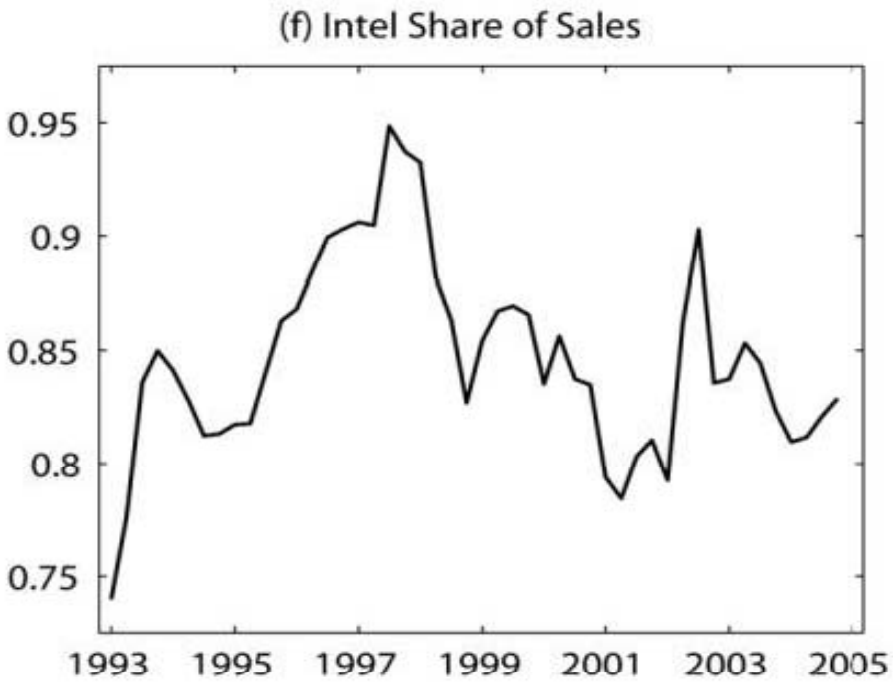
Dominant Firm with a Competitive Fringe

Reference: Carlton and Perloff, chapter 4

Dominant Firm with a Competitive Fringe

- In this section we'll consider a market with a large, price-setting firm (dominant firm) and several small, price-taking firms (fringe firms)
  - Intel vs. other smaller producers of microprocessors



Dominant Firm with a Competitive Fringe

- Why a firm may be dominant:
  - The dominant firm (often the early entrant) may have lower costs than fringe firms
    - Technological advantage (patent?)
    - Has learned to produce the product efficiently from experience
    - May benefit from economies of scale as it has grown
  - The firm may have a superior product (due to reputation or advertising)
  - A group of firms may collude and act as a dominant firm
- We'll consider cost differentials
- And two models: with and without entry

No-entry Model

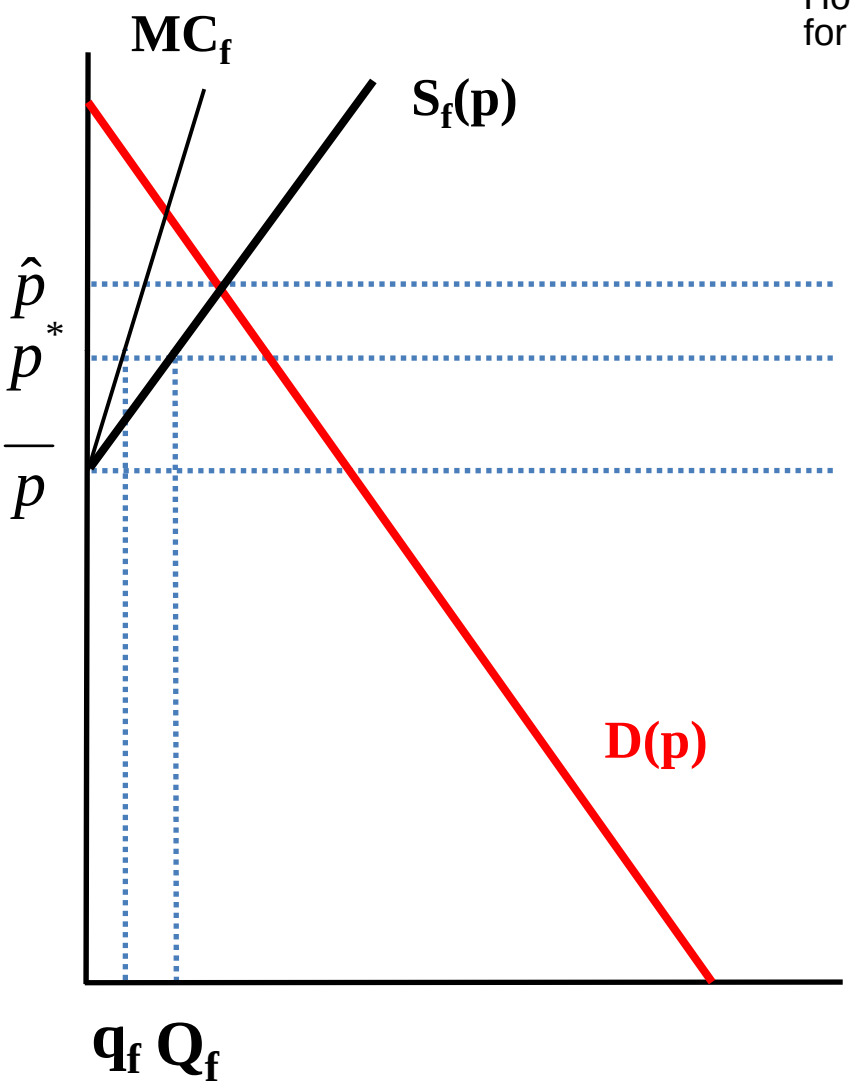
- A **dominant firm** and a **competitive fringe** with no additional entry
  - Fixed number of fringe firms
- Assumptions:
  - The product is **homogeneous**
  - There is one large dominant firm with lower production costs than the fringe firms
  - All firms except the dominant firm are price takers
  - The dominant firm knows how much the competitive fringe will produce at different prices

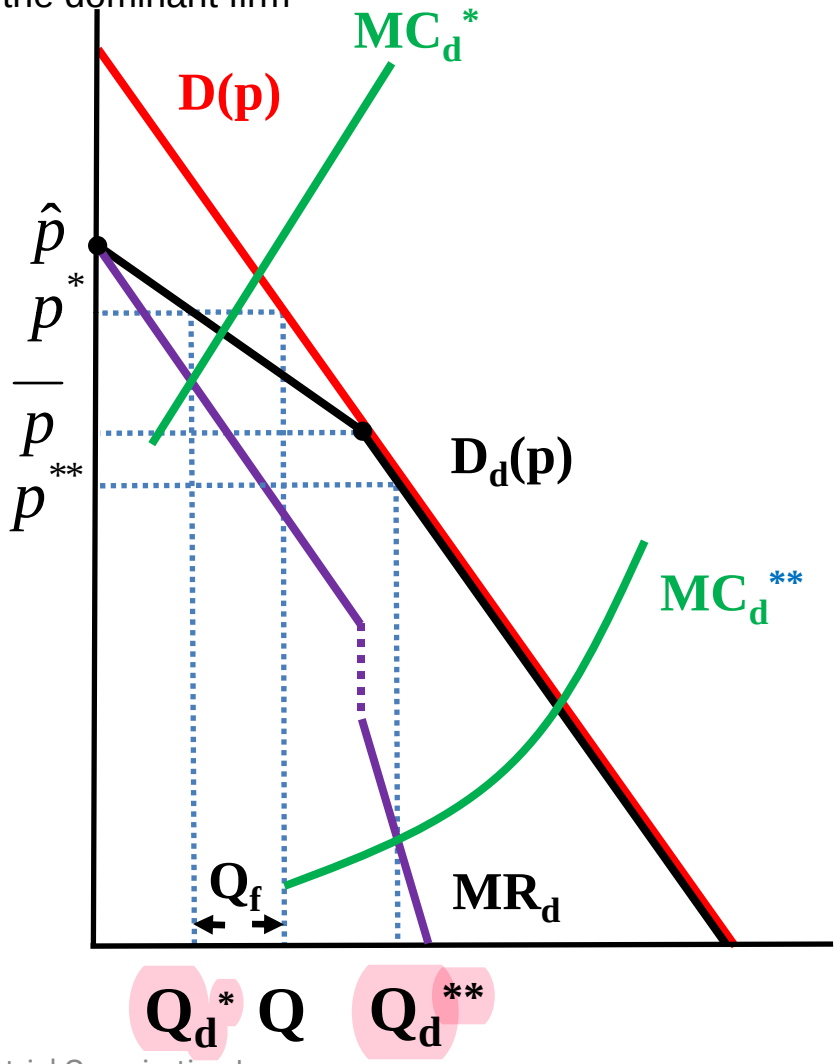
No-entry Model

Supply curve of fringe: $S_f(p) = nq_f(p)$

Residual demand: $D_d(p) = D(p) - S_f(p)$

How much demand is left over at that price for the dominant firm





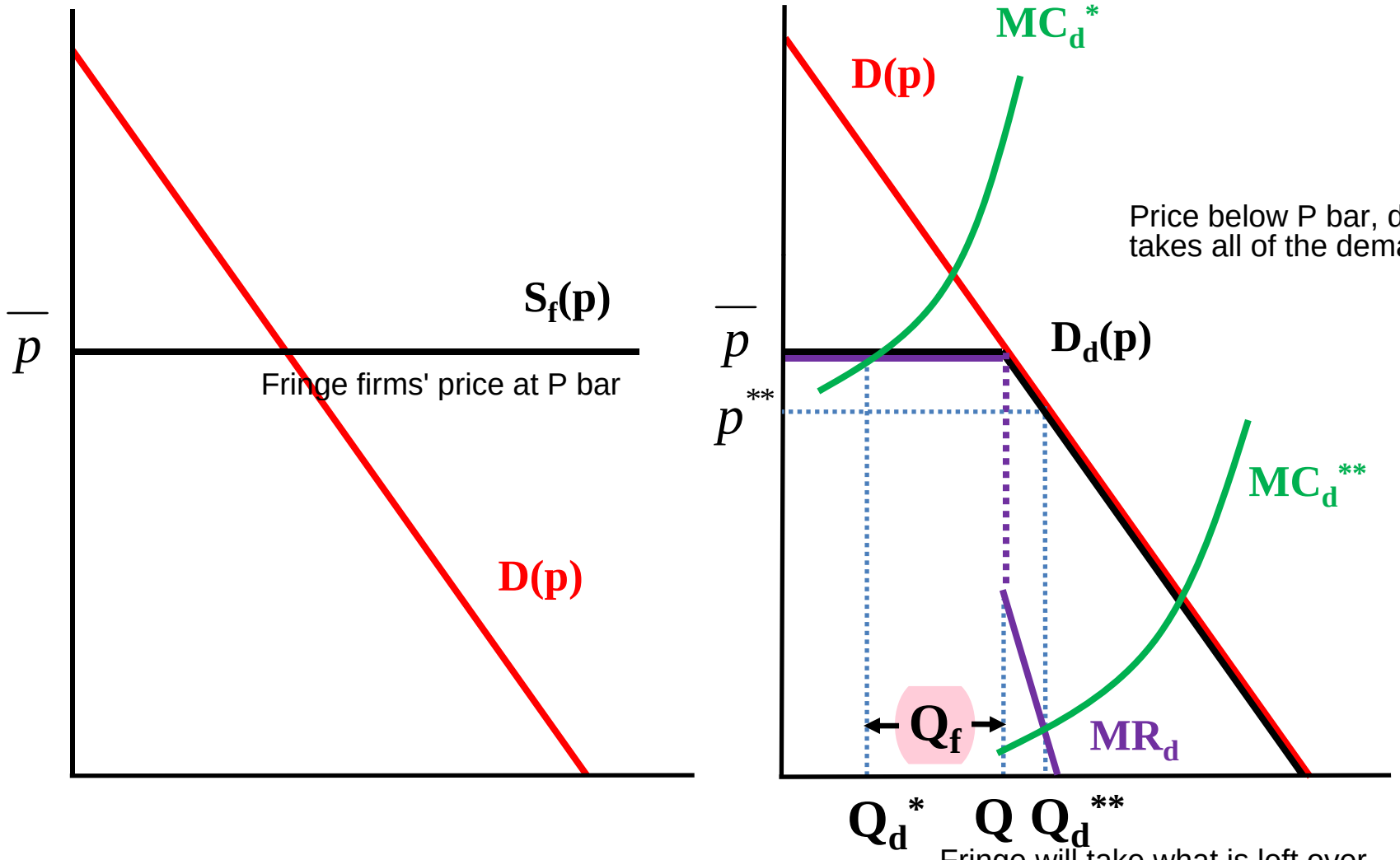
dominant price can be below the shut down price, fringe cannot produce

- If the cost advantage of the dominant firm is small, the dominant firm's market power is constrained by the fringe and price and profits are lower than if the fringe did not exist
- If the cost advantage of the dominant firm is large enough, the dominant firm acts as monopolist and the fringe is not active

- Model with entry:
  - All assumptions are the same except that now an unlimited number of fringe firms can potentially enter the market

Model with Entry

quantity determined by dominant firm



Model with Entry

- Fringe firms cannot make profits
- There is no difference in the outcome when the dominant firm has a large cost advantage
  - The dominant firm acts as if it is a monopoly
  - No entry by the fringe as price is below average cost
- In the small cost advantage case, the price is lower than when entry was limited
  - For any price above the minimum AC of a fringe firm, fringe firms enter and drive down the price
  - ➢ The fringe further limits the dominant firm's market power
  - ➢ The dominant firm still earns a positive profit (due to its cost advantage)

Empirical Example: US Steel 1901 - 1935

- Today, US Steel is one of America's largest steel companies with sales of over $6 billion but this accounts for less than 15% of steel sales in US
- In 1901 though US Steel was a classic dominant firm
- Firms entered the market over time ➔ its share declined

Year	Market Share	Year	Market Share
1901	66%	1920	46%
1905	60%	1925	42%
1910	54%	1930	41%
1915	51%	1935	33%

Empirical Example: US Steel 1901 - 1935

- Why didn't US Steel try to limit expansion?
  - limit pricing: dominant firm keeps its price below the price that maximizes current profit to reduce the rate of expansion of the fringe
- US Steel likely didn't have a big cost advantage (couldn't lower price too much)
  - ➢ Firms slowly entered and eroded US Steel's market share over time

Empirical Example: ballpoint pens

- Reynolds International Pen Corporation introduced the first ballpoints pens in 1945
  - The pens cost 80 cents to produce and sold for $12.50
  - 10,000 pens were sold the first day.
- By early 1946, Reynolds was selling 30,000 pens a day and earning large profits
- High prices and profits encouraged a competitive fringe to enter
- By 1946, prices had fallen to 88 cents
- By 1948, prices had fallen to 39 cents
- By 1951, prices had fallen to 19 cents and Reynolds was long gone from the industry