1.12 — New Trade Theory II

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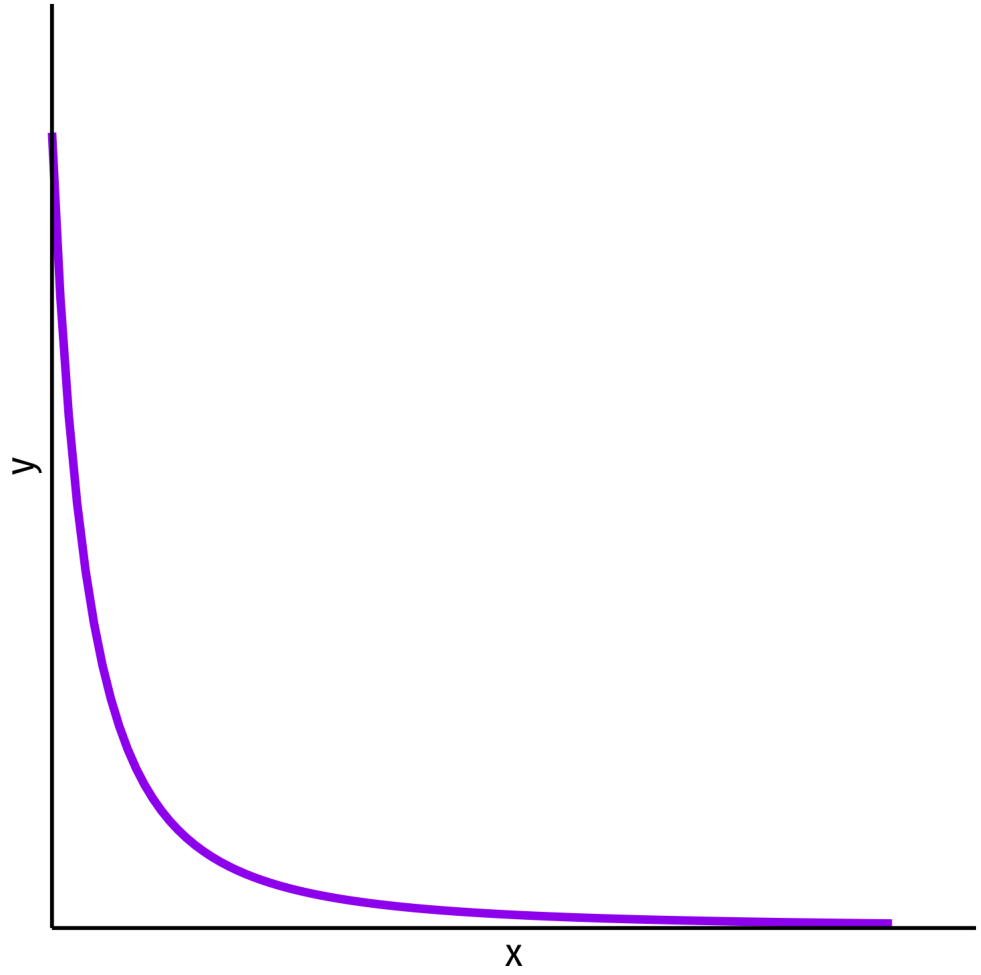
Outline

Increasing Returns

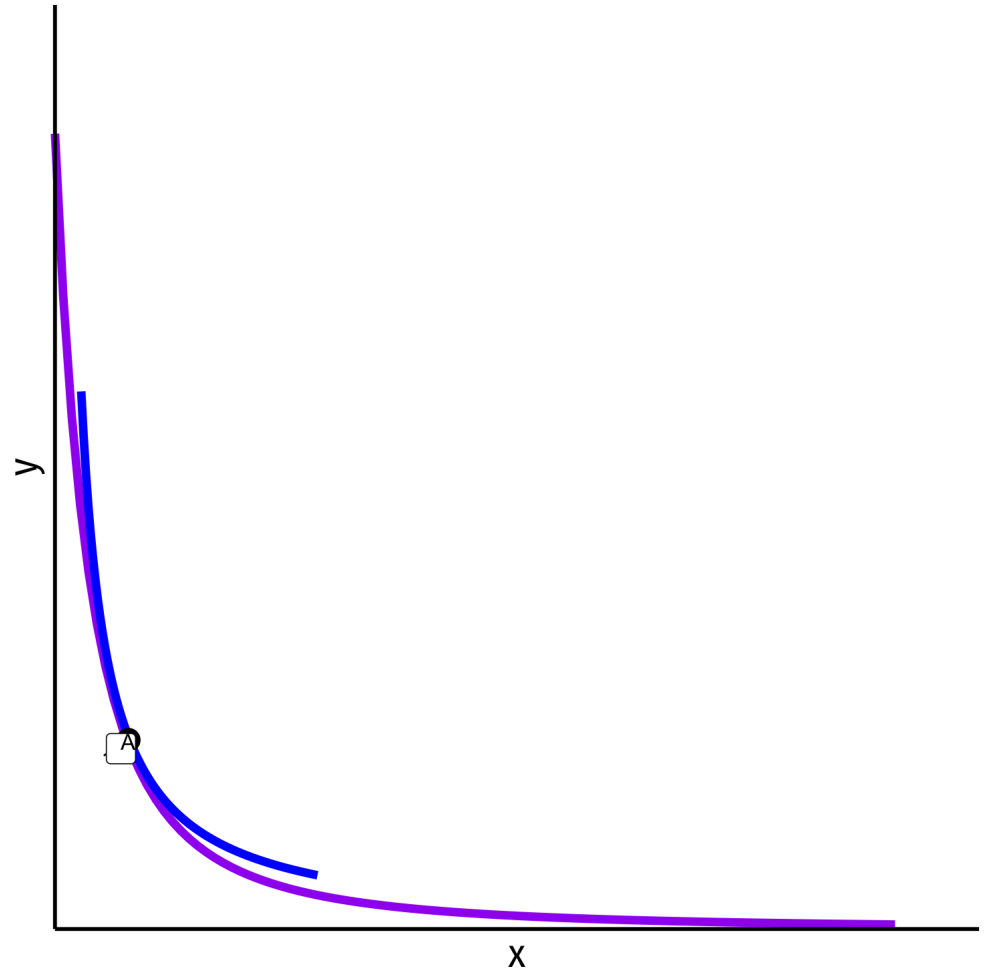
PPF: Decreasing Costs

- Increasing returns $\iff$ decreasing costs
- PPF is *convex* to origin
- **Marginal rate of transformation (MRT)** ***decreases*** as we produce more of a good
  - Again: **"slope"**, **"relative price of x"**, **"opportunity cost of x"**
  - Amount of y given up to get 1 more x



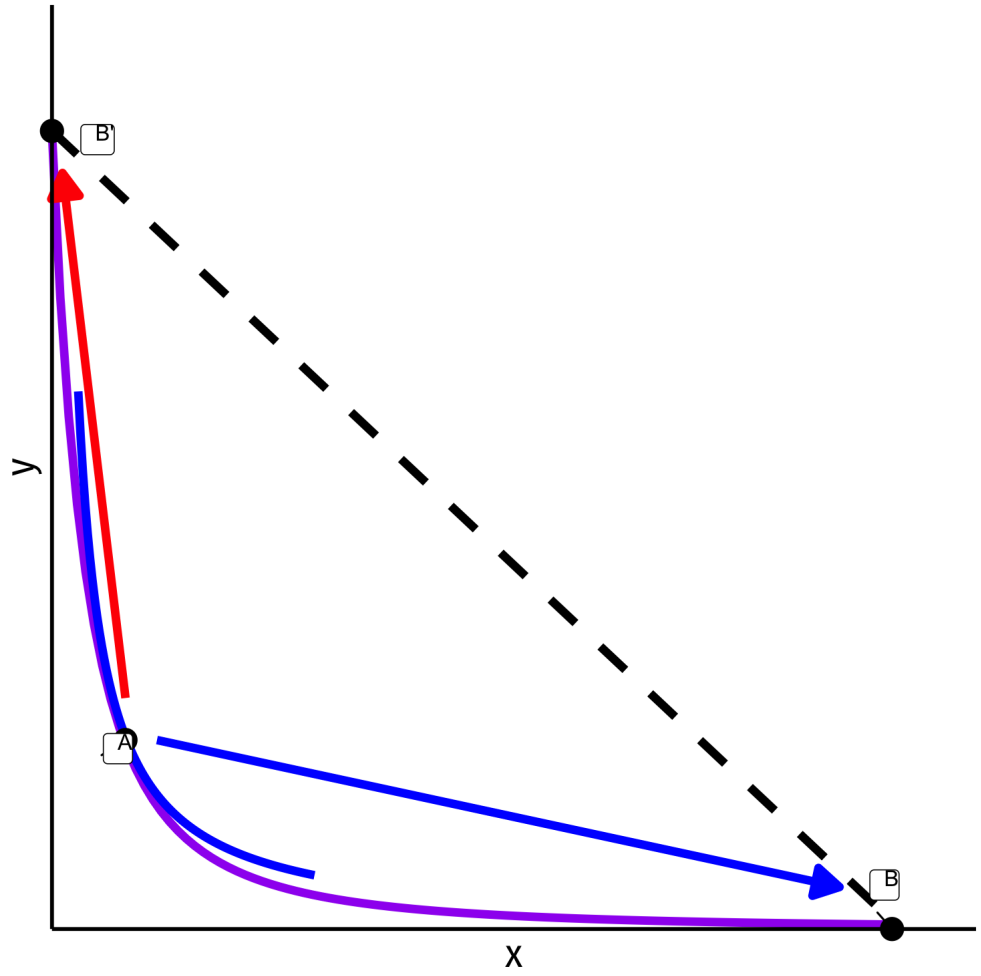
PPF: Decreasing Costs

- To simplify our graph, assume Home and Foreign have identical preferences (same indifference curve), and identical endowments (both start at A)



PPF: Decreasing Costs

- Countries open up trade, face same relative prices
- Each country exploits economies of scale, producing only one good
  - Home produces x, Foreign produces y
  - Points B and B'



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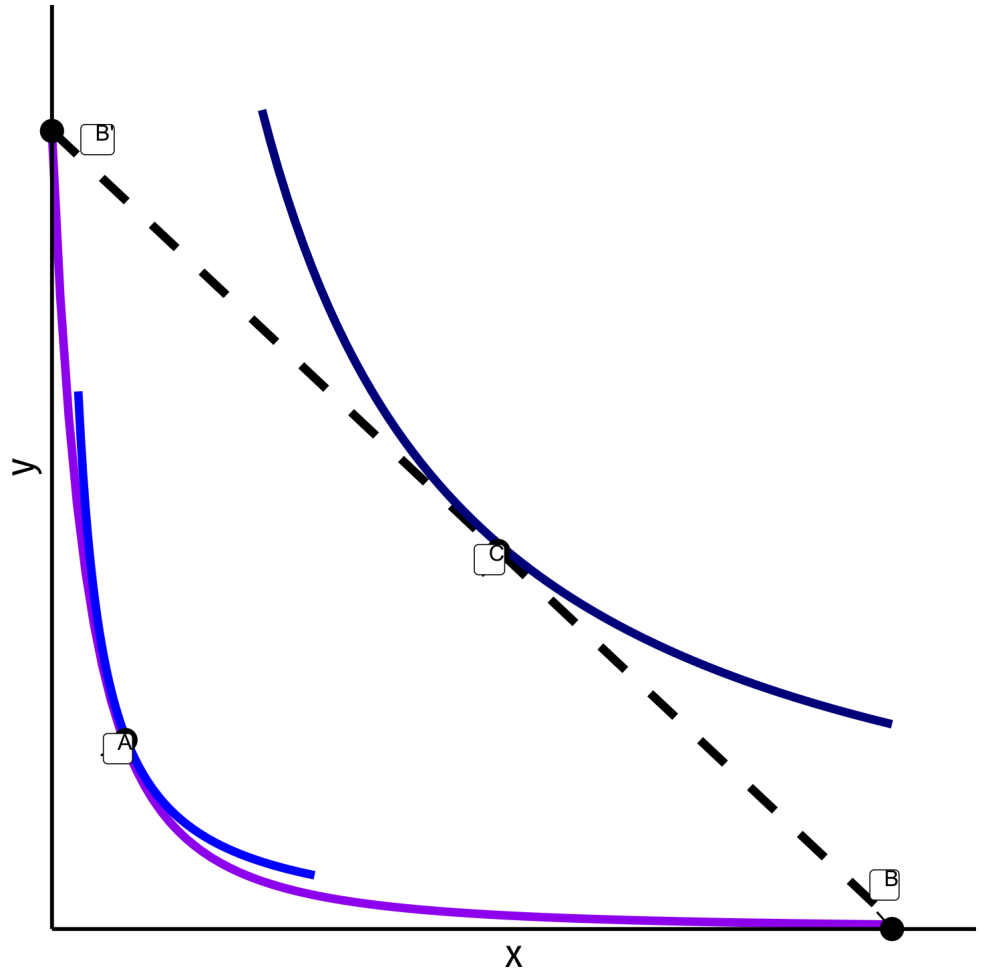

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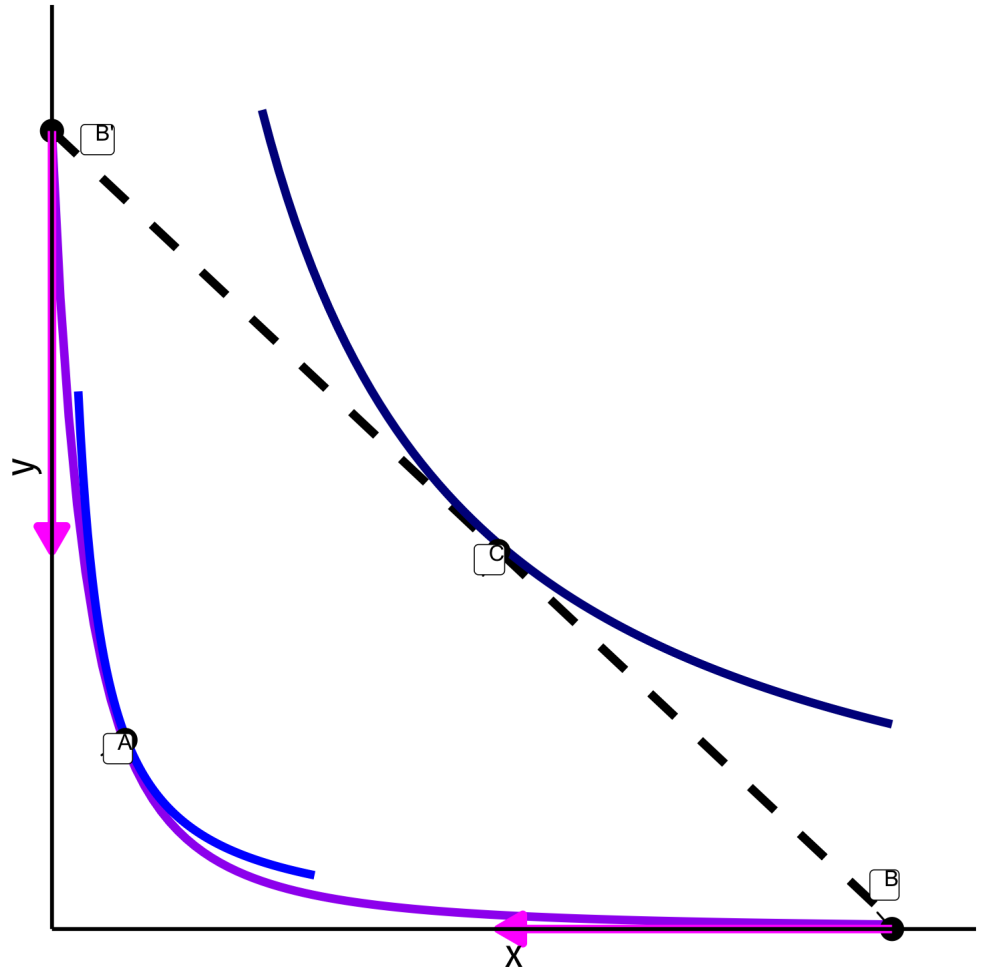

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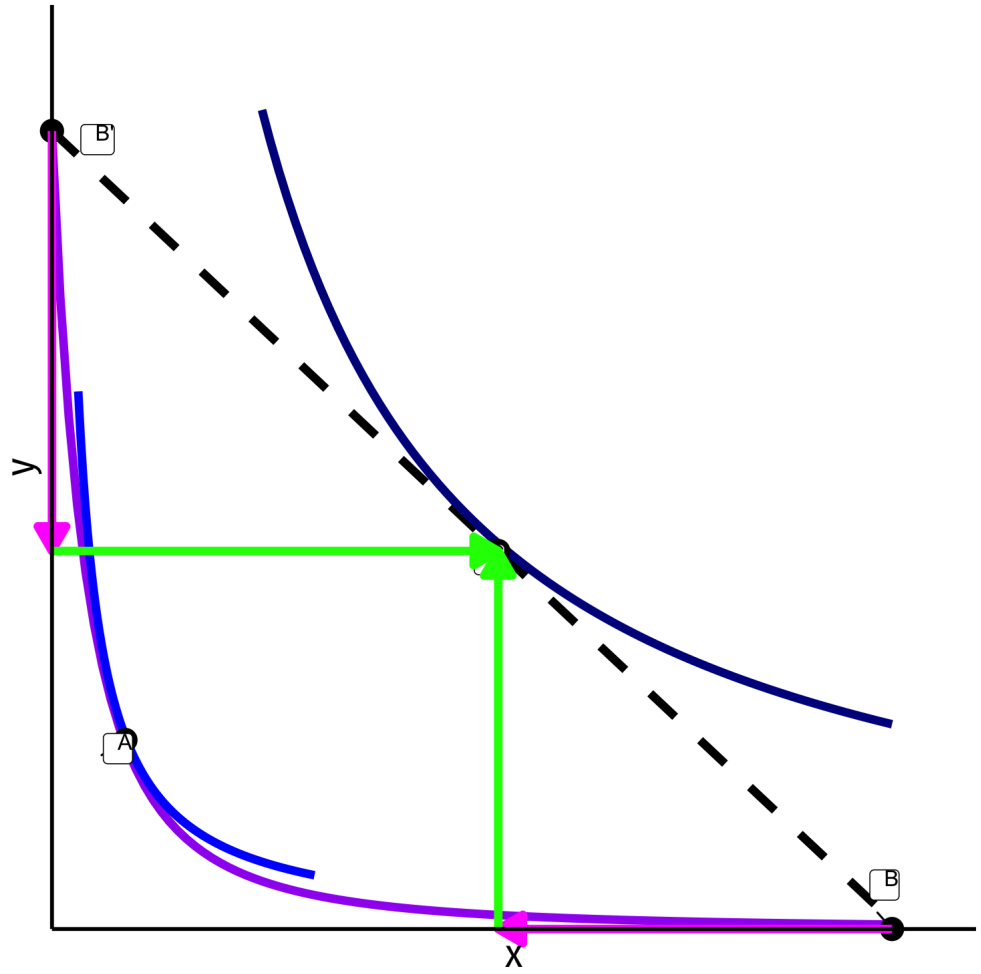
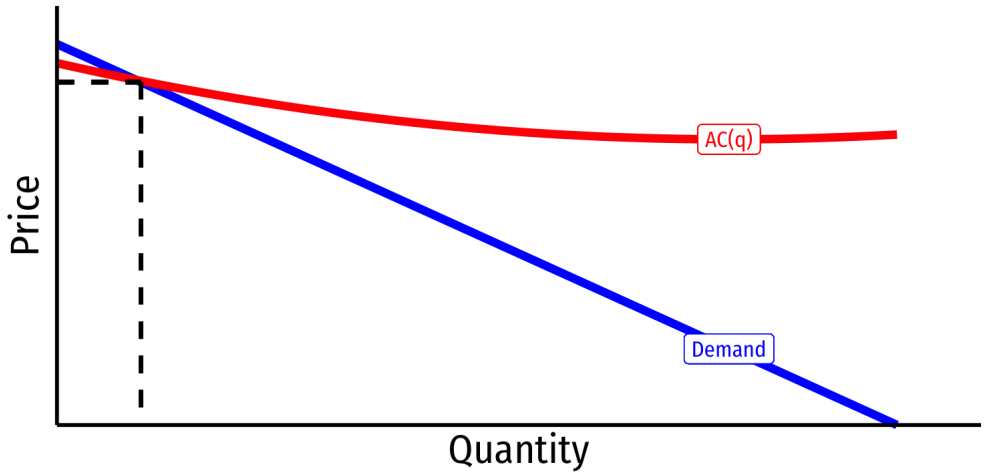
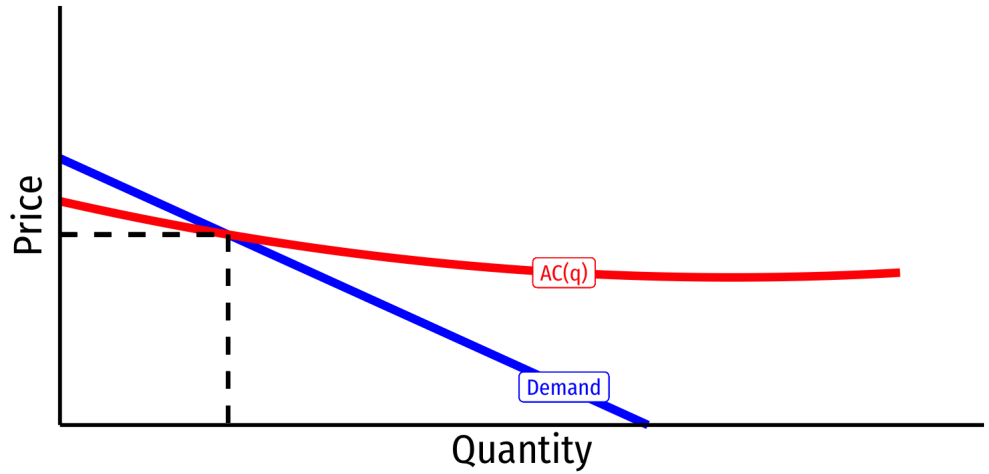


(Anti-)Competitive Implications of Economies of Scale

U.S.



China

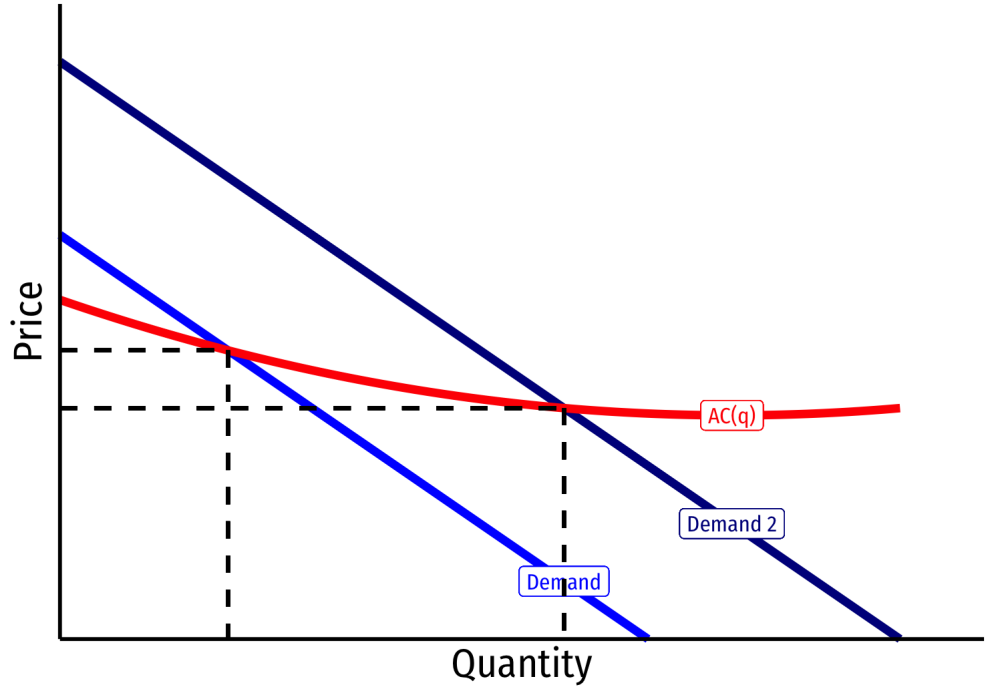


- Before trade, China has lower AC and p than U.S.

(Anti-)Competitive Implications of Economies of Scale

- Trade increases demand for China's output
- Lowers AC and p even further, further outcompeting U.S.

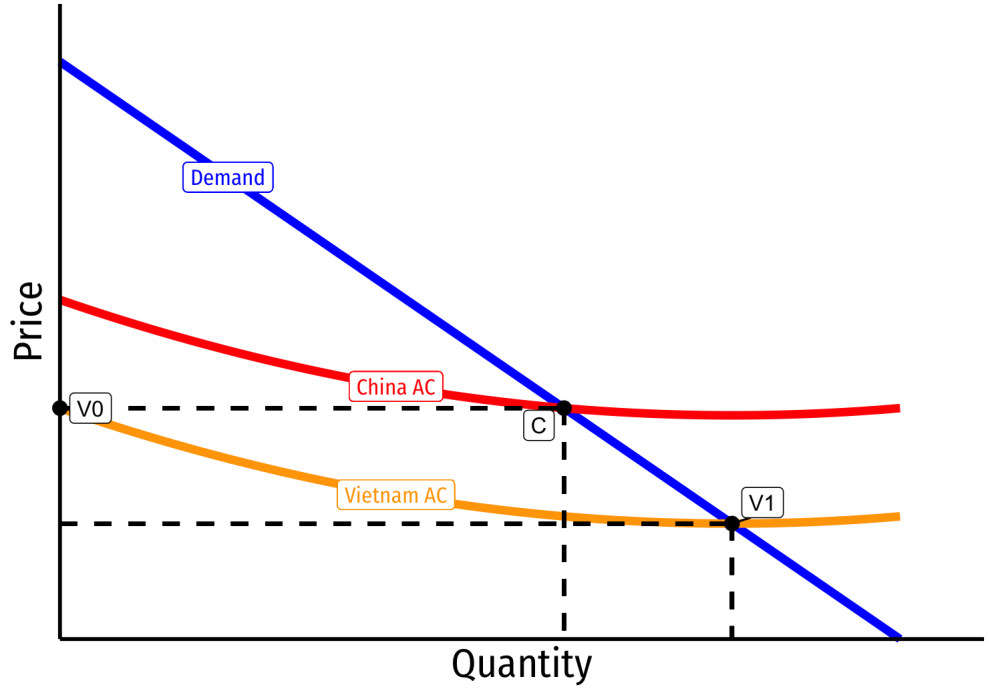
China



(Anti-)Competitive Implications of Economies of Scale

- Suppose **Vietnam** actually has lower AC than **China**, once it gets up to scale (V1)
- Chinese economies of scale have world market price at C
- Current market price provides no profit to Vietnamese producers starting production at V0
- World is **inefficiently "locked in"** to Chinese production, **sub-optimal path dependence**

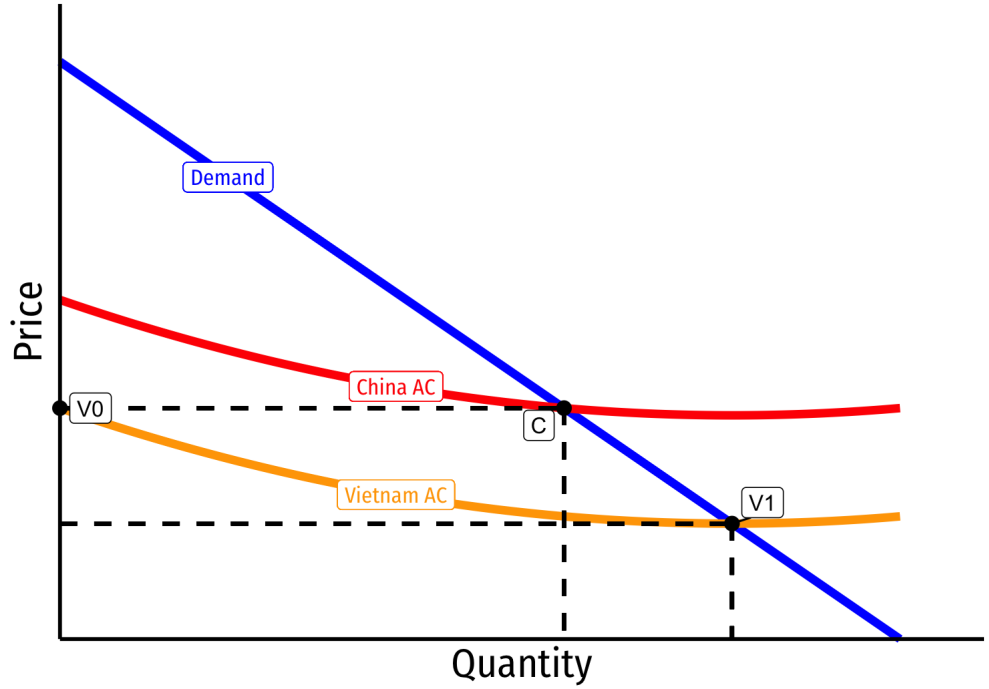
China and **Vietnam**



(Anti-)Competitive Implications of Economies of Scale

- **Policy implication for Vietnam**: shut out imports from China with tariffs, and subsidize this industry to get it up to scale
- In the long run, Vietnam can become the least-cost producer, increasing welfare

China and Vietnam



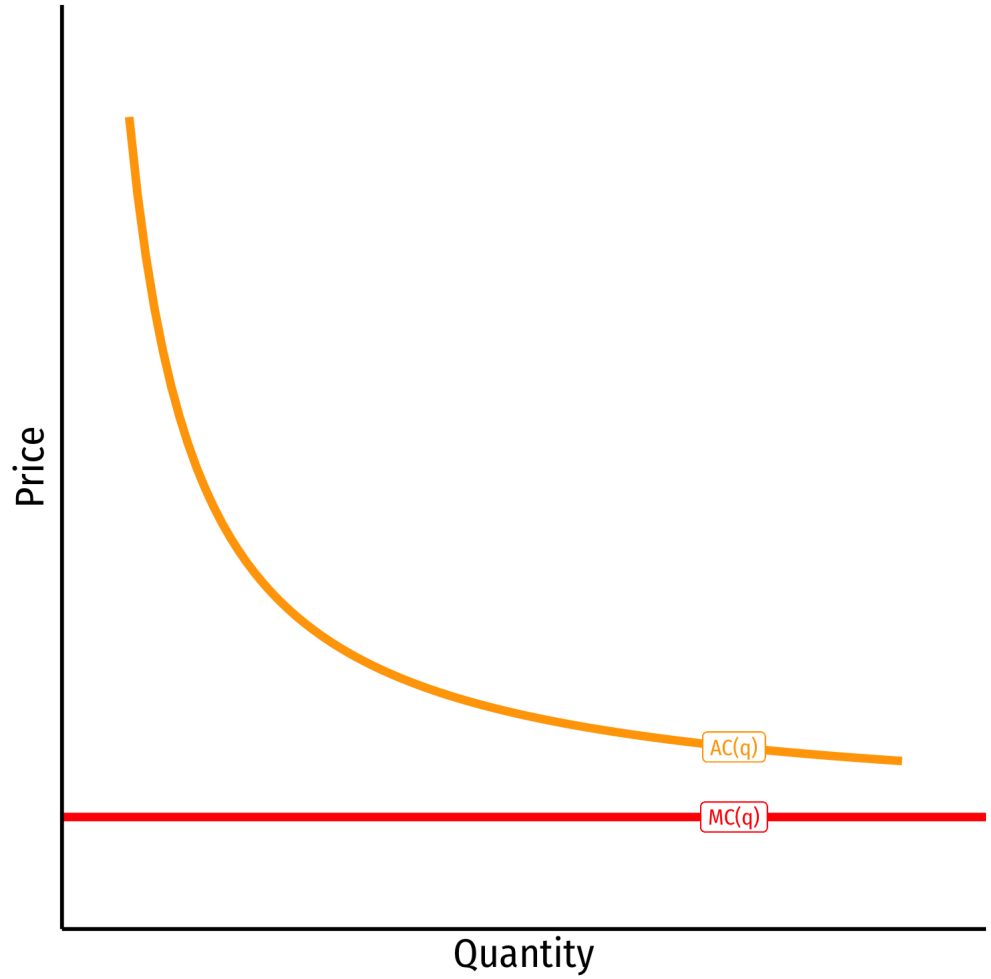
Trade and Variety

Trade and Variety

- Consumers are better off with more variety
- Two interpretations of why:
    1. **Love of variety**: consumers value variety for its own sake (directly enters utility function)
    2. **Ideal variety**: consumers have an ideal variety in mind, and having more varieties available increases probability that each consumer matches with their ideal variety

Trade & Variety: Tradeoff Between Variety & Cost

- Why can't consumers each always have their favorite variety?
- Tradeoff between variety and (average) cost



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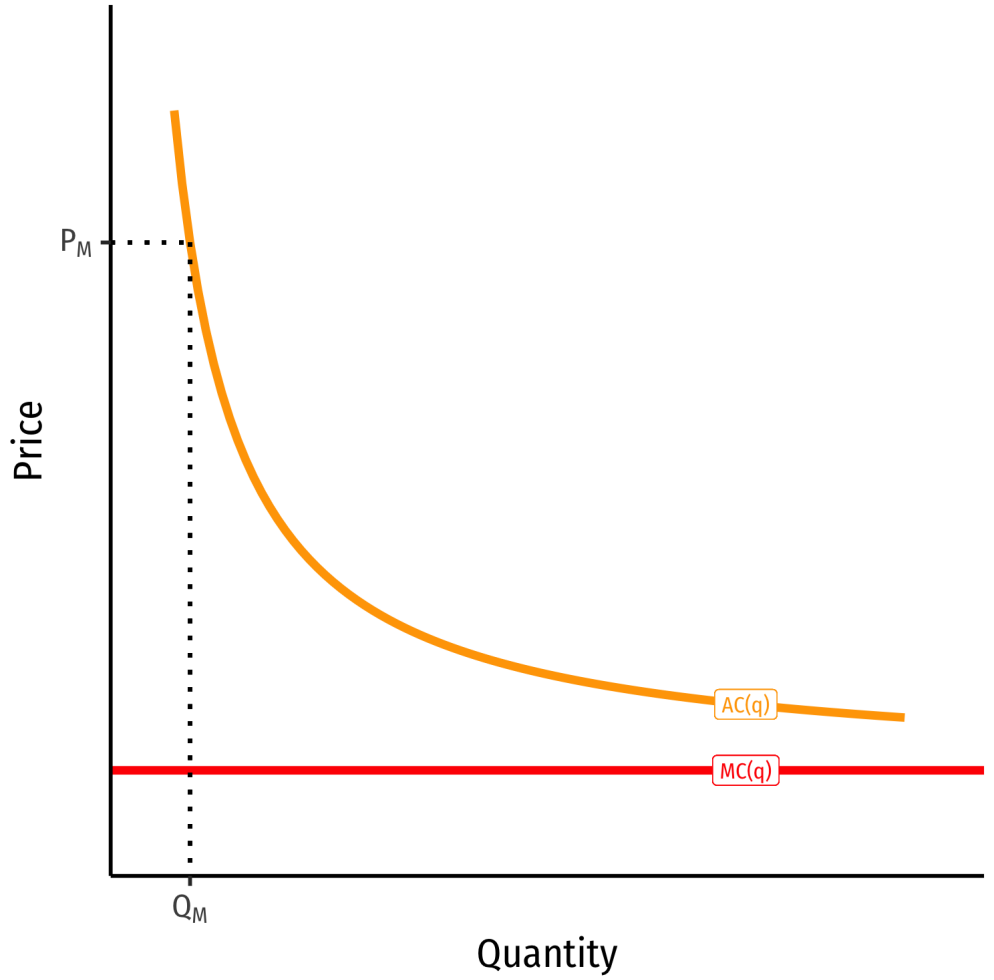

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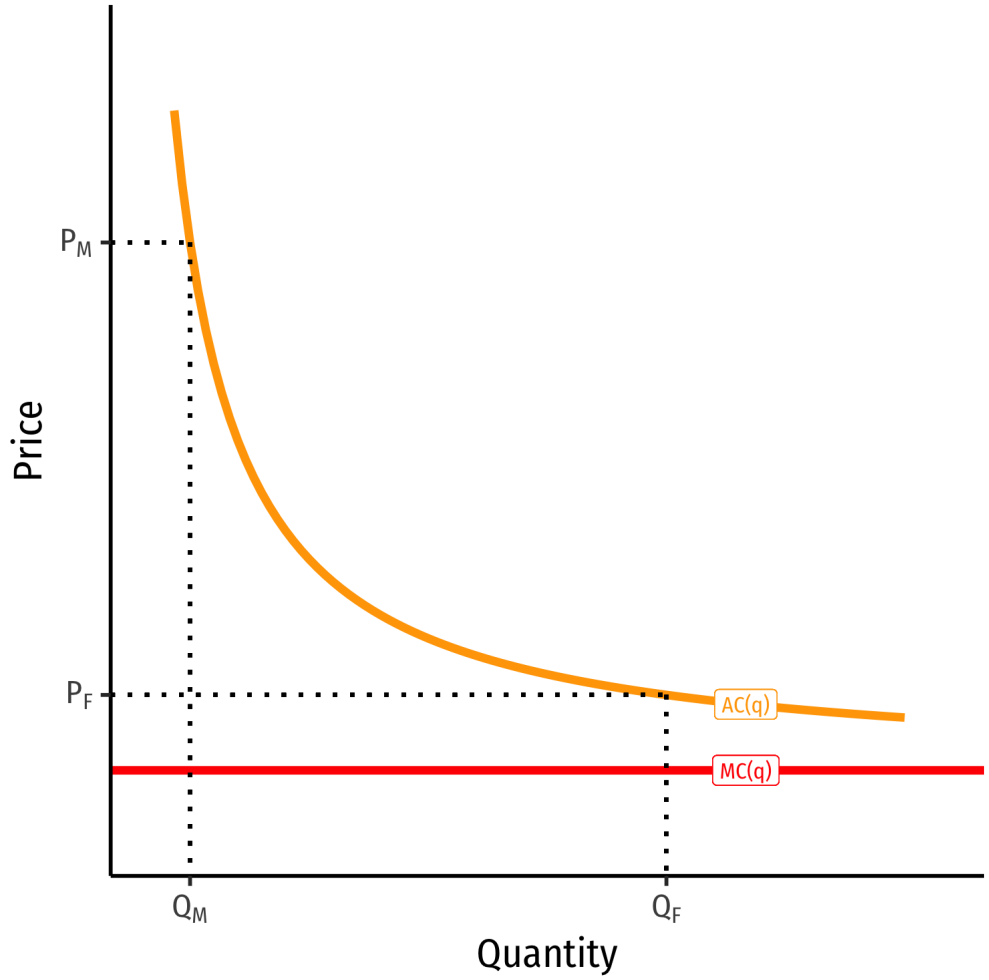
- If every consumer had their favorite variety: many varieties, each firm produces very few units at a very high price (Q_M, P_M)
- If there are only a few varieties, few firms produce many units at very low price (Q_F, P_F)

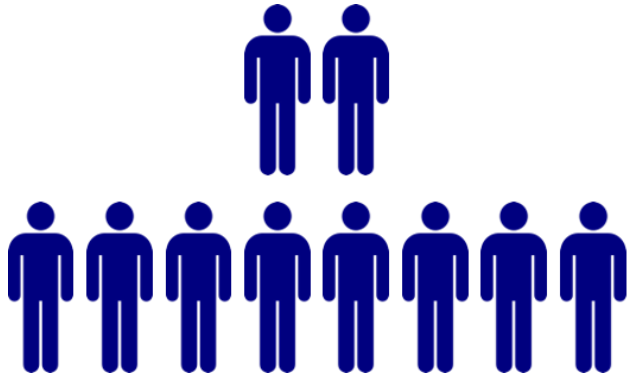


International Trade and Variety

Example

- Suppose it takes 2 workers to design a motorcyle
- Once designed, it takes 1 worker to produce a motorcycle
- There are 2 countries, each with 10 workers

Without trade, in each country:



8 units of 1 variety

International Trade and Variety

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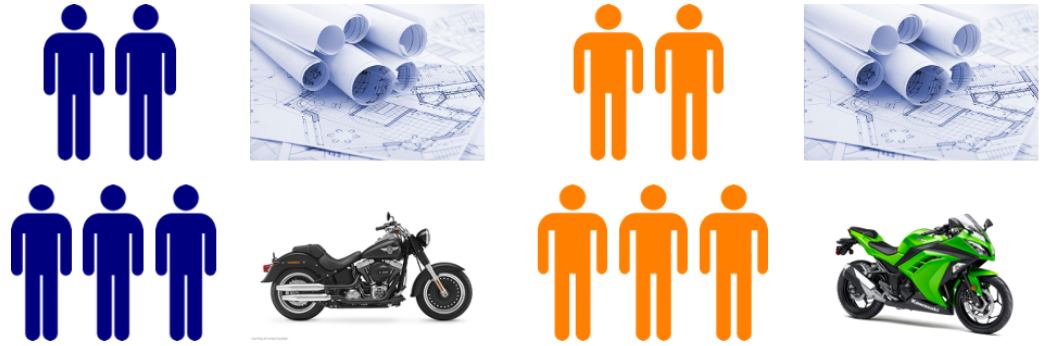
Alternatively:



3 units each of 2 varieties

International Trade and Variety

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With trade:

Each country specializes in one variety

International Trade and Variety

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International Trade and Variety

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With trade:

Each country ends up with 4 units of 2 varieties

- Suppose they trade 4 Harleys for 4 Kawasakis

International Trade and Variety

- Globalization reduces geographic variation (more places look the same, have same amenities)
- But increases varieties available to individuals in each area

Monopolistic Competition

The Role of the Firm in Trade

- Classical trade theory (Ricardo, Hecksher-Ohlin, etc) has no role for the firm!
    - might as well be people directly selling wheat or computers, etc.
- Once we jettison the unrealistic assumption of perfect competition $(p = MC)$, we can say a lot more about firms and trade
- We move to a theory of **imperfect competition**: where firms have market power (but not full market power, as in a monopoly)

Imperfect Competition

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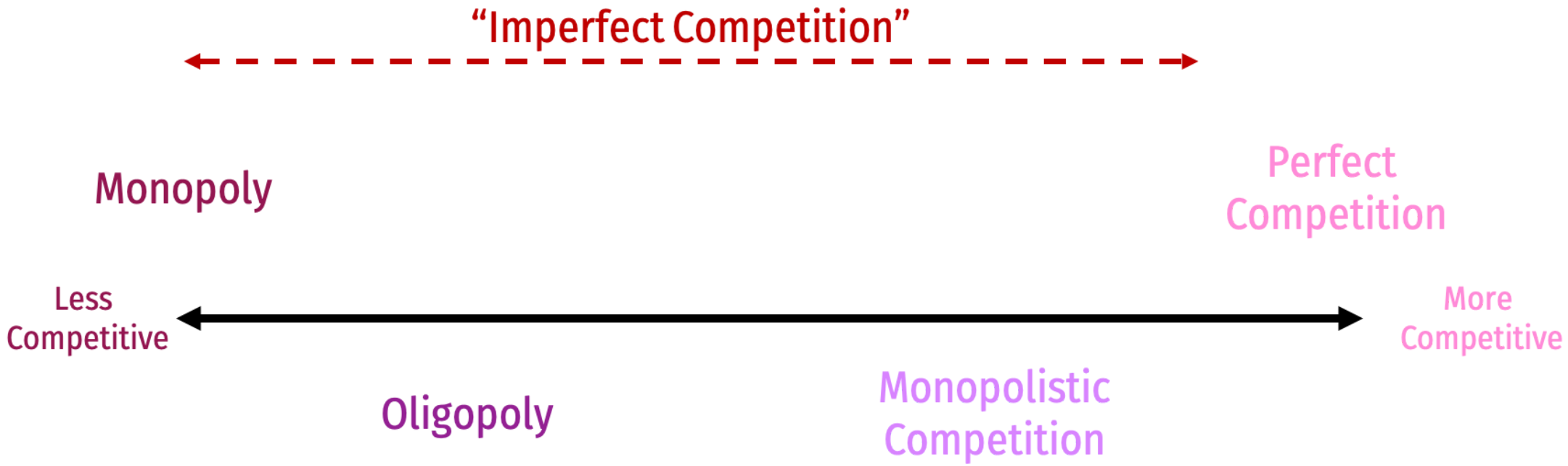


Monopolistic Competition

Monopolistic Competition

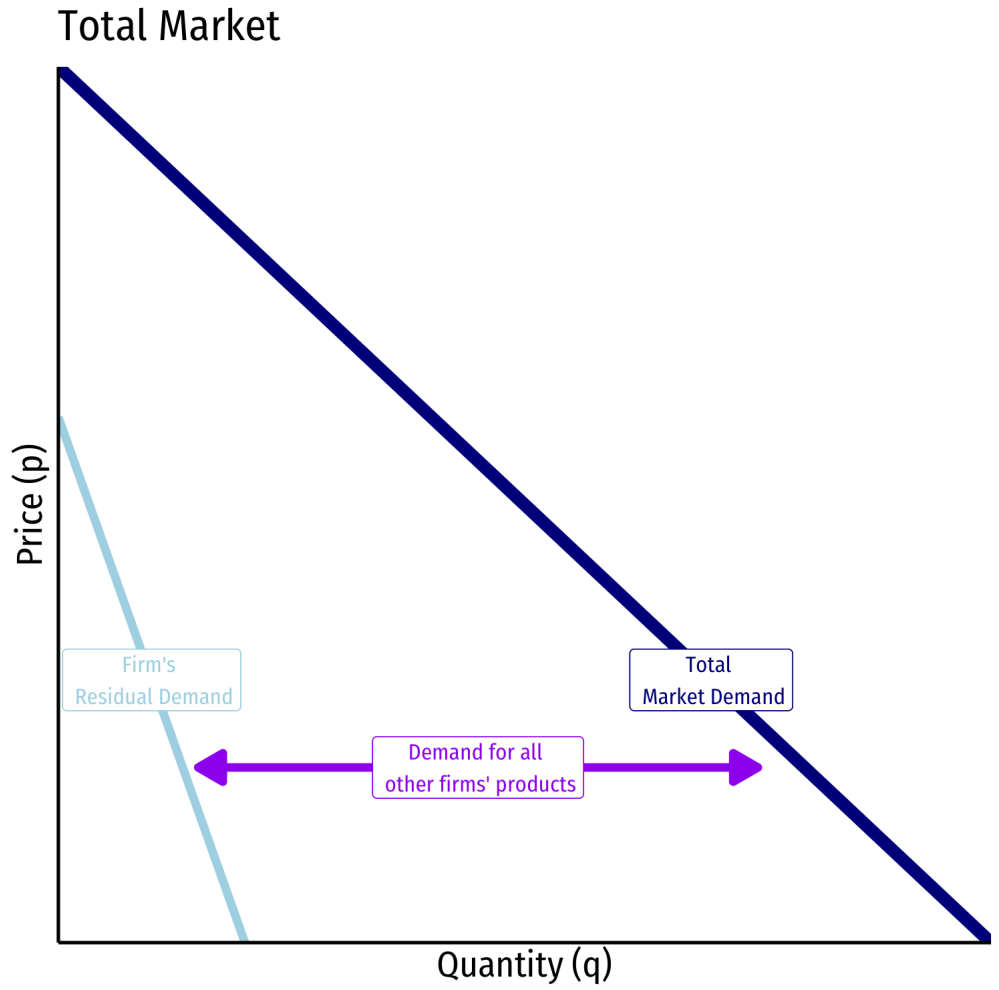
- Monopolistic competition: **each firm has *some* market power**, but, the industry has free entry and exit (**no barriers to entry**)
    - Each firm faces its own downward-sloping demand
    - Firms are price-searchers
- Model as a hybrid of monopoly and perfect competition models

Monopolistic Competition: Product Differentiation

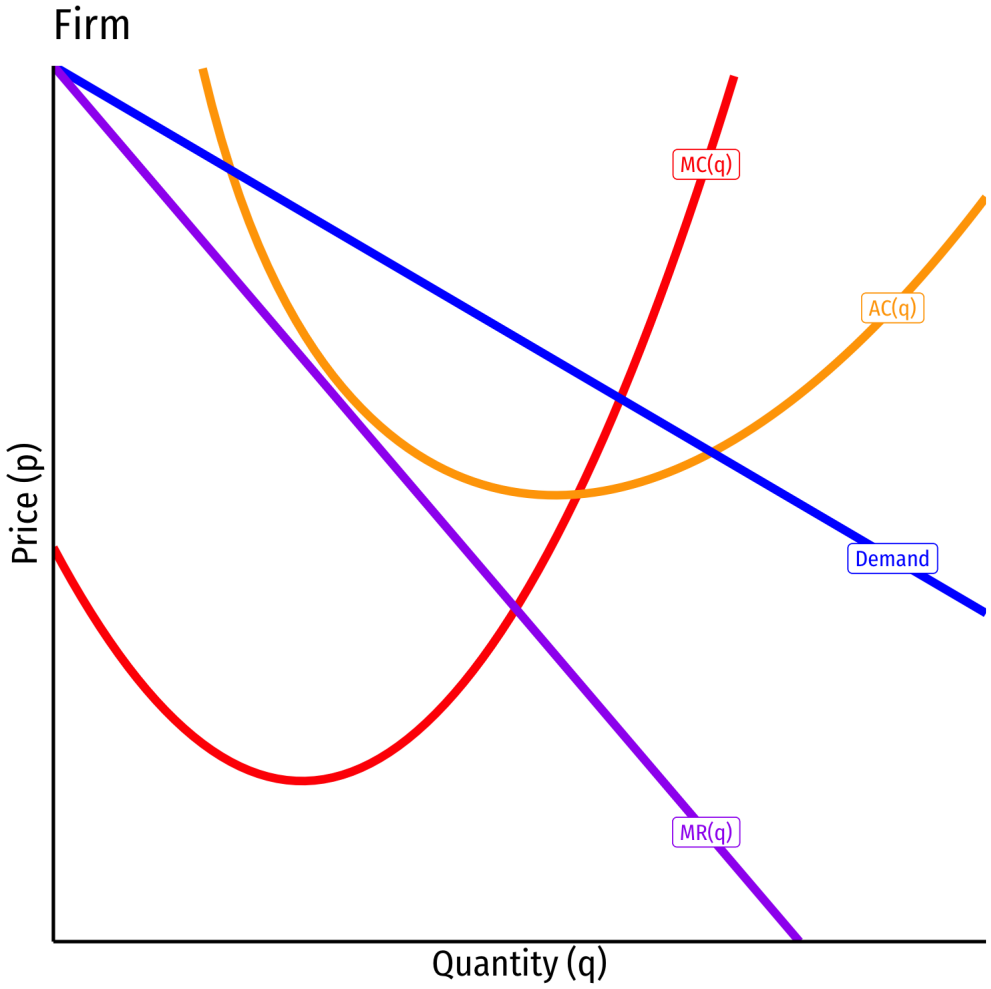
- **Product differentiation**: firms' products are **imperfect substitutes**
- Consumers recognize **non-price differences** between sellers' goods
  - Brand name & reputation
  - Customer service
  - Product features, shape, color, etc.
  - Marketing
  - Location, convenience

Monopolistic Competition: Residual Demand

- Each firm faces own downward-sloping **"residual" demand** for each firm's products
    - Firm faces market demand (for broad product) *leftover* from all other firms' sales
- **Example**: demand for *Lenovo* laptops ≈ demand for *laptops* minus laptops supplied by Acer, Asus, Apple, Dell, etc.



Monopolistic Competition Model: Short Run



- **Short Run**: model firm as a price-searching monopolist:

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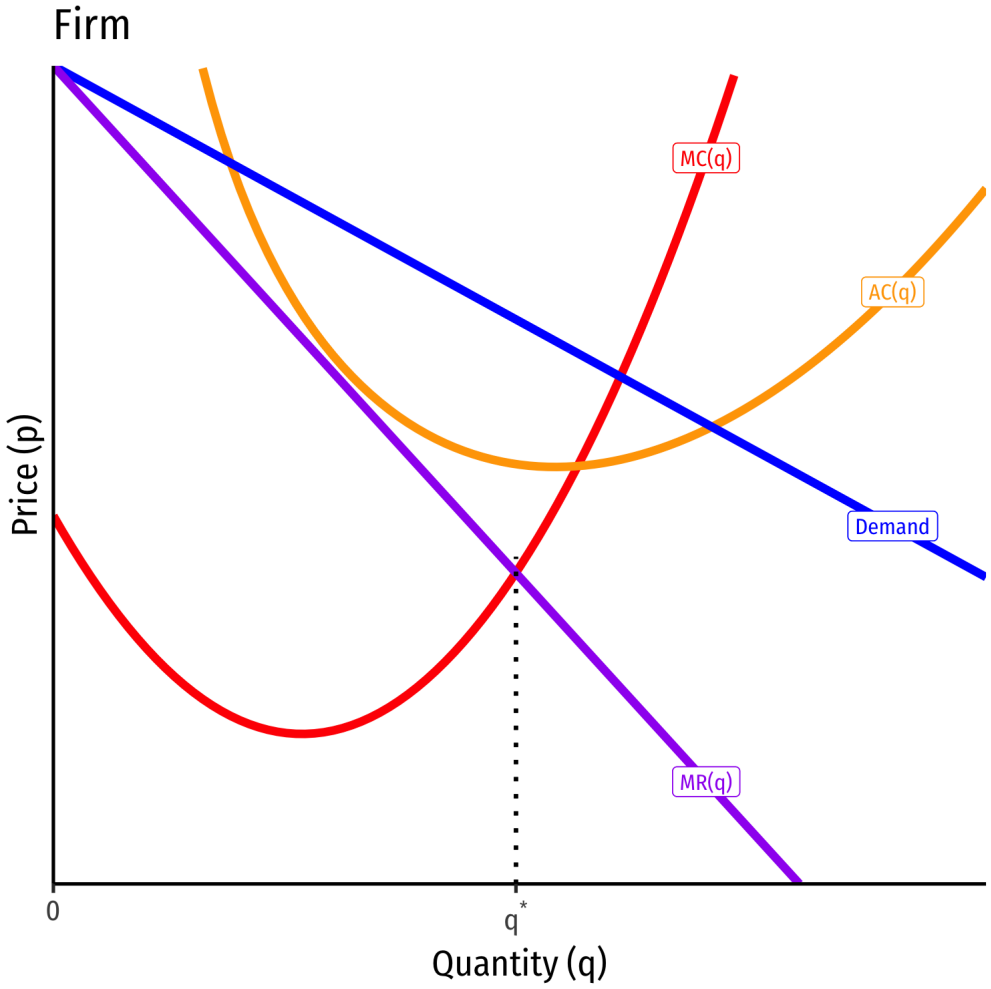

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- q^*: where $MR(q) = MC(q)$

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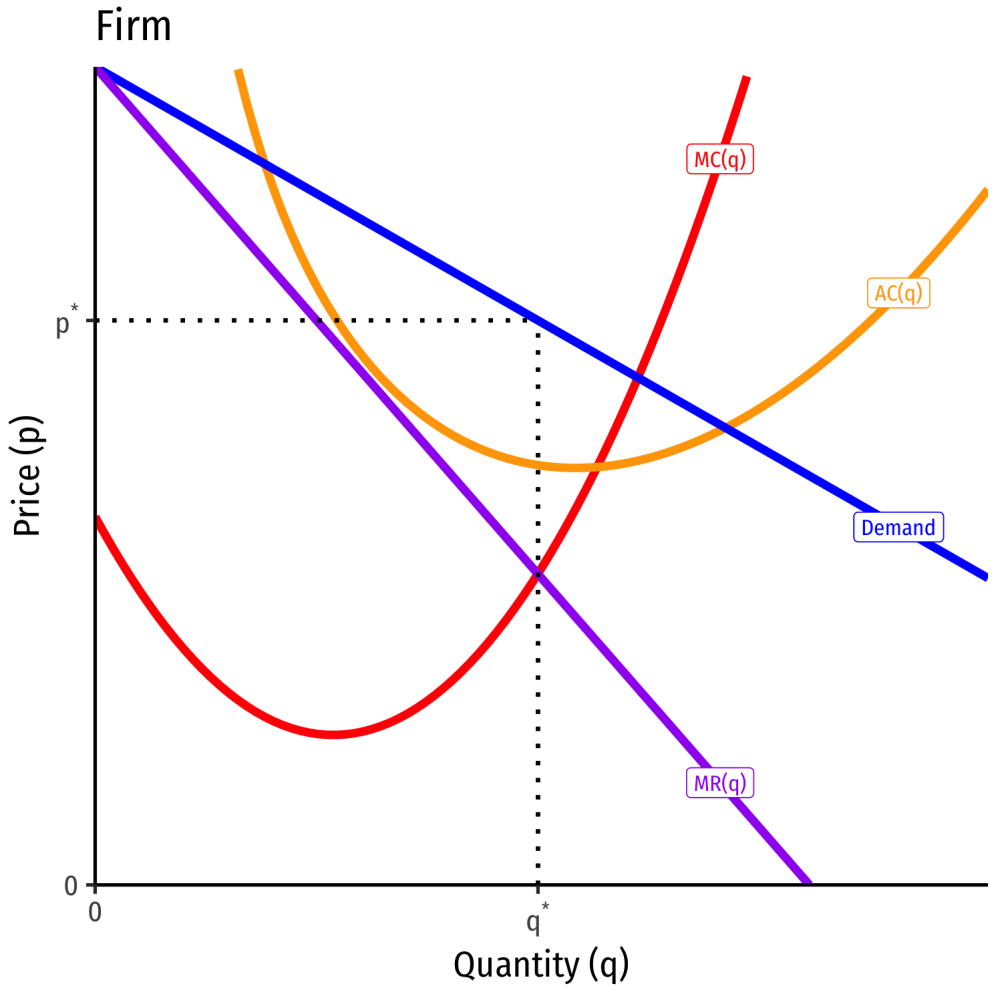

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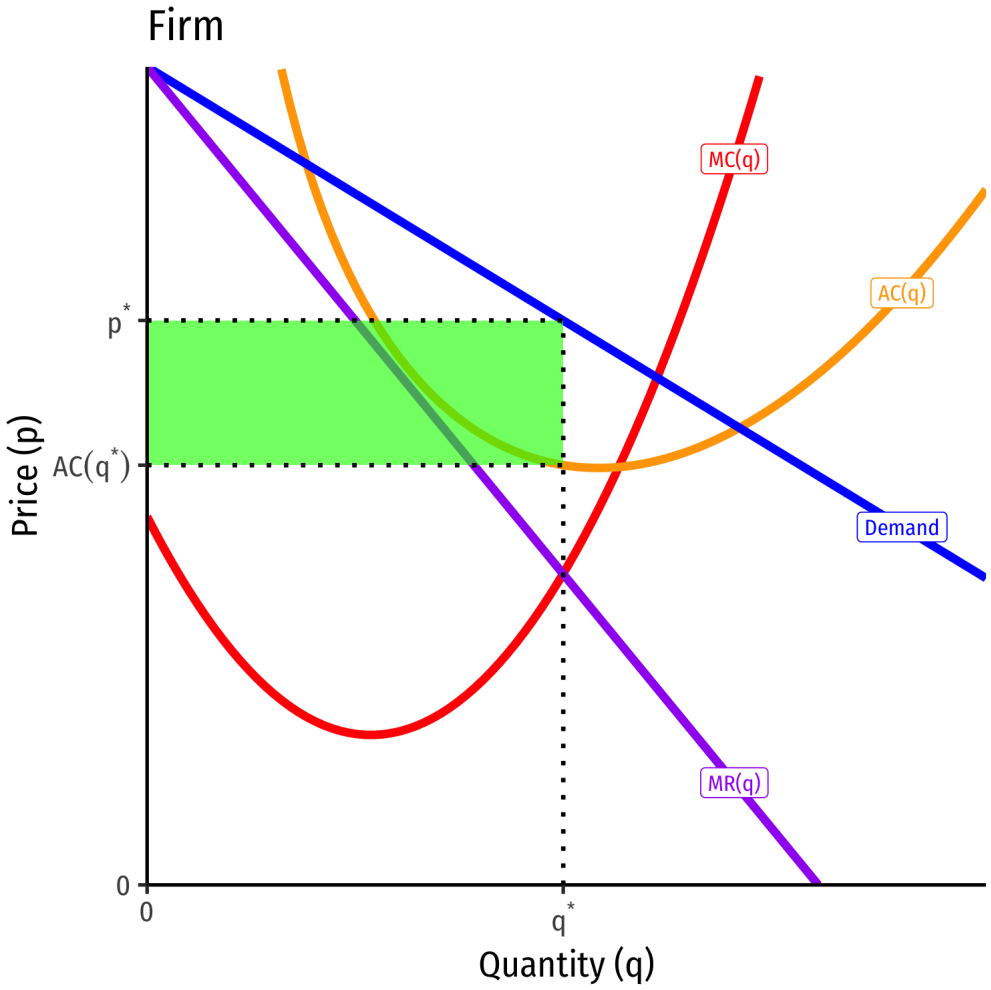

- **Short Run**: model firm as a price-searching monopolist:
- q^*: where $MR(q) = MC(q)$
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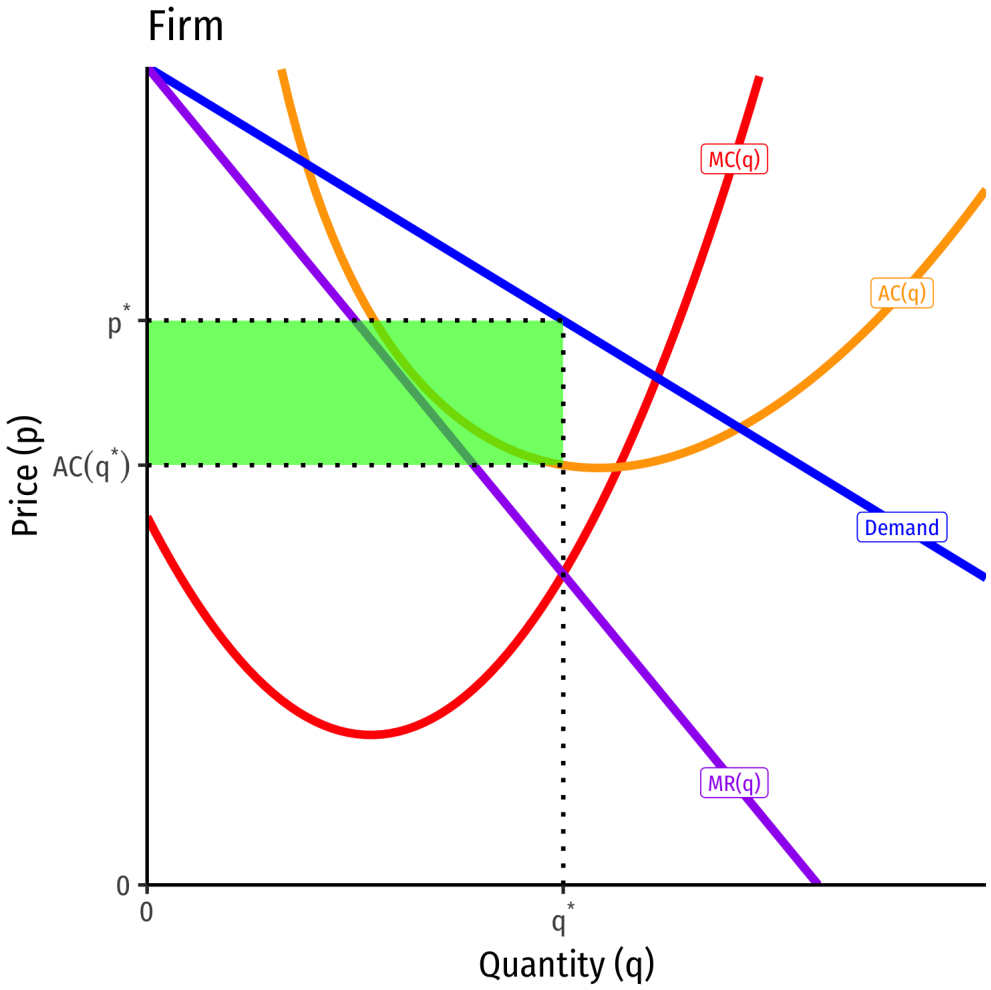
- Earns $\pi = [p^* - AC(q^*)]q^*$

Monopolistic Competition Model: Long Run



- **Long Run**: market becomes competitive (**no barriers to entry!**)
- $\pi > 0$ attracts **entry** into industry

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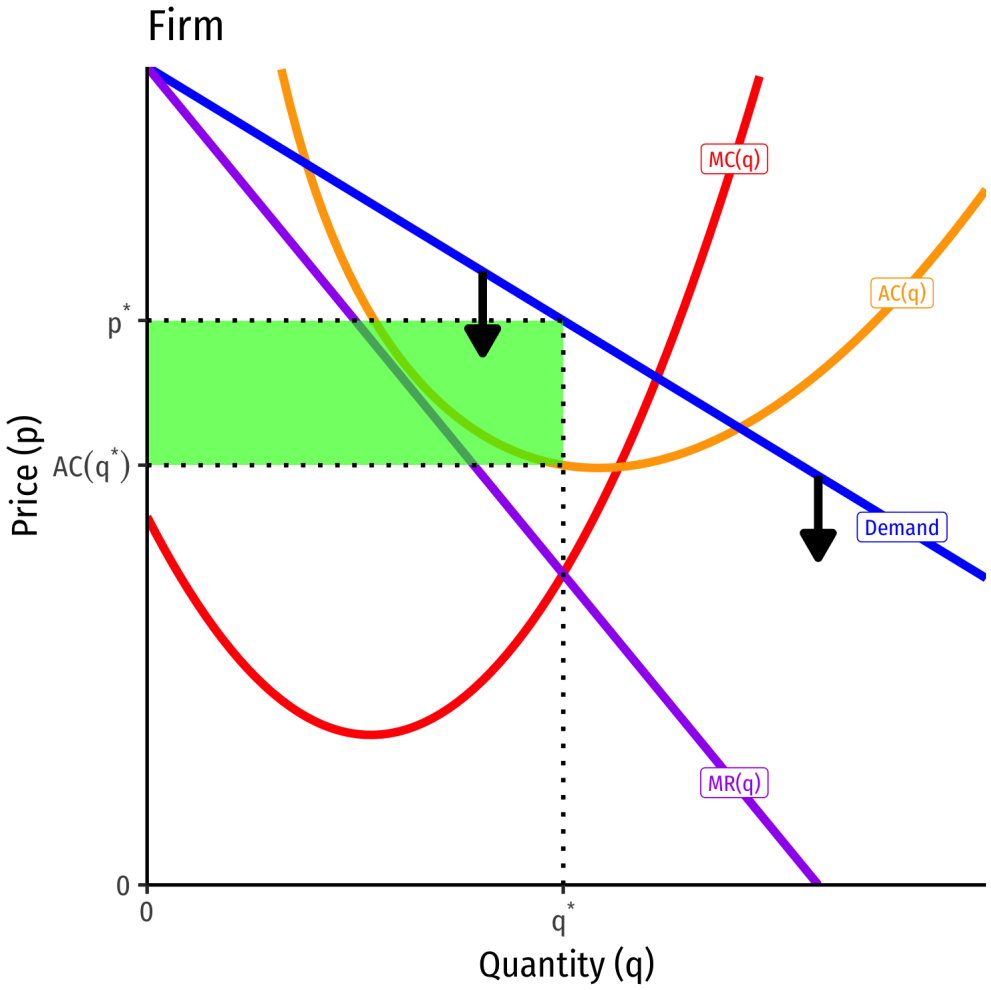

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- Residual demand for each firm's product:
  - **decreases** (more output by other firms)
  - become more **elastic** (more substitutes from new competitors)
  - until...

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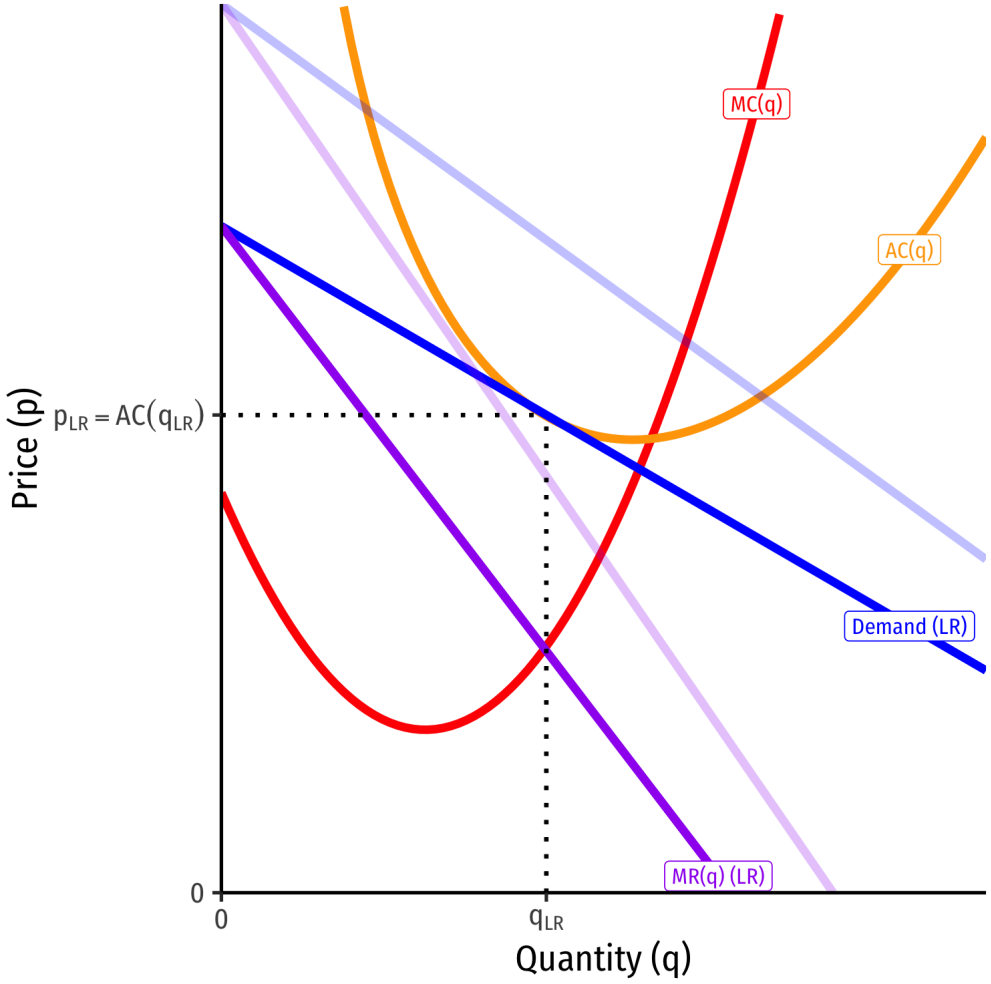

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- $\pi > 0$ attracts **entry** into industry
- Residual demand for each firm's product:
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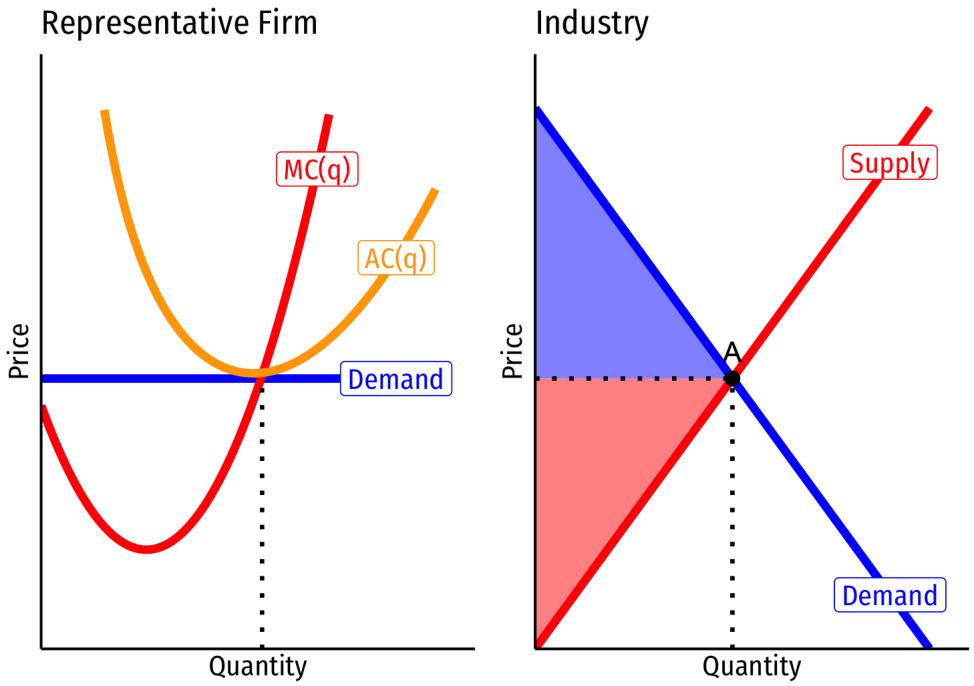
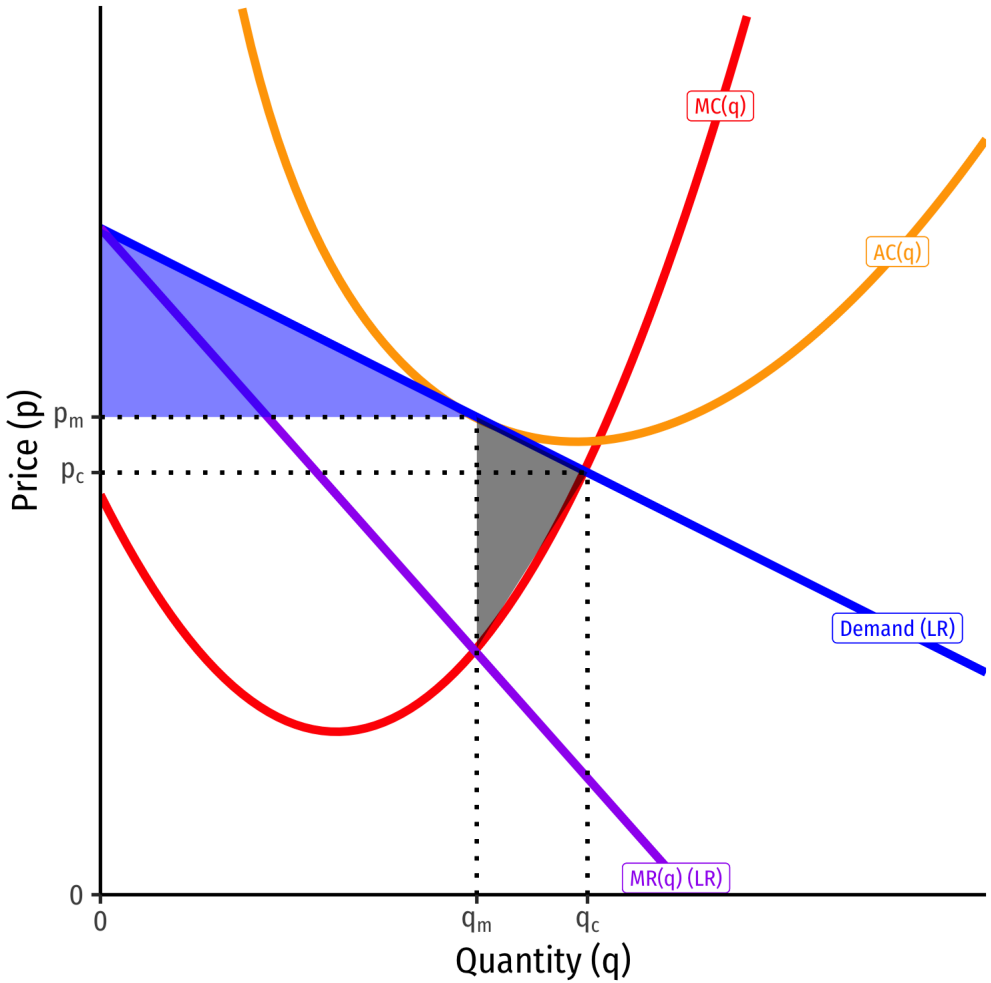
- **Long run equilibrium**: firms earn $\pi = 0$ where $p = AC(q)$

Monopolistic Competition vs. Perfect Competition



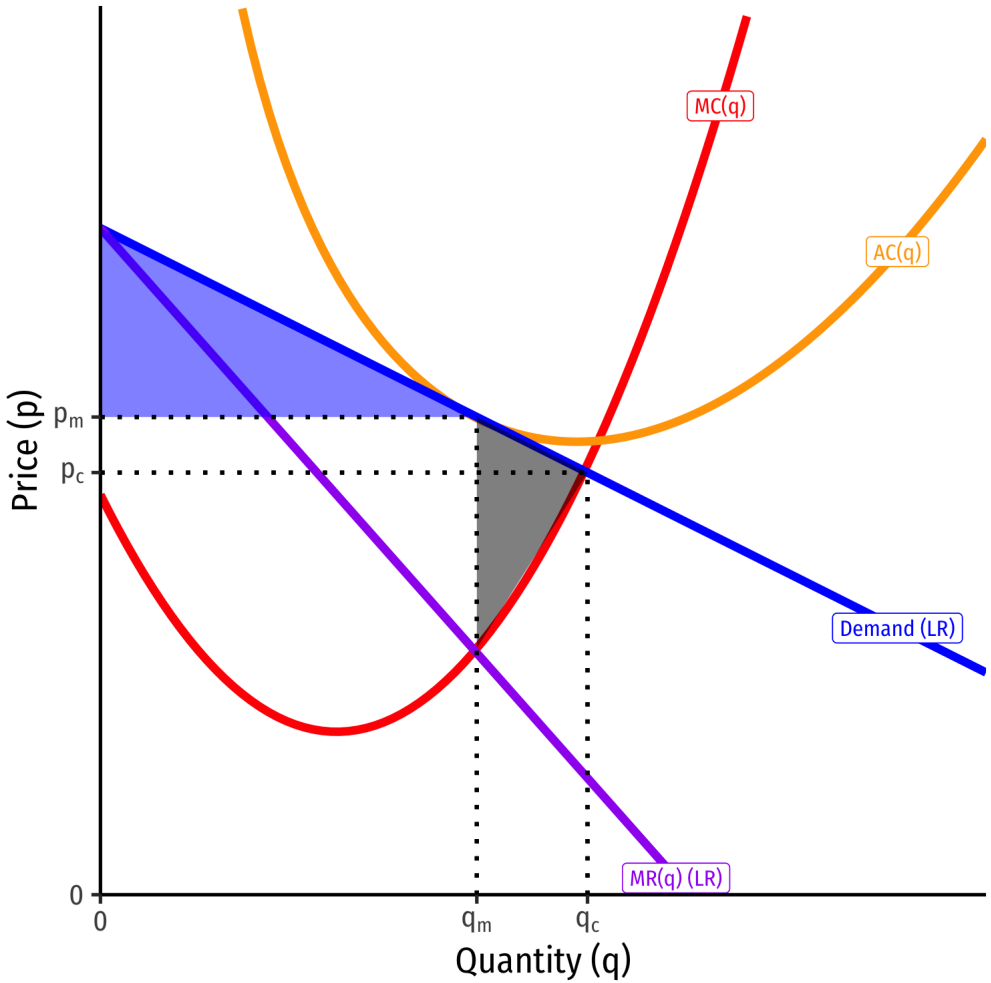
- **Perfect competition** (q_c, p_c)
- q_c where $P = MC(q)$
- $p_c = AC(q)_{min}$, **productively efficient**
  - Production at lowest average cost
- $p_c = MC(q)$, **allocatively efficient**
  - Production until MB = MC
  - Maximum consumer surplus (and producer surplus)
  - No **DWL**

Monopolistic Competition vs. Perfect Competition



- **Monopolistic competition** (q_m, p_m)
- $q_c > q_m$, where $MR(q) = MC(q)$
- $p_m = AC(q)$
  - but not AC_{min}, so some **productive inefficiency**
- $p_m > MC(q)$, **allocative inefficiency**
  - Less Consumer Surplus
  - Some **Deadweight loss**

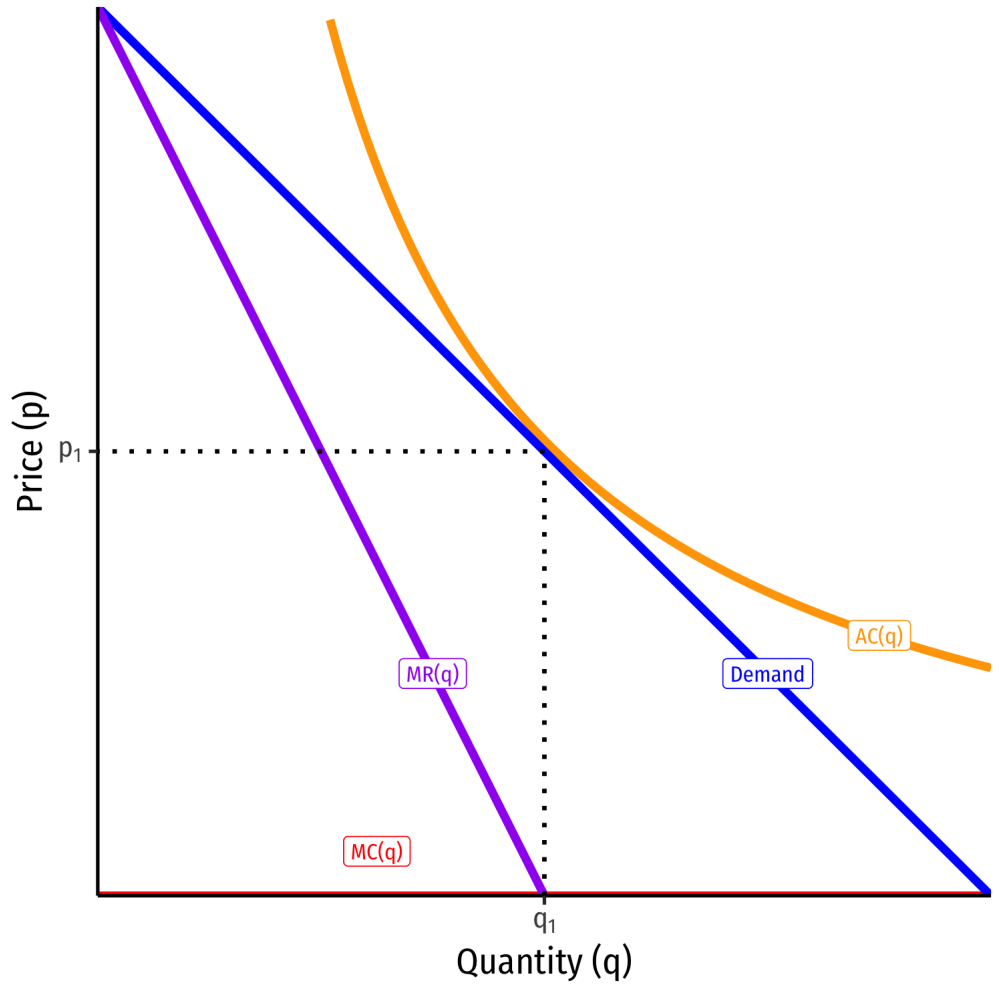
Monopolistic Competition vs. Perfect Competition



- Like a monopoly, produces less q at a higher p than competition, some **DWL**
- But like perfect competition, still **no π in the long run**!
- Outcome is *between* perfect competition & monopoly in terms of efficiency & social welfare

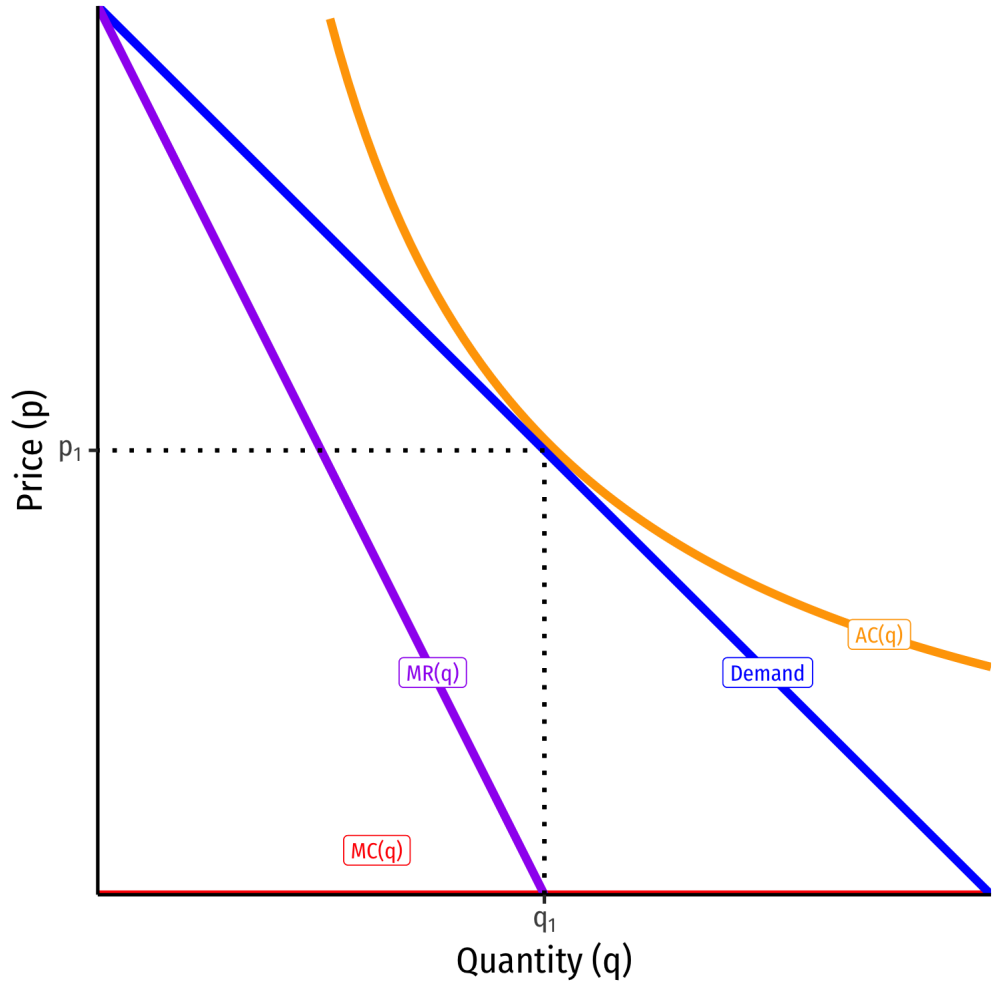
Monopolistic Competition in Autarky

- Keep it simply, assume $MC(q) = 0$
- In autarky, long-run equilibrium for firm is $p = AC, \pi = 0$ at q_1, p_1



Monopolistic Competition with Trade: Short-Run

- Firm opens up to international trade, has two effects on demand for firm:
  - greater demand for firm's products
  - more competition from other countries' firms
  - overall, demand becomes **more elastic**



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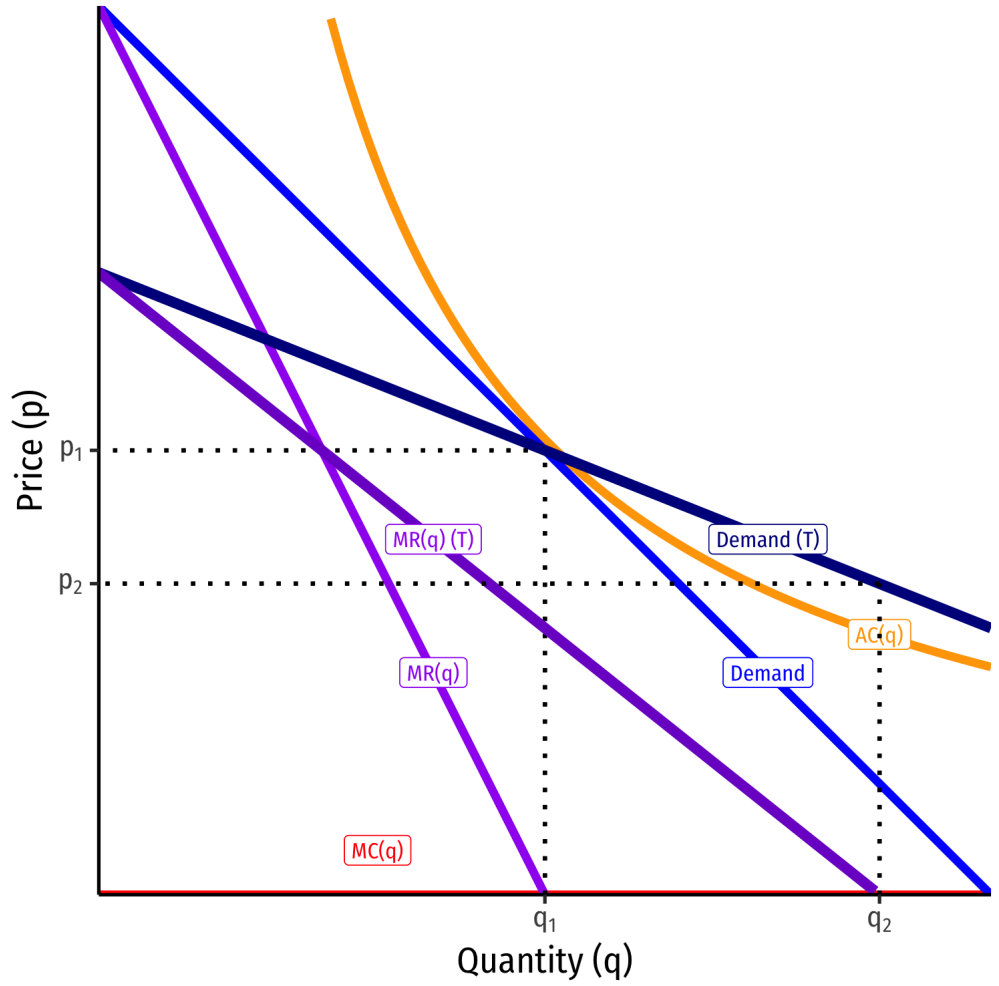

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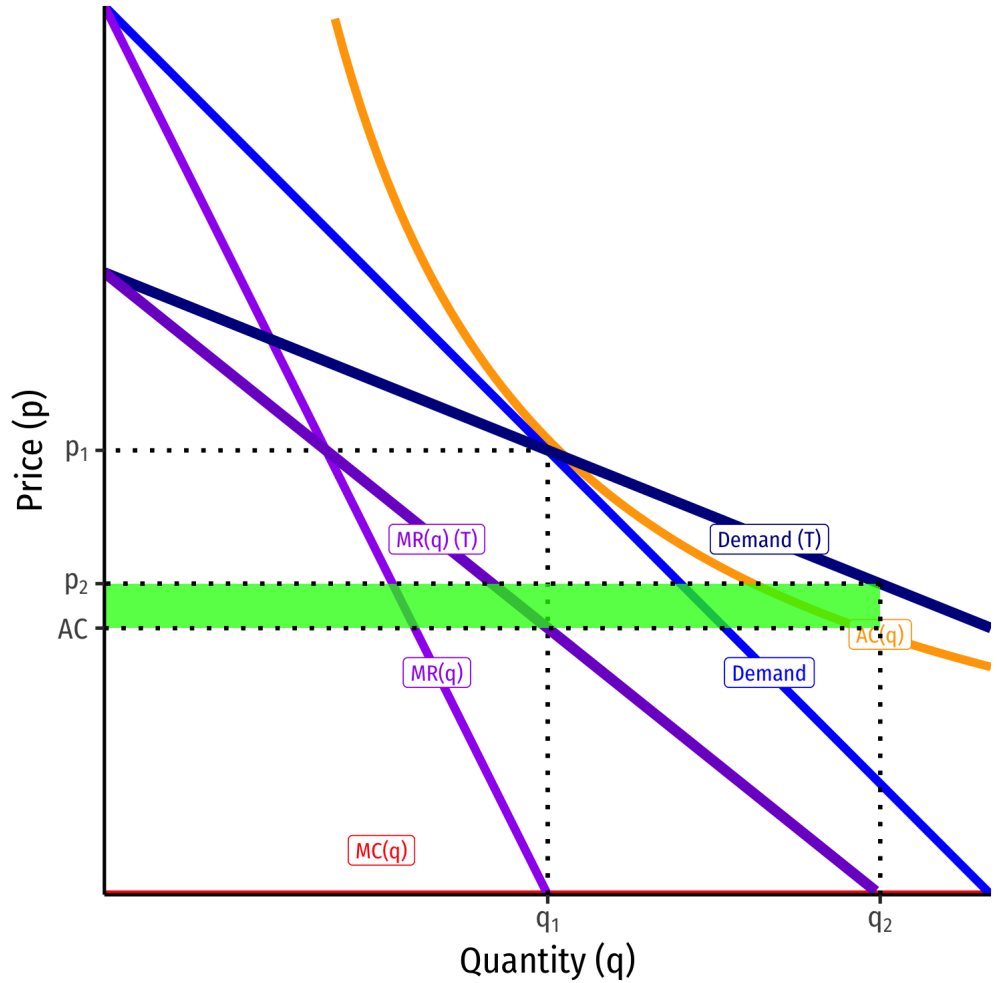

Monopolistic Competition with Trade: Long-Run

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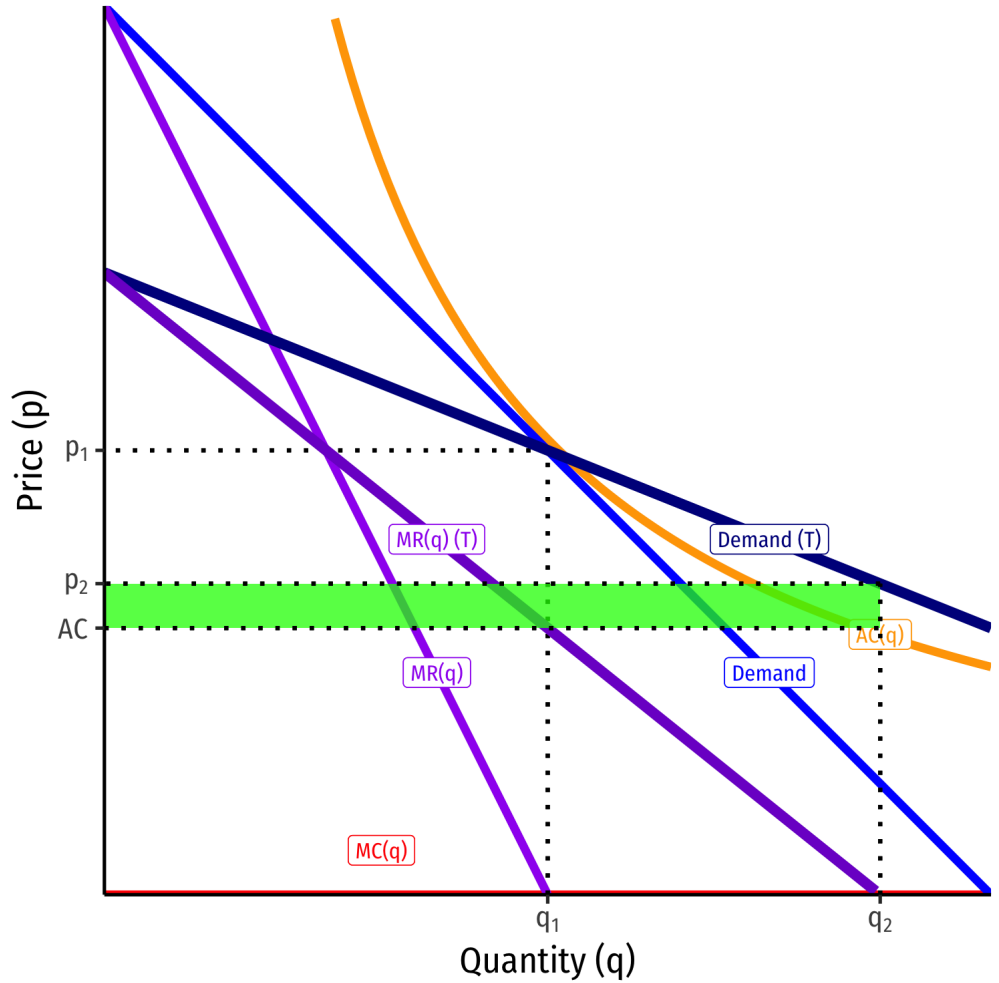
- Thus, not all firms can expand and survive in global market
- As all firms try to expand and compete, this **lowers demand** for each individual firm



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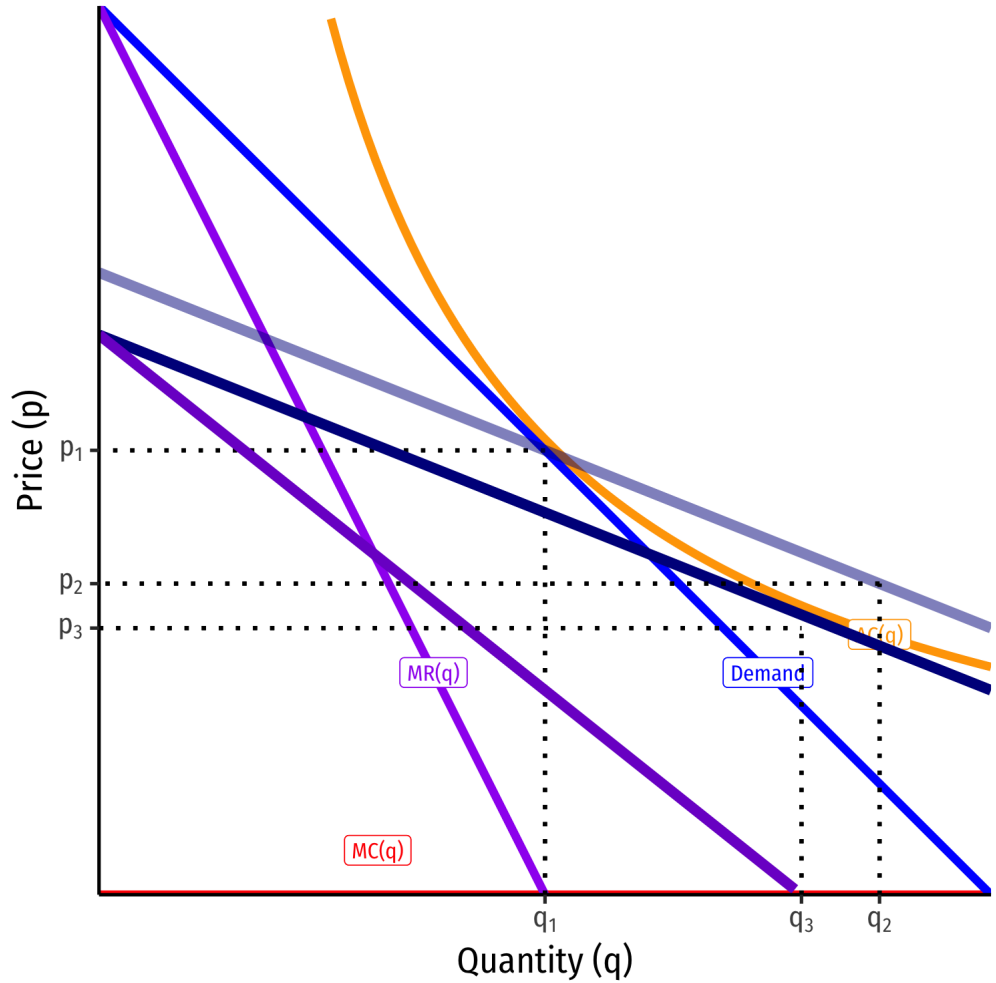

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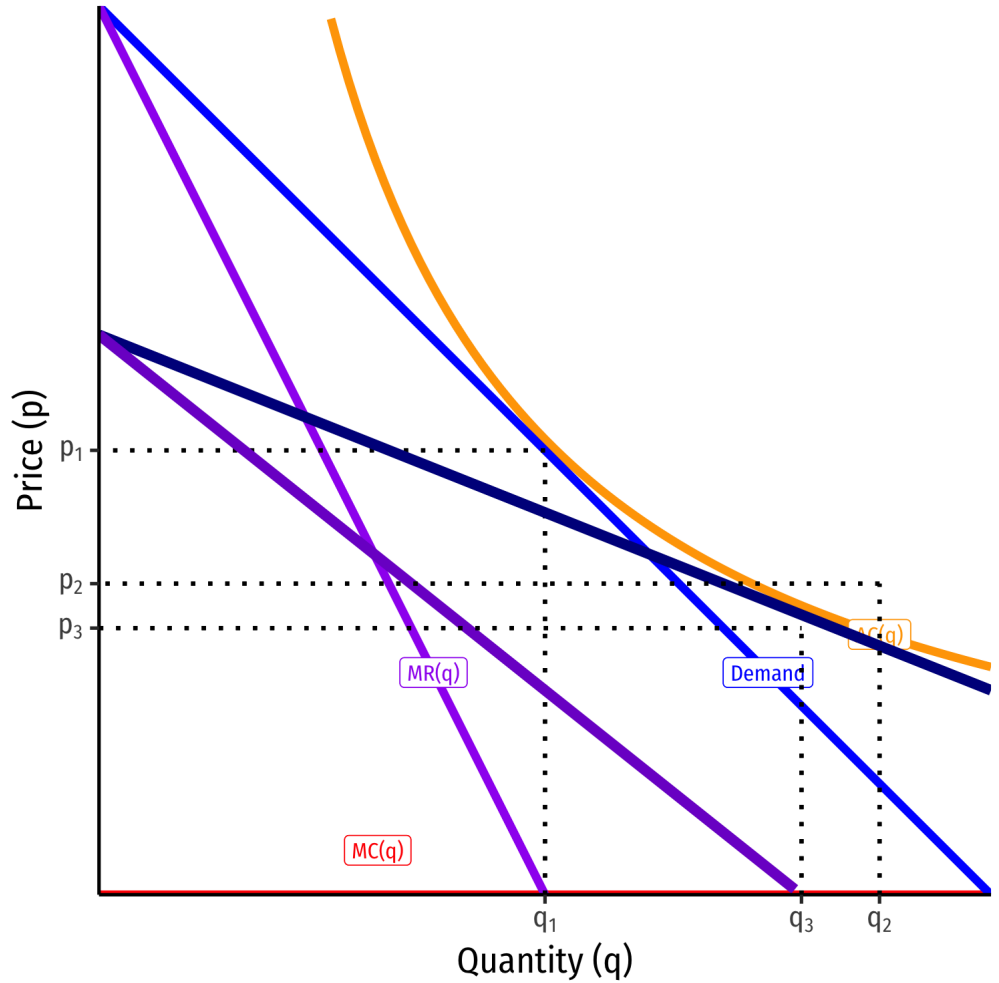
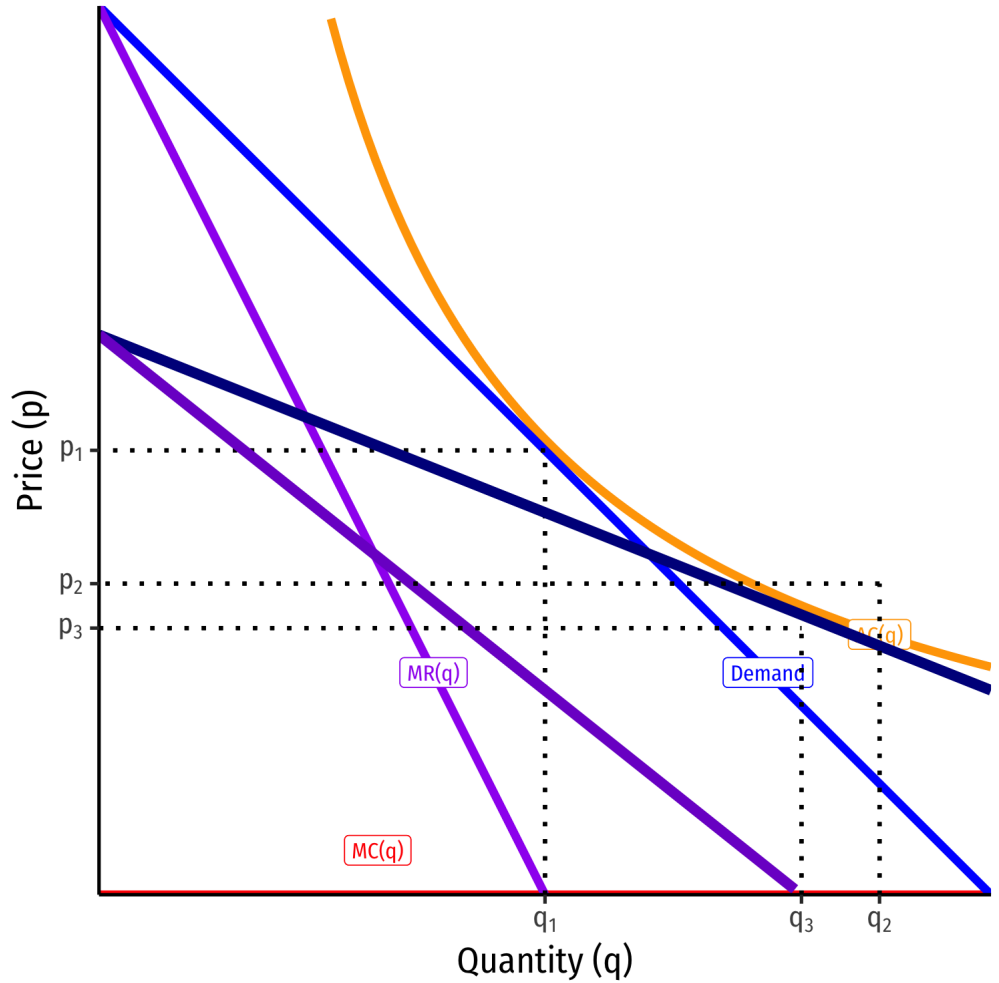


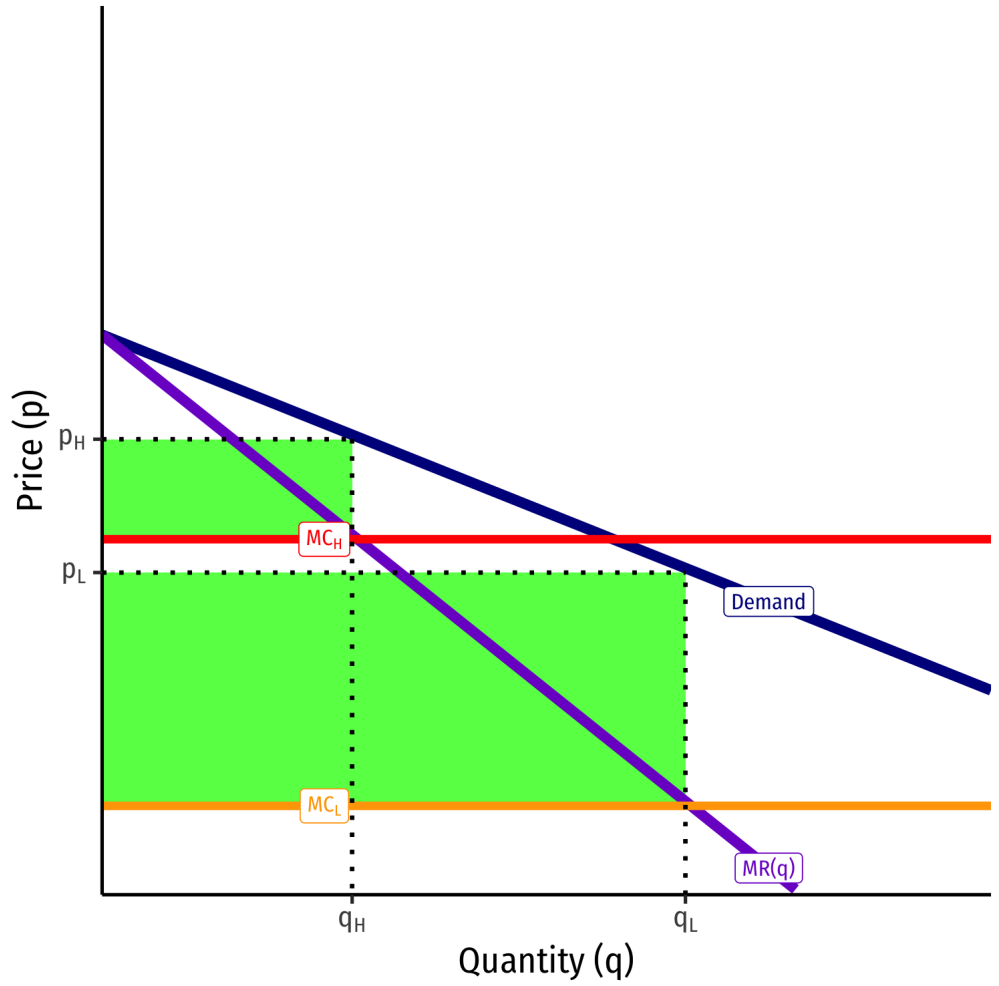
Monopolistic Competition with Trade: Long-Run

- In autarky (before trade), suppose there were $2n$ firms (n in each country)
- When trade opens, each firm tries to gain larger share (but not all can)
- Some firms exit; firms that remain will produce more than before $(q_1 \rightarrow q_3)$
- With trade, and after the shakeout, there are $n^\star$ firms, $n < n^\star < 2n$
- Price & AC fall, and product variety in each country rises from $n \rightarrow n^*$



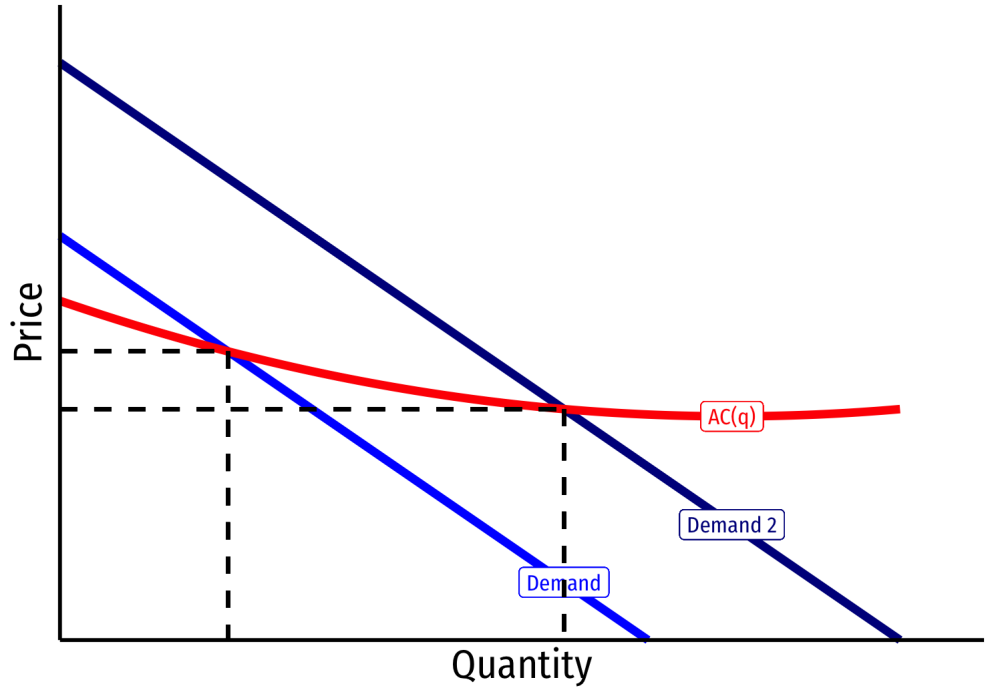
Monopolistic Competition with Trade: Long-Run

- Which firms will survive and which will exit the market?
- Compare two firms, one with high costs, MC_H and one with low costs MC_L
  - Low cost firm earns more **profits** than high cost firm
- Opening up trade increases competition, lowering profits
- Low cost firms better equipped to survive falling profits
  - High cost firms leave the market; allowing low cost firms to expand output!

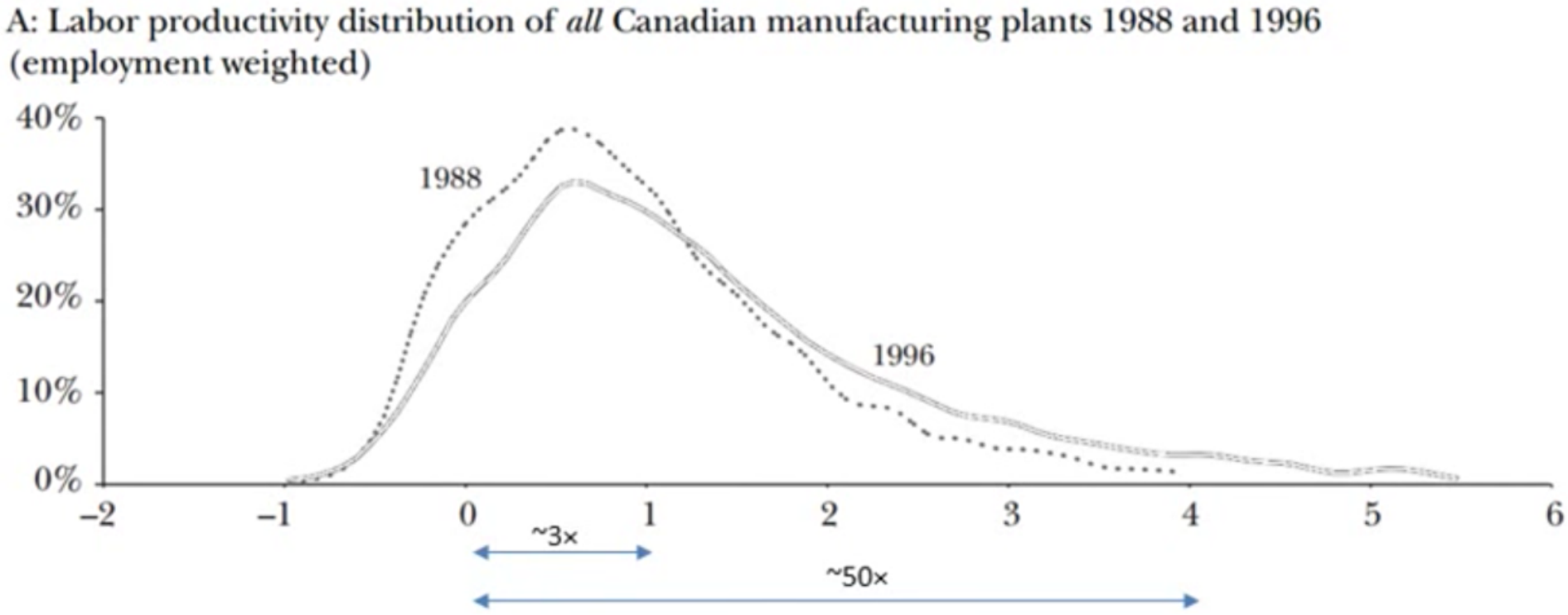


Monopolistic Competition with Trade: Productivity

- With fewer firms, the remaining (low cost) firms can further increase their output
- Exploit economies of scale, moving down their average cost curves
- Implies lower costs, lower prices, and greater productivity for the incumbent firms remaining



Trade Agreements and Firm Productivity



After Canadian free trade agreement with U.S., Canadian productivity increased rapidly by 8.4%, a huge increase over a short time period. Note this is a logarithmic scale!

What is at Stake in Competing Trade Theories?

- H-O theory vs. increasing returns
- Ex ante vs. ex post comparative advantage
- Emphasize different causes of trade
- Imply very different policies
    - free trade vs. industrial policy?
- Cultural/aesthetic views of the world? Difference vs. sameness?