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Principles of
Economics
Sixth Edition

15

Monopoly

Premium PowerPoint Slides by Ron Cronovich

Modified by Joseph Tao-yi Wang

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?

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.

Why Monopolies Arise

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

Three sources of barriers to entry:

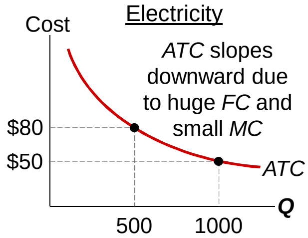
1. A single firm owns a key resource.
   E.g., DeBeers owns most of the world's diamond mines
2. The govt gives a single firm the exclusive right to produce the good.
   E.g., patents, copyright laws, rice wine

Why Monopolies Arise

3. **Natural monopoly**: a single firm can produce the entire market ***Q*** at lower cost 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.



Monopoly vs. Competition: Demand Curves

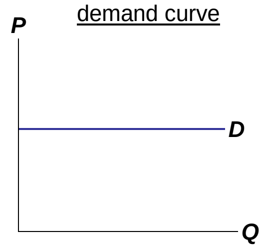
In a competitive market, the market demand curve slopes downward.

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.

A competitive firm's demand curve

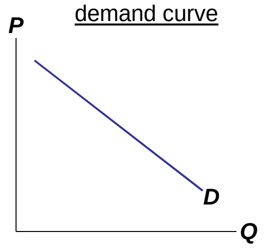


Monopoly vs. Competition: Demand Curves

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* ≠ ***P***.



ACTIVE LEARNING 1

A monopoly's revenue

Common Grounds 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	$180		n.a.	
1	160			
2	140			
3	120			
4	100			
5	80			
6	40			

ACTIVE LEARNING 1

Answers

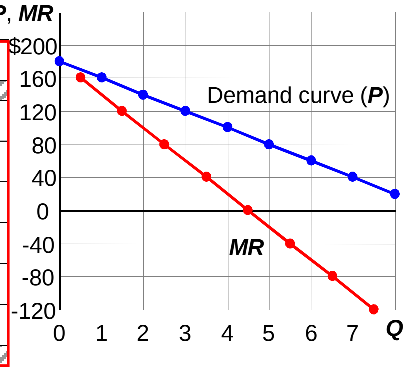
Here, ***P*** = ***AR***, same as for a competitive firm.

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

Q	*P*	*TR*	*AR*	*MR*
0	$180	$ 0	n.a.	
1	160	160	$160	$160
2	140	280	140	120
3	120	360	120	80
4	100	400	100	40
5	80	400	80	0
6	60	360	60	–40

Common Grounds' *D* and *MR* Curves

Q	*P*	*MR*
0	$180	
1	160	$160
2	140	120
3	120	80
4	100	40
5	80	0
6	60	–40



Understanding the Monopolist's MR

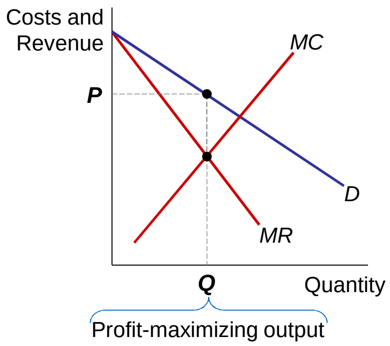
- Increasing ***Q*** has two effects on revenue:
  - ***Output effect***: higher output raises revenue
  - ***Price effect***: lower price reduces revenue
- To sell a larger ***Q***, the monopolist must reduce the price on all the units it sells.
- Hence, *MR* < ***P***
- *MR* could even be negative if the price effect exceeds the output effect (e.g., when Common Grounds increases ***Q*** from 5 to 6).

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.

Profit-Maximization

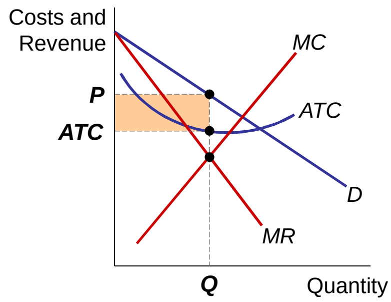
1. The profit-maximizing ***Q*** is where *MR* = *MC*.
2. Find ***P*** from the demand curve at this ***Q***.



The Monopolist's Profit

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

(***P*** – ***ATC***) x ***Q***



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***.

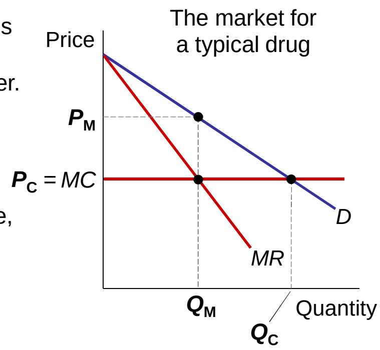
A monopoly firm
- is a "price-maker," not a "price-taker"
- ***Q*** does not depend on ***P***; ***Q*** and ***P*** are jointly determined by *MC*, *MR*, and the demand curve.

Hence, no supply curve for monopoly.

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.



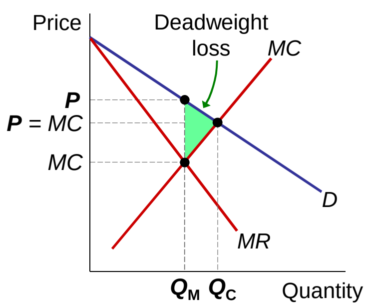
The Welfare Cost of Monopoly

- 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.

The Welfare Cost of Monopoly

Competitive eq'm:
- quantity = Q_C
- ***P*** = *MC*
- total surplus is maximized

Monopoly eq'm:
- quantity = Q_M
- ***P*** > *MC*
- deadweight loss



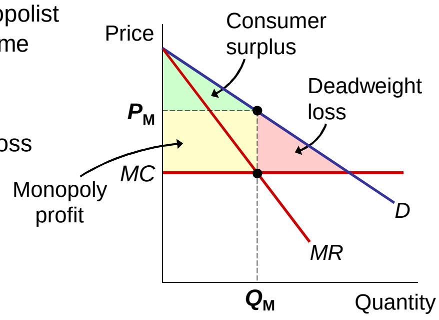
Price Discrimination

- Discrimination: treating people differently based on some characteristic, e.g. race or gender.
- **Price discrimination**: 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.

Perfect Price Discrimination vs. Single Price Monopoly

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

A deadweight loss results.



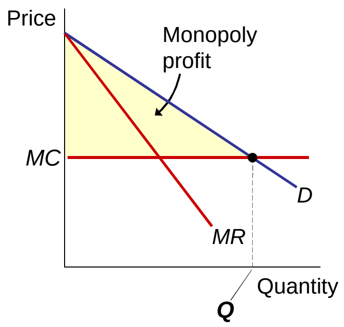
Perfect Price Discrimination vs. Single Price Monopoly

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

This is called **perfect price discrimination**.

The monopolist captures all CS as profit.

But there's no DWL.



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 reveal it to sellers
- So, firms divide customers into groups based on some observable trait that is likely related to WTP, such as age.

Examples of Price Discrimination

Movie tickets

Discounts for seniors, students, and people who can attend during weekday afternoons. They are all more likely to have lower WTP than people who pay full price on Friday night.

Airline prices

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

Examples of Price Discrimination

Discount coupons

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

Need-based 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.

Examples of Price Discrimination

Quantity discounts

A buyer's WTP often declines with additional units, so firms charge less per unit for large quantities than small ones.

Example: A movie theater charges $160 for a small popcorn and $200 for a large one that's twice as big.

Public Policy Toward Monopolies

- Increasing competition with antitrust laws
  - Ban some anticompetitive practices, allow govt to break up monopolies.
  - e.g., Sherman Antitrust Act (1890), Clayton Act (1914)
- Regulation
  - Govt agencies set the monopolist's price.
  - For natural monopolies, $MC < ATC$ at all $\boldsymbol{Q}$, so marginal cost pricing would result in losses.
  - If so, regulators might subsidize the monopolist or set $\boldsymbol{P} = ATC$ for zero economic profit.

Public Policy Toward Monopolies

- Public ownership
  - Example: U.S. Postal Service, Taiwan CPC, TTL
  - Problem: Public ownership is usually less efficient since no profit motive to minimize costs
- Doing nothing
  - The foregoing policies all have drawbacks, so the best policy may be no policy.
- Auction Off the Market (Harold Demsetz)
  - Can use the revenue to subsidize consumers
  - Pigovian Subsidy: Correct for deadweight loss

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

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.

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.
- 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.

SUMMARY

- 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.
- Or, just auction off the market. (Demsetz, 1968)

Monopoly

- MR=MC to maximize profit (still true!)
- But, P > MR (D - downward sloping)
- Welfare Cost of a Monopoly:
  - Profits (unfair?) vs. DWL (efficiency loss!)
- Cures? Do nothing? Auction off the market
- Homework: Mankiw, Ch. 15, pp. 325-328
  - Problem 3, 5, 6, 7, 9, 12, 13.

31

Additional Homework Questions

- **True or False.** Monopolists can achieve any level of profit they desire because they have unlimited market power.

- **True or False.** Heavy competition among firms for a limited number of customers leads to such devices as discounts for students and senior citizens.

32