

International Economics

Dear students, these handouts are designed to help you understand all basic concepts, including the principles and theories of trade, trade policy and balance of payments issues, and the international monetary system. However, to fully understand your course contents, please watch video lectures and study from the book. Most of the reading material you will find from your books “International Economics by Dominick Salvatore (11th Edition) and International Economics Theory & Policy (9th Edition)”.

LESSON 01: INTRODUCTION TO INTERNATIONAL ECONOMICS

Topic 001: What is International Economics?

International economics deals with the issues related to economic interactions between sovereign states. International trade is a crucial concept of international economics, and this course also discusses international trade in detail, including trade theories and how trade is happening among the countries. Trade restrictions can disrupt the interaction between sovereign states.

There are seven basic concepts around which international economics revolve.

- The gains from trade
- The pattern of trade
- Protectionism
- The balance of payments
- Exchange rate determination
- International policy coordination
- The international capital market

Topic 002: The Gains from Trade

Countries sell goods and services to each other for their mutual benefit. When countries sell goods and services to each other, this exchange is almost always to help the people of countries by providing a wide variety of goods and services. The movement of capital goods helps developing and developed countries import goods from developing countries. International trade also allows countries to specialize in producing narrower ranges of goods, giving them greater efficiencies in large-scale production.

Trade is not just limited to exchanging tangible goods but also services. People move from one country to another for jobs and business, thus causing trade in services.

Does trade have adverse effects on the owners of the resources? International trade can adversely affect the owners of resources that are “specific” to industries that compete with imports, that is, cannot find alternative employment in other industries. Examples would include specialized machinery, such as power looms made less valuable by textile imports, and workers with specialized skills, like fishermen who find the value of their catch reduced by imported seafood.

Topic 003: The Pattern of Trade

The pattern of international trade means “who sells what to whom” has been a significant preoccupation of international economists. The policymakers can only suggest policies related to trade if they the depth of the effects trade has on the economy. Trade is considered an engine of growth, and trade policies are very significant for the countries. For the optimum policy solution, the trade patterns, trade potential, and all trade concepts related to trade become very significant. Some factors like climate, factor intensity, etc., are easier to explain the pattern of trade. Middle East countries usually export oil, while Brazil exports coffee. Developed countries enriched with capital export capital intensive commodities like automobiles and aircraft. The patterns of trade were discussed in the 19th century by Ricardo explained trade in terms of international differences in labor productivity. In contrast, patterns of trade were explained in the 20th century based on the availability and use of resources like land, labor, and capital. More recently, some international economists have proposed theories suggesting a substantial random component in the pattern of international trade.

Topic 004: How Much Trade

Since the emergence of modern nation-states in the 16th century, governments have worried about the effect of international competition on domestic industries. The most consistent mission of international economics has been to analyze the effects of these so-called protectionist policies—and usually, though not always, to criticize protectionism and show the advantages of freer international trade.

After World War II, the advanced democracies, led by the United States, pursued a broad policy of removing barriers to international trade. The North American Free Trade Agreement (NAFTA) between the United States, Canada, and Mexico was most notable, approved in 1993. The most significant step was forming the World Trade Organization, which was converting General Agreement on Tariff and Trade (GATT) in 1994. On the contrary, governments have tried to secure domestic industry by restricting imports and subsidizing exports (anti-trade policies). The conflicts

of interest within nations are usually more important in determining trade policy than conflicts of interest between nations.

Topic 005: Balance of Payment

The Balance of Payments (BOP) is a record of all monetary transactions between a country and the rest of the world within a defined period. Funds entering a country from a foreign source are booked as credit and recorded in the BOP. Outflows from a country are recorded as debits in the BOP. Let us say Japan exports 100 cars to the U.S. Japan books the export of the 100 cars as a debit in the BOP, while the U.S. books the imports as a credit in the BOP. A BOP statement of a country indicates whether the country has a surplus or a deficit of funds, i.e., when a country's export is more than its import, its BOP is said to be in surplus.

On the other hand, the BOP deficit indicates that its imports are more than its exports. Is it good for every country to have a trade surplus? The answer to this question depends on the economic analysis. South Korea had a \$40 billion trade surplus in 1998. Their trade surplus was forced on them by an economic and financial crisis, and they bitterly resented the necessity of running that surplus. There are many components of the balance of payments: current, capital, and financial. We will discuss these components in the coming lectures.

LESSON 02: IMPORTANT CONCEPTS IN INTERNATIONAL ECONOMICS

Topic 006: Exchange Rate Determination

The exchange rate represents the number of units of one currency exchanged for another. For example, if the exchange rate between the U.S. dollar (USD) and the Japanese yen (JPY) is 120 yen per dollar, one U.S. dollar can be exchanged for 120 yen in foreign currency markets. An exchange rate has two elements: a base currency and a counter currency. Given the relevance of the U.S. dollar as a reserve currency, most exchange rates use the USD as the base currency and the domestic currency as the counter currency. A few exceptions to this rule include the Euro and currencies of the Commonwealth (i.e., British Pound, Australian Dollar, New Zealand dollar), which use the domestic currency as the base currency.

The study of exchange rate determination is a relatively new part of international economics. For much of modern economic history, government action fixed exchange rates rather than determined in the marketplace. Before World War I, the values of the world's major currencies were fixed in

terms of gold; for a generation after World War II, the values of most currencies were fixed in terms of the U.S.

Topic 007: International Trade Policy Coordination

The international economy comprises sovereign nations, each free to choose its economic policies. One country's economic policies usually affect other countries in an integrated world economy. One best example is the Beggar thy neighbour policy, which aims to address one's own domestic problems at the expense of others — trading partners in particular, mainly through competitive devaluation of their currencies by the central bank. A fundamental problem in international economics is determining how to produce an acceptable degree of harmony among the international trade and monetary policies of different countries without a world government that tells countries what to do. The General Agreement on Tariffs and Trade (GATT) has governed international trade policies for almost 70 years. Since 1994, trade rules have been enforced by an international organization, the World Trade Organization (WTO) that can tell countries, including the United States, that their policies violate prior agreements.

Topic 008: The International Capital Market

Capital markets are the exchange system that transfers capital from investors to individuals and businesses requiring capital to finance investments. In the 1970s, oil-rich Middle Eastern nations placed their oil revenues in banks in London or New York, which lent money to governments and corporations in Asia and Latin America. Nowadays, China is funneling its export earnings into a range of foreign assets, including dollars that its government holds as international reserves. During the 1970s, banks in advanced countries lent large sums to firms and governments in poorer nations, especially Latin America. In 1982, however, Mexico, then several other countries, found themselves unable to pay back the money they owed. The resulting "debt crisis" persisted until 1990. In the 1990s, investors again became willing to put hundreds of billions of dollars into "emerging markets" in Latin America and Asia's rapidly growing economies. All too soon, however, this investment boom came to grief as well; Mexico experienced another financial crisis at the end of 1994, much of Asia was caught up in a massive crisis beginning in the summer of 1997, and Argentina had a severe crisis in 2002.

Topic 009: International Economics: Trade and Money

The international economy can be divided into two broad subfields, i.e., the study of international trade and the study of international money. International trade is the exchange of goods and services between countries. If you can walk into a supermarket and find Costa Rican bananas, Brazilian coffee, and a bottle of South African wine, you are experiencing the impacts of international trade. International trade allows countries to expand their markets and access goods and services that otherwise may not have been available domestically. Political economists such as Adam Smith and David Ricardo recognized the importance of international trade early on. Still, some argue that international trade can be bad for smaller nations, putting them at a more significant disadvantage on the world stage. In later lectures, we will discuss trade's positive and negative aspects for a country, given its size and policies.

The international monetary analysis focuses on the monetary side of the international economy, that is, on financial transactions such as foreign purchases of U.S. dollars. An example of an international trade issue is the conflict between the United States and Europe over Europe's subsidized exports of agricultural products; an example of an international monetary issue is the dispute over whether the foreign exchange value of the dollar should be allowed to float freely or be stabilized by government action.

Learning Outcomes

After reading this lesson, the students will be able to learn:

- What is meant by international economics and distinguish between international and domestic economic issues.
- Seven themes recur in international economics, and discuss their significance.
- Distinguish between the trade and monetary aspects of international economics.

BASIC TEXT BOOKS

1. Dominick Salvatore B., International Economics (Latest Edition), Prentice Hall.
2. Paul R. Krugman, Maurice Obstfeld, and Marc J. Melitz., International Economics Theory and Policy (Latest Edition), Pearson Series
3. Chacholiades, Mitiades, International Trade Theory and Policy (Latest Edition). McGraw Hill Book Company, New York, London.

LESSON 03: MERCANTILISTS' VIEWS ON TRADE AND THE LAW OF ABSOLUTE ADVANTAGE

Topic 10: Introduction and Some Basic Concepts of Trade

In this lesson, we will see the basis for trade and the gains from trade. Presumably (and as in the case of an individual), a nation will voluntarily engage in trade only if it benefits from trade. However, how are gains from trade generated, how significant are the gains, and how are they divided among the trading nations? To fully understand the basis of trade, we will study mercantilism and traditional international trade theories. Moreover, we will also learn about the pattern of trade. That is, what commodities are traded and which commodities are exported and imported by each nation? The patterns of trade will be determined with the help of multiple indicators. In coming lectures, these two points will remain the center of discussion.

Topic 11: The Mercantilists' Views on Trade

The mercantilists, a group of writers (merchants, bankers, government officials, and even philosophers) during the period 1500 to 1800, believed that trade was a zero-sum game (one can only get something at the expense of another). They held that the motivation for trade was self-interest and that the gains of the "winners" from trade were only obtained as a result of the "losses" of the losers. The mercantilists measured the economic welfare of a country in part by the size of its foreign trade surplus. If a country exported more than it imported, it would have a favorable balance of trade, resulting in an inflow of gold and silver from its trading partners. The mercantilists measured the wealth of a nation by the stock of precious metals (Bullion) it possessed. In contrast, today, we measure the wealth of a nation by its stock of human, man-made, and natural resources available for producing goods and services. The greater this stock of valuable resources, the greater the flow of goods and services to satisfy human wants, and the higher the standard of living in the nation. The latter would encourage demand within the domestic economy, increasing economic activity (output, employment, etc.). To achieve such, the mercantilists argued in favor of government imposition of tariffs on imports, accompanied by simultaneous implementation of policies to encourage exports. Such strategies reflect the self-interest that tended to motivate trade at the time.

Topic 12: Absolute Advantage

The mercantilist approach failed to fully explain the welfare benefits of trade, while they remained unaware of the effects of a trade surplus on the domestic economy. Concerning the latter, the

classical theorist David Hume showed that a favorable trade balance tends to be a temporary phenomenon, as it can lead to higher domestic inflation (more money chasing the same quantity of goods). Higher prices for domestically produced goods tend to adversely affect the international competitiveness of the economy's exports, thereby encouraging more imports into the country. Another classical theorist, Adam Smith, also refuted the mercantilists' belief that "the size of the world's economic pie is constant," and therefore, a nation may only gain from trade at the expense of its trading partners.

Smith argued that world output was not a fixed amount, but that trade between countries allowed the latter to specialize in the production of particular goods, improving productivity through the division of labor, and ultimately leading to an increase in world output.

In "The Wealth of Nations" (1776), Adam Smith argued for the benefits of free trade between countries. Output over and above that which was required for the domestic economy could be exported.

Smith argued that nations should concentrate on the production of those goods that they could produce most cheaply. In other words, When one nation is more efficient than (or has an absolute advantage over) another in the production of one commodity but is less efficient than (or has an absolute disadvantage with respect to) the other nation in producing a second commodity, then both nations can gain by each specializing in the production of the commodity of its absolute advantage and exchanging part of its output with the other nation for the commodity of its absolute disadvantage. For example, because of climatic conditions, Canada is efficient in growing wheat but inefficient in growing bananas (hothouses would have to be used). On the other hand, Nicaragua is efficient in growing bananas but inefficient in growing wheat. Thus, Canada has an absolute advantage over Nicaragua in the cultivation of wheat but an absolute disadvantage in the cultivation of bananas. The opposite is true for Nicaragua.

Under these circumstances, both nations would benefit if each specialized in producing the commodity of its absolute advantage and then traded with the other nation. Adam Smith (and the other classical economists who followed him) believed that all nations would gain from free trade and strongly advocated a policy of *laissez-faire* (i.e., as little government interference with the economic system as possible). Free trade would cause world resources to be utilized most efficiently and maximize world welfare. There were only a few exceptions to this policy of *laissez-faire* and free trade. One of these was the protection of industries necessary for national defense.

Topic 13: Absolute Advantage with the Help of Example

Table 2.1 shows that one hour of labor time produces six bushels of wheat in the United States but only one in the United Kingdom. On the other hand, one hour of labor time produces five yards of cloth in the United Kingdom but only four in the United States. Thus, the United States is more efficient than, or has an absolute advantage over, the United Kingdom in the production of wheat, whereas the United Kingdom is more efficient than, or has an absolute advantage over, the United States in the production of cloth. With trade, the United States would specialize in the production of wheat and exchange part of it for British cloth. The opposite is true for the United Kingdom.

■ **TABLE 2.1. Absolute Advantage**

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

If the United States exchanges six bushels of wheat (6W) for six yards of British cloth (6C), the United States gains 2C or saves 1/2 hour or 30 minutes of labor time (since the United States can only exchange 6W for 4C domestically). Similarly, the 6W that the United Kingdom receives from the United States is equivalent to or would require six hours of labor time to produce in the United Kingdom. These six hours can produce 30C in the United Kingdom (6 hours times 5 yards of cloth per hour). By exchanging 6C (requiring a little over one hour to produce in the United Kingdom) for 6W with the United States, the United Kingdom gains 24C or saves almost five labor - hours. The fact that the United Kingdom gains much more than the United States is not essential now. What is important is that both nations can gain from specialization in production and trade.

LESSON 04: LAW OF COMPARATIVE ADVANTAGE**Topic 14: Law of Comparative Advantage with example**

British economist David Ricardo first developed the comparative advantage theory, which attributed the cause and benefits of international trade to the differences in the relative opportunity costs (costs in terms of other goods given up) of producing the same

commodities among countries. In Ricardo's theory, which was based on the labor theory of value, the fact that one country could produce everything more efficiently than another was not an argument against international trade.

According to the law of comparative advantage, even if one nation is less efficient than (has an absolute disadvantage with respect to) the other nation in producing both commodities, there is still a basis for mutually beneficial trade. The first nation should specialize in the production and export of the commodity in which its absolute disadvantage is smaller (this is the commodity of its comparative advantage) and import the commodity in which its absolute disadvantage is greater (this is the commodity of its comparative disadvantage).

■ **TABLE 2.2. Comparative Advantage**

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

The only difference between Tables 2.2 and 2.1 is that the United Kingdom now produces only two yards of cloth per hour instead of five. Thus, the United Kingdom now has an absolute disadvantage in the production of both wheat and cloth with respect to the United States. However, since U.K. labor is half as productive in cloth but six times less productive in wheat with respect to the United States, the United Kingdom has a comparative advantage in cloth. On the other hand, the United States has an absolute advantage in wheat and cloth with respect to the United Kingdom, but since its absolute advantage is greater in wheat (6:1) than in cloth (4:2), the United States has a comparative advantage in wheat. To summarize, the U.S. absolute advantage is greater in wheat, so its comparative advantage lies in wheat. The United Kingdom's absolute disadvantage is smaller in cloth, so its comparative advantage lies in cloth. According to the law of comparative advantage, both nations can gain if the United States specializes in the production of wheat and exports some of it in exchange for British cloth (At the same time, the United Kingdom specializes in producing and exporting cloth.)

Topic 15: The Gains from Trade

In this topic we will show with the help of Table 2.2 (Previous topic) that how United States and the United Kingdom can both gain by each specializing in the production and exporting of the

commodity of its comparative advantage. Suppose the United States could exchange 6W for 6C with the United Kingdom. The United States would then gain 2C (or save 1/2 hour of labor time) since the United States could only exchange 6W for 4C domestically. To see that the United Kingdom would also gain, note that the 6W that the United Kingdom receives from the United States would require six hours to produce in the United Kingdom. The United Kingdom could instead use these six hours to produce 12C and give up only 6C for 6W from the United States. Thus, the United Kingdom would gain 6C or save three hours of labor time.

However, this is not the only rate of exchange i.e. 6W for 6C at which mutually beneficial trade can take place. Since the United States could exchange 6W for 4C domestically (in the sense that both require 1 hour to produce), the United States would gain if it could exchange 6W for more than 4C from the United Kingdom. On the other hand, in the United Kingdom $6W = 12C$ (in the sense that both require 6 hours to produce). Anything less than 12C that the United Kingdom must give up to obtain 6W from the United States represents a gain from trade for the United Kingdom. To summarize, the United States gains to the extent that it can exchange 6W for more than 4C from the United Kingdom. The United Kingdom gains to the extent that it can give up less than 12C for 6W from the United States. Thus, the range for mutually advantageous trade is

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

The spread between 12C and 4C (i.e., 8C) represents the total gains from trade available to be shared by the two nations by trading 6W. For example, we have seen that when 6W are exchanged for 6C, the United States gains 2C and the United Kingdom 6C, making a total of 8C. The closer the rate of exchange is to $4C = 6W$ (the domestic, or internal, rate in the United States—see Table 2.2), the smaller is the share of the gain going to the United States and the larger is the share of the gain going to the United Kingdom. On the other hand, the closer the rate of exchange is to $6W = 12C$ (the domestic, or internal, rate in the United Kingdom), the greater is the gain of the United States relative to that of the United Kingdom. Similarly different rate of exchange can be tried to grasp the idea.

Topic 16: The Case of No Comparative Advantage

There is one (not very common) case when there is no comparative advantage. This occurs when the absolute disadvantage that one nation has with respect to another nation is the same in both commodities. The following table shows the best picture where there exists no comparative advantage.

	U.S	U.K
Wheat (bushels/hour)	6	3
Cloth (yards/hour)	4	2

In the above table, the United Kingdom would be exactly half as productive as the United States in both wheat and cloth. The United Kingdom (and the United States) would then have a comparative advantage in neither commodity, and no mutually beneficial trade could take place. It means the law will be complete if we state it as “Even if one nation has an absolute disadvantage with respect to the other nation in the production of both commodities, there is still a basis for mutually beneficial trade unless the absolute disadvantage (that one nation has with respect to the other nation) is in the same proportion for the two commodities.

LESSON 05: COMPARATIVE ADVANTAGE AND PRODUCTION POSSIBILITY FRONTIER (PPF) UNDER CONSTANT COSTS

Topic 17: Comparative Advantage with Money

The difference in wages may be the reason for trade between U.S and U.K, although the U.S is more efficient in producing both commodities and still imports cloth from the U.K. The wages in the U.K will be sufficiently lower than wages in the U.S to make the price of cloth lower in the U.K and the price of wheat lower in the U.S when both commodities are expressed in terms of the currency of either nation. Suppose that the wage rate in the United States is \$6 per hour. It is given in Table 2.2 that one hour produces 6W in the United States, and the price of a bushel of wheat is $PW = \$1$. On the other hand, since one hour produces 4C, $PC = \$1.50$ (from $\$6/4C$). Suppose that at the same time, the wage rate in England is £1 per hour (the symbol “£” stands for pound, the U.K. currency). Since one hour produces 1W in the United Kingdom (see Table 2.2), $PW = £1$ in the United Kingdom. Similarly, since one hour produces 2C, $PC = £0.5$. If the exchange rate between the pound and the dollar is $£1 = \$2$, then $PW = £1 = \$2$ and $PC = £0.5 = \$1$ in the United Kingdom. Table 2.3 shows the dollar price of wheat and cloth in the United States and the

United Kingdom at the exchange rate of £1 = \$2.

■ **TABLE 2.3.** Dollar Price of Wheat and Cloth in the United States and United Kingdom at £1 = \$2

	U.S.	U.K.
Price of one bushel of wheat	\$1.00	\$2.00
Price of one yard of cloth	1.50	1.00

The dollar price of wheat is lower in the U.S than in the U.K. On the other hand, the dollar price of cloth is lower in the U.K. If the exchange rate were £1 = \$3 (so that the U.K. wage rate was exactly 1/2 the U.S. wage rate), the price of cloth in the United Kingdom would be $PC = £0.5 = \$1.50$ (the same as in the United States—see Table 2.3). As a result, the United Kingdom could not export cloth to the United States. Trade would be unbalanced in favor of the United States, and the exchange rate would have to fall. The rate of exchange between the dollar and the pound will eventually settle at the level that will result in balanced trade (in the absence of any interference or other international transactions).

Topic 18: Comparative Advantage and the Labor Theory of Value

Ricardo's theory has many assumptions like (1) only two nations and two commodities, (2) free trade, (3) perfect mobility of labor within each nation but immobility between the two nations, (4) constant costs of production, (5) no transportation costs, (6) no technical change, and (7) the labor theory of value. Although assumptions one through six can easily be relaxed, assumption seven (i.e., that the labor theory of value holds) is not valid and should not be used for explaining comparative advantage. The seventh point is the labor theory of value. The labor theory of value postulates that a commodity's value (price) depends exclusively on the amount of labor (labor is the only factor of production and is homogeneous). Both assumptions are quite unrealistic. For example, much more capital equipment per worker is required to produce some products (such as steel) than to produce other products (such as textiles). In addition, there is usually some possibility of substitution between labor, capital, and other factors in the production of most commodities. Furthermore, labor is obviously not homogeneous but varies greatly in training, productivity, and wages. In any event, the theory of comparative advantage need not be based on the labor theory of value but can be explained on the basis of the opportunity cost theory (which is acceptable). To be noted is that Ricardo himself did not believe in the labor theory of value and used it only as a simple way to explain the law of comparative advantage.

Topic 19: The Opportunity Cost Theory

Haberler (1936) explained Ricardo's theory with the help of opportunity cost. The cost of a commodity is the amount of a second commodity that must be given up to release just enough resources to produce one additional unit of the first commodity. Nations should specialize in that commodity in which the opportunity cost is less. Once again, taking help from Table 2.2 i.e.

■ **TABLE 2.2. Comparative Advantage**

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

For example, if, in the absence of trade, the United States must give up two-thirds of a unit of cloth to release just enough resources to produce one additional unit of wheat domestically, then the opportunity cost of wheat is two-thirds of a unit of cloth (i.e., $1W = 2/3C$ in the United States). According to the law of comparative advantage, the United States should specialize in producing wheat and export some of it in exchange for British cloth.

Topic 20: The Production Possibility Frontier (PPF) under Constant Costs

PPF is a curve that shows the *alternative* combinations of the two commodities that a nation can produce by fully utilizing all of its resources with the best technology available to it.

■ **TABLE 2.4. Production Possibility Schedules for Wheat and Cloth in the United States and the United Kingdom**

United States		United Kingdom	
Wheat	Cloth	Wheat	Cloth
180	0	60	0
150	20	50	20
120	40	40	40
90	60	30	60
60	80	20	80
30	100	10	100
0	120	0	120

Table 2.4 gives the (hypothetical) production possibility schedules of wheat and cloth for the United States and the United Kingdom. The United States can produce 180W and 0C, 150W and 20C, or 120W and 40C, down to 0W and 120C. For each 30W the United States gives up, just enough resources are released to produce an additional 20C. That is $30W = 20C$ (in the sense that

both require the same amount of resources). On the other hand, the United Kingdom can produce 60W and 0C, 50W and 20C, or 40W and 40C, down to 0W and 120C. It can increase its output by 20C for each 10W it gives up. Each point on a frontier represents one combination of wheat and cloth that the nation can produce. For example, at point A, the United States produces 90W and 60C. At point A', the United Kingdom produces 40W and 40C. Figure 2.1 shows the PPF as:

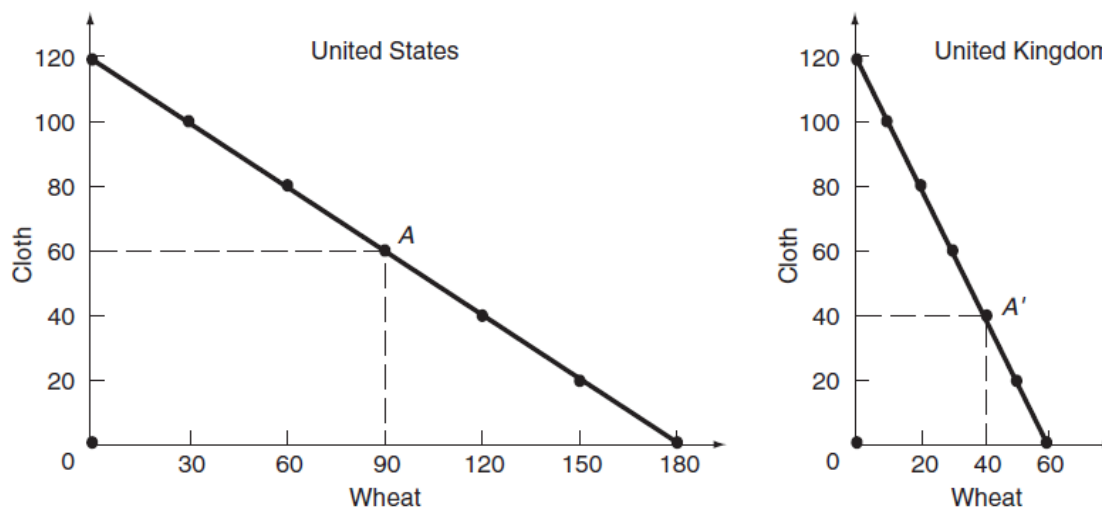


Figure 2.1: The Production Possibility Frontiers of the United States and the United Kingdom

The fact that the production possibility frontiers of both nations are straight lines reflects that their opportunity costs are constant. The same is true for the production of more cloth. Thus, we have constant costs in the sense that the same amount of one commodity must be given up to produce each additional unit of the second commodity.

LESSON 06: OPPORTUNITY COST AND RELATIVE COMMODITY PRICES

Topic 21: Opportunity Costs and Relative Commodity Prices

The opportunity cost of wheat is equal to the amount of cloth the nation must give up to release just enough resources to produce one additional unit of wheat. The slope of the PPF, or transformation curve, is sometimes referred to as the marginal rate of transformation.

It can be seen in Figure 2.1 that the U.S. transformation curve is $120/180 = 2/3$. U.K. transformation curve is $120/60 = 2$. Opportunity Cost of wheat is $P_W / P_C = 2/3$ in USA, and for cloth it is $P_C / P_W = 3/2 = 1.5$. Opportunity Cost of wheat is $P_W / P_C = 2$ in UK, and for cloth $P_C / P_W = 1/2$. The lower P_W / P_C in the United States ($2/3$ as opposed to 2) reflect its comparative

advantage in wheat. Under constant costs, PW/PC is determined exclusively by production or supply.

Topic 22: The Basis for and the Gains from Trade under Constant Costs

Without trade, the nation's production possibility frontier also represents its consumption frontier. USA chooses to produce and consume at A (90W and 60C), and the UK choose a combination at A' (40W and 40C). It is shown in figure 2.2 below:

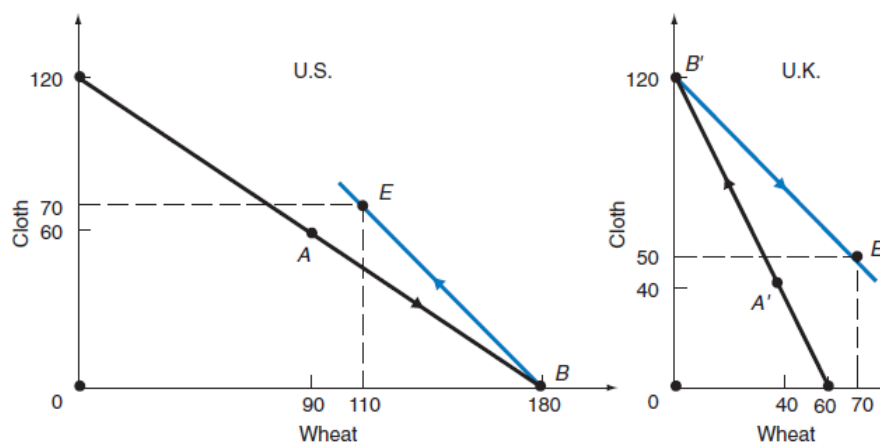


FIGURE 2.2. The Gains from Trade.

With trade possible between two countries, USA produce at point B (180W and 0C) shows specialization in wheat production while UK produce at point B' (0W and 120C) shows specialization in cloth production. Trade between two countries is 70W for 70C. Both countries gain from trade as the US consumes at point E (110W and 70C) while the UK consumes at E' (70W and 50C). After the trade, wheat production increased from 130 to 180 units, and cloth production increased from 100 to 120 units.

Topic 23: Relative Commodity Prices with Trade

The trade model can be illustrated by the supply and demand curves for wheat and cloth shown in Figure 2.3.

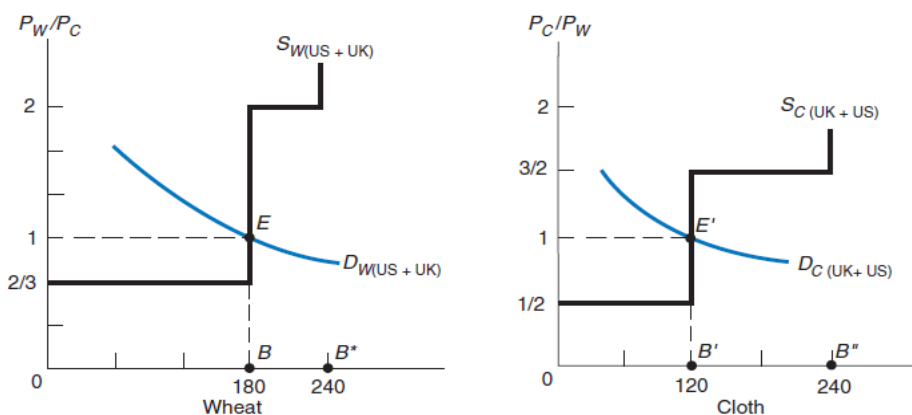


FIGURE 2.3. Equilibrium-Relative Commodity Prices with Demand and Supply.

USA could produce a maximum of $180W = OB$ at $P_W/P_C = 2/3$. UK could produce a maximum of $60W = BB^*$ at $P_W/P_C = 2$. $240W$ is the maximum combined total quantity of wheat that the US and the UK could produce if both nations used all of their resources to produce wheat. SW (US+UK) is the combined supply curve for wheat of USA and UK. Suppose the combined demand curve for US and UK curve is DW (US+UK). The demand and supply curve intersect at point E, where the equilibrium price of $P_W/P_C = 1$ with a trade and equilibrium quantity of $180W$. Note that, with trade, wheat is produced only in the United States, and the United States specializes completely in the production of wheat. The same concept is illustrated for the demand and supply of cloth.

Suppose when the demand curve intersects between O and B on the horizontal portion of the supply curve. The trade would take place at the pre-trade relative commodity price of wheat of $P_W/P_C = 2/3$ in the United States, and the United Kingdom would receive all the gains from trade. Here UK (small country) completely specializes, and the U.S do not completely specialize shows the concept of “the importance of being unimportant”.

Learning Outcomes

After reading this lesson, the students will be able to learn:

- The basis of trade through absolute advantage and comparative advantage theory of trade
- the relationship between opportunity costs and relative commodity prices
- the gains from trade under constant costs conditions

BASIC TEXT BOOKS

- Dominick Salvatore B., International Economics (Latest Edition), Prentice Hall.

- Paul R. Krugman, Maurice Obstfeld, and Marc J. Melitz., International Economics Theory and Policy (Latest Edition), Pearson Series
- Chacholiades, Mitiades, International Trade Theory and Policy (Latest Edition). McGraw Hill Book Company, New York, London.

LESSON 07: THE PRODUCTION FRONTIER WITH INCREASING COSTS

Topic 24: The Production Frontier with Increasing Costs

It is more realistic for a nation to face increasing rather than constant opportunity costs (concave from the origin rather than a straight line). Increasing opportunity costs mean that the nation must give up more and more of one commodity to release just enough resources to produce each additional unit of another commodity. Figure 3.1 shows the hypothetical production frontier of commodities X and Y for Nations 1 and 2.

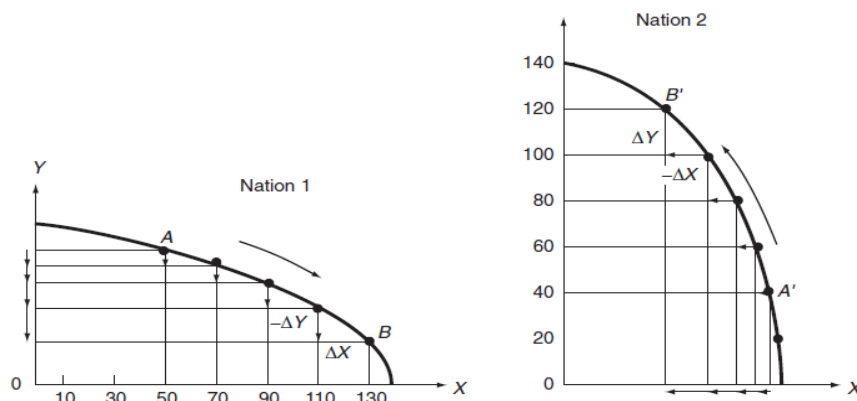


FIGURE 3.1. Production Frontiers of Nation 1 and Nation 2 with Increasing Costs.

Additional batch of 20X that Nation 1 produces, it must give up more and more Y (moving from A towards B) as shown in the Figure 3.1. similar case is for the Nation 2 where it must give up more and more of X while moving from A' to B'.

Topic 25: Reasons for Increasing Opportunity Costs and Different Production Frontiers

The meaning of increasing opportunity costs is reflected in concave production frontiers (Figure 3.1). The two main reasons for concave PPF is that factor of production are not used in the *same* fixed proportion or intensity in the production of all commodities, and all units of the same factor are not identical or of the same quality. For example, suppose some of a nation's land is flat and suited for growing wheat, and some are hilly and better suited for grazing and milk production. The nation originally specialized in wheat but now wants to concentrate on producing milk. By transferring its hilly areas from wheat growing to grazing, the nation gives up very little wheat and obtains a great deal of milk. Thus, the opportunity cost of milk in terms of the amount of wheat given up is initially small. However, if this transfer process continues, flat land, better suited for wheat growing, will have to be used for grazing. As a result, the opportunity cost of milk will rise, and the production frontier will be concave from the origin.

The difference in the production frontiers of Nation 1 and Nation 2 in Figure 3.1 is because the two nations have different factor endowments or resources at their disposal and/or use different technologies in production.

Topic 26: The Marginal Rate of Transformation

The amount of Y that a nation must give up to produce each additional unit of X is called as Marginal Rate of Transformation (MRT) of X for Y. With the help of Figure 3.1, the concept of MRT can be explained. MRT is measured with the help of PPF. The slope of PPF gives the MRT value as it shows X's opportunity cost in terms of Y. A movement from point A down to point B (Figure 3.1) along the production frontier of Nation 1 involves an increase in the slope (MRT) from $1/4$ (at point A) to 1 (at point B).

Topic 27: Community Indifference Curves

A community indifference curve shows the combinations of two commodities that yield equal satisfaction to the community or nation. The properties of the community indifference curve are the same as the properties of an individual's indifference curve. Higher curves refer to greater satisfaction; community indifference curves are negatively sloped, convex from the origin, and must not cross each other. The declining slope of the curve reflects the diminishing marginal rate of substitution (MRS) of X for Y in consumption. Figure 3.2 shows three hypothetical indifference curves for Nation 1 and Nation 2.

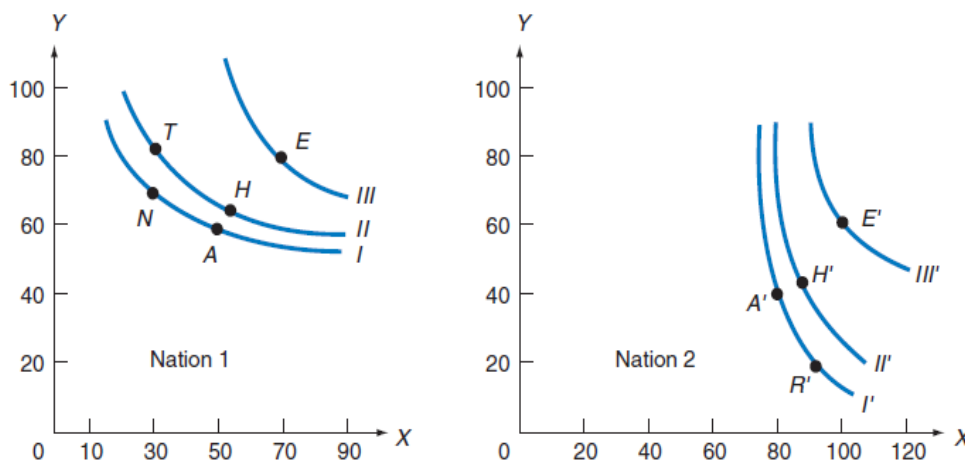


FIGURE 3.2. Community Indifference Curves for Nation 1 and Nation 2.

Points N and A give equal satisfaction to Nation 1, since they are both on indifference curve I . Points T and H refer to a higher level of satisfaction, since they are on a higher indifference curve (II). For Nation 2, $A' = R' < H' < E'$.

Topic 28: The Marginal Rate of Substitution (MRS)

The marginal rate of substitution (MRS) of X for Y in consumption refers to the amount of Y a nation could give up for one extra unit of X and still remain on the same indifference curve.

MRS slope of the community indifference curve at the point of consumption declines as the nation moves down the curve. In Figure 3.2, the slope, or MRS, of indifference curve- I is greater at point N than at point A . Declining MRS means that community indifference curves are convex from the origin.

Topic 29: Difficulties with Community Indifference Curves

It was assumed that community indifference curves must not intersect (cross). Free trade can change the income distribution due to its effect on consumers and producers of the country, will change the distribution of real income in the nation, and may cause indifference curves to intersect. However, a different income distribution would result in a completely new set of indifference curves, which might intersect previous indifference curves. In that case, we could not use community indifference curves to determine whether the opening or the expansion of trade increased the nation's welfare. According to the compensation principle, the nation benefits from trade if the gainers would be better off even after fully compensating the losers for their losses. This is true whether or not compensation actually occurs.

LESSON 08: EQUILIBRIUM-RELATIVE COMMODITY PRICES AND GAINS FROM TRADE WITH COMPARATIVE ADVANTAGE

Topic 30: Equilibrium in Isolation

In the absence of trade, a nation is in equilibrium when it reaches the highest indifference curve possible given its production frontier. The common slope of the two curves at the tangency point gives the internal equilibrium-relative commodity price in the nation. Following Figure 3.3 brings together the production frontiers of Figure 3.1 and the community indifference curves of Figure 3.2.

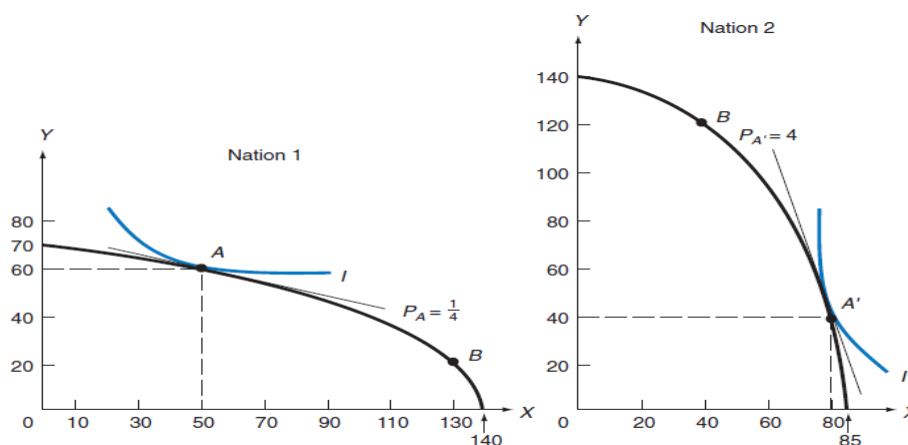


FIGURE 3.3. Equilibrium in Isolation.

Nation 1 is in equilibrium, or maximizes its welfare, when it produces and consumes at point A in the absence of trade. The equilibrium-relative price of X in Nation 1 is $P_A = 1/4$ at point A while in Nation 2 it is $P_{A'} = 4$. Nation 1 has a comparative advantage in commodity X and Nation 2 in commodity Y (based on relative prices).

Topic 31: Equilibrium-Relative Commodity Prices and Comparative Advantage

The equilibrium-relative commodity price in isolation is given by the slope of the tangent common to the nation's production frontier and indifference curve at the autarky point of production and consumption. Thus, the equilibrium-relative price of X in isolation is $P_A = P_X/P_Y = 1/4$ in Nation 1 and $P_{A'} = P_X/P_Y = 4$ in Nation 2 (see Figure 3.3). Figure 3.3 illustrates that the forces of supply and the forces together determine the equilibrium-relative commodity prices in each nation in autarky.

Topic 32: The Basis for and the Gains from Trade with Increasing Costs

A difference in relative commodity prices between two nations reflects their comparative advantage and forms the basis for mutually beneficial trade. Specialization will continue until relative commodity prices in the two nations become equal at the level at which trade is in equilibrium. Figure 3.4 illustrates gains from trade of Nation 1 and Nation 2.

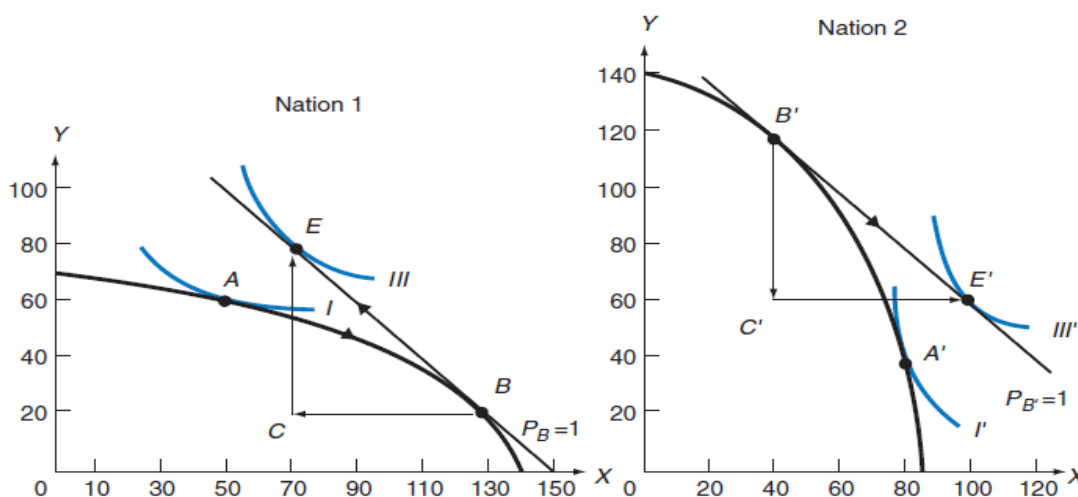


FIGURE 3.4. The Gains from Trade with Increasing Costs.

Starting from point A, as Nation 1 specializes in the production of X and moves down its production frontier, it incurs increasing opportunity costs in the production of X. The common relative price (slope) with trade will be somewhere between the pre-trade relative prices of $1/4$ and 4 , at the level at which trade is balanced. In Figure 3.4, this is $P_B = P_{B'} = 1$. With trade, Nation 1 moves from point A to point B in production. Nation 1 exchanges $60X$ for $60Y$ with Nation 2 (trade triangle BCE), and Nation 1 ends up consuming at point E ($70X$ and $80Y$) at indifference III. Nation 1 and Nation 2 gains $20X$ and $20Y$ from trade consumption at point E and E' . Both the nations are now consuming outside their production frontier.

LESSON 09: RELATIVE COMMODITY PRICES WITH TRADE AND SMALL-COUNTRY CASE WITH INCREASING COSTS

Topic 33: Equilibrium-Relative Commodity Prices with Trade

The equilibrium-relative commodity price with trade is the common relative price in both nations at which trade is balanced. In Figure 3.4, equilibrium-relative commodity price ($P_B = P_{B'} = 1$) with trade is the common relative price in both nations at which trade is balanced. The amount of X that Nation 1 wants to export ($60X$) equals the amount of X that Nation 2 wants to import ($60X$), and the same is for commodity Y. The trade will be unbalanced if the relative price change to any other level. Suppose at $P_X/P_Y = 2$; Nation 1 would like to export more. Greater Nation 1's desire is for Y, and the weaker Nation 2's desire is for X, the closer the equilibrium price with trade will be to $1/4$, and the smaller will be Nation 1's share of the gain. Once the equilibrium-relative price with

trade is determined, we will know exactly how the gains from trade are divided between the two nations, and our trade model will be complete.

Topic 34: Incomplete Specialization

There is difference between trade model under increasing costs and the constant opportunity costs. Under constant costs, both nations specialize completely in production of the commodity of their comparative. Incomplete specialization is due to the increasing opportunity cost. As shown in figure 3.4, Nation 1 specializes in the production of X; it incurs increasing opportunity costs in producing X. Similarly, as Nation 2 produces more Y, it incurs increasing opportunity costs in Y. Relative commodity prices move toward each other until they are identical in both nations due to the specialization process.

Topic 35: Small-Country Case with Increasing Costs

Like constant opportunity cost, we find incomplete specialization even in small nation when it faces increasing opportunity cost. We can use Figure 3.4 as a reference graph to show small country case with increasing cost. Suppose the equilibrium-relative price of X on the world market is 1 while the relative price in a small nation is $1/4$. With the opening of trade, Nation 1 specializes in the production of X (due to comparative advantage) until it reaches point B. Even though Nation 1 is now considered a small country; it still does not specialize completely in the production of X (as would be the case under constant costs). Nation 1 reaches point E by exchanging $60X$ for $60Y$ and getting an additional $20X$ and $20Y$.

LESSON 10: FORMS OF GAINS IN TRADE AND TRADE BASED ON DIFFERENCES IN TASTE

Topic 36: The Gains from Exchange and from Specialization

The increase in consumption from point A to point T represents the gains from exchange alone. The increase in consumption from T to E would represent the gains from specialization in production. A nation's gains from trade can be broken down into two components: the gains from exchange and the gains from specialization. Suppose the autarky price line, $PA = 1/4$, and Nation 1 could not specialize in the production of X with the opening of trade but continued to produce at point A.

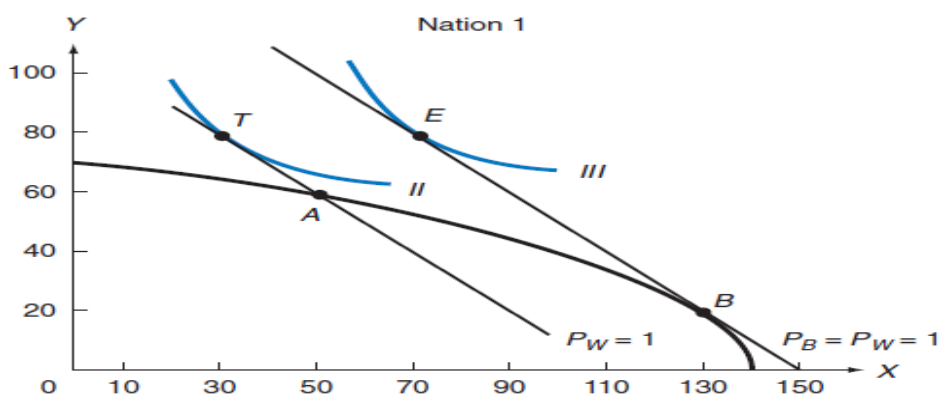


FIGURE 3.5. The Gains from Exchange and from Specialization.

Nation 1 could export 20X in exchange for 20Y at the prevailing world relative price of $P_W = 1$ and consumes at point E (70 X and 80Y). The increase in consumption from point A to point T represents the gains from exchange alone. The increase in consumption from T to E would represent the gains from specialization in production.

Topic 37: Trade Based on Differences in Tastes

Suppose the production frontiers of the two nations are now same. With identical PPF (which is unlikely), there will still be a basis for mutually beneficial trade if tastes in the two nations differ. The following diagram illustrates the mutual benefits.

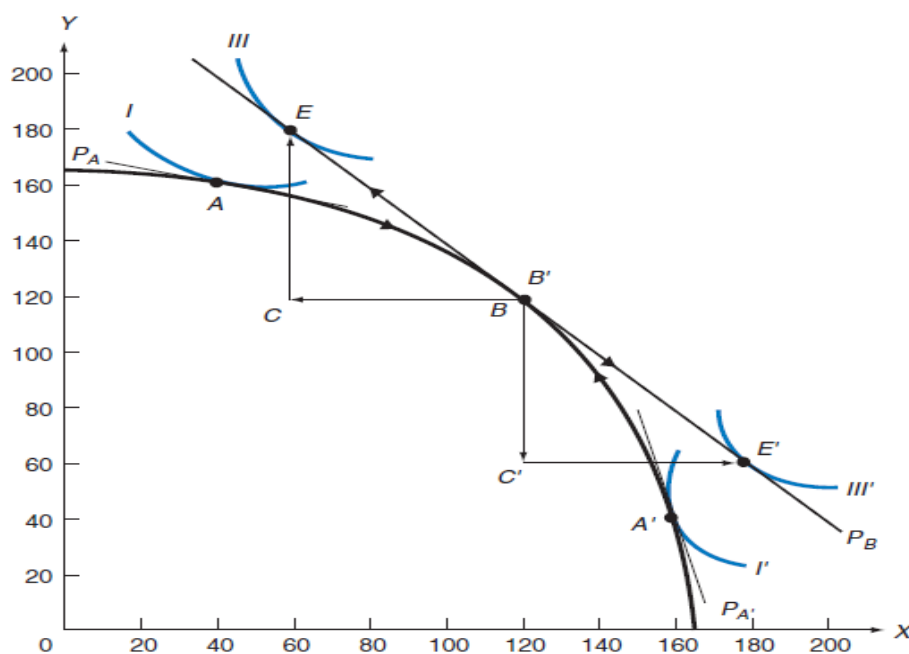


FIGURE 3.6. Trade Based on Differences in Tastes.

In isolation, Nation 1 produces and consumes at point A and Nation 2 at point A'. It is evident from the figure that $P_A < P_{A'}$, Nation 1 has a comparative advantage in X and Nation 2 in Y. With

the opening of trade, Nation 1 specializes in the production of X (and moves down its production frontier), while Nation 2 specializes in Y (and moves up its production frontier). By exchanging 60X for 60Y with each other, Nation 1 ends up consuming at E, while Nation 2 consumes at E'. By exchanging 60X for 60Y with each other, Nation 1 ends up consuming at E, while Nation 2 consumes at E'.

Learning Outcomes

After reading this lesson, the students will be able to:

- Understand how relative commodity prices and the comparative advantage of nations are determined under increasing costs
- Show the basis and the gains from trade with increasing costs
- Explain the relationship between international trade and deindustrialization in the United States and other advanced nations

BASIC TEXT BOOKS

- Dominick Salvatore B., International Economics (Latest Edition), Prentice Hall.
- Paul R. Krugman, Maurice Obstfeld, and Marc J. Melitz., International Economics Theory and Policy (Latest Edition), Pearson Series
- Chacholiades, Mitiades, International Trade Theory and Policy (Latest Edition). McGraw Hill Book Company, New York, London.

LESSON 11: PARTIAL EQUILIBRIUM ANALYSIS AND ORIGIN OF OFFER CURVE**Topic 38: Equilibrium-Relative Commodity Price with Trade: Partial Equilibrium Analysis**

Figure 4.1 shows how the equilibrium-relative commodity price with trade is determined by partial equilibrium analysis.

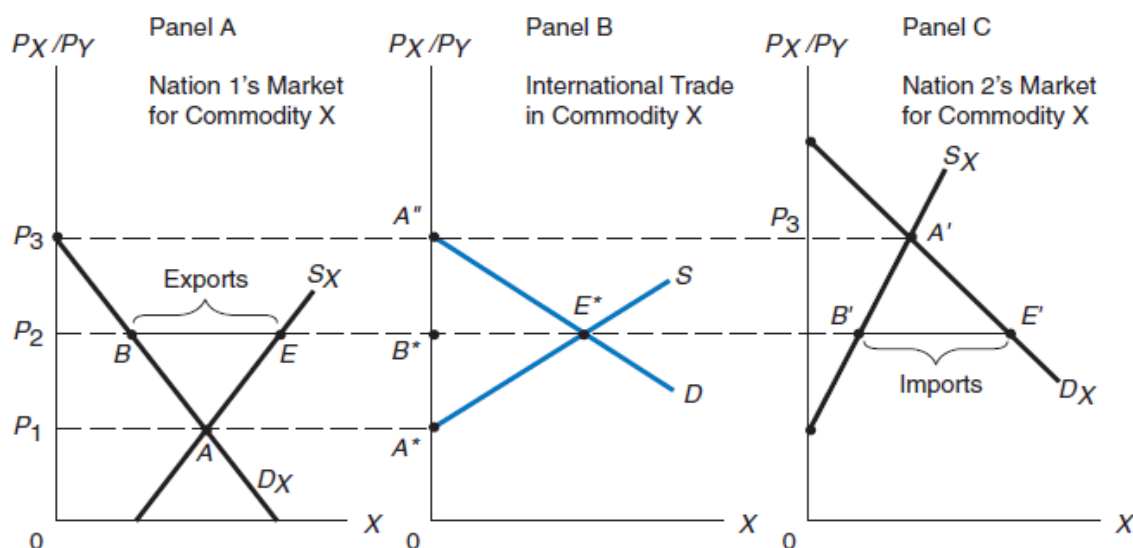


FIGURE 4.1. The Equilibrium-Relative Commodity Price with Trade with Partial Equilibrium Analysis.

Curves D_X and S_X in panels A and C of Figure 4.1 refer to the demand and supply curves for commodity X of Nation 1 and Nation 2, respectively. The vertical axes in all panels of Figure 4.1 measure the relative price of commodity X while horizontal axes measure the quantities of commodity X. In the absence of trade, Nation 1 produces and consumes at point A, while Nation 2 at A' . With the opening of trade, the relative price of X will be between P_1 and P_3 if both nations are large. In Panel A at P_1 , Nation 1 exports nothing of commodity X (A^* in Panel B). In Panel A, at P_2 (equilibrium price), Nation 1 exports BE (equal to B^*E^* in Panel B). When $P_X/P_Y > P_2$ (Exports > Imports) P_X/P_Y will fall and when $P_X/P_Y < P_2$ (Imports > Exports) P_X/P_Y will rise.

Topic 39: Origin and Definition of Offer Curves

Offer curves (reciprocal demand curves) were devised and introduced into international economics by Alfred Marshall and Ysidro Edgeworth at the turn of the twentieth century.

The offer curve of a nation shows the nation's willingness to import and export at various relative commodity prices. The offer curve of a nation can be derived from the nation's production frontier, its indifference map, and the different hypothetical relative commodity prices at which trade could take place.

LESSON 12: DERIVATION OF THE OFFER CURVES AND GENERAL EQUILIBRIUM ANALYSIS

Topic 40: Derivation and Shape of the Offer Curve of Nation 1

The offer curve for Nation 1 is derived in Figure 4.3 as follow:

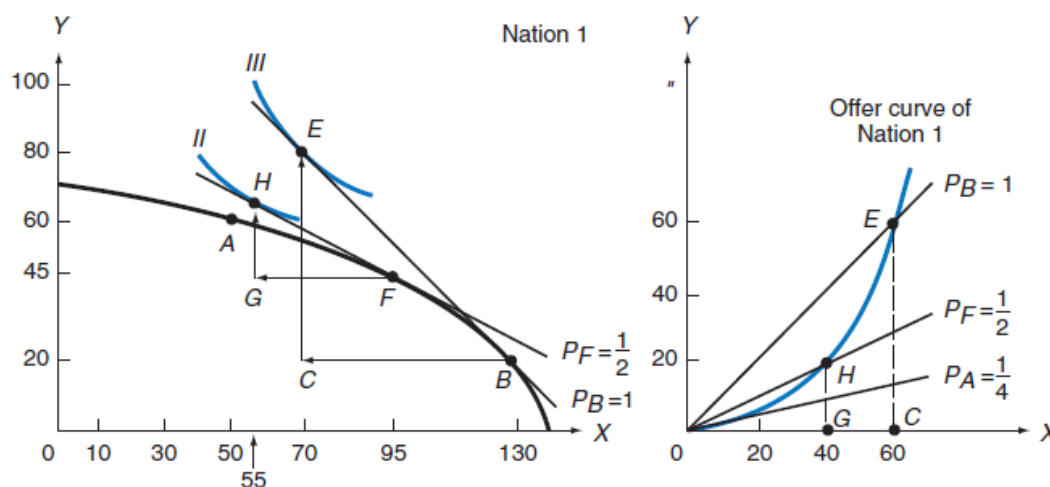


FIGURE 4.3. Derivation of the Offer Curve of Nation 1.

Nation 1 starts at the no-trade point A. If trade happens at $P_X/P_Y = 1$, nation 1 moves from point A to B ($60X=60Y$). If trade happens at $P_X/P_Y = 1/2$, nation 1 moves from point A to F ($40X=20Y$). The offer curve of Nation 1 lies above the autarky price line of $P_A = 1/4$ and bulges toward the X-axis, which measures the commodity of its comparative advantage and export. To induce Nation 1 to export more of commodity X, P_X/P_Y must rise.

Topic 41: Derivation and Shape of the Offer Curve of Nation 2

The offer curve for Nation 2 is derived in Figure 4.4 as follow:

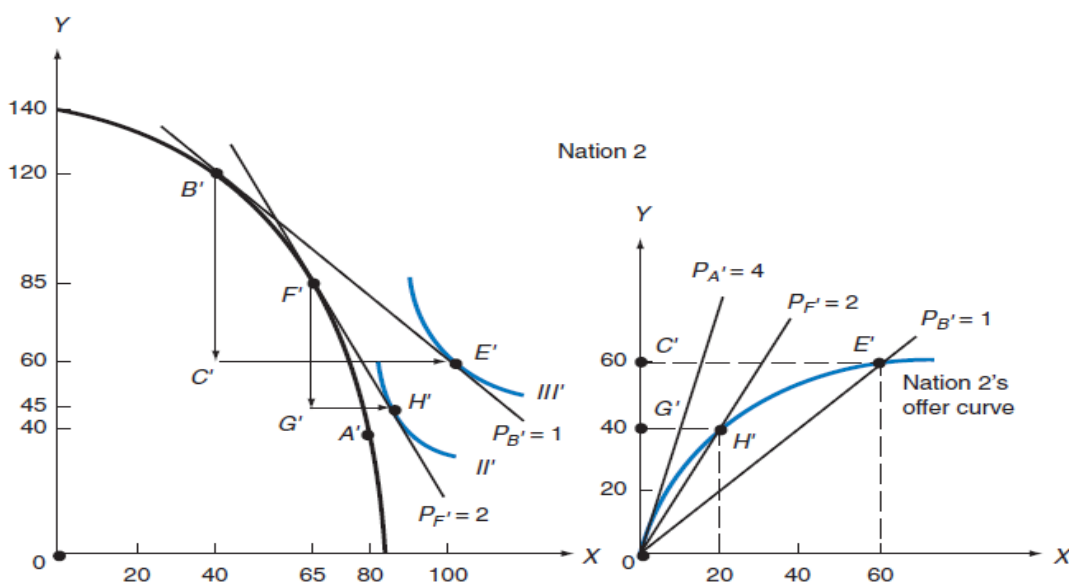


FIGURE 4.4. Derivation of the Offer Curve of Nation 2.

Nation 2 starts at the no-trade point A' . If trade happens at $P_X / P_Y = 1$, nation 2 moves from point A' to B' ($60X = 60Y$). If trade happens at $P_X / P_Y = 2$, nation 2 moves from point A' to F' ($40Y = 20X$). The offer curve of Nation 2 lies below the autarky price line of $P_{A'} = 4$ and bulges toward the Y -axis, which measures the commodity of its comparative advantage and export. To induce Nation 2 to export more of commodity Y , P_X / P_Y must fall.

Topic 42: General Equilibrium Analysis

The intersection of the offer curves of the two nations defines the equilibrium-relative commodity price at which trade takes place between them. Trade is balanced between the two nations at this equilibrium-relative commodity price. If the price is above or below, the relative commodity price will always move toward its equilibrium level.

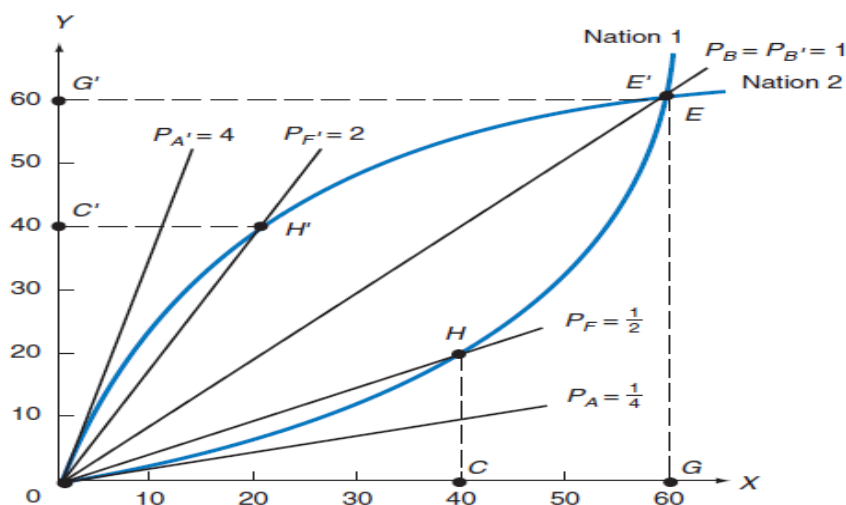


FIGURE 4.5. Equilibrium-Relative Commodity Price with Trade.

The two offer curves derived in previous sections intersect at point E, defining equilibrium $P_X/P_Y = P_B = P_B' = 1$. At P_B , Nation 1 offers 60X for 60Y (point E on Nation 1's offer curve), and Nation 2 offers exactly 60Y for 60X (point E' on Nation 2's offer curve). Thus, trade is in equilibrium at P_B . The equilibrium will not take place at any other price. Suppose, at $P_F = 1/2$, 40X, Nation 1 would export (point H) and fall short of the import demand of X by Nation 2. Excess import demand for X at $P_X/P_Y = 1/2$ by Nation 2 tends to drive P_X/P_Y up, and Nation 1 will also supply more. The equilibrium will take place where demand and supply become equal.

LESSON 13: EQUILIBRIUM ANALYSIS AND TERMS OF TRADE

Topic 43: Relationship between General and Partial Equilibrium Analyses

The relationship between the general equilibrium analysis and the partial equilibrium analysis is shown with Figure 4.6.

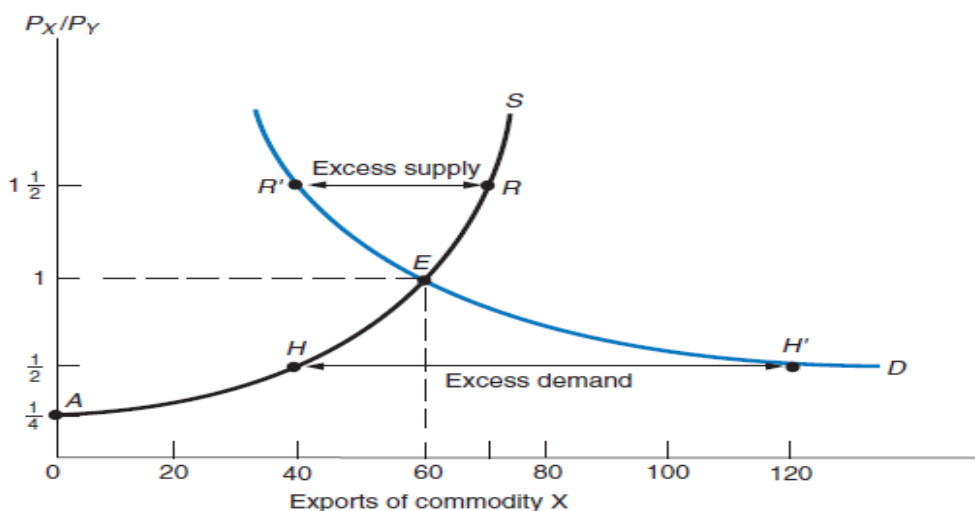


FIGURE 4.6. Equilibrium-Relative Commodity Price with Partial Equilibrium Analysis.

S is Nation 1's supply curve of exports of commodity X and is derived from Nation 1's production frontier and indifference map. D refers to Nation 2's demand for X and is derived from Nation 2's production frontier and indifference map. D and S intersect at point E, determining the equilibrium $P_X/P_Y = 1$ and the equilibrium quantity of exports of 60X. Partial equilibrium analysis is useful as a first approximation, but general equilibrium analysis is usually required for a complete answer.

Topic 44: The Terms of Trade (TOT)

TOT of a nation is given by the ratio of the price index of its exports to the price index of its imports (multiplied by 100). These TOT are often referred to as the commodity or net barter terms of trade. Nation 1 export commodity X and imports commodity Y and vice versa for nation B.

Nation 1's TOT are given by $P_X / P_Y = 1$ (or 100), and Nation 2's TOT is given by $P_X / P_Y = 1$ (or 100). If the TOT of Nation 1 rose from 100 to 120, Nation 1's export prices rose 20% in relation to its import prices. This would also mean that Nation 2's TOT has deteriorated from 100 to $(100/120)100 = 83$.

Learning Outcomes

After reading this lesson, the students will be able to:

- Show how the equilibrium price at which trade takes place is determined by demand and supply
- Show how the equilibrium price at which trade takes place is determined with offer curves
- Explain the meaning of the terms of trade and how they changed over time for the United States and other countries

BASIC TEXT BOOKS

- Dominick Salvatore B., International Economics (Latest Edition), Prentice Hall.
- Paul R. Krugman, Maurice Obstfeld, and Marc J. Melitz., International Economics Theory and Policy (Latest Edition), Pearson Series
- Chacholiades, Mitiades, International Trade Theory and Policy (Latest Edition). McGraw Hill Book Company, New York, London.

LESSON 14: ASSUMPTIONS OF HECKSCHER–OHLIN THEORY**Topic 45: Introduction**

This lesson will explain the reason, or cause, for the difference in relative commodity prices and comparative advantage between the two nations other than climate. Comparative advantage was based on the difference in the productivity of labor only, and no discussion on productivity was made. A more realistic explanation of the trade concepts and effects of international trade on a nation's factors of production will be discussed in this chapter.

Topic 46: Assumptions of the Theory

- **Two nations, Two Goods and Two Factors of Production**

The meaning of assumption 1 (two nations, two commodities, and two factors) is clear, and it is made in order to be able to illustrate the theory with a two-dimensional figure.

- **Same Technology in Both Nation**

Both nations have access to and use the same general production techniques. Thus, if factor prices were the same in both nations, producers in both nations would use exactly the same amount of labor and capital in the production of each commodity. Since factor prices usually differ, producers in each nation will use more of the relatively cheaper factor in the nation to minimize their costs of production.

- **X is Labor Intensive and Y is Capital Intensive**

Commodity X requires relatively more labor to produce than commodity Y in both nations. The labor–capital ratio (L/K) is higher for commodity X than for commodity Y in both nations at the same relative factor prices. It can be discussed in capital-labor ratio.

- **Constant Return to Scale**

Increasing the amount of labor and capital used in the production of any commodity will increase output of that commodity in the same proportion.

- **Incomplete Specialization**

Even with free trade both nations continue to produce both commodities. This implies that neither of the two nations is “very small”.

- **Tastes are Equal**

Demand preferences, as reflected in the shape and location of indifference curves, are identical in both nations. Thus, when relative commodity prices are equal in the two nations, both nations will consume X and Y in the same proportion.

Topic 47: Assumptions of the Theory

- **Perfect Competition in Both Commodities and Factor markets**

Producers, consumers, and traders of commodity X and commodity Y in both nations are each too small to affect the price of these commodities.

- **Perfect Internal Factor Mobility but no International Factor Mobility**

Labour and capital are free to move, from areas and industries of lower earnings to areas and industries of higher earnings until earnings for the same type of labor and capital are the same in all areas. No mobility of factors among nations.

- **No Transportation Costs, Tariffs, or Other Obstructions**

No transportation costs, tariffs, or other obstructions to the free flow of international trade

- **Resources are Fully Employed**

There are no unemployed resources or factors of production in either nation.

- **Trade between the Two Nations is Balanced.**

The total value of each nation's exports equals the total value of the nation's imports.

LESSON 15: FACTOR INTENSITY AND FACTOR ABUNDANCE**Topic 48: Factor Intensity**

Commodity Y is capital intensive if K/L used in the production of commodity Y is greater than K/L used in the production of X. Assume 2K and 2L are required to produce one unit of commodity Y then $K/L = 1$ and if 1K and 4L are required to produce one unit of commodity X, then $K/L = 1/4$. It is not the absolute amount of capital and labor is important to measure intensity but the amount of capital per unit of labor. If 3K and 12L are for the production of commodity X and 2K and 2L for the production of commodity Y. what is the factor intensity of commodity X and commodity Y?. In this case, as well, commodity X is labor intensive, and commodity Y is labor intensive.

Topic 49: Factor Intensity

If we plotted capital (K) along the vertical axis of a graph and labor (L) along the horizontal axis, and production took place along a straight-line ray from the origin, the slope of the line would measure the capital-labor ratio (K/L) in the production of the commodity. This is shown in Figure 5.1.

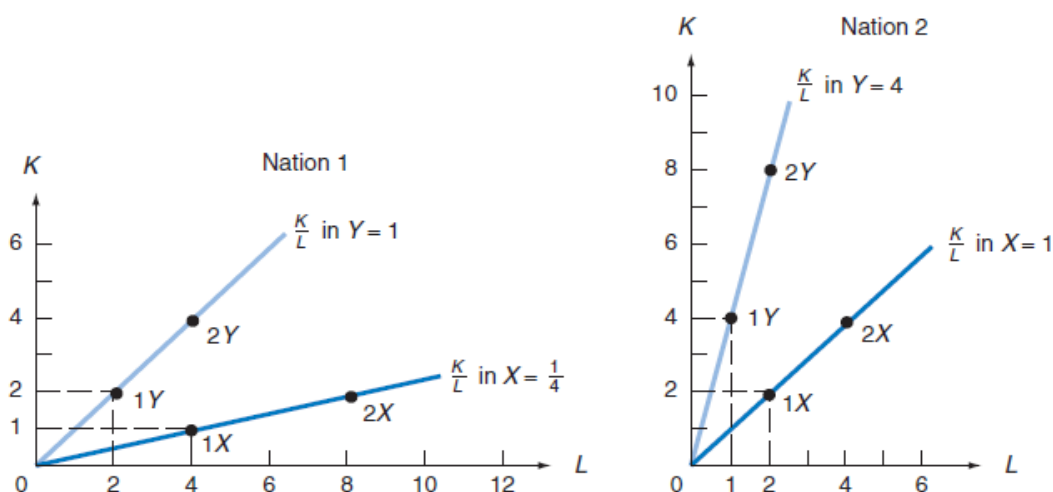


FIGURE 5.1. Factor Intensities for Commodities X and Y in Nations 1 and 2.

In nation 1, the ray from the origin for commodity X and Y shows that $K/L = 2/2 = 4/4 = 1$ for Y and $K/L = 1/4 = 2/8 = 1/4$ for X. Even though Y is K intensive than X in both nations, Nation 2 uses a higher K/L in producing both Y and X than Nation 1 because of the relative price of capital (r/w) is lower in Nation 2. If r/w declined, producers would substitute K for L in the production of both commodities to minimize their costs of production. As a result, K/L would rise for both commodities. Capital must be relatively cheaper in Nation 2 than in Nation 1 (factor abundance).

Topic 50 and 51: Factor Abundance

Factor abundance can be defined in terms of physical units or relative factor prices. Nation 2 is capital abundant if TK/TL available in Nation 2 is greater than that in Nation 1. Nation 2 can have less capital than Nation 1 and still be the capital abundant if TK/TL in Nation 2 exceeds TK/TL in Nation 1. Nation 2 is capital abundant if $PK/PL(r/w)$ in Nation 2 is smaller than PK/PL in Nation 1. It is not the absolute level of r that determines whether or not a nation is a K-abundant nation, but r/w .

Factor abundance in terms of physical units considers only the supply of factors, while relative factor prices consider both demand and supply. Since demand preferences and technology are the same in both nations, TK/TL larger in Nation 2 than in Nation 1 means PK/PL will be smaller in Nation 2. What will be the case if demand for capital-intensive good Y is high in Nation 2 than in Nation 1 then the relative price of capital would be higher in Nation 2 than in Nation 1? In this case, Nation 2 would be considered K abundant according to the definition in physical terms and L abundant according to the definition in terms of relative factor prices. In such situations, it is the

definition in terms of relative factor prices that should be used. That is, a nation is K abundant if the relative price of capital is lower in it than in the other nation.

Topic 52: Factor Abundance and the Shape of the Production Frontier

It is assumed here as well that Nation 2 is the K-abundant nation and Nation 1 is the L-abundant nation. Furthermore, commodity Y is capital intensive and commodity X is labor intensive. As a result, Nation 2 is producing commodity Y and nation 1 is producing commodity X. In Figure 5.2, we have plotted the production frontiers of Nation 1 and Nation 2 on the same set of axes.

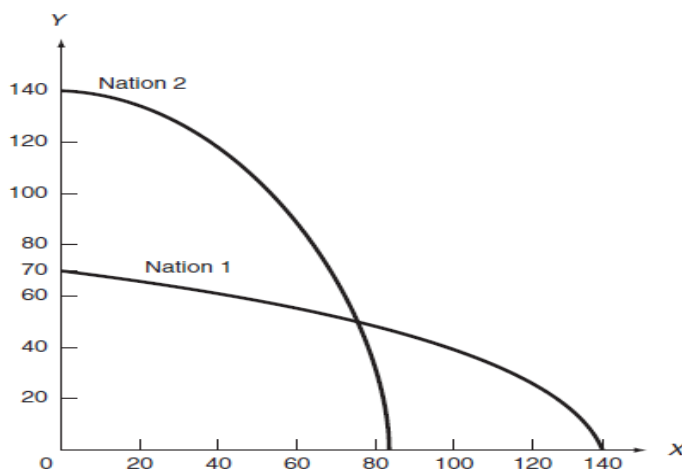


FIGURE 5.2. The Shape of the Production Frontiers of Nation 1 and Nation 2.

PPF of Nation 1 is relatively flatter (skewed towards X-axis) and wider than the PPF of nation 2. Nation 2 is K-abundant and Y is the K-intensive good. Nation 2 can produce relatively more of good Y than Nation 1. The PPF of Nation 2 is relatively steeper and narrower than the PPF of nation 1.

LESSON 16: HECKSCHER–OHLIN THEORY

Topic 53: Factor Endowments and the Heckscher–Ohlin Theory

Eli Heckscher (1919) published an article titled “The Effect of Foreign Trade on the Distribution of Income” and provided the base of the modern theory of international trade. Bertil Ohlin (1933) published his famous book *Interregional and International Trade*. The Heckscher–Ohlin (H–O) theory can be presented in the form of two theorems i.e., H–O theorem (pattern of trade) and the factor–price equalization theorem (factor prices).

Topic 54: The Heckscher–Ohlin Theorem (factor-endowment theory)

The relatively labor-rich nation exports the relatively labor-intensive commodity and imports the relatively capital-intensive commodity. From the previous, Nation 1 exports commodity X (w/r is lower in Nation 1),

and Nation 2 exports commodity Y (r/w is lower in Nation 2). The difference in relative factor abundance and prices is the cause of the pre-trade difference in relative commodity prices between nations. The H–O theorem isolates the difference in relative factor abundance, or factor endowments, among nations as the basic cause or determinant of comparative advantage and international trade. For this reason, the H–O model is often referred to as the factor-proportions or factor-endowment theory. Thus, the H–O theorem explains comparative advantage rather than assuming it (as was the case for classical economists). In other words, the H–O theorem postulates that the difference in relative factor abundance and prices is the cause of the pre-trade difference in relative commodity prices between two nations.

Topic 55: General Equilibrium Framework of the H–O Theory

The general equilibrium nature of the H–O theory can be visualized and summarized with the use of Figure 5.3.

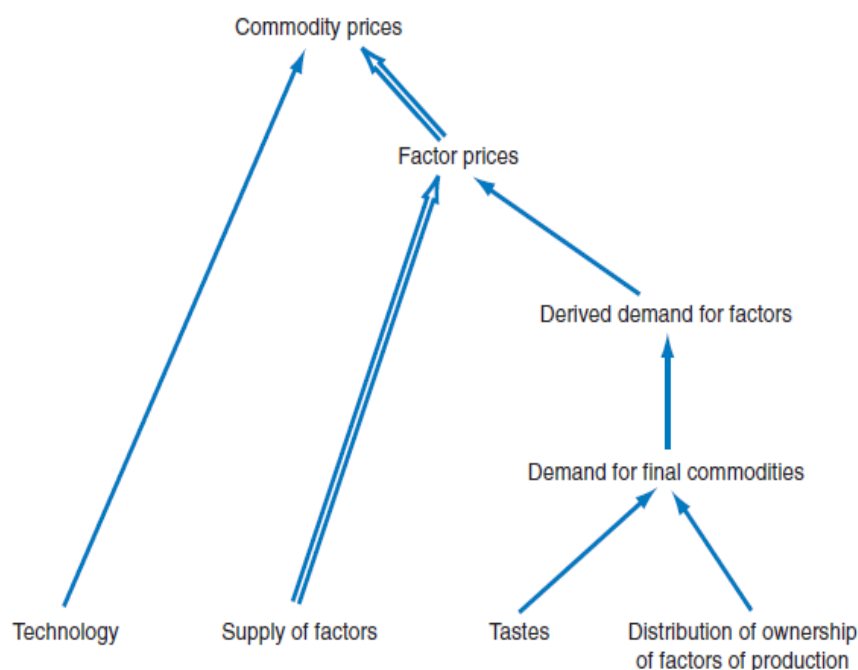


FIGURE 5.3. General Equilibrium Framework of the Heckscher–Ohlin Theory.

Tastes and the distribution in the ownership of factors of production together determine the demand for commodities. Demand for commodities determines the derived demand for the factors required to produce them. The factor prices, together with technology, determine the price of final commodities. Since technology and demand preferences are the same, factor supply is the major reason for different relative factor prices in different nations.

Topic 56: Illustration of the H–O Theory

The H–O theory is illustrated in Figure 5.4. The left panel of the figure shows the production frontiers of Nation 1 and Nation 2

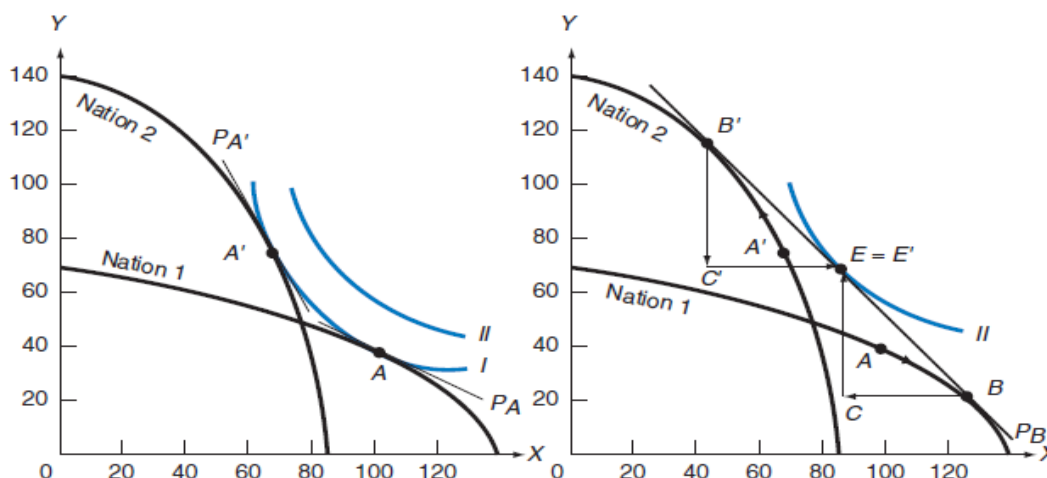


FIGURE 5.4. The Heckscher—Ohlin Model.

It is assumed both nations have same technology equal, tastes, and same indifference map. Nation 1 is the L-abundant nation and Nation 2 is the K-abundant nation. In left panel it can be seen that I is the highest IC that Nation 1 and Nation 2 can reach in isolation where points A and A' represent their equilibrium points of production and consumption. Since $PA < PA'$, Nation 1 will export and specializes in the production of commodity X. Imports are equal to exports i.e. $BC = C'E'$ and $B'C' = CE$. At $P_X/P_Y > P_B$, Nation 1 wants to export more of commodity X and vice versa.

LESSON 17: THE FACTOR–PRICE EQUALIZATION THEOREM

Topic 57: The Factor–Price Equalization and Income Distribution

Paul Samuelson (1970 Nobel prize in economics) rigorously proved factor–price equalization theorem (H–O–S theorem), which is really a corollary since it follows directly from the H–O theorem and holds only if the H–O theorem holds. This model explained the effect of international trade on the distribution of income within each trading nation.

Topic 58: The Factor–Price Equalization Theorem

International trade will change the price of the factor of production in both nations. Trade will cause wages to rise in Nation 1 and fall in nation 2 as labor is more used in Nation 1 due to its abundance. Similarly, return to capital will rise in Nation 2 and fall in Nation 1 as capital is more used in Nation 2 due to its abundance. International trade keeps expanding until relative commodity prices are completely equalized (If all assumptions of the theory hold).

Topic 59 and 60: Relative and Absolute Factor–Price Equalization

In Figure 5.5, the relative price of labor (w/r) is measured along the horizontal axis, and the relative price of commodity X (P_X/P_Y) is measured along the vertical axis.

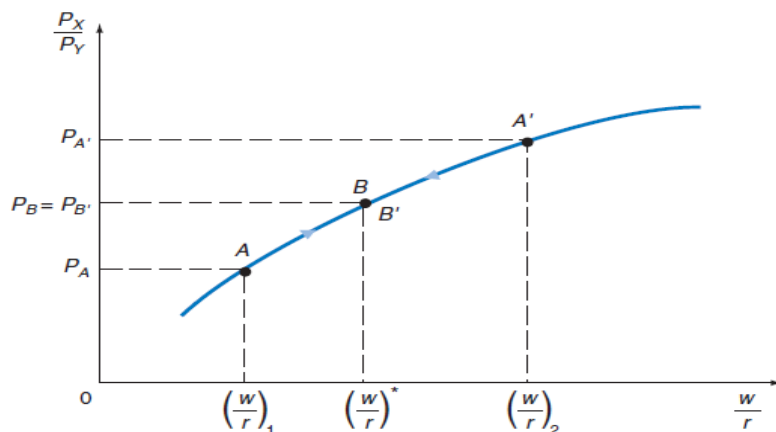


FIGURE 5.5. Relative Factor–Price Equalization.

Each nation operates under perfect competition and uses the same technology, and there is a one-to-one relationship between w/r and P_X/P_Y . Before trade, Nation 1 is at point A, with $w/r = (w/r)_1$ and $P_X/P_Y = P_A$, while Nation 2 is at point A'. P_A is lower than $P_{A'}$ so that Nation 1 has a comparative advantage in commodity X. As Nation 1 specializes in the production of X and reduces the production of commodity Y, the demand for labor increases relative to the demand for capital. w/r rises and P_X/P_Y also rise in Nation 1. On the same note P_Y/P_X too rise (i.e. P_X/P_Y to fall) in Nation 2. The process will continue until point $B = B'$, at which $P_B = P_{B'}$ and $w/r = (w/r)^*$ in both nations.

Equalization of absolute factor prices means that free international trade also equalizes the real wages for the same type of labor in the two nations and the real rate of interest for the same type of capital in the two nations. Trade acts as a substitute for the international mobility of factors of production in its effect on factor prices. Trade operates on the demand for factors, and factor mobility operates on the supply of factors.

LESSON 18: THE SPECIFIC-FACTORS MODEL, THE LEONTIEF PARADOX AND FACTOR-INTENSITY REVERSAL

Topic 61: Effects of Trade on the Distribution of Income

International trade tends to equalize w in the two nations and also to equalize r in the two nations. Do real wages and income of labor rise or fall in relation to the real interest rates and earnings of

owners of capital in the same nation as a result of international trade? w rises and r falls in Nation 1, while w falls and r rises in Nation 2.

Trade causes the real income of labor to rise and the real income of owners of capital to fall in Nation 1 (Stolper–Samuelson theorem). Labor unions in developed nations generally favor trade restrictions as international trade tends to reduce the real income of labor and increase the real income of owners of capital. From the above discussion a question arises “Shouldn’t developed nations restrict trade?”

Topic 62 and 63: The Specific-Factors Model

The assumption that “factors are perfectly mobile among the nation’s industries or sectors” may not be valid in the short run. Suppose a relatively labor-abundant nation produces food (L intensive) and cloth (K intensive). Labor is mobile between the two industries, while capital is specific to each industry. Now, labor, land, and capital are three factors of production. After the trade, the nation will specialize in X and import commodity Y . P_X / P_Y and wage will increase in the nation. Labor will move from commodity Y to commodity X . Industry Y will have to pay the higher nominal wage.

The effect of trade on the real wage rate of labor in the nation is ambiguous. The increase in P_X / P_Y and demand for labor will be greater than the increase in the nominal wage rate. So the real wage rate of labor falls in terms of commodity X . Nominal wage increased but the price of commodity Y declined in the nation, the W/P increased in terms of commodity Y . With more labor used with the given specific capital in the production of X , the real return on capital in the production of X rises. Trade will have an ambiguous effect on the nation’s mobile factors, benefit the immobile factors specific to the nation’s export commodities or sectors, and harm the immobile factors specific to the nation’s import-competing commodities or sectors.

Topic 64: The Leontief Paradox

Wassily Leontief conducted the first empirical test of the H–O model in the USA. Since the United States was the most K -abundant nation in the world, Leontief expected to find that it exported K -intensive commodities and imported L -intensive commodities. He estimated K/L for U.S. import substitutes (incomplete specialization) rather than for imports.

However, Leontief correctly reasoned that U.S. import substitutes would be more K intensive than actual imports (because K was relatively cheaper in the USA than abroad), they should still be less

K intensive than U.S. exports if the H–O model held true. The results of Leontief’s test were startling. U.S. import substitutes were about 30% more K intensive than U.S. exports.

Topic 65 and 66: Factor-Intensity Reversal

Factor-Intensity Reversal (FIR) refers to the situation where a commodity is *L*-intensive in the *L*-abundant nation and *K*-intensive commodity in the *K*-abundant nation. The elasticity of substitution measures the degree with which one factor can be substituted for another in production as the relative price of the factor declines. FIR is likely to occur the greater is the difference in the elasticity of substitution of *L* for *K* in the production of the two commodities. When FIR is present, neither the H–O nor the factor–price equalization theorem holds. Two nations cannot possibly export the same homogeneous commodity to each other. Nation 1 export *X* (*w* will rise in nation 1) while Nation 2 cannot export commodity *X* to Nation 1, it will have to specialize in *Y*. Since commodity *Y* is the *L*-intensive commodity in Nation 2, the demand for labor and thus wages will also rise in Nation 2.

Learning Outcomes

After reading this lesson, the students will be able to:

- Explain how comparative advantage is based on differences in factor endowments across nations
- Explain how trade affects relative factor prices within and across nations
- Explain why trade is likely to be only a small reason for higher skilled–unskilled wage inequalities

BASIC TEXT BOOKS

- Dominick Salvatore B., International Economics (Latest Edition), Prentice Hall.
- Paul R. Krugman, Maurice Obstfeld, and Marc J. Melitz., International Economics Theory and Policy (Latest Edition), Pearson Series
- Chacholiades, Mitiades, International Trade Theory and Policy (Latest Edition). McGraw Hill Book Company, New York, London.

LESSON 19: IMPORT TARIFF AND PARTIAL EQUILIBRIUM ANALYSIS OF A TARIFF**Topic 67: Introduction**

All nations impose restrictions on the free flow of goods called trade or commercial policies. A tariff is a tax levied on the traded commodity as it crosses a national boundary (import & export tariff). An import tariff is imposed on imports, while export tariffs are imposed on export of the commodity from the country. Developing nations rely heavily on export tariffs to raise revenues while industrial countries impose tariffs to protect some (usually labor-intensive) industry.

Topic 68: Types of Import Tariff

Tariff can be imposed in three ways:

- **Ad valorem tariff**

The ad valorem tariff is expressed as a fixed %age of the value of the traded commodity. A 10 % ad valorem tariff on bicycles would result in the payment to customs officials of the sum of \$10 on each \$100 imported bicycle and the sum of \$20 on each \$200 imported bicycle.

- **Specific tariff**

The specific tariff is expressed as a fixed sum per physical unit of the traded commodity. A specific tariff of \$10 on imported bicycles means that customs officials collect the fixed sum of \$10 on each imported bicycle regardless of its price.

- **Compound tariff**

A compound tariff is a combination of an ad valorem and a specific tariff. A compound duty of 5 % ad valorem and a specific duty of \$10 on imported bicycles would result in the collection by customs officials of the sum of \$15 on each \$100 bicycle and \$20 on each \$200 imported bicycle.

Topic 69 and 70: Partial Equilibrium Analysis of a Tariff

The partial equilibrium effects of a tariff can be analysed with Figure 8.1

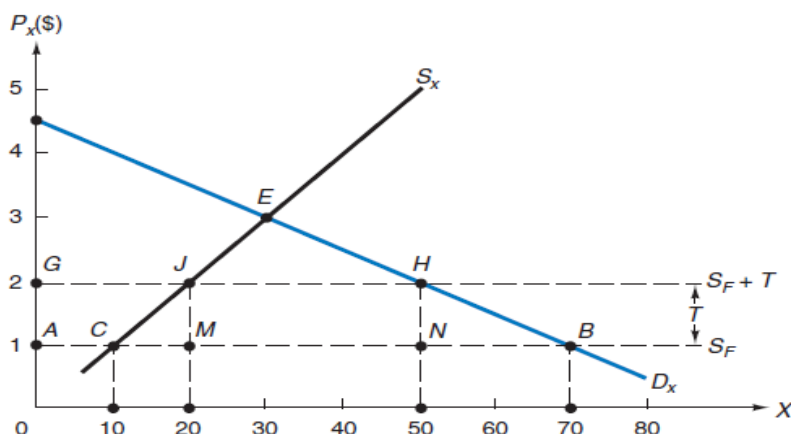


FIGURE 8.1. Partial Equilibrium Effects of a Tariff.

In Figure 8.1, D_X is demand curve and S_X is the supply curve of good X in a Small country (Nation 2). The intersection of D_X and S_X defines equilibrium point E , at which 30X is demanded and supplied at $P_X = \$3$. The horizontal dashed line S_F represents the infinitely elastic free trade foreign supply curve of commodity X to Nation 2. Nation 2 imposes a 100 % ad valorem tariff on the imports of commodity X which make $P_X = \$2$. The line $S_F + T$ is new tariff-inclusive foreign supply curve of Consumption effect of a tariff equals to 20X (area BN). The production effect equals to 10X (area CM). The trade effect equals to 30X (sum of area BN and CM). The revenue effect equals \$30 (\$1 on each of the 30X imported, or $MJHN$).

LESSON 20: EFFECT OF A TARIFF ON CONSUMER SURPLUS AND PRODUCER SURPLUS

Topic 71 and 72: Effect of a Tariff on Consumer Surplus

Consumer surplus is the difference between what consumers would be willing to pay and what they actually pay. The increase in the price of commodity X from $P_X = \$1$ to $P_X = \$2$ as a result of the 100 % tariff that Nation 2 imposes on the importation of commodity X leads to a reduction in consumer surplus and an increase in producer surplus. Figure 8.2 (a) shows the effect of tariff on consumer surplus.

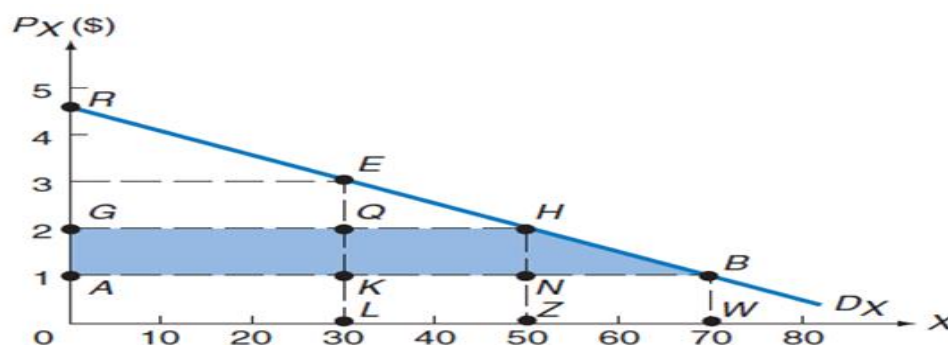


FIGURE 8.2 (a). Effect of Tariff on Consumer Surplus

The loss of consumer surplus due to tariff is equal to shaded area $AGHB = \$60$. The height of the demand curve shows the maximum price that consumers would be willing to pay for each unit. Consumers are willing to pay $LE = \$3$ for the 30th unit of commodity X (a consumer surplus of $KE = \$2$). With the total of 70X being purchased at $P_X = \$1$ in the absence of the import tariff, the total consumer surplus is equal to $ARB = \$122.50$ [$ORBW$ (192.50) - $OABW$ (\$70)]. Nation 2 imposes a 100 % import tariff, the price of commodity X rises from $P_X = \$1$ to $P_X = \$2$. The consumer surplus thus shrinks from $ARB = \$122.50$ to $GRH = \$62.50$ by $AGHB = \$60$.

Topic 73: Effect of a Tariff on Producer Surplus

Producer surplus is the difference between the amount the producer is willing to supply goods for and the actual amount received by him when he sell a commodity.

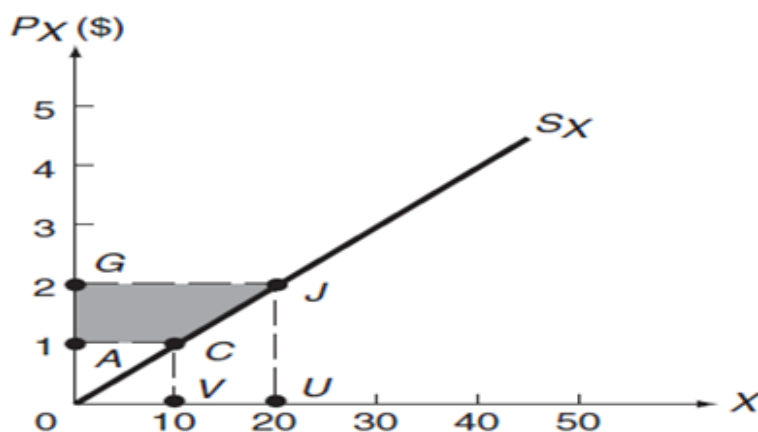


FIGURE 8.2 (b). Effect of Tariff on Producer Surplus

The increase in producer surplus that results from the tariff is $AGJC = \$15$. At free trade $P_X = \$1$, domestic producers produce 10X and receive $OACV = \$10$ in revenues. With tariff and $P_X = \$2$, producer produce 20X and receive $OGJU = \$40$. Out of \$30 increase ($AGJC + VCJU$) in the

revenue, $VCJU = \$15$ represents the increase in their costs of production, while $AGJC = \$15$ represents the increase in producer surplus.

LESSON 21: ANALYSIS OF TARIFF AND THE RATE OF EFFECTIVE PROTECTION

Topic 74 and 75: Costs and Benefits of a Tariff

The cost and benefit analysis of tariff is presented in Figure 8.3.

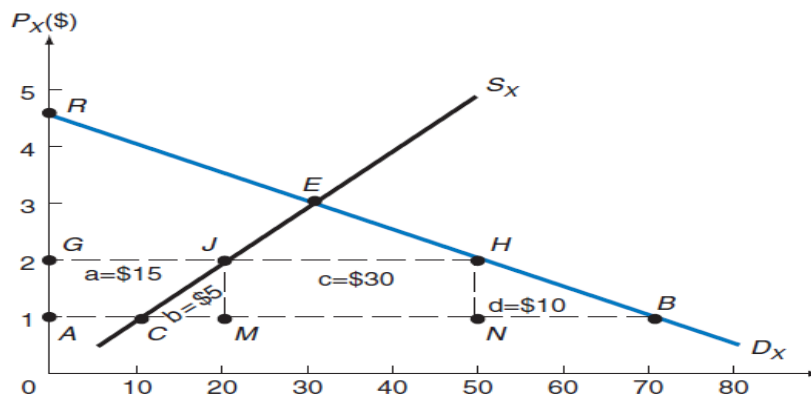


FIGURE 8.3. Partial Equilibrium Costs and Benefits of a Tariff.

With a 100 % tariff on commodity X, P_X rises from \$1 to \$2 in Nation 2. This reduces the consumer surplus by $AGHB = a + b + c + d = \$15 + \$5 + \$30 + \$10 = \$60$. $MJHN = c = \$30$ is collected by the government as tariff revenue, $AGJC = a = \$15$ is increased consumer surplus. The remaining \$15 ($CJM = b = \$5 + BHN = d = \10) represents the protection cost, or deadweight loss, to the economy. The tariff redistributes income from domestic consumers to domestic producers of the commodity. Redistribution from the nation's abundant factor (producing exportable commodity) to the nation's scarce factor (producing importable commodity). This leads to inefficiencies (protection cost, or deadweight loss, of the tariff. By dividing the loss of consumer surplus by the number of jobs "saved", we can calculate the cost per domestic job saved.

Topic 76 and 77: The Rate of Effective Protection

A nation usually imports a raw material duty-free or imposes a lower tariff rate on the importation of the input than on the importation of the final commodity produced with the imported input. A nation may import wool duty-free but impose a tariff on the importation of cloth. The rate of effective protection is calculated on the domestic value added (DVA). DVA is equal to the price of the final commodity minus the cost of the imported inputs. Nominal tariff is important to consumers, but an effective tariff is important to producers. The following formula usually calculates the rate of effective protection.

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

Where g = the rate of effective protection to producers of the final commodity

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

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

t_i = the nominal tariff rate on the imported input

Suppose the free trade price of the suit is \$100, but the nation imposes a 10 % nominal tariff on each imported suit. \$80 of imported wool goes into a suit's domestic production, and \$20 is a value added. The \$10 tariff collected on each imported suit represents a 10 % nominal tariff and corresponds to a 50 % effective tariff rate because the effective tariff is calculated on the value added domestically to the suit (i.e., $\$10/\$20 = 50\%$). If a lower tariff rate is imposed on the imported input than on the final commodity produced, the effective rate of protection will exceed the nominal tariff rate.

LESSON 22: EFFECTS OF A TARIFF IN A SMALL COUNTRY AND STOLPER–SAMUELSON THEOREM

Topic 78: General Equilibrium Analysis of a Tariff in a Small Country

When a very small nation imposes a tariff, it will not affect prices on the world market, and its price remains constant for the nation as a whole since the nation collects the tariff. Suppose if the international price of importable commodity X is \$1 per unit and the nation imposes a 100 % ad valorem tariff on imports of commodity X, domestic producers can compete with imports as long as they can produce and sell commodity X at a price no higher than \$2. Consumers will have to pay \$2 per unit of commodity X, whether imported or domestically produced. However, since the nation collects the \$1 tariff on each unit of commodity X imported, the price of commodity X remains \$1 as far as the nation is concerned. The revenue from a tariff will be distributed within the nation (producer or government revenue). The government of a small tariff-imposing nation uses the tariff revenue to subsidize public consumption (schools, police, etc.) and/or for general income tax relief.

Topic 79: Illustration of the Effects of a Tariff in a Small Country

We will illustrate the general equilibrium effects of a tariff by continuing to utilize our familiar Nation 1 and Nation 2 from previous chapters. The general equilibrium effects of a tariff are illustrated by the example mentioned in previous lessons where Nation 2 is the capital-abundant nation specializing in the production of commodity Y (the capital-intensive commodity), which it exports in exchange for imports of commodity X. Here Nation 2 is considered as small country.

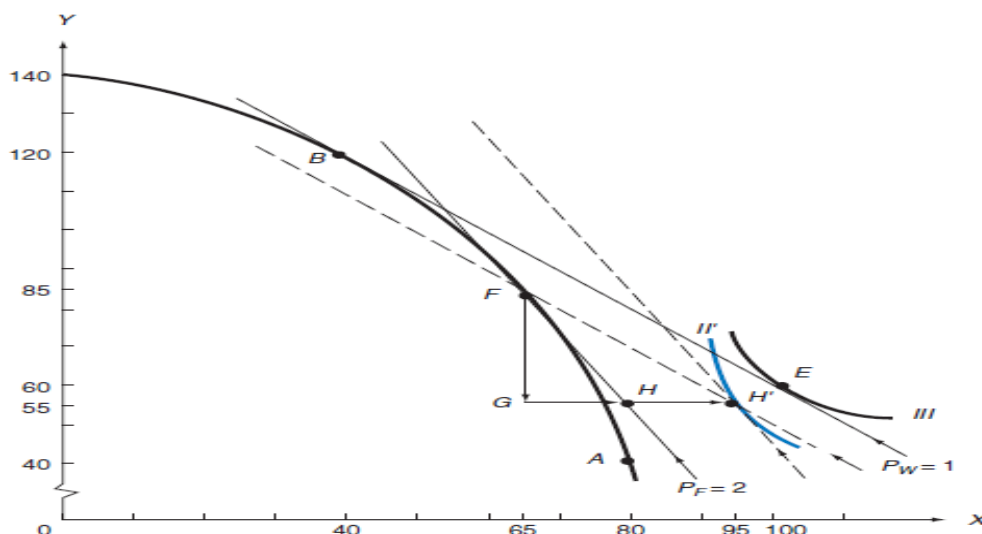


FIGURE 8.5. General Equilibrium Effects of a Tariff in a Small Country.

At relative price $P_X/P_Y = 1$, Nation 2 produces at point B and consumes at point E. With a 100 % tariff on imports of commodity X, relative price of X become $P_X/P_Y = 2$ for domestic producers and consumers but remains at $P_X/P_Y = 1$ on the world market and for the nation as a whole. Production takes place at point F (price line $PF = 2$ is tangent to the nation's production frontier), and the nation exports 30Y (FG) for 30X (GH). Thus, the nation produces more of importable commodity X and less of exportable commodity Y after imposition of the tariff than under free trade (compare point F to point B). 15X (HH) is collected by the government. Government redistributes the tariff revenue to citizens; consumption with the tariff is at point H' on indifference curve II' after imposition of the tariff where the two dashed lines cross. Thus, point E (free trade) is superior to point H (with tariff).

Topic 80 and 81: The Stolper–Samuelson Theorem

The Stolper–Samuelson theorem postulates that an increase in the relative price of a commodity due to tariff raises the return or earnings of the factor used intensively in the production of the commodity. The real return to the nation's scarce factor of production will rise with the imposition

of a tariff. When Nation 2 (K -abundant nation) imposes an import tariff on commodity X , P_X/P_Y rises, and so will the real wage of labor (Nation 2's scarce factor).

The expansion in the production of commodity X requires higher L/K , which results in increase in w/r and K is substituted for L so that K/L rises in the production of both commodities. As each unit of L is now combined with more K , the productivity of L rises, and therefore, w rises. The total earnings of labor and its share of the national income are now greater. The small nation as a whole is harmed by the tariff, its scarce factor benefits at the expense of its abundant factor. For example, when a small industrial and K -abundant nation, such as Switzerland, imposes a tariff on the imports of an L -intensive commodity, w rises. That is why labor unions in industrial nations generally favour import tariffs. However, the reduction in the earnings of the owners of capital exceeds the gains of labor so that the nation as a whole loses.

LESSON 23: EFFECTS OF A TARIFF IN A LARGE COUNTRY AND OPTIMUM TARIFF

Topic 82: General Equilibrium Effects of a Tariff in a Large Country

General Equilibrium Effects of a Tariff in a Large Country can be understood with the help of offer curves. When a nation imposes a tariff, its offer curve shifts or rotates toward the axis measuring its importable commodity by the amount of the import tariff. A large nation's imposition of a tariff reduces the volume of trade but improves the nation's terms of trade (TOT). The reduction in the volume of trade reduces the nation's welfare, while the improvement in its terms of trade tends to increase the nation's welfare. Whether the nation's welfare actually rises or falls depends on the net effect of these two opposing forces.

Topic 83 and 84: Illustration of the Effects of a Tariff in a Large Country

Effects of a tariff in a large country are shown in Figure 8.6. Here Nation 2 is assumed to be large country.

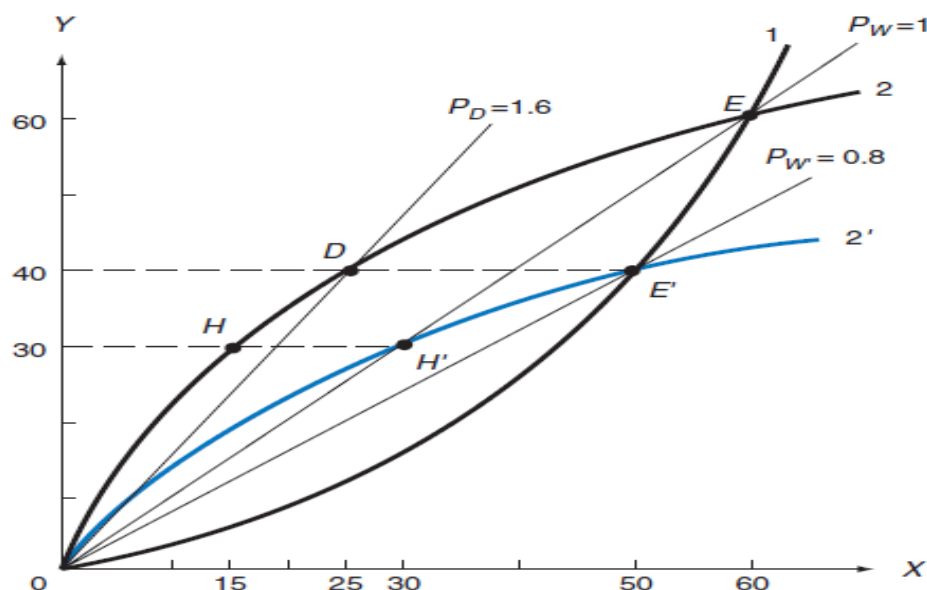


FIGURE 8.6. General Equilibrium Effects of a Tariff in a Large Country.

Suppose Nation 2 imposes 100 % ad valorem tariff on its imports of commodity X. the offer curve 2 rotates to offer curve 2' in the Figure 8.6. Offer curve 2' is at every point twice as distant from the Y-axis as offer curve 2 (H and H'). Before tariff equilibrium was at point E but after tariff new equilibrium is at point E'. At E' nation B exchange 40Y for 50X and new world price is $P_X/P_Y = P'_w = 0.8$. The terms of trade of Nation 1 deteriorated from 1 to 0.80 and TOT of nation 2 improved from 1 to 1.25.

Topic 85: The Optimum Tariff and Retaliation

The rate of tariff that maximizes the net benefit, which is known as the difference between improvement in terms of trade and reduction in the volume of trade is known as an optimum tariff. From an autarky position, as the nation increases its tariff rate, its welfare increases up to a maximum (the optimum tariff) and then declines as the tariff rate is raised past the optimum. Imposition of tariff becomes the gain of one nation at the expense of loss of other nation. The trade partner is likely to retaliate and impose an optimum tariff of its own. If the process of retaliating continues, all nations usually lose all or most of the gains from trade.

Topic 86: Illustration of the Optimum Tariff and Retaliation

The offer curves of two nations intersect at equilibrium point E in Figure 8.7. The optimum tariff and retaliation is graphically presented as below:

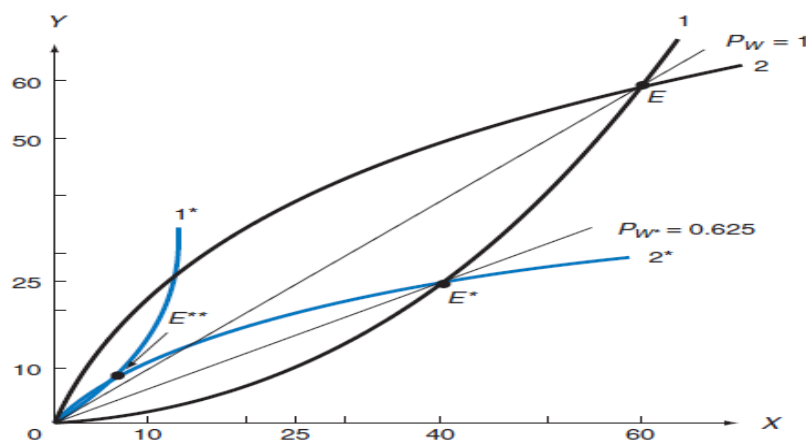


FIGURE 8.7. The Optimum Tariff and Retaliation.

In Figure 8.7, equilibrium point is at point E where $P_W = 1$. Suppose with the optimum tariff, Nation 2's offer curve rotates to 2^* . If nation 1 does not retaliate then new equilibrium will be at point E^* (25 units of Y commodity will be traded with 40 units of X commodity). Nation 1's terms of trade deteriorates as P_X/P_Y falls to 0.625 and Nation 2's terms of trade improved to 1.6. Nation 1 will retaliate and impose its own optimum tariff shown by offer curve 1^* and equilibrium moves to point E^{**} . Now Nation 1's terms of trade are higher than Nation 2's terms of trade. At this point, Nation 2 is itself likely to retaliate, and in the end both nations may end up at the origin.

Learning Outcomes

After reading this lesson, the students will be able to:

- Describe the effect of a tariff on consumers and producers
- Identify the costs and benefits of a tariff on a small and a large nation
- Describe an optimum tariff and retaliation
- Understand the meaning and importance of tariff structure

BASIC TEXT BOOKS

- Dominick Salvatore B., International Economics (Latest Edition), Prentice Hall.
- Paul R. Krugman, Maurice Obstfeld, and Marc J. Melitz., International Economics Theory and Policy (Latest Edition), Pearson Series
- Chacholiades, Mitiades, International Trade Theory and Policy (Latest Edition). McGraw Hill Book Company, New York, London.

LESSON 24: IMPORT QUOTAS AND IMPORT TARIFF

Topic 87: Import Quotas

A Quota is a direct quantitative restriction on the amount of a commodity allowed to be imported from other country (s) or exported to other country (s). Import quotas can be used to protect domestic industry, to protect domestic agriculture, and/or for balance-of-payments reasons.

In Pakistan, imports of certain ozone-depleting substances are subject to policy/quota allocations set by the Ministry of Climate Change from time to time (Import Policy Order 2020). Commercial importers can only import certain substances subject to a no objection certificate and quota determination by the Ministry of Narcotic Control (such as acetone, anthranilic acid, ethyl ether, hydrochloric acid, acetic anhydride, and sulphuric acid).

Topic 88: Effects of an Import Quota

The partial equilibrium effects of an import quota can be illustrated with Figure 9.1, which is almost identical to Figure 8.1.

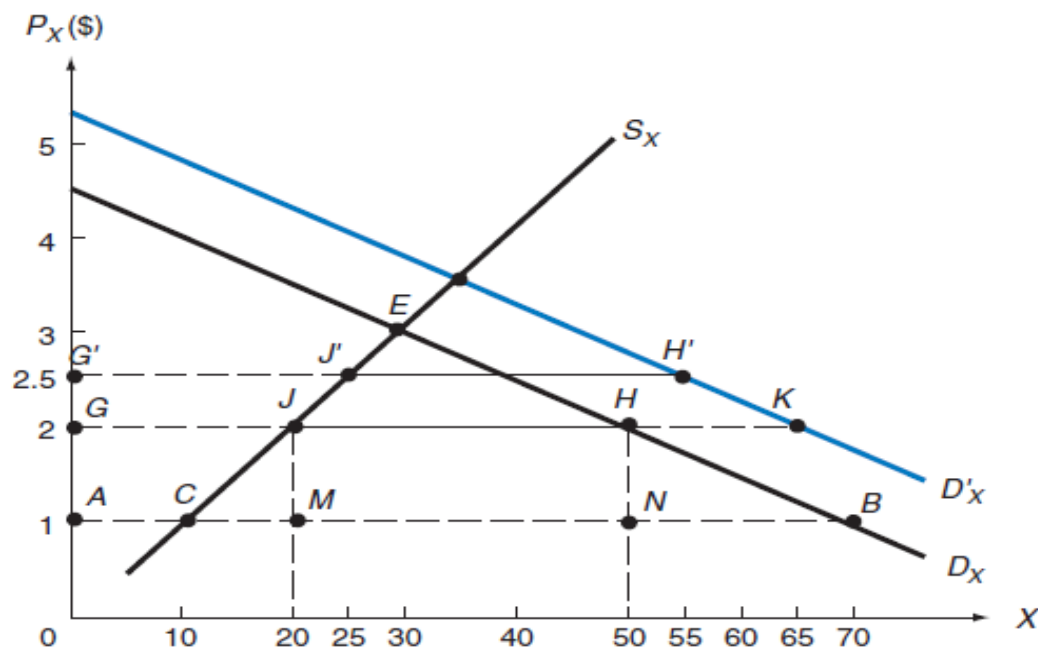


FIGURE 9.1. Partial Equilibrium Effects of an Import Quota.

D_X and S_X are demand and supply curves of commodity X. At free trade $P_X = \$1$, an import quota of 30X (JH) would result in $P_X = \$2$ and consumption of 50X (GH). If the government auctioned off import licenses to the highest bidder, the revenue effect would also be \$30 (\$1 on each of the 30X of the import quota), as with a 100 % import tariff. With a shift in D_X to D'_X and an import quota of 30X (JH), consumption would rise from 50X to 55X (GH), of which 25X (GJ) are produced domestically. On the other hand, with the given 100 % import tariff (in the face of the shift from D_X to D'_X), the price of X would remain unchanged at $P_X = \$2$ and so would domestic production at 20X (GJ), but domestic consumption would rise to 65X (GK) and imports to 45X (JK).

Topic 89: Comparison of an Import Quota to an Import Tariff

The shift of D_X to D'_X in Figure 9.1 points to one of several important differences between an import quota and an equivalent (implicit) import tariff. If a quota is imposed, an increase in demand will result in a higher domestic price and greater domestic production than an equivalent import tariff. Quota involves the distribution of import licenses and can create a monopoly. Potential importers are likely to devote much effort to lobbying and even bribing government officials. Quota limits imports to the specified level while the trade effect of an import tariff may be uncertain (elasticity of D_X and S_X is often not known), making it difficult to estimate the import tariff required to restrict imports to the desired level.

Furthermore, foreign exporters may absorb all or part of the tariff by increasing their efficiency of operation or by accepting lower profits. As a result, the actual reduction in imports may be less than anticipated. Domestic producers strongly prefer import quotas to import tariffs.

LESSON 25: VOLUNTARY EXPORT RESTRAINTS AND VARIOUS REGULATIONS

Topic 90: Other Nontariff Barriers and the New Protectionism

During the past two decades, nontariff trade barriers (NTBs) have become more important than tariffs. NTBs are major threat to the world trading system. Trade restrictions result from the existence of international cartels and from dumping and export subsidies. Moreover, countries may apply voluntary export restraints and technical, administrative, and other regulations.

Topic 91 and 92: Voluntary Export Restraints

An importing country induces other nations to reduce its exports of a good “voluntarily” under the threat of higher trade restrictions under voluntary export restraints (VERs). Industrial nations

curtail exports of textiles, steel, electronic products, automobiles, and other products from Japan and Korea through VER. The Uruguay Round required the phasing out all VERs by the end of 1999. VERs have economic effects of equivalent import quotas, except that the exporting country administers them, so foreign exporters capture the revenue effect.

From 1977 to 1981, U.S. automobile production fell by one-third, and the share of imports rose from 18% to 29%, and 300,000 auto workers lost their jobs in the USA. VERs applied to Japanese automobile exports to the USA to 1.68 million units per year from 1981 to 1983 and to 1.85 million units for 1984 and 1985. The total cost of the agreement to U.S. consumers was estimated to be \$15.7 billion from 1981 through 1984, and 44,000 U.S. automakers' jobs were saved at the cost of more than \$100,000 each. Voluntary export restraints were less effective in limiting imports than import quotas. Foreign exporters also tend to fill their quota with higher-quality and higher-priced units.

Topic 93: Technical, Administrative, and Other Regulations

Technical, Administrative, and Other Regulations include safety regulations for automobile and electrical equipment, health regulations for the hygienic production and packaging of imported food products, and labeling requirements showing origin and contents. One example is government procurement policies. Under the "Buy American Act" passed in 1933, U.S. gave a price advantage of up to 50 % for defense contracts to domestic suppliers. "Border taxes" is one more example. These are rebates for internal indirect taxes given to exporters of a commodity and imposed (in addition to the tariff) on importers of a commodity. Examples of indirect taxes are excise and sales taxes in the United States and the value-added tax (VAT) in Europe.

LESSON 26: INTERNATIONAL CARTELS AND DUMPING

Topic 94: International Cartels

An international cartel is an organization of suppliers of a commodity located in different nations (or a group of governments) that agrees to restrict the output and exports of the commodity. These cartels cannot be considered illegal like OPEC. An international cartel is to be successful if there are only a few international suppliers of an essential commodity for which there are no close substitutes.

In September 1926, the producers of aluminum in France, Germany, Switzerland, and England formed an international cartel, which controls the European production of aluminum and its chief

raw material, bauxite, and through indirect affiliations with the American aluminum, interests dominate the world trade in those commodities. The cartel controls 49 percent of the world's production of raw aluminum, the remainder being in the hands of the Aluminum Company of America and its affiliated concerns.

There is an incentive for any one supplier to remain outside the cartel or to "cheat" on it by unrestricted sales at slightly below the cartel price. During the 1980s, high petroleum prices induced non-members of OPEC (United Kingdom, Norway, and Mexico) to stimulate petroleum exploration and production. A cartel could behave exactly as a monopolist (a centralized cartel).

Topic 95 and 96: Dumping

Dumping is the export of a commodity at a lower price abroad than domestically. Dumping can be divided into three categories.

Persistent dumping (international price discrimination) is done by selling the commodity at a higher price in the domestic market than internationally. This practice is based on the fact that markets vary in terms of overhead costs and demand characteristics. In persistent dumping, the firm may use marginal cost pricing abroad while using full cost pricing (covering fixed costs at home) in the domestic market. Japan, for example, sold consumer electronics at high prices in its own country. This is because it has no foreign competition. But it lowered prices in the U.S market in order to maintain market share.

Predatory dumping is the temporary sale of a commodity at below cost or at a lower price abroad to take advantage of the newly acquired monopoly power abroad. This practice is based on the fact that markets vary in terms of overhead costs and demand characteristics. In persistent dumping, the firm may use marginal cost pricing abroad while using full cost pricing (covering fixed costs at home) in the domestic market. Japan, for example, sold consumer electronics at high prices in its own country. This is because it has no foreign competition. But it lowered prices in the U.S market in order to maintain market share. Hitachi was accused of following predatory dumping for its EPROM (electrically programmable read-only memory) chips. Zenith in the USA accused Japanese Television manufacturers of using predatory dumping. A charge was leveled against Japanese manufacturers for false billing and secret rebates to set low predatory prices on T.V. sets in U.S markets. It was argued that they tried to drive U.S firms out of business in order to gain a monopoly.

Sporadic dumping is the occasional sale of a commodity at below cost or at a lower price to unload an unforeseen and temporary surplus of the commodity without having to reduce domestic prices. A manufacturer with unsold inventories avoids starting a price war in the home market to preserve its competitive position. Excess supplies are destroyed. For example, Asian farmers dump small chickens into the sea. Another method is to have the excess supply dumped in a foreign market where the product is normally not sold. Thus, sporadic dumping **is** aimed at liquidating excess stocks that may arise occasionally. Trade restrictions to counteract predatory dumping are justified. These restrictions usually take the form of anti-dumping duties to offset price differentials or the threat to impose such duties. European Union countries dump agricultural commodities.

LESSON 27: EXPORT SUBSIDIES

Topic 97: Export Subsidies

Export subsidies are direct payments (or the granting of tax relief and subsidized loans) to the nation's exporters or potential exporters and/or low-interest loans to foreign buyers to increase exports. Banks provide low-interest credits like U.S. Export-Import Bank, and these loans finance about 2% of U.S. exports. The difference between actual interest on a commercial loan and what is paid at the subsidized rate is the amount of subsidy.

The Federal Order dairy pricing scheme in the United States is an example of a consumer-financed export subsidy scheme because of higher domestic prices and price pooling (Sumner). In addition, an implicit export subsidy prevails when one or more dairy products are sold in the domestic market at world prices.

Topic 98 and 99: Analysis of Export Subsidies

The analysis of export subsidies are presented in Figure 9.2.

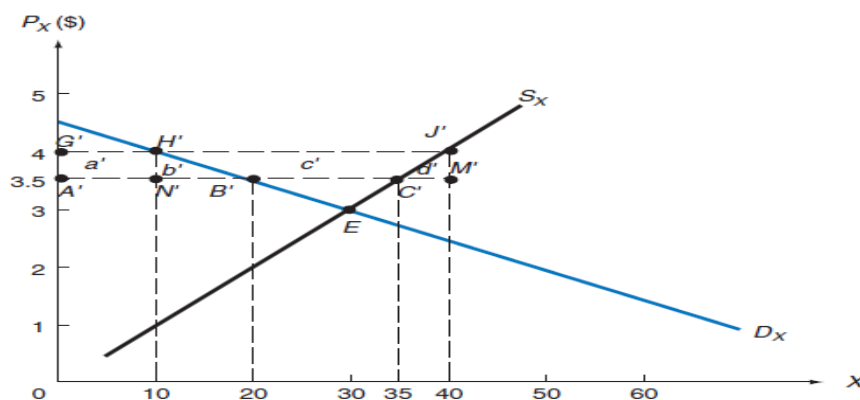


FIGURE 9.2. Partial Equilibrium Effect of an Export Subsidy.

In Figure 9.2, D_X is demand curve and S_X is Supply curve of represent Nation 2's demand and supply curves of commodity X. If the free trade world price of commodity X were \$3.50 instead of \$1.00 assumed in previous example. Nation 2 would produce 35X (AC), consume 20X (AB), and export the remaining 15X (BC). Nation 2 became an exporter rather than being an importer of commodity X. If the government (a small country) provides a subsidy of \$0.50 for each unit P_X rises to \$4.00. Now Nation 2 produces 40X (GJ), consumes 10X (GH), and exports 30X (HJ). The higher price of X benefits producers but harms consumers in Nation 2. Domestic consumers lose \$7.50 ($a' + b'$). Domestic producers gain \$18.75 ($a' + b' + c'$), and the government subsidy is \$15 ($b' + c' + d'$). Nation 2 incurs the protection cost or deadweight loss of \$3.75 (sum of the areas $B'H'N' = b' = \$2.50$ & $C'J'M' = d' = \$1.25$). Subsidies are provided due to lobbying and to promote industry X. Foreign consumers gain because they receive 30X instead of 15X at $P_X = \$3.50$.

Learning Outcomes

After reading this lesson, the students will be able to:

- Know the meaning and effect of quotas and other nontariff trade barriers
- Describe the effect of dumping and export subsidies
- Explain the political economy of protectionism and strategic and industrial policies
- Describe the effect of the Uruguay Round and the aims of the Doha Round

BASIC TEXT BOOKS

- Dominick Salvatore B., International Economics (Latest Edition), Prentice Hall.
- Paul R. Krugman, Maurice Obstfeld, and Marc J. Melitz., International Economics Theory and Policy (Latest Edition), Pearson Series
- Chacholiades, Mitiades, International Trade Theory and Policy (Latest Edition). McGraw Hill Book Company, New York, London.

LESSON 28: DEGREE OF ECONOMIC INTEGRATION AND TRADE-CREATING CUSTOMS UNION

Topic 100 and 101: Introduction: Some Basic Concepts

Economic Integration

The economic integration refers to the commercial policy of discriminatively reducing or eliminating trade barriers only among the nations joining together. The theory of economic integration refers to the commercial policy of discriminatively reducing or eliminating trade barriers only among the nations joining together. The degree of economic integration ranges from preferential trade arrangements to free trade areas, customs unions, common markets, and economic unions.

Preferential Trade Agreement

In Preferential trade agreement countries have lower barriers on trade among participating nations than non-members e.g. British Commonwealth Preference Scheme. The best example of a preferential trade arrangement is the British Commonwealth Preference Scheme, established in 1932 by the United Kingdom with members and some former members of the British Empire.

Free Trade Area

In Free trade area all barriers are removed on trade among members, but each nation retains its own barriers to trade with non-members e.g. EFTA and NAFTA. The best examples are the European Free Trade Association (EFTA), formed in 1960 by the United Kingdom, Austria, Denmark, Norway, Portugal, Sweden, and Switzerland; the North American Free Trade Agreement (NAFTA), formed by the United States, Canada, and Mexico in 1993; and the Southern Common Market (Mercosur) formed by Argentina, Brazil, Paraguay, and Uruguay in 1991.

Customs Union

A customs union allows no tariffs or other barriers on trade among members (as in a free trade area), and in addition it harmonizes trade policies (such as the setting of common tariff rates) toward the rest of the world. The most famous example is the European Union (EU), or European Common Market, formed in 1957 by West Germany, France, Italy, Belgium, the Netherlands, and Luxembourg. Another example is the Zollverein, or customs union, established in 1834 by a large number of sovereign German states, which proved significant in Bismarck's unification of Germany in 1870.

Common Market

A common market goes beyond a customs union by also allowing the free movement of labor and capital among member nations. The EU achieved the status of a common market at the beginning of 1993.

Economic Union

An economic union goes still further by harmonizing or even unifying the monetary and fiscal policies of member states. This is the most advanced type of economic integration. An example is Benelux, which is the economic union of Belgium, the Netherlands, and Luxembourg, formed after World War II (and now part of the EU). An example of a complete economic and monetary union is our own United States.

Duty-Free Zones or Free Economic Zones

An interesting recent development that can be analyzed with the same concepts used to analyze customs unions is duty-free zones or free economic zones. These are areas set up to attract foreign investments by allowing raw materials and intermediate products duty-free.

Topic 102: Trade-Creating Customs Union

The trade creation occurs when some domestic production in a nation that is a member of the customs union is replaced by lower-cost imports from another *member nation*. It increases the welfare of member nations because it leads to greater specialization in production based on comparative advantage. It also increases the welfare of others because some of the increase in its real income (due to its greater specialization in production) spills over into increased imports from the rest of the world.

The purpose of a customs union is to make it easier for member countries to trade freely with each other. The union reduces the administrative and financial burden of barrier trading and fosters economic cooperation among nations. However, member countries are not given the freedom to form their own trade deals. The countries in the customs union usually restructure their domestic economy and economic policies in order to maximize their gain from membership in the union. The European Union is the largest customs union in the world in terms of the economic output of its members. A customs union generates trade creation and diversion that helps with economic integration.

Topic 103: Illustration of a Trade-Creating Customs Union

The illustration of a trade-creating customs union is made in Figure 10.1 below.

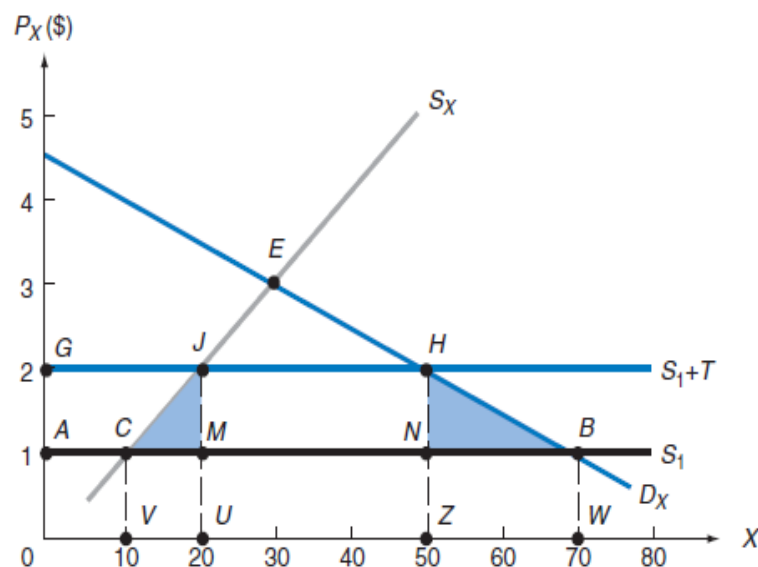


FIGURE 10.1. A Trade-Creating Customs Union.

D_X is demand curve and S_X is supply curve of nation 2. Domestic demand and supply curve intersect at point E where quantity demand and supplied is 30 and price is 3. Suppose free trade price of commodity X is $P_X = \$1$ in Nation 1 and $P_X = \$1.50$ in Nation 3. If Nation 2 imposes a non-discriminatory tariff of 100 % on commodity X, then Nation 2 will import X from Nation 1 at $P_X = \$2$. If Nation 2 now forms a customs union with Nation 1 i.e. trade at $P_X = \$1$. Nation 2 collects no tariff revenue. Consumers gain is AGHB, Producers lose is AGJC and State lose of Tariff MJHN.

Triangle CJM is the production component of the welfare gain from trade creation and results from shifting the production of 10X (CM) from less efficient domestic producers in Nation 2 (at a cost of $VUJC$) to more efficient producers in Nation 1 (at a cost of $VUMC$). Triangle BHN is the consumption component of the welfare gain from trade creation and results from the increase in consumption of 20X (NB) in Nation 2, giving a benefit of $ZWBH$ with an expenditure of only $ZWBN$.

LESSON 29: TRADE-DIVERTING CUSTOMS UNIONS AND THE THEORY OF THE SECOND BEST

Topic 104: Trade-Diverting Customs Unions

Trade diversion occurs when lower-cost imports from outside the customs union are replaced by higher cost imports from a union member due to preferential trade treatment. Trade diversion worsens the international allocation of resources and shifts production away from comparative advantage. A trade-diverting customs union can increase or reduce the welfare of union members, depending on the relative strength of these two opposing forces. Thus, while a trade-creating customs union leads only to trade creation and unequivocally increases the welfare of members and non-members, a trade-diverting customs union leads to both trade creation and trade diversion, and can increase or reduce the welfare of members.

Topic 105 and 106: Illustration of a Trade-Diverting Customs Union

The effects of a trade-diverting customs union are illustrated in Figure 10.2.

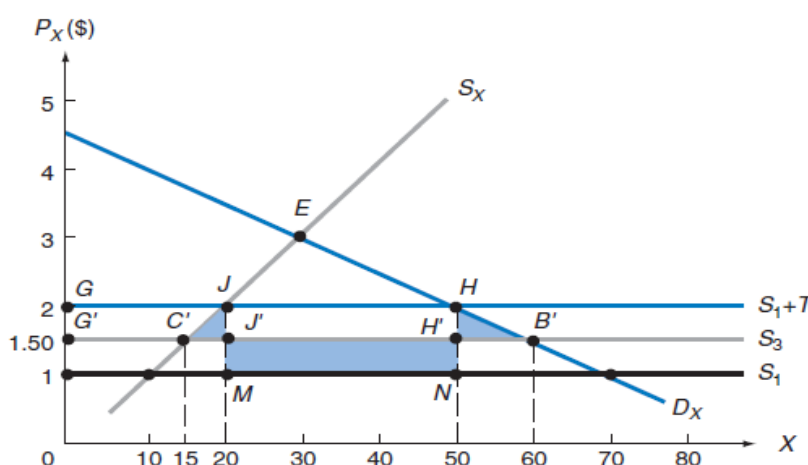


FIGURE 10.2. A Trade-Diverting Customs Union.

D_X is demand curve and S_X is supply curve of nation 2. Suppose free trade price of commodity X is $P_X = \$1$ in Nation 1 and $P_X = \$1.50$ in Nation 3. With a 100 % tariff on imports of good X, Nation 2 imports commodity X from Nation 1 at $P_X = \$2$. If Nation 2 now forms a customs union with Nation 3 only and import X from Nation 3 at $P_X = \$1.50$. Nation 2 consumes 60X (GB), with 15X (GC) produced domestically and 45X (CB) imported from Nation 3. Trade of X into Nation 2 have now been *diverted* from Nation 1 to the less efficient producers Nation 3 due to custom union. A trade-diverting customs leads to some trade creation as imports of X were 30 before customs union and 45 afterward.

Static welfare effects of trade (CU) on Nation 2 with Nation 3 are sum of the areas of triangles $C'JJ'$ and $B'HH'$ (\$3.75). This welfare gain resulting from pure trade creation. The area of $MNH'J'$

(\$15) is the welfare loss from diverting the initial 30X (JH) of imports from lower cost. Specifically, of the gain in consumer surplus of $G'GHB'$ resulting from the formation of the customs union, $G'GJC'$ represents a transfer from producer to consumer surplus in Nation 2 and therefore washes out (i.e., leaves no net gain or loss for Nation 2 as a whole). Of the $JMNH$ (\$30) tariff revenue collected by Nation 2 before the formation of the customs union with Nation 3, $J'JHH'$ is transferred to consumers in Nation 2 in the form of the lower price of commodity X after the formation of the customs union. This leaves only shaded triangles $C'JJ'$ and $B'HH'$ as the net gain to Nation 2 and shaded rectangle $MNH'J'$ as the still unaccounted for loss of tariff revenue.

Topic 107: The Theory of the Second Best

We have established earlier that free trade leads to the most efficient utilization of world resources and thus maximizes world output and welfare. Therefore, prior to *Viner's* work on customs unions in 1950, it was widely believed that any movement toward freer trade would also increase welfare. A customs union does not increase trade barriers against the rest of the world. A customs union (CU) represents a movement toward freer trade due to the elimination of trade barriers among union members that benefits both members and non-members.

The formation of a customs union could increase or reduce the welfare of member nations and of the rest of the world, depending on the circumstances under which it takes place. This is an example of the theory of the second best, which states that if all the conditions required maximizing welfare cannot be satisfied, trying to satisfy as many of these conditions as possible does not necessarily or usually lead to the second-best position. Forming a CU and removing trade barriers only among the members will not necessarily produce the second-best welfare position (welfare can rise or fall).

LESSON 30: BENEFITS OF CUSTOMS UNIONS

Topic 108: Conditions More Likely to Lead to Increased Welfare

A customs union is more likely to lead to trade creation and increased welfare under the following conditions:

- The higher are the pre-union trade barriers of member countries. There is then a greater probability that formation of the customs union will create trade among union members rather than divert trade from non-members to members.

- The lower are the customs union's barriers on trade with the rest of the world. This makes it less likely that formation of the customs union will lead to costly trade diversion.
- The greater is the number of countries forming the customs union and the larger their size. Under these circumstances, there is a greater probability that low-cost producers fall within the union.
- The more competitive rather than complementary are the economies of member nations. There are then greater opportunities for specialization in production and trade creation with the formation of the customs union. Thus, a customs union is more likely to increase welfare if formed by two competitive industrial nations rather than by an industrial nation and an agricultural (complementary) nation.
- The closer geographically are the members of the customs union. Then transportation costs represent less of an obstacle to trade creation among members.
- The greater is the pre-union trade and economic relationship among potential members of the customs union. This leads to greater opportunities for significant welfare gains as a result of the formation of the customs union.

Topic 109: Static Welfare Effects of Customs Unions

Following are some other welfare effects of custom unions other than the discussed above. Firstly, due to the trade among member countries, administration savings from eliminating customs officers, border patrols, etc. For example, European Union is experiencing these advantages. A trade-diverting customs union improves the customs union's collective terms of trade (trade volume reduction with the rest of the world). In trade-creating CU, increased income spills over into greater demand for imports from the rest of the world. Finally, CU, by acting as a single unit in international trade negotiations, is likely to have much more bargaining power than all of its members separately.

Topic 110: Dynamic Benefits from Customs Unions

The increased competition is the most significant dynamic benefit (new technology, cut production costs). Without a customs union, producers are likely to grow sluggish and complacent behind trade barriers. Increased competition between firms leads to greater efficiency in allocating resources within the customs union and increases economic welfare. Inefficiently firms have to enhance their efficiency due to pressure on firms to decrease their costs to survive. The concept of efficiency can be divided into three senses: the allocative efficiency which means that the price

never rise above the marginal cost of production, the productive efficiency which means that goods are produced at the lowest possible cost and the dynamic efficiency which means that the undertakings have to innovate their products/production in order to survive due to the constant exposure of consumer demands.

Economies of scale are likely to result from the enlarged market. A small nation can achieve substantial economies of scale. Larger markets help firms achieve economies of scale in production; an increase in production lowers the average output cost per unit. Due to trade creation and the cost reduction effect due to technical economies of scale, the average costs for production of different matters of output, per unit of time, of a given commodity drops. This process reduces the prices for the consumers and benefits small firms, as in Japan, because they may be included in the network of large firms due to reduced cross-border transaction costs.

Plants in many major industries in such relatively small nations as Belgium and the Netherlands were already of comparable size to U.S. plants. Custom unions increase investment as it spurs outsiders to set up production facilities within the customs union to avoid trade barriers. The massive investments that U.S. firms made in Europe after 1955 and again after 1986. Better utilization of the economic resources of the entire community (free movement of labor and capital). Joining a customs union because of its static and dynamic benefits is only the second-best solution. The best policy may be for a nation to unilaterally eliminate all trade barriers for a nation such as the United States.

Learning Outcomes

After reading this lesson, the students will be able to:

- Understand the meaning of trade creation, trade diversion, and the dynamic benefits of economic integration
- • Describe the importance and effects of the European Union (EU) and NAFTA

BASIC TEXT BOOKS

- Dominick Salvatore B., International Economics (Latest Edition), Prentice Hall.
- Paul R. Krugman, Maurice Obstfeld, and Marc J. Melitz., International Economics Theory and Policy (Latest Edition), Pearson Series
- Chacholiades, Mitiades, International Trade Theory and Policy (Latest Edition). McGraw Hill Book Company, New York, London.

LESSON 31: TRADE AND GROWTH LINK**Topic 111: Introduction**

Developing nations are characterized in general by low real per capita income, labour force in agriculture or other primary activities, low life expectancies, illiteracy, and high population growth. Low per capita real income is one of the most defining characteristics of developing economies. They suffer from low per capita real income level, which results in low savings and low investments. It means the average person doesn't earn enough money to invest or save money. They spend whatever they make. Thus, it creates a cycle of poverty that most of the population struggles to escape. The %age of people in absolute poverty (the minimum income level) is high in developing countries. According to the UN, a developing country is a country with a relatively low standard of living, undeveloped industrial base, and moderate to low Human Development Index (HDI).

In the past, developing nations exported primarily food and raw materials in exchange for manufactured goods from developed nations. Since a significant portion of output originates from the primary sector, a large portion of exports is also from the primary sector. For example, copper accounts for two-thirds of Zambia's exports.

In 1980, manufactured products were only 25 % of developing country exports; by 2010, that figure exceeded 80 %. Today, factories in countries you may only know from geography class make the majority of products you buy, from clothing to electronics. Their manufacturing practices may result in the jeans everyone wants. International companies sell their products worldwide, but many manufacture their goods in developing countries. In these countries, production costs, like land the factory is built on, electricity for the factory lights, and wages paid to workers are lower than in the United States and other developed countries. Also, governments in developing countries often give international companies incentives, such as lower taxes and fewer regulations, to persuade them to set up factories. China is the largest manufacturer in the world. Its government has been offering incentives to international businesses to encourage economic development since the 1980s. The cost of Chinese labor and materials is low. In 2006, the United States bought the most Chinese goods, followed by Japan and Hong Kong.

Economic development depends primarily on the internal condition of a country. However, most economists today believe that international trade stimulates the development process. Until the

1980s, an influential minority of economists believed that international trade hindered rather than facilitated development. They suggested industrialization through import substitution policies.

International trade is now a powerful instrument to stimulate economic progress and alleviate poverty. Trade contributes to eradicating extreme hunger and poverty, by reducing by half the proportion of people suffering from hunger and those living on less than one dollar a day, and to developing a global partnership for development, which includes addressing the least developed countries' needs, by reducing trade barriers, improving debt relief and increasing official development assistance from developed countries.

Topic 112: Trade Theory and Economic Development

The traditional trade theory state that developing nations should produce and export raw materials, fuels, minerals, and food to developed nations in exchange for manufactured products. Developing nations believe they cannot reap the *dynamic* benefits of industry (trained labor force, innovations, and stable prices) in the long run and will remain poor. Traditional trade theory was attacked for being static and irrelevant to the development process. This is not true if we see the case of Brazil, Korea, Taiwan, Mexico, etc. if we incorporate factor supplies technology and capital accumulations. There is a need to have a truly dynamic theory that incorporates dynamic changes. Traditional trade theory is still relevant for developing countries.

Topic 113 and 114: Trade as an Engine of Growth

During the nineteenth century, world's modern industrial production was concentrated in Great Britain. Large increases in industrial production and population in resource-poor Britain led to a rapidly rising demand for the food and raw material exports of the regions of recent settlement. In this context, *Nurkse* (1970) concluded his studies on the note that the export sector was the leading sector that led these economies into rapid growth and development. The regions of the recent settlement were able to satisfy Britain's burgeoning demand for food and raw materials (and, in the process, grow very rapidly) because of several favorable circumstances. First, these countries were richly endowed with natural resources such as fertile arable land, forests, and mineral deposits. Second, workers with various skills moved in great waves from overpopulated Europe to these mostly empty lands, and so did vast amounts of capital. Although data are far from precise, it seems that from 30 to 50 % of total capital formation (i.e., investments) in such nations as Canada, Argentina, and Australia was financed through capital inflows. The vast inflows of capital

and workers made possible the construction of railroads, canals, and other facilities that opened new supply sources of food and raw materials. Finally, the significant improvement in sea transportation enabled these new lands to satisfy the rising demand for wheat, corn, cotton, wool, leather, and a variety of other foods and raw materials more cheaply than traditional sources of supply in Europe and elsewhere.

Thus, all “ingredients” were present for rapid growth in these new lands: The demand for their products was rising rapidly; they had tremendous and unexploited natural resources, and they received huge amounts of capital and millions of workers from Europe. To be sure, there are some economists, notably *Kravis*, who believe (and have presented data that seem to show) that the rapid growth of the regions of recent settlement during the nineteenth century was due primarily to very favorable internal conditions (such as abundant natural resources), with trade playing only an important *supportive* role. Be that as it may, it is generally agreed that today’s developing nations can rely much less on trade for their growth and development. This is due to less favorable demand and supply conditions.

On the demand side, it is pointed out that the demand for food and raw materials is growing much less rapidly today than was the case for the regions of recent settlement during the nineteenth century. There are several reasons for this: (1) The income elasticity of demand in developed nations for many of the food, and agricultural raw material exports of developing nations is less (and sometimes much less) than 1, so that as income rises in developed nations, their demand for the agricultural exports of developing nations increases proportionately less than the increase in income. For example, the income elasticity of demand for coffee is about 0.8, for cocoa 0.5, for sugar 0.4, and for tea 0.1. (2) The development of synthetic substitutes has reduced the demand for natural raw materials; for example, synthetic rubber has reduced the demand for natural rubber, nylon the demand for cotton, and plastics the demand for hides and skins. (3) Technological advances have reduced the raw material content of many products, such as tin-plated cans and microcircuits. (4) The output of services (with lower raw material requirements than commodities) has grown faster than developed nations' output. (5) Developed nations have imposed trade restrictions on developing nations' temperate exports (such as wheat, vegetables, sugar, oils, and other products).

LESSON 32: TRADE DEVELOPMENT LINK AND VARIOUS TERMS OF TRADE**Topic 115: The Contributions of Trade to Development**

Even though international trade cannot in general be expected to be an “engine of growth” today, there are still many ways (besides the static gains from comparative advantage) in which it can contribute to the economic growth of today’s developing nations. *Haberler*, among others, has pointed out the following important beneficial effects that international trade can have on economic development: (1) Trade can lead to the full utilization of otherwise underemployed domestic resources. In addition, (2) by expanding the size of the market, trade makes possible division of labor and economies of scale. This is especially important in the production of light manufactures in small economies in the early stages of development. (3) International trade is the vehicle for the transmission of new ideas, new technology, and new managerial and other skills. (4) Trade also stimulates and facilitates the international flow of capital from developed to developing nations. In the case of foreign direct investments, where the foreign firm retains managerial control over its investment, the foreign capital is likely to be accompanied by foreign skilled personnel to operate it. (5) In several large developing nations, such as Brazil and India, the importation of new manufactured products stimulated domestic demand until efficient domestic production of these goods became feasible. Finally, (6) international trade is an excellent antimonopoly weapon because it stimulates greater efficiency by domestic producers to meet foreign competition. This is particularly important to keep low the cost and price of intermediate or semi-finished products used as inputs in the domestic production of other commodities.

Topic 116: International Trade and Endogenous Growth Theory

Romer & Lucas in 1980s established Trade growth link in endogenous growth theory. According to them, by lowering trade tariff, developing nations to absorb the technology at faster rate. Furthermore, trade openness will speed up the rate of economic growth and development in the long run by allowing developing nations to absorb the technology developed in advanced nations at a faster rate than with a lower degree of openness, research and development, larger economies of scale in production, efficient use of domestic resources and less price distortions, greater specialization, efficiency in the production of intermediate inputs, and introduction of new products and services.

Policies that make an economy open to trade and investment with the rest of the world are needed for sustained economic growth. The evidence on this is clear. No country in recent decades has

achieved economic success, in terms of substantial increases in living standards for its people, without being open to the rest of the world. In contrast, trade opening (along with opening to foreign direct investment) has been an important element in the economic success of East Asia, where the average import tariff has fallen from 30 % to 10 % over the past 20 years. The increased growth that results from freer trade itself tends to increase the incomes of the poor in roughly the same proportion as those of the population as a whole. Countries that have opened their economies in recent years, including India, Vietnam, and Uganda, have experienced faster growth and more poverty reduction.

Topic 117: The Various Terms of Trade

There are several types of terms of trade measures. Some of them are discussed below

- **Commodity, or Net barter, Terms of Trade**

It is defined as ratio of export prices to import prices. It can be expressed as:

$$N = (P_X / P_M) 100$$

Where, N= commodity terms of trade or net barter terms of trade, P_X = export price, P_M = import price.

For example, if we take 1980 as the base year ($N = 100$), and we find that by the end of 2010 the nation's P_X fell by 5 % (to 95), while its P_M rose by 10 % (to 110), then this nation's commodity terms of trade declined to

$$N = (95/100)100 = 86.36$$

This means that between 1980 and 2010 the nation's export prices fell by 14 % in relation to its import prices.

It is generally believed that an improvement in the commodity terms of trade increases the economic welfare of a country. The sale of home-produced goods at higher export prices and the purchase of foreign-produced goods at lower prices is expected to increase welfare. From this, a conclusion is sometimes derived that maximization of net barter terms of trade will mean the maximization of welfare. However, that is not necessarily true. If the export function of a country is more elastic, a rise in export price will cause a considerable reduction in the quantity of export and bring about a significant fall in the export earnings.

- **Income Terms of Trade**

A nation's income terms of trade (I) are given by

$$I = (P_X / P_M) Q_X$$

where Q_X is an index of the volume of exports. Thus, I measure the nation's export-based capacity to import. Returning to our example, if Q_X rose from 100 in 1980 to 120 in 2010, then the nation's income terms of trade rose to

$$I = (95/100)120 = (0.8636)(120) = 103.63$$

This means that from 1980 to 2010 the nation's capacity to import (based on its export earnings) increased by 3.63 % (even though P_X / P_M declined). The change in the income terms of trade is very important for developing nations, since they rely to a large extent on imported capital goods for their development.

- **Single Factoral Terms of Trade**

A nation's single factoral terms of trade (S) are given by:

$$S = (P_X / P_M) Z_X$$

where Z_X is a *productivity* index in the nation's export sector. Thus, S measures the amount of imports the nation gets per unit of domestic factors of production embodied in its exports.

For example, if productivity in the nation's export sector rose from 100 in 1980 to 130 in 2010, then the nation's single factoral terms of trade increased to

$$S = (95/110)130 = (0.8636)(130) = 112.27$$

This means that in 2010 the nation received 12.27 % more imports per unit of domestic factors embodied in its exports than it did in 1980. Even though the nation shares part of its productivity increase in its export sector with other nations, the nation is better off in 2010 than it was in 1980 (by more than indicated by the increase in I and even though N declined).

- **Double Factoral Terms of Trade**

A nation's double factoral terms of trade (D) are given by:

$$D = (P_X / P_M) (Z_X / Z_M) 100$$

where Z_M is an *import* productivity index. Thus, D measures how many units of domestic factors embodied in the nation's exports are exchanged per unit of *foreign* factors embodied in its imports. For example, if Z_M rises from 100 to 105 between 1980 and 2010, then D rises to

$$D = (95/100)(130/105) = (0.8636)(1.2381)(100) = 106.92$$

Of the four terms of trade defined, N , I , and S are the most important. D does not have much significance for developing nations and is very seldom, if ever, measured. (It was included here only for the sake of completeness.) The most significant terms of trade for developing nations are

I and *S*. However, since *N* is the easiest to measure, most of the discussion in the economic literature has been in terms of *N*. Indeed, *N* is often referred to simply as “the terms of trade.”

Topic 118: Reasons for Deterioration in the Commodity TOT

According to Singer and Myrdal, “Most or all of the productivity increases in developed nations are passed on to their workers (high income & wage), while most or all of the productivity increases in developing nations are reflected in lower prices”. Developed nations retain the benefits of their own productivity increases in the form of higher wages and income for their workers, and at the same time, they also reap most of the benefits from the productivity increases taking place in developing nations through the lower prices that they can pay for the agricultural exports of developing nations.

Labour market differentials exist between developed and developing countries. Labour is relatively scarce in developed nations, and labour unions are strong. On the other hand, because of surplus labor, significant unemployment, and weak or nonexistent labor unions in most developing nations, all or most of the productivity increases in these nations are reflected in lower production costs and lower prices for their agricultural exports.

High price exports from developed countries and lower price imports from developing countries result in the best of both worlds favoring developed countries. Another reason for expecting the terms of trade of developing nations to deteriorate is that their demand for the manufactured exports of developed nations tends to grow much faster than the latter’s demand for the agricultural and raw material exports of developing nations. This is due to the much higher income elasticity of demand for manufactured goods than for agricultural commodities and raw materials.

LESSON 33: EXPORT INSTABILITY, COMMODITY AGREEMENTS, AND IMPORT SUBSTITUTION VERSUS EXPORTS**Topic 119: Cause and Effects of Export Instability**

Developing nations may also face large short-run fluctuations in their export prices and earnings that could seriously hamper their development. Developing nations often experience wild fluctuations in the prices of their primary exports due to both inelastic and unstable demand and supply. Hypothetical demand and supply are presented in Figure 11.2.

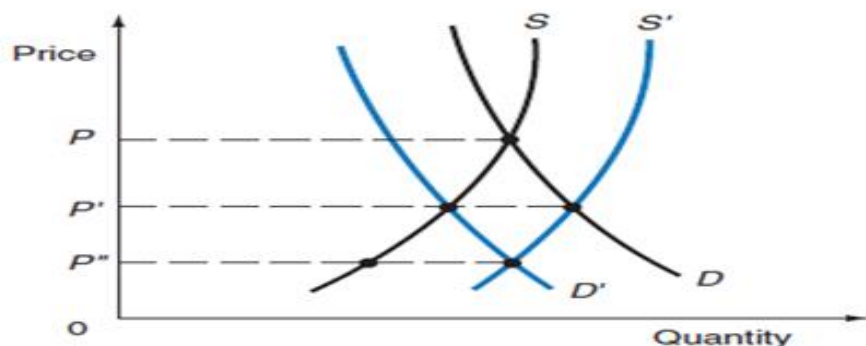


FIGURE 11.2. Price Instability and the Primary Exports of Developing Nations.

D and S represent demand and supply curves of developing nations' primary exports. If due to any reason D goes down to D' or S increases to S' , the P falls sharply to P' . If both D and S shift at the same time to D' and S' , the P falls even more, to P'' . Price inelastic and unstable D & S curves may lead to wild price fluctuations.

The demand for many primary exports of developing nations is price inelastic because individual households in developed nations spend only. The supply of the primary exports of developing nations is price inelastic due to internal rigidities & inflexibilities in resource uses, and weather is the reason of unstable supply in most developing nations.

When export earnings rise, exporters increase their consumption expenditures, investments, and bank deposits. The subsequent fall in export earnings results in multiple contractions of national income, savings, and investment. Wildly fluctuating export prices or income leads to boom and bust periods that render development planning.

Topic 120: Measurements of Export Instability and Its Effect on Development

MacBean in 1966 concluded his study and found that over the 1946–1958 period the index of instability of export earnings (defined as the average %age deviation of the dollar value of export proceeds from a five-year moving average and measured on a scale of 0 to 100) was 23 for a group of 45 developing nations and 18 for a group of 18 developed nations for which data were available. Export instability is somewhat larger for developing nations than for developed nations. The degree of instability itself is not very large *in an absolute sense* when measured on a scale of 0 to 100. MacBean also showed that the greater instability of export earnings of developing nations was not due, as previously believed, to the fact that these nations exported only a few commodities or exported these commodities to only a few but depended primarily on the type of commodities exported. For example, those nations exporting such commodities as rubber, jute, and cocoa faced much more unstable export earnings than developing nations exporting petroleum, bananas, sugar,

and tobacco. Greater fluctuation in the export earnings of developing nations did not lead to significant fluctuations in their national incomes, savings, and investments. It did not seem to interfere much with their development efforts.

Topic 121 and 122: International Commodity Agreements

The stabilization of export prices for individual producers in developing nations could be achieved by domestic schemes such as the marketing boards set up after World War II. Marketing boards operated by purchasing the output of domestic producers at the stable prices set by the board, which would then export the commodities at fluctuating world prices e.g. cocoa marketing board (Ghana) & rice marketing board (Burma). International commodity agreements can be of the following types.

1- Buffer stocks: Purchase of commodity when the price falls below an agreed minimum price and the sale when the price is above maximum price. Buffer stock schemes are operated by a central authority. They aim to stabilize prices and protect producers from sudden shifts in demand and supply (often supply in the case of agriculture). This is done by 'leaning into the wind', i.e., if there is too much supply, forcing the price down, the buffer stock agency will increase demand by buying up stocks. If there is a shortage of supply, forcing the price up, the agency will release stocks onto the market, forcing the price down. The main disadvantage of this agreement is that some commodities can be stored only at a very high cost. Moreover, if the minimum price is set above the equilibrium level, the stock grows larger over time.

2- Export controls: Export controls seek to regulate the quantity of a commodity exported by each nation in order to stabilize commodity prices. The main advantage is that there is no need to stock commodities. This agreement is made subject to any restrictions concerning the export of products or technical information from the United States of America that may be imposed upon or related to Merck or Licensee from time to time by the government of the United States of America. Furthermore, Licensee agrees that it will not export, directly or indirectly, any technical information acquired from Merck under this agreement or any products using such technical information to any country for which the United States government or any agency thereof at the time of export requires an export license or other governmental approval, without first obtaining the written consent to do so from the Department of Commerce or other agency of the United States government when required by an applicable statute or regulation. The disadvantages are the

same as with quotas and a big incentive to cheat on the agreement. The best example is International Sugar Agreement and OPEC.

3- Purchase contracts are long-term multilateral agreements that stipulate a minimum price at which importing nations agree to purchase a specified quantity of the commodity and a maximum price at which exporting nations agree. An example is the International Wheat Agreement, which was signed in 1949. This agreement, however, affected primarily the United States, Canada, and Australia rather than developing nations, and it became inoperative when, as a result of the huge wheat purchases by the Soviet Union since the early 1970s, wheat prices raised sharply above the established price ceiling. The agreement was terminated in 1995.

Topic 123 and 124: Development through Import Substitution versus Exports

From 1950 to 1970, developing countries prefer industrialization instead of specialization in primary goods in the hope of faster technological progress, the creation of high-paying jobs, higher multipliers and accelerators, rising TOT, stable export prices and earnings, relief from balance-of-payments difficulties. Industrialization could be thorough import substitution, or it could be export-oriented.

Import substitution industrialization (ISI) is an economic policy that favors developing domestic industries and reducing reliance on manufactured foreign imports. ISI was a prominent policy in the 20th century for developing countries seeking to reduce their dependence on developed countries, with the goal of reaching industrialization and eventually become self-sufficient. The most prominent example of import substitution industrialization adoption is throughout Latin America. The Great Depression in the 1930s severely hurt Latin America's export market. They realized their heavy reliance on natural resource exports was not sustainable and made them vulnerable to the international market. All the revenue they made on exports was spent on imports, resulting in growth inertia and rapid depletion of resources. Furthermore, Latin American countries suffered from weak domestic markets due to small local industries run by elites, leading to high levels of unemployment.

Import substitution industrialization became the obvious solution to such problems. Many Latin American countries adopted ISI by investing heavily in key local industries. Private industries were nationalized to strengthen state control. Tariffs and quotas were put in place to decrease imports, and taxes were increased to support the policy. However, the policy implementation was met with mixed results. Countries such as Argentina, Brazil, Chile, Mexico, and Uruguay were

successful in adopting ISI and experienced moderate industrialization and a reduction in unemployment.

On the other hand, countries such as Peru, Bolivia, and Ecuador were unsuccessful. The main advantages of ISI policies are that these policies reduce risk of setting up new industry, easy to protect domestic industry, Foreign firms are induced to establish tariff factories. In contrast, the adverse effects include less efficiency and diseconomies of scale, where ISI becomes more difficult and costly due to less technology.

Export-oriented industrialization (EOI) is a trade and economic policy aiming to speed up the industrialization process of a country by exporting goods for which the nation has a comparative advantage. Export-led growth implies opening domestic markets to foreign competition in exchange for market access in other countries. However, this may not be true of all domestic markets, as governments may aim to protect specific nascent industries so they grow and are able to exploit their future comparative advantage, and in practice, the converse can occur. For example, many East Asian countries had strong barriers to imports from the 1960s to the 1980s. Reduced tariff barriers, a fixed exchange rate (a devaluation of national currency is often employed to facilitate exports), and government support for exporting sectors are all examples of policies adopted to promote EOI and economic development. Export-oriented industrialization was particularly characteristic of the development of the national economies of the Asian Tigers: Hong Kong, South Korea, Taiwan, and Singapore in the post-World War II period. Export-led growth is an economic strategy used by some developing countries. This strategy seeks to find a niche in the world economy for a certain type of export. Industries producing this export may receive governmental subsidies and better access to the local markets. By implementing this strategy, countries hope to gain enough hard currency to import commodities manufactured more cheaply elsewhere. The main advantages of ISI policies are economies of scale, derived demand for exports, increased efficiency, and exports do not depend on the domestic market of goods. While the negative effects include difficulty to set up export industries due to developed competition, the high tariff on imports by developed countries for labor-intensive goods.

LESSON 34: EXPERIENCES OF DEVELOPING COUNTRIES RELATED TO TRADE

Topic 125: Experience with Import Substitution

The industrialization policy through import substitution generally met with only limited success or failure. Import substitution leads to very high rates of effective protection, causing inefficient domestic industries and very high prices for domestic consumers. Heavy protection and subsidies to industry led to the excessive capital intensity and relatively little labor absorption. For example, the capital intensity in steel production was almost as high in capital-poor nations such as India as in the capital-rich United States. This quickly exhausted the meager investment funds available to developing nations and created only a few jobs. The result was that most of the yearly increase in the labor force of most developing countries had to be absorbed into agriculture and the traditional service sector, thus aggravating their unemployment and underemployment problems.

The effort to industrialize through import substitution also led to the neglect of agriculture and other primary sectors, with the result that many developing nations experienced a decline in their earnings from traditional exports, and some (such as Brazil) were even forced to import some food products that they had previously exported.

■ TABLE 11.3. Average Growth of Real GDP of Rich Countries, Globalizers, and Nonglobalizers, 1960s–2000s (Percentage)

	1960s	1970s	1980s	1990s	2000s
Rich countries	4.7	3.1	2.3	2.2	1.6
Globalizers	1.4	2.9	3.5	5.0	5.0
Nonglobalizers	2.4	3.3	0.8	1.4	2.3

Table 11.3 shows that globalizing developing countries (globalizers) grew much faster than rich and non-globalizing developing countries since the 1980s, but not earlier. The rich countries were defined as the 24 OECD industrial countries plus the early globalizers (and relatively high-income economies) of Chile, Hong Kong, Singapore, South Korea, and Taiwan. Of the remaining 73 countries were defined as globalizers. In contrast, the remaining two-thirds of the countries (49) were defined as non-globalizers.

Topic 126: Trade Liberalization and Growth in Developing Countries

In developing countries, dramatic reduction and simplification in average tariff rates and quantitative import restrictions were observed in the 1980s—this caused a higher degree of openness and a sharp increase in the ratio of manufacturers to total exports. The trade reforms in some developing countries are discussed in Table 11.4.

■ **TABLE 11.4.** Trade Reforms in Selected Developing Countries

Country	Reforms
Argentina	Average tariff levels were reduced from 18 percent to 11 percent and import licensing restrictions were substantially eased in 1991. The highest tariff rate was cut by another 15 percentage points in 1992.
Brazil	Major trade reforms were announced in March 1990 to replace almost all quotas with tariffs. Average tariff rates were reduced from 37 percent to 25 percent in 1990, to 21 percent in 1992, and to 14 percent in 1994.
Chile	In 1973 all quotas were removed, and a uniform tariff of 10 percent was imposed on all goods except automobiles. The tariff was raised to 15 percent following the economic crisis of the early 1980s.
China	A 1992 agreement began significant import liberalization, including a phaseout of almost 90 percent of all NTBs by 1998.
Egypt	The import quota on all tradable goods was reduced from 37 percent in 1990 to 23 percent in 1991 and 10 percent in 1992, and in 1993 the highest tariff rate was reduced from 100 percent to 80 percent.
India	Restrictive import licensing requirements covering 70 percent of all imports were eliminated in 1992, and the peak tariff was reduced from 110 percent to 85 percent in 1993.
Mexico	Quotas were substantially reduced starting in 1985. By 1988, tariffs were reduced to an average of 11 percent, with a maximum rate of 20 percent.
Philippines	Trade reform was adopted in 1991 to reduce the average tariff rate from 28 percent to 20 percent by 1995. Some quotas were also lifted.
Turkey	Quotas and other NTBs barriers have been substantially reduced starting in 1980 and tariff reduced substantially in 1992.

Sources: D. Rodrik, "The Rush to Free Trade in the Developing World: Why So Late? Why Now? Will It Last?" *NBER Working Paper No. 3947*, January 1992, pp. 3–4; and S. Hickok, "Recent Trade Liberalization in Developing Countries," *Quarterly Review*, Federal Reserve Bank of New York, Autumn 1993, p. 3.

World Bank supported this trade openness and lent over \$ 20 billion to 60 countries in the form of structural adjustment programs. These reforms, in turn, resulted in a much higher degree of openness, as measured by the sum of exports plus imports as a ratio of GDP, a sharp increase in the ratio of manufactures in total exports (see Case Study 11-4), and higher rates of growth for the liberalizing economies. Trade reforms were most successful when launched in a single bold move rather than with a number of small hesitant steps over time and when accompanied by anti-inflationary measures.

Topic 127 and 128: Trade Problems of Developing Countries

During the 1980s, developed countries increased trade protection (textiles, steel, shipbuilding, consumer electronic products), causing high unemployment rates. These were the industries in which developing countries had gained or were gaining comparative advantage. High-Performance Asian economies (HPAEs) were greatly affected by these policies. The successful completion of the Uruguay Round in December 1993 prevented import substitution and export pessimism. The

Doha Round in November 2001 was supposed to be a “development round” by dealing with the trade demands of developing countries.

In 1974, United Nations called for the establishment of a New International Economic Order (NIEO) with the aim of

1. renegotiating the international debt of developing countries and reducing interest payments,
2. negotiating international commodity agreements,
3. establishing preferential access in developed nations’ markets to all the manufactured exports of developing nations,
4. removing trade barriers on agricultural products in developed nations,
5. increasing the transfer of technology to developing nations and regulating multinational corporations,
6. increasing the yearly flow of foreign aid to developing nations to 0.7 % of rich nations’ income, and
7. allowing developing nations a more significant role in international decision-making.

There is also an increased awareness today that the major cause of poverty in some of the poorest developing countries is internal and due to wars, corruption, political instability, disease, and natural calamities. In 2000, the World Bank sponsored the Millennium Development Goals (MDG), which proposed a program for rich countries to help the poorest developing countries stimulate growth, reduce poverty, and promote sustainable development. In 2010, developed countries as a group gave only 0.21 % of their GDP in foreign aid, and so did the United States—most of it bilateral. However, the reduction in trade restrictions and protectionism from implementing the Uruguay Round agreement provided major trade benefits to developing countries.

Learning Outcomes

After reading this lesson, the students will be able to:

- Understand the relationship between international trade and economic development
- Understand the relationship between the terms of trade and export instability and economic development
- Compare imports substitution with export orientation as a development strategy
- Describe the current problems facing developing countries

BASIC TEXT BOOKS

- Dominick Salvatore B., International Economics (Latest Edition), Prentice Hall.
- Paul R. Krugman, Maurice Obstfeld, and Marc J. Melitz., International Economics Theory and Policy (Latest Edition), Pearson Series
- Chacholiades, Mitiades, International Trade Theory and Policy (Latest Edition). McGraw Hill Book Company, New York, London.

LESSON 35: BASIC CONCEPTS OF MACROECONOMICS**Topic 129: Introduction**

Microeconomics is the study of how individuals and companies make choices regarding the allocation and utilization of resources. It also studies how individuals and businesses coordinate and cooperate and the subsequent effect on the price, demand, and supply. Microeconomics refers to the goods and services market and addresses economic and consumer concerns. We have learned how individual production and consumption decisions produce international trade and specialization patterns while studying international microeconomics.

Macroeconomics studies the behavior of a national or regional economy as a whole. It is concerned with understanding economy-wide events such as the total amount of goods and services produced, the level of unemployment, and the general behavior of prices. Unlike microeconomics—which studies how individual economic actors, such as consumers and firms, make decisions—macroeconomics concerns itself with the aggregate outcomes of those decisions. For that reason, in addition to using the tools of microeconomics, such as supply-and-demand analysis, macroeconomists also utilize aggregate measures such as gross domestic product (GDP), unemployment rates, and the consumer price index (CPI) to study the large-scale repercussions of micro-level decisions. We will learn how the interactions of national economies influence the worldwide pattern of macroeconomic activity in international macroeconomics.

Topic 130: Basic Concepts of Macroeconomics

A person is unemployed if he or she is not working but is looking for and available for work. The labor force is the total number of people working or unemployed. The unemployment rate is the %age of the unemployed labor force. For an economy to produce all it can and achieve a solution on its production possibilities curve, the factors of production in the economy must be fully employed. Failure to fully employ these factors leads to a solution inside the production possibilities curve in which society is not achieving the output it is capable of producing. The main concern of international macroeconomics is the problem of ensuring full employment in economies open to international trade.

National saving is an indicator of the health of a country's investment. A high level of savings means more sources of loanable funds in the country, indicating the deepening of the advanced financial markets. National saving is one of the factors driving economic growth in the long run. It represents a domestic supply of loanable funds for investment to increase the production capacity of an economy in the long run. The world saving rate determines how quickly the world stock of productive capital can grow.

The balance of payments accounts of a country record the payments and receipts of the residents of the country in their transactions with residents of other countries. If all transactions are included, the payments and receipts of each country are and must be equal. Any apparent inequality leaves one country acquiring assets in the others. For example, suppose Americans buy automobiles from Japan and have no other transactions with Japan. In that case, the Japanese must end up holding dollars, which they may hold in the form of bank deposits in the United States or in some other U.S. investment. The payments of Americans to Japan for automobiles are balanced by the payments of Japanese to U.S. individuals and institutions, including banks, for the acquisition of dollar assets. Trade imbalances play a large role because they redistribute wealth among countries and one country's macroeconomic policies affect its trading partners.

International macroeconomics takes into account that every country uses a currency and that a monetary change (for example, a change in money supply) in one country can have effects that spill across its borders to other countries. Stability in money price levels is an important goal of international macroeconomic policy.

LESSON 36: GROSS DOMESTIC PRODUCT AND GROSS NATIONAL PRODUCT

Topic 131: The National Income Accounts

Gross national product (GNP) refers to the total value of all the goods and services produced by the residents and businesses of a country, irrespective of the location of production. GNP considers the investments made by the businesses and residents of the country, both inside and outside the country. It also considers the value of the products produced by the industries of domestic origin. GNP does not consider the incomes earned by the foreign nationals in the country or any products produced by a foreign company in the manufacturing units in the country.

To distinguish among the different types of expenditure that make up a country's GNP, government economists and statisticians who compile national income accounts divide GNP among the four possible uses for which a country's final output is purchased:

- consumption (the amount consumed by private domestic residents)
- investment (the amount put aside by private firms to build new plants and equipment for future production)
- government purchases (the amount used by the government)
- the current account balance (the number of net exports of goods and services to foreigners)

Topic 132: National Product and National Income

GNP must equal its national income, the income earned in that period by its factors of production. The main reason for this equality is that one person's spending is always the income of another person. The \$75 you pay the doctor represents the market value of the services he or she provides for you, so your visit raises GNP by \$75. However, the \$75 you pay the doctor also raises his or her income by \$75.

The principle that output and income are the same also applies to goods, even goods that are produced with the help of many factors of production. Consider the example of an economics textbook. When you purchase a new book from the publisher, the value of your purchase enters GNP. But your payment enters the income of the productive factors that cooperated in producing the book, because the publisher must pay for their services with the proceeds of sales:

- There are the authors, editors, artists, and composers who provide the labor inputs necessary for the book's production.
- There are the publishing company's shareholders, who receive dividends for having financed the acquisition of the capital used in production.
- The suppliers of paper and ink provide the intermediate materials used in producing the book.

Topic 133: Adjustment in GNP and GDP

Net national product (NNP) is a term often used to represent the difference between gross national product and depreciation. In numerical terms, the NNP is the total market value of the goods and

services produced by a nation during a specified period (generally a year) with depreciation subtracted from it. Net national product considers all the goods, products, and services manufactured by the country's citizens, irrespective of their location; in other words, net national product considers products produced domestically and overseas. NNP is one of the important metrics for determining the actual growth of a nation. It measures how much the country can consume in a given period of time. The formula of NNP is as follows:

$$\text{NNP} = \text{GNP} - \text{Depreciation}$$

A country's income may include gifts from residents of foreign countries usually called unilateral transfers e.g. foreign aid. The formula of national income is as:

$$\text{National income} = \text{NNP} + \text{foreign transfers}$$

GDP is the final value of the goods and services produced within the geographic boundaries of a country during a specified period of time, normally a year. GDP growth rate is an important indicator of the economic performance of a country.

LESSON 37: CURRENT ACCOUNT AND FOREIGN INDEBTEDNESS

Topic 134: National Income for closed and Open Economy

A closed economy is where the import and export of goods and services do not happen, implying that the economy is self-sufficient and has no trading activity from outside economics. The sole purpose of such an economy is to meet all the domestic consumers' needs within the country's border.

Assuming all output is consumed or invested by the country's citizens or purchased by its government. The national income must be allocated to domestic consumption, investment, or government.

$$Y = C + I + G$$

A healthy economy thrives on good trade relations. Today, many countries have an open economy where there are no trade restrictions. An open economy is an economy where people and businesses can freely trade goods and services with other countries. There are several benefits of an open economy. With increased trade, people have various goods and services to choose from.

They can choose to invest their money abroad. International trading is not restricted to just goods and services alone. An open economy presents innumerable opportunities for global investments and technological advancements as well. When trade is possible, GNP shows how the national income a country earns by selling its goods and services is divided between sales to domestic residents and sales to foreign residents.

$$Y = C + I + G + EX - IM$$

Topic 135 and 136: The Current Account and Foreign Indebtedness

The current account balance of payments is a record of a country's international transactions with the rest of the world. The current account includes all the transactions (other than those in financial items) that involve economic values and occur between resident and non-resident entities. The current account may be positive (a surplus) or negative (a deficit); positive means the country is a net exporter, and negative means it is a net importer of goods and services. A country's foreign trade is exactly balanced only rarely.

$$\text{Current Account} = CA = EX - IM$$

The current account is important because it measures the size and direction of international borrowing i.e., current account is deficit or surplus. A country with a current account surplus is earning more from its exports than it spends on imports. This country finances the current account deficit of its trading partners by lending to them. The foreign wealth of a surplus country rises because foreigners pay for any imports not covered by their exports by issuing IOUs (an informal document that acknowledges a debt one party owes to another) that they will eventually have to redeem. The preceding reasoning shows that a country's current account balance equals its net foreign wealth change.

$$CA = Y - (C + I + G)$$

A country with a current account deficit is importing present consumption and exporting future consumption. As an example, consider again the imaginary economy of Agraria described in Table 13-1.

TABLE 13-1		National Income Accounts for Agraria, an Open Economy (bushels of wheat)						
GNP (total output)	=	Consumption	+	Investment	+	Government purchases	+	Exports – Imports
100	=	75 ^a	+	25	+	10	+	10 – 20 ^b

The total value of its consumption, investment, and government purchases, at 110 bushels of wheat, is greater than its output of 100 bushels. This inequality would be impossible in a closed economy; it is possible in this open economy because Agraria now imports 40 gallons of milk, worth 20 bushels of wheat, but exports only 10 bushels of wheat. The current account deficit of 10 bushels is the value of Agraria's borrowing from foreigners, which the country will have to repay in the future.

LESSON 38: TYPES OF SAVING AND CONCEPT OF BALANCE OF PAYMENTS

Topic 137: Saving and the Current Account

National savings are the sum of private sector savings and public sector savings. It represents the total loanable funds provided by the domestic economy. This term is also synonymous with gross national savings or domestic savings.

National saving is an indicator of the health of a country's investment. A high level of savings means more sources of loanable funds in the country, indicating the deepening of the advanced financial markets. National saving is the portion of output that is not devoted to consumption (C) or government (G) and it is always equal to I, i.e.

$$S = Y - C - G \quad \text{or} \quad I = Y - C - G \quad \text{and} \quad S = I$$

In open economy saving can be different from investment i.e.

$$S = I + CA$$

The equation highlights an essential difference between open and closed economies: An open economy can save either by building up its capital stock or by acquiring foreign wealth, but a closed economy can save only by building up its capital stock. Unlike a closed economy, an open economy with profitable investment opportunities does not have to increase its savings to exploit

them. The preceding expression shows that simultaneously raising investment and foreign borrowing is possible without changing savings.

Topic 138: Private and Government Saving

Private saving is defined as the part of disposable income that is saved rather than consumed. Mathematically it can be written as:

$$S_p = Y - T - C$$

S_p is private saving, Y is aggregate income, T is tax, and C is consumption.

Private savings are the remaining aggregate income after deducting taxes and consumption. $Y - T$ is national disposable income, i.e., the aggregate income left after deducting tax payments.

Government saving is the amount of tax revenue left after the government finances all its expenditures. Mathematically, we can write it as follows:

$$S_g = T - G$$

S_g is government saving, T is tax and G is government expenditure.

If the government runs a fiscal surplus, it means the government is saving. At that time, tax revenue (T) is higher than expenditure (G). Conversely, when running a fiscal deficit, there is dissaving in the public sector. Tax revenue is lower than government spending. A deficit reduces the total supply of loanable funds.

National saving is the sum of private savings and public savings.

$$S = (Y - T - C) + (T - G) = S_p + S_g$$

Since $S = S_p + S_g = I + CA$

$$\Rightarrow S_p = I + CA - S_g$$

$$\Rightarrow S_p = I + CA - (T - G)$$

$$\Rightarrow S_p = I + CA + (G - T)$$

The above equation relates private saving to domestic investment, the current account surplus, and government saving.

Topic 139: The Balance of Payments Accounts

Balance of payment refers to a summary statement of a nation's financial transactions with the outside world. A balance of payments table is designed to summarize a nation's financial transactions with the outside world. It is divided into three components, as shown by the summary in Table 13-2.

Table 13-2: Balance of Payment Account

Exports of goods and services	A
Imports of goods and services	B
Investment income	C
Debt service payments	D
Net remittances and transfers	E
Total current account balance ($A - B + C - D + E$)	F
Direct private investment	G
Foreign loans (private and public), minus amortization	H
Increase in foreign assets of the domestic banking system	I
Resident capital outflow	J
Total capital account balance ($G + H - I - J$)	K
Increase (or decrease) in cash reserve account	L
Errors and omissions ($L - F - K$)	M

The balance of payments splits the current account into two parts (the current account and the capital account). It labels what is here called the capital account the financial account. The current account focuses on exporting and importing goods and services, investment income, debt service payments, and private and public net remittances and transfers. Specifically, it subtracts the value of imports from exports (the merchandise trade balance). It then adds flows of the net investment income received from abroad (e.g., the difference between interest and dividend payments on foreign stocks, bonds, and bank deposits owned by developing-country nationals and brought into the country, as opposed to being left overseas, and those securities, if any, of the developing country owned by foreigners plus repatriated profits of multinational corporations). This total ($A - B - C$ in Table 13.2) subtracts item D, debt service payments, which represent a major component of heavily indebted poor countries' current account deficits. It adds item E, net private and public remittances and transfers, such as money sent home by developing country nationals working abroad. The final result ($A - B - C - D + E$ in Table 13.2) yields the current account balance—a positive balance is called a surplus, and a negative balance, is a deficit. Therefore, the current account allows us to analyze the impact of various commercial policies, primarily on merchandise trade but also on investment income, debt service payments, and private transfers.

The capital account (financial account) records the value of private foreign direct investment (primarily by multinational corporations), foreign loans by private international banks, and loans

and grants from foreign governments (as in the form of foreign aid) and multilateral agencies such as the IMF and the World Bank. It then subtracts an essential item, especially for the major debtor countries: what is called “resident capital outflow” in Table 13.1. To put its importance in perspective, during the 1980s debt crisis, wealthy nationals from many developing countries sent vast amounts of money into developed- nation bank accounts, real estate ventures, and stock and bond purchases; this capital flight is estimated to have had a value of up to half the total debt of some debtor nations at the peak of their debt problems. It dwarfed the receipt of private and public loans and investments and was a major contributor to the worsening balance of payments of many developing nations. Capital flight is also a chronic problem where autocratic governments have a shaky hold on power. The balance on the capital account is therefore calculated as items G - H - I - J in Table 13.2. Again, a positive balance is a surplus and a negative one a deficit. Finally, the cash account, or international reserve account (item L), is the balancing item (along with the “errors and omissions,” item M, which reconciles statistical inequalities, but is sometimes used as a proxy for disguised or unrecorded capital flows) that is lowered (shows a net outflow of foreign reserves) whenever total disbursements on the current and capital accounts exceed total receipts.

Learning Outcomes

After reading this lesson, the students will be able to:

- Discuss the concept of the current account balance.
- Use the current account balance to extend national income accounting to open economies.
- Apply national income accounting to the interaction of saving, investment, and net exports.
- Describe the balance of payments accounts and explain their relationship to the current account balance with the help of example.

BASIC TEXT BOOKS

- Dominick Salvatore B., International Economics (Latest Edition), Prentice Hall.
- Paul R. Krugman, Maurice Obstfeld, and Marc J. Melitz., International Economics Theory and Policy (Latest Edition), Pearson Series
- Chacholiades, Mitiades, International Trade Theory and Policy (Latest Edition). McGraw Hill Book Company, New York, London.

LESSON 39: FOREIGN EXCHANGE MARKET AND FOREIGN EXCHANGE RATE**Topic 140: Function of Foreign Exchange Market**

Every country has their respective currencies which they use in their trade and businesses, but what about in the foreign market? With the lack of versatility of the currencies, they become a hurdle in world trade. To solve this problem, the foreign exchange market was introduced. This is a type of marketplace that will fix the exchange rate for the currencies.

The foreign exchange market is over a counter (OTC) global marketplace that determines the exchange rate for currencies around the world. This foreign exchange market is also known as Forex, FX, or even the currency market. The participants engaged in this market are able to buy, sell, exchange, and speculate on the currencies. These foreign exchange markets consist of banks, forex dealers, commercial companies, central banks, investment management firms, hedge funds, retail forex dealers, and investors. In our prevailing section, we will widen our discussion on the 'Foreign Exchange Market'. A foreign exchange market is a 24-hour over-the-counter (OTC) and dealers' market, meaning that transactions are completed between two participants via telecommunications technology. Foreign exchange market transfer funds or purchasing power from one nation and currency to another (mostly through the internet). Tourists, and business transactions need this market. The nation's commercial banks operate as clearinghouses.

Because of the special position of the U.S. dollar as an international currency and the national currency of the United States, U.S. importers and U.S. residents wishing to make investments abroad could pay in dollars. Then it would be U.K. exporters and investment recipients who would have to exchange dollars for pounds in the United Kingdom. Similarly, U.S. exporters and U.S. recipients of foreign investments may require payment in dollars. Then it would be U.K. importers or investors who would have to exchange pounds for dollars in London. This makes foreign monetary centers relatively larger than they otherwise might have been. However, the U.S. dollar is more than an international currency. It is a vehicle currency; the dollar is also used for transactions that do not involve the United States. For example, a Brazilian importer uses dollars to pay a Japanese exporter.

Topic 141 and 142: Equilibrium Foreign Exchange Rates

Assuming that there are only two countries, the United States (USA) and the European Union (EU), with the dollar (\$) as the domestic currency and the euro (€) as the foreign currency. The

exchange rate (R) b/w the dollar and the euro equal the number of dollars needed to purchase one euro ($R = \$/\epsilon$). The dollar price of the euro (R) is determined, just like the price of any good under the Flexible exchange rate system. Figure 14.1 illustrate how the exchange rate is determined.

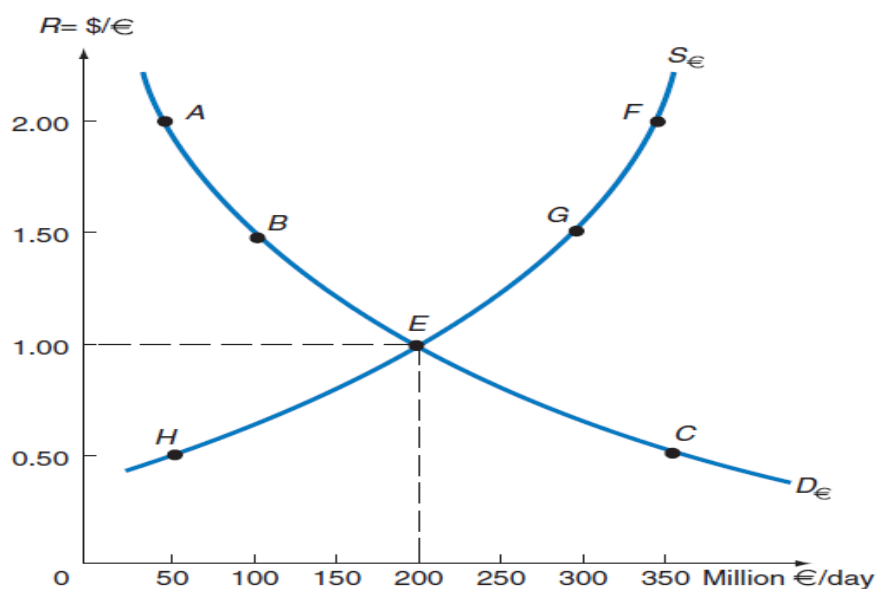


FIGURE 14.1. The Exchange Rate under a Flexible Exchange Rate System.

Figure 14.1 shows the market demand and supply curves of Euros intersect at point E, equilibrium exchange rate of $R = 1$, at which the quantity of euros demanded, and the quantity supplied are equal at € 200 million per day. At a higher exchange rate, the quantity of euros supplied exceeds the quantity demanded. The exchange rate will fall toward the equilibrium rate of $R = 1$. At an exchange rate lower than $R = 1$, the quantity of euros demanded exceeds the quantity supplied. The exchange rate will be bid up toward the equilibrium rate of $R = 1$. If R is fixed, then restrictions have to be made on demand of €, or central bank has to provide the €. U.S demand for € is downward as a reduction in R would make imports from and to invest in the EU cheaper.

Depreciation refers to an increase in the domestic price of the foreign currency, while appreciation refers to a decline in the domestic price of the foreign currency. Appreciation and depreciation can be because of a shift in demand and supply curves. If the U.S. demand curve for € shifted up (for example, as a result of increased U.S. tastes for EU goods) and intersected the U.S. supply curve for euros at point G, the equilibrium exchange rate would be $R = 1.50$. The equilibrium quantity of euros would be € 300 million per day. The dollar is said to have depreciated since it now requires \$1.50 (instead of the previous \$1) to purchase one euro.

LESSON 40: CROSS-EXCHANGE RATE AND ARBITRAGE**Topic 143: Cross-exchange rate**

Previously we have discussed the determination of exchange rate between two countries, but in reality, there are numerous exchange rates, one between any pair of currencies. Once the exchange rate between each of a pair of currencies with respect to the dollar is established, then the cross exchange rate between two currencies can be determined. For example, if the exchange rate (R) were 2 between the U.S. dollar and the British pound and 1.25 between the dollar and the euro. The exchange rate between the pound and the euro would be 1.60.

$$R = \text{€}/\text{£} = \frac{\$ \text{ value of } \text{£}}{\$ \text{ value of } \text{€}} = \frac{2}{1.25} = 1.60$$

Since, over time a currency can depreciate with respect to some currencies and appreciate against others, an effective exchange rate is calculated. The effective exchange rate is a weighted average of the exchange rates between the domestic currency and the nation's most important trade partners.

Topic 144: Arbitrage

The exchange rate between any two currencies is kept the same in different monetary centers by the sale and purchase of currency (arbitrage). For example, if the dollar price of the euro was \$0.99 in New York and \$1.01 in Frankfurt, an arbitrageur would purchase euros at \$0.99 in New York and immediately resell them in Frankfurt for \$1.01, thus realizing a profit of \$0.02 per euro. While the profit per euro transferred seems small, on €1 million, the profit would be \$20,000 for only a few minutes of work. When only two currencies and two monetary centres are involved in arbitrage, as in the preceding example, we have *two-point arbitrage*. When three currencies and three monetary centers are involved, we have triangular, or three-point, arbitrage. In the following three cases, arbitrage give profits in two cases while in the first case arbitrage give no profit.

\$1 = € 1 in New York

\$0.96 = € 1 in New York

€ 1 = £ 0.64 in Frankfurt

€ 1 = £ 0.64 in Frankfurt

£ 0.64 = \$1 in London

£ 0.64 = \$1 in London

So \$1 = € 1 = £ 0.64

(A \$0.04 profit on each euro)

\$1.04 = € 1 in New York

€ 1 = £ 0.64 in Frankfurt

£ 0.64 = \$1 in London

(A \$0.04 profit on each euro)

LESSON 41: SPOT AND FORWARD RATES

Topic 145: The Exchange Rate and the Balance of Payments

The relationship between the exchange rate and the nation's balance of payments can be studied with the help of Figure 14.2.

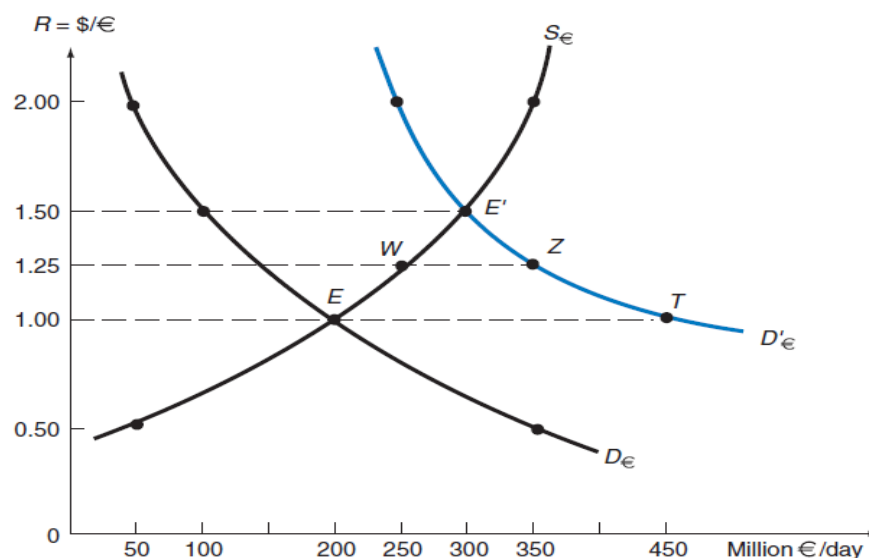


FIGURE 14.2. Disequilibrium under a Fixed and a Flexible Exchange Rate System.

Here it is assumed that two nations are doing autonomous debit transactions in euros. With $D_€$ and $S_€$, equilibrium is at point E, the exchange rate of $R = \$/\text{€} = 1$, at which the quantities of euros demanded and supplied are equal at €200 million per day. Suppose the demand for imports from E.U. rises, leads to an increase in demand for € in the U.S. If the fixed exchange rate is followed, the monetary authorities have to satisfy the excess demand of T.E. i.e. € 250.

If the U.S. operated under a freely flexible exchange rate system, the exchange rate would rise from $R = 1.00$ to $R = 1.50$, at which the quantity demanded exactly equals the quantity supplied (point E). The U.S. would not lose any of its official euro reserves. Indeed, international reserves would be entirely unnecessary under such a system. If a managed floating exchange rate system is followed, the U.S. might limit the depreciation of the dollar to $R = 1.25$. The loss of official reserve assets covers part of the deficit in the U.S. BOP. The loss of official reserve only indicates the degree of intervention in foreign exchange markets.

Topic 146: Spot and Forward Rates

When a foreign exchange transaction is done within two business days, it is called the spot rate. A forward transaction involves an agreement today to buy or sell a specified amount of a foreign currency at a specified future date at a rate agreed upon today (the forward rate). For example, one could agree today to purchase € 100 three months from today at $\$1.01 = € 1$ (at the usual 10 % security margin with no currency paid) regardless of what the spot rate is at that time.

Topic 147: Forward Rates and Its Equilibrium

The equilibrium forward rate is determined at the intersection of the market demand and supply curves of foreign exchange for future delivery. Suppose the forward rate is below the present spot rate. In that case, the foreign currency is said to be at a forward discount with respect to the domestic currency. However, suppose the forward rate is above the present spot rate. In that case, the foreign currency is said to be at a forward premium. If the spot rate is $\$1 = € 1$ and the 3-month forward rate is $\$0.99 = € 1$ (€ is at a 3-month forward discount of 1 cent.

$$FD \text{ or } FP = [(FR - SR)/SR] \times 4 \times 100$$

$$FD = [(\$0.99 - \$1.00)/ \$1.00] \times 4 \times 100 = -4\%$$

Similarly, if $SR = \$1$ and $FR = \$1.01$

$$FP = [(\$1.01 - \$1.00)/ \$1.00] \times 4 \times 100 = 4\%$$

LESSON 42: FOREIGN EXCHANGE SWAPS AND RISKS

Topic 148: Foreign Exchange Swaps

A foreign exchange swap (also known as an FX swap) is an agreement to simultaneously borrow one currency and lend another at an initial date, then exchange the amounts at maturity. It is helpful for risk-free lending, as the swapped amounts are used as collateral for repayment. In other words, a foreign exchange swap means a spot sale of a currency combined with a forward repurchase of the same currency—as part of a single transaction. Instead of selling a currency in the spot market and purchasing the forward market, a single transaction deal is opted. City Bank Receive \$ 1 M and have to pay back in three month, the bank wants to invest in Euro then Foreign exchange swap is best option. The swap rate is the difference between the spot and forward rates in the currency swap.

Party A is Canadian and needs Euro. Party B is European and needs the Canadian Dollar (CAD). The parties enter into a foreign exchange swap today with a maturity of six months. They agree to swap 1,000,000 Euro or, equivalently, 1,500,000 CAD at the spot rate of 1.5 euro /CAD. They also agree on a forward rate of 1.6 euro /CAD because they expect the Canadian Dollar to depreciate relative to the Euro.

Today, Party A receives 1,000,000 Euros and gives 1,500,000 Canadian Dollars to Party B. In six months' time, Party A returns 1,000,000 euro and receives $(1,000,000 \text{ euro} * 1.6 \text{ euro /CAD} = 1,600,000 \text{ CAD})$ from Party B, ending the foreign exchange swap.

Topic 149 and 150: Foreign Exchange Risks

A nation's demand and supply curves for foreign exchange shift over time as a result of changes in tastes for domestic and foreign products in the nation and abroad, different growth and inflation rates in different nations, changes in relative rates of interest, changing expectations, and so on.

If U.S. tastes for EU products increase, the U.S. demand for euros increases (the demand curve shifts up), leading to a rise in the exchange rate (i.e., a depreciation of the dollar). On the other hand, a lower rate of inflation in the United States than in the European Union leads to U.S. products becoming cheaper for EMU residents.

This tends to increase the U.S. supply of euros (the supply curve shifts to the right) and causes a decline in the exchange rate (i.e., an appreciation of the dollar). Or simply the expectation of a stronger dollar may lead to an appreciation of the dollar. In short, in a dynamic and changing world, exchange rates frequently vary, reflecting the constant change in the numerous economic forces simultaneously at work. Figure 14.3 shows the great variation in exchange rates of the U.S.

dollar with respect to the Japanese yen, the euro, the British pound, and the Canadian dollar from 1971 to 2005.

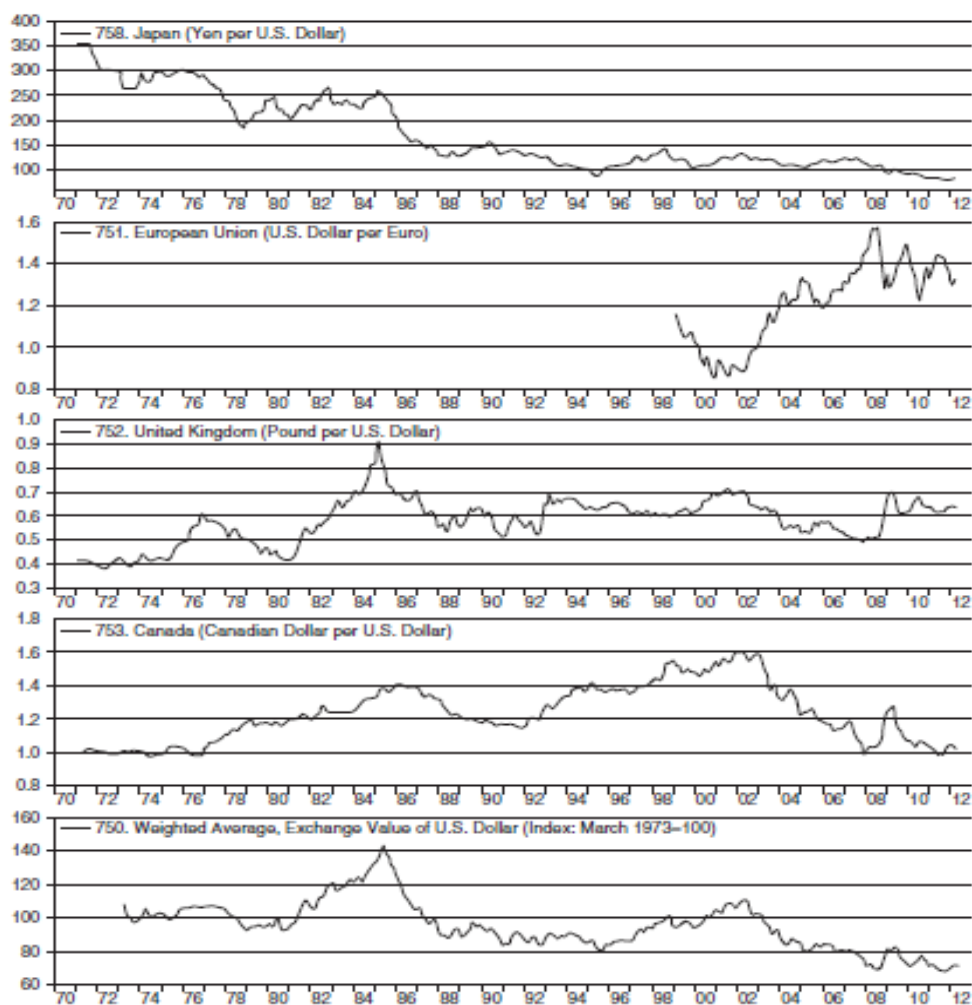


FIGURE 14.3. The Exchange Rate of Major Currencies and the Dollar Effective Exchange Rate, 1970–2012.

The frequent and relatively large fluctuations in exchange rate impose foreign exchange risks on all individuals, firms, and banks that have to make or receive future payments denominated in a foreign currency. If the spot rate increases from \$1/€1 to \$1.10/€1 in three months, the importer has to pay 10% more and vice versa. So a foreign exchange risk is there for importer and exporter. If investors buy € to invest in EU Treasury Bills as they are giving more return than U.S Treasury Bills, the spot rate may have fall which can wave out most of the return.

LESSON 43: HEDGING AND SPECULATION

Topic 151 and 152: Hedging

Hedging is entering into a financial contract to protect against unexpected, expected, or anticipated changes in currency exchange rates. It can be said that hedging refers to the avoidance of a foreign exchange risk. A U.S. importer could borrow € 100,000 at the present $SR = \$1/€ 1$ and deposit it in a bank (to earn interest) for 3- months (due time) to avoid the risk of higher SR in the future. The cost of avoiding foreign exchange risk is the positive difference between the interest rate the importer has to pay on loan and the lower interest rate he/she earns on the deposit. Hedging at the spot rate has a disadvantage, so it must be at the forward rate where no tying up or borrowing is required.

The importer can buy € forward for delivery (and payment) in 3- months at today's forward rate. If the € is at a 3-month forward premium of 4 % per year, the importer will have to pay \$101,000 in 3 months for the € 100,000. Therefore, the hedging cost will be \$1,000. The exporter could sell € forward for delivery (and payment) in 3 months at today's forward rate (no transfer of funds here). If the € is at a 3-month forward discount of 4 % per year, the exporter will get only \$99,000 for the € 100,000 he or she delivers in 3 months. On the other hand, if the € is at a 4 % forward premium, the exporter will receive \$101,000 in 3 months with certainty by hedging.

Topic 153 and 154: Speculation

A speculation is an act of buying and selling foreign currency under the conditions of uncertainty to earn huge gains. A speculator accepts and even seeks out a foreign exchange risk in the hope of making a profit. Suppose a speculator thinks that the spot rate of a foreign currency will rise. In that case, she can buy the currency now and hold it on deposit in a bank for resale later. Profit on each unit of the foreign currency is equal to the spread between buying spot rate and the selling spot rate. Suppose she thinks the spot rate will fall. In that case, she borrows foreign currency, exchanges it for the domestic currency at the spot rate, and deposits it in a bank to earn interest. If the spot rate falls after 3 months, she will earn a profit by purchasing the foreign currency (to repay the foreign exchange loan) at the lower spot rate. In profitable speculation, the current spot rate must be low enough to cover interest charges. The speculator operated in the spot market and either had to tie up his or her own funds or borrow to speculate. It is to avoid this serious shortcoming that speculation, like hedging, usually takes place in the forward market. Suppose the forward rate (FR) = $\$1.01/€1$, and the speculator think that the spot rate in three months will be $\$0.99/€ 1$.

Speculator then sells euros forward at \$1.01/€1, and after 3 months, if he anticipated right then, he will get € at \$0.99 /€1 and sell \$1.01/€1. Moreover, when the foreign currency is bought (sold) on the current spot rate or forward rate to sell (buy) at a higher (lower) future spot rate, is called a long (short) position. When foreign currency is sold on the current spot rate or forward rate to buy at a lower future spot rate, it is called a short position.

Speculation can be stabilizing or destabilizing. Stabilizing speculation refers to the purchase of a foreign currency when the domestic price of the foreign currency (i.e., the exchange rate) falls or is low, in the expectation that it will soon rise, thus leading to a profit. Or it refers to the sale of the foreign currency when the exchange rate rises or is high, in the expectation that it will soon fall. Stabilizing speculation moderates fluctuations in exchange rates over time and performs a useful function. On the other hand, destabilizing speculation refers to the sale of a foreign currency when the exchange rate falls or is low, in the expectation that it will fall even lower in the future, or the purchase of a foreign currency when the exchange rate is rising or is high, in the expectation that it will rise even higher in the future. Destabilizing speculation thus magnifies exchange rate fluctuations over time and can prove very disruptive to the international flow of trade and investments.

Anyone who has to make a payment in a foreign currency in the future can speculate by speeding up payment if he or she expects the exchange rate to rise and delaying it if he or she expects the exchange rate to fall, while anyone who has to receive a future payment in a foreign currency can speculate by using the reverse tactics. If an importer expects the exchange rate to rise soon, he or she can anticipate the placing of an order and pay for imports right away. If an exporter who expects the exchange rate to rise will want to delay deliveries and extend longer credit terms to delay payments.

Learning Outcomes

After reading this lesson, the students will be able to:

- Understand the meaning and functions of the foreign exchange market
- Know what the spot, forward, cross, and effective exchange rates are
- Understand the meaning of foreign exchange risks, hedging, speculation, and interest arbitrage

BASIC TEXT BOOKS

- Dominick Salvatore B., International Economics (Latest Edition), Prentice Hall.

- Paul R. Krugman, Maurice Obstfeld, and Marc J. Melitz., International Economics Theory and Policy (Latest Edition), Pearson Series
- Chacholiades, Mitiades, International Trade Theory and Policy (Latest Edition). McGraw Hill Book Company, New York, London.

LESSON 44: THE GOLD STANDARD AND THE INTERWAR EXPERIENCE

Topic 155: Introduction

International monetary system (IMS), rules and procedures by which different national currencies are exchanged for each other in world trade. Such a system is necessary to define a common standard of value for the world's currencies. Or it can be said that IMS refers to the rules, instruments, facilities, and organizations for effecting international payments. The flow of trade and equitable distribution of gains is the primary objective.

The exchange rate can be flexible or free to float on the foreign exchange market, fixed or pegged to one of the major currencies, or a basket of currencies on the other. Between these two extremes, there can be a few types of exchange rate arrangements and combinations. The IMF has classified the prevailing exchange rate regimes into eight categories. They are: Exchange Arrangements with No Separate Legal Tender, Currency Board Arrangements, Conventional Fixed Peg Arrangements, Pegged Exchange Rates within Horizontal Bands, Crawling Pegs, Exchange Rates within Crawling Bands, Managed Floating with No Predetermined Path for the Exchange Rate, and Independent Floating. The various classifications can be combined in various ways. For example, the gold standard is a fixed exchange rate system. However, we can also have a fixed exchange rate system without any connection with gold, but with international reserves comprised of some national currency, such as the U.S. dollar, that is no longer backed by gold. Similarly, we can have an adjustable peg system or a managed float with gold and foreign exchange or with only foreign exchange as international reserves.

An international monetary system can be evaluated in terms of adjustment, liquidity, and confidence. **Adjustment:** adjustment means a process by which the balance of payment disequilibria are corrected with minimum cost and the time required for adjustment. **Liquidity:** Liquidity means the number of international reserve assets available to settle the temporary balance of payment disequilibria. **Confidence:** Confidence is the knowledge that the international reserve will retain its absolute and relative values as the adjustment process are working effectively.

Topic 156: The Gold Standard Period (1880–1914)

The Gold Standard was a system under which nearly all countries fixed the value of their currencies in terms of a specified amount of gold, or linked their currency to that of a country which did so. Domestic currencies were freely convertible into gold at a fixed price, and there was no restriction on the import or export of gold. Gold coins circulated as domestic currency alongside coins of other metals and notes, with the composition varying by country. As each currency was fixed in terms of gold, exchange rates between participating currencies were also fixed.

The classical Gold Standard existed from the 1870s to the outbreak of the First World War in 1914. In 1871, the newly unified Germany, benefiting from reparations paid by France following the Franco-Prussian war of 1870, took steps that essentially put it on a Gold Standard. The impact of Germany's decision, coupled with the then economic and political dominance of the UK and the attraction of accessing London's financial markets, was sufficient to encourage other countries to turn to gold. However, this transition to a pure Gold Standard, in some opinions, was more based on changes in the relative supply of silver and gold. Regardless, by 1900 all countries apart from China, and some Central American countries, were on a Gold Standard. This lasted until the First World War disrupted it. Periodic attempts to return to a pure classical Gold Standard were made during the inter-war period. However, none survived past the 1930s Great Depression.

The gold content in one unit of each currency was fixed, and exchange rates were also fixed. This was called the *mint parity*. The exchange rate could then fluctuate above and below the mint parity by the cost of shipping an amount of gold equal to one unit of the foreign currency between the two monetary centers. The exchange rate was determined within the gold points by the forces of demand and supply and was prevented from moving outside the gold points by gold shipments. That is, gold outflows from the nation halted the tendency of a currency to depreciate past the gold export point. These gold outflows represented the deficit in the nation's balance of payments. The adjustment mechanism under the gold standard was the automatic *price-specie-flow mechanism*. Each nation's money supply consisted of either gold itself or paper currency backed by gold. The money supply would fall in the deficit nation and rise in the surplus nation. This would cause internal prices to fall in the deficit nation and rise in the surplus nation (the *quantity theory of money*). As a result, the exports of the deficit nation would be encouraged and its imports discouraged until its balance-of-payments deficit was eliminated. The opposite would occur in the

surplus nation. The balance-of-payments disequilibria were settled mostly by international capital flows rather than through gold shipments.

Topic 157: The Interwar Experience

The gold standard ended, and R fluctuated widely between 1919 and 1924. The UK wanted to return to the gold standard. In 1925, the UK re-established the convertibility of the pound into gold at the pre-war price. It lifted the embargo on gold exports that it had imposed at the outbreak of World War I. Other national along with UK went back to gold. However, the new system was more in the nature of a gold-exchange standard than a pure gold standard in that both gold and currencies convertible into gold. Gold has become a much smaller percentage of the total value of world trade. Since, the United Kingdom had lost a great deal of its competitiveness (especially to the United States) and had liquidated a substantial portion of its foreign investments to pay for the war effort, re-establishing the pre-war parity left the pound grossly overvalued. This led to balance-of-payments deficits and to deflation as the United Kingdom attempted to contain its deficits. On the other hand, France faced large balance-of-payments surpluses after the franc was stabilized at a depreciated level in 1926.

France passed a law in 1928 requiring the settlement of its balance-of-payments surpluses in gold rather than in pounds or other currencies. The United Kingdom was forced in September 1931 to suspend the convertibility of the pound into gold, which devalued the pound, and the gold-exchange standard came to an end. France's decision to convert all of its pounds into gold was the immediate cause of the collapse of the gold-exchange standard.

LESSON 45: THE BRETTON WOODS SYSTEM AND PRESENT INTERNATIONAL MONETARY SYSTEM

Topic 158: The Gold-Exchange Standard (1947-1971)

The Bretton Woods system is named after the rural town in New Hampshire where delegates of 44 nations met to construct a new international monetary system that would be monitored by the International Monetary Fund (IMF), which was established for that purpose. In the Bretton Woods system, the United States occupied center stage. The United States agreed to fix the price of gold

at \$35 per ounce. The other member nations would fix their currency to the dollar, with $\pm 1\%$ deviations allowed, for a total bandwidth for exchange rates of 2%. Thus, the Bretton Woods system is known as a "gold-exchange standard." To maintain the band, nations would use reserves of dollars to intervene in the foreign exchange market. The dollar was both the reserve asset and the intervention currency. Reserves can be held in any form if they can be readily exchanged for the intervention currency. At the time, however, only the dollar possessed full currency convertibility, so it was both the reserve asset and the intervention currency. Reserves of dollars could be earned when a nation's currency was strong. A strong currency meant its value threatened to appreciate relative to the dollar, requiring that the currency be sold for dollars. Reserves of dollars could also be borrowed from the IMF.

Topic 159: U.S. Balance-of-Payments Deficits

From 1945-1949 the U.S. economy was the source of goods for the war-damaged economies of Europe, and the United States ran considerable surpluses. By 1950, and until 1957, these surpluses became small deficits. These deficits were instrumental in that the net outflow of dollars supplied the liquidity necessary to European countries to maintain dollar reserve balances consistent with expanded trade and expanded external imbalances. Recall that the dollar was both the reserve and intervention currency. Dollar reserves were willingly held because they could be converted to gold at a fixed price, and dollar balances earned interest that gold did not. From 1958 until the early 1970s, U.S. deficits increased, reflecting large private direct investment in Europe and the high rate of inflation associated with the Vietnam War.

Holdings of dollars by both foreign governments (reserve balances) and private sectors increased substantially. The United States could have devalued to correct the deficit but chose not to in order to maintain confidence in the dollar, which was viewed as necessary for the continued functioning of the dollar as a reserve asset. Devaluation of the dollar (a higher price for gold) would have reduced the value of foreign-held dollar reserves and possibly have led to a crisis of confidence. Instead, the United States instituted a number of policies, including direct controls, which would hopefully stem the outflow of dollars. By 1970, some foreign dollar balances had been converted to gold in the U.S., so U.S. gold balances fell while foreign holdings of dollars continued to increase. By 1970, outstanding dollars were four times as great as U.S. gold holdings.

Topic 160: Collapse of the Bretton Woods System

By 1971, it had become apparent that the dollar needed to be devalued, which led to huge destabilizing speculative dollar outflows. In mid-1971, the United States suspended the convertibility of the dollar into gold, marking the end of the Bretton Woods system. An attempt was made to maintain fixed exchange rates by devaluing the dollar and revaluing the German mark and the Japanese yen, the principal surplus countries relative to the United States. At the new currency values, the band was widened from $\pm 1\%$ to $\pm 2.25\%$, but the dollar was no longer convertible into gold, so this new system, called the Smithsonian Agreement, was a genuine dollar standard in which no currency was pegged to gold.

Under the Bretton Woods dollar-exchange standard, exchange rates were allowed to change when there was a fundamental disequilibrium. In practice, exchange rates changed very little, despite the obvious need for devaluations and revaluations. Especially problematic was the need for a devaluation of the dollar, the center of the system. Reserves needed to grow to provide liquidity, so the Bretton Woods system needed U.S. deficits to continue functioning well. However, such deficits threatened the confidence of the world's reserve assets. National policymakers were reluctant to allow adjustment of the domestic economy because this meant recession in deficit countries and inflation in surplus countries. Without a smooth adjustment mechanism and problems with liquidity and confidence, the system ended.

Topic 161: The International Monetary System: Present and Future

Since March 1973, the world has had a managed floating exchange rate system. Under such a system, nations' monetary authorities are responsible for intervening in foreign exchange markets to smooth out short-run fluctuations in exchange rates without attempting to affect long-run trends. In the early days of the managed floating system, serious attempts were made to devise specific rules for managing the float to prevent competitive exchange rate depreciations (which nations might use to stimulate their exports), thus possibly returning to the chaotic conditions of the 1930s. However, as the worst fears of abuse did not materialize, all of these attempts failed. Indeed, the 1976 Jamaica Accords formally recognized the managed floating system and allowed nations the choice of foreign exchange regime as long as their actions did not prove disruptive to trade partners and the world economy.

Under the present managed float, nations still need international reserves in order to intervene in foreign exchange markets to smooth out short-run fluctuations in exchange rates. At present, such

interventions are still made mostly in dollars. The present international monetary system faces a number of serious and closely interrelated international monetary problems today. These are:

- the large volatility and the wide and persistent misalignments of exchange rates,
- the failure to promote greater coordination of economic policies among the leading industrial nations, and
- the inability to prevent international financial crises or to deal with them adequately when they do arise.

Several proposals have been advanced to reduce exchange rate volatility and avoid large exchange rate misalignments. One proposal is the establishment of target zones. Under such a system, the leading industrial nations estimate the equilibrium exchange rate and agree on the range of allowed fluctuation. Williamson suggested a band of allowed fluctuation of 10 % above and below the equilibrium exchange rate. The exchange rate is determined by the forces of demand and supply within the allowed band of fluctuation and is prevented from moving outside the target zones by official intervention in foreign exchange markets. Another class of proposals for reforming the present international monetary system is based on the premise that huge international capital flows in today's highly integrated international capital markets are the primary cause of exchange rate instability and global imbalances afflicting the world economy today. These proposals are, therefore, based on restricting international speculative capital flows. Finally, there is the single world currency advocated by Mundell because "a global economy requires a global currency." However, it remains to be seen if the leading nations are prepared to give up some of their autonomy in the coming years to have greater success in achieving their economic objectives.

Learning Outcomes

After reading this lesson, the students will be able to:

- Understand how the gold standard operated
- Describe how the post-war Bretton Woods System operated and why it collapsed
- Know how the present international monetary system works
- Identify the major international economic problems facing the world today

BASIC TEXT BOOKS

- Dominick Salvatore B., International Economics (Latest Edition), Prentice Hall.
- Paul R. Krugman, Maurice Obstfeld, and Marc J. Melitz., International Economics Theory and Policy (Latest Edition), Pearson Series

- Chacholiades, Mitiades, International Trade Theory and Policy (Latest Edition). McGraw Hill Book Company, New York, London.