Topics in Global Markets

Class presentation, chpt 5
International Business, By Charles W.L. Hill

(adapted for LIUC2011 by R.Helg)

Chapter 5

International Trade Theory

Why is Free Trade beneficial?

❖ **Free trade** - a situation where a government does not attempt to influence through quotas or duties what its citizens can buy from another country or what they can produce and sell to another country

❖ Trade theory shows why it is beneficial for a country to engage in international trade even for products it is able to produce for itself

❖ International trade allows a country
  ❖ to specialize in the production and export of products and services that it can produce efficiently
  ❖ import products that can be produced more efficiently in other countries

Why do certain patterns of trade exist?

❖Some patterns of trade are fairly easy to explain

  ❖ it is obvious why Saudi Arabia exports oil, Ghana exports cocoa, and Brazil exports coffee

❖But, why does Switzerland export chemicals, pharmaceuticals, watches, and jewelry?

❖Why does Japan export automobiles, consumer electronics, and machine tools?

5-4

What role does government have in trade?

❖The mercantilist philosophy makes a crude case for government involvement in promoting exports and limiting imports

❖Smith, Ricardo, and Heckscher-Ohlin promote unrestricted free trade

❖New trade theory and Porter's theory of national competitive advantage justify limited and selective government intervention to support the development of certain export-oriented industries

5-5

What is Mercantilism?

❖Mercantilism suggests that it is in a country's best interest to maintain a trade surplus -to export more than it imports

  ❖advocates government intervention to achieve a surplus in the balance of trade

❖Mercantilism views trade as a zero-sum game - one in which a gain by one country results in a loss by another

5-6

Mercantilism

- In 1752, **David Hume** pointed out that:
  - Increased exports lead to inflation and higher prices
  - Increased imports lead to lower prices
- Result: Country A sells less because of high prices and Country B sells more because of lower prices
- In the long run, no one can keep a trade surplus

5-7

What is Smith's Theory of Absolute Advantage?

- Adam Smith argued that a country has an **absolute advantage** in the production of a product when it is more efficient than any other country in producing it
  - countries should specialize in the production of goods for which they have an absolute advantage and then trade these goods for the goods produced by other countries

5-8

How does the Theory of Absolute Advantage work?

- Assume that two countries, Ghana and South Korea, both have 200 units of resources that could either be used to produce rice or cocoa
- In Ghana, it takes 10 units of resources to produce one ton of cocoa and 20 units of resources to produce one ton of rice
  - Ghana could produce 20 tons of cocoa and no rice, 10 tons of rice and no cocoa, or some combination of rice and cocoa between the two extremes
- In South Korea it takes 40 units of resources to produce one ton of cocoa and 10 resources to produce one ton of rice
  - South Korea could produce 5 tons of cocoa and no rice, 20 tons of rice and no cocoa, or some combination in between

5-9

How does the Theory of Absolute Advantage work?

❖ Without trade
  ❖ Ghana would produce 10 tons of cocoa and 5 tons of rice
  ❖ South Korea would produce 10 tons of rice and 2.5 tons of cocoa
❖ With specialization and trade
  ❖ Ghana would produce 20 tons of cocoa
  ❖ South Korea would produce 20 tons of rice
  ❖ Ghana could trade 6 tons of cocoa to South Korea for 6 tons of rice
❖ After trade
  ❖ Ghana would have 14 tons of cocoa left, and 6 tons of rice
  ❖ South Korea would have 14 tons of rice left and 6 tons of cocoa
❖ If each country specializes in the production of the good in which it has an absolute advantage and trades for the other, both countries gain

5-10

How does the Theory of Absolute Advantage work?

Resources Required to Produce 1 Ton of Cocoa and Rice		
	Cocoa	Rice
Ghana	10	20
South Korea	40	10
Production and Consumption without Trade		
	Cocoa	Rice
Ghana	10.0	5.0
South Korea	2.5	10.0
Total production	12.5	15.0
Production with Specialization		
	Cocoa	Rice
Ghana	20.0	0.0
South Korea	0.0	20.0
Total production	20.0	20.0
Consumption After Ghana Trades 6 Tons of Cocoa for 6 Tons of South Korean Rice		
	Cocoa	Rice
Ghana	14.0	6.0
South Korea	6.0	14.0
Increase in Consumption as a Result of Specialization and Trade		
	Cocoa	Rice
Ghana	4.0	1.0
South Korea	3.5	4.0

Absolute Advantage

In the table we have:

$a_{LC} = 10$; $a_{LR} = 20$; $a^*_{LC} = 40$; $a^*_{LR} = 10$

where: $a_{LC} \equiv$ **unit labour requirements** for Cocoa

$\equiv (L_c/Q_c)$

In this case:

Ghana has an **ABSOLUTE ADVANTAGE** in cocoa

$(a_{LC} < a^*_{LC})$

and

South Korea has an **ABSOLUTE ADVANTAGE** in rice $(a^*_{LR} < a_{LR})$

5-12

What is Ricardo's Theory of Comparative Advantage?

❖ David Ricardo asked what might happen when one country has an absolute advantage in the production of all goods
❖ Ricardo's theory of **comparative advantage** suggests that countries should specialize in the production of those goods they produce most efficiently and buy goods that they produce less efficiently from other countries, even if this means buying goods from other countries that they could produce more efficiently at home

5-13

The Theory of Comparative Advantage

❖ Basic assumptions:
- 2 countries
- 2 products
- 1 factor of production (labour)
- Countries identical in all respect, but for differences in relative labour productivity
- Perfect competition in all markets
- Labour perfectly mobile across sectors within a country, but immobile internationally

5-14

How does the Theory of Comparative Advantage Work?

❖ Assume
  ❖ Ghana is more efficient in the production of both cocoa and rice
  ❖ in Ghana, it takes 10 resources to produce one ton of cocoa, and 13 1/3 resources to produce one ton of rice
  ❖ So, Ghana could produce 20 tons of cocoa and no rice, 15 tons of rice and no cocoa, or some combination of the two
  ❖ in South Korea, it takes 40 resources to produce one ton of cocoa and 20 resources to produce one ton of rice
  ❖ so, South Korea could produce 5 tons of cocoa and no rice, 10 tons of rice and no cocoa, or some combination of the two

5-15

How does the Theory of Comparative Advantage Work?

Resources Required to Produce 1 Ton of Cocoa and Rice		
	Cocoa	Rice
Ghana	10	13.33
South Korea	40	20
Production and Consumption without Trade		
	Cocoa	Rice
Ghana	10.0	7.5
South Korea	2.5	5.0
Total production	12.5	12.5
Production with Specialization		
	Cocoa	Rice
Ghana	15.0	3.75
South Korea	0.0	10.0
Total production	15.0	13.75
Consumption After Ghana Trades 6 Tons of Cocoa for 6 Tons of South Korean Rice		
	Cocoa	Rice
Ghana	11.0	7.75
South Korea	4.0	6.0
Increase in Consumption as a Result of Specialization and Trade		
	Cocoa	Rice
Ghana	1.0	0.25
South Korea	1.5	1.0

Comparative advantage and the gains from trade

In this example, Ghana is more efficient in both productions.

Ghana has an **ABSOLUTE ADVANTAGE** in both C and R:

$$a_{LC} < a^*_{LC} \quad \text{and} \quad a_{LR} < a^*_{LR}$$

This implies that South Korea has an ABSOLUTE DISADVANTAGE in both C and R.

5-17

Comparative advantage and the gains from trade

...... but each country has a comparative advantage in something.

Ghana has a **COMPARATIVE ADVANTAGE** in Cocoa if:

$$(a_{LC}/a^*_{LC}) < (a_{LR}/a^*_{LR})$$

In fact, in this example:

$$(10/40) < (13,33/20)$$

5-18

Comparative advantage and the gains from trade

This, **by definition**, implies that:

- ❖South Korea has a Comparative Advantage in R
- ❖Ghana has a Comparative Disadvantage in R
- ❖South Korea has a Comparative Disadvantage in C

Comparative advantage and the gains from trade: an alternative proof

Ricardo suggests that each country should produce and export the good in which it has a comparative advantage.

Following this strategy both country will gain from trade.

Comparative advantage and the gains from trade: an alternative proof

Let's proof this gains from trade result. The proof treats international trade as an alternative production process.

For Ghana the Ricardian suggestion is to stop producing domestically rice. Let's compare the two strategies to bring rice on the table of domestic consumers: A=autarky (no trade) and FT (free trade)

Comparative advantage and the gains from trade: an alternative proof

A: 1hL → (1/13,33) of R

FT: 1hL →(1/10) of C→int.mkt.(1C=1R)
→(1/10) of R

FT "production system" is more efficient to produce Rice: (1/10) > (1/13,33)

Or, in other terms, Ghana gains from trade

Comparative advantage and the gains from trade: an alternative proof

For South Korea the Ricardian suggestion is to stop producing domestically Cocoa. Let's compare the two strategies to bring cocoa on the table of domestic consumers:

Comparative advantage and the gains from trade: an alternative proof

A: 1hL → (1/40) of C

FT: 1hL → (1/20) of R → int.mkt.(1C=1R)
→ → (1/20) of C

FT "production system" is more efficient to produce Cocoa: (1/20) > (1/40)

Or, in other terms, South Korea gains from trade

Is unrestricted free trade always beneficial?

- ❖ Unrestricted free trade is beneficial, but the gains may not be as great as the simple model of comparative advantage would suggest
  - ❖ immobile resources
  - ❖ diminishing returns
  - ❖ dynamic effects and economic growth
- ❖ Opening a country to trade could increase
  - ❖ a country's stock of resources as increased supplies become available from abroad
  - ❖ the efficiency of resource utilization and so free up resources for other uses
  - ❖ economic growth

5-25

Could a rich country be worse off with free trade?

- ❖ **Paul Samuelson** - the dynamic gains from trade may not always be beneficial
  - ❖ free trade may ultimately result in lower wages in the rich country
- ❖ The ability to offshore services jobs that were traditionally not internationally mobile may have the effect of a mass inward migration into the United States, where wages would then fall
- ❖ But, protectionist measures could create a more harmful situation than free trade

5-26

What is the Heckscher-Ohlin Theory?

- ❖ **Eli Heckscher and Bertil Ohlin** - comparative advantage arises from differences in national **factor endowments** – the extent to which a country is endowed with resources like land, labor, and capital

5-27

Heckscher - Ohlin model

❖ In this model same hps. as in Ricardian model, but for:

- Existence of 2 factors of productions (K and L)
- Countries differ in terms of relative factor endowment

Some *definitions*:

A country (the US) is **relatively abundant** in capital (K) if:

$$(K/L)_{USA} > (K/L)_{RW}$$

Heckscher - Ohlin model

The production of a good (1) is **capital intensive** if:

$$K_1/L_1 > K_2/L_2$$

where K_1 is the amount of capital utilized to produce good 1 etc.

Heckscher – Ohlin (H-O) theorem

One major result within this model is the so-called **Heckscher-Ohlin Theorem**:

each country should export the good whose production is intensive in the relative abundant factor (ie. the relatively capital abundant country should export the capital intensive good – vice versa for the other country).

By doing so both country gain from trade

H-O theorem

❖ Differently from Ricardian model, here the patterns of trade are determined by differences in factor endowments - not productivity

❖ Remember, focus on relative advantage, not absolute advantage

Empirical evidence on H-O theorem

Wassily Leontief in 1953 tested HO predictions for the USA

According to him HO implies the following:

$(K/L)_{USA} > (K/L)_{RW} \rightarrow (K/L)^{EXP}_{US} > (K/L)^{IMP}_{US}$

He found that:

$(K/L)^{EXP}_{US} < (K/L)^{IMP}_{US}$

This result became famous as the **Leontief paradox!!**

What is the Product Life Cycle Theory?

❖ The **product life-cycle theory** - (Raymond Vernon) - as products mature both the location of sales and the optimal production location will change affecting the flow and direction of trade

  ❖ the size and wealth of the U.S. market gave U.S. firms a strong incentive to develop new products
  ❖ initially, the product would be produced and sold in the U.S.
  ❖ as demand grew in other developed countries, U.S. firms would begin to export
  ❖ demand for the new product would grow in other advanced countries over time making it worthwhile for foreign producers to begin producing for their home markets

What is the
Product Life Cycle Theory?

- ❖ U.S. firms might set up production facilities in advanced countries with growing demand, limiting exports from the U.S.
- ❖ As the market in the U.S. and other advanced nations matured, the product would become more standardized, and price the main competitive weapon
- ❖ Producers based in advanced countries where labor costs were lower than the United States might now be able to export to the United States
- ❖ If cost pressures were intense, developing countries would acquire a production advantage over advanced countries
- ❖ Production became concentrated in lower-cost foreign locations, and the United States became an importer of the product

5-34

What is the
Product Life Cycle Theory?
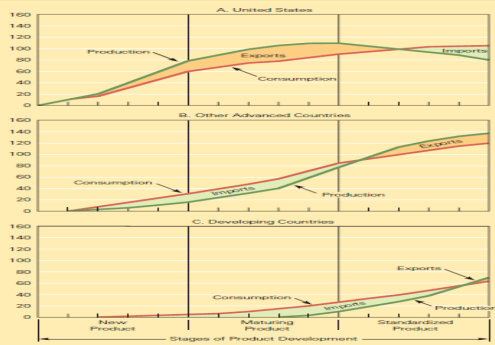
Does the Product Life Cycle
Theory hold?

- ❖ The product life cycle theory accurately explains what has happened for products like photocopiers and a number of other high technology products developed in the United States in the 1960s and 1970s
- ❖ But, the globalization and integration of the world economy has made this theory less valid today
  - ❖ the theory is ethnocentric
  - ❖ production today is dispersed globally
  - ❖ products today are introduced in multiple markets simultaneously

5-36

New trade theory

❖ New trade theories (appeared last century at the end of the 70s thanks to Krugman, Helpman, Markusen, Brander etc.) deviate from H-O model by introducing imperfect competition and increasing returns to scale

What is New Trade Theory?

❖ **New trade theory** suggests that the ability of firms to gain **economies of scale** (unit cost reductions associated with a large scale of output) can have important implications for international trade

1. Through its impact on economies of scale, trade can increase the variety of goods available to consumers and decrease the average cost of those goods
   - ❖ without trade, nations might not be able to produce those products where economies of scale are important
   - ❖ with trade, markets are large enough to support the production necessary to achieve economies of scale
   - ❖ so, trade is mutually beneficial because it allows for the specialization of production, the realization of scale economies, and the production of a greater variety of products at lower prices

5-38

What is New Trade Theory?

2. In those industries when output required to attain economies of scale represents a significant proportion of total world demand, the global market may only be able to support a small number of enterprises
   - ❖ **first mover advantages** - the economic and strategic advantages that accrue to early entrants into an industry
   - ❖ economies of scale
   - ❖ first movers can gain a scale based cost advantage that later entrants find difficult to match

5-39

New trade theory and intra-industry trade

❖ New trade theory explains trade in similar products (INTRA-INDUSTRY TRADE)

❖ Ricardian and H-O models were able to explain mainly trade in different products (INTER-INDUSTRY TRADE)

New trade theory and gains from trade

New trade theory highlights additional sources of gains from trade:

- **pro-competitive effect**: reduction in prices due to increased international competition
- **larger variety** of products available for the consumers

What are the implications of New Trade Theory for Nations?

❖ Nations may benefit from trade even when they do not differ in resource endowments or technology
  ❖ a country may dominate in the export of a good simply because it was lucky enough to have one or more firms among the first to produce that good
❖ Governments should consider strategic trade policies that nurture and protect firms and industries where first mover advantages and economies of scale are important

5-42

What is Porter's Diamond of Competitive Advantage?

❖ Michael Porter tried to explain why a nation achieves international success in a particular industry and identified four attributes that promote or impede the creation of competitive advantage

1. **Factor endowments** - a nation's position in factors of production necessary to compete in a given industry
   - ❖ can lead to competitive advantage
   - ❖ can be either basic (natural resources, climate, location) or advanced (skilled labor, infrastructure, technological know-how)
2. **Demand conditions** - the nature of home demand for the industry's product or service
   - ❖ influences the development of capabilities
   - ❖ sophisticated and demanding customers pressure firms to be competitive

5-43

What is Porter's Diamond of Competitive Advantage?

3. **Relating and supporting industries** - the presence or absence of supplier industries and related industries that are internationally competitive
   - ❖ can spill over and contribute to other industries
   - ❖ successful industries tend to be grouped in clusters in countries
4. **Firm strategy, structure, and rivalry** - the conditions governing how companies are created, organized, and managed, and the nature of domestic rivalry
   - ❖ different management ideologies affect the development of national competitive advantage
   - ❖ vigorous domestic rivalry creates pressures to innovate, to improve quality, to reduce costs, and to invest in upgrading advanced features

5-44

What is Porter's Diamond of Competitive Advantage?

Determinants of National Competitive Advantage: Porter's Diamond

Firm Strategy, Structure, and Rivalry

Factor Endowments

Demand Conditions

Related and Supporting Industries
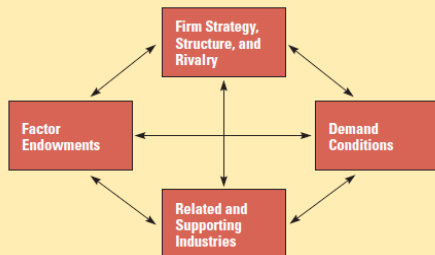
5-45

Does Porter's Theory hold?

❖ Government policy can
  ❖ affect demand through product standards
  ❖ influence rivalry through regulation and antitrust laws
  ❖ impact the availability of highly educated workers and advanced transportation infrastructure.
❖ The four attributes, government policy, and chance work as a reinforcing system, complementing each other and in combination creating the conditions appropriate for competitive advantage
❖ So far, Porter's theory has not been sufficiently tested to know how well it holds up

5-46

Application of Porter's ideas

Porter's ideas have been applied to generate measures of country competitiveness. When applied to firm the concept of competitiveness is straightforward.

Attention when you use it for a country (differently form a firm a country cannot go bankrupt).

In this case the correct approach is to think of competitiveness as the set of conditions the favour economic growth).

In the last 10 years a proper industry has emerged to measure competitiveness at the country level.

The two most famous indices are those contained in the Global Competitiveness Report by the World Economic Forum (WEF) and The World Competitiveness Yearbook by IMD.

Application of Porter's ideas

I concentrate on the WEF production (choice independent of any value judgement!).

This year ranking will come out on September the 7th, last year one:

Global Competitiveness Report 2010-2011

An **interview with Xavier Sala-i-Martin**, Director and Senior Economist GCR

Table 4: Global Competitiveness Index 2010–2011 rankings and 2009–2010 comparisons

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Application of Porter's ideas

In the report they generate a country ranking based on the **Global Competitiveness Index**

This index is a weighted average of other indices, which are themselves weighted averages of publicly available hard data and information provided in the Forum's Executive Opinion Survey.
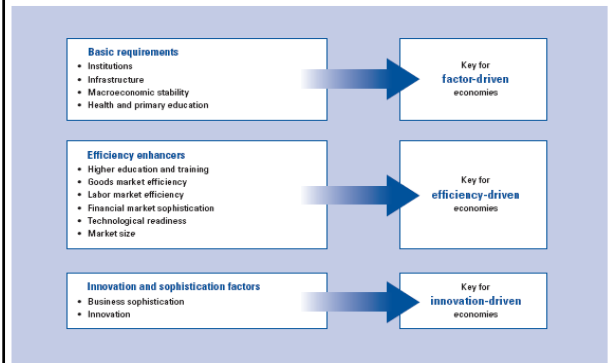

Application of Porter's ideas

The **Global Competitiveness Index** is intended to measure factors that contribute to driving productivity and competitiveness.

It is composed by *12 basic pillars*

(i.e. 12 subsets of economic variables)

Application of Porter's ideas

Figure 1: The 12 pillars of competitiveness

Basic requirements
- Institutions
- Infrastructure
- Macroeconomic stability
- Health and primary education

→ Key for **factor-driven** economies

Efficiency enhancers
- Higher education and training
- Goods market efficiency
- Labor market efficiency
- Financial market sophistication
- Technological readiness
- Market size

→ Key for **efficiency-driven** economies

Innovation and sophistication factors
- Business sophistication
- Innovation

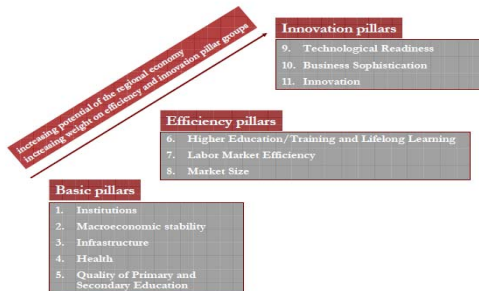→ Key for **innovation-driven** economies

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Application of Porter's ideas

A recently generated index is the **EU Regional Competitiveness Index (EU RCI)**.

It is very similar to the GCI.

Eleven pillars are included in the RCI with the objective of describing different dimensions of the level of competitiveness. The pillars are designed to capture short- as well as long-term capabilities of the region.
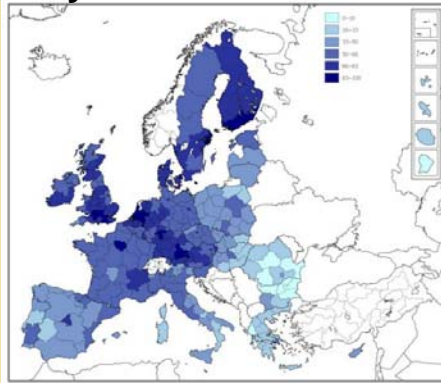

Application of Porter's ideas

Innovation pillars
9. Technological Readiness
10. Business Sophistication
11. Innovation

increasing potential of the regional economy
increasing weight on efficiency and innovation pillar groups

Efficiency pillars
6. Higher Education/Training and Lifelong Learning
7. Labor Market Efficiency
8. Market Size

Basic pillars
1. Institutions
2. Macroeconomic stability
3. Infrastructure
4. Health
5. Quality of Primary and Secondary Education

Source: Annoni-Kozovska (2010)

RCI general framework

Synthetic measures

Geographical distribution of RCI score

What are the Implications of Trade Theory for Managers?

1. **Location implications** - a firm should disperse its various productive activities to those countries where they can be performed most efficiently
   - firms that do not, may be at a competitive disadvantage
2. **First-mover implications** - a first-mover advantage can help a firm dominate global trade in that product
3. **Policy implications** - firms should work to encourage governmental policies that support free trade
   - firms should lobby the government to adopt policies that have a favorable impact on each component of the diamond

5-56

Review Question

All of the following theories advocated free trade except

a) Mercantilism
b) Comparative Advantage
c) Absolute Advantage
d) Heckscher-Ohlin

5-57

Review Question

Which theory suggested that comparative advantage arises from differences in national factor endowments?

a) mercantilism
b) absolute advantage
c) Heckscher-Ohlin
d) comparative advantage

Review Question

Which theory suggests that as products mature the optimal production location will change?

a) Mercantilism
b) Comparative Advantage
c) Absolute Advantage
d) Product life-cycle

Review Question

Economies of scale and first mover advantages are important to which trade theory?

a) Mercantilism
b) Product life cycle
c) New trade theory
d) Comparative advantage

Review Question

Porter's diamond of competitive advantage includes all of the following except

a) Factor endowments
b) Demand conditions
c) First-mover advantages
d) Firm strategy, structure, and rivalry

Review Question

_____ refer to the nature of home demand for the industry's product or service.

a) Demand conditions
b) Factor endowments
c) Firm strategy, structure, and rivalry
d) Related and supporting industries