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Monopoly

PRINCIPLES OF

MICROECONOMICS

FOURTH CANADIAN EDITION

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PowerPoint® Slides

by Ron Cronovich

Canadian adaptation by Marc Prud'Homme

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In this chapter, look for the answers to these questions:

▪ Why do monopolies arise?

▪ Why is  $MR < P$  for a monopolist?

▪ How do monopolies choose their  $P$  and  $Q$ ?

▪ How do monopolies affect society's well-being?

▪ What can the government do about monopolies?

▪ What is price discrimination?

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Introduction

▪ A **monopoly** is a firm that is the sole seller of a product without close substitutes.

▪ In this chapter, we study monopoly and contrast it with perfect competition.

▪ The key difference:  
A monopoly firm has **market power**, the ability to influence the market price of the product it sells. A competitive firm has no market power.

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### Why Monopolies Arise

The main cause of monopolies is **barriers to entry** – other firms cannot enter the market.

Three sources of barriers to entry:

1. A single firm owns a key resource.  
*E.g., DeBeers owns most of the world's diamond mines*
2. The gov't gives a single firm the exclusive right to produce the good.  
*E.g., patents, copyright laws*

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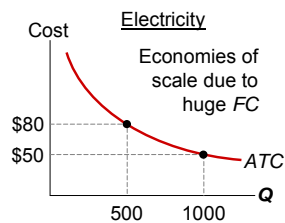
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### Why Monopolies Arise

3. **Natural monopoly**: a single firm can produce the entire market  $Q$  at lower  $ATC$  than could several firms.

Example: 1000 homes need electricity.

$ATC$  is lower if one firm services all 1000 homes than if two firms each service 500 homes.



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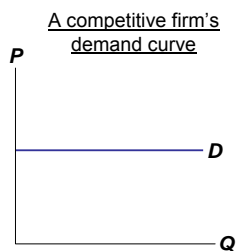
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### Monopoly vs. Competition: Demand Curves

In a competitive market, the market demand curve slopes downward.

but the demand curve for any individual firm's product is horizontal at the market price.

The firm can increase  $Q$  without lowering  $P$ , so  $MR = P$  for the competitive firm.



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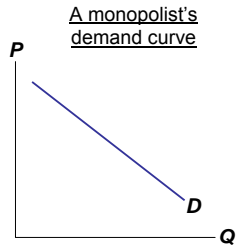
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## Monopoly vs. Competition: Demand Curves

A monopolist is the only seller, so it faces the market demand curve.

To sell a larger  $Q$ , the firm must reduce  $P$ .

Thus,  $MR \neq P$ .



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### ACTIVE LEARNING 1:

#### A monopolist's revenue

Moonbucks is the only seller of cappuccinos in town.

The table shows the market demand for cappuccinos.

Fill in the missing spaces of the table.

What is the relation between  $P$  and  $AR$ ?  
Between  $P$  and  $MR$ ?

$Q$	$P$	$TR$	$AR$	$MR$
0	\$4.50		n.a.	
1	4.00			
2	3.50			
3	3.00			
4	2.50			
5	2.00			
6	1.50			

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### ACTIVE LEARNING 1:

#### Answers

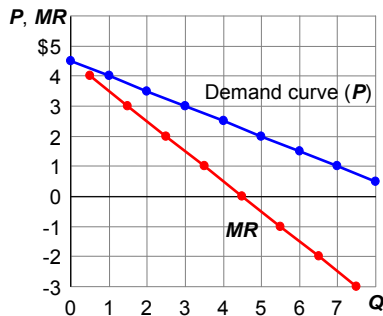
Here,  $P = AR$ , same as for a competitive firm.

Here,  $MR < P$ , whereas  $MR = P$  for a competitive firm.

$Q$	$P$	$TR$	$AR$	$MR$
0	\$4.50	\$ 0	n.a.	
1	4.00	4	\$4.00	\$4
2	3.50	7	3.50	3
3	3.00	9	3.00	2
4	2.50	10	2.50	1
5	2.00	10	2.00	0
6	1.50	9	1.50	-1

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### Moonbuck's $D$ and $MR$ Curves



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### Understanding the Monopolist's $MR$

- Increasing  $Q$  has two effects on revenue:
  - The **output effect**:  
More output is sold, which raises revenue
  - The **price effect**:  
The price falls, which lowers revenue
- To sell a larger  $Q$ , the monopolist must reduce the price on all the units it sells.
- Hence,  $MR < P$
- $MR$  could even be negative if the price effect exceeds the output effect (e.g., when Moonbucks increases  $Q$  from 5 to 6).

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### Profit-Maximization

- Like a competitive firm, a monopolist maximizes profit by producing the quantity where  $MR = MC$ .
- Once the monopolist identifies this quantity, it sets the highest price consumers are willing to pay for that quantity.
- It finds this price from the  $D$  curve.

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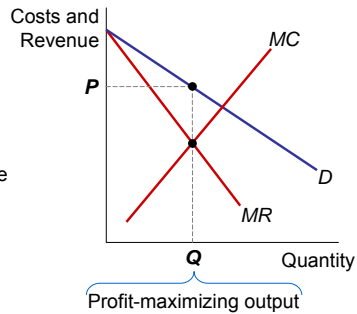
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### Profit-Maximization

1. The profit-maximizing  $Q$  is where  $MR = MC$ .
2. Find  $P$  from the demand curve at this  $Q$ .



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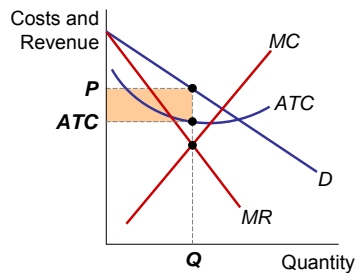
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### The Monopolist's Profit

As with a competitive firm, the monopolist's profit equals

$$(P - ATC) \times Q$$



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### A Monopoly Does Not Have an S Curve

A competitive firm

- takes  $P$  as given
- has a supply curve that shows how its  $Q$  depends on  $P$

A monopoly firm

- is a "price-maker," not a "price-taker"
- $Q$  does not depend on  $P$ ; rather,  $Q$  and  $P$  are jointly determined by  $MC$ ,  $MR$ , and the demand curve.

So there is no supply curve for monopoly.

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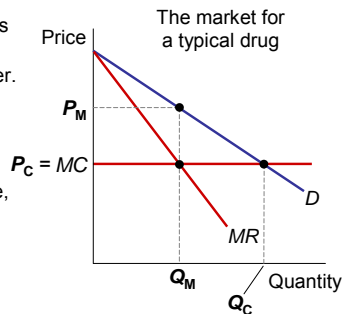
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### Case Study: Monopoly vs. Generic Drugs

Patents on new drugs give a temporary monopoly to the seller.

When the patent expires, the market becomes competitive, generics appear.



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### The Welfare Cost of Monopoly

- Recall: In a competitive market equilibrium,  $P = MC$  and total surplus is maximized.
- In the monopoly eq'm,  $P > MR = MC$ 
  - The value to buyers of an additional unit ( $P$ ) exceeds the cost of the resources needed to produce that unit ( $MC$ ).
  - The monopoly  $Q$  is too low – could increase total surplus with a larger  $Q$ .
  - Thus, monopoly results in a deadweight loss.

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### The Welfare Cost of Monopoly

Competitive eq'm:  
quantity =  $Q_E$

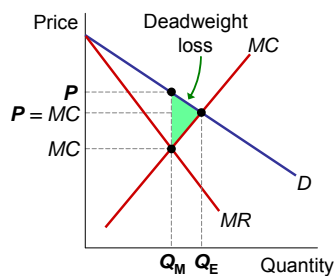
$P = MC$

total surplus is maximized

Monopoly eq'm:  
quantity =  $Q_M$

$P > MC$

deadweight loss



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### Public Policy Toward Monopolies

- Increasing competition with antitrust laws
  - Examples: Act for the Prevention and Suppression of Combinations Formed in Restraint of Trade (1889), Combines Investigation Act (1910).
  - Competition Act and Competition Tribunal Act (1986)
  - Competition law in Canada is enforced by the Competition Bureau which is a unit of Industry Canada.
  - Competition laws prohibit certain anticompetitive practices, allow gov't to break up monopolies.

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### Public Policy Toward Monopolies

- Governments can also deal with the problem of monopoly is through regulation. Common with natural monopolies.
  - Gov't agencies regulate the monopolist's price
  - For natural monopolies,  $MC < ATC$  at all  $Q$ , so marginal cost pricing would result in losses.
  - If so, regulators might subsidize the monopolist or set  $P = ATC$  for zero economic profit.

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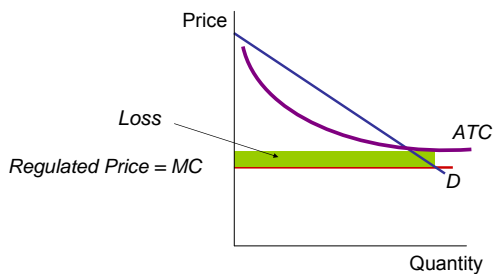
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### MC Pricing for a Natural Monopoly



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## Public Policy Toward Monopolies

- Public ownership
  - Federal Crown corporations: Canada Post and the CBC.
  - Provincial Crown corporations: SaskTel, Manitoba Hydro, Hydro-Québec.
  - Problem: Public ownership is usually less efficient with no profit motive to minimize costs.
- Doing nothing
  - The foregoing policies all have drawbacks, so the best policy may be no policy.

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## Price Discrimination

- Discrimination is the practice of treating people differently based on some characteristic, such as race or gender.
- **Price discrimination** is the business practice of selling the same good at different prices to different buyers.
- The characteristic used in price discrimination is willingness to pay (WTP):
  - A firm can increase profit by charging a higher price to buyers with higher WTP.

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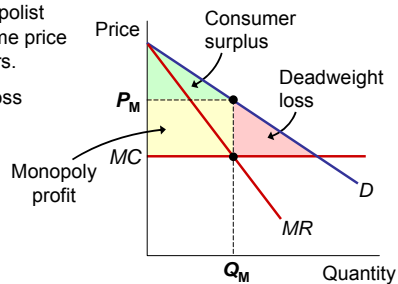
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## Perfect Price Discrimination vs. Single Price Monopoly

Here, the monopolist charges the same price ( $P_M$ ) to all buyers.

A deadweight loss results.



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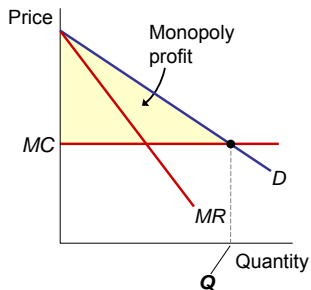
### Perfect Price Discrimination vs. Single Price Monopoly

Here, the monopolist produces the competitive quantity, but charges each buyer his or her WTP.

This is called **perfect (first-degree) price discrimination**.

The monopolist captures all CS as profit.

But there's no DWL.



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### Price Discrimination in the Real World

- In the real world, perfect price discrimination is not possible:
  - no firm knows every buyer's WTP
  - buyers do not announce it to sellers
- So, firms divide customers into groups based on some observable trait that is likely related to WTP (e.g., young vs. old, weekday vs. weekend shoppers)

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### Imperfect Price Discrimination

- **Second-degree price discrimination:** When the firm charges different prices to the same customer for different units that the customer buys.
  - Example: Individual donuts selling for 50 cents compared to \$5 per dozen.
- **Third-degree price discrimination:** When the markets can be segmented and when the segments have different elasticities of demand.
  - Example: Movie theaters that charge a lower price for seniors and children.

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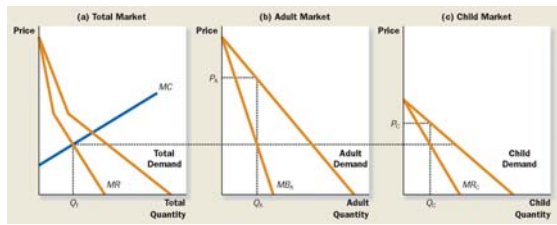
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**FIGURE 15.11: Third-Degree Price Discrimination**



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### Examples of Price Discrimination

#### Airline prices

Discounts for Saturday-night stopovers help distinguish business travellers, who usually have higher WTP, from more price-sensitive leisure travellers.

#### Discount coupons

People who have time to clip and organize coupons are more likely to have lower income and lower WTP than others.

#### Financial aid

Low income families have lower WTP for their children's college education. Schools price-discriminate by offering need-based aid to low income families.

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### CONCLUSION: The Prevalence of Monopoly

- In the real world, pure monopoly is rare.
- Yet, many firms have market power, due to
  - selling a unique variety of a product
  - having a large market share and few significant competitors
- In many such cases, most of the results from this chapter apply, including
  - markup of price over marginal cost
  - deadweight loss

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**TABLE 15.2: Competition versus Monopoly:  
A Summary Comparison**

	Competition	Monopoly
<b>Similarities</b>		
Goal of firms	Maximize profits	Maximize profits
Rule for maximizing	$MR = MC$	$MR = MC$
Can earn economic profits in the short run?	Yes	Yes
<b>Differences</b>		
Number of firms	Many	One
Marginal revenue	$MR = P$	$MR < P$
Price	$P = MC$	$P > MC$
Produces welfare-maximizing level of output?	Yes	No
Entry in long run?	Yes	No
Can earn economic profits in long run?	No	Yes
Price discrimination possible?	No	Yes

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## CHAPTER SUMMARY

- A monopoly firm is the sole seller in its market. Monopolies arise due to barriers to entry, including: government-granted monopolies, the control of a key resource, or economies of scale over the entire range of output.
- A monopoly firm faces a downward-sloping demand curve for its product. As a result, it must reduce price to sell a larger quantity, which causes marginal revenue to fall below price.

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## CHAPTER SUMMARY

- Monopoly firms maximize profits by producing the quantity where marginal revenue equals marginal cost. But since marginal revenue is less than price, the monopoly price will be greater than marginal cost, leading to a deadweight loss.
- Policymakers may respond by regulating monopolies, using antitrust laws to promote competition, or by taking over the monopoly and running it. Due to problems with each of these options, the best option may be to take no action.

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## CHAPTER SUMMARY

- Monopoly firms (and others with market power) try to raise their profits by charging higher prices to consumers with higher willingness to pay. This practice is called price discrimination.

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## End: Chapter 15

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