# Monopoly

- **MICHAEL J. MURRAY, Ph.D.**

# Monopoly

## The Definition of Monopoly

- The market has only one seller.
- No close substitutes exist for the product.
- There are significant barriers to the entry of other firms.
- Examples: utilities, microprocessors, diamonds, patented pharmaceuticals

**Monopolists are price makers.**

# Sources of Monopoly Power

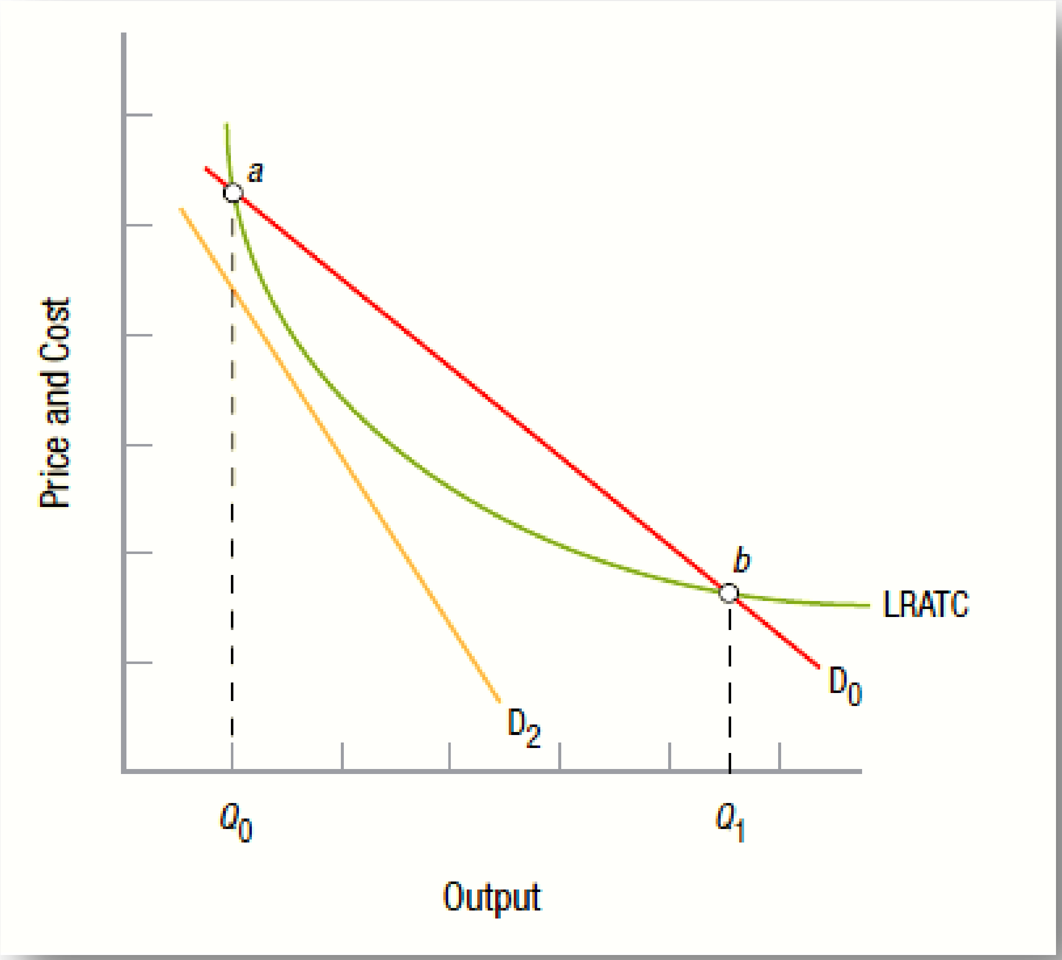
***Monopoly power:*** **A firm with monopoly power has some control over price.**

**Sources of monopoly power:**

- ***Economies of Scale:*** **As the firm expands in size, average total costs decline.**
- **Control over a significant factor of production**
- **Government franchises, patents, copyrights**

# Economies of Scale

- **One firm could serve the market more cheaply than two firms.**



# Control over a Significant Factor of Production

- **If a firm owns or has control over an important input into the production process, that firm can keep potential rivals out of the market.**

# Government Franchises, Patents, and Copyrights

**Some barriers to entry are legal government mandates.**

- **Patents: legal monopoly status for new inventions, usually lasts 20 years.**
- **Copyrights protect intellectual property for an extended period of time.**

# Profit Maximization

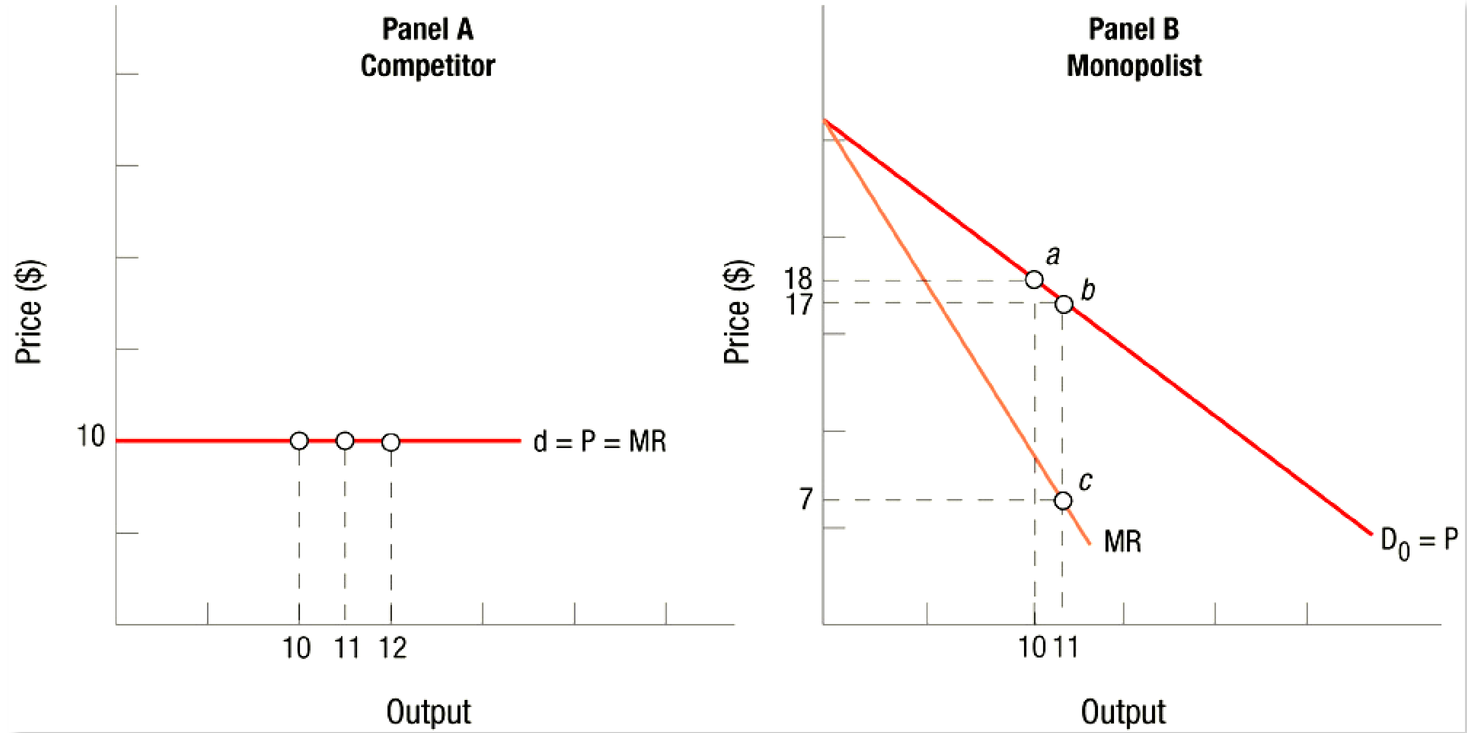
**Monopolies maximize profit the same way competitive firms do: by following the rule:**

**Profit is maximized at the quantity where MR=MC**

# Shape of Marginal Revenue

- **MR= $\Delta$TR / $\Delta$ Q** **where TR= P x Q**
  - **monopoly firm has price control… but to sell more quantity it must obey the law of demand and lower the price**
  - **so any increase in sales requires a lower price…**
    - **To sell 11 instead of 10 requires the firm reduce price from \$18 to \$17**
    - **The total revenue at P=\$18 was (\$18x10=\$180)**
    - **The total revenue at P=\$17 is (\$17x11=\$187)**
    - **The Marginal Revenue is $\Delta$ TR/ $\Delta$ Q or \$7/1= \$7**

# MR < P for Monopoly

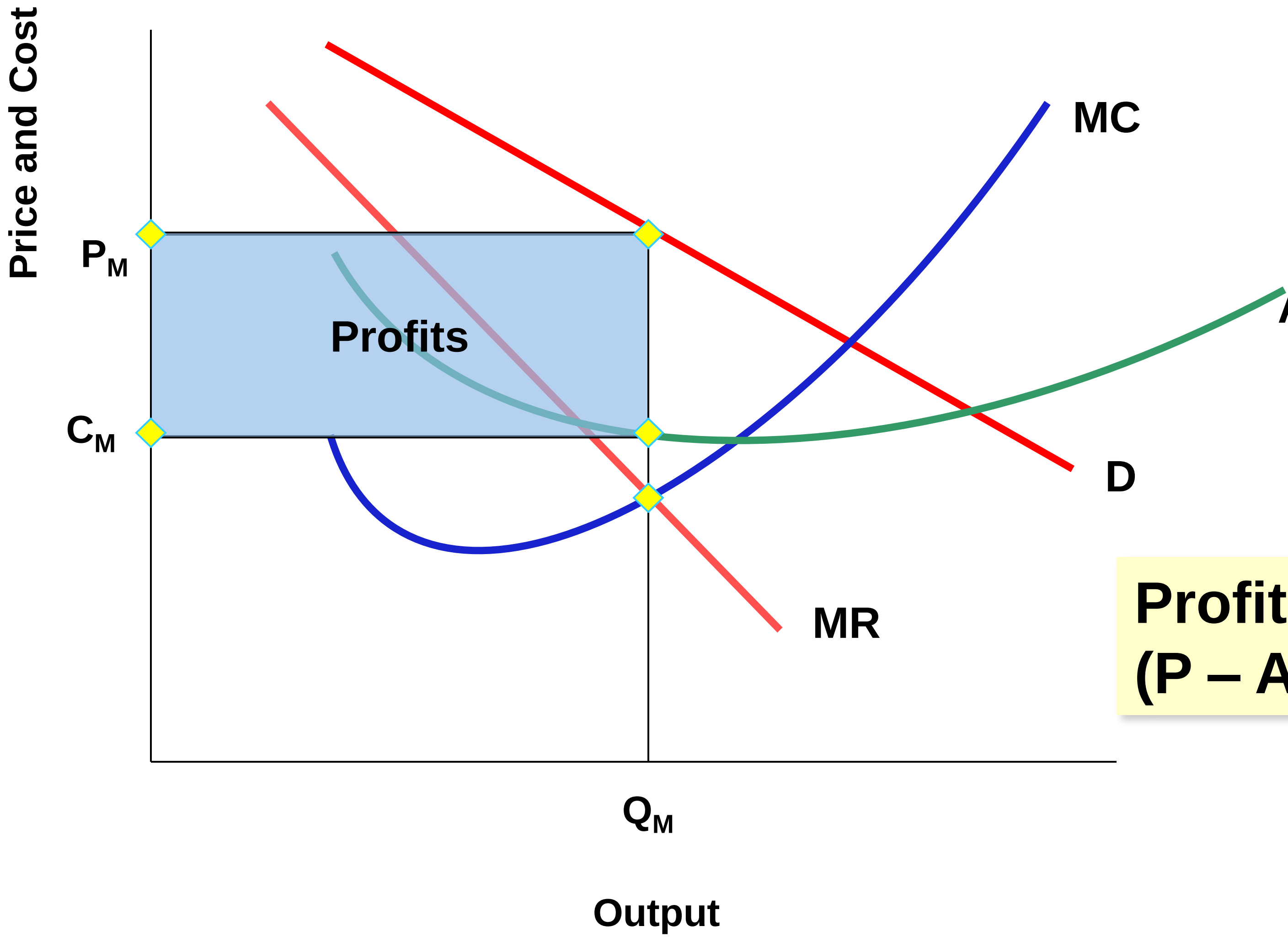



## So MR < P for monopoly firms

- **In our example, MR=$7 when price is $17**
- **True for all price levels**

- ***Recall that competitive firms faced MR=P***

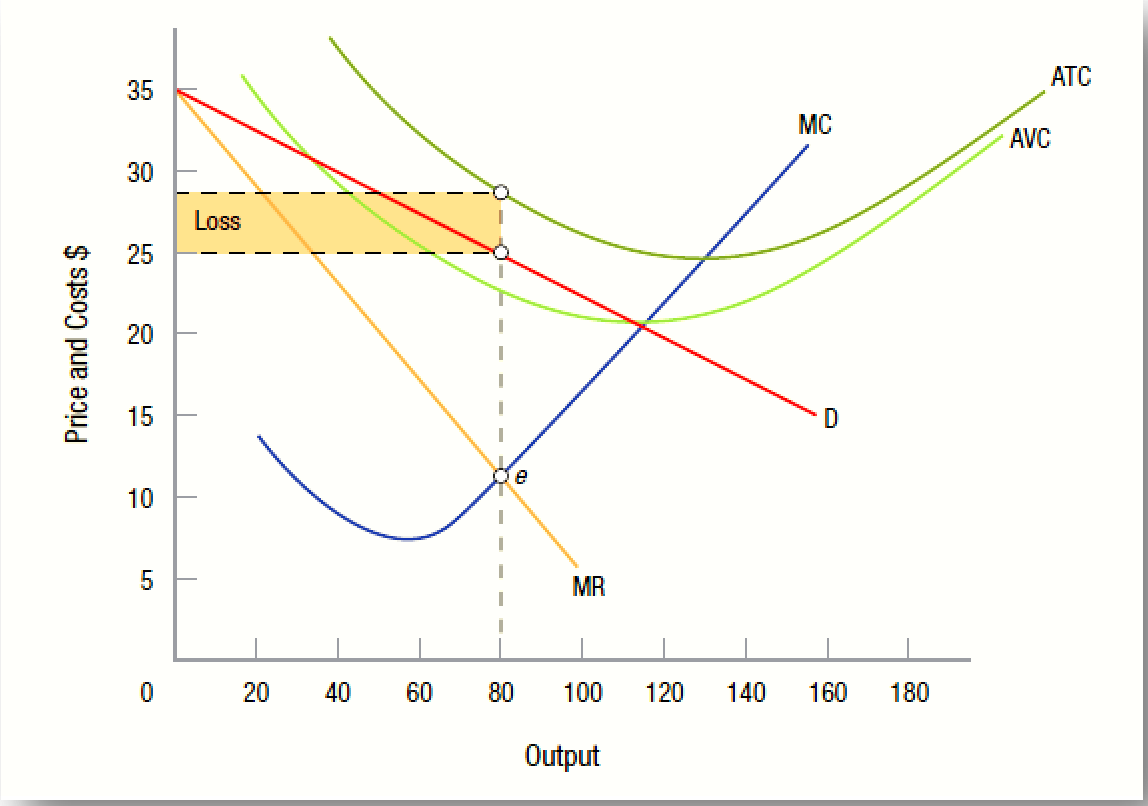
# Monopoly Profits




**Profit is equal to (P – ATC) x Q.**

# Monopoly Does Not Guarantee Economic Profits

- **It's possible that monopolists will mismanage or have bad luck and end up with losses…**

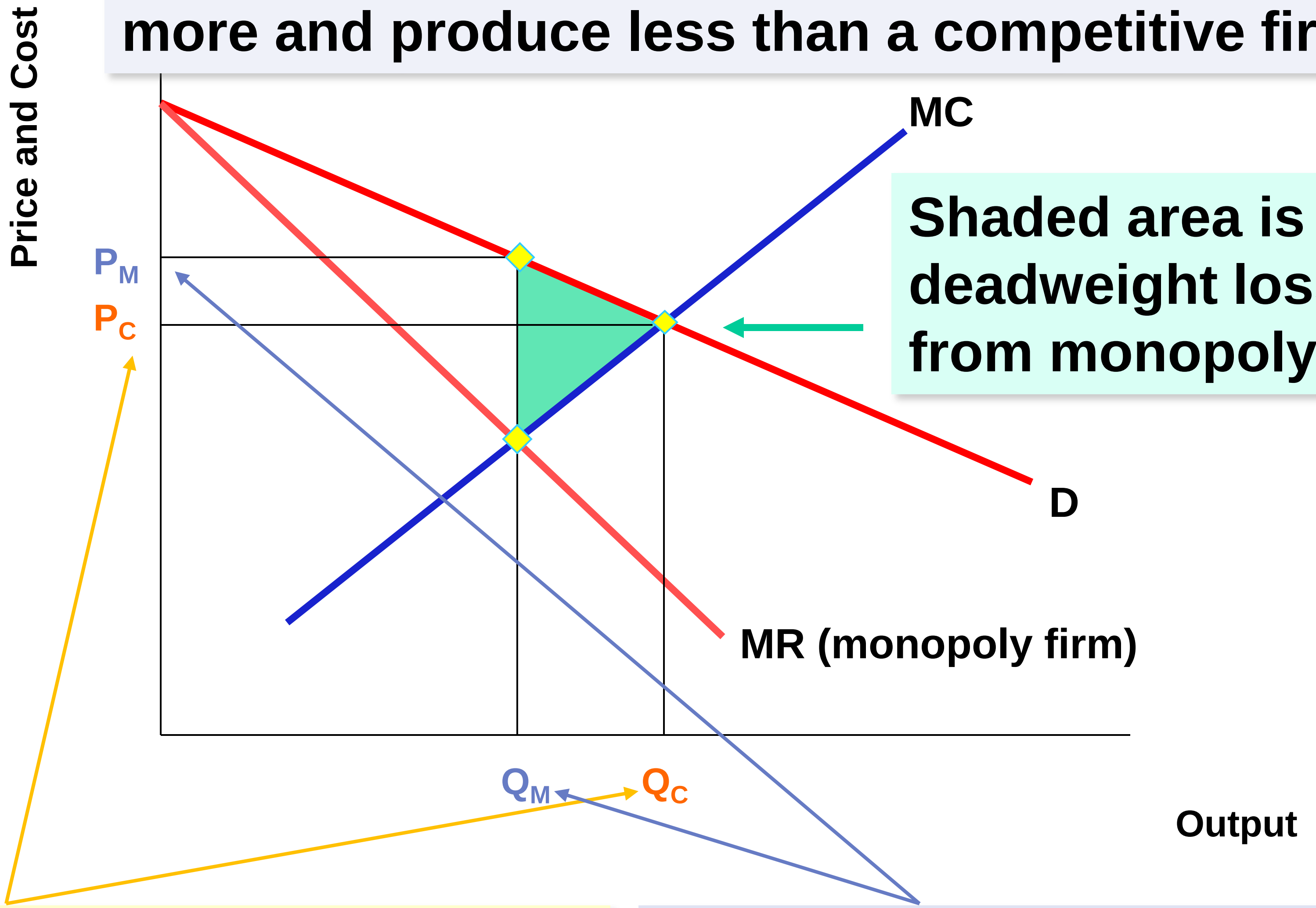


# Comparing Monopoly and Competition

- **Under conditions of monopoly, the price will be higher and output will be lower than under conditions of competition.**
  - **The amount of allocative inefficiency arising from a monopoly outcome is referred to as a *deadweight loss (aka "welfare loss")*.**

# Monopoly Inefficiency

Given the same market, a monopolist will charge more and produce less than a competitive firm




Shaded area is the deadweight loss from monopoly.

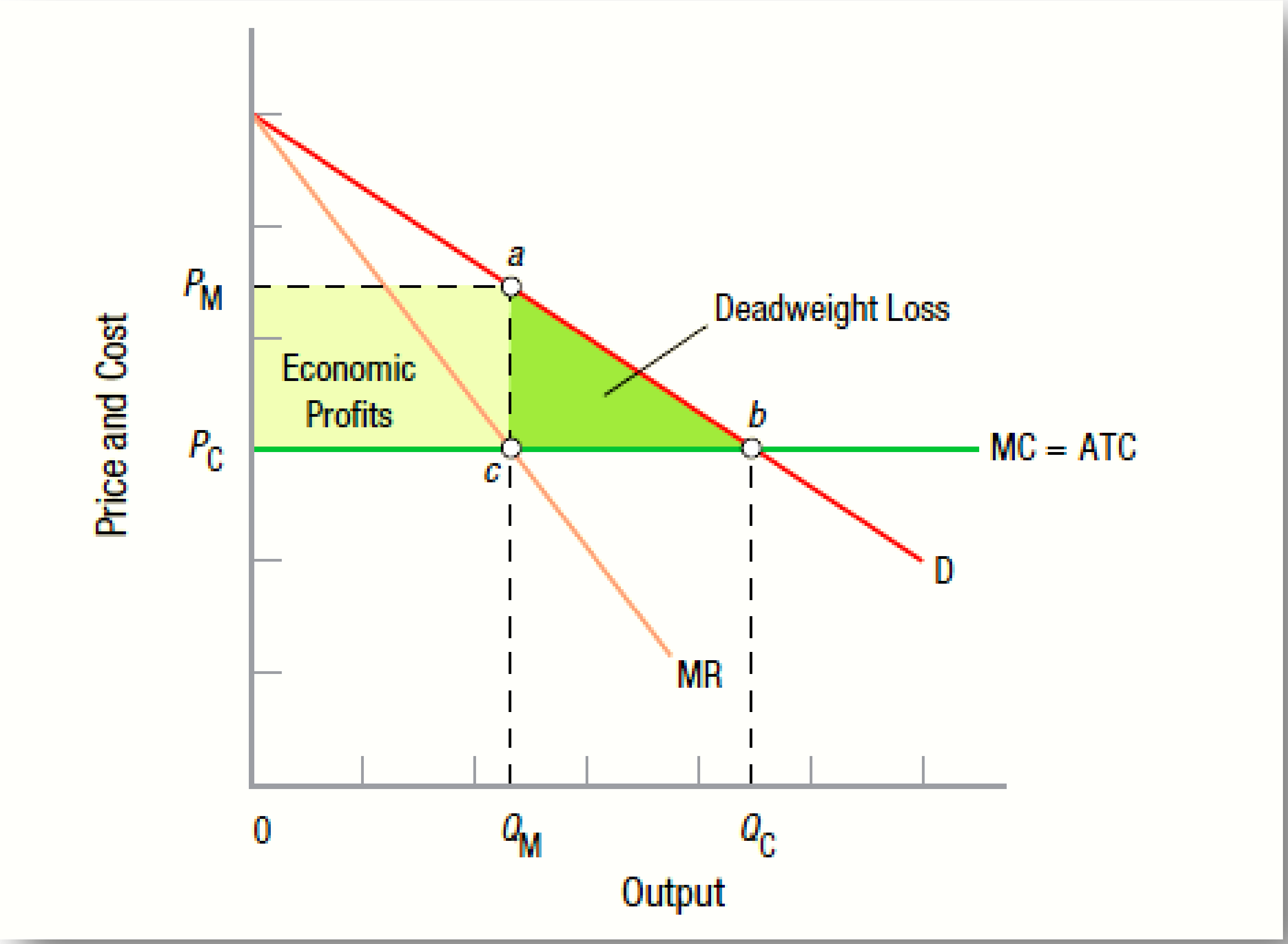
Competitive firms produce here

A Monopoly firm produces here

# Rent Seeking Behavior

- ***Rent seeking:*** **When a firm expends resources to preserve its monopoly position.**
  - **Examples include lobbying for protective legislation, gaining patents and restricting licenses.**

# Rent Seeking and Deadweight Loss in Monopoly



# Monopoly Market Issues

***Price discrimination:*** **charging different consumer groups different prices for the same product.**

# Price Discrimination

**The conditions required for price discrimination:**

- **Sellers must have some control over price.**
- **Sellers must be able to separate the market into different consumer groups based on their elasticities of demand.**
- **Sellers must be able to prevent arbitrage.**

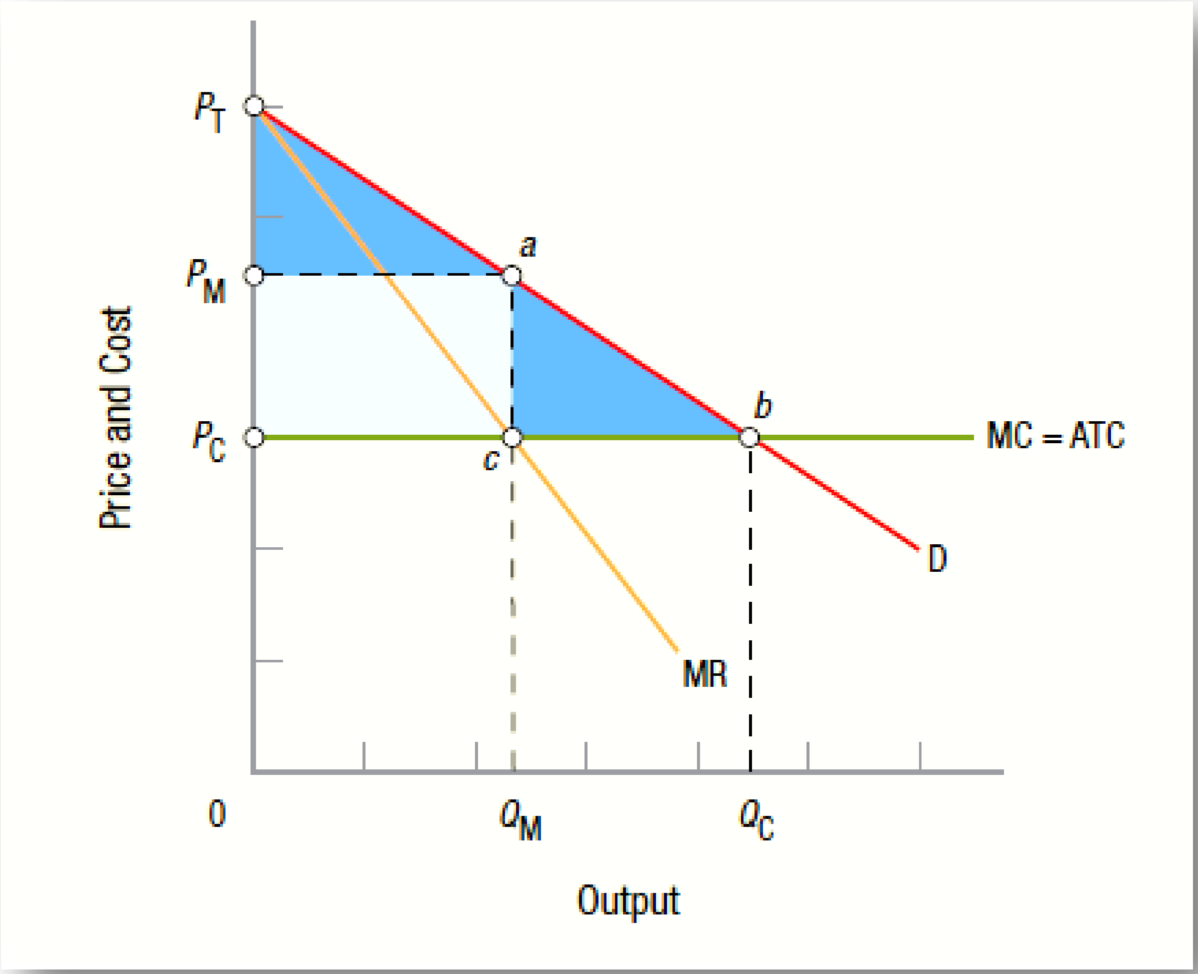
# Perfect Price Discrimination

- **When perfect price discrimination can be employed, a firm will charge each customer a different price: *the maximum price each is willing to pay.***
- **Under perfect price discrimination, the firm captures all consumer surplus as profit.**

# Other Types of Price Discrimination

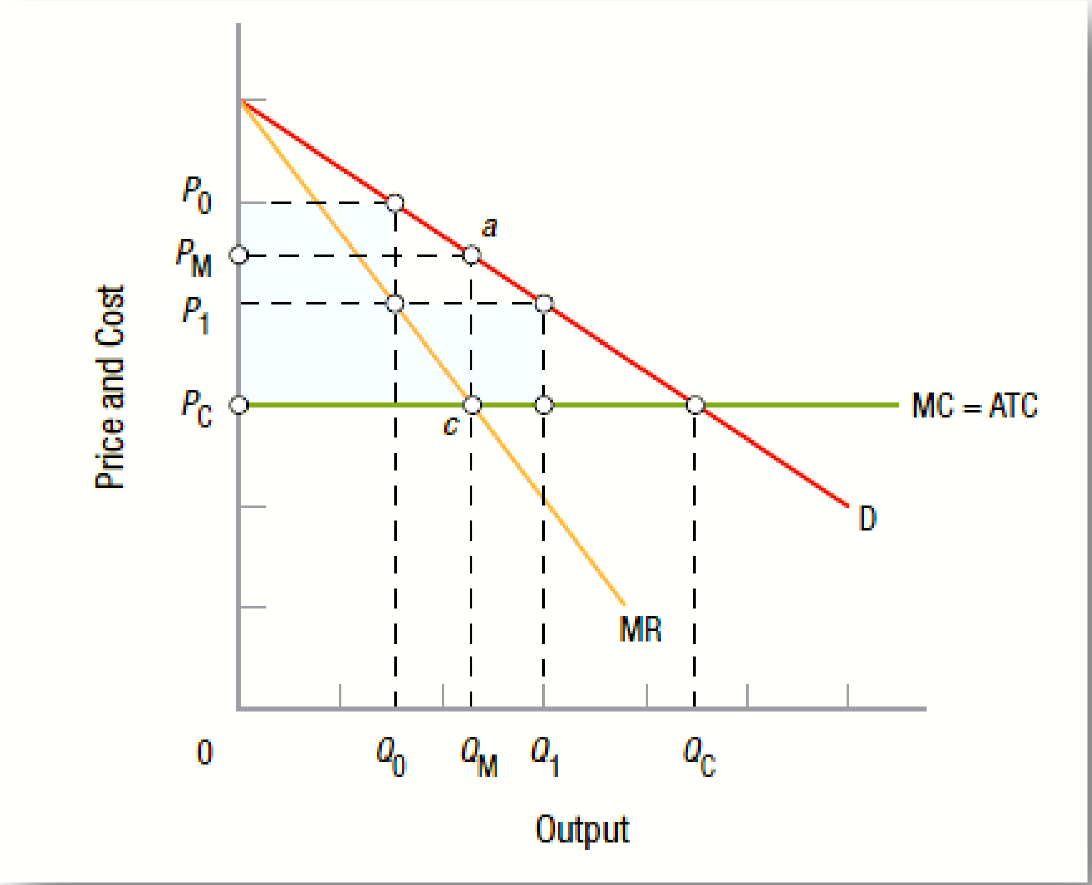
- **Second-degree price discrimination: charging consumers for different blocks of consumption.**
  - **Producers of electric, gas, and water utilities often incorporate block pricing.**
- **Third-degree price discrimination: different price to each type of consumer.**
  - **The various fares charged for airline flights are a good example.**

# Perfect Price Discrimination



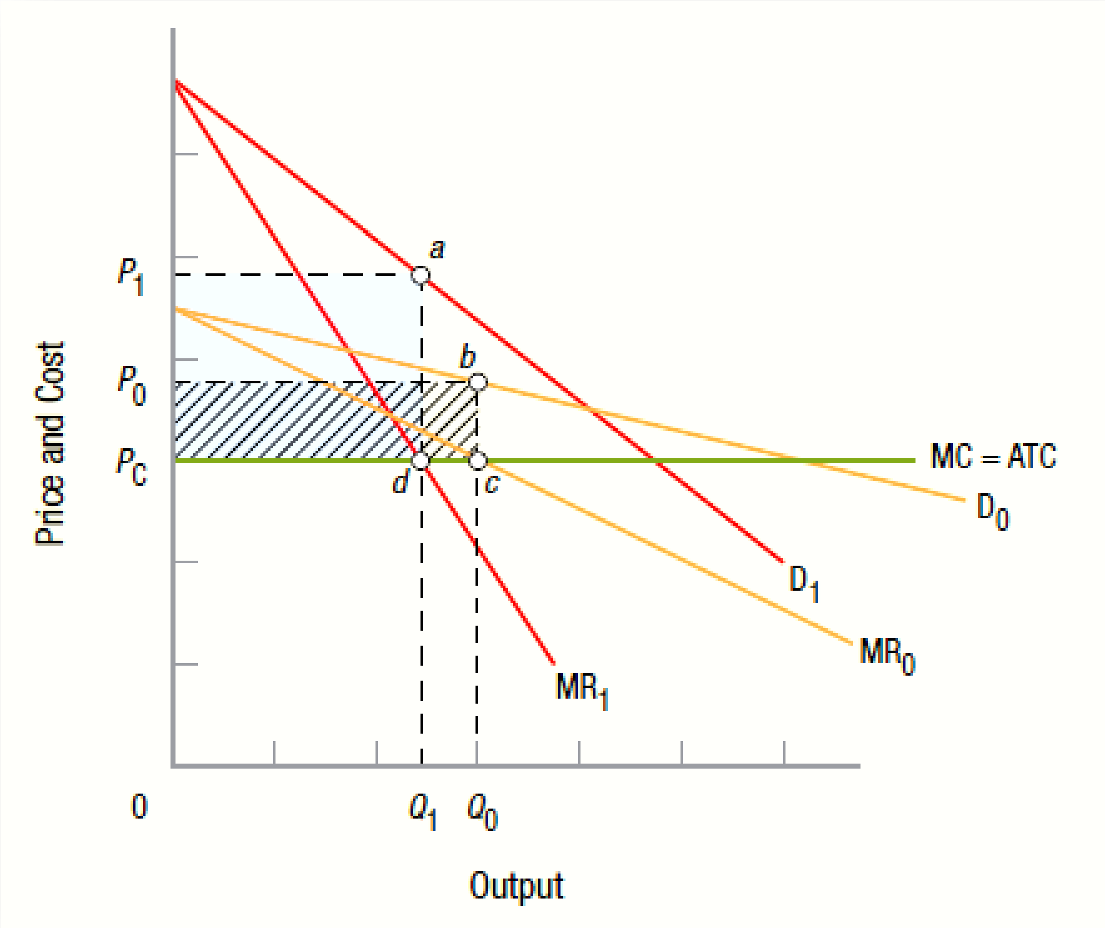

**Producers capture the entire consumer surplus as their profit.**

# Second-Degree Price Discrimination




**By charging three different prices (*$P_0$, $P_1$, and $P_C$*), profits increase above a single-price (nondiscriminating) monopolist**

- $D_0$ and $D_1$ represent two parts of a market with different demand elasticities.
- The *less* elastic market, $D_1$, is offered a higher price $P_1$, than the *more* elastic market, $D_0$, thus maximizing the profits for both markets.

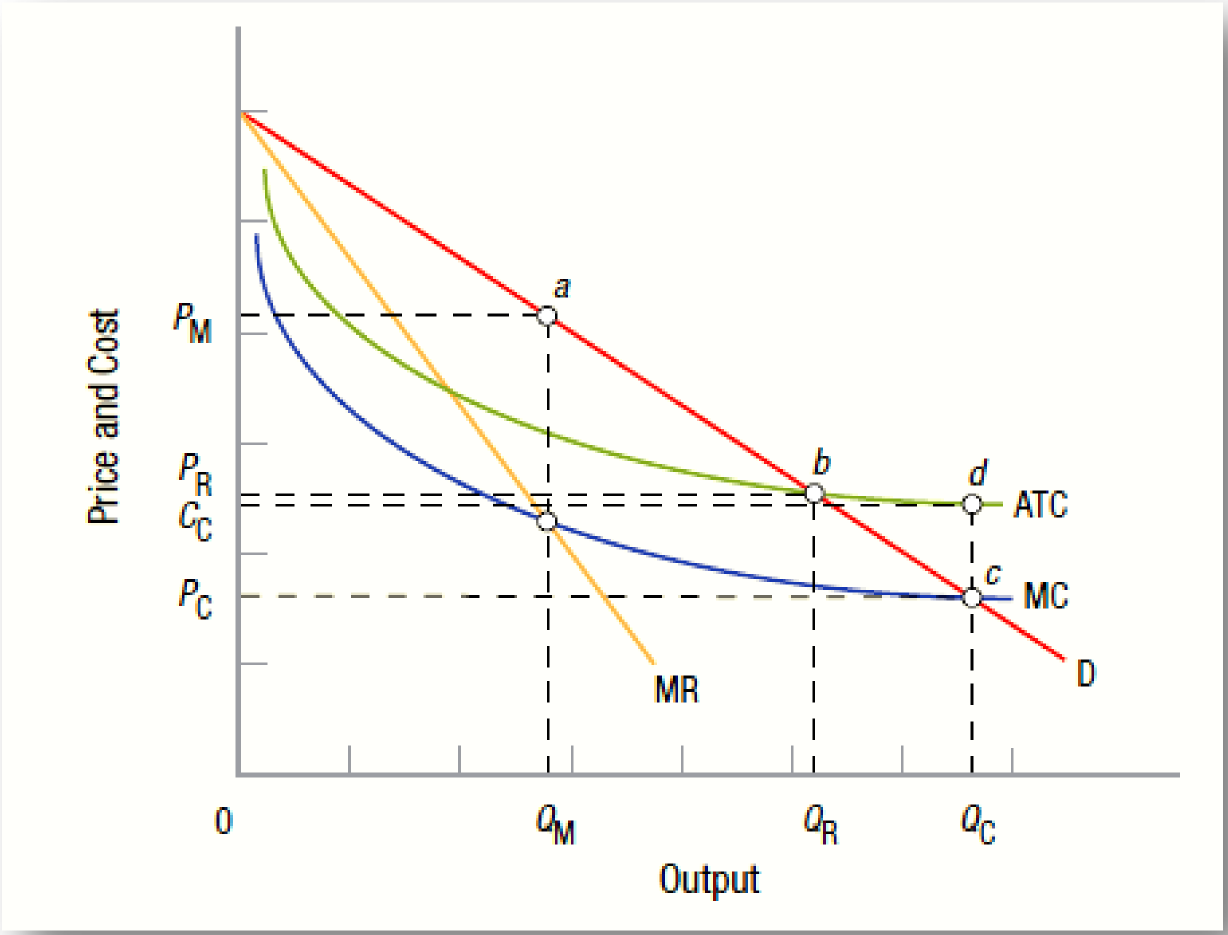


# Regulating the Natural Monopolist

**A *natural monopoly* exists when economies of scale are so significant that the minimum efficient scale of operation is roughly equal to market demand.**

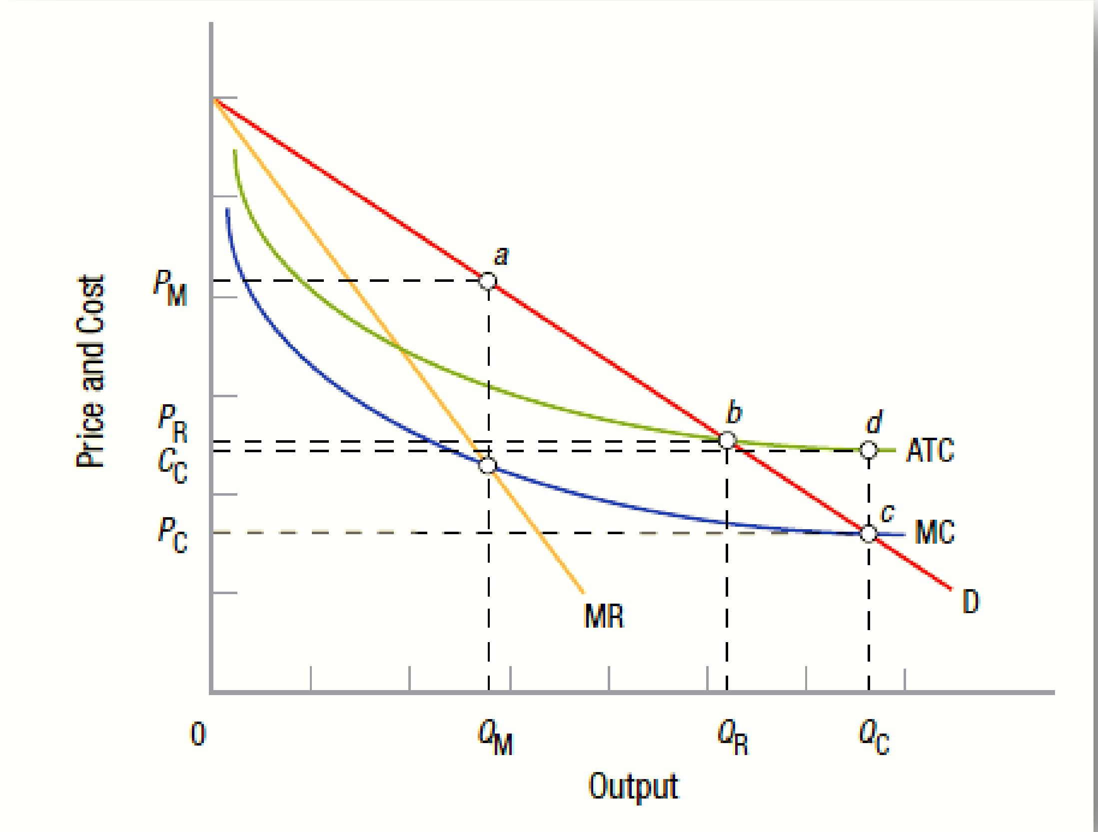
**In this case, efficient production can only be accomplished if the industry lies in the hands of one firm—a monopolist.**

# Regulating a Natural Monopoly: What Price?



# Marginal Cost Pricing Rule

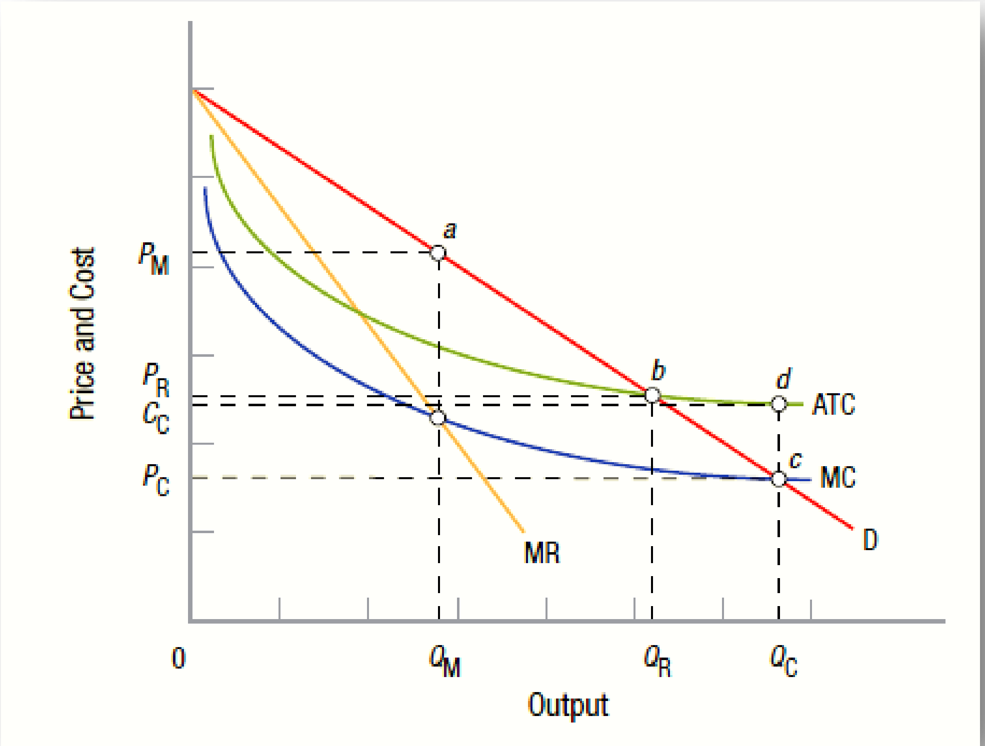
***Marginal cost pricing rule:*** **Regulators would prefer to set price where P = MC, but this would result in losses (long term) because ATC > MC.**



# Average Cost Pricing Rule

***Average cost pricing rule*: Requires a regulated monopolist to produce and sell output where P = ATC**

- **This permits the monopolist to earn a normal return on investment.**



# Regulation in Practice

**In practice, other methods are used for simplicity:**

- ***Rate of return regulation:*** **product pricing that allows the firm to earn a normal return on investment.**
  - **This leads to added regulations regarding allowable costs.**
- ***Price caps:*** **maximum limits on the prices firms can charge for products.**
  - **These caps can be adjusted in response to changing cost conditions.**

# Antitrust Laws

## The Sherman Act (1890)

- Provides criminal penalties for attempts to monopolize

## The Clayton Act (1914)

- Forbids contracts and other arrangements that limit competition

## The Federal Trade Commission Act (1914)

- Protects consumers from unfair or deceptive practices

# Defining the Relevant Market

**As an industry becomes more concentrated among just a few firms, monopoly power increases.**

**The *concentration ratio* is the share of industry sales accounted for by the industry's largest firms.**

- **The 4-firm and 8-firm concentration ratios are most commonly reported.**

# The Herfindahl-Hirshman Index

**The Herfindahl-Hirshman Index (HHI) is the main measure of concentration used by the Justice Department to evaluate mergers and judge monopoly power.**

- ***HHI:*** **the sum of the squares of the market shares held by the largest firms.**
- **Index numbers range from 0 to 10,000: larger numbers mean more market concentration.**

# HHI Categories

**HHI < 1,000:**
**Industry is unconcentrated.**

**1,000 < HHI < 1,800:**
**Industry is moderately concentrated.**

**HHI > 1,800:**
**Industry is highly concentrated.**

# Contestable Markets

***Contestable markets:*** **Markets that look monopolistic but where entry costs are so low that the sheer threat of entry keeps prices low.**

- ***Potential competition*** **constrains firm behavior.**
- **In a contestable market, firms behave like competitive firms (even if there are only a few)**