effect of tariffs. The income effect can be illustrated in the following figure.

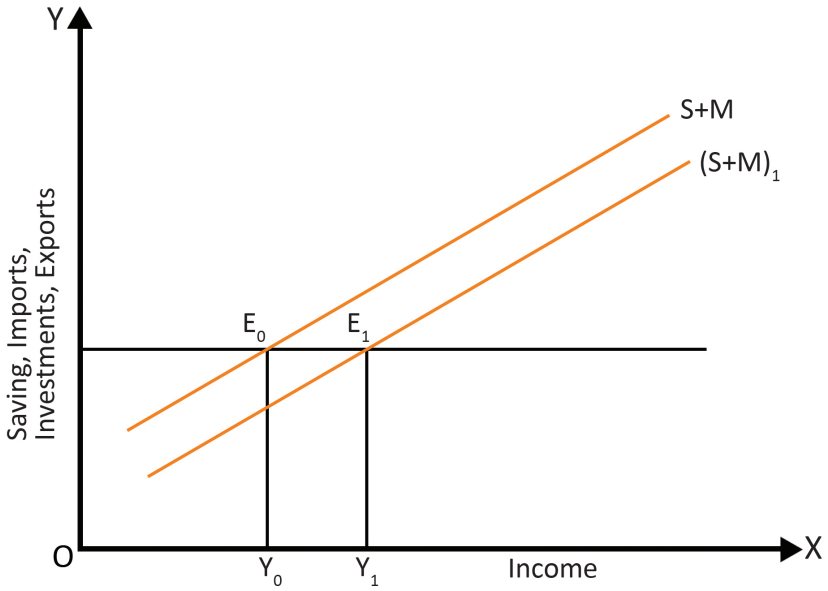

Fig 2.4.3 Income Effect due to Tariff

In the figure, the X-axis shows the income, and the Y-axis shows savings (S) and imports (M). Investment (I) and export (X) are assumed to be autonomous, so the represented line is horizontal. Savings and imports (S + M) are directly related to income, making the savings and import curve upward-sloping. When a nation is in equilibrium, investment and

- Tariff raises the income of a nation

export (I + X) equal savings and import (S + M). Initially, at point E_0, equilibrium is at income level Y0, where the (I + X) line intersects with the (S + M) curve. After a nation imposes a tariff, imports are reduced, causing the (S + M) curve to shift downwards, $(S + M)_1$. As a result, income rises from Y_0 to Y_1, and the economy attains a new equilibrium point. This is the income effect.

2.4.2.2. Effects of Tariff under General Equilibrium

- Tariff affects the entire economy

When a nation imposes a tariff, its impact extends beyond a single sector to affect the entire economy. As Kindleberger remarked, a tariff can alter trade, prices, output, and consumption; reallocate resources; change factor proportions; redistribute income; affect employment; and alter the balance of payments. To analyse this, we use general equilibrium, which examines how supply and demand interact across the whole market to achieve equilibrium. Here, we consider the impact of tariffs on both small and large countries.

General Equilibrium Analysis of Tariff in a Small Country

- With Tariff, consumers to pay high price and producers enjoy welfare

When a small country imposes a tariff, it affects the welfare of the nation. How? A nation imposing a tariff that raises the domestic price of the imported commodity. However, the international price of the commodity remains unchanged. This difference between the domestic price and the international price affects the welfare of domestic consumers and producers in different ways. Due to the tariff, the domestic price of imported goods rises, causing consumers to pay a higher price for these commodities, thereby reducing their welfare. However, producers can sell the commodity at a higher price, allowing them to enjoy increased welfare. the general equilibrium analysis of tariffs in a small country can be explained with the help of the following assumptions:

1. Trade relations are between two countries only.
2. The domestic/home country is small.
3. It is assumed that there are only two commodities traded.
4. The international price is constant.
5. Revenue is earned by the government through tariffs, and it is spent on consumers in the form of subsidies.

Let us explain the production and consumption effects due to tariffs in a small country under general equilibrium, based on the above assumptions, with the help of a figure.

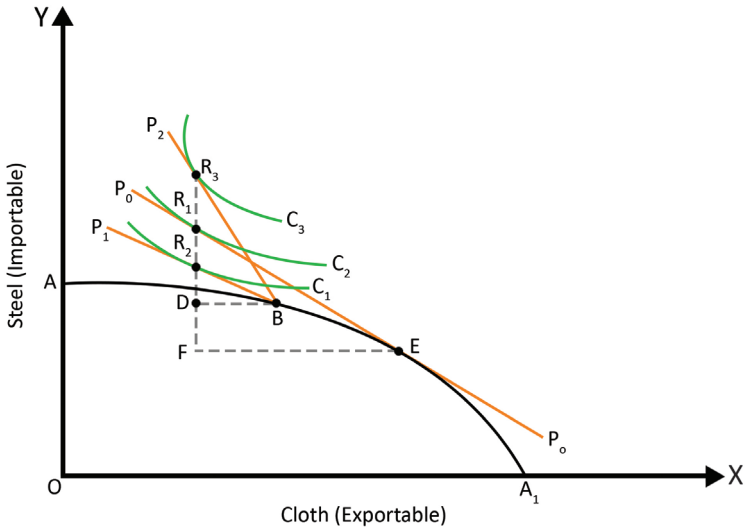

Fig 2.4.4 Effect of Tariff in a Small Country

- Tariffs decrease consumers' equilibrium and increase producers' equilibrium

Here, we consider only two countries: Country A and Country B. Country A is a small nation, and it imposes tariffs on imported goods from Country B. These two countries exchange only two goods: cloth and steel. Among these, cloth is an exportable item, and steel is an importable item. Country A imposes a tariff on steel, causing the import price of steel to rise for domestic producers and consumers by the full amount of the tariff. According to figure 2.4.4, the X-axis represents the export of cloth, and the Y-axis represents the import of steel. The AA_1 curve shows the production possibility curve of the two commodities. Before the tariff, the nation's consumption and production equilibrium are at point B. The P_0P_0 line represents the international exchange ratio. On this line, point E represents the production equilibrium, and the consumption equilibrium at point R_1 lies on the community indifference curve. In this situation, country A exports the quantity FE of cloth and imports the quantity R_1F of steel. After the tariff is imposed, assuming that the international price is constant, the exchange ratio line becomes P_1B, which is parallel to the original exchange ratio line P_0P_0. After the tariff, Country A began to domestically produce steel, which is an imported item for the nation. Then the nation's production equilibrium shifts to point B. This represents the protective and productive effect of the nation due to tariffs. Then, in the case of consumers, their consumer equilibrium shifts from R_1 to R_2, where the P_1B exchange ratio line becomes tangent to a lower community

indifference curve C_1. This shows a reduction in the welfare of the consumers in the tariff-imposing country. This is signified by the R_1R_2 curve, indicating the consumption effect of the tariff. The quantity of imported steel reduces from R_2D, and the country's export of cloth becomes BD.

General Equilibrium Analysis of Tariff in a Large Country

We know that when a country imposes a tariff, it influences production, consumption, and the terms of trade. Here we consider a large country. When a large country imposes a tariff on imports, it reduces its demand for the imported goods. This decrease in demand can lead to a reduction in the world price of the importable goods. The price of the imported goods falls relative to the price of the country's exports which changes the international price ratio. Now the country can obtain more imports per unit of exports and this result will lead to an improvement in its terms of trade. An improvement means the country can buy more imports for the same amount of exports. The effects of a tariff imposed by a large country can be explained according to Figure 2.4.4. In our example, the nation imports steel and exports cloth. The initial exchange ratio line is P_0P_0 or P_1B. When the nation imposes a tariff, the price of the imported commodity falls relative to the price of the exportable commodity. Consequently, the exchange ratio line shifts to P_2B which is steeper than the exchange ratio line P_0P_0 or P_1B. Here, the production equilibrium occurs at point B, and the consumption equilibrium takes place at point R_3 where the P_2B line becomes tangent to the higher community indifference curve C_3. The large country A, the tariff-imposing country, imports R_3D quantity of steel and exports BD quantity of cloth. The higher ratio of imports to exports indicates that tariff-imposing country A achieves favourable terms of trade.

- Tariffs achieve favourable terms of trade

Summarised Overview

Export promotion and import substitution strategies are crucial for the economic development of developing nations. Export promotion facilitates access to larger markets, leading to economies of scale and increased productivity. It encourages technological advancement and higher-quality production while stimulating economic growth through foreign exchange earnings. However, developing nations often face stiff competition from established industries in developed countries, and reliance on external markets makes them vulnerable to global market fluctuations. On the other hand, import substitution reduces dependence on foreign imports, promoting domestic industries and self-sufficiency. It helps protect emerging industries through tariffs and quotas, fostering local job creation and skill development. Additionally, it leverages existing market demand, reducing risks associated with new industry establishment. However, protection from foreign competition can lead to inefficiency and a lack of innovation within domestic industries. Smaller domestic markets may struggle with economies of scale, resulting in higher production costs. Furthermore, high levels of protectionism can increase production costs and lead to market inefficiencies. To protect the domestic economy and reduce trade deficits, nations often adopt tariffs. Under partial equilibrium, tariffs create several effects. The protective or production effect encourages domestic production by making imported goods more expensive, thus reducing foreign competition. The consumption effect increases prices for consumers, reducing consumption and net satisfaction. The revenue effect generates government revenue from tariffs on imported goods. The redistribution effect redistributes income from consumers to producers and the government but often leads to a deadweight loss. The balance of payments effect improves the trade balance by reducing imports and potentially increasing exports. The terms of trade effect can improve a nation's terms of trade if the tariff causes foreign suppliers to lower their prices. However, in general equilibrium, small countries experience raised domestic prices without affecting international prices, leading to reduced consumer welfare and increased producer welfare, while large countries can improve their terms of trade by reducing world prices for imported goods, allowing them to obtain more imports per unit of export.

Assignments

1. Explain how export promotion facilitates access to larger markets. What are the potential benefits of economies of scale and increased productivity for developing nations?
2. Compare and contrast the effects of tariffs under partial equilibrium and general equilibrium analysis. How do these analyses differ when considering small and large countries?
3. Examine the adverse effects of tariffs on small countries. What are the main challenges these countries face when they impose tariffs on imported goods?

4. Discuss how import substitution reduces dependence on foreign imports and promotes domestic industries and self-sufficiency.
5. Analyse the protective or production effect of tariffs and how they encourage domestic production by making imported goods more expensive.

Suggested Reading

1. Soderston, B and Reed G.(1994) - *International Economics*, 3rd Edition, MacMillan Press Ltd. London
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MASTER OF ARTS ECONOMICS

Trade Policies II

Block 3

UNIT 1
Non-Tariff Barriers

Learning Outcomes

After completing this unit, the learner will be able to:

- discuss the meaning of non-tariff barriers especially quotas
- examine the partial equilibrium effects of quotas
- compare quotas with import tariffs

Background

Free trade and protectionism are the two opposing approaches to international trade. Under a free trade policy, there are no trade barriers for international trade. In a protective trade policy, all nations impose some trade restrictions on the free flow of international trade. These types of policies help to protect the domestic industries from unfair foreign competition. The most important type of trade restriction has historically been the tariff, which is a tax or duty levied on traded commodities as they cross national boundaries. Although tariffs have historically held significant importance as a form of trade restriction, numerous other barriers to trade exist.

The motives of modern governments in restricting imports are varied. They include a desire to 'protect' the domestic producers of the import-competing goods, perhaps for reasons of food or military security, or in response to political pressure. There is also a wish to reduce consumption of the good in order to reduce imports for balance of payments reasons, as well as need to raise revenue.

Keywords

Non-Tariff, Quota, Import Licence, Balance of Payments, Partial Equilibrium, Lobbying, Bribing

Discussion

3.1.1 Non-Tariff Barriers

- Modern governments protect industries through non-tariff barriers

A tariff, the simplest trade policy, imposes a tax on imported goods. Specific tariffs entail a fixed charge per unit of imported goods, while ad valorem tariffs are levied as a percentage of the imported goods' value. In either case, tariffs effectively increase the cost of shipping goods into a country. Historically, tariffs have been a primary source of government revenue, although their significance has diminished in modern times. Governments now often favour protecting domestic industries through various non-tariff barriers like import quotas and export restraints.

- NTBs favour domestic goods and distort trade

Non-tariff barriers (NTBs) are obstacles to international trade other than tariffs. They are administrative measures that are imposed by a domestic government to discriminate against foreign goods and in favour of domestic goods. They create distortions in international trade. Nontariff barriers may be used independently or alongside conventional tariff barriers. Tariffs, the most prevalent trade barrier, inflate the costs of imported products and services. Decisions regarding the imposition of non-tariff barriers are influenced by a country's political alliances and the overall availability of goods and services.

- Among NTBs, Quotas are the most important trade restriction

Among non-tariff barriers, quotas stand as the most significant. Other trade barriers include voluntary export restraints, technical, administrative and regulatory measures. Restrictions on markets can operate on either the price side or on the quantity side of the market. Tariffs and taxes affect the price side, termed price instruments, by creating a disparity between domestic and world market prices. Quotas, as restrictions on the quantity side, termed quantity instruments, regulate the volume of goods in the market.

3.1.2 Import Quotas

An import quota stands as the foremost non-tariff trade barrier. Let us understand the idea of import quota with the example of foreign cheese imports into the United States. Imagine the U.S. government has placed a limit, or quota, on how much foreign cheese can enter the country. Only specific trading companies are authorised to import cheese, and each

- Import quota - government tool to regulate goods entering the country

of these companies is assigned a maximum amount they can bring in annually. This allocation is based on their past cheese importation history. Now, let us extend this concept to other significant cases, like sugar and clothing. In these instances, rather than granting import rights to individual companies, the U.S. government may directly allocate the privilege to sell these products in the United States to the governments of exporting countries. This means that the exporting countries themselves are responsible for managing and distributing the quotas among their own domestic producers or exporters. In essence, import quotas serve as a tool for governments to control the quantity of certain goods entering their country, ensuring they can manage domestic production, protect local industries, and maintain trade balances.

- Quota is a quantitative restriction

An import quota, as mentioned above, is a direct quantitative restriction on the amount of a commodity allowed to be imported. It serves as a protectionist measure to limit the supply of goods or services from abroad. Usually, quotas set an upper bound on the amount that can be bought and sold in a market, but there are examples of minimum quotas as well. In the case of international trade, an import quota typically restricts the quantity (number of units) of a good that can be imported into the country during a specified period of time, usually a year. Enforcement of the restriction typically involves granting licenses to specific individuals or firms. Import quotas aim to restrict and regulate imports to protect domestic industries from foreign competition and address imbalances in the balance of payments.

3.1.2.1 Effects of an Import Quota

- Import quotas: safeguard industries, protect agriculture and address balance-of-payments concerns

Import quotas serve various purposes, including safeguarding domestic industries, protecting agriculture, and addressing balance-of-payments concerns. They were prevalent in Western Europe immediately after World War II, and have since been utilised globally by industrialised nations to protect their agriculture. Developing nations employ import quotas to promote the import substitution of manufactured products and to address balance-of-payments issues. The partial equilibrium effects of an import quota can be illustrated in Figure 3.1.1

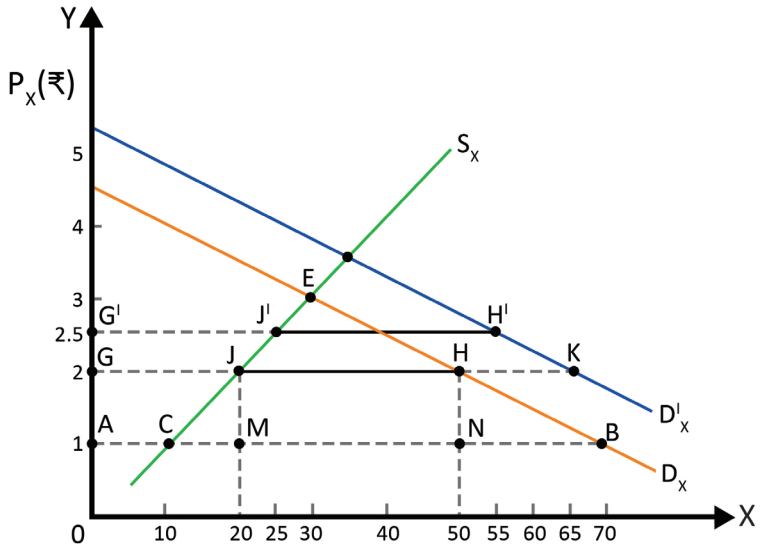

Fig 3.1.1 Partial Equilibrium Effects of an Import Quota

In Figure 3.1.1, D_X is the demand curve indicating how much people want to buy and S_X represents the supply curve, showing how much is the commodity X available for sale in the nation. With free trade at the world price of P_X = ₹1, the nation buys 70X (AB), of the product, of which 10X (AC) is produced domestically and the rest 60X (CB) is imported. Now, if the government sets a limit, or quota, of 30X (JH) the price of the product X shoots up to P_X = ₹2. This happens because only when the price hits ₹2, people buy 50X (GH). This equals the 20X (GJ) produced domestically plus the 30X (JH) allowed by the import quota. So, with the import quota of 30X (JH), people buy less, reducing consumption by 20X (BN) but local production increases by 10X (CM). It is like when the government puts a 100 percent tax on imports. If the government also sells import licenses to the highest bidder, it can make ₹30 in revenue (which is ₹1 for each of the 30X allowed by the quota), given by area JHNM. So, this quota of 30X works just like a 100 percent import tax.

- Demand shift influences price and production; quota, tariff responses are different

Imagine if the demand curve, D_X, shifted upwards to D'_X. With the existing import quota of 30X (J'H'), the price of product X would increase to ₹2.50, and domestic production would rise to 25X (G'J'). Domestic consumption would also increase, from 50X to 55X (G'H'). Now, if instead, there was a 100 percent import tariff with the shift from D_X to D'_X, the price of X would stay the same at ₹2, and so would domestic production at 20X (GJ). However, domestic consumption

would rise to 65X (GK), and imports would increase to 45X (JK).

We can analyse the effects in different categories. Firstly, the quota's impact is evident in raising the domestic price, as it limits supply to the domestic market. In many aspects, the welfare effects of a quota are identical to those of a tariff. In the figure, the initial free trade price was ₹1. When the government sets an import quota of 30X (JH), the price increased to ₹2. This is price effect of quota. An import quota has a protective effect by reducing the quantity of an importable commodity and protecting the domestic producers from foreign competition. When quota is imposed, the domestic production of the commodity increases from 10X to 20X (CM). This illustrates the protective effect. Moreover, when an import quota is enforced, it tends to raise the domestic price of the commodity, leading to reduced domestic consumption. Under free trade, the total domestic consumption of the commodity is 70X. However, with the quota fixed at 30X (JH), total domestic consumption falls to 50X. This signifies a reduction in domestic consumption by 20X (BN), known as the consumption effect of the import quota.

- Price effect, protective effect and consumption effect are the different effects of import quota

If the government auctions the import licenses at the price 1 x 30 quantity allowed of the commodity, the revenue effect of the import quota equals to the area JHNM, which is equivalent to the import tariff. Furthermore, the fixation of an import quota leads to the redistribution effect. This occurs as the price of the commodity rises, resulting in higher profits for domestic producers while reducing consumers' surplus. In fact, the redistribution effect involves the transfer of consumers' surplus to producers due to the price increase resulting from the import quota. This is depicted in Fig. 3.1.1 as the quadrilateral AGJC. Moreover, the balance of payments effect of an import quota favours the country imposing the quota, leading to an improvement in the balance of trade.

- Other effects of quota are revenue effect, redistributive effect and balance of payments effect

3.1.3 Difference between Import Quota and Import Tariff

When the demand curve shifts from D_X to D'_X in Figure 3.1.1 it highlights a key difference between an import quota and an equivalent (implicit) import tariff. That is, with a certain import quota, rising demand causes a higher domestic price and more domestic production compared to an equivalent import tariff. On the other hand, with a given import tariff, an increase in

- Import quota affects price and production; tariff impacts consumption and imports

demand will leave the domestic price and domestic production unchanged but leads to higher consumption and imports compared to an equivalent import quota. In simple terms, when demand goes up, an import quota affects the domestic price and production, while a tariff impacts consumption and imports. An import quota completely replaces the market mechanism, unlike a tariff, which just modifies it.

- In import quotas, license allocation may lead to favouritism and corruption

A second key difference between an import quota and an import tariff is how they handle the distribution of import licenses. With a quota, these licenses need to be allocated. If the government does not conduct fair auctions, the fortunate firms obtaining them can earn monopoly profits. In such situations, the government has to determine how to distribute the licenses among possible importers of the product. This could lead to favouritism rather than decisions based on overall benefit. These decisions might not change even if better options come up later. Furthermore, since import licenses yield monopoly profits, potential importers might try really hard to devote a great deal of effort to lobbying and even bribing government officials to secure them (rent-seeking activities). So, import quotas not only change how the market works but can also cause a lot of problems.

- Tariffs directly affect prices, while quotas restrict import quantity

An import quota provides certainty by limiting imports to a specified level, whereas the trade effect of an import tariff may be less predictable. This unpredictability arises because the exact shape or elasticity of domestic demand (D_X) and supply (S_X) is often unknown, making it difficult to determine the precise tariff needed to achieve a desired reduction in imports.

- Import quotas and tariffs improve balance of payments differently

Fourthly, import quotas and tariffs are often employed to enhance a country's balance of payments. However, import quotas cannot just improve the balance of payments to the extent of import reduction. Quotas rigidify imports in both directions by establishing a significant disparity between domestic and foreign prices of imported goods. Conversely, tariffs, unless excessively high, do not hinder the flexibility of the balance of payments mechanism by limiting import and export volumes.

Finally, an import quota ensures a definite limit on imports, unlike an import tariff, which may have uncertain trade effects. The reason for this is that the shape or elasticity of D_X and S_X is often not known, making it difficult to estimate

- Quotas set fixed limits; tariffs may have uncertain effects

the import tariff required to restrict imports to a desired level. Furthermore, Foreign exporters might offset the tariff by enhancing efficiency or accepting reduced profits. Hence, the decrease in imports may be lower than expected. Unlike tariffs, exporters cannot adjust imports with quotas, as limits are fixed. This is why domestic producers favour quotas, which are less noticeable. However, as import quotas are more restrictive than equivalent import tariffs, society should generally resist these efforts.

Summarised Overview

The government imposes tariff barriers in the form of taxes or duties on imports. Non-Tariff Barriers (NTBs) refer to various measures other than tariffs that countries use to restrict trade. These measures can include quotas, licensing requirements, technical regulations, sanitary standards, subsidies, customs procedures, and other administrative procedures. Import quotas, which are limits set by governments on the amount of foreign goods that can be brought into the country, play a crucial role in trade policy. These quotas influence the flow of products across borders, affecting international trade in industries ranging from the global rice trade to the automotive sector.

By imposing quotas, there are various effects such as price effect, protective or production effect, consumption effect, revenue effect, redistributive effect, and balance of payments effect. When comparing import tariffs and import quotas, there are several similarities and differences. Quotas focus on limiting the quantities (or sometimes the cumulative value) of a particular good that a country imports or exports for a specific period, while tariffs impose specific fees on those goods.

Assignments

1. Define tariff and non-tariff barriers in international trade with suitable examples.
2. What is an import quota? How is it mostly used today?
3. Compare import quota and tariff. How do they differ?
4. Explain the partial equilibrium effects of an import quota. How are they different from the effects of an equivalent import tariff?
5. Prepare a case study on the economic effects of import quotas.

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UNIT 2
New Protectionism

Learning Outcomes

After completing this unit, the learner will be able to:

- identify the types of non-tariff barriers other than quota
- explain the effects of non-tariff barriers
- describe how voluntary export restraints and subsidies affect trade patterns, welfare, and income distribution

Background

Although tariffs have historically been the most significant form of trade restriction, there are many other types of trade barriers, such as import quotas, voluntary export restraints, and antidumping actions. As tariffs were negotiated down during the post-war period, the importance of nontariff trade barriers increased significantly. This section examines trade barriers other than import tariffs and quotas.

Protectionism refers to government policies that restrict international trade to support domestic industries. These policies aim to boost economic activity within a domestic economy but can also address safety or quality concerns. A new form of protectionism has emerged that is often strategic, offensive, and value-based, compared to more traditional forms like punitive tariffs or antidumping duties. Over the past few decades, these Nontariff Trade Barriers (NTBs), or new protectionism, have become more significant than tariffs in obstructing international trade and pose a major threat to the world trading system.

Keywords

New Protectionism, Exchange Control, Subsidies, Countervailing Tariff, Voluntary Export Restraints, Technical Standards, Non-Tariff Barriers, Licence

Discussion

3.2.1 New Protectionism

- Protectionism restrict trade and boost domestic industries

Protectionism involves a country's government implementing policies to restrict international trade, with the goal of supporting its own industries. These policies can include tariffs, which are taxes on imported goods, and quotas, which limit the amount of certain goods that can be imported over a specific period. When a country adopts protectionist policies, it aims to encourage investment within its own borders, boosting domestic production. For example, by imposing tariffs on foreign cars, a government can make these imports more expensive. This can lead consumers to buy more domestically-produced cars, thereby supporting local manufacturers. Protectionism can also involve quotas, which restrict how much of a particular product can be imported. For instance, a country might allow only a certain number of foreign-produced steel to enter its market each year. This can help domestic steel producers by reducing competition from abroad.

- Protectionism benefits local industries but may harm long-term growth

While protectionist measures can provide immediate benefits to local industries by reducing foreign competition, they can also have negative long-term effects. Over time, such policies might slow economic growth and lead to higher prices for consumers. Despite these drawbacks, protectionism can be advantageous for new or growing businesses.

- New protectionist policies pose threat to global trade

The New Protectionism questions the traditional belief that free trade benefits everyone and that treaties like NAFTA (North American Free Trade Agreement) and GATT (General Agreement on Tariff and Trade) create global prosperity. Beyond tariffs and quotas, there are other barriers such as exchange control, voluntary export restraints, technical and administrative regulations, international cartels, dumping, and export subsidies. These Non-Tariff Trade Barriers (NTBs) have become significant obstacles to international trade and pose a major threat to the global trading system. These measures are often less visible but can be just as effective in limiting imports and promoting domestic products. These measures have gained importance in international trade and present significant challenges to the global trading system. They contribute to a more complex and restrictive environment for international trade, making it more difficult to achieve free

and open markets. An overview of new protectionist measures is given below.

3.2.1.1 Exchange Control

- Exchange controls are crucial to manage capital flows

Direct controls on balance of payments include trade controls (such as tariffs, quotas, and other quantitative restrictions on the flow of international trade) and financial or exchange controls. Trade controls are less important than exchange controls. Developed nations use exchange controls to manage capital flows. For instance, the United States imposed taxes on capital exports to tackle balance-of-payments deficits, but this affected exports and returns on foreign investments. Meanwhile, countries like West Germany and Switzerland discouraged capital imports by offering lower interest rates on foreign deposits. France and Belgium adjusted exchange rates to balance capital inflows and maintain export competitiveness. Italy maintained a two-tier foreign exchange market despite administrative challenges.

- Developed nations manage currency and capital flows through G10

Developed nations manage capital inflows by selling their currency in the forward market. This action increases the supply of its currency in the future, which can help reduce or stabilise its value. A lower or more stable currency value helps maintain export competitiveness and prevents the economy from overheating due to excessive capital inflows. Similarly, a country facing capital outflows might buy its currency in the forward market. This reduces the future supply of its currency, thereby increasing or stabilising its value. A stronger or stabilised currency can help prevent further capital outflows and maintain economic stability. These transactions are often funded by surplus nations. For instance, the Group of Ten industrial nations agreed to provide loans to members facing capital outflows. The 'Group of Ten' (G10) refers to a group of ten major industrialised nations that initially came together to discuss and coordinate economic and financial policies. The G10 was originally formed in 1962 to address issues related to the International Monetary Fund (IMF). Over time, it evolved to include a broader range of economic discussions). During the 1980s and 1990s, developed nations mostly removed restrictions on international capital flows due to globalisation.

In contrast, most developing nations have exchange controls. They often use multiple exchange rates, with higher rates on luxury imports and lower rates on essential imports. This makes luxury goods more expensive and essential products

- Exporters surrender earnings, authorities allocate foreign exchange

cheaper. Some countries even require exporters to sell their foreign earnings to the government, which then decides how to allocate foreign exchange for imports. However, this system can lead to black markets, price manipulation, and corruption.

- Exchange controls are of two types: Direct and Indirect

Thus, exchange control means that all foreign receipts and payments in the form of foreign currencies are controlled by the government. There are two types of exchange control, viz; Direct and Indirect. Direct methods include government intervention, exchange restrictions, exchange clearing agreements and payment agreements. Indirect agreements involve the quantitative restrictions, export bounties and raising interest rates.

3.2.1.2 Export Subsidies

- Export subsidies support exporters and foreign buyers, despite being illegal

Export subsidies, like direct payments and low-interest loans, support national exporters and foreign buyers. Though illegal internationally, many nations still use them. Major industrial nations provide low-interest loans to foreign buyers through institutions like the U.S. Export-Import Bank. This practice, particularly prevalent in Japan, France, and Germany, is a significant trade concern for the United States. The subsidy's magnitude is determined by the gap between commercial loan interest rates and the subsidised rates.

- Export subsidies aid firms in selling more abroad at lower prices

Export subsidies are government grants to export firms, that reduce the export price per unit. This allows them to sell more abroad at lower prices than domestically. While direct export subsidies are banned by GATT, governments use indirect methods like subsidised credit, input tariff refunds, and priority in resource allocation. They also offer assistance for promotional activities like trade fairs and tax concessions.

- Export subsidies improve importing country's terms of trade but harm domestic industries

When a large country subsidises its exports, the terms of trade for the importing country improve. This lowers the world price of the subsidised product, leading to reduced import costs. However, this affects income distribution negatively. Lower prices harm domestic industries competing with subsidised imports, impacting both labour and capital. While consumers benefit from cheaper goods, domestic producers of similar goods suffer losses. Subsidising exports is seen as unfair trade practice, leading importing countries to impose countervailing duties. Countervailing duties are tariffs levied by a government on imported goods to offset the negative effects of subsidies provided by the exporting country's government.

- Agricultural subsidies spark trade disputes with US

One recent practical case involving export subsidies occurred in the context of the European Union's Common Agricultural Policy (CAP). The EU has been providing subsidies to its agricultural sector for decades, which have been criticised by various trading partners, including the United States. In response, the EU has reformed its subsidy programmes over time. However, disputes over subsidies, particularly in the agricultural sector, continue to arise in international trade negotiations and dispute settlement mechanisms such as the World Trade Organisation (WTO).

- India's export subsidy scheme faced WTO rule conflicts

One recent example involving India's use of export subsidies occurred with its Merchandise Exports from India Scheme (MEIS). Under this scheme, the Indian government provided subsidies to exporters in various sectors to promote exports. However, in 2021, India's MEIS was deemed inconsistent with WTO rules, leading to disputes with trading partners such as the United States and the European Union. As a result, India had to phase out the MEIS and introduce a new scheme compliant with international trade regulations.

- At prices above ₹3, Nation 2 exports commodity X

Export subsidies can be analysed using Figure 3.2.1. In the figure, D_X and S_X represent Nation 2's demand and supply curves for commodity X. Consider the free trade world price as ₹3.5. Nation 2 would produce 35X (A′C′), consume 20X (A′ B′), and export the remaining 15X (B′ C′). That is, at prices above ₹3 (point E in the figure), Nation 2 becomes an exporter rather than an importer of commodity X.

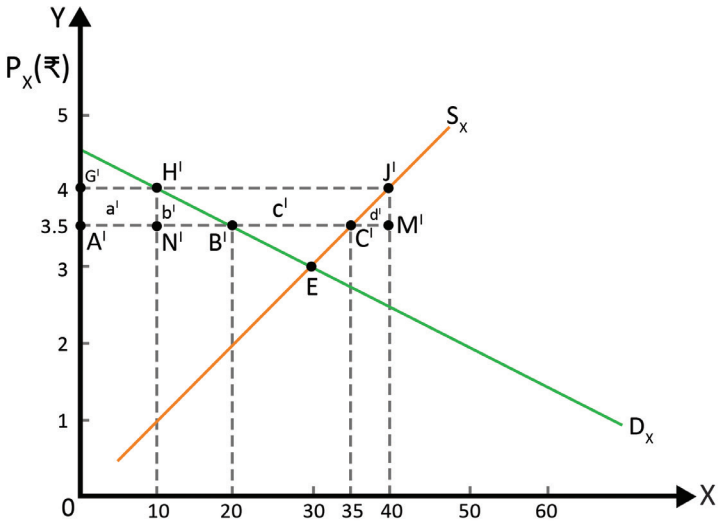

Fig 3.2.1 Partial Equilibrium Effect of an Export Subsidy

If the government of Nation 2 (assumed to be a small country) gives a ₹0.50 subsidy for each unit of commodity X exported, making the price rise to ₹4.00, for domestic producers and consumers of commodity X. At P_X = ₹4, Nation 2 produces 40X (G′J′), consumes 10X (G′H′), and exports 30X (H′J′). This price increase helps producers but hurts consumers in Nation 2. Nation 2 also pays for the subsidy. Domestic consumers lose ₹7.50 (area a′+ b′), domestic producers gain ₹18.75 (area a′+ b′+ c′), and the government subsidy is ₹15 (b′+ c′+ d′). Area d' is not a part of the gain in producer surplus because it represents the rising domestic cost of producing more units of commodity X. Over all, Nation 2 faces the protection cost or deadweight loss of ₹3.75 (the sum of the areas of triangles B′H′N′ = b′ = ₹2.50 and C′J′M′=d′= ₹1.25).

- Subsidy helps producers, costs consumers, incurs deadweight loss

Nation 2 may subsidise exports even if it leads to a net loss because domestic producers might push for it, or the government wants to boost a certain industry, especially if it is a high-tech one. This could benefit foreign consumers who get more goods at a lower price. However, if Nation 2 were larger, it might face a decline in its terms of trade because it needs to lower prices to export more.

- Nation 2 may subsidise exports for domestic industries' interests

3.2.1.3 Countervailing tariff

In order to explain countervailing tariff, let us imagine a situation involving two countries, Country A and Country B. Suppose Country A heavily subsidises the production of rice, making it much cheaper compared to the rice produced in Country B. As a result, Country B's domestic rice industry struggles to compete with the flood of cheap imported rice from Country A. To address this issue, Country B decides to impose a countervailing duty on the subsidised rice imported from Country A. This duty equalises the price of subsidised rice from Country A, providing fair competition for domestic rice producers in Country B. Now, even with the subsidies from Country A, the imported rice is priced competitively with domestically produced rice in Country B. This measure helps to protect Country B's domestic rice industry from being unfairly disadvantaged by the subsidised imports, ensuring a fairer market competition.

- Countervailing duty ensures fair competition for domestic rice producers

From this example, it is clear that, Countervailing Duties (CVDs) are often imposed on imports to offset export subsidies by foreign governments. A countervailing duty is like a price correction imposed by a country importing goods that have

- A countervailing duty raises subsidised export prices in importing countries

been subsidised by the exporting nation. Its purpose is to increase the cost of the subsidised product to match its actual value, preventing it from flooding the market with artificially low prices. This measure aims to restore fair competition by neutralising the advantage gained through subsidies, ensuring that domestic industries are not unfairly disadvantaged.

- Countervailing tariffs protect local industries but can trigger trade wars

There are some pros and cons to imposing countervailing tariffs. The countervailing tariffs will protect local industries in the importing country and help to maintain stable prices. They will also generate revenue for the government, similar to other tariffs. Additionally, they will remove unfair subsidies and promote fair trade among countries. However, consumers who prefer cheaper foreign products will suffer, as the countervailing tariffs will increase the prices of these goods. Such tariffs may also lead to a trade war if the exporting country retaliates by imposing its own tariffs on goods from the importing country. Furthermore, managing these tariffs will increase the administrative burden. Balancing these factors is crucial for making smart trade policies.

3.2.1.4 Voluntary Export Restraints (VERs)

- Voluntary export restraints aimed to control trade

Voluntary export restraints have been in negotiation since the 1950s, primarily involving the United States, the European Union, and other industrial nations. These agreements aim to curtail exports of various goods, including textiles, steel, electronics, automobiles from countries like Japan, and Korea. These industries have faced sharp declines in employment in industrialised nations over the past few decades. Often referred to as 'orderly marketing arrangements', VERs allow nations to maintain the appearance of supporting free trade while imposing restrictions. The Uruguay Round mandated the phasing out of all VERs by the end of 1999 and prohibited the imposition of new ones.

- VERs have similar economic effects equivalent to import quotas

Countries resort to VERs because the General Agreement on Tariffs and Trade (GATT) restricts the use of quotas and tariffs. VERs, however, fall outside the scope of GATT regulations. When successful, VERs have similar economic effects equivalent to import quotas, though administered by the exporting country. This means that the revenue effect or rents are captured by foreign exporters. If the quota in figure 3.1.1 were replaced with a VER of the same quantity, the effects on price, production, consumption and imports would remain unchanged. This illustrates that the effects on consumer and

producer surplus would also be unaffected.

- VERs, similar to import quotas, increasingly limit imports

One of the significant nontariff trade barriers (NTBs) is voluntary export restraints (VERs), also known as voluntary restraint agreements (VRAs). This method, similar to import quotas, is increasingly utilised to limit imports. VERs involve negotiations between the importing country and its foreign suppliers to restrict the quantity of exports entering the domestic market. These negotiations, often involving governments or industry associations with government backing, occur when excessive imports threaten domestic industries. While termed 'voluntary', VERs are typically imposed under the threat of more severe trade barriers. Exporters often accept VERs to avoid stricter restrictions. However, some exporters may agree to limit exports voluntarily if it leads to higher profits due to increased prices. The effect of VER can be illustrated with the following figure.

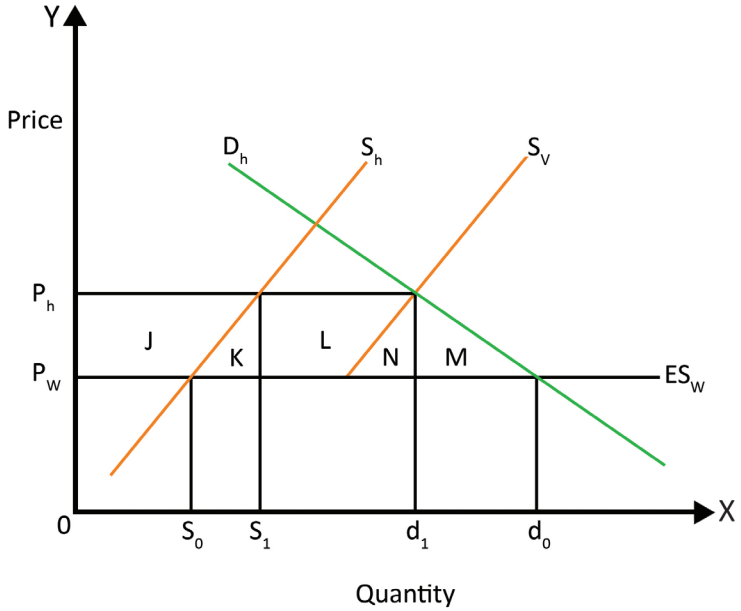

Fig 3.2.2 Effect of VER on Imports

The difference between the quota and the VER lies in who benefits from the restriction on imports. Under a VER, suppliers from the exporting country can sell at domestic prices, securing the rent. In contrast, with a quota, domestic importing companies benefit. In the figure, D_h is the demand curve and S_h is the domestic supply curve. At the world price OP_W, domestic producers supply OS_0, while $S_0 d_0$ is imported. If a VER of the same quantity replaces the import quota $S_1 d_1$, its effects will be equivalent to those of a tariff or an import quota. The key difference lies in the rent or excess profit, which

- VER benefits exporting suppliers

benefits the exporting country's suppliers. With a VER, the domestic demand curve D_h remains constant, but the supply curve S_h shifts to S_V, resulting in an equilibrium at a higher price OP_h. At the price OP_h, the importing country supplies OS_l domestically, while $S_l d_l$ is the VER on its imports. By selling this quantity to the importing country, the suppliers from the exporting country secure rent equivalent to the area K+L+M+N, which represents the national net welfare loss of the importing country. The total loss of consumer surplus to the importing country is represented by the area J+K+L+M+N, similar to a tariff or import quota. Area J is transferred from domestic consumers to producers, while the areas K and M represent the net national loss. Area L+N represents revenue for suppliers of the exporting country from the VER, which is a loss for the importing country's government and thus it is net welfare loss.

- VERs worsen terms of trade, may discriminate, and affect imports

Additionally, VERs cause the importing country's terms of trade to worsen as it pays the higher domestic price of the exporting country's goods instead of the lower world price. Furthermore, VERs can be discriminatory as they favour the least-cost exporters, potentially increasing the importing country's import bill by allowing imports from higher-cost exporters.

3.2.1.5 Technical Standards and Other Regulations

- Some regulations impose additional cost on foreign suppliers

International trade faces various impediments in the form of technical, administrative, and regulatory barriers. These include safety protocols for automotive and electrical products, hygiene standards for food production and packaging, and labelling mandates indicating origin and contents. While many regulations serve genuine purposes, but some (such as the France's ban on scotch advertisements or Britain's restrictions on foreign film broadcasting) appear to be thinly veiled attempts to curb imports. Such regulations impose additional costs on foreign suppliers of goods in order to restrict their imports. For instance, foreign car makers are required to comply with domestic safety and emission standards when exporting cars to the US and Europe. Similarly, health standards necessitate that food importers adhere to specific quality, packaging, and other criteria.

India is currently strengthening its regulatory framework for products by mandating compliance with an expanding array of technical standards for products. While India has previously

- India mandates more technical standards for enhanced safety and protection

had relatively few technical regulations in place, recent policies have broadened the influence of Indian ministries in this regard. Mandatory technical regulations, such as safety standards for gas appliances, play a crucial role in safeguarding individuals from potential harm associated with products and services. These regulations are instrumental in ensuring consumer safety and environmental protection.

- TBTs regulate markets but can hinder trade

However, the imposition of mandatory technical regulations tends to increase costs for companies. The process involves gathering information on regulations, ensuring compliance, conducting product testing and certification, and potentially altering production processes, all of which contribute to increased expenses. Both domestic and foreign companies bear these costs, with foreign entities facing them more frequently in the form of Technical Barriers to Trade (TBT). TBTs are measures that can regulate markets and safeguard consumers, but they can also be used to make imports and exports more difficult to protect domestic markets.

- Unintentional TBTs require careful regulation to support Indian industry

It is important to note that TBTs are not always deliberate; they often result from regulatory disparities and inconsistencies. This makes it crucial for regulators to carefully consider the necessity of introducing or modifying regulations to prevent unplanned TBTs. This will facilitate the ease of conducting business in India, boost the competitiveness of the domestic industry, and strengthen the success of initiatives like 'Make in India', aimed at positioning India as a global hub for design and manufacturing.

- Non-tariff barriers include procurement laws, border taxes, and regulations

Besides these, there are various other non-tariff barriers. Trade restrictions often arise from laws requiring governments to prioritise domestic suppliers, such as the U.S. "Buy American Act" of 1933, which gave domestic suppliers a price advantage. During the Tokyo Round of trade liberalisation, a government procurement code was established to ensure fair competition for foreign suppliers. Border taxes have also gained attention recently. These taxes offer rebates on internal indirect taxes to exporters and impose additional costs on importers. In the U.S., excise and sales taxes are common indirect taxes, while Europe uses the value-added tax (VAT). Because U.S. government revenue mainly comes from direct taxes like income tax, U.S. exporters receive smaller rebates compared to European exporters, putting them at a competitive disadvantage. Additionally, international

commodity agreements and multiple exchange rates also act as trade barriers.

- Complex import licenses and administrative hurdles restrict imports

Many countries use complex and costly import licensing procedures to limit imports. Licenses are often auctioned to the highest bidders or require large deposits with the government. Importers also face administrative challenges, such as filling out lengthy forms, obtaining permits, and clearing customs. These procedures restrict imports similarly to import tariffs.

- Local content rules in developing countries restrict foreign investment

Many developing countries restrict imports of manufactured products like cars, TVs, and computers if they do not meet local content regulations. In India, foreign car manufacturers must use enough locally made spare parts to protect domestic producers. These regulations discourage foreign investment more than trade.

Summarised Overview

To protect their local industries, governments often resort to imposing tariffs and quotas, which have been the traditional tools of protectionism for years. However, recent times have brought about the emergence of new barriers to trade. These include measures like exchange controls, export subsidies, and technical regulations. Exchange controls involve monitoring foreign currency transactions, while export subsidies enable companies to sell their products abroad at lower prices. Countervailing duties are implemented to counteract the effects of unfairly subsidised products. Besides, countries may negotiate Voluntary Export Restraints (VERs), which function similarly to quotas by limiting the amount of exports allowed. Technical Barriers to Trade, such as safety standards enforced by countries like India, are aimed at regulating markets but can also pose obstacles to trade. Moreover, international agreements and fluctuating exchange rates further add complexity to the global trade environment.

Assignments

1. Suppose one country subsidises its exports, and the other country imposes a countervailing tariff that neutralises the subsidy, keeping relative prices in the second country unchanged. How does this affect the terms of trade and the welfare of both countries?
2. What are non-tariff barriers? Briefly explain.
3. Explain the new protectionist policy tools.
4. What is meant by voluntary export restraints? Explain the effect of VERs.
5. What are the technical, administrative, and other nontariff barriers to trade? How do they restrict trade? What is the importance of these nontariff trade barriers relative to tariff barriers?
6. What are export subsidies? Explain the effects of export subsidy on the exporting and importing countries.
7. Discuss the role of trade restrictions in promoting the economic growth of underdeveloped countries.
8. Write notes on Exchange control, VERs, Export Subsidy, Countervailing Duty.

Suggested Reading

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2. Bhagwati, J. N. (1987), *International Trade: Selected Readings*, Second Edition, MIT Press, Cambridge, Massachusetts

Reference

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UNIT 3
Dumping, Cartels, and Infant Industry Argument

Learning Outcomes

After completing this unit, the learner will be able to:

- describe the type of dumping and export subsidies
- discuss the meaning and importance of international cartels
- analyse the rationale behind protecting new and emerging industries through government intervention

Background

Traditionally, tariffs have been the most important method for governments to regulate international trade. These tariffs, essentially taxes on imported goods, have historically been considered the primary means of protecting domestic industries from foreign competition. However, alongside tariffs, there exists numerous other trade barriers known as non-tariff barriers. Non-tariff barriers encompass a wide range of measures aimed at restricting imports or exports beyond simple taxes. Quotas, for instance, are restrictions on the quantity of a particular good that can be imported or exported during a given period. This limitation on trade volume can effectively protect domestic industries by preventing an influx of foreign goods that could weaken local producers. In addition to quotas, there are various other non-tariff barriers utilised by governments to regulate international trade. Some countries rely heavily on non-tariff barriers as part of their economic or political strategies. These barriers include measures like exchange controls, voluntary export restraints, and export subsidies. They are playing an increasingly significant role in shaping global trade patterns, determining who trades what and how much.

However, not all trade barriers are imposed by governments directly. International cartels, for example, can manipulate prices and restrict output to control the market, effectively acting as a barrier to free trade. Similarly, dumping occurs when foreign producers sell goods in another country at prices lower than their domestic market prices or below the

cost of production. Dumping can significantly disrupt domestic markets and harm local industries. Overall, these protective policies and trade barriers aim to protect domestic industries from foreign competition, particularly in the case of infant industries that may require time to establish themselves in the global market. However, while these measures may offer short-term protection, they can also lead to inefficiencies, reduced consumer choice, and ultimately hinder overall economic growth in the long run.

Keywords

Dumping, Persistent Dumping, Price Discrimination, Predatory Dumping, Sporadic Dumping, Anti-Dumping, Cartel, Infant Industry

Discussion

3.3.1 Dumping

- Markets being flooded with inexpensive goods due to dumping

Dumping is a term that often leads to debate in the realm of international trade. It is a practice that can have significant implications for businesses, consumers, and even entire economies. In the world of trade, where markets are not always perfectly competitive, companies often play a pricing game. However, to maintain fairness in global trade, regulations are put in place. Export subsidies for primary products, for instance, are carefully restricted to prevent any single country from gaining an unfair advantage. Moreover, importing nations are granted the authority to take action if they observe their markets being flooded with inexpensive goods due to dumping or excessive export subsidies. In cases where dumping is identified, importing countries possess the ability to impose anti-dumping or countervailing duties. These measures serve to counteract the effects of goods sold at prices below their standard value, which could cause significant harm to domestic industries. Thus, these interconnected policies and responses play a crucial role in international trade, ensuring fairness and safeguarding the interests of all involved parties.

Imagine that a company decides to sell its product at a lower price when exporting it abroad compared to selling it domestically. This strategy, known as price discrimination, is quite common in international trade. One common type of price discrimination in global trade is dumping. Dumping happens when a company sells some of its goods in a foreign

- Exporting at lower prices can lead to dumping in trade

market at a very low price, while selling the rest at a higher price in its home market. For this to happen, two things need to be met. Firstly, the industry must not be very competitive, allowing companies to set prices, and secondly, there must be a divide between markets, making it hard for locals to buy goods meant for export. In this scenario, a company might find it profitable to engage in dumping if these conditions are met.

- Export expansion is more profitable

Let us consider a company selling 1,000 units of a product in India and 100 units abroad. They sell each unit for ₹1,500 in the domestic market, but only get ₹1,125 per unit for exports. Now, if they want to increase sales by just one unit, they have to lower the price by ₹0.50 in either market. If they lower the domestic price by ₹0.50, they will get ₹1,499.50 for the new unit sold, but lose ₹500 from the 1,000 units they would have sold at ₹1,500 each. So, the extra revenue from that new unit would only be ₹999.50. On the other hand, if they lower the export price by ₹0.50, they will get ₹1,124.50 for the new unit but only lose ₹50 from the 100 units they would have sold at the original price. So, the extra revenue from the export sale would be ₹1,074.50. Therefore, even though they get less money per unit from exports, expanding export sales would be more profitable than increasing domestic sales in this case. Figure 3.3.1 diagramatically illustrates dumping.

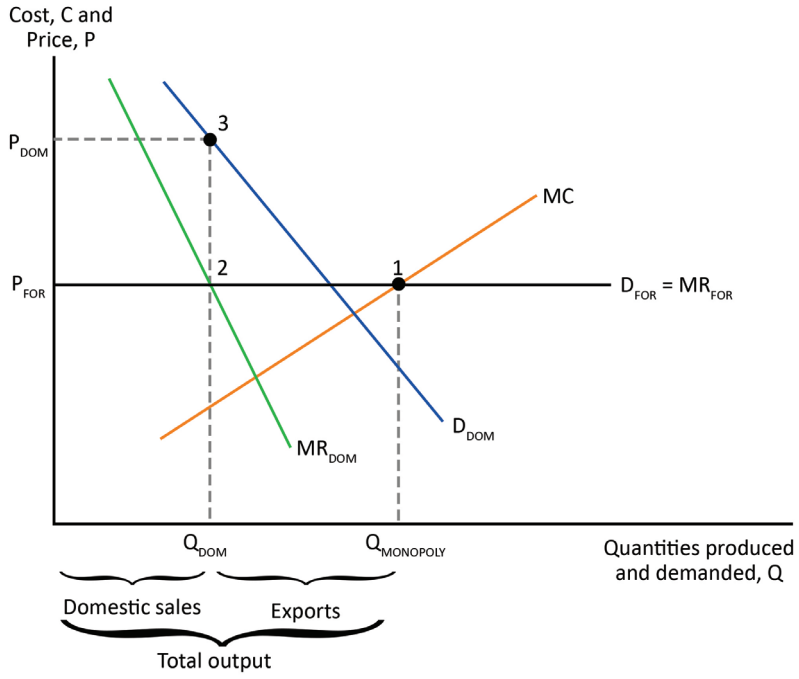

Fig 3.3.1 Dumping

- Firm sells cheaper abroad, exploiting market differences

The figure 3.3.1 provides a diagrammatic illustration of dumping, showing a situation with a monopolistic domestic firm operating in two markets, i.e., domestic and export. In the domestic market, represented by the demand curve D_{DOM}, the firm faces a higher price compared to the export market, where it can sell as much as it wants at price P_{FOR}. To maximise profits, the firm sets marginal revenue equal to marginal cost in each market. While marginal revenue for domestic sales is defined by the curve MR_{DOM}, export sales occur at a constant price P_{FOR}, simplifying the calculation. The firm produces a quantity $Q_{MONOPOLY}$ to sell domestically and exports the remainder. This results in selling goods cheaper abroad than at home, a practice known as dumping. The decision to dump is driven by the difference in sales responsiveness to price between the two markets, where export demand is assumed to be infinitely price-responsive. Dumping is widely regarded unfair in international trade, although its economic harm is debated, leading to regulatory measures like tariffs in response to dumping practices.

Dumping is classified as persistent, predatory, and sporadic. Let us discuss these.

Persistent Dumping

- Producer sells cheaper abroad due to price elasticity differences

Imagine a producer whose costs decrease as production increases. Instead of lowering prices significantly at home, where demand is less elastic, the producer keeps prices high. However, in foreign markets with highly elastic demand, they sell at lower prices to boost sales. This strategy allows the producer to earn more profit by selling more abroad. Domestic consumers also benefit from this practice because the price they pay is lower than it would be without dumping. This occurs when domestic demand for the product is less elastic (less sensitive to price changes) and foreign demand is highly elastic (more sensitive to price changes). Persistent dumping, or international price discrimination, happens when a domestic monopolist continuously sell a part at a higher price in the domestic market and the rests at a lower price in the foreign market. This concept is illustrated in Figure 3.3.2.

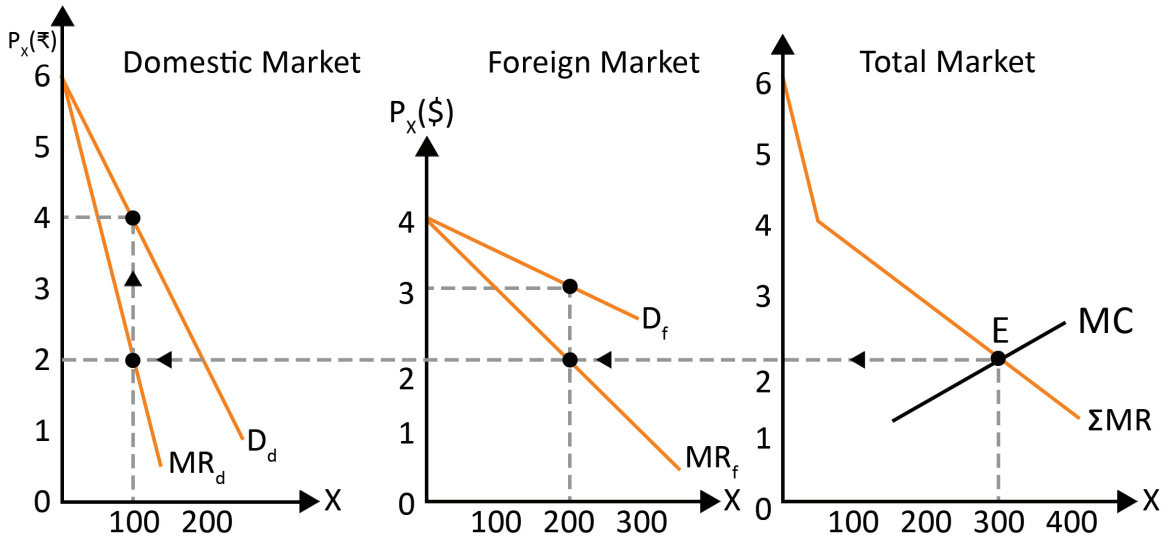

Fig 3.3.2 Persistent dumping or international price discrimination

- Monopolist maximises profit by selling 200 units abroad, 100 units domestically

In the given situation, a domestic monopolist wants to maximise profits by deciding how much to sell in domestic and foreign markets. To do this, they combine the marginal revenue curves from both markets. The point where this combined curve intersects with the marginal cost curve, denoted as point E, shows the total profit maximising quantity to be sold, which is 300 units. Next, the monopolist decides how to allocate these 300 units between the two markets. By drawing a horizontal line from point E to where it intersects the marginal revenue curves of the foreign (MR_f) and domestic (MR_d) markets, the optimal distribution is identified as 200 units should be sold in the foreign market and 100 units in the domestic market. Prices in each market differ due to varying levels of competition and market condition. The price in the domestic market (PX = ₹ 4) is higher than in the foreign market (PX = $ 3).

- Maximise profit by equalising marginal revenue between domestic and foreign

This disparity arises because the domestic market is protected by transportation costs and trade barriers, whereas the foreign market faces competition, making demand more elastic. The general rule for maximising total profits is to ensure that the marginal revenue in the domestic market (MR_d) is equal to the marginal revenue in the foreign market (MR_f). If these are not equal, shifting sales from the market with lower marginal revenue to the market with higher marginal revenue will increase profits. The foreign market's price is lower because its demand is more elastic due to the availability of close substitutes, unlike the domestic market.

Predatory Dumping

- Company sells below cost to eliminate competition, then raises prices

Predatory dumping happens when a company temporarily sells its products at very low prices, even below cost, in a foreign market. The goal is to push foreign competitors out of business. Once these competitors are gone, the company raises its prices to take advantage of its new monopoly. This way, it can recover its losses and, if the foreign market's demand is not very sensitive to price changes, the firm can make even higher profits.

Sporadic Dumping

- Occasional foreign sales below cost

Sporadic dumping happens when a company sells its products occasionally at very low prices abroad, even below the cost, to get rid of an unexpected and temporary surplus without lowering prices at home. This is possible when the foreign demand for the product is elastic and the producer has a monopoly in the domestic market. The producer might use this strategy to introduce their product to a new market or to establish themselves in a foreign market by pushing out competitors. In sporadic dumping, the producer sells the product abroad at a price that covers variable costs and some fixed costs to minimise losses.

3.3.2 Anti-Dumping Duties

- Antidumping duties protect domestic industries but increase consumer prices

Trade restrictions, such as antidumping duties, are used to protect domestic industries from unfair foreign competition. These restrictions usually involve imposing antidumping duties to offset price differences or threat of imposing such duties. However, it is often difficult to identify the exact type of dumping, and domestic producers typically seek protection against any dumping to reduce imports and increase their own profits. Anti-Dumping Duties (ADD) in India are specifically imposed to protect the domestic industry from the harm caused by dumping. These duties are meant to provide quick relief to domestic producers. In some cases duties can be higher than the value of the dumped goods themselves. While the main goal of anti-dumping duties is to protect domestic jobs, they can also lead to higher prices for local consumers. Over time, these duties might reduce the international competitiveness of domestic companies that produce similar goods.

Article VI of the GATT allows countries to take discriminatory

- GATT Article VI allows countervailing duties against harmful dumping

actions, like imposing countervailing duties against goods dumped by a particular country. To comply with this, Indian laws were amended on January 1, 1995. The WTO also sets international trade rules, including regulations on anti-dumping measures. While the WTO does not intervene directly with companies that dump goods, it does regulate how governments can respond to dumping. The WTO agreement permits action against dumping if it harms or threatens to harm an established industry or delays the establishment of a domestic industry.

- U.S. imposed duties on Chinese steel; India increased anti-dumping

In June 2015, several American steel companies, including United States Steel Corp. and Nucor Corp. filed a complaint with the U.S. Department of Commerce and the ITC (International Trade Commission). They alleged that countries like China were dumping steel in the U.S., keeping prices unfairly low. After a year of review, the U.S. imposed a total of 522% in anti-dumping and countervailing duties on certain Chinese steel imports. In 2018, China challenged these tariffs at the WTO. The Trump administration continued to use the WTO to address what it considered unfair trading practices by China and other countries. Recently, due to the COVID-19 pandemic and the resulting slowdown in cross-border trade, there has been an increase in imposing anti-dumping duties on various imports. By March 11, 2021, the Ministry of Finance in India had issued over 10 notifications imposing such duties, mainly on imports from China.

3.3.3 International Cartels

- International cartels limit output, raise prices for collective profits

Imagine a group of major oil-producing countries that decide to group together and limit how much oil they produce and sell. They do this to drive up the price of oil, ensuring they make more money than if they were competing against each other. By coordinating their efforts, they can act like a single powerful company, controlling a significant portion of the world's oil supply and influencing global prices. This is exactly what happened with OPEC (Organisation of Petroleum Exporting Countries) in the 1970s, which led to a dramatic increase in oil prices. International cartels have formed for various goods and services such as sugar, coffee, steel, tobacco, diamonds, oil, and even air and rail services. OPEC is the one of the most successful example of such a cartel, having significantly increased oil prices in the 1970s by coordinating production limits among member countries. Another example is the International Air Transport Association, was responsible for setting international airfares and policies until 2007.

An international cartel is an organisation of suppliers from different countries that agree to restrict the output and exports of a commodity to increase their collective profits. These agreements are meant to reduce competition and ensure higher prices. Kindleberger describes cartels as international business agreements that regulate prices, divide markets, and restrict selling competition. While domestic cartels are illegal in places like the United States and restricted in Europe, international cartels operate beyond the jurisdiction of any single country, making them harder to control.

- Cartels succeed with few substitutes, fail with competition abundance

Cartels are more likely to succeed when there are few suppliers of an essential commodity with no close substitutes. For instance, OPEC was very effective in the 1970s because it controlled a large portion of the oil supply and there were no easy substitutes for oil. However, when there are many suppliers or good substitutes available, it becomes harder to form and maintain a successful cartel. This difficulty explains why cartels for other minerals and agricultural products often fail.

- Cartels are inherently unstable and often collapse

The power of a cartel lies in its ability to restrict output and exports. However, this power also creates an incentive for individual members to cheat by selling more at slightly lower prices to gain extra profit. This happened to OPEC in the 1980s when high oil prices led to increased production by non-members, which eventually drove prices down. Economic theory suggests that cartels are inherently unstable and often collapse. But if successful, a cartel can act like a monopolist, maximising its total profits.

- Cartels form to avoid competition, set higher prices, and earn monopoly profits

Cartels form for several reasons like to avoid cut-throat competition, prevent price drops due to oversupply, and achieve monopoly control for higher profits. Their goals include setting higher world prices, earning monopoly profits, restricting production according to quotas, allocating specific territories to avoid competition, regulating commodity quality, controlling technological development, and adopting measures to reduce competitive pressures among members.

Now, we can graphically explain the operation of the monopoly cartels.

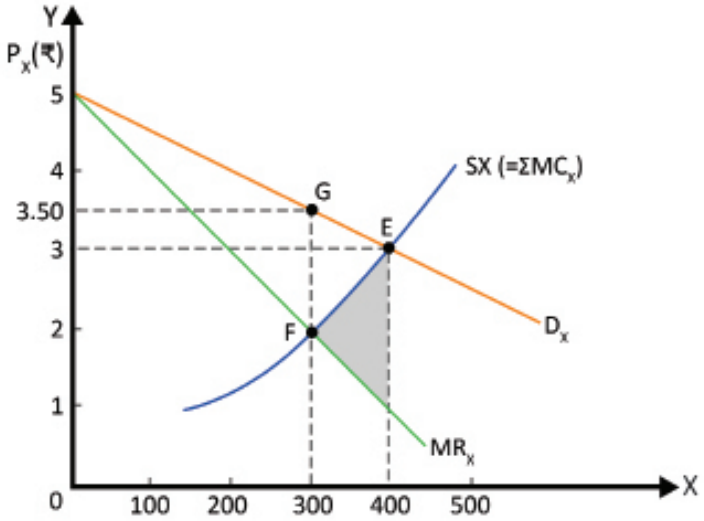

Fig 3.3.3 Maximisation of the International Cartel's Total Profits

- Cartel restricts supply, raises price, increases profits, gains advantage

In Figure 3.3.3, D_X represents the world demand for a commodity X, and MR_X is the marginal revenue from selling X. The MR_X curve lies halfway between the vertical axis and the D_X curve. S_X is the cartel's supply curve of exports of commodity X, which is the sum of all their individual supply curves (Σ MC_X). In a competitive market, the equilibrium point is E, where 400 units of X are sold at ₹3 each. However, if the exporters form a cartel and act like a monopoly, they would restrict the supply to 300 units, which is where the SX curve intersects the MR_X curve at point F. By doing this, they can increase the price to ₹3.50, shown by point G on the D_X curve. This increase in price and restriction in supply raises the total profits of the cartel. The shaded area in the figure represents the extra profits gained because the cartel avoids selling units where the cost is higher than the revenue, thus making more profit overall.

3.3.4 Infant Industry Argument

- Developing nations protect industries to promote growth

The infant-industry argument suggests that developing countries might need to protect their new industries from foreign competition to help them grow. The idea is that these countries have a natural advantage in certain products, but because they lack experience and start with small production levels, their industries struggle to compete with well-established foreign companies. By temporarily shielding these young industries with measures like import tariffs, a country can help them develop until they are strong enough to compete on their own. Once these industries mature, the protection

should be removed.

- Protection is complex: developing nations benefit, industry selection difficult, subsidies preferred but need funding

However, there are some important points to consider. First, this argument is more relevant for developing countries with weak financial markets than for industrialised nations. Second, it can be hard to identify which industries truly need protection, and once protection is given, it is often difficult to remove. Third, and most importantly, direct subsidies to these industries can be more effective than trade protection like tariffs. Subsidies directly support the industry without distorting prices and consumption, and they are easier to take away once the industry matures. The main challenge with subsidies is that they require funding, while tariffs generate revenue.

- Production experience lowers costs, known as dynamic external economies

As companies gain experience in production, they often improve their products and processes, leading to lower costs across the entire industry. This is known as dynamic external economies. For example, it might initially take 1,000 hours to assemble the 100th aircraft, but only 700 hours for the 200th aircraft as workers and managers become more skilled. This reduction in costs, typically by 20 to 30 percent with each doubling of cumulative output, shows the benefits of experience and learning in production.

Dynamic external economies can be illustrated with learning curves shown in figure 3.3.4. A learning curve shows how average production costs decrease as the cumulative output of an industry grows over time.

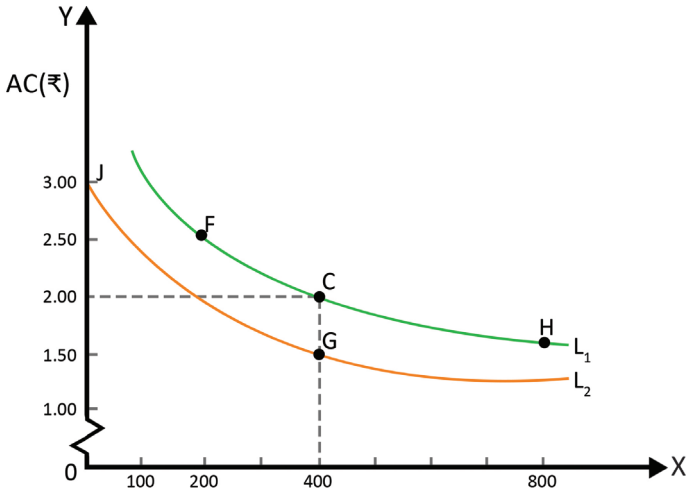

Fig 3.3.4 The Learning Curve and Specialisation

Figure 3.3.4 illustrates the concept of dynamic external economies through learning curves. In Nation 1, the average production cost is ₹2.50 when the output is 200 units, drops to ₹2.00 when the cumulative output reaches 400 units, and further decreases to ₹1.60 when the output doubles again to 800 units. This decline in costs with increased production is represented by points F, C, and H on the learning curve L_1. On the other hand, Nation 2 has the potential to produce 400 units at a lower cost of ₹1.50 per unit, shown at point G on learning curve L_2. However, due to a higher initial cost of ₹3 per unit at the start-up phase, indicated by point J, Nation 2 may not enter the market without assistance. To overcome this barrier, the government of Nation 2 would need to provide temporary trade protection or subsidies to help the industry grow and gain the necessary production experience. This approach is known as the infant industry argument. However, implementing this strategy is challenging. It is difficult to accurately identify which industries will mature successfully and become competitive in the global market within a reasonable timeframe. Picking winners requires careful consideration and carries significant risks.

- Governments protect industries by temporary trade protection or subsidies

The infant industry argument, which supports temporary protection for new industries in developing countries to help them grow, has several limitations as highlighted by economist Ragnar Nurkse. It does not address the need for capital supply, protection should only be applied after the industry is established, and tariffs cannot create the necessary capital, only stimulate demand. Additionally, focusing on import substitutes might not lead to balanced economic growth and could reduce real income due to high costs. For protection to be successful, the industry must eventually be able to compete without it and produce at lower costs. Determining the optimum amount and duration of protection is difficult, and selecting the right industries to protect is uncertain and challenging.

- Infant industry argument faces capital, timing, effectiveness, and selection issues

Summarised Overview

When a company sells its products at lower prices abroad and higher prices domestically, this is called dumping, which is considered unfair in global trade. There are several types of dumping. Persistent dumping, or international price discrimination, occurs when a domestic monopolist continuously sells part of their product at a higher price in the domestic market and the rest at a lower price in the foreign market. Predatory dumping happens when a company temporarily sells its products at very low prices, even below cost, in a foreign market. Sporadic dumping occurs when a company occasionally sells its products at very low prices abroad, even below cost, to eliminate an unexpected and temporary surplus without lowering prices at home.

Governments impose anti-dumping duties to counteract the trade distortive effects of dumping and restore fair trade. Trade barriers can also result from international cartels. A well-known example is OPEC (Organisation of Petroleum Exporting Countries), which, by restricting production and exports, managed to quadruple the price of crude oil between 1973 and 1974. The infant industry argument suggests that new industries in developing countries need protection from foreign competition until they mature. This protection can be achieved through tariffs on imports, domestic production subsidies, or quotas.

Assignments

1. Explain why nations impose trade restrictions when it is known that free trade is the best policy.
2. What is dumping and what are its different types? What are the motivations behind dumping?
3. What are the pre-conditions for dumping to occur? Why does dumping usually lead to trade restrictions?
4. Write a note on anti-dumping duties.
5. Explain the relevance of cartels.
6. What do you mean by the infant-industry argument for protection?

Suggested Reading

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MASTER OF ARTS ECONOMICS

Foreign Exchange Market and BOP

Block 4

UNIT 1
Foreign Exchange Market

Learning Outcomes

After completing this unit, the learner will be able to:

- describe the workings of the foreign exchange market
- analyse the concept of speculation, hedging, and arbitrage
- discuss the role of expectations

Background

Imagine you are getting ready for a family trip to another country. You are all set with your travel plans and cannot wait to discover new places and cultures. But how will you buy things there? You will need the money they use, right? Whether it is for buying gifts, tasting local food, or paying for rides, you will need to swap your money for theirs. And that is where the foreign exchange market comes in. But forex is not just for trips and business deals. It affects our daily lives in many ways. Have you ever noticed how the prices of things from other countries sometimes change? Based on the changes in the value of money in different countries, imported things are made more or less expensive. So, whether it is the clothes we wear or the gadgets we love, currency values can affect how much they cost. And it extends beyond mere consumerism. The foreign exchange market shapes decisions on corporate expansion and investment strategies. Notice how multinational corporations strategically set up new branches or production facilities in different corners of the globe? They look at things like money values, how stable markets are, and what the economy is like to make smart decisions. So, you see, understanding the foreign exchange market is not just for economists or finance professionals. It is relevant to all of us because it shapes the way we travel, shop, and even the opportunities available to us in the global economy. In this unit, we will look deeper into how the forex market works, why it matters, and how it impacts our daily lives.

Keywords

Exchange Market, Speculation, Hedging, Arbitrage, Currency Swaps, Future, Options

Discussion

4.1.1 Foreign Exchange Market

- Market place for buying and selling foreign currency

If you travel to another country, you will definitely need foreign currency to meet your expenses. Similarly, if you are planning to invest in another nation's assets, you will need their currency to do so. If a nation is engaging in trade with other countries, it also requires the currency of those countries to conduct transactions. So, the question arises: where do you get the foreign currency to meet these needs? The answer is the foreign exchange market. The foreign exchange market, often abbreviated as "forex" or "FX," refers to the global marketplace where individuals, firms, and banks buy, sell, exchange, or convert foreign currencies. This market involves a diverse range of participants, including individuals, businesses, banks, financial institutions, and governments. In the forex market, transactions occur to meet various needs, such as international trade, investment, travel, tourism, and financial speculation. The forex market operates 24 hours a day, five days a week, due to the different time zones across major financial centres like London, New York, Tokyo, and others. These centres are interconnected through electronic communication networks, allowing traders to conduct transactions at any time. The forex market are contributing to high liquidity and rapid response to global events. Thus, we can say that the foreign exchange market is the market in which individuals, firms, and banks buy and sell foreign currencies or foreign exchange.

4.1.1.1 Functions of Foreign Exchange

1. Transfer of Purchasing Power

The primary function of the foreign exchange markets is the transfer of funds or purchasing power between different nations, typically involving the conversion of one currency into another. This transfer enables countries to meet international trade, investment, travel, and other cross-border financial activities. Usually, this transfer is accompanied by an electronic transfer

- Transfer of funds through the correspondent banking network

and it enables quick transactions and minimises the need for physical cash transfers. In the process of transferring currency, a domestic bank may need to make a payment in a foreign currency, but it does not directly have access to that currency. To complete the transaction, the bank relies on a correspondent bank in the foreign country. The domestic bank instructs its correspondent bank to pay a specified amount to a recipient in the local currency. This network of correspondent banks helps facilitate the transfer process across different currencies and geographical locations.

- Commercial banks act as an intermediary in the forex market

The demand for foreign currency arises when individuals travel to another country, when businesses invest in foreign countries, or when a nation imports goods or services from abroad. Conversely, a nation's supply of foreign currencies comes from foreign visitors, foreign investments in the domestic country, or when a nation exports goods or services to other countries. Within a nation, commercial banks serve as intermediaries in the foreign exchange market and act as "clearinghouses" to manage the demand and supply of foreign currencies. They help match the needs of those who require foreign currencies with those who have them to offer. Without this function, individuals or businesses would need to find others who have the foreign currencies they need, which would be time-consuming, inefficient, and impractical. To avoid this situation, commercial banks use the services of foreign exchange brokers. These brokers help commercial banks balance the supply and demand for specific foreign currencies, ensuring smoother transactions.

- Central bank acts as a lender of last resorts

Sometimes, a nation's demand for foreign exchange is either greater or lesser than its supply of foreign exchange. If a nation's demand for foreign currencies exceeds its foreign exchange earnings, it results in a balance-of-payments deficit. This situation leads to an increased demand for foreign currency, which can put downward pressure on the nation's currency value. To address this commercial banks, borrow from the central bank to meet their customers' foreign exchange demands. In this scenario, the central bank uses its foreign exchange reserves to lend to commercial banks to stabilise the market. This helps mitigate the balance-of-payments deficit. Conversely, when a nation's supply of foreign exchange is greater than its demand, this creates a balance-of-payments surplus. This could lead to upward pressure on the nation's currency value. During this situation commercial banks exchange their excess foreign currencies to the central bank

which reduce the supply of foreign currency in the domestic economy.

2. Credit Function

Another function of foreign exchange markets is the credit function. Credit is often needed to allow time for goods to be transported and for buyers to resell goods and make payments. This process works like this: In international trade, importers often have an extended period (generally 90 days) to pay for goods received from exporters. This allows importers time to resell the goods and generate revenue before making the final payment to the exporter. Although importers have 90 days to pay, exporters do not necessarily have to wait that long to receive payment. They can discount the importer's obligation at their commercial bank's foreign department. This means that the exporter sells the importer's obligation (essentially the right to collect payment) to the bank for a fee and they earn immediate cash from the bank which can be used to manage cash flow, reinvest, or cover other business expenses.

- Credit allows a time for payment

3. Provide the Facilities for Hedging and Speculation

Another significant function of foreign exchange markets is to provide facilities for hedging and speculation against currency risks. Hedging allows businesses to protect themselves against adverse currency fluctuations, while speculation involves trading currencies for profit. The concept of hedging and speculation are dealt in detail later.

- Protect adverse currency fluctuation and allows trading of currencies

4.1.1.2 Participants of Foreign Exchange Market

The major participants in the forex market are commercial banks, central banks, exchange rate brokers, and the immediate users and suppliers of foreign currencies. They can be arranged in a hierarchical order.

I. Immediate Users and Suppliers of Foreign Currencies

They are at the bottom, or at the first level. At this level, you find the direct participants in the foreign exchange market, such as tourists, importers, exporters, investors, and so on. They engage in the market in various ways: tourists need to buy local currency for travel expenses, importers need foreign currency to pay for goods, exporters receive payment in

- The first-level participants are directly engaged in the forex market

foreign currencies, and investors may need foreign currencies to invest abroad.

II. Commercial Banks

- Second-level participants are intermediaries in the forex market

The second level involves commercial banks, which act as intermediaries in the forex market. They act as clearing houses between users and earners of foreign exchange by facilitating the exchange of currencies for their customers, whether they are individuals or businesses. Commercial banks maintain a stock of different currencies to manage the demand and supply of foreign currencies, providing exchange services. They also serve as a bridge between the first level and the higher levels of the foreign exchange market.

III. Foreign Exchange Brokers

- Third-level participants are brokers who assist the commercial banks

The third-level participants are foreign exchange brokers. These brokers help commercial banks' balance their foreign exchange inflows and outflows. If a bank has excess foreign currency, brokers assist in finding other banks that need it. This level supports the liquidity and stability of the foreign exchange market by allowing commercial banks to efficiently adjust their currency positions via interbank or wholesale market.

IV. Central Bank

- Highest level participant which maintains stability in the forex market

At the fourth and highest level, the participants are the central bank. In the forex market, The central bank acts as the 'lender of last resort.' When there is an imbalance between a nation's foreign exchange earnings and expenditures, the central bank takes the necessary steps to correct it. If there is more demand for foreign currency than supply of currency, the central bank uses its reserves to meet the gap, ensuring market stability. If there is more supply than demand, the central bank can increase its reserves by purchasing foreign currencies. This level provides a safety net to maintain overall stability in the foreign exchange market and support the nation's broader economic goals.

4.1.2 Speculation

Speculation is a strategy that involves taking on risks in the hope of making a profit. A speculator is someone who accepts

and even seeks out foreign exchange risk to achieve this goal. If speculators believe that the spot exchange rate of a particular foreign currency will increase in the future, they can buy that currency at its current value and hold onto it with the intention of selling it later at a higher price. The spot rate refers to the current exchange rate at which a currency can be bought or sold for immediate delivery or settlement. For instance, if a speculator buys Indian Rupees (INR) at a spot rate of $1 = ₹70 and later sells them at a spot rate of $1 = ₹75, the profit is the difference, which in this case is ₹5 per dollar. If a speculator believes that the spot rate of a particular foreign currency will drop in the future, during this time he or she borrows the foreign currency for three months and then immediately exchange it for their domestic currency at the current spot rate. Then the speculator deposits the domestic currency in a bank and can earn interest. If the spot rate for the foreign currency falls as expected, the speculator can purchase the foreign currency at a lower rate to repay the loan. His/her profit comes from the difference between the initial higher rate (at which they exchanged the borrowed currency) and the new lower rate (at which they bought back the currency to repay the loan), minus any interest costs incurred during the borrowing period. However, if the spot rate rises instead of falling, the speculator would face a loss. This is because they would have to buy the foreign currency at a higher rate to repay the loan, resulting in a higher cost than the original spot exchange rate when they borrowed it.

- Taking on risks in the hope of making a profit

4.1.3 Hedging

Hedging is a strategy used to reduce or eliminate the risk of currency fluctuations in forex market transactions. It is employed by both importers and exporters to manage foreign exchange risk. For example, imagine you are an Indian importer who needs to pay $100,000 in three months for goods purchased from a U.S.-based supplier. The current exchange rate is 1 USD = ₹ 75. If the dollar becomes more expensive compared to the rupee, it will cost you more in rupees to make the payment. This risk can be eliminated through hedging. At the current rate, you can borrow ₹ 7,500,000 from a bank, which is equivalent to $100,000 (7,500,000 / 75). This amount can then be deposited in an Indian bank to earn interest until the payment is due. After three months, you will have ₹ 7,500,000 available to convert to $100,000 for the payment, regardless of any changes in the exchange rate. The cost of hedging is the difference between the interest rate you pay on the loan of ₹

- Strategy used to reduce the risk of currency fluctuations

7,500,000 and the interest rate you earn on the bank deposit. This cost represents the price of locking in today's exchange rate to avoid future uncertainties. In the case of an exporter, let us say you are expecting to receive $100,000 from a U.S.-based client in three months for goods you have exported. The risk here is that the dollar could weaken against the rupee, reducing your earnings in Indian currency. Hedging is a perfect tool to mitigate this risk. You can borrow $100,000 from a bank at the current exchange rate and convert it to rupees, yielding ₹ 7,500,000. Then you can deposit this amount in an Indian bank to earn interest. After three months, you use the $100,000 payment from your client to repay the loan. Since you have already converted the amount to rupees at a stable rate, any fluctuation in the USD/INR rate will not affect you.

4.1.4 Arbitrage

Arbitrage is a financial strategy used to make a profit in the forex market by exploiting price differences. It involves purchasing a currency in the monetary centre where it is cheaper, and then immediately reselling it in another monetary centre where it is more expensive. The profit comes from the difference between the buying and selling prices of currency. For instance, imagine you are an arbitrageur who notices a difference in the exchange rate for USD to INR between two cities, Mumbai and New York. This discrepancy creates an opportunity for arbitrage, where you can buy a currency at a lower rate in one market and sell it at a higher rate in another market. In Mumbai, the exchange rate is 1 USD = ₹ 75, while in New York, the rate is 1 USD = ₹ 76. Hence the USD is more expensive in New York than in Mumbai, so you can make a profit by buying USD in Mumbai and selling it in New York. Hence if you buy 1,000 USD in Mumbai, your cost will be ₹ 75,000 (1,000 ×75 =75,000) and if 1,000 USD sells in New York you can earn ₹ 76,000 (1,000 × 76= 76,000). Therefore, your profit is the difference between what you earned in New York and what you spent in Mumbai which is 76,000 - 75,000 = ₹ 1,000.

- Profit-making strategy through the price difference

Arbitrage is a powerful force in financial markets and tends to lead to the equalisation of exchange rates between different monetary centres. In our example, arbitrage raises the demand for Indian Rupees (INR) in Mumbai, pushing up the price of INR in terms of dollars. Meanwhile, the sale of INR in New York increases, thus the higher supply of INR puts downward pressure on the price of INR in terms of dollars. This process

- Arbitrage can lead to a quick balance in the forex market

of arbitrage continues until the dollar-INR exchange rate becomes similar in both Mumbai and New York. Ultimately, it may stabilise, say at $1 = ₹ 75, thereby eliminating the opportunity for further arbitrage between these two markets. This pattern shows how arbitrage can lead to a quick balance in exchange rates across different monetary centers, aligning prices and removing discrepancies.

4.1.5 Role of Expectations

Expectations about future economic conditions, interest rates, inflation, and geopolitical events affect currency values. For example, if investors expect a country's economy to strengthen, they may anticipate its currency to appreciate, leading to increased demand for that currency. Conversely, negative expectations can lead to currency depreciation. These expectations drive trading decisions in currency swaps, futures, and options markets.

4.1.5.1 Spot and Forward

In the forex (foreign exchange) market, there are two types of foreign exchange transactions, they are spot transactions and forward transactions. A spot transaction refers to the immediate exchange of currencies, where the settlement of payments and receipts of foreign exchange occurs within two days after the transaction is agreed upon. This timeframe provides adequate time for parties to send credit and debit instructions to the appropriate bank accounts at home and abroad. Suppose an Indian citizen working in the United States wants to send money to his family in India, he uses a remittance service or a bank to convert U.S. Dollars (USD) into Indian Rupees (INR). The spot rate on that day is 1 USD = 75 INR. The citizen decides to send 1,000 USD. Using the spot rate, the remittance service calculates the equivalent amount in Indian Rupees:

- Immediate exchange of currencies

$$1{,}000 \text{ USD} \times 75 \text{ INR/USD} = 75{,}000 \text{ INR}$$

The remittance service then completes the spot transaction, sending 75,000 Indian Rupees to his family in India. The exchange rate at which the spot transaction occurs is called the spot rate. Let us say the spot rate for USD to INR is displayed as:

$$1 \text{ USD} = 75 \text{ INR}$$

This means that for every U.S. Dollar exchanged, you will

receive 75 Indian Rupees.

Forward transactions involve an agreement to buy or sell a specified amount of foreign currency at a predetermined exchange rate on a specific future date. This future date can be one month, three months, or six months from the agreement date. The exchange rate used in the forward transaction is called the forward rate. An Indian company expects to receive a payment of 100,000 USD from a U.S. client three months from today. During this time, currency fluctuations may occur. To avoid these fluctuations, the company enters into a forward contract with a bank to convert the USD into Indian Rupees (INR) at a forward rate agreed upon today. The forward rate today is 1 USD = 76 INR. The Indian company decides to receive a payment of 100,000 USD from the U.S. client at this rate. Using the forward rate, the equivalent amount in Indian Rupees is calculated as:

- Buying or selling a specified amount of foreign currency at a predetermined exchange rate

100,000USD × 76 ₹/USD = ₹ 7,600,000. After three months, when the company receives the payment of 100,000 USD from the U.S. client, it will be converted to 7,600,000 INR based on the agreed forward rate of 1 USD = ₹ 76.

4.1.5.2 Currency Swaps

Foreign exchange swaps are commonly used in the forex market to manage currency risks, improve liquidity, and reduce costs associated with converting currencies. Currency swaps refer to a spot sale of one currency combined with a forward repurchase of the same currency as part of a single transaction. This means that two parties agree to exchange a specific amount of one currency for another at a spot rate, and then to repurchase the original currency at a forward rate at a future date. For instance, suppose an Indian company, ABC Ltd., receives a payment of $500,000 from a U.S. client. ABC Ltd. does not need the dollars for three months and decides to convert this money into Indian Rupees to earn interest in the meantime. At the end of three months, they plan to convert the rupees back to dollars to pay for imports from the U.S. Instead of performing two separate transactions—converting dollars to Rupees today and then converting back to dollars in three months—ABC Ltd. can use a foreign exchange (FX) swap.

- Swaps reduce the risks in the forex market

By using an FX swap, ABC Ltd. reduces transaction costs and minimises the risk of currency fluctuations while ensuring it has the dollars it needs when the time comes. In this context,

- Forward and spot rates represent the additional cost or gain from the currency swap

we consider the swap rate, which is the difference between the spot rate (the current exchange rate) and the forward rate (the future exchange rate) in a currency swap. The swap rate is usually expressed on a yearly basis and indicates the cost or benefits associated with a swap over time. Difference between the forward and spot rates represents the additional cost or gain from the currency swap, reflecting interest rate differentials and other factors affecting exchange rates over time.

4.1.5.3 Futures and Options

A futures contract refers to an agreement to buy or sell an asset at a future date at an agreed-upon price. For example, suppose an American company imports coffee beans from Brazil. The price of coffee beans can fluctuate due to weather conditions, political changes, or other factors. To protect themselves from these price changes, the American company can enter into a futures contract with the Brazilian coffee supplier.

If today, the American company agrees to buy 1,000 bags of coffee beans from the Brazilian supplier at ₹8,000 per bag, to be delivered in six months. Six months later, the American company receives the coffee beans and pays ₹8,000,000 (1,000 bags x ₹8,000 per bag), regardless of the current market price of the coffee beans. Suppose without futures contract the company enters into trade what happens?

- Agreement to buy or sell an asset at a future date at an agreed-upon price

If the market price of coffee beans increases to ₹10,000 per bag, the American company would have to pay ₹10,000 per bag (total ₹10,000,000 for 1,000 bags) and if the market price of coffee beans decreases to ₹6,000 per bag, the American company would pay ₹6,000 per bag (total ₹6,000,000 for 1,000 bags).

The company enters into trade with a future contract if the market price of coffee beans increases to ₹10,000 per bag, the American company still pays ₹8,000 per bag, as agreed in the futures contract, saving ₹2,000 per bag (total savings of ₹2,000,000 for 1,000 bags).

And if the market price of coffee beans decreases to ₹6,000 per bag, the American company still pays ₹8,000 per bag, as agreed in the futures contract, which means they pay ₹2,000 more per bag than the current market price (total additional cost of ₹2,000,000 for 1,000 bags).

An option is a financial instrument that gives the holder the right, but not the obligation, to buy or sell a specific quantity of an asset at a specified price on or before a specified date. The option can be divided into two; the Call option and the Put option. The call option gives the holder the right to buy the underlying asset while the put option gives the holder the right to sell the underlying asset.

Imagine a tech company that wants to buy 1,000 laptops for its employees. The current price of each laptop is ₹50,000. But the company is worried about the price fluctuations that is the price may increase or decrease in the next three months due to a shortage of parts. To protect themselves from the price fluctuations the company enters into a Call Option. The tech company buys a call option from the laptop supplier. They agree that the company will have the right to buy 1,000 laptops at ₹50,000 per laptop at any time within the next three months, but they are not obligated to buy them. In the case of the market price of laptops going up to ₹60,000 per laptop, the tech company will exercise the call option. They will still pay ₹50,000 per laptop, saving ₹10,000 per laptop (total savings of ₹10,000,000 for 1,000 laptops). Another case is that the price of laptops drops to ₹40,000 per laptop, and the tech company will not exercise the call option. Instead, they will just buy the laptops at ₹40,000, ignoring the option. They save ₹10,000 per laptop by not using the option (total savings of ₹10,000,000 for 1,000 laptops).

- Call option grants the holder the right to purchase the underlying asset

Then next we consider the put option. Now imagine the same company already owns 1,000 laptops, and they are worried that the price of laptops might drop in the next three months. They want to sell the laptops and earn at a good price, so they enter into a Put Option. The tech company buys a put option from a buyer. They agree that they will have the right to sell their laptops at ₹50,000 per laptop within the next three months, but they are not obligated to sell them. If the price of laptops falls to ₹40,000 per laptop, the tech company will exercise the put option. They can still sell their laptops at ₹50,000 each, gaining ₹10,000 per laptop (a total gain of ₹10,000,000 for 1,000 laptops). If the price of laptops rises to ₹60,000 per laptop, the tech company will not exercise the put option. Instead, they will sell their laptops at ₹60,000 each in the open market, making a profit of ₹10,000 per laptop (total profit of ₹10,000,000 for 1,000 laptops).

- Put option grants the holder the right to sell the underlying asset

Summarised Overview

The foreign exchange market is crucial for individuals and businesses involved in international transactions. This market facilitates the exchange of currencies, enabling trade, investment, travel, and other cross-border activities. Participants in the foreign exchange market include individuals, firms, banks, and governments, with transactions occurring around the clock across different financial centers worldwide. The market's functions include the transfer of purchasing power, credit facilitation, and providing avenues for hedging and speculation. Major participants include commercial banks, foreign exchange brokers, and central banks, each playing a vital role in maintaining market stability. The foreign exchange market is deeply influenced by the role of expectations, which shape risks in the market. These risks can be managed with the help of financial instruments such as currency swaps, futures, and options.

Assignments

1. Discuss the functions of the foreign exchange market and explain how they support international trade and investment.
2. Analyse the role of central banks in the foreign exchange market.
3. Discuss the process of arbitrage in the foreign exchange market. Provide real-life examples to illustrate your points.
4. Evaluate the significance of currency swaps in managing currency risks in international trade. How do currency swaps work, and what benefits do they offer?
5. Explain the differences between foreign exchange futures and options.

Suggested Reading

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UNIT 2
Balance of Payments

Learning Outcomes

After completing this unit, the learner will be able to:

- explain the balance of payments and its correcting measures
- analyse the workings of the foreign exchange rate
- discuss the idea of the J curve effect

Background

When a nation enters into trade relations, understanding its position in international trade becomes crucial. This understanding aids in assessing the country's economic health and performance in global trade and finance. The Balance of Payments (BOP) is a systematic record of all economic transactions between residents of a country and the rest of the world. It helps policymakers and economists assess the nation's overall economic health and performance in international trade and finance. Additionally, governments use insights from BOP analysis to formulate economic policies. Furthermore, the nation's position in international trade determines the value of the exchange rate. Any fluctuations affect the currency of the nation, thereby impacting trade. Each nation follows different types of exchange rate systems, which also affect its position. In this unit, we study these factors.

Keywords

Exchange Rate, Balance of Payments, Current Account, Capital Account, Fixed Exchange Rate, Flexible Exchange Rate, Devaluation, Revaluation

Discussion

4.2.1 Balance of Payments

Balance of payments is a systematic record of all economic transactions between the residents of a country and the rest of the world during a particular period of time, usually a calendar year. It includes all international economic interactions, such as trade, capital flows, and financial transfers, etc. The balance of payments serves several purposes:

- BOP is the summary statement of all the economic transactions between domestic and foreign nations

1. It helps nations understand their international financial position and guides them in formulating monetary, fiscal, and trade policies.
2. The government can use it to analyse their economic conditions, make decisions, and consult with their trade partners.
3. The BOP provides valuable information for banks, companies, and individuals involved in international business and finance.

4.2.1.1 Transactions in Balance of Payments

All transactions in the BOP have a monetary impact. These economic transactions can be carried out by individuals, firms, and governments in other countries and they involve the transfer of ownership of money, assets, goods, or services. Economic transactions in the BOP can be divided into the following categories:

1. Visible items
2. Invisible items
3. Capital transfer and
4. Unilateral transfer

1. Visible Items

Visible items include all types of physical goods exported and imported. It is also known as tangible goods. For example, the exports and imports of textiles, machines, electronic items vehicles, etc.

2. Invisible Items

Invisible items include the exports and imports of services

such as transport services, medical services, financial services, etc. It is also known as intangible assets.

- Transfer of ownership of money and assets

3. Capital Transfer

Capital transfers includes the transfer of ownership of fixed assets or the forgiveness of liability are considered capital transfers. For example, conditional grants for specific capital projects, debt forgiveness, investment grants, transferring cash to enable the recipient to acquire another asset, etc.

4. Unilateral Transfer

Unilateral transfer refers to the payment or aid from one nation to another that does not require anything in return. For example, gifts, donations, personal remittances, foreign aid, humanitarian aid, etc.

4.2.1.2 International Transaction with Double Entry Book-Keeping System

The accounting procedure for a nation's international transactions in the BOP involves recording each transaction twice. This system is known as double-entry bookkeeping. Each transaction is recorded once as a credit and once as a debit, both with equal values. The debit side includes the outflows of assets from the domestic economy to foreign countries, while the credit side captures all inflows from foreign countries to the domestic economy. On this basis, we can say that a nation's equilibrium position is achieved when debits equal credits, indicating that the BOP is in equilibrium. When debits exceed credits, the BOP is in a deficit. Conversely, when credits are greater than debits, it indicates a surplus in the BOP. For example, suppose an Indian company exports goods worth $500 to a U.S. buyer, with payment expected in three months. This results in two entries as follows:

- Recording each transaction twice

Credit Entry for India: When the Indian company ships the goods, it is recorded as a credit in India's BOP. This represents value coming into India, even though payment is delayed. Thus, exporting goods worth $500 is a credit for India (+$500).

Debit Entry for India: Because the Indian company agrees to wait three months for payment, it is extending credit to the U.S. buyer, creating a financial claim on them. This counts as an increase in Indian assets abroad, recorded as a debit

(-$500).

Meanwhile, from the perspective of the United States:

Debit Entry for the U.S.: When the U.S. buyer agrees to receive the goods and pay later, this creates a debt or a financial obligation to the Indian company. This outflow represents an increase in U.S. liabilities, resulting in a debit (-$500).

Credit Entry for the U.S.: When the buyer from the United States eventually pays the Indian company, the payment represents a flow of money out of the United States and into India. However, this payment is also considered an asset inflow because the U.S. buyer has fulfilled its obligation, resulting in a reduction of its liabilities. This is recorded as a credit of (+$500)

4.2.1.3 Structure of the Balance of Payments

The balance of the payment can be subdivided into following accounts:

1. Current Account
2. Capital Account
3. Financial Account

1. Current Account

The current account of a country encompasses various transactions, including trade in goods and services, primary income, and secondary income. The major components of goods and services includes the following:

- General merchandise on a balance of payments (BOP) basis
- Net exports of goods under merchanting
- Non-monetary gold
- Manufacturing services on physical inputs owned by others
- Maintenance and repair services
- Transport, travel, construction, insurance, and pension services
- Financial services

- Current account consists of goods and services, primary and secondary income

- Charges for the use of intellectual property
- Telecommunication, computer, and information services
- Business services
- Personal, cultural, and recreational services, etc

The second component of the current account is primary income, which includes the compensation of employees, investment income, and other primary income. The investment income consists of direct investment income from equity and investment fund shares, as well as interest and portfolio investment, which refers to investment income from equity, investment fund shares, and interest. Other investments and reserve assets include income from equity, investment fund shares, and interest.

Another component of the current account is secondary income, which includes income from financial corporations, non-financial corporations, NPIHs (non-profit institutions serving households), and general governments.

2. Capital Account

- Assets/ claims or liabilities of a nation with rest of the world

The capital account records all international transactions involving the residents of a country changing either assets/ claims or liabilities with the rest of the world. In the BOP, incoming dollars to a domestic nation, or capital inflow, are treated as a credit. On the other hand, foreign capital outflow is treated as a debit. The various components of capital account transactions are gross acquisition/disposals of non-produced non-financial assets and capital transfers. Gross acquisition/ disposals of non-produced non-financial assets include natural resources, contracts, leases and licenses, and marketing assets. Capital transfers include debt forgiveness and other capital transfers by general governments, as well as financial corporations, non-financial corporations, households, and NPISHs.

3. Financial Account

- Investments, reserve assets, currency

The financial account includes direct investment, portfolio investment, financial derivatives, and employee stock options. It also encompasses reserve assets such as monetary gold, Special Drawing Rights (SDRs), reserve positions in the

International Monetary Fund (IMF), and foreign currency assets. Additionally, it includes other investments like currency and deposits, insurance, pensions, trade credit and advances, loans (such as external assistance), and banking capital.

4.2.2 Exchange Rate

- Price of one currency in terms of another

The exchange rate is the price of one currency in terms of another. For example, consider the exchange rate between the Indian Rupee and the US Dollar. If the exchange rate is 75, it means that you would need 75 Indian Rupees to buy 1 US Dollar. Conversely, if you have 1 US Dollar, you could exchange it for 75 Indian Rupees.

The world has followed different types of exchange rate systems over time. From 1870 to 1914, the world experienced a fixed exchange rate system under the gold standard. From 1944 to 1973, there was another period of fixed exchange rates under the Bretton Woods system. This system collapsed in 1973. Since then, the world has adopted a flexible exchange rate system. In this context, we study the various types of exchange rate systems followed by different nations. The major types of exchange rate systems are:

i. Fixed Exchange Rate System

ii. Flexible Exchange Rate System

4.2.2.1 Fixed Exchange Rate System

- Exchange rate is determined by the monetary authority

Under the fixed exchange rate system, the exchange rate is determined by the monetary authority through the purchase and sale of foreign exchange to maintain the price of foreign exchange at a preannounced level. For this intervention process, the central bank of a nation keeps an adequate stock of foreign currency or foreign exchange reserves. This intervention process is also known as a pegging operation. Under the pegging operation, when the supply of foreign currency exceeds demand, the monetary authority buys foreign currency. Conversely, when there is excess demand for foreign currency in the forex market, the monetary authority sells it. This pegging operation maintains the exchange rate at a desired equilibrium level. For instance, the government of India determines the exchange rate at 60 rupees per US dollar. Suppose that this rate is a predetermined exchange rate. In the forex market, if the supply of rupees increases and the value of the rupee falls, that is, suppose the Indian rupee depreciates

to 65 rupees per US dollar. To counter this depreciation, the Reserve Bank of India (RBI) sells US dollars from its reserves. This helps to absorb the excess supply of rupees, decreasing the supply of Indian rupees and increasing the supply of US dollars. As a result, the exchange rate is restored to 60 rupees per US dollar. Conversely, if the value of the rupee rises above the predetermined level, that is, when the Indian rupee appreciates, the RBI will start buying US dollars. This increases the supply of rupees and decreases the supply of US dollars in the market. By doing so, the RBI can restore the exchange rate to the desired level of 60 rupees per US dollar. Through these interventions, the RBI maintains the fixed exchange rate equilibrium by addressing both the depreciation and appreciation of the rupee.

- Value of currency fixed in terms of gold

Historically, one of the most important fixed exchange rate systems was the gold standard. This system was in use from 1717 to 1936. During the 19th century, many countries, including Germany and Japan, adopted the gold standard, influenced by Britain, the leading economic power at that time. The United States effectively joined the gold standard in 1879. In this system, each nation fixed the value of its currency in terms of gold, and gold was used as a medium of exchange.

The operation of the fixed or pegged exchange rate can be explained with the help of the following figure.

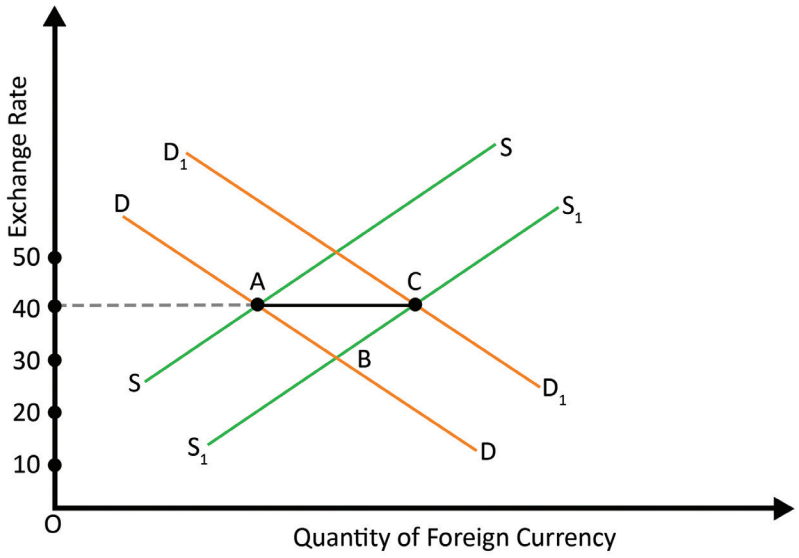

Fig 4.2.1 Fixed Exchange Rate Mechanism

- Monetary authority corrects the disequilibrium

The X-axis represents the amount of foreign currency demanded and supplied, and the Y-axis represents the exchange rate. The demand and supply functions are represented by the DD and SS curves. For simplicity, let us consider two nations: India and the US. The US is the foreign country and India is the home country. The demand (DD) and supply (SS) curves for the US dollar intersect at point A, with an exchange rate of 40 rupees per dollar. When the demand for US goods rises in India, more Indian rupees are supplied in exchange for US dollars, shifting the supply curve to S_1S_1. This shift causes the exchange rate to fall, from A to B, meaning the Indian rupee depreciates against the US dollar. To prevent the rupee from depreciating further, the Reserve Bank of India (RBI) intervenes by demanding more rupees in exchange for US dollars. This action reduces the excess supply of rupees. The intervention causes the demand curve to shift to DD1, restoring the old exchange rate at point C.

4.2.2.2 Flexible Exchange Rate System

- Exchange rate is determined by market forces

Under the flexible exchange rate system, the exchange rate is determined by market forces and is also known as a fluctuating or floating exchange rate. The equilibrium in the forex market occurs when the demand and supply of foreign currencies are equal. Any disequilibrium that arises in the forex market is corrected through the free working of market forces. There is no need for government intervention to correct the disequilibrium in the forex market. When the demand for foreign currency exceeds its supply, the foreign currency appreciates while the domestic currency depreciates. Conversely, if there is an excess supply of foreign currency over its demand, the exchange value of the foreign currency depreciates, and the exchange value of the domestic currency appreciates. The impact of changes in the demand for and supply of foreign currency on the exchange rate, as well as the consequent effects on balance of payments (BOP) adjustments, can be illustrated in the following figure.

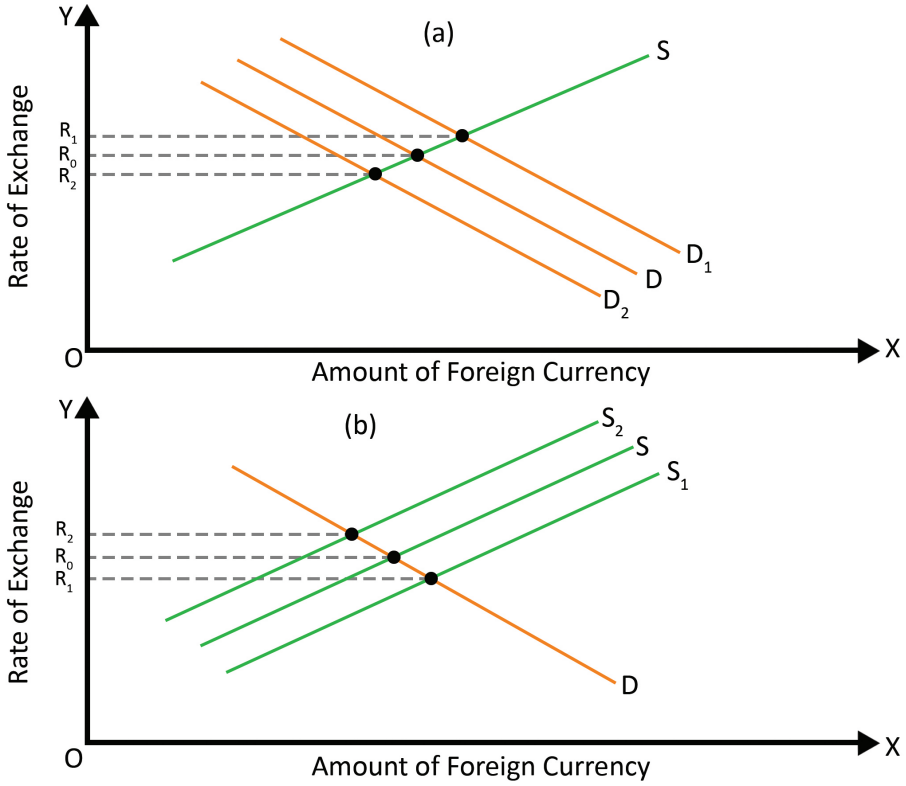

Fig 4.2.2 Flexible Exchange Rate Mechanism

- Excess supply of currency leads to depreciation of that currency

In both figures, the X-axis shows the amount of foreign currency, and the Y-axis shows the rate of exchange. The figure includes DD and SS curves, which represent the demand and supply functions of foreign currency, respectively. R_0 denotes the initial equilibrium exchange rate. When the demand for foreign currency increases, the DD curve shifts to DD_1, creating an excess demand for foreign currency at the initial exchange rate, R_0. As a result of this excess demand, the foreign currency appreciates to R_1, and the domestic currency depreciates. This movement helps restore the balance of payments (BOP) in an automatic manner. On the other hand, a decrease in the demand for foreign currency will shift the demand function from DD to DD_2. Here, the demand for foreign currency falls and its result will be the depreciation of foreign currency to R_2 rate of exchange and the appreciation of domestic currency. Here, the movements in the exchange rate help to maintain the surplus in the BOP and keep the economy in a balanced state.

In the figure (b), R_0 is the original equilibrium point. If the supply of foreign currency increases, the supply curve shifts from SS to SS_1, indicating the depreciation of the foreign currency and the appreciation of domestic currency. On the other hand, if the supply of foreign currency decreases, the supply curve shifts from SS to SS_2, which means the foreign currency appreciates, leading to a shortage of foreign currency. Consequently, the domestic currency then depreciates.

- Excess demand for currency leads to the appreciation of that currency

4.2.3 Exchange Rate Overshooting

The term exchange rate 'overshooting' refers to the excessive fluctuation of the nominal exchange rate in response to a change in the money supply, which was defined by Dornbusch (1976). This phenomenon is often attributed to price stickiness and it contributes to the observed high volatility in nominal exchange rates. The nominal exchange rate is the rate at which one currency can be exchanged for another. It tells you how much of the domestic currency you need to buy one unit of foreign currency. While the real exchange rate takes the nominal exchange rate and adjusts it for differences in price levels between two countries. It measures the relative prices of goods between two countries, indicating how much of domestic goods you can exchange for foreign goods.

For instance, consider the scenario where the Federal Reserve unexpectedly increases the U.S. money supply by 10%. This action leads to an immediate decline in the U.S. interest rate. In the forex market, investors react by shifting from domestic bonds to foreign bonds in response to the decline in U.S. interest rates. As a result, the capital outflow occurs. This increased demand for foreign currency leads to an immediate depreciation of the dollar, which exceeds the 10% increase in the money supply, with the dollar depreciating, say, by 16%. Initially, the increase in the money supply has no immediate effect on U.S. prices due to its assumed stickiness, causing them to gradually rise by around 10%. Consequently, the dollar appreciates by nearly 6%, eliminating its overshooting. Thus, the dollar exchange rate will settle at exactly equal to the inflation rate in the long run. Let us explain this with the help of a figure.

- Unexpected increase in the money supply leads to the depreciation of the dollar

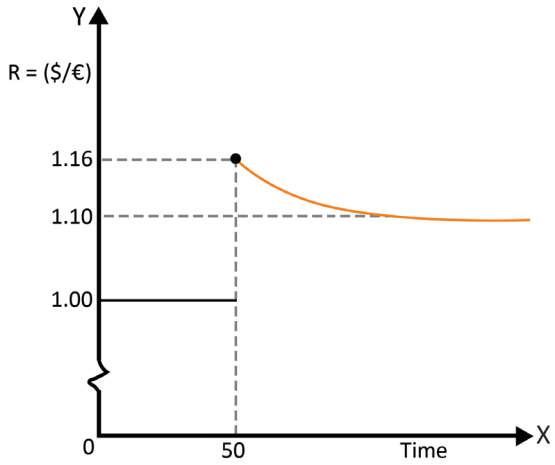

Fig 4.2.3 Overshooting of Dollar Exchange Rates

- Eliminating exchange rate overshooting in the long run

The X-axis represents time, and the Y-axis represents the exchange rate of the dollar. The increase in the money supply causes the interest rate to fall, resulting in an outflow of capital. This leads to an immediate depreciation of the dollar to around 1.16 from 1.00 at T_0. In the long run, domestic prices increase by 10%, and the dollar appreciates by around 6%, thus eliminating the overshooting. As a result, the dollar exchange rate will be R = 1.1, which is above the original exchange rate of 1.00, to exactly match the 10% U.S. inflation rate in the long run.

4.2.4 BOP Disequilibrium

A country's balance of payments (BOP) can experience disequilibrium, meaning it may face either a surplus or a deficit in its trade relations. A deficit in the BOP indicates that payments (debits) are greater than receipts (credits). Conversely, a surplus shows that payments (debits) are less than receipts (credits). This deficit or surplus situation can be caused by various factors. Let us discuss them:

I. Structural Changes

- Changes in production technology, resource deficiencies

Due to structural changes, a country can face BOP disequilibrium. For example, changes in production technology, either domestically or in foreign countries, can increase the cost, price, and quality of products. Additionally, import restrictions and resource deficiencies affect the flow of capital. These factors collectively create a BOP deficit.

II. Change in the Exchange Rate

- Devaluation and revaluation affect BOP

When a nation changes its exchange rate through devaluation or overvaluation, it affects the BOP. If a nation overvalues its currency, it makes the country's currency more expensive, which reduces exports and hinders the flow of capital. Conversely, if the nation implements devaluation of its currency, it becomes cheaper, which raises exports and reduces imports, increasing the inflow of capital. In this way, changes in the exchange rate affect the country's BOP.

III. Cyclical Fluctuations

- Boom and Recession affect BOP

Cyclical fluctuations in a country can affect its Balance of Payments (BOP) position. When a country experiences a boom in relation to its trading partners, its exports and imports will increase more than those of its trading partners. Thus, the country holds a surplus position. However, if the country faces a recession in relation to other countries, its exports fall more than its imports due to a decline in domestic production. In this case, the nation faces a deficit in the BOP. In both scenarios, the nation experiences an imbalance in the BOP.

IV. Change in National Income

- Increase in income increases imports leading to trade deficit

Another cause of disequilibrium in the balance of payments (BOP) is changes in national income. Suppose a nation experiences a higher level of national income, this would typically lead to increased domestic consumption and demand for imports. If the nation has already achieved full employment, further increases in demand can lead to inflationary pressures, causing the prices of goods and services to rise. Consequently, the nation's imports may increase due to increased demand and inflated prices, potentially aggravating the trade deficit.

V. Price Changes

- Rise in price reduces exports and fall in price enhances export

Fluctuations in prices can indeed affect a country's balance of payments (BOP). When a country experiences inflation, the prices of its exports may rise, potentially reducing the competitiveness of its goods in international markets. This could lead to a decrease in export volumes and, consequently, a deficit in the BOP's trade balance. Conversely, when a country faces low price levels (deflation), its exports may become more attractive to foreign buyers due to lower prices. This

could lead to an increase in export volumes and contribute to a surplus in the trade balance, potentially leading to a surplus in the BOP overall.

VI. Stages of Economic Development

During the early stages of economic development, many developing countries do indeed tend to experience a deficit in their balance of payments. This is primarily due to the fact that these countries often need to import raw materials, machinery, capital equipment, and specialized services to support their development efforts. These imports are necessary for building infrastructure, establishing industries, and upgrading technology. Meanwhile, exports from developing countries during this stage often consist mainly of primary products, which typically have lower value-added compared to manufactured goods or services. As a result, the revenue generated from exports may not be sufficient to offset the costs of imports, leading to a trade deficit.

VII. Political Conditions

- Political instability can indeed create uncertainty

Continual political instability within a nation can indeed create uncertainty among foreign investors. This uncertainty can result in a lack of confidence in the country's economy, deterring foreign investment and potentially prompting the outflow of capital as investors seek more stable environments for their funds. Consequently, a decrease in capital inflow or an increase in capital outflow can disrupt the equilibrium of the BOP, as it affects the overall financial position of the country.

4.2.5 Adjustment Mechanism and Automatic Adjustment Mechanism

- The automatic adjustment mechanism operates without direct intervention

The adjustment mechanism may require active government or central bank policies to influence the economy and includes various tools such as exchange rate changes (depreciation/devaluation), fiscal policies, and income adjustments. In contrast, the automatic adjustment mechanism operates without direct intervention, relying on the inherent mechanisms of the economic system. This primarily relies on market-driven processes, such as gold flows and price changes under a gold standard, to correct imbalances in the balance of payments.

4.2.5.1 Adjustment Mechanism

The price adjustment mechanism is used primarily to correct

- Price adjustment mechanism is used to correct deficits in a nation's current account

deficits in a nation's current account or balance of payments. Under a flexible exchange rate system, depreciation occurs, where the nation's currency value decreases due to market forces. Conversely, in a fixed or pegged exchange rate system, devaluation is employed by the nation's monetary authorities to deliberately increase the exchange rate from one level to another. Both depreciation and devaluation impact prices to adjust the nation's current account and balance of payments. Together, these methods constitute the price adjustment mechanism. Let us explain with the help of the following figure.

16.2 Adjustment with F

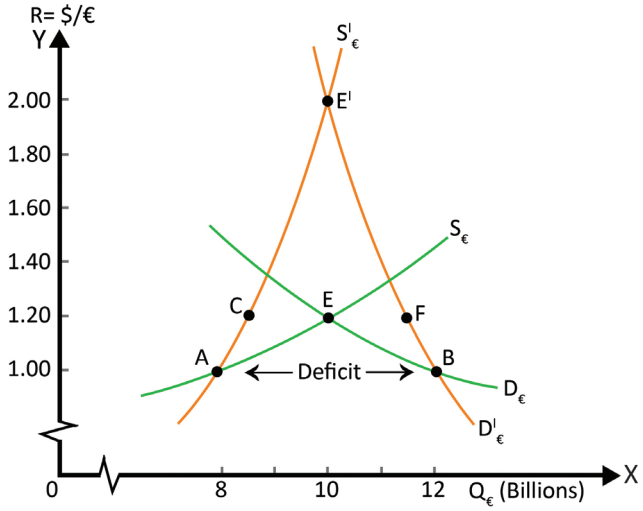

Fig 4.2.4 Adjustment Mechanism Under Flexible Exchange Rate System

- Adjustment mechanism needs the government intervention

Here, we consider only two economies: the United States and the European Monetary Union, and assume that there are no international capital flows affecting their exchange rates. The demand and supply curves for euros in the United States represent trade exclusively in goods and services. At an exchange rate of $1 per euro (R = $1/€1), the United States demands €12 billion per year while only €8 billion is supplied. Consequently, the United States experiences a deficit of €4 billion in its balance of payments, denoted by line segment AB. To address this deficit, a 20 percent devaluation or depreciation of the US dollar is implemented, changing the exchange rate from $1 per euro (R = $1/€1) to $1.20 per euro (R = $1.20/€1). However, this devaluation only reduces the deficit to €3 billion, indicated at point CF in the figure. In a more extreme scenario, a 100% devaluation or depreciation of the US dollar is required, changing the exchange rate to $2 per euro (R = $2/€1), to completely eliminate the deficit, shown at point E' in the figure.

4.2.5.2 Automatic Adjustment Mechanism

- The market forces correct the disequilibrium

Under the gold standard, the automatic adjustment mechanism is also known as the price-specie-flow mechanism. This helps to correct balance-of-payments disequilibria. Under the gold standard, a nation's money supply consisted of either gold itself or paper currency backed by gold. If a country faced a trade deficit, its money supply would decrease because it was either losing gold or reducing the amount of paper money backed by gold. Conversely, a surplus country, one that exports more than it imports, would see its money supply increase. With less money in circulation, prices would fall in deficit countries and rise in surplus countries. This made goods cheaper in deficit countries and more expensive in surplus countries. As prices fall in the deficit nation, its goods become cheaper and more attractive to foreign buyers. This leads to an increase in exports from the deficit nation because other countries find it more affordable to buy its products from the deficit nation. At the same time, the lower money supply and falling prices make imported goods relatively more expensive for consumers in the deficit nation. This discourages people in the deficit nation from buying foreign products, leading to a decrease in imports. These changes help to reduce the trade deficit. Increased exports bring more money into the country, while decreased imports mean less money is leaving the country. Together, these adjustments help eliminate the deficit in the balance of payments.

Summarised Overview

In this unit, we have explored the concept of balance of payments (BOP), a comprehensive record of a nation's economic transactions with the rest of the world. The BOP encompasses trade, capital flows, and financial transfers, categorizing transactions into visible and invisible items, capital transfers, and unilateral transfers. These transactions are meticulously recorded using double-entry bookkeeping, ensuring accuracy and accountability. Additionally, the BOP is structured into the current account, capital account, and financial account, providing a detailed analysis of a nation's economic interactions globally. Another critical concept studied is exchange rates, which denote the rate at which one currency is exchanged for another. Exchange rates can be classified into two systems: the fixed exchange rate system, where monetary authorities intervene to maintain predetermined rates, and the flexible exchange rate system, where rates are determined by market forces. The term 'overshooting' refers to the excessive fluctuation of the nominal exchange rate in response to changes in the money supply, as defined by

Dornbusch. BOP disequilibrium occurs when a country experiences either a surplus or a deficit in its trade relations. A deficit indicates that payments (debits) exceed receipts (credits), while a surplus indicates the opposite. Various factors can contribute to BOP disequilibrium, including political instability, exchange rate fluctuations, price changes, cyclical fluctuations, and changes in national income. To address BOP disequilibrium, countries can employ automatic adjustment mechanisms or active policy adjustments. Automatic mechanisms rely on market forces to correct imbalances, while adjustment mechanisms involve government intervention through policies such as exchange rate adjustments, fiscal measures, and income policies.

Assignments

1. Define the balance of payments (BOP) and explain its importance.
2. Discuss the structure of the BOP,. Explain the significance of each account in analysing a nation's economic transactions.
3. Compare and contrast the fixed exchange rate system and the flexible exchange rate system.
4. Elucidate factors that can lead to BOP disequilibrium**.**
5. Evaluate the role of adjustment mechanisms in correcting BOP imbalances.
6. Analyse real-world examples of countries facing BOP challenges and the strategies they employ to address them.

Suggested Reading

1. Soderston, B and Reed G.(1994) - *International Economics*, 3rd Edition, MacMillan Press Ltd. London
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2. Krugman P R and Obsfeild M (2009) - *International Economics- Theory and Policy*, (8th Edition) Pearson, Dorling Kindersley (India) Pvt. Ltd, New Delhi

UNIT 3
Policy Measures to Correct Balance of Payments

Learning Outcomes

After completing this unit, the learner will be able to:

- describe the workings of devaluation
- familiarise the concept of the elasticity and absorption approach
- evaluate the monetary approach of BOP

Background

When a nation engages in foreign trade, it may encounter either deficit or surplus in its balance of payments (BOP), both of which can significantly impact its economic growth. In such scenarios, countries often seek effective solutions to manage these imbalances. One common strategy employed is currency devaluation. After implementing devaluation, nations experience a series of effects, which can be analysed through theoretical frameworks such as the absorption approach, elasticity approach, and monetary approach. These theories provide insights into how devaluation affects the economy and whether it stimulates growth. Furthermore, in the practical realm of economics, these theories influence policy decisions and economic strategies, shaping the route of a nations' BOP dynamics. In this unit, we learn about them one by one.

Keywords

Exchange Rate, Fixed Exchange Rate, Flexible Exchange Rate, Devaluation

Discussion

4.3.1 Devaluation

- Deliberate action taken by the government to change the value of the currency

Devaluation means decreasing the value of a currency, and it is deliberately done by the government. For instance, the exchange rate of the Indian rupee against the US dollar is ₹ 60, which means that one US dollar can be bought with ₹ 60 Indian rupees. If the value of the Indian rupee changes from ₹ 60 to ₹ 65, it means that now it takes ₹ 65 Indian rupees to buy one US dollar. This indicates that the Indian rupee has devalued against the US dollar. On the other hand, when the government deliberately increases the value of its currency against foreign currencies, it is called revaluation. Suppose the value of the Indian rupee changes from ₹ 60 to ₹ 55, it means that now it takes ₹ 55 to buy one US dollar. This indicates that the Indian rupee has revalued against the US dollar.

- Devaluation corrects the current account deficit

If a country devalues its currency, it can help reduce the current account deficit. A current account deficit occurs when a country's imports of goods and services are greater than its exports. By devaluing its currency, a country's goods and services become cheaper compared to those of other countries. This makes the devaluing country's exports more attractive to foreign buyers, potentially increasing export volumes. On the other hand, devaluation makes imports more expensive for domestic consumers, which can reduce the demand for foreign goods and services. This combined effect of boosting exports and reducing imports can help to improve the current account balance.

4.3.2 Elasticity Approach

The elasticity approach is used to analyse the impact of currency devaluation, in relation to the Marshall-Lerner condition. It relates to the price effects of devaluation and explains how the exchange rate can restore equilibrium in the balance of payments by devaluing a country's currency. According to this theory, the sum of the absolute values of the price elasticities for the demand for exports and the demand for imports determines whether a devaluation will lead to an improvement or deterioration in the trade balance. This theory is built upon certain assumptions, they are:

- The supply of exports is perfectly elastic

- The price effect of devaluation

- Product prices are fixed in the domestic currency
- Income levels remains constant in the devaluing country
- The supply of imports is large
- The price elasticities of the demand for exports and imports are arc elasticities
- Price elasticity refers to arc elasticities
- The country's current account balance is equal to the trade balance

Based on the above assumptions, the Marshall-Lerner condition explains that if a country devalues its currency, it will improve the country's deficit on the balance of payments. Devaluation helps reduce the foreign price of exports and raise the domestic price of imports, which increases exports and reduces imports. However, the extent of the improvement due to devaluation depends on the price elasticities of the domestic demand for imports and the foreign demand for exports. According to the Marshall-Lerner condition, if the sum of the absolute values of the price elasticities for the demand for exports and imports is greater than one, devaluation will improve the country's balance of payments, that is

- If sum of the price elasticities is greater than one, devaluation will improve the BOP

$$e_x + e_m > 1$$

Where e_x is the demand elasticity of exports and e_m is the demand elasticity of imports.

On the other hand, if the sum of the absolute values of the price elasticities for the demand for exports and imports is less than one, devaluation will worsen the country's balance of payments, that is

$$e_x + e_m < 1$$

This is because the reduced foreign price of exports and the increased domestic price of imports will lead to a less favourable trade balance. The higher cost of imports will outweigh the gains from increased exports, leading to a deterioration in the overall balance of payments.

- If sum of the price elasticities is less than one, devaluation will worsen the BOP

In the case where the sum of the absolute values of the price elasticities for the demand for exports and imports is equal

to one, devaluation will have no effect on the balance of payments, that is

$$e_x + e_m = 1$$

This is because the percentage change in export revenue will exactly offset the percentage change in import expenditure. The increase in the quantity of exports will perfectly balance the decrease in the quantity of imports, leaving the trade balance unchanged. Therefore, there will be no net improvement or deterioration in the country's balance of payments.

- If sum of the price elasticities is equal to one, devaluation will not affect the BOP

4.3.2.1 Criticism of the Elasticity Approach

i. This approach is only applicable to the current account or balance of trade and ignores the capital account. One of the major reasons for a balance of payments deficit is the capital outflows. Devaluation as a solution aims to reduce imports and increase exports, but it does not address the outflow of capital.

- Applicable to the current account ignores the capital account

ii. The model assumes that the supply of both exports and imports is perfectly elastic, but in real-world situations, a country may not be able to increase the supply of exports when they become cheaper due to the devaluation of its currency.

iii. This theory is applicable in the long run and not in the short run. This is because the devaluation of a domestic currency takes time for consumers and producers to adjust to new prices.

4.3.3 J-Curve Effect

- Explains the dynamic response of a nation's trade balance after the country's devaluation

The J-curve effect explains the dynamic response of a nation's trade balance after the country's currency devaluation or depreciation. When a country devalues its currency, meaning the currency's value falls relative to other currencies, it can have positive impacts on the economy in the long run. However, this takes time because consumers and producers in the devalued country need time to adjust to the new situation.

After the implementation of devaluation, the immediate effect is that the price of imported goods rises in the domestic market, while the prices of exported goods do not increase as quickly. This leads to imported goods becoming more expensive, while exported goods do not become much more profitable.

- Devaluation is not effective in the short run

As a result, the country spends more on imports while not earning significantly more from exports, thus worsening the trade balance. Consequently, in the short run, devaluation worsens the trade balance of a nation. In the long run, this situation changes. The amount of exports increases, and the amount of imports decreases. Additionally, export prices eventually match the rising import prices. As a result, the initial worsening of the nation's trade balance stops and then starts to improve. When we plot the effects of devaluation, we see that in the short run, the trade balance deteriorates, but in the long run, it improves. This pattern forms a J-shaped curve so it is known as the J -curve effect. The impact of the devaluation on the country's trade balance can be explained with the help of a diagram.

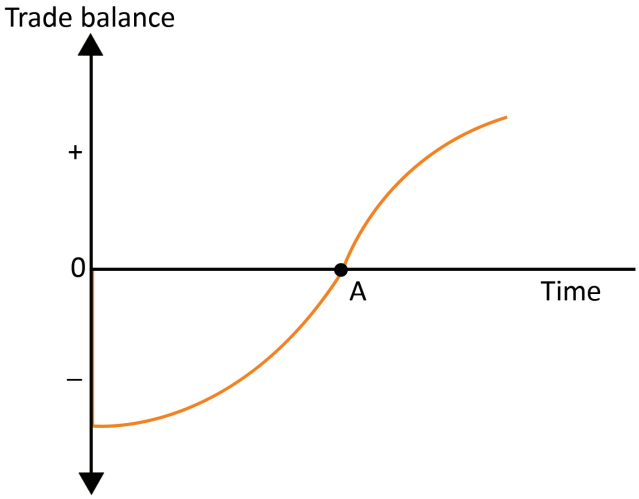

Fig 4.3.1 J-Curve Effect

- Devaluation is effective in the long run

The X-axis represents time, and the Y-axis represents the trade balance. In the figure, the X axis line is divided into two parts. The implementation of the devaluation may result in a deficit in the BOP in the short run, which is represented in the lower portion of the timeline. In the short term, the economy takes some time to adjust to the new situation. As exports increase and imports decrease, a trade surplus occurs in the long run, represented in the upper portion of the timeline. The improvement due to devaluation creates a J-shaped pattern curve.

4.3.4 Absorption Approach

The Absorption Approach was developed by Sydney Alexander. The model explains the income effects of devaluation. This concept is based on the Keynesian national income

relationship, so it is also known as the Keynesian approach. This theory states that if a country faces a deficit in the balance of payments, which means that the people are absorbing more than they produce, then domestic expenditure on consumption and investment is greater than national income. On the other hand, if the country faces a surplus in the balance of payments, they are absorbing less. Here, domestic expenditure on consumption and investment is less than national income. Here, the balance of payments refers to the difference between national income and domestic expenditure.

- Income effect of devaluation

The analysis can be explained in the following form:

$$Y = C + Id + G + X - M \quad \ldots\ldots\ldots\ldots\ldots\ldots (1)$$

Here, Y is national income, C is consumption expenditure, Id is the total domestic investment, G is autonomous government expenditure, X is export, and M is import. We define the sum of $C + Id + G$ as absorption, and $X-M$ as the balance of payments. Thus, equation (1) becomes:

$$Y = A + B \; or \; B = Y - A, \quad \ldots\ldots\ldots\ldots\ldots\ldots (2)$$

where Y is the national income, A is the absorption and B is the balance of payments.

- (BOP) on the current account depends on the difference between absorption and national income

The equation suggests that the balance of payments (BOP) on the current account depends on the difference between absorption and national income. So, the gap can be closed in two ways: by increasing national income or reducing absorption. To achieve this, Alexander recommends devaluation. Devaluation helps increase exports and decrease imports, resulting in a higher national income. The increased income leads to a multiplier effect, boosting domestic consumption. Therefore, the net effect of the increase in national income on the BOP is the difference between the total increase in income and the induced increase in absorption. Thus, it can be written as

$$DB = DY - DA \quad \ldots\ldots\ldots\ldots\ldots\ldots (3)$$

When there is devaluation, denoted by D, the total absorption, denoted as DA, depends on the marginal propensity to absorb (MPA). The marginal propensity to absorb is the sum of the marginal propensity to consume (MPC) and the marginal propensity to invest (MPI). This is expressed as 'a'. Thus

$$DA = aDY + DD \ldots\ldots\ldots\ldots\ldots\ldots (4)$$

Substituting equation (4) in (3), we get

$$DB = DY - aDY - DD$$

OR

$$DB - (1 - a)\, DY - DD$$

where the DB is the devaluation of the balance of payments (1-a) is the marginal propensity to save, a is the marginal propensity to absorb, DY is the change in income, and DD is the direct absorption (DD), In this equation, there are three factors that explain the effects of the devaluation of BOP. They are

i. Marginal propensity to absorb (A)
ii. Change in income (Y)
iii. Change in direct absorption (DD)

i. Marginal propensity to absorb (A)

- Marginal propensity to absorb a sum of MPI and MPC

The marginal propensity to absorb combines the marginal propensity to consume and the marginal propensity to invest, and it doesn't directly involve government investment (G). When the marginal propensity to absorb is less than one and there are idle resources in the country, devaluation can boost exports and reduce imports. This increase in output and income improves the BOP on the current account. Conversely, if the marginal propensity to absorb exceeds one, devaluation may negatively impact on the BOP. This indicates that people are spending or absorbing more on consumption and investment than the country produces. In such cases, devaluation may not effectively increase exports or reduce imports, thus worsening the BOP situation. Under conditions of full employment, if the marginal propensity to absorb is greater than one, the government may implement expenditure-reducing policies alongside devaluation. These policies aim to reallocate resources in the economy to boost exports and curb imports. Eventually, this adjustment can lead to an improvement in the BOP situation.

ii. Change in Income (Y)

When a country devalues its currency, it becomes cheaper

for foreign buyers to purchase goods and services produced in that country. This typically leads to an increase in exports. However, for domestic consumers, imports become more expensive, which can lead to a reduction in imports as consumers may switch to domestically produced goods. This increase in exports and decrease in imports can lead to an expansion of industries that compete in export markets, thus increasing income in those sectors. This gives rise to the multiplier effect on the economy, meaning that the additional income generated in the exporting sectors leads to further increases in spending and income throughout the economy. For example, workers in the export industries may spend their increased wages on various goods and services, leading to increased demand in other sectors of the economy, further boosting income. Devaluation can have positive effects on income and the balance of payments (BOP). If the country's resources are not fully employed, devaluation can lead to an improvement in the BOP. This is because the increase in exports and decrease in imports result in a surplus in the trade balance, improving the overall BOP position. However, if resources are fully employed, devaluation may not correct an adverse BOP. In this scenario, the increase in national income due to devaluation may lead to increased domestic demand for imports, which could offset the gains from increased exports, worsening the BOP situation.

- Devaluation has positive impacts on the income as well as BOP

iii. Change in Direct Absorption (DD)

If a country with idle resources devalues its currency, an expansionary process is set in motion, characterised by increased exports and decreased imports. Consequently, income rises, and so does absorption. If the increase in absorption is less than the rise in income, the balance of payments (BOP) will improve. Generally, the effect of devaluation on direct absorption is not significant in a country with idle resources. However, if the economy is fully employed and has a BOP deficit, national income cannot be decreased by devaluing the currency. In this scenario, an improvement in the BOP can be brought about by a reduction in direct absorption. Domestic absorption can fall automatically as a result of devaluation, due to factors like the real cash balance effect, money illusion, and income redistribution.

- Devaluation raises the income

4.3.5 Monetary Approach

According to the monetary approach to the balance of

payments, "a balance of payments deficit is always and everywhere a monetary phenomenon." This deficit can only be corrected by monetary measures. This theory is based on certain assumptions, which are as follows:

- A balance of payments deficit is always and everywhere a monetary phenomenon

- **Perfect competition in product and capital markets:** This ensures single price for each commodity and a interest rate across countries.
- **The law of one price holds** for identical goods sold in different countries, accounting for transportation costs
- **Exogenously determined level of country output:** The output level is determined outside the model and is not influenced by the balance of payments.
- **Full employment and wage-price flexibility in all countries:** This ensures that output remains at full employment levels.
- **Fixed exchange rate system**
- **Demand for money:** The demand for money is a stock concept that is a stable function of income, prices, wealth, and interest rates.
- **Supply of money:** The supply of money is a multiple of the monetary base, which includes domestic currency and foreign exchange reserves.
- The demand for money balances is a positive function of nominal income.

- Assumptions explain the relationship between the demand for money and the supply of money under the monetary approach

Based on these assumptions, we can explain the relationship between the demand for money and the supply of money under the monetary approach. The demand for money (M_d) is a stable function of income (Y), price (P), and the rate of interest (i), which can be written as:

$$M_d = f(Y,P,i)$$

The money supply (M_S) is a multiple of the monetary base, which includes the domestic money (D), and the country's foreign exchange reserve (R) which can be written as:

$$M_S = D + R$$

The equilibrium condition is that the demand for money equals the supply of money:

$$M_d = M_s$$

The country's Balance of Payments (BOP) position can be understood by examining the level of its foreign exchange reserves. Thus,

$$\Delta R = DM_D - DD \text{ or } \Delta R = B$$

Where B is the balance of payments, DM_D is the demand for money, DD is the domestic demand for money and ΔR is the changes in foreign exchange reserves. The equation shows that the balance of payments is the difference between the changes in the domestic demand for money and changes in the domestic credit. The BOP is in a balanced state when there is no net accumulation or depletion of these reserves, here the supply of nominal money balance is equal to its demand. In this case, the value of BOP is zero at this point. A deficit in the Balance of Payments indicates a reduction in foreign exchange reserves, implying that the supply of nominal money balances in the economy exceeds the demand, resulting in a negative BOP value. Conversely, a surplus in the BOP signifies an increase in foreign exchange reserves, indicating that the supply of nominal money balances is less than the demand, resulting in a positive BOP value.

- BOP positions represented by changing foreign reserves

4.3.5.1 Automatic Adjustment Mechanism in the Monetary Approach

The automatic adjustment mechanism in the monetary approach is explained under both fixed and flexible exchange rate systems.

Under the fixed exchange rate system, we assume that the money demand (MD) equals the money supply (MS), indicating that the economy is initially in equilibrium. Now, suppose the monetary authority increases the money supply without a corresponding change in the demand for money. As a result, the economy faces a BOP deficit. The increased money supply means that domestic residents hold more cash balances, which raises their purchasing power. Consequently, they can buy more foreign goods, leading to higher imports. This increase in imports raises the demand of foreign goods and assets, resulting in higher expenditures on both the current and capital accounts in the BOP, thereby creating a BOP deficit. In a fixed exchange rate system, the monetary authority will sell foreign exchange reserves and buy domestic

- Monetary authority corrects the BOP deficit

currency to maintain the fixed exchange rate. This outflow of foreign exchange reserves leads to a decrease in reserves and in the domestic money supply. This process continues until the money demand (MD) equals the money supply (MS) again, thereby restoring equilibrium in the nation's BOP.

- Monetary authority corrects the BOP surplus

On the other hand, when the economy experiences a surplus in the BOP under the fixed exchange rate system, individuals and entities within the country sell goods and securities to foreigners, receiving domestic currency in return. Simultaneously, they may also aim to increase their holdings of domestic currency by restricting their expenditures relative to their income. In response, the monetary authority intervenes by purchasing foreign currency in exchange for domestic currency. This action increases the inflow of foreign reserves and expands the domestic money supply. This process continues until the demand for money equals the supply of money. The model suggests that both deficits and surpluses in the BOP are temporary phenomena that are self-adjusting in the long run.

Let us explain the automatic adjustment mechanism in the monetary approach under fixed exchange rate systems with the help of the following figure.

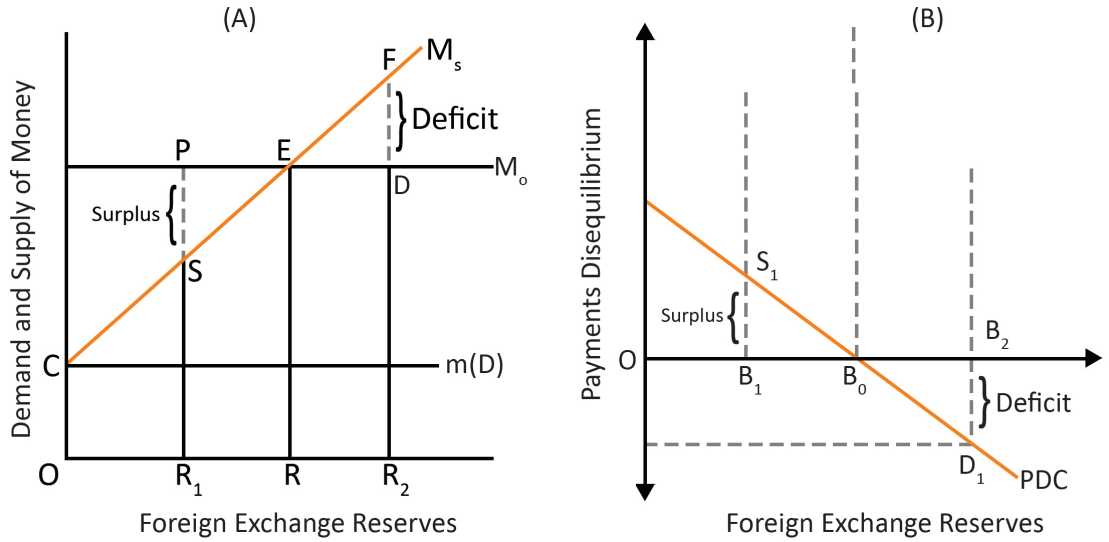

Fig 4.3.2 Monetary Approach to Correct BOP Disequilibrium

In Panel A, the X-axis represents foreign exchange reserves, while the Y-axis represents the demand and supply of money. M_D denotes the money demand curve, and MS represents the money supply curve. The monetary base m(D) is depicted as a

- The monetary base m(D) is depicted as a horizontal line

horizontal line, indicating that it is constant. Therefore, the M_S starts from point C. In Panel B, the X-axis represents foreign exchange reserves, while the Y-axis depicts the balance of payments disequilibrium. PDC represents the payments disequilibrium curve. This line is drawn as the vertical distance between the M_S and M_D curves in Panel A.

- There is an increase in the money supply to bring the BOP back to equilibrium at point E

In Panel A, point E denotes the equilibrium BOP of a nation, where the foreign exchange reserve is represented by R. This situation corresponds to point B_0 in Panel B. In Panel A, the SP points denote a surplus in the BOP, where M_D exceeds M_S. This surplus leads to an increase in the foreign exchange reserves, rising from OR_1 to OR. Additionally, there is an increase in the money supply to bring the BOP back to equilibrium at point E. This corresponding point in Panel B is denoted as B_1S_1. Point DF denotes a deficit in the BOP, where there is an outflow of foreign reserves from OR_2 to OR and a decrease in the money supply to reestablish BOP equilibrium at point E. The corresponding points for a BOP deficit in Panel B are denoted as B_2D_1.

- Under the flexible exchange rate system, when the BOP is balanced (B=0), there is no change in the foreign exchange reserve

Under the flexible exchange rate system, when the Balance of Payments (BOP) is balanced (B=0), there is no change in the foreign exchange reserve. Suppose the economy faces a BOP deficit due to the monetary authority increasing the money supply. In this scenario, individuals receive additional cash balances to buy more goods and services. This leads to an increase in the prices of domestic and imported goods, causing depreciation of the domestic currency and a rise in the exchange rate. The increase in prices also increases the demand for money, thereby restoring the equality of money demand (MD) and money supply (MS) without any outflow of foreign exchange reserves. Conversely, when MD exceeds MS, prices fall, leading to an appreciation of the domestic currency. This automatically eliminates the excess demand for money, adjusting the exchange rate until MD equals MS, and the BOP is in equilibrium without any inflow of foreign exchange reserves.

Summarised Overview

In this unit, we have explored devaluation, the elasticity approach, the absorption approach, and the monetary approach, which offer valuable insights into the mechanisms and implications of currency devaluation and its impact on the balance of payments (BOP). Devaluation, a deliberate government action, aims to adjust a country's currency value relative to others. It can help correct current account deficits by making exports more competitive and imports relatively more expensive, thus improving the trade balance. The elasticity approach, focusing on price elasticities of demand, explains how devaluation affects the trade balance. According to the Marshall-Lerner condition, devaluation can enhance the BOP if the sum of the price elasticities of demand for exports and imports exceeds one. Conversely, if this sum is less than one, devaluation may worsen the BOP. The J-curve effect illustrates the impact of currency devaluation on domestic prices and the demand for exports and imports. When a nation devalues its currency, the balance of payments (BOP) worsens in the short run due to increased import costs and reduced export competitiveness. The absorption approach, rooted in Keynesian principles, emphasizes the income effect of devaluation. It suggests that devaluation can bolster the BOP by boosting national income and curbing absorption, particularly in countries with underutilized resources.. The monetary approach underscores the role of monetary factors in addressing BOP imbalances. It argues that alterations in the money supply can influence the BOP through adjustments in exchange rates and foreign exchange reserves. Whether under fixed or flexible exchange rate systems, monetary policy interventions strive to restore equilibrium in the BOP by aligning money demand with money supply.

Assignments

1. Explain the concept of currency devaluation with the help of an example. How does it differ from revaluation?
2. Define the Marshall-Lerner condition. Explain its significance in determining whether devaluation will improve or worsen a country's BOP.
3. Under what conditions will devaluation improve the BOP according to the elasticity approach? What happens when the price elasticities of demand for exports and imports are less than one?
4. Using the absorption approach, analyse how devaluation can affect national income and domestic absorption. What role does the marginal propensity to absorb play in this context?
5. According to the monetary approach, how is a balance of payments deficit considered a monetary phenomenon? What are the key assumptions underlying this approach?

Suggested Reading

1. Soderston, B and Reed G.(1994) - *International Economics*, 3rd Edition, MacMillan Press Ltd. London
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