Inter-industry Trade

- According to the Heckscher-Ohlin model or Ricardian model, countries specialize in production.
  - Trade occurs only *between* industries: **inter-industry trade**
- In a Heckscher-Ohlin model suppose that:
  - The capital abundant domestic economy specializes in the production of capital intensive cloth, which is imported by the foreign economy.
  - The labor abundant foreign economy specializes in the production of labor intensive food, which is imported by the domestic economy.

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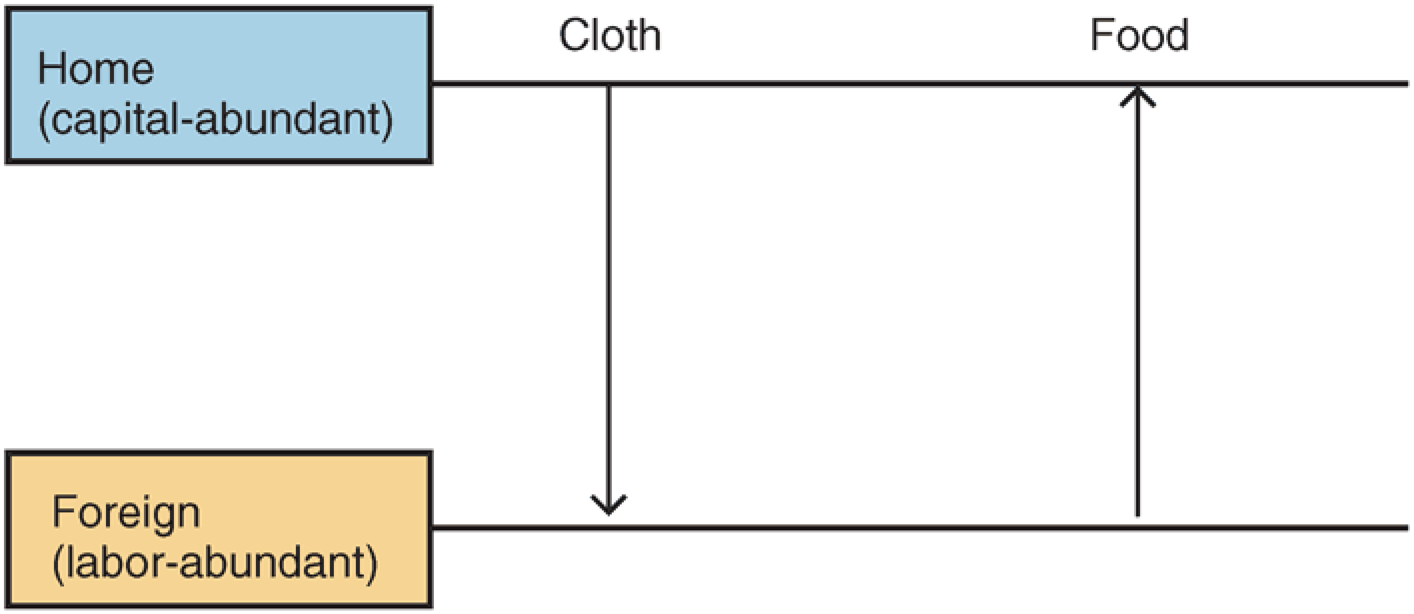
Fig. 6-6: Trade in a World Without Increasing Returns



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Intra-industry Trade

- Suppose now that the global cloth industry is described by the monopolistic competition model.
- Because of product differentiation, suppose that each country produces different types of cloth.
- Because of economies of scale, large markets are desirable: the foreign country exports some cloth and the domestic country exports some cloth.
  - ♦ Trade occurs *within* the cloth industry: **intra-industry trade**

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Intra-industry Trade (cont.)

- If domestic country is capital abundant, it still has a comparative advantage in cloth.
  - ♦ It should therefore export more cloth than it imports.
- Suppose that the trade in the food industry continues to be determined by comparative advantage.

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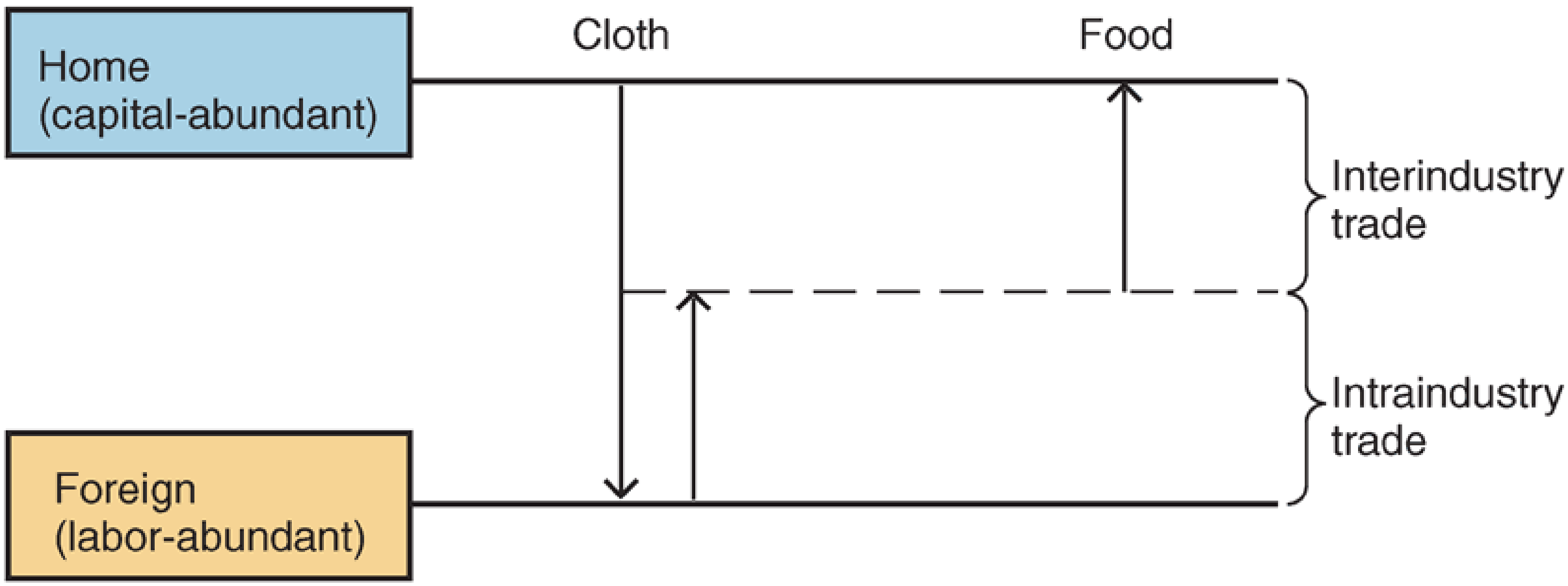
Fig. 6-7: Trade with Increasing Returns and Monopolistic Competition



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Inter-industry and Intra-industry Trade

1. Gains from inter-industry trade reflect comparative advantage (Home, the capital-abundant country, is a net exporter of capital-intensive cloth).
2. Gains from intra-industry trade reflect economies of scale (lower costs) and wider consumer choices, NOT a comparative advantage.
3. The monopolistic competition model does not predict in which country firms locate, but a comparative advantage in producing the differentiated good will likely cause a country to export more of that good than it imports.

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Inter-industry and Intra-industry Trade (cont.)

4. The relative importance of intra-industry trade depends on how similar countries are.
   - Countries with *similar* relative amounts of factors of production are predicted to have *intra-industry trade*.
   - Countries with *different* relative amounts of factors of production are predicted to have *inter-industry trade*.
5. Unlike inter-industry trade in the Heckscher-Ohlin model, income distribution effects are not predicted to occur with intra-industry trade.

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Inter-industry and Intra-industry Trade (cont.)

- About 25% of world trade is intra-industry trade according to standard industrial classifications.
  - ♦ But some industries have more intra-industry trade than others: those industries requiring relatively large amounts of skilled labor, technology, and physical capital exhibit intra-industry trade for the U.S.
  - ♦ Countries with similar relative amounts of skilled labor, technology, and physical capital engage in a large amount of intra-industry trade with the U.S.

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Table 6-3: Indexes of Intraindustry Trade for U.S. Industries, 1993

Inorganic chemicals	0.99
Power-generating machinery	0.97
Electrical machinery	0.96
Organic chemicals	0.91
Medical and pharmaceutical	0.86
Office machinery	0.81
Telecommunications equipment	0.69
Road vehicles	0.65
Iron and steel	0.43
Clothing and apparel	0.27
Footwear	0.00

Note: an index of 1 means that all trade is intra-industry trade.
An index of 0 means that all trade is inter-industry trade. For inorganic chemicals the net exports are almost zero for the US; for footwear, US exports are almost zero

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Dumping

- **Dumping** is the practice of charging a lower price for exported goods than for goods sold domestically.
- Dumping is an example of **price discrimination**: the practice of charging different customers different prices.
- Price discrimination and dumping may occur only if
  - *imperfect competition* exists: firms are able to influence market prices.
  - *markets are segmented* so that goods are not easily bought in one market and resold in another.

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Dumping (cont.)

- Dumping may be a profit maximizing strategy because of differences in foreign and domestic markets.
- One difference is that domestic firms usually have a larger share of the domestic market than they do of foreign markets.
  - ♦ Because of less market dominance and more competition in foreign markets, foreign sales are usually more responsive to price changes than domestic sales.
  - ♦ Domestic firms may be able to charge a high price in the domestic market but must charge a low price on exports if foreign consumers are more responsive to price changes.

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Dumping (cont.)

- We draw a diagram of how dumping occurs when a firm is a monopolist in the home market but must compete in foreign markets. Markets are segmented
  - ♦ Because the firm is a monopolist in the domestic market, the demand function that it faces in the domestic market is downward sloping, and marginal revenue from additional output is always less than a uniform price for all units of output.
  - ♦ Because the firm competes in foreign markets, the demand function that it faces in foreign markets is horizontal, representing the fact that exports are very responsive to small price changes.

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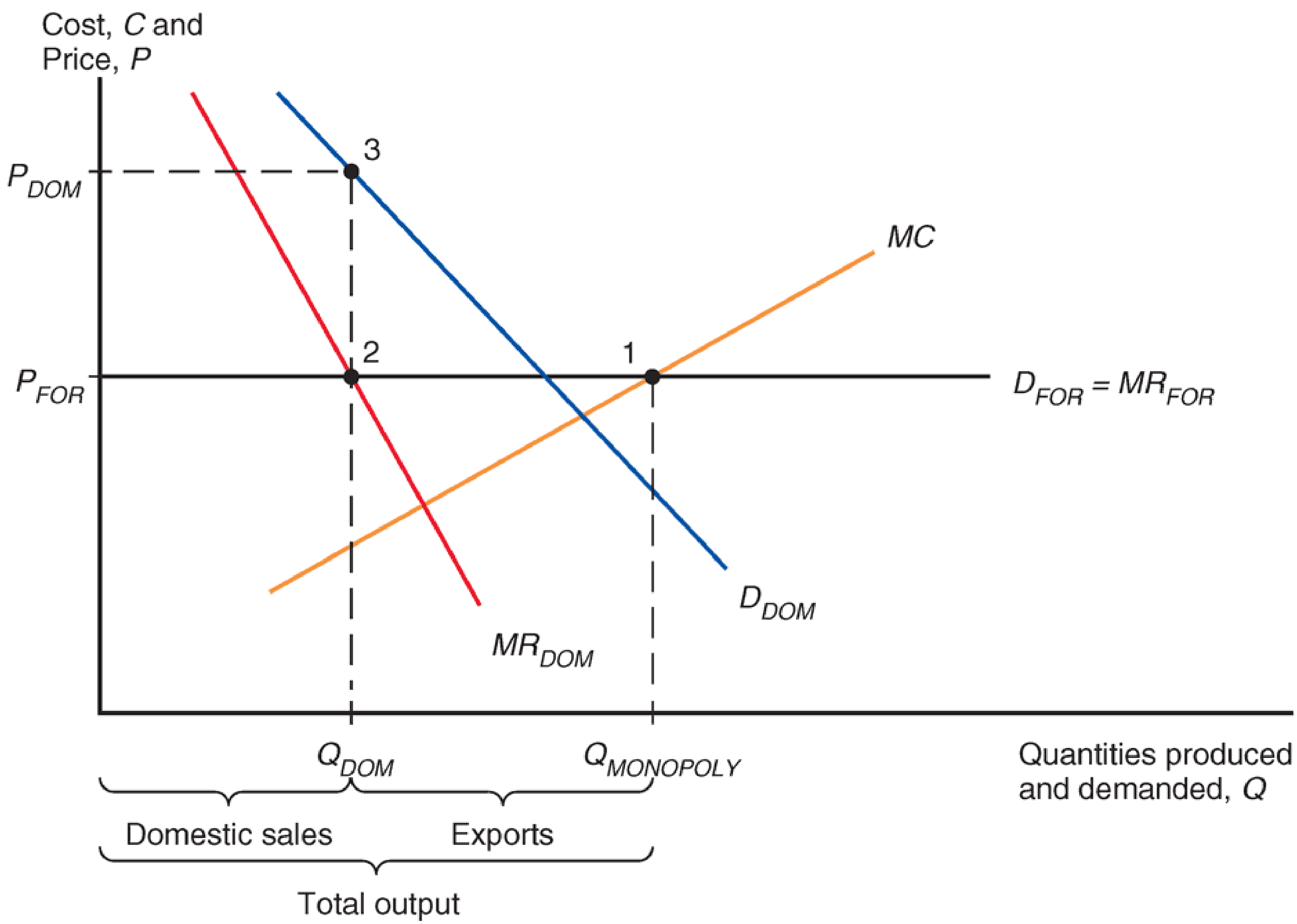
Fig. 6-8: Dumping



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Dumping (cont.)

- To maximize profits, the firm should sell a limited amount in the domestic market at a high price P_{DOM} , but sell in foreign markets at a low price P_{FOR}.
  - Since more can always be sold at P_{FOR} , the firm should sell its products at a high price in the domestic market until marginal revenue there falls to P_{FOR}.
  - Thereafter, it should sell exports at P_{FOR} until marginal costs exceed this price.
- In this case, dumping is a profit-maximizing strategy.

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Protectionism and Dumping

- Dumping (as well as price discrimination in domestic markets) is widely regarded as unfair.
- A US firm may appeal to the Commerce Department to investigate if dumping by foreign firms has injured the US firm.
  - The Commerce Department may impose an "anti-dumping duty," or tax, as a precaution against possible injury.
  - This tax equals the difference between the actual and "fair" price of imports, where "fair" means "price the product is normally sold at in the manufacturer's domestic market."

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Protectionism and Dumping (cont.)

- Next the International Trade Commission (ITC) determines if injury to the U.S. firm has occurred or is likely to occur.
- If the ITC determines that injury has occurred or is likely to occur, the anti-dumping duty remains in place.

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External Economies of Scale

- If external economies exist, a country that has a large industry will have low costs of producing that industry's good or service.
- External economies may exist for a few reasons:

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External Economies of Scale (cont.)

1. **Specialized equipment or services** may be needed for the industry, but are only supplied by other firms if the industry is large and concentrated.

   - For example, Silicon Valley in California has a large concentration of silicon chip companies, which are serviced by companies that make special machines for manufacturing silicon chips.
   - These machines are cheaper and more easily available for Silicon Valley firms than for firms elsewhere.

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External Economies of Scale (cont.)

2. **Labor pooling**: a large and concentrated industry may attract a pool of workers, reducing employee search and hiring costs for each firm.
3. **Knowledge spillovers**: workers from different firms may more easily share ideas that benefit each firm when a large and concentrated industry exists.

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External Economies of Scale and Trade

- If external economies exist, the pattern of trade may be due to historical accidents:
  - ♦ countries that start as large producers in certain industries tend to remain large producers even if another country could potentially produce more cheaply.

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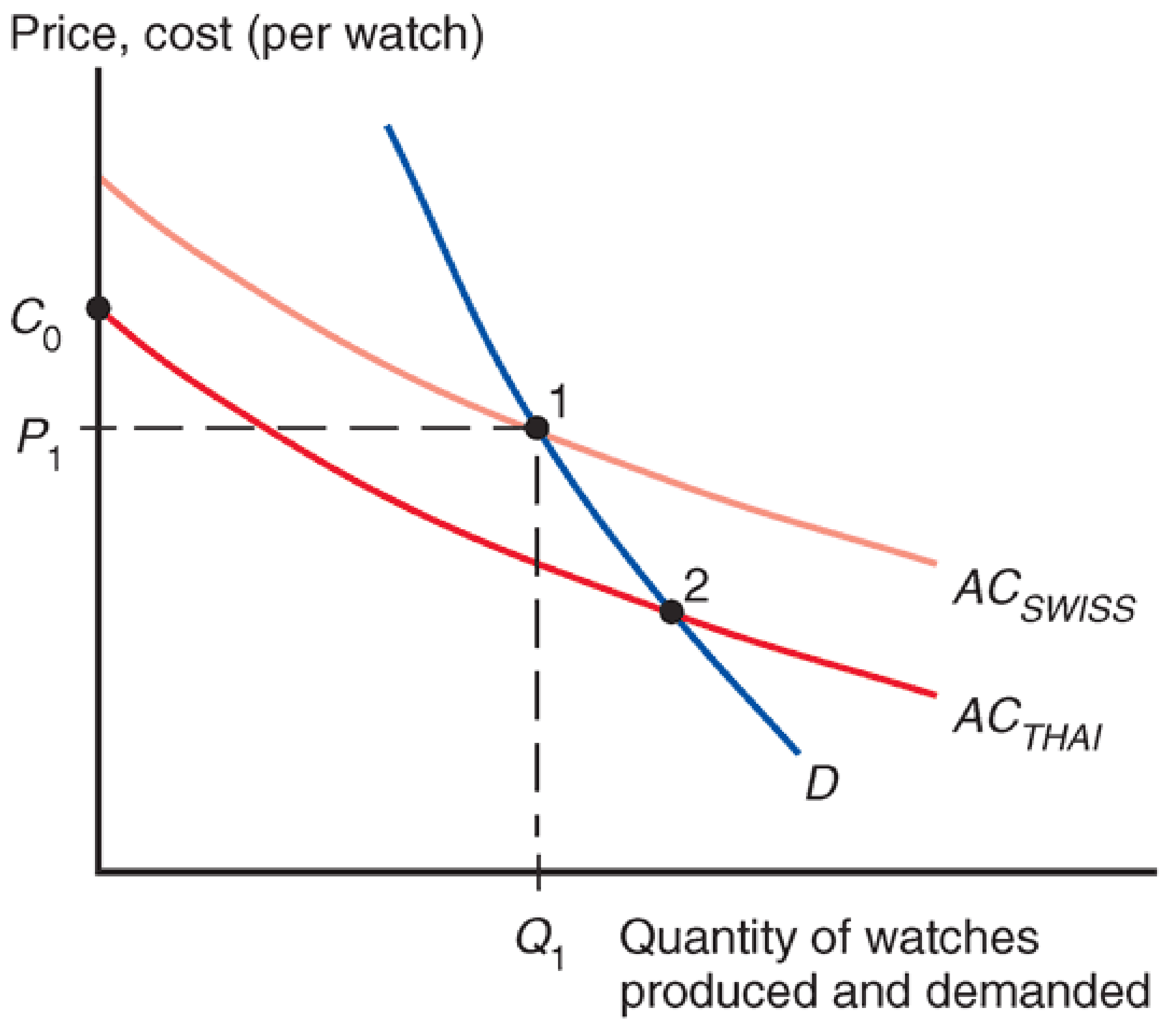
Fig. 6-9: External Economics and Specialization



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External Economies of Scale and Trade (cont.)

- If the Swiss industry is established first, the price will be P_1
- P_1 is below C_0 , the cost an individual Thai firm would face if it decided to enter the industry by its own

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External Economies of Scale and Trade (cont.)

- Trade based on external economies has an ambiguous effect on national welfare.
  - There may be gains to the *world* economy by concentrating production of industries with external economies.
  - But there is no guarantee that the right country will produce a good subject to external economies.
  - It is even possible that a country is worse off with trade than it would have been without trade: a country may be better off if it produces everything for its domestic market rather than pay for imports.

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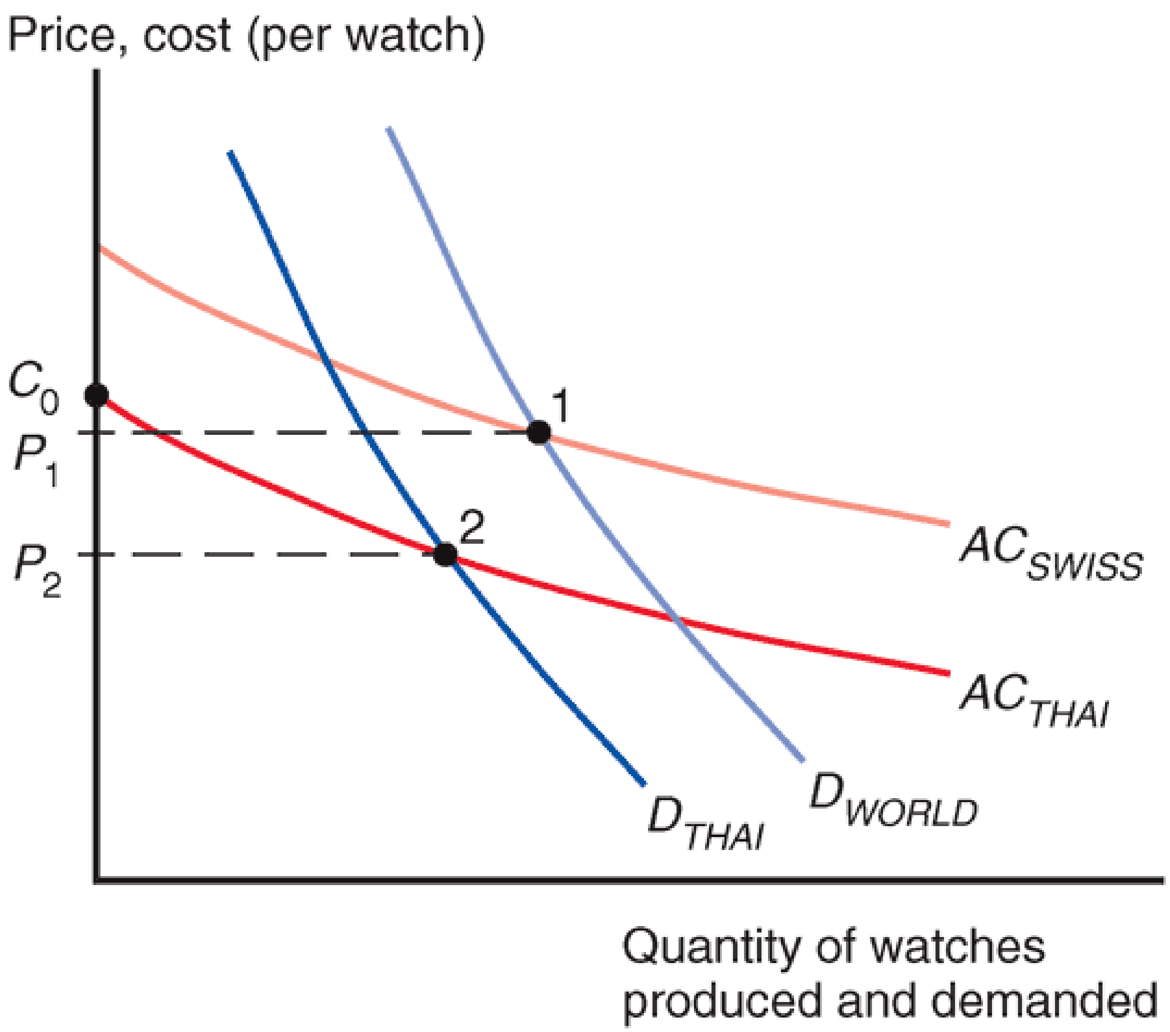
Fig. 6-10: External Economics and Losses from Trade



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External Economies of Scale and Trade (cont.)

- External economies may also be important for **interregional trade** within a country
  - ♦ Many movie producers are located in Los Angeles which produce movies for consumers throughout the U.S.
  - ♦ Many financial firms are located in New York which provide financial services for consumers throughout the U.S.
- If external economies exist, the pattern of trade may be due to historical accidents:
  - ♦ regions that start as large producers in certain industries tend to remain large producers even if another region could potentially produce more cheaply.

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External Economies of Scale and Trade (cont.)

- More broadly, **economic geography** refers to the study of international trade, interregional trade and the organization of economic activity in metropolitan and rural areas.
  - ♦ Economic geography studies how humans transact with each other across space.
    - Communication changes such as the internet, e-mail, text mail, video conferencing, mobile phones (as well as modern transportation) are changing how humans transact with each other across space.

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External Economies of Scale and Trade (cont.)

- We have considered cases where external economies depend on the amount of *current output* at a point in time.
- But external economies may also depend on the amount of *cumulative output over time*.
- **Dynamic increasing returns to scale** exist if average costs fall as cumulative output over time rises.
  - Dynamic increasing returns to scale imply dynamic external economies of scale.

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External Economies of Scale and Trade (cont.)

- Dynamic increasing returns to scale could arise if the cost of production depends on the accumulation of knowledge and experience, which depend on the production process over time.
- A graphical representation of dynamic increasing returns to scale is called a **learning curve**.

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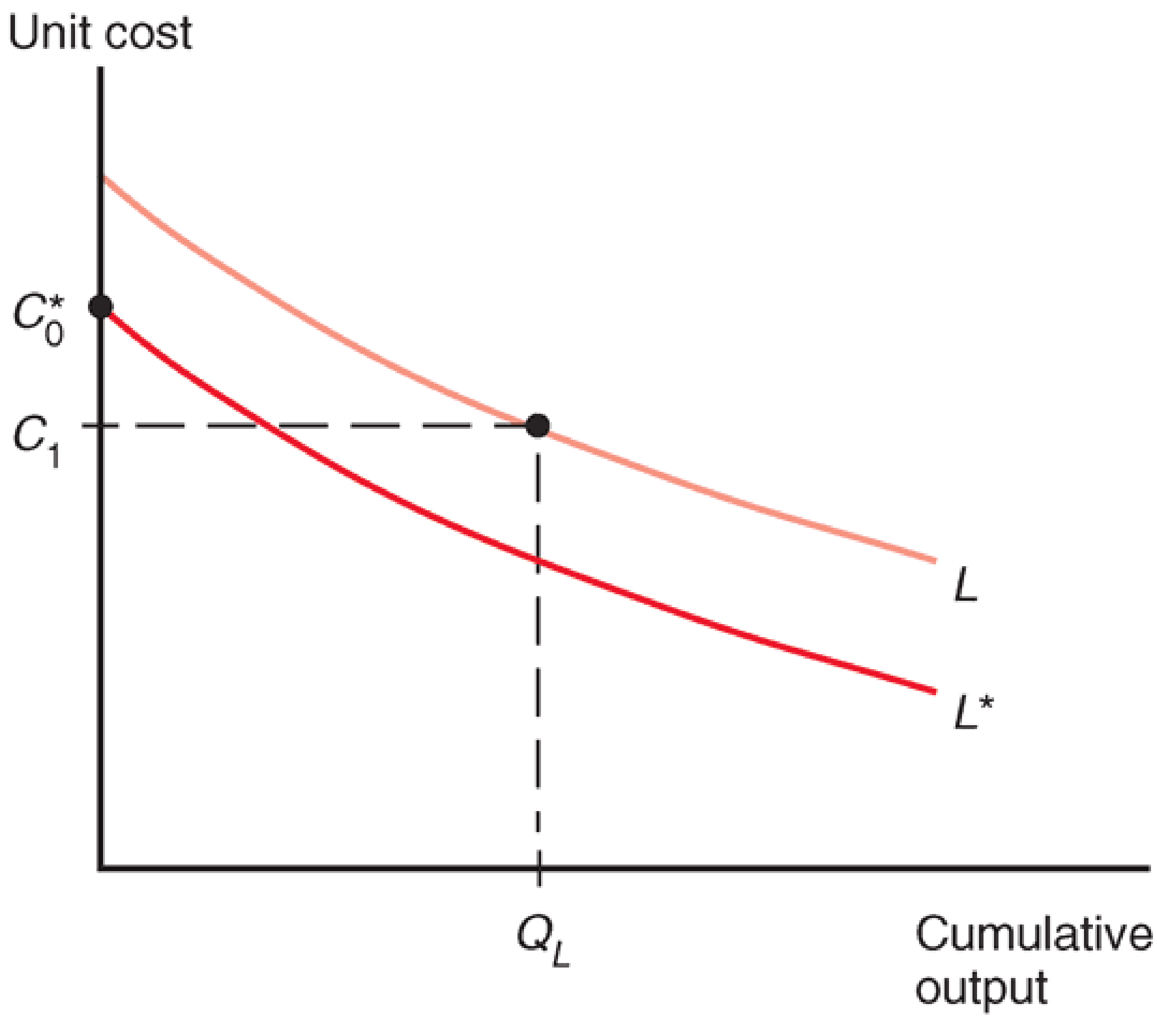
Fig. 6-11: The Learning Curve



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External Economies of Scale and Trade (cont.)

- The learning curve shows that unit cost is lower the greater the cumulative output of a country's industry to date.
- A country that has extensive experience in an industry (L) may have lower unit cost than another country with little or no experience, even if the second country's learning curve (L*) is lower –lower wages

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External Economies of Scale and Trade (cont.)

- Like external economies of scale at a point in time, dynamic increasing returns to scale can lock in an initial advantage or a head start in an industry.
- Like external economies of scale at a point in time, dynamic increasing returns to scale can be used to justify protectionism.
  - Temporary protection of industries enables them to gain experience: infant industry argument.
  - But temporary is often for a long time, and it is hard to identify when external economies of scale really exist.

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Table 6-4 Some Examples of Tradable and Nontradable Industries

Tradable industries	Nontradable industries
Motion pictures	Newspaper publishers
Securities, commodities, etc.	Savings institutions
Scientific research	Veterinary services

Source: J. Bradford Jensen and Lori. G. Kletzer, "Tradable Services: Understanding the Scope and Impact of Services Outsourcing," Peterson Institute of International Economics Working Paper WP 05-9, September 2005.

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Summary

1. Economies of scale imply that more production at the firm or industry level causes average cost to fall.
   - External economies of scale refer to the amount of production by an industry.
   - Internal economies of scale refer to the amount of production by a firm.
2. With monopolistic competition, each firm can raise prices somewhat above those on competing products due to product differentiation but must compete with other firms whose prices are believed to be unaffected by each firm's actions.

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Summary (cont.)

3. Monopolistic competition allows for gains from trade through lower costs and prices, as well as through wider consumer choice.
4. Monopolistic competition predicts intra-industry trade, and does not predict changes in income distribution within a country.
5. Location of firms under monopolistic competition is unpredictable, but countries with similar relative factors are predicted to engage in intra-industry trade.

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Summary (cont.)

6. Dumping may be a profitable strategy when a firm faces little competition in its domestic market and faces heavy competition in foreign markets.
7. Economic geography refers to how humans transact with each other across space, including through international trade and interregional trade.

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Summary (cont.)

8. Trade based on external economies of scale may increase or decrease national welfare, and countries may benefit from temporary protectionism if their industries exhibit external economies of scale either at a point in time or over time.

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