

ECON 4100: *Industrial Organization*

Lecture 1- Introduction and a review of
perfect competition versus monopoly

Introductory Remarks

- Overview
 - study of firms and markets
 - strategic competition
- Different forms of competition
 - prices
 - advertising
 - product differentiation

Introduction

- IO is about how firms behave in markets
- ...mainly the *non-competitive* ones: *strategic interaction*
- Whole range of business issues
 - price of flowers
 - which new products to introduce
 - merger decisions
 - methods for attacking or defending markets

Introduction

- We will use our economist insight to analyze problems in the real world
- We will learn a bit about the history of IO, linked to the history of competition policy (US mostly but Canada and Europe too)

Some history

- *WHY* do Industrial Organization?
- A lot to do with the longstanding tradition of public concern with *market power*
- Economists have normative views that favour competition and mistrust *market power*

Some history

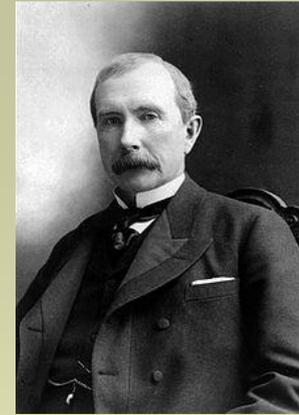
- **WHY** do Industrial Organization?

“People of the same trade seldom meet together, even for merriment or diversion, but the conversation ends in a conspiracy against the public, or in some contrivance to raise prices.”



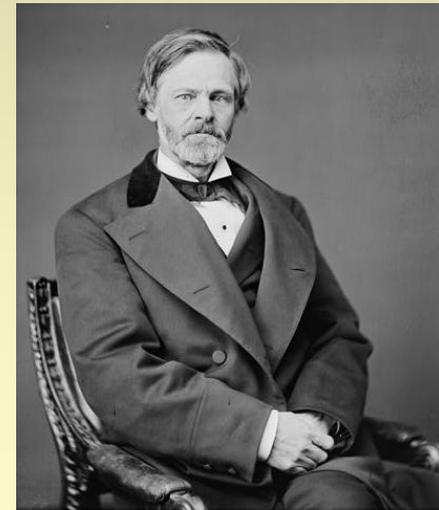
Some history

- Sherman Antitrust Act (Standard Oil)



- *Sherman Act* (1890)

- Section 1: prohibits contracts, combinations and conspiracies “in restraint of trade”
- Section 2: makes illegal any attempt to monopolize a market



Competition Policy

- *Clayton Act* (1914)
 - intended to prevent monopoly “in its incipiency”
 - makes illegal practices that “may substantially lessen competition or tend to create a monopoly”
- *Federal Trade Commission* established in the same year
- However, application affected by the *rule of reason*
 - proof of intent
 - “the law does not make mere size an offence”

The Structure-Conduct-Performance Paradigm

- Spectrum of markets: pure competition--pure monopoly
- Closer to monopoly means worse welfare loss (DWL)
- IO mission is then to identify link from market *structure* to firm *conduct* (pricing, advertising, etc) to market *performance* (*deadweight loss*)
- The essence of SCP should be very familiar but now we will make it more explicit

The Chicago School

- Both good&bad reasons for monopoly
- Potential entry can discipline even a monopoly
- Structure is endogenous? (causality difficult to determine)
- Post-Chicago
 - Game Theoretic Emphasis
 - Competitive Discipline can Fail
 - Careful econometric testing to determine correct policy in actual cases

Strategic view of how firms interact

- How should a firm price its product given the existence of rivals?
- How does a firm decide which markets to enter?
- Incredible richness of examples:
 - collusion
 - exclusive dealing
 - predatory pricing
 - merger waves
 - ...and many more
- At the heart of all of this is strategic interaction

Strategic view of how firms interact

- Rely on the tools of *game theory*
 - focuses on strategy and interaction
- Construct models: abstractions
- Remember the big difference between strategic and non-strategic behavior: strategic behavior implies taking into account other's reactions
- It is like bowling (non-strategic) versus hockey (strategic)

The New Industrial Organization

- The “New Industrial Organization” is something of a departure
 - theory in advance of policy
 - recognition of connection between market structure and firms’ behavior
- Contrast pricing behavior of:
 - grain farmers at first point of sale
 - gas stations: Texaco, Mobil, Exxon
 - computer manufacturers
 - pharmaceuticals (proprietary vs. generics)

The New Industrial Organization

- Does not say much about the *internal organization* of firms
 - vertical organization is discussed
 - internal contracts are not

Let us start then from the beginning:

SCP

- **Edward Chamberlin**

...among other things coined the term *product differentiation*

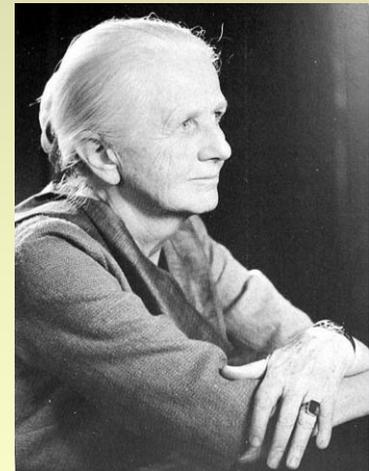
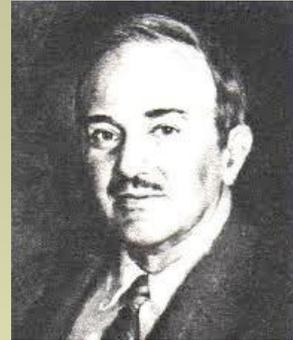
The Theory of Monopolistic Competition (1933)

- **Joan Robinson**

The Economics of Imperfect Competition (also 1933)

- **Joseph S. Bain**

Barriers to New Competition (1956) *Industrial Organization: A Treatise* (1959). “Father” of SCP

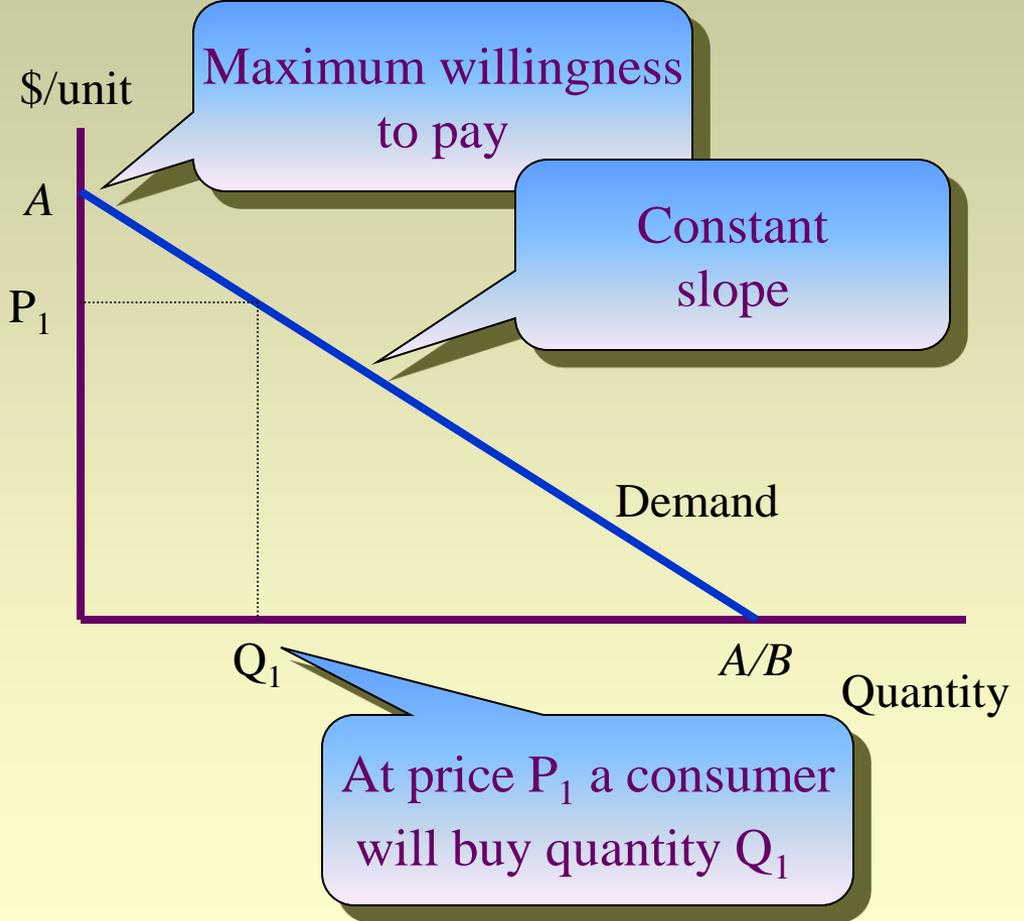


Efficiency and Market Performance

- Contrast two polar cases
 - perfect competition
 - monopoly
- What is *efficiency*?
 - **no reallocation of the available resources makes one economic agent better off without making some other economic agent worse off**
 - example: given an initial distribution of food aid will trade between recipients improve efficiency?

- Focus on profit maximizing behavior of firms
- Take as given the **market demand curve**

Equation:
 $P = A - B \cdot Q$
 linear
 demand



- Importance of:
 - Time (static versus dynamic perspective)
 - short-run vs. long-run
 - willingness to pay

Perfect Competition

- *In the beginning there was perfect competition. And economists saw that it was good. So they assumed perfect competition 😊*

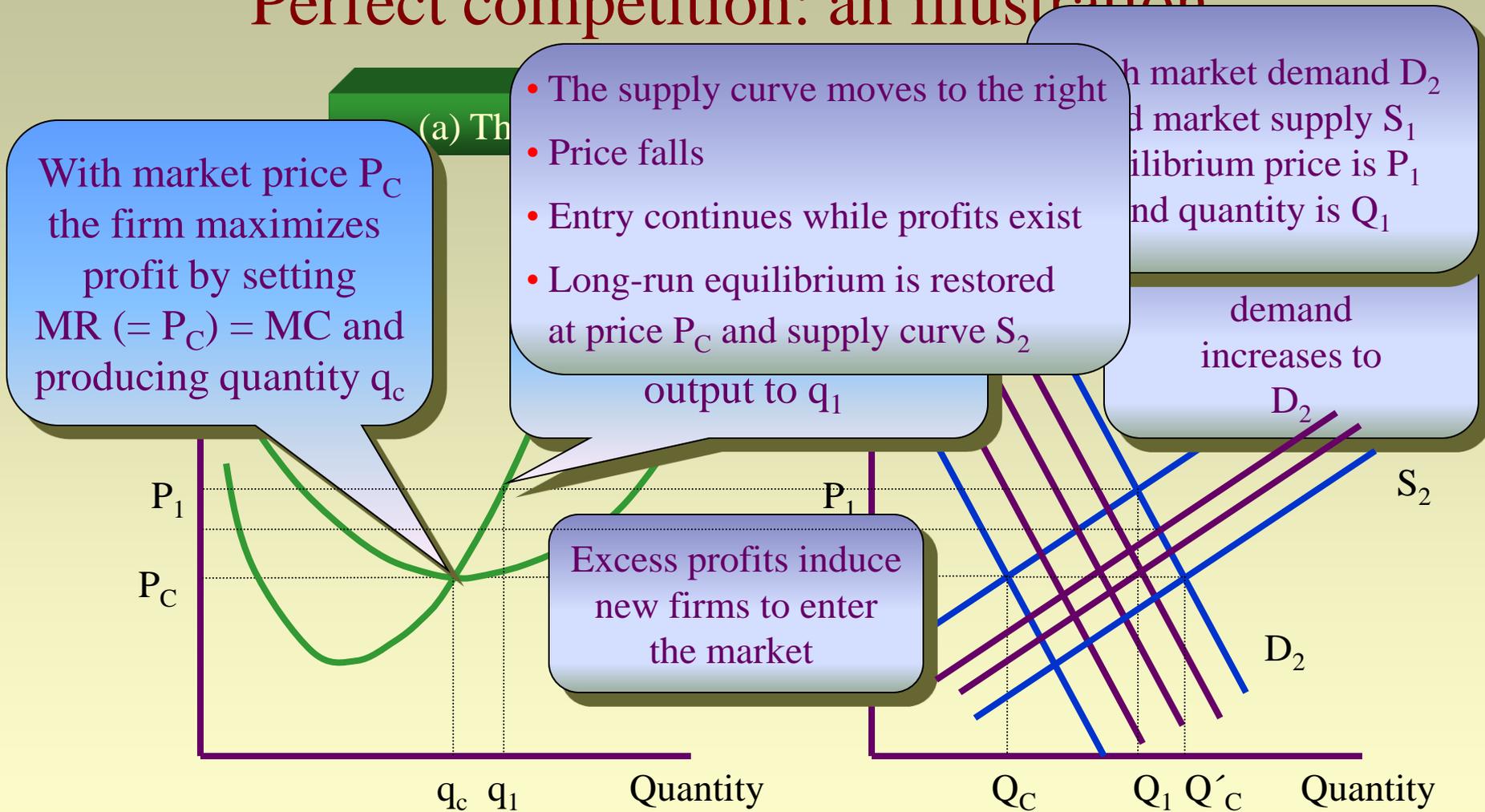
Perfect Competition

- Firms and consumers are *price-takers*
- Firm can sell as much as it likes at the ruling market price
 - do not really need many firms
 - do need the idea that firms *believe* that their actions will not affect the market price
- Therefore, marginal revenue equals price
- To maximize profit a firm *of any type* must equate marginal revenue with marginal cost
- So in perfect competition price equals marginal cost

$$\text{MR} = \text{MC}$$

- Profit is $\pi(\mathbf{q}) = \text{TR}(\mathbf{q}) - \text{TC}(\mathbf{q})$
- Profit maximization: $d\pi/d\mathbf{q} = \mathbf{0}$
- This implies $d\text{TR}(\mathbf{q})/d\mathbf{q} - d\text{TC}(\mathbf{q})/d\mathbf{q} = \mathbf{0}$
- But $d\text{TR}(\mathbf{q})/d\mathbf{q} =$ marginal revenue
- $d\text{TC}(\mathbf{q})/d\mathbf{q} =$ marginal cost
- So profit maximization implies $\text{MR} = \text{MC}$

Perfect competition: an illustration



Perfect competition: additional points

- Derivation of the short-run supply curve
 - this is the *horizontal* summation of the individual firms' marginal cost curves

Example 1: Three firms

$$\text{Firm 1: } q = MC/4 - 2$$

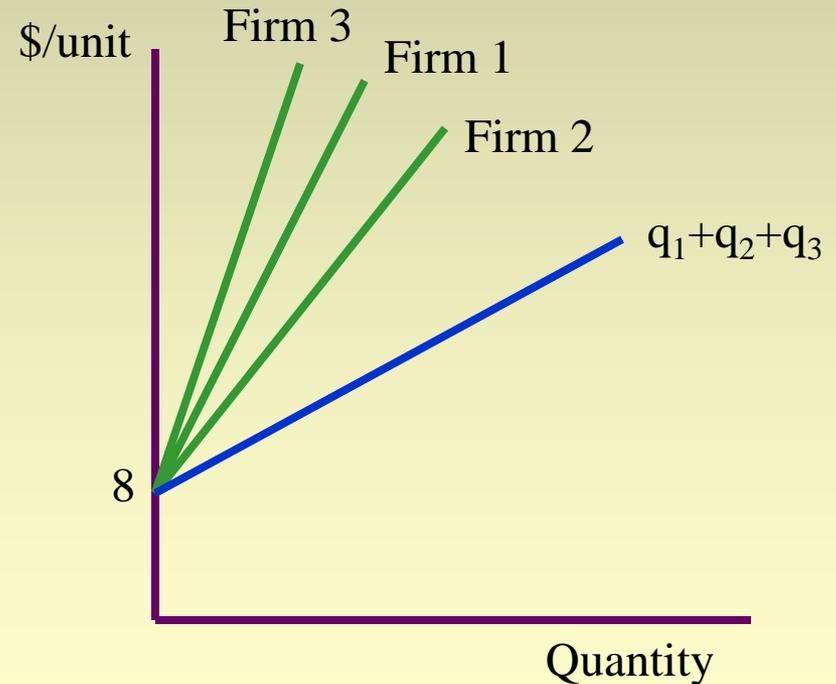
$$\text{Firm 2: } q = MC/2 - 4$$

$$\text{Firm 3: } q = MC/6 - 4/3$$

Invert these

$$\begin{aligned} \text{Aggregate: } Q &= q_1 + q_2 + q_3 \\ &= 11MC/12 - 22/3 \end{aligned}$$

$$MC = 12Q/11 + 8$$



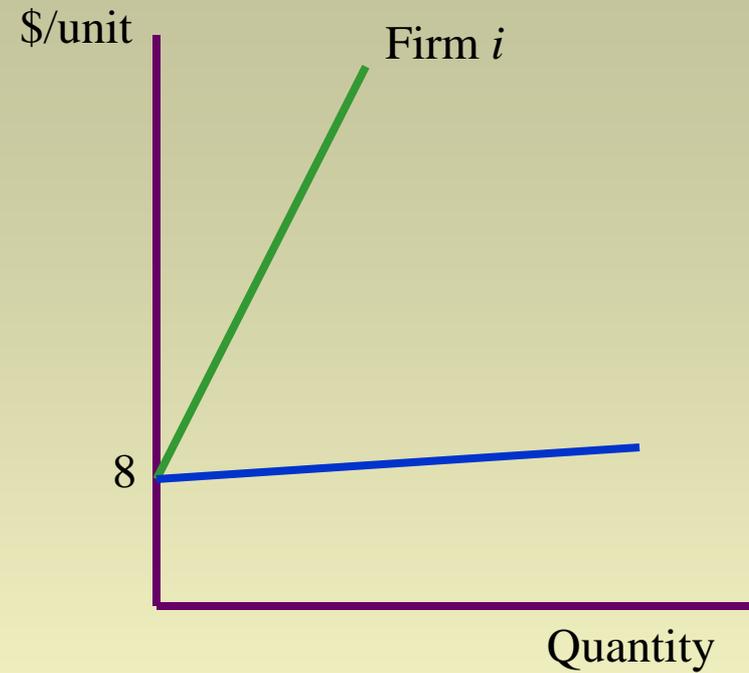
Example 2: Eighty firms

$$\text{Each firm: } q = MC/4 - 2$$

Invert these

$$\begin{aligned} \text{Aggregate: } Q &= 80q \\ &= 20MC - 160 \end{aligned}$$

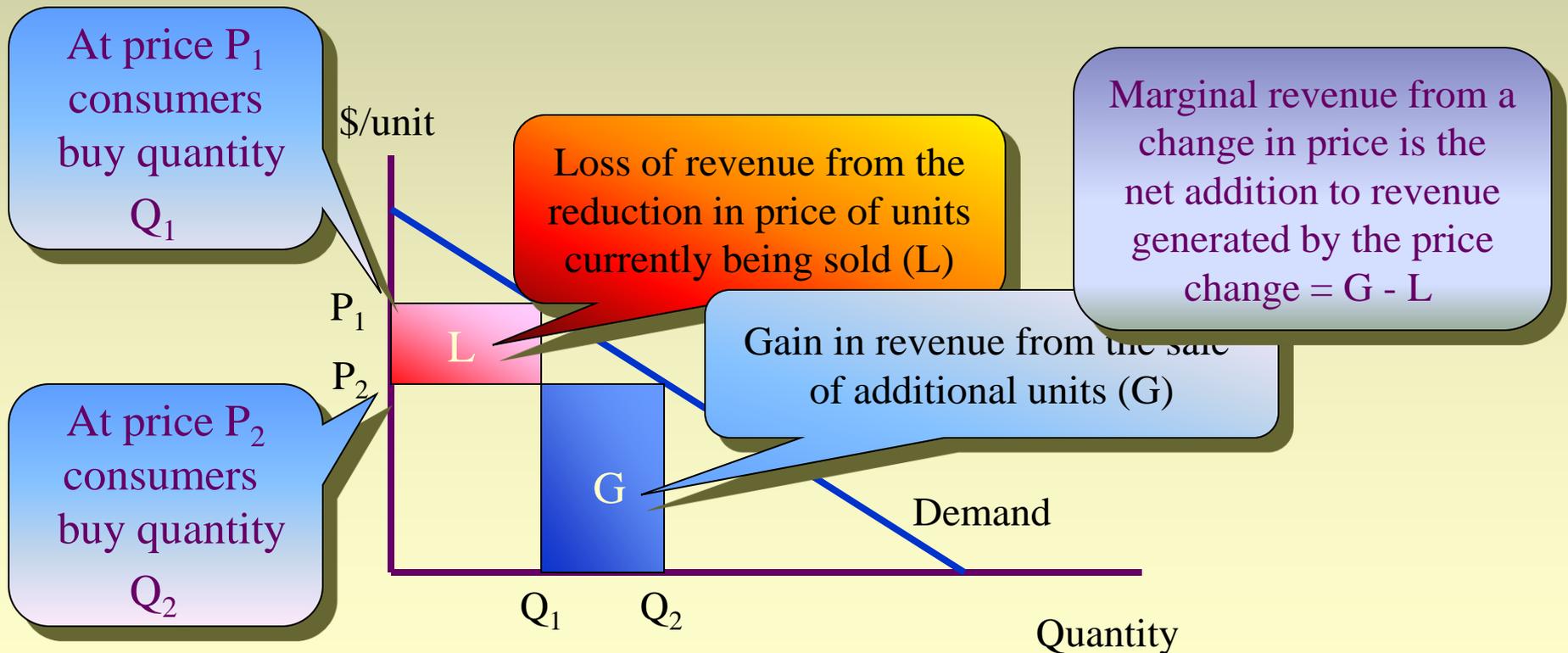
$$MC = Q/20 + 8$$



- Definition of *normal profit*
 - not the same as zero profit
 - implies that a firm is making the market return on the assets employed in the business (play <..\EXCELSimulations\PerfectCompetition.xls>)

Monopoly

- The only firm in the market
 - market demand is the firm's demand
 - output decisions affect market clearing price



Monopoly (cont.)

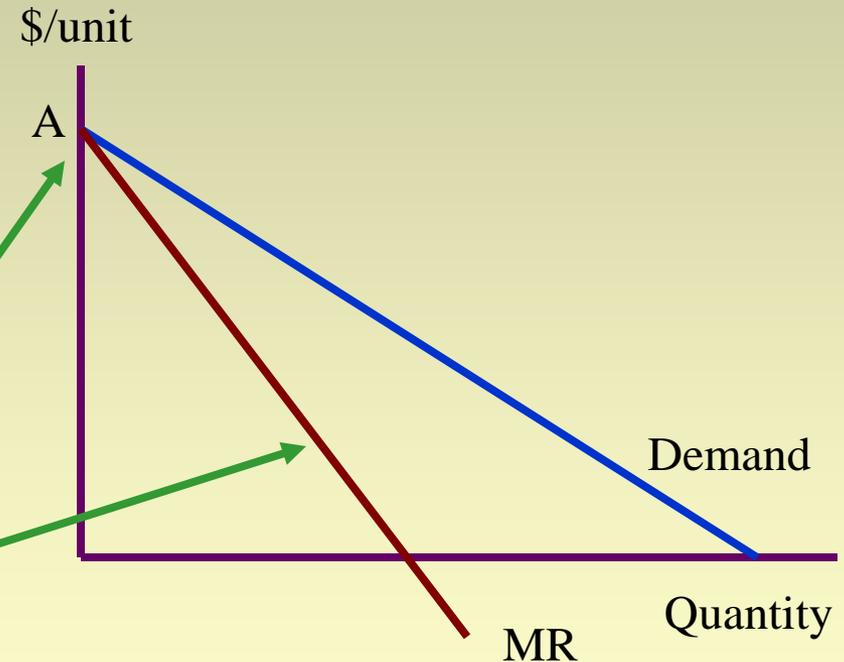
- Derivation of the monopolist's marginal revenue

Demand: $P = A - B \cdot Q$

Total Revenue: $TR = P \cdot Q = A \cdot Q - B \cdot Q^2$

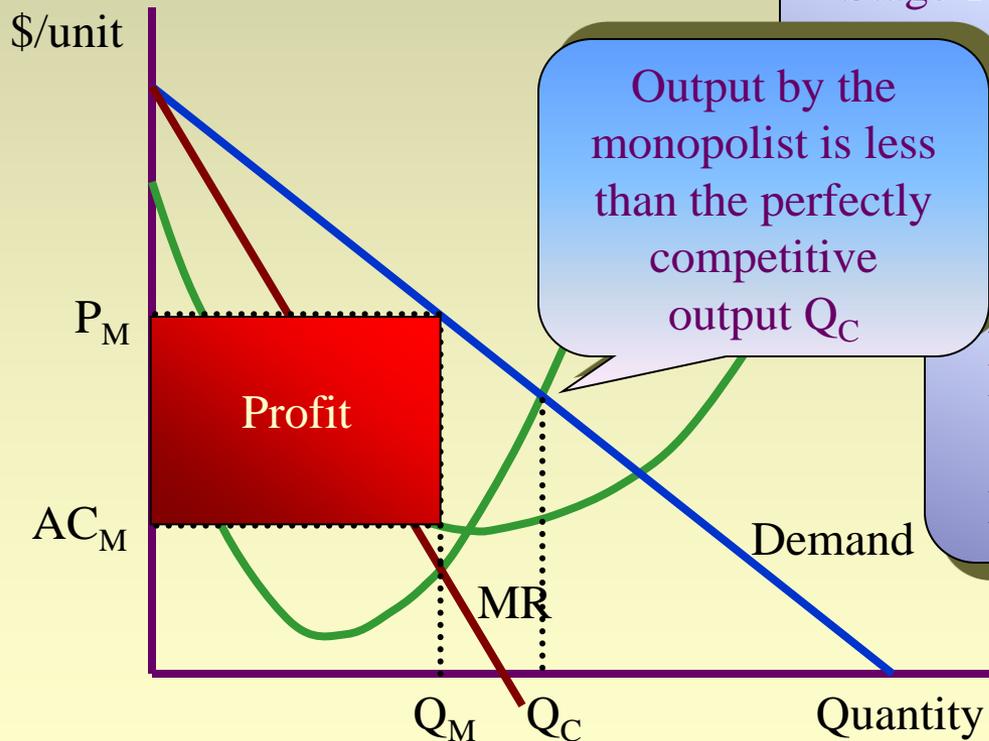
Marginal Revenue: $MR = dTR/dQ$
 $\Rightarrow MR = A - 2B \cdot Q$

With linear demand the marginal revenue curve is also linear with the same price intercept but twice the slope of the demand curve



Monopoly and profit maximization

- The monopolist maximizes profit by equating marginal revenue with marginal cost
- This is a two-stage process



Stage 1: Choose output where $MR = MC$

Identifies output Q_M

Identify the market clearing price

Identifies price P_M

MR is less than price

Price is greater than MC : loss of efficiency

Price is greater than average cost

Positive economic profit

Long-run equilibrium: no entry

Next

- The monopolist is supposed to always operate along the elastic range of the demand curve
- Why?
- But this is a timeless static view that ignores that in the long run price-elasticity is higher than in the short run.
- The monopolist might stay within the inelastic range of the demand curve to avoid the long-run reaction by the consumers

Next

- Efficiency
- Consumer Surplus and Producer Surplus revisited
- Read Ch. 2

Next

- barriers to entry
- market concentration measures
- market power
- product differentiation
- minimum efficient scale