

Topic 7:

Trade Theory and Development Experience

By

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Objectives (Topic 7)

- ◆ How does trade affect economic growth and income distribution?
- ◆ Does trade promote the achievement of development objectives? What is the role of IMF, WTO towards this?
- ◆ Should less developed countries pursue outward or inward oriented trade policies, or some combination? (This is the focus of next topic.)

A few stylized facts

- ◆ Most LDCs, especially the smaller ones, export primary products such as coffee, jute, textiles etc. and some of the lucky ones exports oil, such Arabic countries.
- ◆ But they import raw materials, machinery, capital goods, intermediate producer goods, consumer products, many times food.
- ◆ Most LDCs have chronic current account deficit (an excess of import payments over export earnings).
- ◆ Often surplus in capital account of their balance of payments (a receipt of foreign private and public lending and investment in excess of repayment of principal and interest on former loans and investments).
- ◆ In recent years the debt burden of repaying earlier international loans and investments has led to deficit in both current and capital account leading to depletion of international reserve.
- ◆ Surge in private capital flow and international financial crisis.
- ◆ Let us examine the importance of trade and finance for a selected few countries in the next few tables, followed by the summary in words.

LDC Exports: Trend and Patterns

	1970	1980	1983	1990	1996	1997
World exports						
Nominal value (billions of dollars)	312	2,002	1,814	3,401	5,231	5,394
Real value (billions of 1980 dollars)	590	2,002	1,620	2,076	2,987	2,909
Share of world exports (%)						
Developed countries	71.9	66.3	64.1	74.6	78.5	76.5
Developing countries	17.6	27.9	24.9	17.8	17.3	18.9
Centrally planned economies and their successors	10.5	8.8	11.0	7.5	4.2	4.6

Sources: John Sewell et al., *Growth, Exports, and Jobs in a Changing World Economy: Agenda 1988* (New Brunswick, N.J.: Transaction Books, 1988), tab. A. 1; World Bank, *World Development Report, 1992: Development and the Environment* (New York: Oxford University Press, 1992), tab. 14; International Monetary Fund, *World Economic Outlook, May 1998* (Washington, D.C.: International Monetary Fund, 1998), tabs. A22, A23, A29, and A31.

Importance of Trade: Data on a selected few countries

TABLE 12.2 Major Developing-Country Exporters of Manufactures

Country	Manufactured Exports as a Percentage of Total Exports					Total Exports as a Percentage of Gross National Product				Percentage of Total Developing-Country Manufactured Exports				
	1965	1970	1975	1980	1990	1970	1975	1980	1990	1965	1970	1975	1980	1990
Taiwan	46.0	78.6	83.6	90.8	93.0	26.3	34.5	49.4	50.7 ^a	4.6	13.8	17.1	23.4	28.5
Korea	52.0	74.9	76.8	80.1	94.1	9.4	24.3	28.5	32.6	2.0	7.4	15.0	18.2	24.6
Hong Kong	92.4	95.3	96.7	95.6	95.8	56.4	49.0	49.6	50.1	17.9	23.1	17.2	17.0	16.7
Singapore	28.9	26.7	39.9	45.6	73.0	81.1	94.5	178.0	132.9	6.3	4.9	8.3	11.5	13.0
Brazil	5.0	9.7	23.3	32.8	53.1	6.5	7.1	8.3	6.7	1.8	3.1	7.8	8.6	6.4
Mexico	14.1	30.0	29.5	11.0	44.2	3.4	3.5	8.5	18.9	3.1	4.3	3.4	2.2	3.2
Argentina	5.2	12.3	23.6	21.4	36.0	8.3	8.4	14.3	15.2	1.7	2.6	2.7	2.2	1.0

Sources: United Nations, *Handbook of International Trade and Development Statistics* (New York: United Nations, various years); World Bank, *World Debt Tables* (Washington, D.C.: World Bank, 1986, 1992); Council for Economic Planning and Development, Republic of China, *Taiwan Statistical Data Book, 1984*; International Monetary Fund, *World Economic Outlook, 1992* (Washington, D.C.: International Monetary Fund, 1992).

^a Estimate.

Major suppliers of exports of primary products

TABLE 12.3 Major Primary-Commodity Exports of Developing Countries and Principal Suppliers

Commodity	Billions of Dollars	Percentage of World Exports of Commodity	Major Developing-Country Suppliers							
			Percentage of World Exports of Commodity							
Petroleum	216.5	81.0	Saudi Arabia	26.8	Mexico	5.8	United Arab Emirates	5.7	Iran	5.6
Sugar	8.5	69.1	Cuba	36.6	Brazil	5.9	Philippines	3.5	Thailand	3.5
Coffee	8.3	91.6	Brazil	20.0	Colombia	16.4	Ivory Coast	4.8	El Salvador	4.6
Copper	5.1	63.8	Chile	22.1	Zambia	12.2	Congo, Dem. Rep.	7.3	Peru	4.8
Timber	4.6	27.8	Malaysia	11.0	Indonesia	3.8	Ivory Coast	1.9	Philippines	1.7
Iron ore	3.2	46.8	Brazil	24.9	India	5.2	Liberia	4.4	Venezuela	3.3
Rubber	3.0	98.3	Malaysia	47.0	Indonesia	24.8	Thailand	15.4	Sri Lanka	4.2
Cotton	2.9	43.4	Egypt	6.5	Pakistan	5.5	Turkey	4.2	Mexico	3.0
Rice	2.5	55.0	Thailand	22.5	Pakistan	9.2	China	5.5	India	5.2
Tobacco	2.3	51.3	Brazil	9.8	Turkey	7.4	Zimbabwe	6.0	India	4.6
Maize (corn)	2.0	19.2	Argentina	8.7	Thailand	3.5	Yugoslavia ^a	1.2	Zimbabwe	0.5
Tin	1.9	74.7	Malaysia	28.6	Indonesia	13.4	Thailand	12.7	Bolivia	10.0
Cacao	1.9	92.1	Ivory Coast	26.4	Ghana	16.3	Nigeria	12.2	Brazil	11.8
Tea	1.5	84.6	India	26.6	Sri Lanka	18.2	China	12.8	Kenya	8.9
Palm oil	1.4	81.6	Malaysia	70.1	Indonesia	7.0	Ivory Coast	1.7	Papua New Guinea	0.5
Beef	1.3	16.7	Argentina	5.4	Uruguay	2.5	Brazil	2.2	Yugoslavia ^a	1.3
Bananas	1.2	86.7	Costa Rica	16.7	Honduras	14.2	Ecuador	13.8	Colombia	10.2
Wheat	1.2	6.9	Argentina	5.7	Turkey	0.4	Uruguay	0.1	Yugoslavia ^a	0.1
Phosphate rock	1.1	62.9	Morocco	34.1	Jordan	8.5	Togo	4.8	Senegal	3.0

Source: World Bank, *Commodity Trade and Price Trends* (Washington, D.C.: World Bank, 1986), table 7 and 8.

Importance of primary, manufacturing and total exports for a selected few countries

TABLE 12.4 Export Earnings as a Percentage of Gross Domestic Product and Share of Primary and Manufactured Commodities in Total Exports for Selected Countries, 1996

Country	Percentage of GDP	Percentage Share of Primary Commodities	Percentage Share of Manufactures
Developing countries			
Hong Kong ^a	142	8	92
Jamaica	55	31	69
Philippines	42	16	84
Saudi Arabia	42	91	9
Nigeria	38	92	8
Venezuela	37	88	12
Sri Lanka	35	27	73
Kenya	33	89	11
South Korea	32	8	92
Togo	31	94	6
Mexico	22	22	78
India	12	26	74
Brazil	7	46	54
Developed countries			
United Kingdom	28	18	82
United States	11	22	78
Japan	9	5	95

Source: World Bank, 1998 *World Development Indicators* (New York: Oxford University Press, 1998), tabs. 4.4 and 4.8.

^aPrior to incorporation into China in 1997.

Importance (Continued)

- ◆ Looking at the exports earnings as percentage of GDP we see that two large developing countries, Brazil and India, had less foreign trade as compared to smaller tropical countries in Africa but the four successful Asian tigers – Korea, Singapore, Taiwan and Hong Kong – had quite high rate of exports.
- ◆ Oil-exporting countries such as Saudi Arabia, Nigeria and Venezuela had a large proportion GDP and a large percentage of total exports in these countries were primary products.
- ◆ Some of the non-oil exporting countries such as Kenya, Togo had high exports to GDP ratio and much of their exports were non-oil primary products.

Reasons for poor export performance

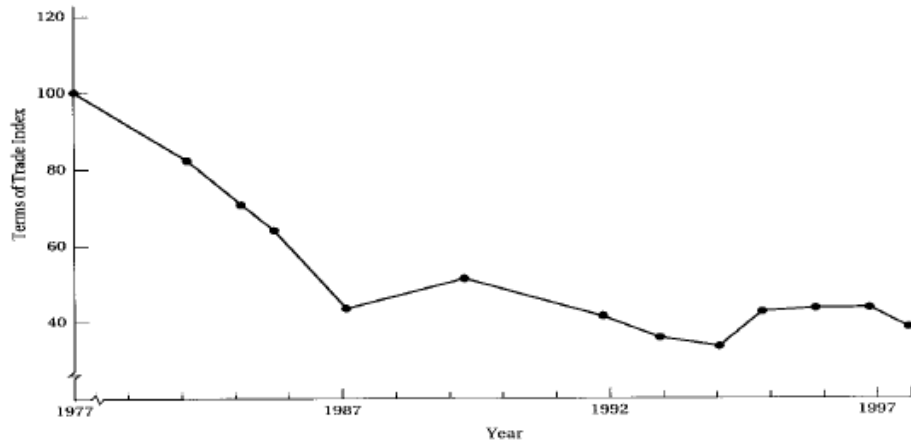
- ◆ An important reason - Demand elasticity and export earnings.
- ◆ Income elasticity of demand for export goods from LDCs is low.
- ◆ Some of the developing countries over supplied their products, resulting in lower prices for their exports relative to their imports.

Terms of trade and Prebisch-Singer Thesis

- ◆ Commodity terms of trade is the ratio, PX/PM , the ratio of export price index to import price index.
- ◆ If terms of trade deteriorates, what happens?
- ◆ You have to export more to get finance a given amount of import. (see figure below for what happened historically for LDCs)
- ◆ The pessimism that the terms of trade of the non-oil exporting country's primary products is going to keep on falling for two reasons – the country being poor produce and export no manufacturing products and demand for these primary products in the developed countries falling for these goods – is named after two development economists who formally investigated this and established that there is a net transfer of income from the poorer countries to rich countries through trade. That is trade like this is bad and evil unless something is done.
- ◆ What is to be done to prevent it? Diversification is an answer.
- ◆ Can WTO take care of this problem? Why were there demonstration against WTO in Seattle and elsewhere arguing that globalization is hurting the poorer countries?

Terms of trade of the less developed countries exporting non-oil goods

Figure 12.1 Real Non-Oil Commodity Terms of Trade, 1977–1998



Source: International Monetary Fund, *World Economic Outlook, October 1994* (Washington, D.C.: International Monetary Fund, 1994), p. 92, and *World Economic Outlook, May 1998*, p. 174.

Note: Commodity prices are deflated by the export unit values of manufactured goods.

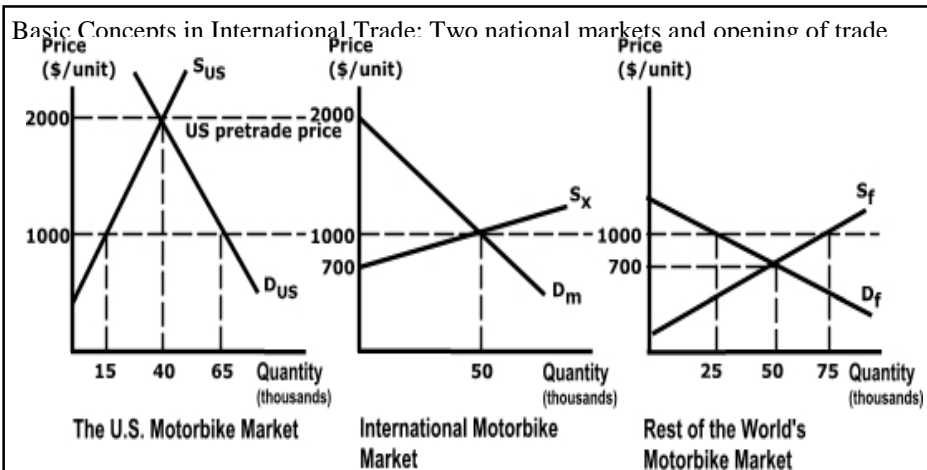
Trade Theory

Why do countries trade?

- ◆ Because they can gain from trade. Because of ?
- ◆ Comparative advantage and specialization.
 - Comparative advantage in terms of abilities and resource endowments. For instance, two people one good in technical staff say operating a computer to process huge information and another person good at writing abilities, when work together can
 - Same phenomenon of comparative advantage and specialization can lead both countries to gain from trade.
- ◆ Sources of comparative advantage:
 - Classical Ricardian theory of comparative advantage from productivity differences, it is mainly technological difference
 - Neo-classical (Heckscher-Ohlin-Samuelson) theory of differences in factor endowments. LDCs have relatively more labor and DCs relatively more capital. known as factor endowment trade theory
- ◆ Vent for Surplus Theory (not covered in this class)

Contd.... Main reasons in all theories of International trade:

- ◆ Countries engage in international trade because they benefit from doing so.
 - Trade allows countries to specialize production so that resources are allocated most efficiently.
 - Trade frees each country's residents from having to consume goods in the same combination in which the local economy can produce them.
 - Trade benefits a country by making it possible to have product specialization
 - Individuals may produce one good (*e.g., writing computer software*) and exchange that for others goods to consume (*e.g., food or clothing*).



- Differences in prices in the domestic markets in closed economy
- International price is between these two prices.
- Who gains and who loses? (we can use changes in consumer surplus, producer surplus after trade to do it analytically, but we will not follow this approach.)
- Which country exports and which country imports, and by how much?

Classical Ricardian theory of International Trade

- ◆ Lets use this simpler theory to understand opportunity cost of producing one good in terms the foregone production of other goods.
- ◆ The concept of comparative advantage.
- ◆ Autarky equilibrium price of one good in terms of the other goods.
- ◆ Benefits from trade. (this I will explain using the Heckscher-Ohlin-Samuelson model of trade.

Comparative advantage: Consider the following example

Labor hours required to make	Developed (DC)	Less developed (LDC)
1 bushel of wheat	2	7.5
1 yd of cloth	4	5

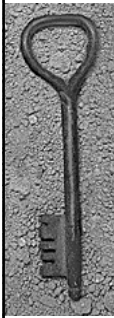
DC has absolute advantage in production of both wheat and cloth.

Opportunity cost of wheat in terms of cloth, denoted $p_{w/c}$

DC :	$p_{w/c}=0.5$	yards of cloth
LDC :	$p_{w/c}=1.5$	yards of cloth

The country with lower opportunity cost of producing wheat has comparative advantage in production of wheat and the other country then has comparative advantage in production of the other good. According to this definition then

DC has comparative advantage in production of wheat
LDC has comparative advantage in production of cloth



Predictions of the Ricardian Theory of international trade

- ◆ The autarky (i.e., economy without any trade with outside world) equilibrium price of cloth in terms of wheat, in our notation, p_{clw} is same as the opportunity cost of cloth in terms of wheat.
- ◆ Whenever the autarky equilibrium price of a good in terms of the other good differ, the economies will benefit from trade.
- ◆ The countries will specialize in production of the good in which it has comparative advantage and export that good and import the other good.
- ◆ After free trade, the price p_{clw} will be the same in both countries, and it will be between their autarky equilibrium prices.
- ◆ After trade, both countries will have higher income and welfare level
- ◆ Criticism: labor is only factor, technological differences as the main source of comparative advantage. In the richer theory of Heckscher-Ohlin-Samuelson we will have two factors of production such as capital and labor or land and labor and there will be richer set of predictions.

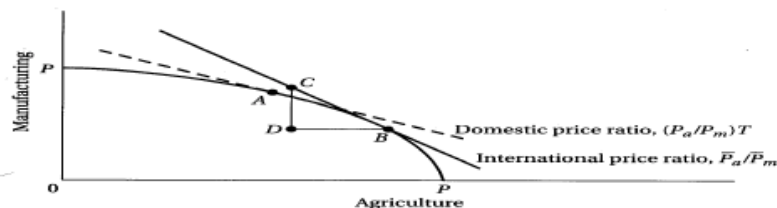
Heckscher-Ohlin-Samuelson Trade Theory

Main features:

- ◆ Two factors of production: capital and labor and two countries in the world LDC and DC or South and North
- ◆ Both countries have identical technology
- ◆ Labor abundant/capital abundant
 - Definition: Country A is capital abundant if it has more capital per unit of labor than does country B. If A is capital abundant, then B must be labor abundant.
- ◆ Labor intensive/capital intensive
 - Definition: A good say cloth is labor intensive if it constitutes a higher share of the total cost.
 - In our example, production of cloth is labor intensive relative to production of wheat which is capital (in our example land) intensive.

Heckscher-Ohlin-Samuelson Model graphically

Figure 12.2 Trade with Variable Factor Proportions and Different Factor Endowments



(a) Third World (without trade, production and consumption occur at A; with trade, production is at B, consumption is at C; exports = BD; imports = DC)



(b) Rest of World (without trade, production and consumption occur at A'; with trade, production is at B', consumption is at C'; exports = B'D'; imports = D'C')

1st predictions of the Heckscher-Ohlin Theory

Prediction of the theory:

1) A country exports the product that uses their abundant factor Intensively. For instance, suppose US is relatively land abundant, and the rest of the world is relatively labor abundant. I.e.,

$$\frac{\text{US land supply}}{\text{US labor supply}} > \frac{\text{Foreign land supply}}{\text{Foreign labor supply}}$$

- ◆ Suppose further there are two goods, wheat production of which is land intensive and cloth production of which is labor intensive.
- ◆ Prediction of trade pattern is that US will export wheat (because it uses intensively the Land which US is relatively abundant as compared to the rest of the world).

Second prediction:

Stolper-Samuelson Theorem:

- ◆ Link between changes in output prices and changes in factor prices.
- ◆ Most general form: an increase in the relative price of a good increases the real return to the factor used intensively in that good's production and decreases the real return to the other factor.
 - Factor prices change proportionally more than output prices
- ◆ When assumptions of Heckscher-Ohlin model are added, the Stolper-Samuelson theorem means that opening trade *raises* the real reward to the abundant factor and *lowers* the real reward to the scarce factor.
 - Trade boosts production of the good of comparative advantage, increasing that good's opportunity cost and relative price.

3rd Prediction: Factor price equalization theorem

The Factor Price Equalization Theorem

- ◆ According to Stolper-Samuelson theorem, moving from autarky to unrestricted trade raises the real reward of the abundant factor.
 - Similarly, such a move lowers the real reward of the scarce factor.
 - Same adjustment takes place in the second country, but with the roles of the two factors reversed.
 - Trade raises the real reward of a factor in a country where that factor is abundant and lowers its price in the country where it is scarce.
- ◆ Thus, even when factors are immobile between the two countries, unrestricted trade in goods tends to equalize the price of each factor across countries.
 - With free trade in goods and no international factor mobility, $w^A = w^B$ and $r^A = r^B$.

Distribution of gains from trade

In understanding gainers and losers in free trade, we need the following distinctions:

- ◆ Workers, the owners of labor?
- ◆ Capital owner (or land owner)?
- ◆ Differences in the countries:
- ◆ Short-Run effect and Long-run effect and assumption about how fast resources could be reemployed in another sector once they are released in a sector. For instance, if labor in cloth producing sector became unemployed, how easily (depending on if labor needs retraining) can labor be absorbed in the expanding sector say wheat production sector. (Similarly for capital or land reemployment).

Summary:

- ◆ Opening-up an economy to free trade leads to gains and losses for various groups (workers vs. capital owners) and the whole economy. Furthermore, it has effects on prices of the goods and factors of production such as labor skilled and unskilled, capital, land etc. Here are some of the main effects of free trade:
- ◆ Total income or GNP will go up if it is measured in the unit of the good imported.
- ◆ Total welfare of the whole economy will be higher.
- ◆ The prices of goods and the rewards of the factors such as wages and rental rates in both countries will all converge to common levels which are between the highest and lowest levels of the trading partners.
- ◆ In the long run, the workers in labor abundant country and capital owner in the capital abundant country will get higher rewards for their respective factors and opposite is the case for the other factors.
- ◆ The short-run effects may differ from the above long-run effect if it takes time to retrain labor or modify capital of one sector to be employed in the other sector.