Workshop on Trade Policy and Trade Indicators

Module 1.1

UNITED NATIONS

ECLAC

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Comparative advantage and the gains from trade

- The Ricardian model focuses on differences in *labor productivity* to explain the gains of trade
  - Differences in productivity are explained in general by differences in *technology*
- The Heckscher-Ohlin model focuses on different factor endowments to explain the gains of trade
  - Differences in *capital endowments, labour of different skill levels* and *land*, cause differences in productivity

Comparative advantage and opportunity cost

- The Ricardian model explains comparative advantage using the concept of opportunity cost.

- The opportunity cost of producing a good measures the cost of stopping production of another good.

Comparative advantage and opportunity cost (cont.)

- A country faces an opportunity cost when it uses resources to produce goods and services
- For example, a limited number of workers can be employed to produce coffee or computers.
  - The opportunity cost of producing computers is the amount of coffee not produced
  - The opportunity cost of producing coffee is the number of computers not produced.
  - A country faces a trade off: how many computers or bags of coffee to produce with the limited resources available?

Comparative advantage and opportunity cost (cont.)

- We assume that in the US 10 million bags of coffee can be produced with the same resources that can be used to produce 100,000 computers.
- We also assume that in Jamaica 10 million bags of coffee can be produced with the same resources that could alternatively produce 30,000 computers.
- This means that workers in Jamaica are less productive than US workers in producing computers.

Comparative advantage and opportunity cost (cont.)

- Jamaica has a lower opportunity cost to produce coffee.
  - Jamaica can produce 10 million bags of coffee, compared to the 30,000 computers it could alternatively produce. (10,000 bags of coffee = 0.3 PC)
  - The US can produce 10 million bags of coffee, compared with the 100,000 computers it could alternatively produce. (10,000 bags of coffee = 1 PC)

Comparative advantage and opportunity cost (cont.)

- The US has a lower cost opportunity to produce computers.
  - Jamaica can produce 30,000 computers, compared to 10 million bags of coffee that it could alternatively produce (1 PC = 333 bags of coffee)
  - The US can produce 100,000 computers, compared to 10 million bags of coffee that it could alternatively produce (1 PC = 100 bags of coffee)

Comparative advantage and opportunity cost (cont.)

- A country has a comparative advantage in producing a good if the opportunity cost of producing the good is less than in other countries
- A country with a comparative advantage in the production of a good uses its resources more efficiently when it produces that good *in comparison with producing other goods.*

Comparative advantage and trade

Each country takes full advantage of its CA

Production taking advantage of the CA of the country	United States	Jamaica	Total Production
Millions of bags of coffee	-10	+10	0
Thousands of computers	+100	-30	+70

Exchange is generated and each country gains from international trade

Comparative advantage and trade (cont.)

- In this simple example, we have seen that while countries specialize in the production of goods in which they have a comparative advantage, more goods and services can be consumed.
  - Initially both countries could consume a total of 10 million roses and 30,000 computers.
  - When they produce goods in which they have comparative advantage, they can in total consume the same 10 million roses, but also 100,000 - 30,000 = 70,000 more computers.

Gains from trade

- You can think of trade as an indirect method of production or a new technology that turns coffee into computers or vice versa.
- Without this technology, a country has to allocate its resources between the two goods to produce everything that its population wants to consume.
- With technology, a country specializes its production and trade "converts" it into the goods it wants to consume.

Summary of the Ricardian model

- Comparative advantage is due to differences in technology (labor productivity)
- Trade liberalization leads to:
  - Complete specialization according to comparative advantage
  - Separation of production and consumption possibilities in each country
  - Greater possibilities of consumption in each country
  - Equalization of global relative prices

Empirical evidence of Ricardo's model

- The empirical evidence supports the importance of comparative advantage as an explanatory factor of trade flows, but:
  - The Ricardian model predicts an extreme degree of specialization that is not observed in reality
  - Indicates that countries "as a whole" win with trade, but ignores that inside each country there will be winners and losers
  - It considers a single factor of production (labor), ignoring the importance of others (such as the endowment of capital or natural resources) in the determination of trade flows
  - It explains inter-industrial trade well (when countries export products other than those that import) but not intra-industry trade (when they export and import the same products)

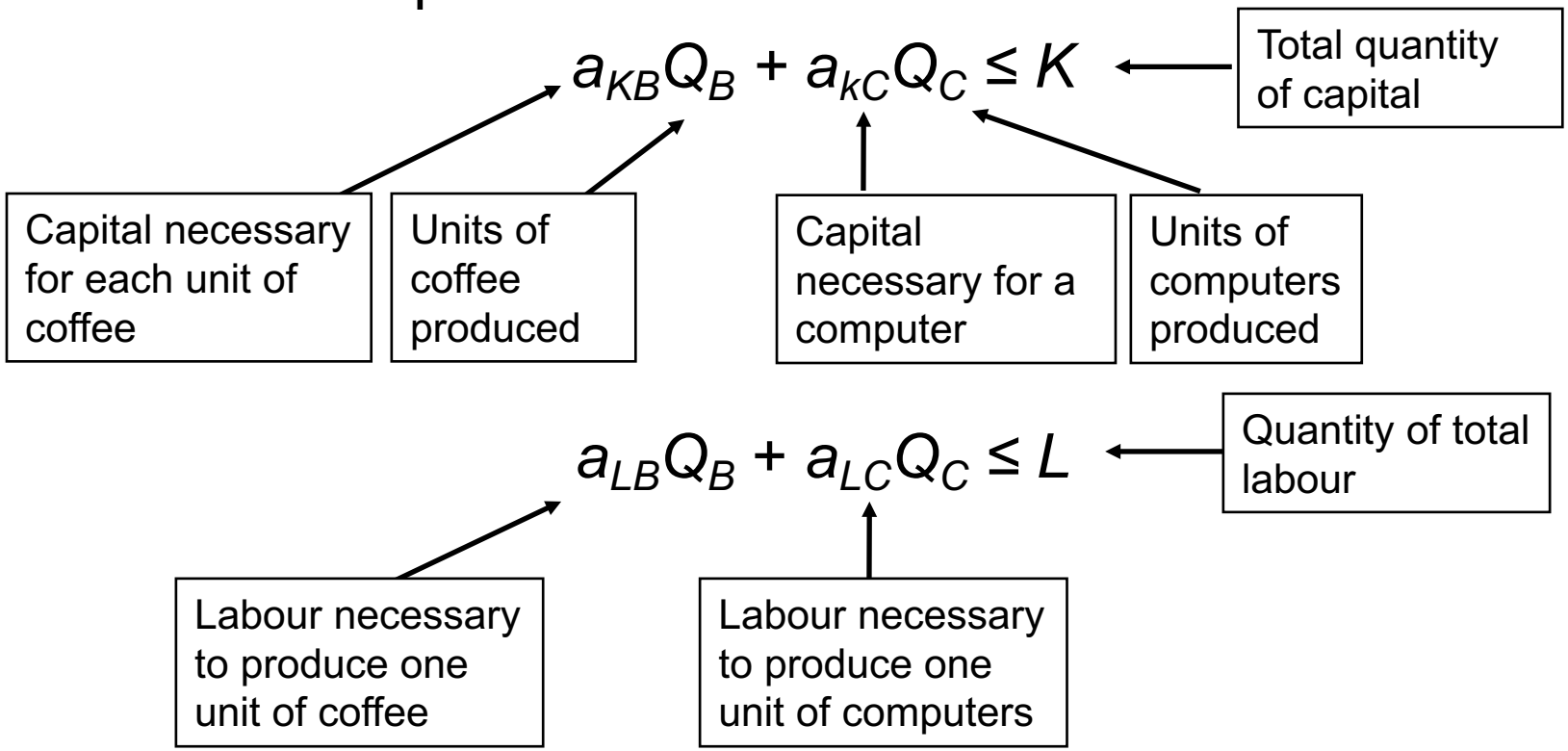
The Heckscher-Olin Model

- While trade is partially explained by differences in labor productivity, it is also explained by differences in factor endowments across countries

- The Heckscher-Ohlin model holds that international differences in work endowment, skills, physical capital, and land create different comparative advantages.
  - Countries have different relative abundances of factors of production.
  - Productive processes use the factors of production with different relative intensity.

Production Possibilities

- The productive possibilities are influenced by capital and labor requirements:



Production Possibilities

- It is assumed that coffee intensively uses the labour factor, and that the production of computers is intensive in the capital factor: $a_{LB}/a_{kB} > a_{LC}/a_{KC}$
  - Or $a_{LB}/a_{LC} > a_{KB}/a_{KC}$
  - Or, considering the total resources used in each industry, we say that the production of coffee is intensive in labour and that of computers is capital intensive: $L_B/K_B > L_C/K_C$.
- This assumption influences the form of the PPF: when there is more than one factor of production, the PPF (the opportunity cost of production) is no longer a straight line.

Production Possibilities

- The opportunity cost of producing coffee in terms of computers is not constant in this model:
  - It is low when the economy produces a low amount of coffee and a high number of computers
  - It is high when the economy produces a high amount of coffee and a low number of computers
- An economy has a comparative advantage in producing goods that are intensive in their most abundant production factors.
- An economy exports goods intensive in its most abundant production factor and imports goods intensive in its scarcest factor.
  - This proposition is called the Heckscher-Ohlin theorem

Empirical evidence of the H-O model

- H-O explains the “classic” North-South trade well:
  - Industrialized countries export capital-intensive manufactures (physical and human) to developing countries
  - Developing countries export natural resources, manufactures intensive in natural resources and labour to industrialized countries
- But even about 40% of world trade is between industrialized countries, which have similar factor endowments
- And about 25% of current trade is intra-industrial (countries exchange similar manufactures, for example automobiles)
- It is necessary to relax some of the assumptions of Ricardo and H-O to explain this dynamic:
  - Economies of scale
  - Imperfect competition
  - The role of technology
  - Demand for differentiated goods

New Trade Theory

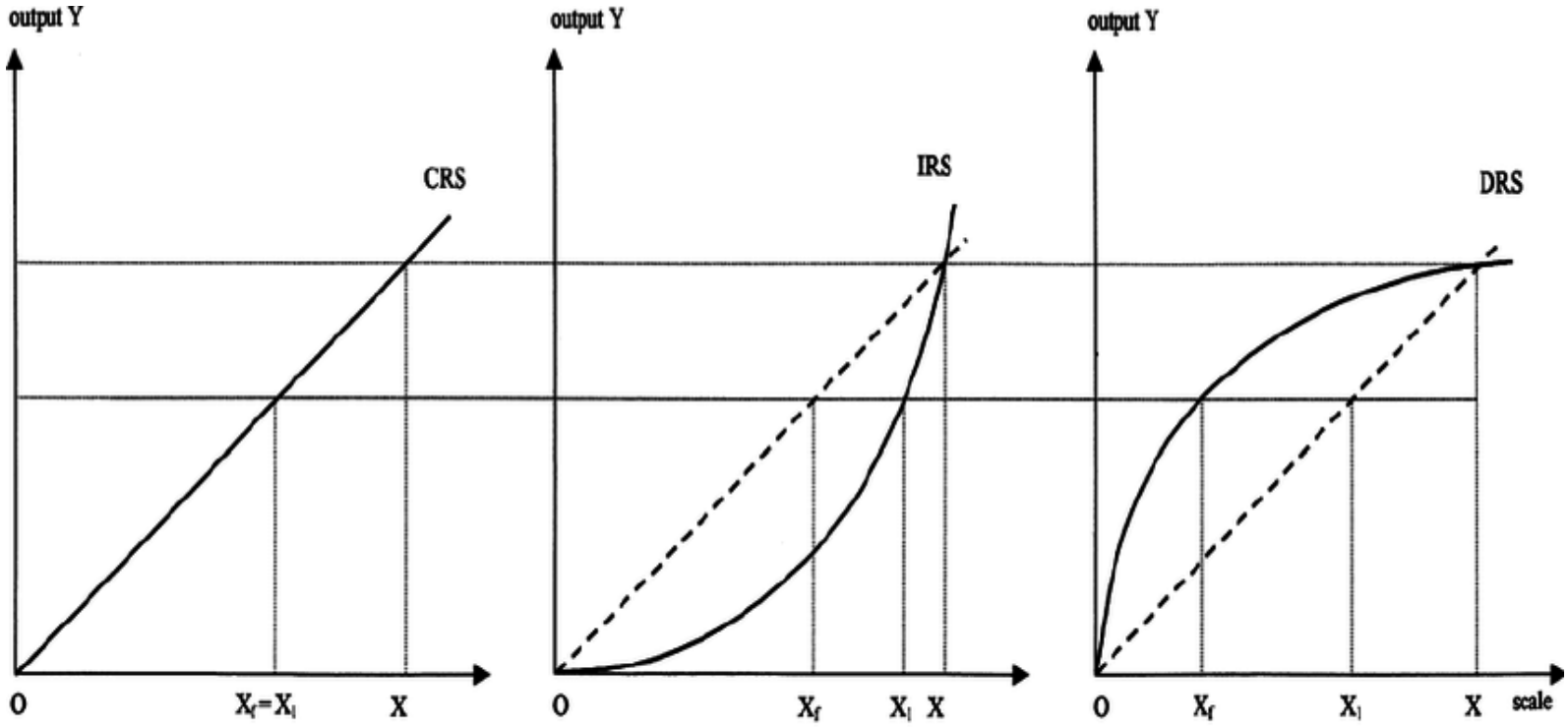
- Standard trade theory:
  - Firms operate under constant returns to scale, perfect competition and products are homogeneous
- New trade theory (Krugman; 1979; 1980):
  - There are increasing returns to scale (a.k.a. economies of scale), monopolistic competition and products are differentiated

New Trade Theory

- Key idea:
  - Concentration of production in one country that exports
- Gains from international trade
  - lower cost (no multiplication of the fixed cost)
  - room for a wider range of products (variety)

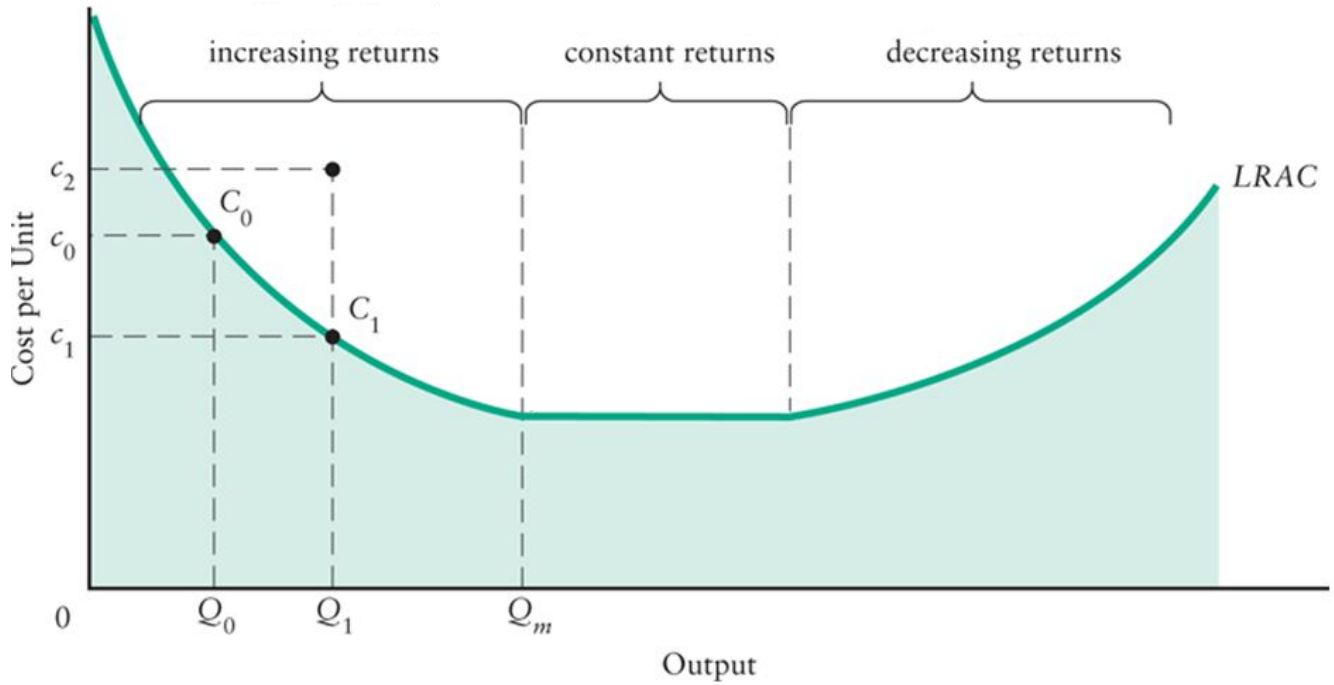
New Trade Theory

- Return to scale: production function



New Trade Theory

- Return to scale: cost function



New Trade Theory

- *Internal* vs *external* economies of scale: Reduction of costs by increasing the size of the company (internal) or the industry (external)
- An industry in which economies of scale are internal will be made up of a few large companies, leading to a structure of imperfect competition
- Imperfect competition
  - Monopolistic competition: each company within the industry can differentiate its product from that of its competitors Substitution exists but is not perfect
  - Automobile industry

New Trade Theory

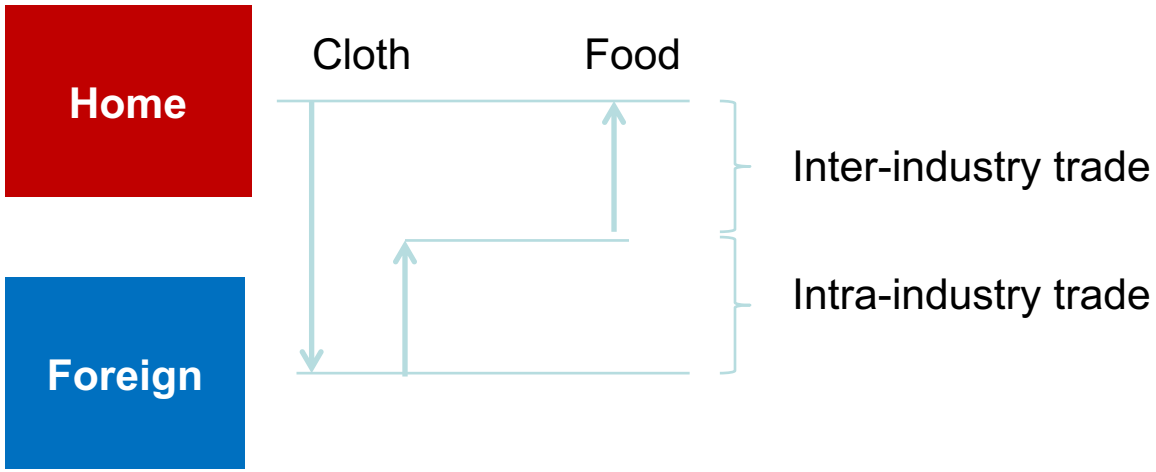
- Suppose Jamaica and Haiti have the same technology to produce a certain type of good
- Concentration the production in Jamaica allows it to achieve economies of scale
- Each country will produce a limited range of products (benefiting from economies of scale) and will import the rest
- Trade allows each country to benefit from economies of scale without renouncing the consumption of certain goods
- Consumers will have a wilder range of products to choose from

New Trade Theory

- Another example relaxing another hypothesis
- Example: 2 countries (home and foreign)
- 2 production factors: Work (L) and Capital (K)
- 2 goods: cloth (intensive in K) and food (intensive in L)
- Home is more abundant in K than Foreigner is more abundant in L
- If food and cloth are industries of *perfect competition*, H-O model tells us that:
- Home will export cloth and import food

New Trade Theory

- If the textile industry is of *monopolistic competence*:
- Home country will be a net exporter of cloth (will export more than what it imports)
- Foreign will export food and some cloth



New Trade Theory

- Inter-industry trade: comparative advantage
- Intra-industrial trade: economies of scale and differentiated goods
- The pattern of intra-industry trade itself is unpredictable: the model does not tell us which country produces which goods within the textile sector
- The relative importance of inter-industry vs. intra-industry trade will depend on how similar the countries are:
  - If the K / L ratio are very similar, intra-industrial trade will prevail
  - If the K / L ratio are very different, inter-industrial trade will prevail

Firm Heterogeneity in Trade

- Two additional sources of gains from international trade:

- Allocative efficiency gains associated with shifting labor and capital out of small, less-productive firms, into large, more-productive firms
  - Melitz (2003); Bernard, Eaton, Jensen & Kortum (2003)

- Productive efficiency gains associated with trade induced innovation
  - Melitz & Trefler (2012)

Firm Heterogeneity in Trade

- Gains from Realloacation at the Firm Level
- Monopolistic competitors with heterogeneous costs (different markups)
- Market expansion leads to a flatter demand curve forcing firms to lower their markup.
- Low-cost firms thrive and increase their profits and market share, high cost firms contract and the highest cost firms exit

Firm Heterogeneity in Trade

- Gains from Rising Within-Plat Productivity
- The larger the market, the more profitable it is for firms to invest in productivity-enhancing activities
- Firms incur the high costs of innovation if the expected cost reduction in absolute terms cover the innovation costs
- Lowering trade costs will tip the balance in favor of innovating

Tariffs and Protection

- The different forms of protection distort the price signals in the economy, among which are:
  - Tariffs on imports.
  - Taxes (or subsidies) on exports.
  - Import quotas and voluntary restrictions on exports.
  - Import licenses.
  - Anti-dumping, anti-subsidy and safeguard measures (contingent protection).
  - Standards of various types: sanitary and phytosanitary, of minimum quality, of characteristics, etc.

Political Economy of Protectionism

- There is a political bias in the economic policy of trade: the potential losers from trade are better organized politically than the winners.
  - The losses are usually concentrated among a few, while the gains are dispersed throughout the population.
  - Each US citizen pays around $ 8 per year to restrict sugar imports, with a total welfare cost of $ 2 billion per year.
  - The total benefits of this program are around $ 1 trillion, but this amount is solely for the benefit of few sugar producers.

Economic Analysis of Free Trade Agreements: Introduction

- There is a basic tension in preferential trade liberalization:
- The FTAs constitute a “discriminatory liberalization”
  - Liberalization tends to increase economic efficiency (good)
  - Discrimination tends to reduce economic efficiency (bad)
- What is the effect that dominates?
  - Depends on each FTA in particular

“Basic rules” for FTAs and Welfare Improvements

- A good prospective study that evaluates sensitivities and flexible spaces
  - The design of FTAs is increasingly complex
  - Sector Coverage
  - Depth of the Agreement
  - Rules of Origin and the relationship with other FTAs
  - The relationship with the multilateral trading system
  - Incorporation into GVCs

- Is it possible to establish some general principles that will help ensure that FTAs improve the welfare of developing countries?

“Basic rules” for FTAs and Welfare Improvements

- Target preferential treatment to sectors where the partner is a low cost supplier, preferably a world leader
  - Maximize the creation of commerce
  - Limit trade diversion

- Keep preferential and MFN tariffs low
  - Limits the scope of trade diversion
  - Maximizes the likelihood of trade creation

“Basic rules” for FTAs and Welfare Improvements

- The benefits are greater when the markets become more integrated
  - Large in relation to the national market
  - Have relatively high levels of protection before integration
- The risk of trade diversion is reduced and the use of preferences is increased if more flexible rules of origin (ROOs) are included.
  - ROOs should not unduly restrict companies in the choice of inputs-they hinder global competitiveness
  - If the integration is with a (competitive) partner, liberal ROOs provide a strong guarantee that the creation of trade will dominate the trade diversion, and thus the agreement will improve the welfare

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