Economics 2 Professor Christina Romer
Spring 2018 Professor David Romer

LECTURE 6
FIRMS AND PROFIT MAXIMIZATION
FEBRUARY 1, 2018

I. FIRMS AND THE DECISIONS THEY MAKE
   A. What is a firm?
   B. Three decisions a firm has to make
   C. Profit maximization as a key goal
   D. Economic profits vs. accounting profits
      1. The definition of economic profits
      2. Implicit costs

II. PERFECT COMPETITION
   A. The definition of perfect competition
   B. How relevant is perfect competition?
   C. The demand curve facing a competitive firm

III. SHORT-RUN PROFIT MAXIMIZATION
   A. The constraints that firms face
   B. Marginal revenue
   C. Marginal cost
   D. Optimization
   E. The irrelevance of fixed costs

IV. WHY SUPPLY CURVES SLOPE UP
   A. How a firm responds to an increase in the market price
   B. Individual and market supply curves
   C. Two interpretations of the market supply curve
      1. The sum of individual firms' supply curves ("horizontal" interpretation)
      2. The industry's marginal cost curve ("vertical" interpretation)

V. WHY SUPPLY CURVES SHIFT
   A. A change in technology
   B. A change in the cost of an input
   C. Entry or exit
   D. Other influences

Economics 2
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Announcements

- The Economics Department offers drop-in Econ 2 tutoring. Information about hours and locations is at https://www.econ.berkeley.edu/undergrad/home/tutoring.
- The Student Learning Center offers drop-in Econ 2 tutoring, M–Th 10AM–2PM in the SLC Atrium at the Cesar Chavez Student Center. Additional formats of service can be found at http://slc.berkeley.edu/econ.

Announcements

- A detailed answer sheet to Problem Set 1 will be posted this evening.

I. Firms and the Decisions They Make

Three Decisions a Firm Has to Make

- Short-run choice of output: How much to produce today with the existing set-up?
- Long-run choice of output: Expand or contract? Exit the industry? Enter the industry?
- Both short-run and long-run – the choice of input mix: What combination of inputs (labor, capital, raw materials, and so on) to use to produce the output?

Profit Maximization

- We assume that firms' objective is to maximize their economic profits.
- The definition of economic profits:

Profits = Total Revenue – Total Costs,

where:

- Total Revenue = Price • Quantity
- Total Cost = Opportunity Cost of All Inputs

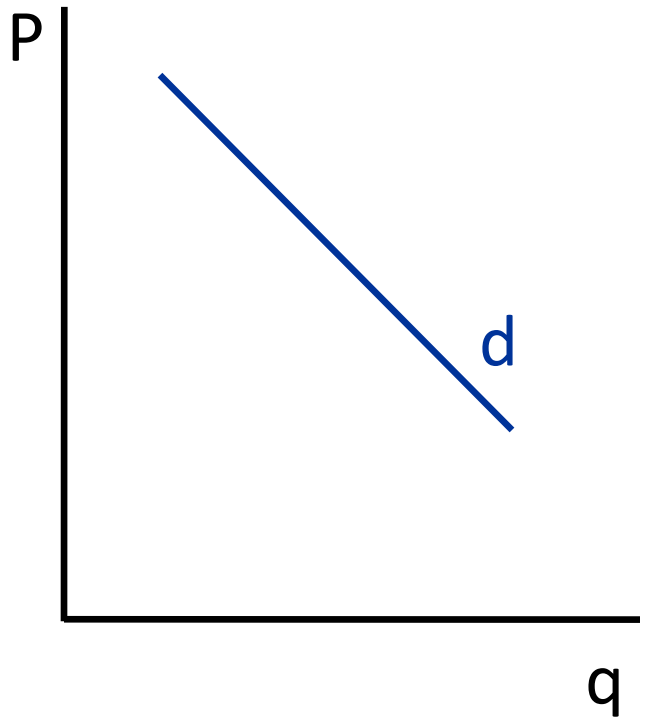
II. Perfect Competition

Perfect Competition

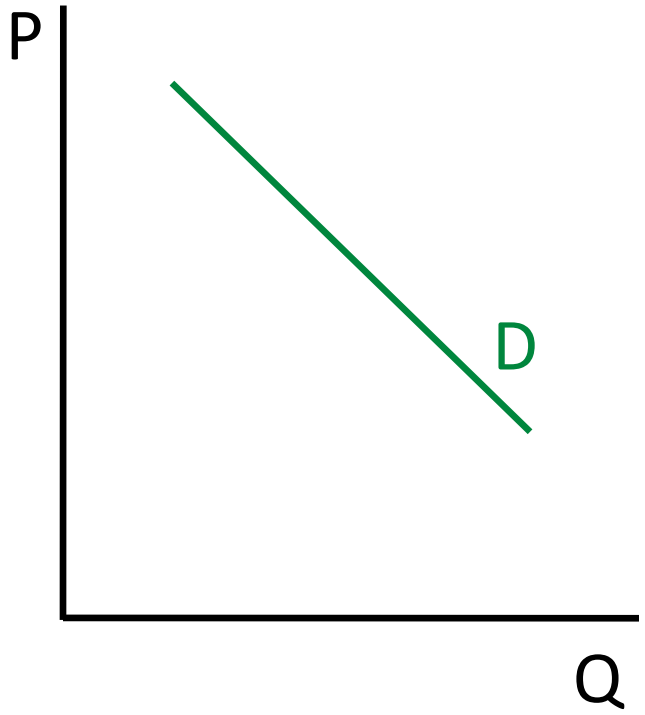
- Each firm can sell as much or as little as it wants at the prevailing market price.
- Three reasons for starting our study of firm behavior with the case of perfect competition:
  - It's a reasonable description of important parts of the economy.
  - It's relatively simple.
  - It's an important reference point.

Individual-Household and Market Demand Curves

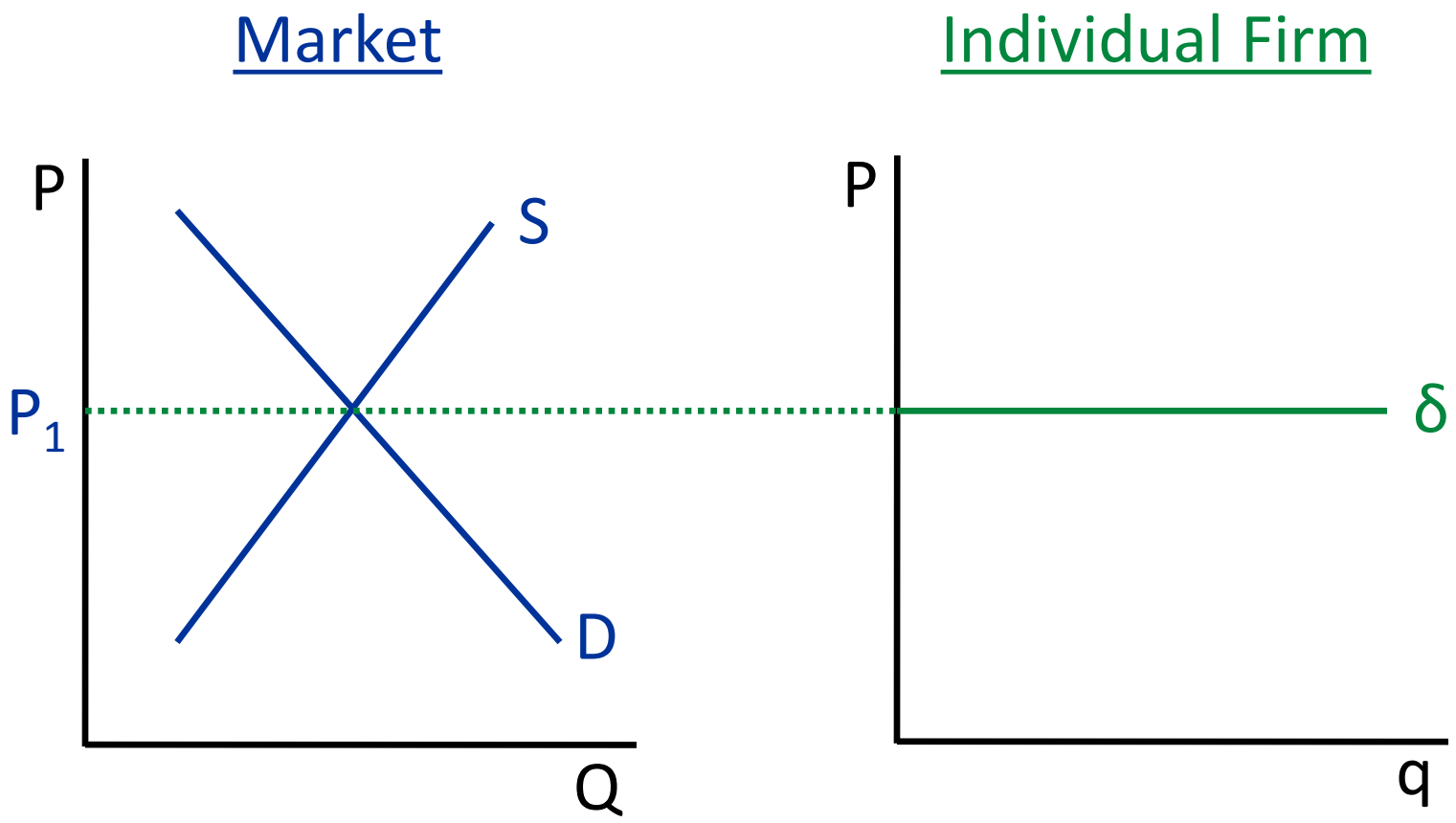
Individual Household



Market



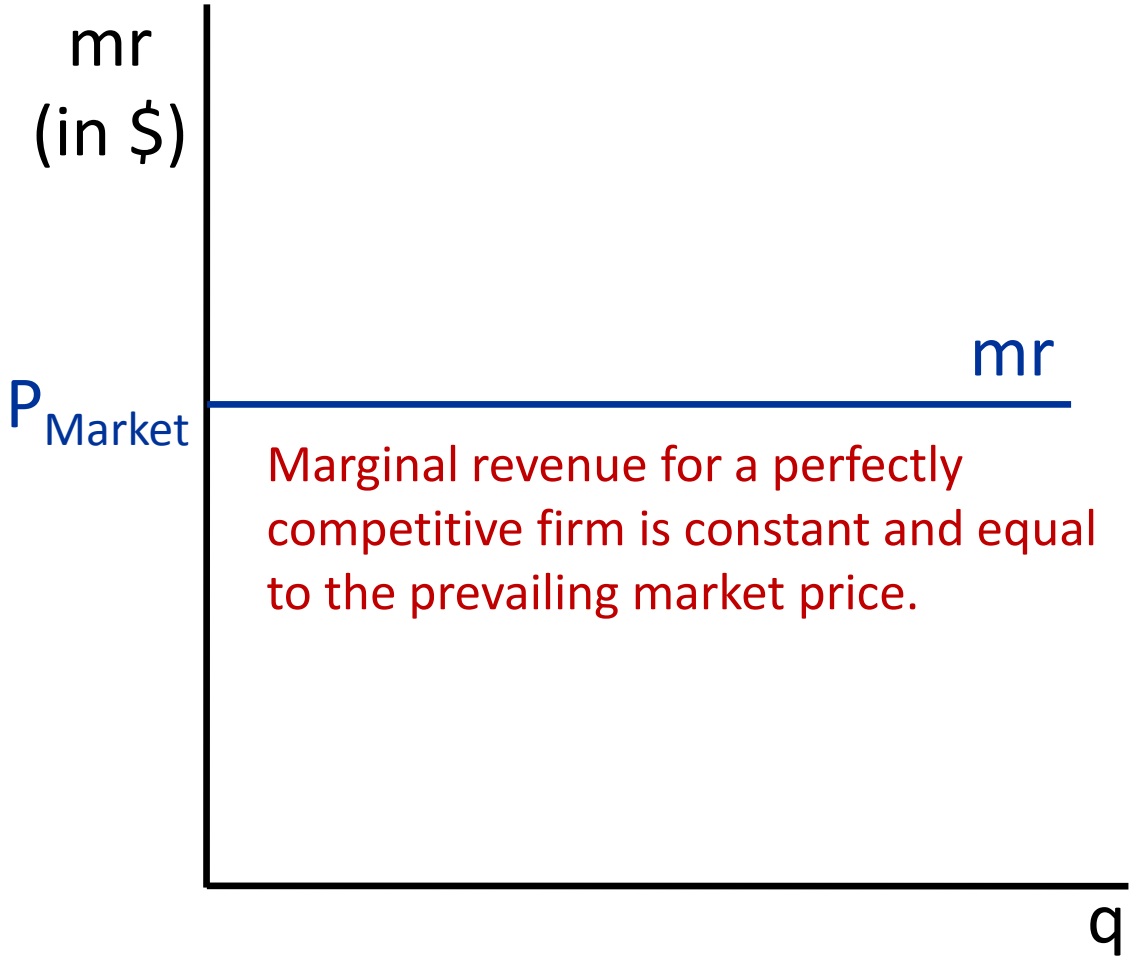
Market and Individual-Firm Demand Curves



The demand curve facing a perfectly competitive firm is perfectly elastic at the prevailing market price.

III. Short-Run Profit Maximization

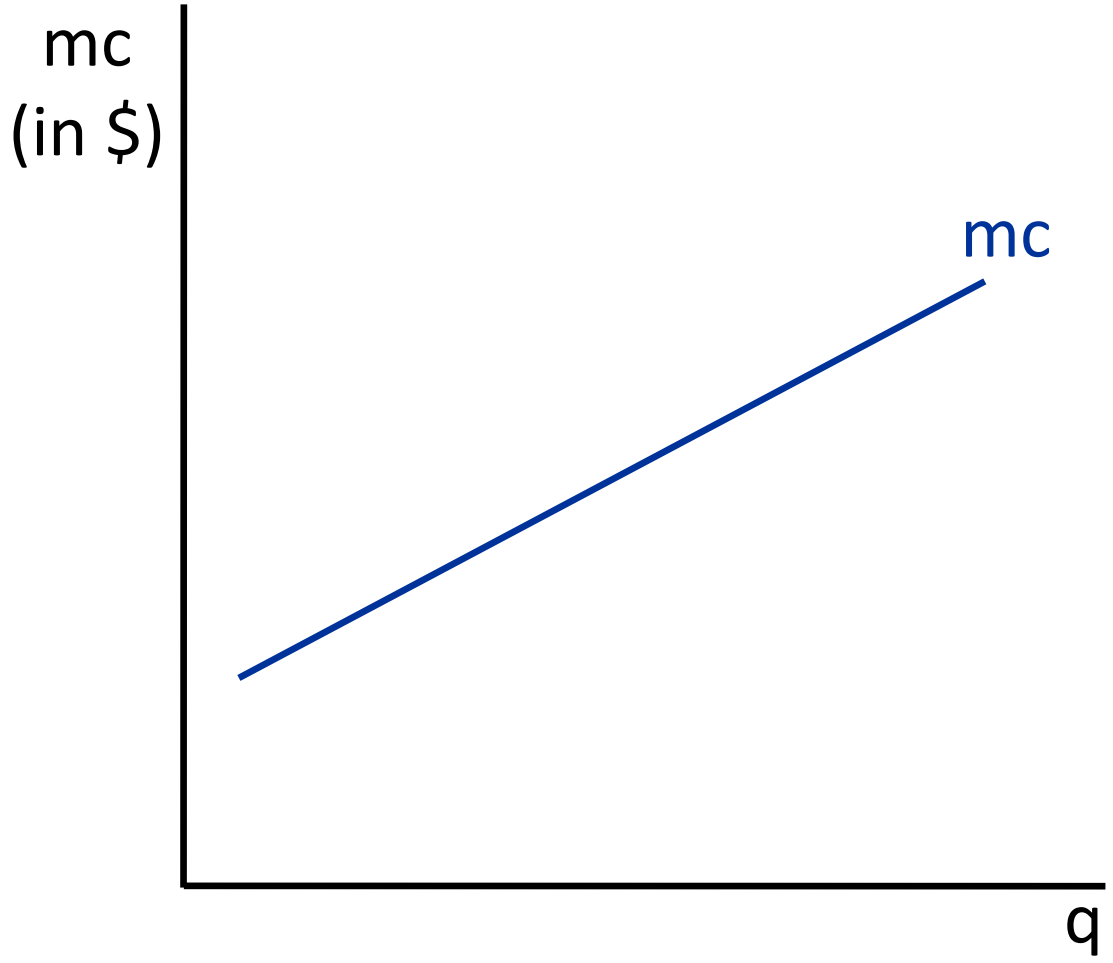
Marginal Revenue: The Additional Revenue Associated with Producing One More Unit



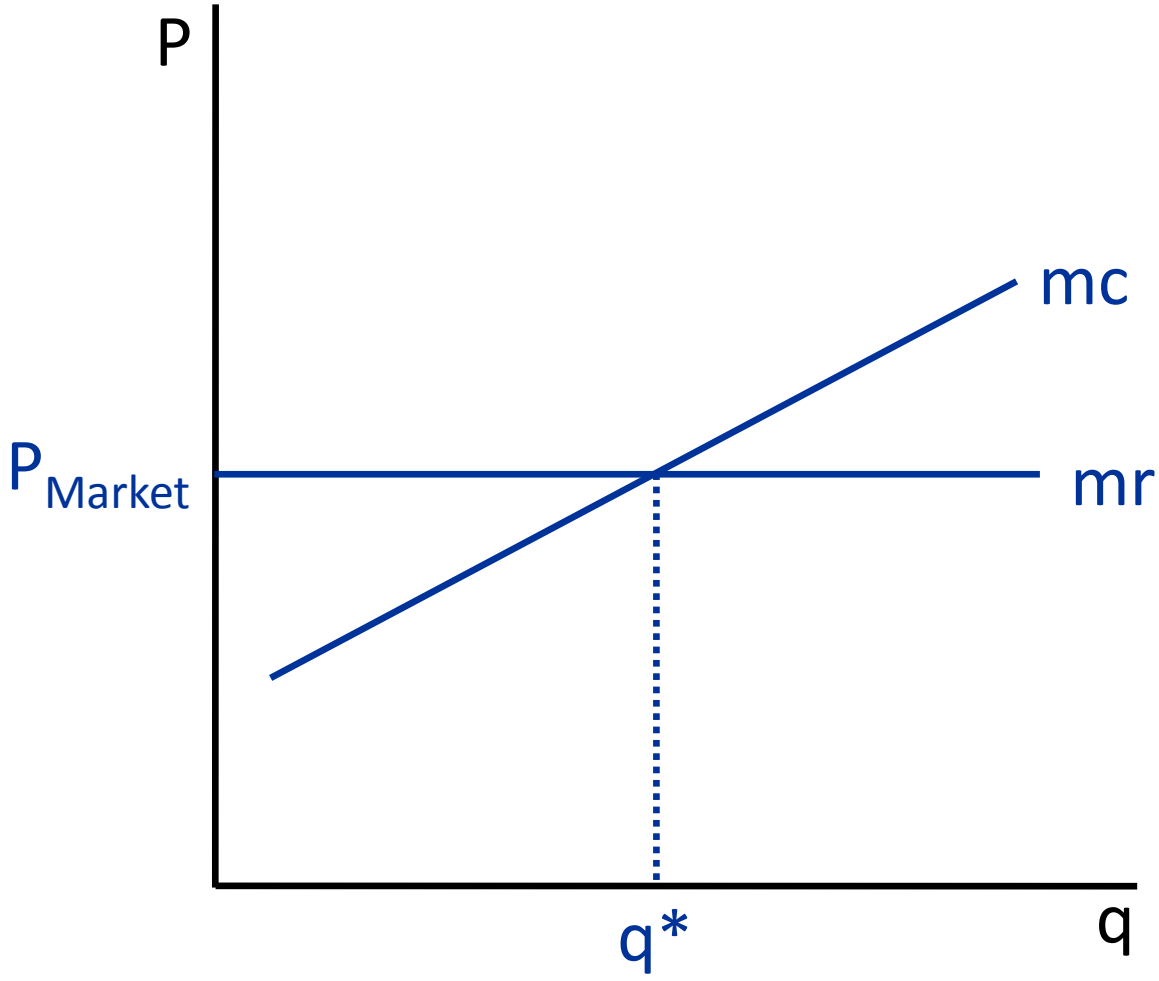
Different Types of Costs

- Fixed costs: Costs that do not depend on how much is produced.
- Variable costs: Costs that do vary with how much is produced.
- Total costs: The sum of fixed and variable costs.
- Marginal cost: The change in total costs from producing one more unit.
    - Note: Since fixed costs do not change when one more unit is produced, marginal cost is also equal to the change in variable costs from producing one more unit.

Marginal Cost: The Additional Cost Associated with Producing One More Unit



The Profit-Maximizing Level of Output for a Perfectly Competitive Firm



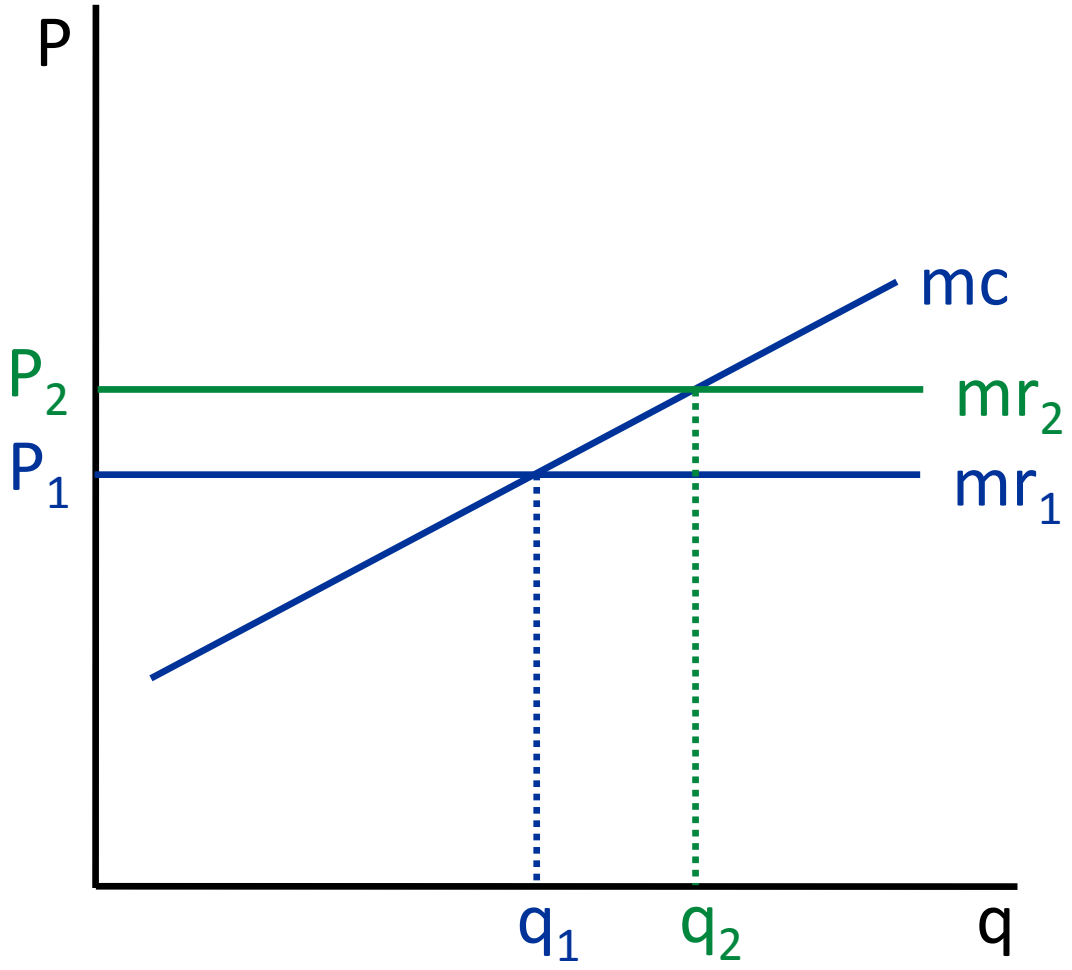
Condition for Profit-Maximization

- Marginal Revenue = Marginal Cost (mr = mc)
- For a perfectly competitive firm, this is the same as:

Price = Marginal Cost (P = mc).

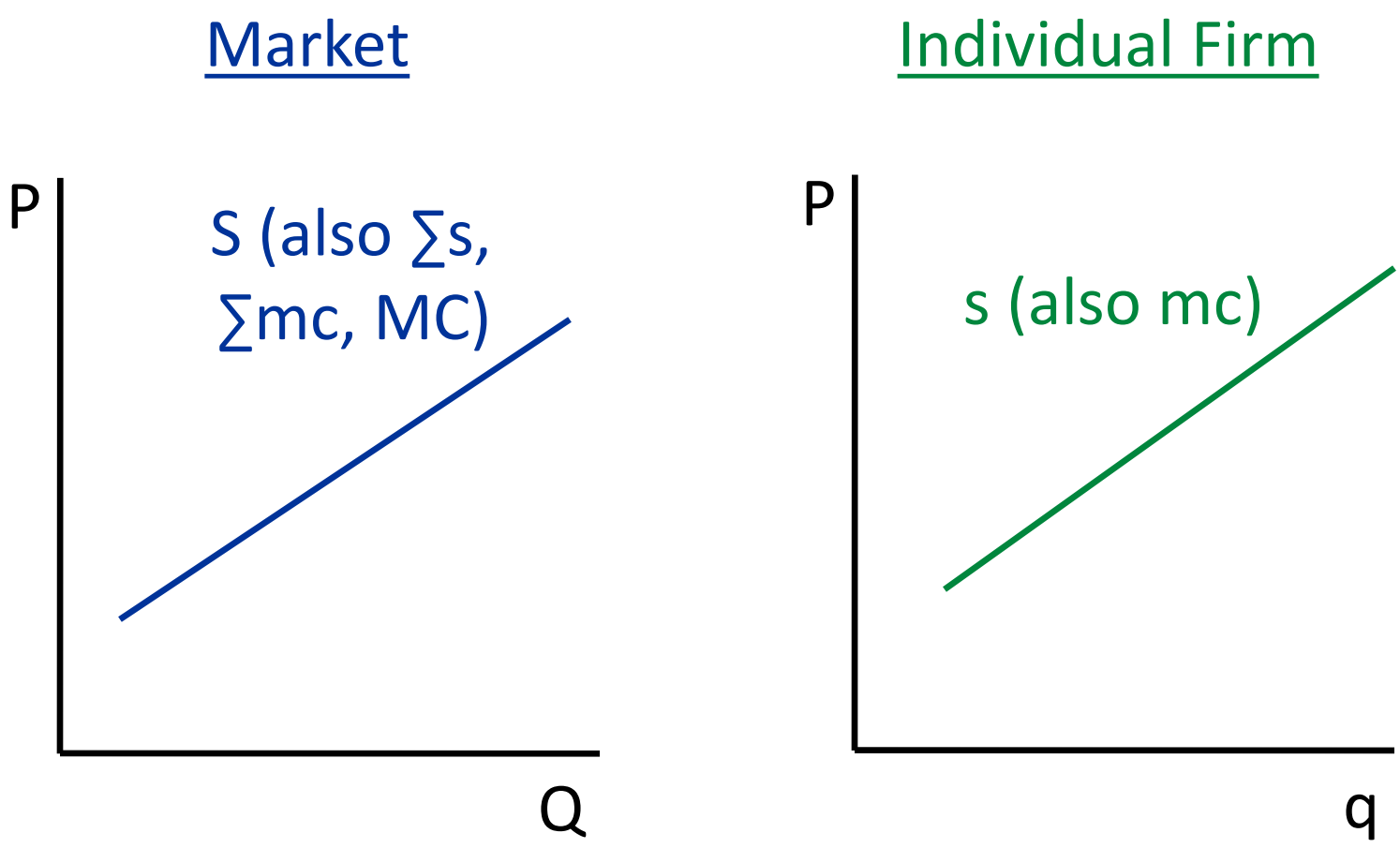
IV. Why Supply Curves Slope Up

Impact of a Rise in the Market Price



The firm's supply curve is its marginal cost curve.

Market and Individual-Firm Supply Curves

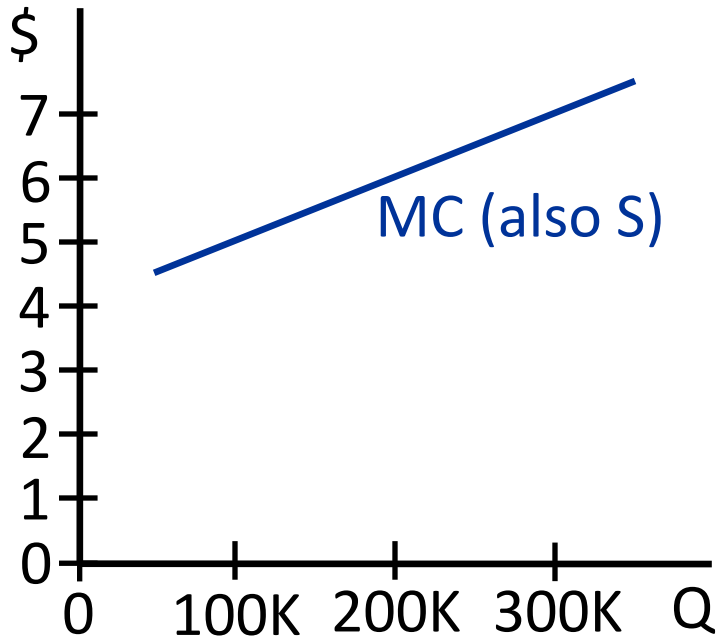


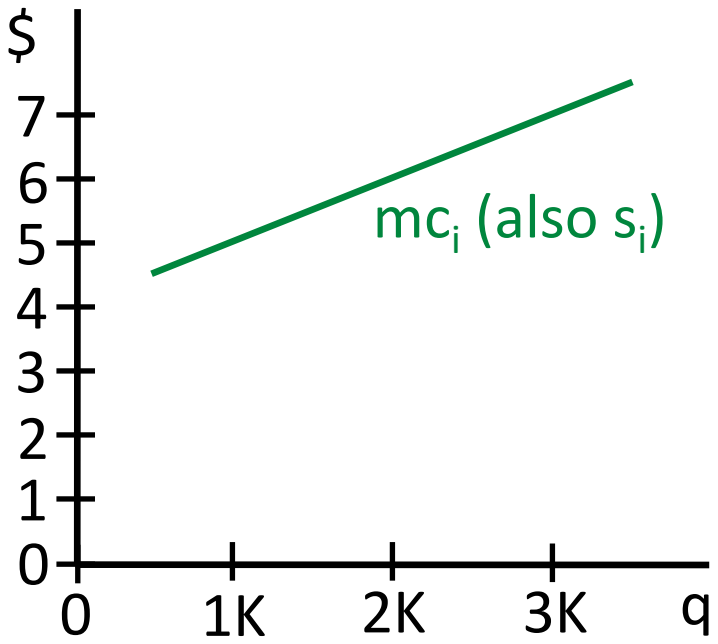
Two Interpretations of the Market Supply Curve

- The sum of individual firms' supply curves ("horizontal" interpretation).
- The industry's marginal cost curve ("vertical" interpretation).

The Industry Supply Curve Is the Industry Marginal Cost Curve – Example

- Suppose there are 100 firms. Each has MC at 1000 units of $5, MC at 2000 units of $6, etc.
- Then the MC of the *industry* at 100,000 units is $5, at 200,000 units is $6, etc.

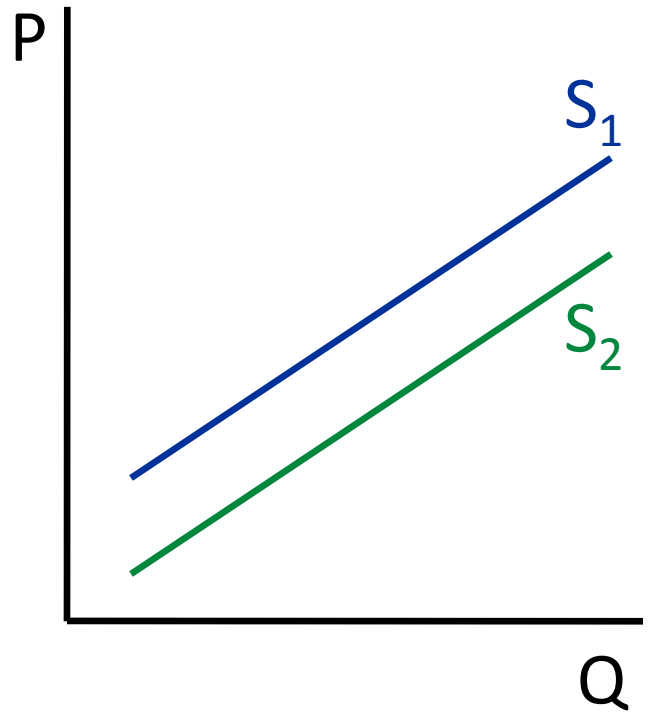




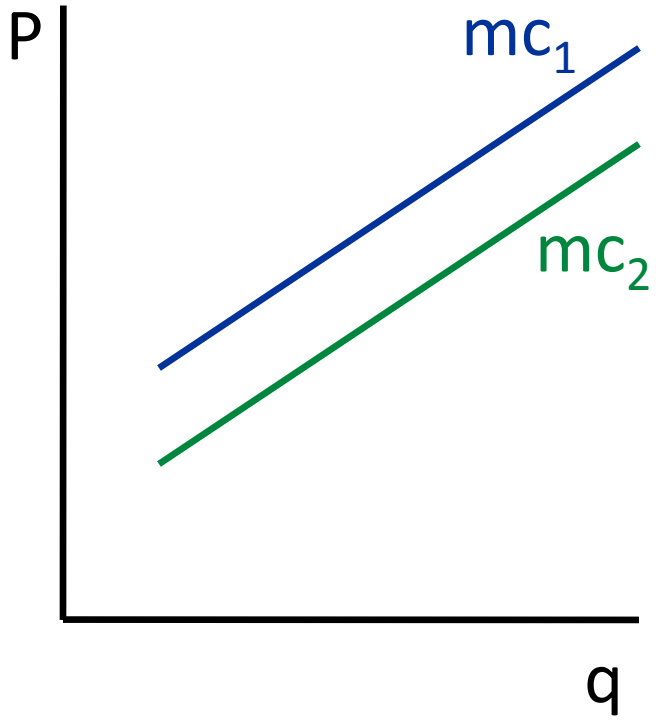
V. Why Supply Curves Shift

An Improved Production Technology

Market

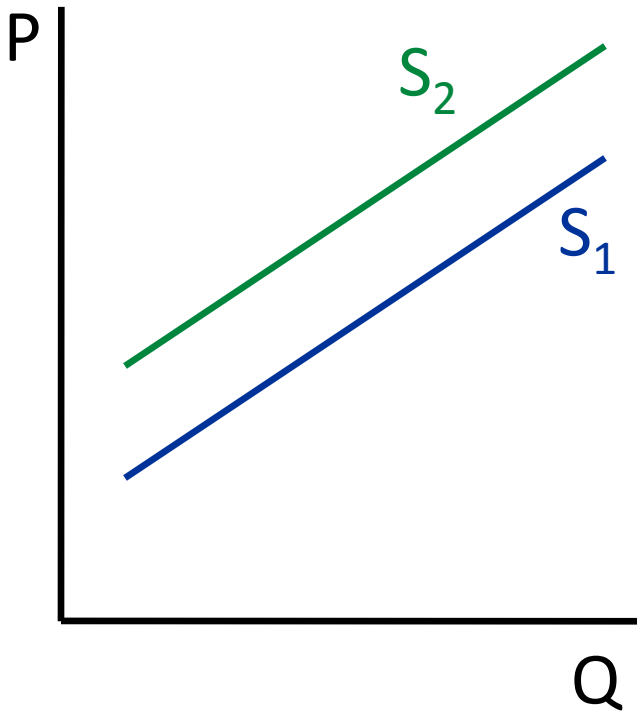


Individual Firm

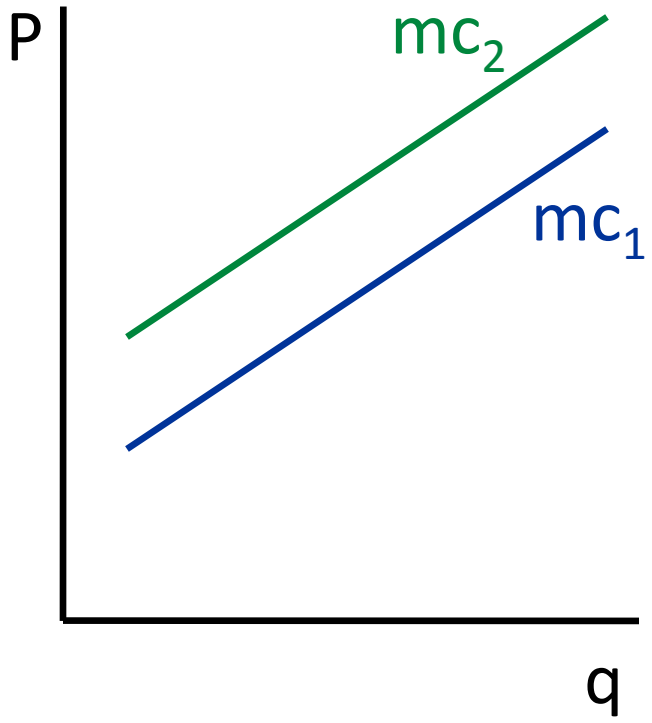


An Increase in the Price of an Input

Market

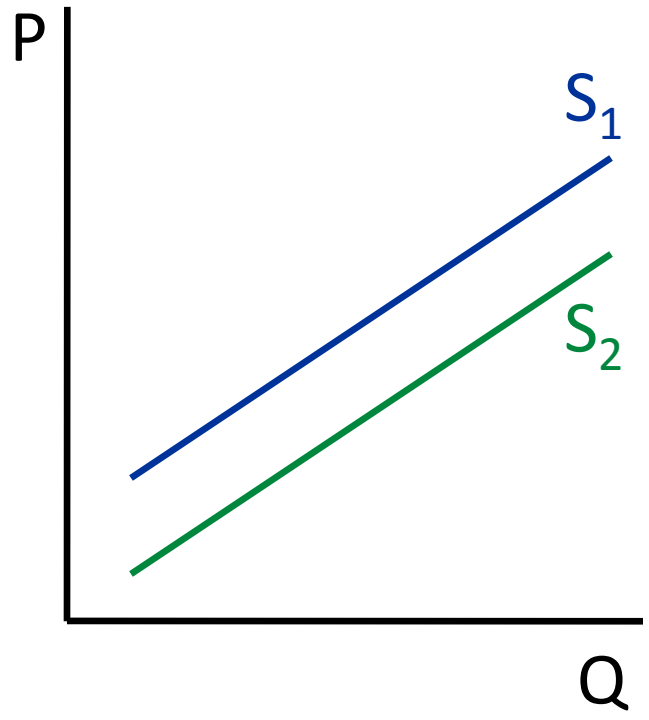


Individual Firm

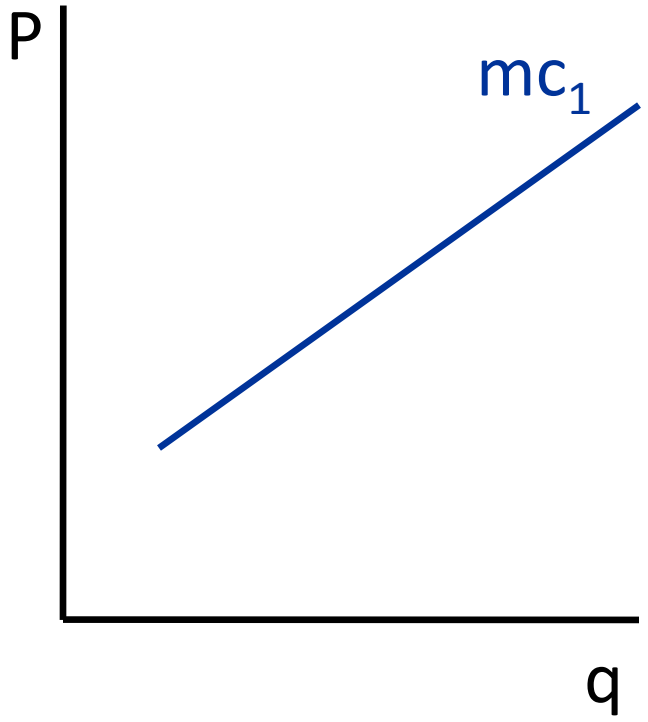


Entry of New Firms

Market



Individual Firm



Other Possible Reasons the Supply Curve Could Shift

- Try to think of some possibilities!