International Business 7e

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(adapted for LIUC09 by R.Helg)

Chapter 5

International Trade Theory

An Overview Of Trade Theory

- Free trade refers to 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

An Overview Of Trade Theory: The Benefits Of Trade

- Smith, Ricardo and Heckscher-Ohlin show 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 manufacture and export of products that it can produce efficiently
- import products that can be produced more efficiently in other countries

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An Overview Of Trade Theory: The Patterns Of International Trade

- 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?

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An Overview Of Trade Theory: Trade Theory And Government Policy

- Mercantilism 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

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Mercantilism

- Mercantilism suggests that it is in a country's best interest to maintain a trade surplus -- to export more than it imports
- Mercantilism advocates government intervention to achieve a surplus in the balance of trade
- It views trade as a zero-sum game - one in which a gain by one country results in a loss by another

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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

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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

- According to Smith, 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

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Absolute Advantage

- 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
- So, 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

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Absolute Advantage

- In South Korea it takes 40 units of resources to produce one ton of cocoa and 10 resources to produce one ton of rice
- So, South Korea could produce 5 tons of cocoa and no rice, 20 tons of rice and no cocoa, or some combination in between
- Ghana has an absolute advantage in the production of cocoa
- South Korea has an absolute advantage in the production of rice

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Absolute Advantage

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

If each country specializes in the product in which it has an absolute advantage and trades for the other product:

- 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

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Absolute Advantage

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

- Both countries gained from trade

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Absolute Advantage

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

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

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The 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 relatively more 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
- Trade is a positive-sum game

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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

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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:

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

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

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Comparative Advantage and the Gains From Trade

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 4 Tons of Cocoa for 4 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

..... 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:

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

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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

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The PPF in the Ricardian example

In this case the two equations for the PPF are:

For Ghana

$Q_C = (L/a_{LC}) - (a_{LR}/a_{LC})\, Q_R = 20 - 1{,}333\, Q_R$

For South Korea:

$Q_C = (L^*/a^*_{LC}) - (a^*_{LR}/a^*_{LC})\, Q_R = 5 - 0{,}5\, Q_R$

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Comparative Advantage

Assume:

- Ghana is more efficient in the production of both cocoa and rice
- In Ghana, it takes 10 resources to produce one tone 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

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Comparative Advantage

With trade:

- Ghana could export 4 tons of cocoa to South Korea in exchange for 4 tons of rice
- Ghana will still have 11 tons of cocoa, and 4 additional tons of rice
- South Korea still has 6 tons of rice and 4 tons of cocoa
- If each country specializes in the production of the good in which it has a comparative advantage and trades for the other, both countries gain
- Comparative advantage theory provides a strong rationale for encouraging free trade

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Comparative Advantage

Resources Required to Produce 1 Ton of Cocoa and Rice		
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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.

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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)

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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

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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:

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Comparative advantage and the gains from trade: an alternative proof

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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

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Extensions Of The Ricardian Model

- Resources do not always move freely from one economic activity to another, and job losses may occur
- Unrestricted free trade is beneficial, but because of diminishing returns, the gains may not be as great as the simple model would suggest

Opening a country to trade:

- might increase a country's stock of resources as increased supplies become available from abroad
- might increase the efficiency of resource utilization, and free up resources for other uses
- might increase economic growth

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Evidence on trade and growth

- Sachs and Warner (1995) study the relationship between openness and growth for more than 100 countries over the period 1970-1990: strong relationship
- Wacziarg and Welch (2003) extend the analysis to the period 1950-1998 and confirm the positive relationship
- Problem: the causality link

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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:

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

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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.

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Heckscher-Ohlin Model

- Ricardo's theory suggests that comparative advantage arises from differences in productivity
- Eli Heckscher and Bertil Ohlin argued that comparative advantage arises from differences in national factor endowments – the extent to which a country is endowed with resources like land, labor, and capital
- The Heckscher-Ohlin theory predicts that countries will export goods that make intensive use of those factors that are locally abundant, while importing goods that make intensive use of factors that are locally scarce

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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

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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

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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!!**

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Product Life-Cycle Theory (R. Vernon -1966)

- The product life-cycle theory, proposed by Raymond Vernon, suggested that as products mature both the location of sales and the optimal production location will change affecting the flow and direction of trade
- Vernon argued that the size and wealth of the U.S. market gave U.S. firms a strong incentive to develop new products
- Vernon argued that initially, the product would be produced and sold in the U.S., later, as demand grew in other developed countries, U.S. firms would begin to export
- Over time, demand for the new product would grow in other advanced countries making it worthwhile for foreign producers to begin producing for their home markets

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The Product Life Cycle Theory

- U.S. firms might also set up production facilities in those advanced countries where demand was growing limiting the 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 U.S.
- If cost pressures became intense, developing countries would begin to acquire a production advantage over advanced countries
- The United States switched from being an exporter of the product to an importer of the product as production becomes more concentrated in lower-cost foreign locations

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The Product Life Cycle Theory

- As products mature, both location of sales and optimal production changes
- Affects the direction and flow of imports and exports
- Asian version: the “flying geese” pattern (Akamura)
- Globalization and integration of the economy makes this theory less valid

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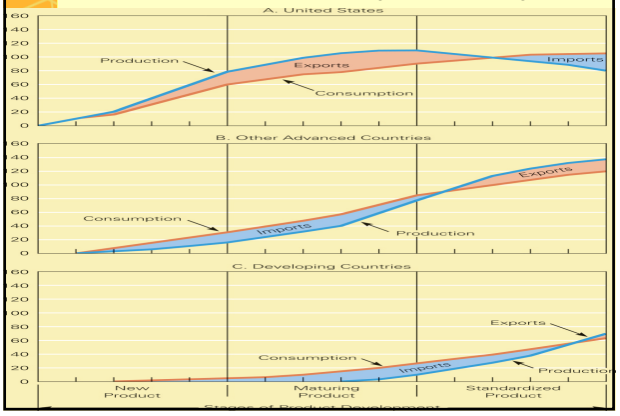
The Product Life Cycle Theory



The Product Life Cycle Theory

- 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 US in the 1960s and 1970s
- But, the increasing globalization and integration of the world economy has made this theory less valid in today's world

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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

New trade theory suggests that:

- 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
- 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

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Increasing Product Variety And Reducing Costs

- 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

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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

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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)

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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

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New Trade Theory-Applications

- Typically, requires industries with high, fixed costs
  - World demand will support few competitors
- Competitors may emerge because of "first mover advantage"
  - Economies of scale may preclude new entrants
  - Role of the government becomes significant
- Some argue that it generates government intervention and strategic trade policy

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Economies Of Scale, First Mover Advantages, And The Pattern Of Trade

- The pattern of trade we observe in the world economy may be the result of first mover advantages (the economic an strategic advantages that accrue to early entrants into an industry) and economies of scale
- New trade theory suggests that for those products where economies of scale are significant and represent a substantial proportion of world demand, first movers can gain a scale based cost advantage that later entrants find difficult to match

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Implications Of New Trade Theory

- 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
- While this is at variance with the Heckscher-Ohlin theory, it does not contradict comparative advantage theory, but instead identifies a source of comparative advantage
- An extension of the theory is the implication that governments should consider strategic trade policies that nurture and protect firms and industries where first mover advantages and economies of scale are important

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Classroom Performance System

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

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National Competitive Advantage: Porter's Diamond

- 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:
  - Factor endowments
  - Demand conditions
  - Relating and supporting industries
  - Firm strategy, structure, and rivalry

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National Competitive Advantage: Porter's Diamond

Figure 5.6: Determinants of National Competitive Advantage: Porter's Diamond

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Factor Endowments

- Factor endowments refer to a nation's position in factors of production necessary to compete in a given industry
- A nation's position in factors of production can lead to competitive advantage
- These factors can be either basic (natural resources, climate, location) or advanced (skilled labor, infrastructure, technological know-how)

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Demand Conditions

- Demand conditions refer to the nature of home demand for the industry's product or service
- 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

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Relating And Supporting Industries

- Relating and supporting industries refer to the presence or absence of supplier industries and related industries that are internationally competitive
- The presence 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 - having world class manufacturers of semi-conductor processing equipment can lead to (and be a result of having) a competitive semi-conductor industry

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Firm Strategy, Structure, And Rivalry

- Firm strategy, structure, and rivalry refers to the conditions governing how companies are created, organized, and managed, and the nature of domestic rivalry
- The conditions in the nation governing how companies are created, organized, and managed, and the nature of domestic rivalry impacts firm competitiveness
- 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

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Evaluating Porter's Theory

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

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Classroom Performance System

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

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Implications For Managers

There are three main implications for international businesses:

- location implications
- first-mover implications
- policy implications

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Location

- Different countries have advantages in different productive activities
- It makes sense for a firm to disperse its various productive activities to those countries where they can be performed most efficiently
- International trade theory suggests that firm sthat fail to do this, may be at a competitive disadvantage

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First-Mover Advantages

- Being a first mover can have important competitive implications, especially if there are economies of scale and the global industry will only support a few competitors
- Firms that establish a first-mover advantage may dominate global trade in that product

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Government Policy

- Government policies with respect to free trade or protecting domestic industries can significantly impact global competitiveness
- Businesses should work to encourage governmental policies that support free trade
- Firms should also lobby the government to adopt policies that have a favorable impact on each component of the diamond

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Classroom Performance System

_____ 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

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