

Unit 4: Imperfect Competition

FOUR MARKET STRUCTURES



Every product is sold in a market that can be considered one of the above market structures.

For example:

- Fast Food Market
- The Market for Cars
- The Post Office
- Strawberry Market
- Cereal Market

5 Characteristics of a Monopoly

1. Single Seller

- One Firm controls the vast majority of a market
- The Firm IS the Industry

2. Unique good with no close substitutes

3. “Price Maker”

The firm can manipulate the price by changing the quantity it produces (ie. shifting the supply curve to the left).

Ex: Pacific Gas and Electric

5 Characteristics of a Monopoly

4. High Barriers to Entry

- New firms CANNOT enter market
- No immediate competitors
- Firm can make profit in the long-run

5. Some “Non-price” Competition

- Despite having no close competitors, monopolies still advertise their products in an effort to increase demand.

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What do you already know about monopolies?

True or False?

1. All monopolies make a profit.
2. Monopolies are usually efficient.
3. All monopolies are bad for the economy.
4. All monopolies are illegal.
5. Monopolies charge the highest price possible
6. The government never prevents monopolies from forming.

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Four Origins of Monopolies

1. Geography is the Barrier to Entry

Ex: Nowhere gas stations, De Beers Diamonds, Denver Broncos, Lockwood Store...

- Location or control of resources limits competition and leads to one supplier.

2. The Government is the Barrier to Entry

Ex: Water Company, Firefighters, The Army, The Post Office...

- Government allows monopoly for public benefits.
- Government either owns or authorizes one producer

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Four Origins of Monopolies

3. Technology or Patent Use is the Barrier to Entry

Ex: Microsoft, Intel, Pharmaceutical drugs...

- Patents and widespread availability of certain products lead to only one major firm controlling a market.
- The government issues patents to protect inventors and forbids others from using their invention.

4. Mass Production and Low Costs are Barriers to Entry

Ex: Electric Companies (PG&E)

- If there were three competing electric companies they would have higher costs.
- Having only one electric company keeps prices low

-Economies of scale make it impractical to have smaller firms.

Natural Monopoly- It is NATURAL for only one firm to produce because they can produce at the lowest cost.

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Drawing Monopolies

Good news...

1. Only one graph because the firm IS the industry.
2. The cost curves are the same
3. The MR= MC rule still applies
4. Shut down rule still applies

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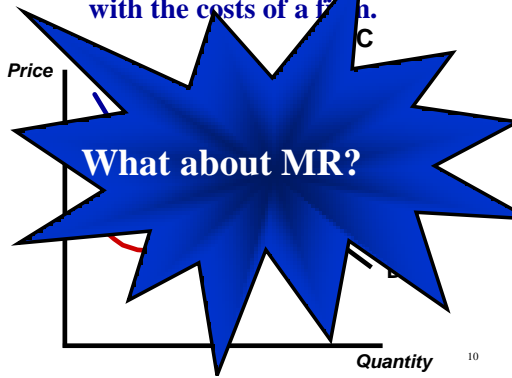
The Main Difference

- Monopolies (and all Imperfectly competitive firms) have downward sloping demand curve.
- Which means, to sell more a firm must lower its price.
- This changes MR...

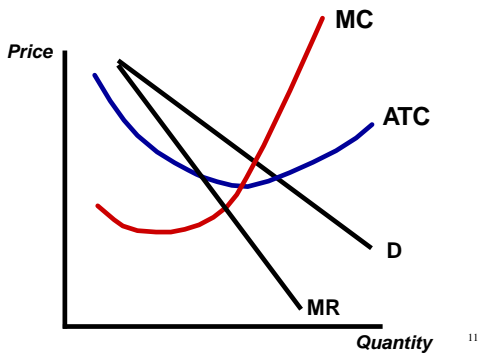
**THE MARGINAL REVENUE
DOESN'T EQUAL THE PRICE!**

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Combine the Demand of an industry with the costs of a firm.



Combine the Demand of an industry with the costs of a firm.

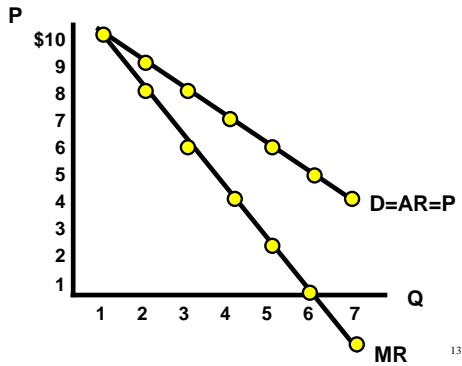


Why is MR less than Demand?

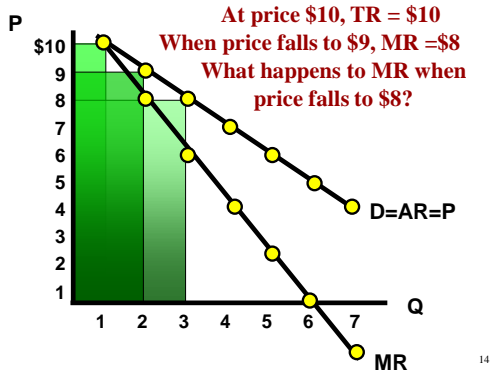
\$10						
\$9	\$9					
\$8	\$8	\$8				
\$7	\$7	\$7	\$7			
\$6	\$6	\$6	\$6	\$6		
\$5	\$5	\$5	\$5	\$5	\$5	
\$4	\$4	\$4	\$4	\$4	\$4	\$4

P	Qd	TR	MR
\$11	0		
\$10	1		
\$9	2		
\$8	3		
\$7	4		
\$6	5		
\$5	6		
\$4	7		

Why is MR below Demand?



Why is MR below Demand?



Calculate TR and Marginal Revenue

Quantity	Price	TR	MR
0	\$16		
1	15		
2	14		
3	13		
4	12		
5	11		
6	10		
7	9		
8	8		
9	7		
10	6		

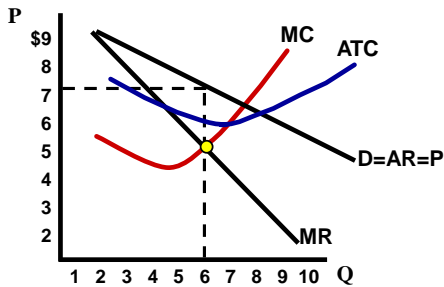
Maximizing Profit

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What output should this monopoly produce?

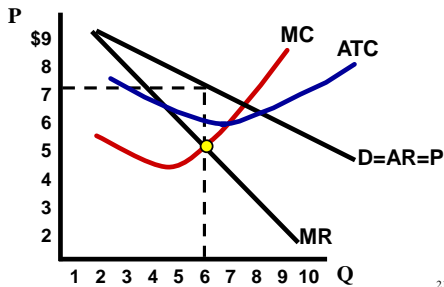
$$MR = MC$$

How much is the TR, TC and Profit or Loss?



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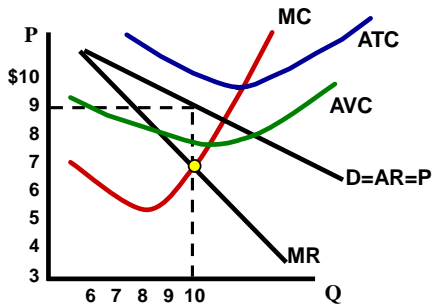
Conclusion: A monopolists produces where $MR=MC$, but charges the price consumer are willing to pay identified by the demand curve.



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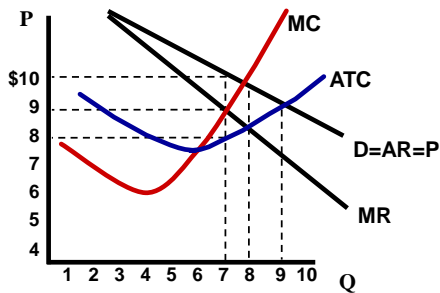
What if cost are higher?

How much is the TR, TC, and Profit or Loss?



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Identify and Calculate: TR=
TC=
Profit/Loss=
Profit/Loss per Unit=

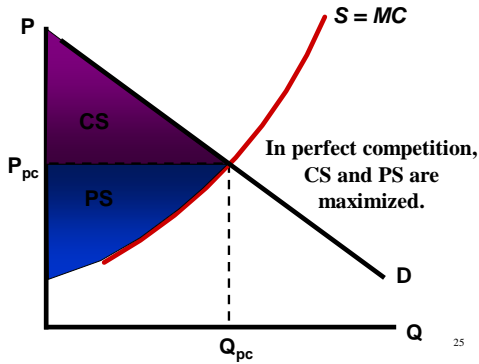


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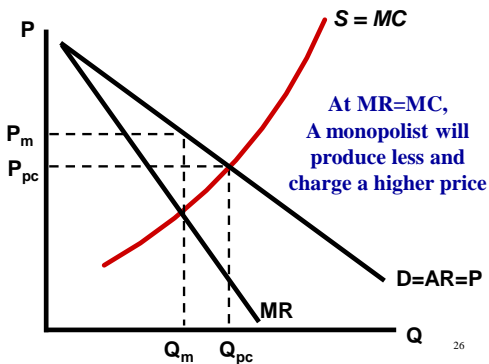
Are Monopolies Efficient?

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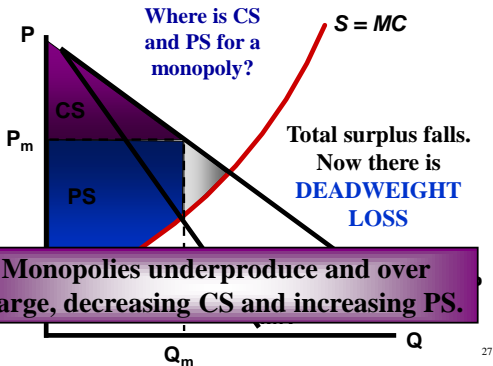
Monopolies vs. Perfect Competition



Monopolies vs. Perfect Competition

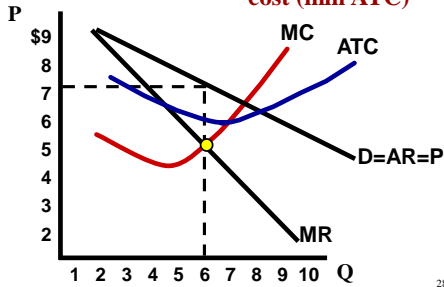


Monopolies vs. Perfect Competition



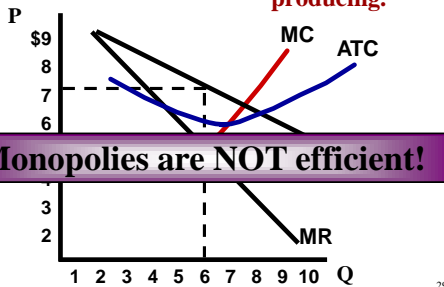
Are Monopolies Productively Efficient?

Does Price = Min ATC? **No. They are not producing at the lowest cost (min ATC)**



Are Monopolies Allocatively Efficiency?

Does Price = MC? **No. Price is greater. The monopoly is under producing.**



Monopolies are NOT efficient!

Monopolies are inefficient because they...

1. Charge a higher price
2. Don't produce enough
 - Not allocatively efficient
3. Produce at higher costs
 - Not productively efficient
4. Have little incentive to innovate

Why?

Because there is little external pressure to be efficient

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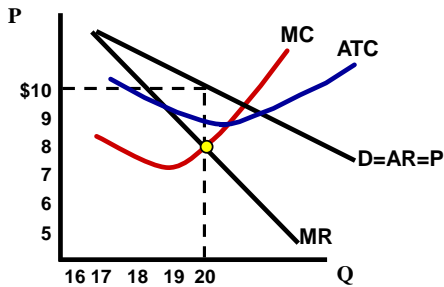
REVIEW

1. Monopoly
2. Imperfect Competition
3. Barriers to Entry
4. Dead Weight Loss
5. Productive Efficiency
6. Marginal Revenue
7. $MR = MC$
8. Shut down rule
9. Natural Monopoly
10. Allocative Efficiency

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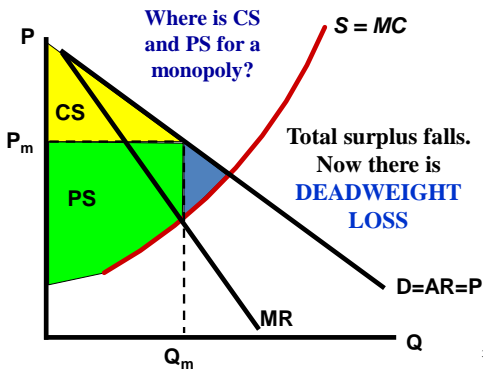
Conclusion: A monopoly produces where $MR=MC$, but charges the price by the demand curve.

How much is the TR, TC and Profit or Loss?



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Monopolies vs. Perfect Competition



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Regulating Monopolies

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Why Regulate?

Why would the government regulate a monopoly?

- 1. To keep prices low
- 2. To make monopolies efficient

How do they regulate?

- Use Price controls: Price Ceilings
- Why don't taxes work?
 - Taxes limit supply and that's the problem 38

Where should the government place the price ceiling?

1. Socially Optimal Price

$P = MC$ (Allocative Efficiency)

OR

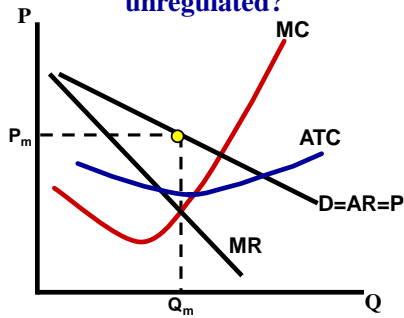
2. Fair-Return Price (Break-Even)

$P = ATC$ (Normal Profit)

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Regulating Monopolies

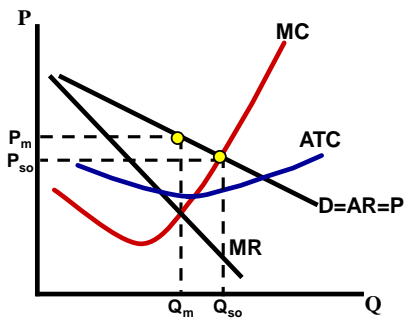
Where does the firm produce if it is unregulated?



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Regulating Monopolies

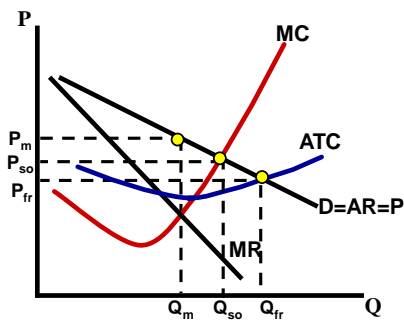
Socially Optimal = Allocative Efficiency



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Regulating Monopolies

Fair Return means no economic profit



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Price Discrimination

Definition:

Practice of selling the same products to different buyers at different prices

Examples:

- Airline Tickets (vacation vs. business)
- Movie Theaters (child vs. adult)
- All Coupons (spenders vs. savers)
- HS sporting events (students vs. parents)

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PRICE DISCRIMINATION

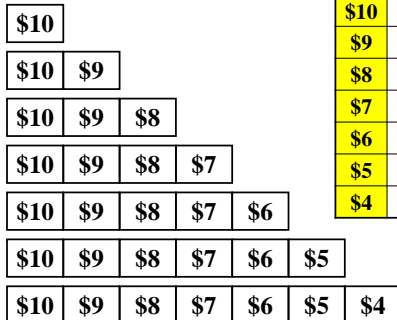
- Price discrimination seeks to charge each consumer what they are willing to pay in an effort to increase profits.
- Those with inelastic demand are charged more than those with elastic

Requires the following conditions:

1. Must have monopoly power
2. Must be able to segregate the market
3. Consumers must NOT be able to resell product

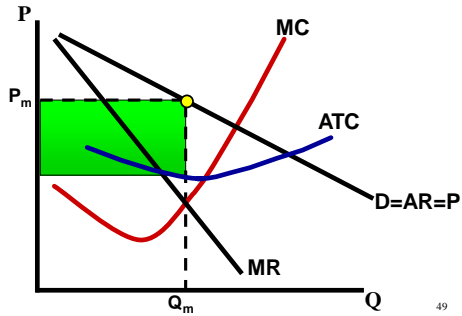
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Results of Price Discrimination

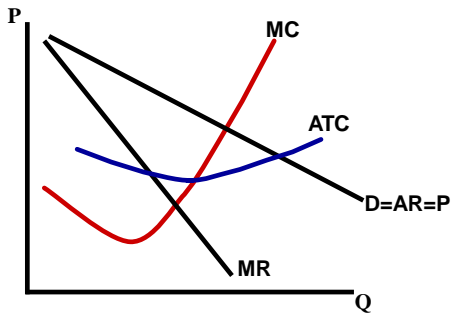


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Regular Monopoly vs. Price Discriminating Monopoly

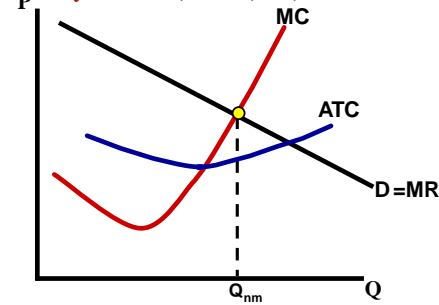


A perfect price discriminator can charge each person differently so the Marginal Revenue = Demand



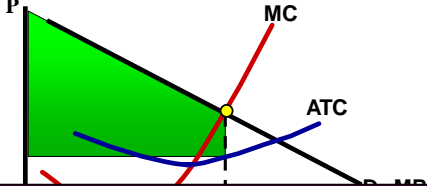
A perfect price discriminator can charge each person differently so the Marginal Revenue = Demand

Identify the Price, Profit, CS, and DWL



A perfect price discriminator can charge each person differently so the Marginal Revenue = Demand

Identify the Price, Profit, CS, and DWL



Price Discrimination results in several prices, more profit, no CS, and a higher socially optimal quantity

Can You Do The Following?

1. Draw a monopoly making a profit at long-run equilibrium and identify price, quantity, and profit.
2. Draw a perfectly competitive industry AND firm showing short run losses
3. Draw a price discriminating monopoly at equilibrium and label price, quantity, MR, and profit

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Monopolistic Competition

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Differentiated Products

- Goods are NOT identical.
- Firms seek to capture a piece of the market by making unique goods.
- Since these products have substitutes, firms use NON-PRICE Competition.

Examples of NON-PRICE Competition

- Brand Names and Packaging
- Product Attributes
- Service
- Location
- Advertising (Two Goals)
 1. Increase Demand
 2. Make demand more INELASTIC

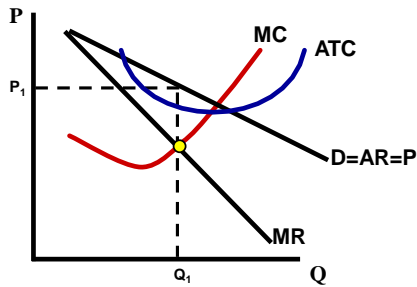
Monopolistic Competition is made up of price makers so MR is less than Demand

In the short-run, it is the same graph as a monopoly making profit



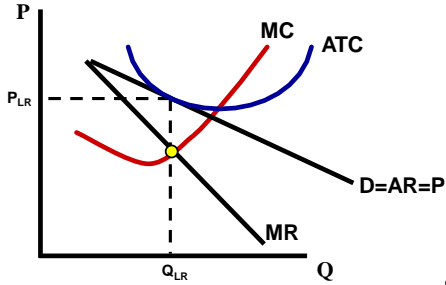
In the long-run, new firms will enter, driving down the DEMAND for firms already in the market.

Firms enter so demand falls until there is no economic profit



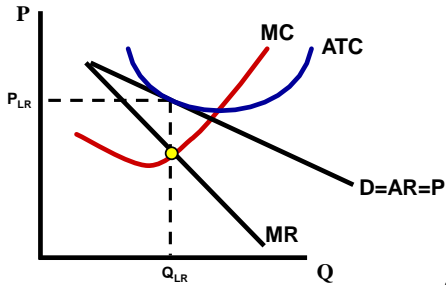
Firms enter so demand falls until there is no economic profit

Price and quantity falls and $TR=TC$



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LONG-RUN EQUILIBRIUM
Quantity where $MR=MC$ up to Price = ATC



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Why does DEMAND shift?

When short-run profits are made...

- New firms enter.
- New firms mean more close substitutes and less market shares for each existing firm.
- Demand for each firm falls.

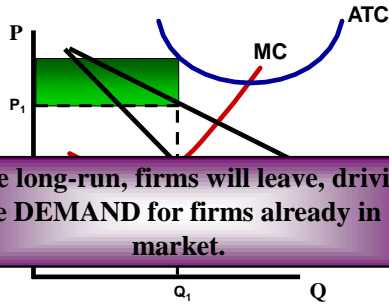
When short-run losses are made...

- Firms exit.
- Result is less substitutes and more market shares for remaining firms.
- Demand for each firm rises.

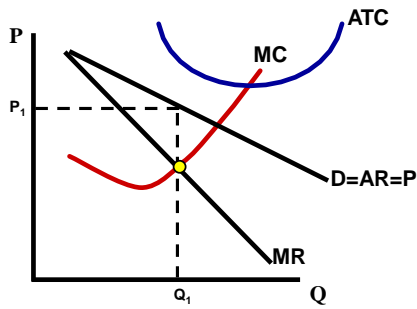
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What happens when there is a loss?

In the short-run, the graph is the same as a monopoly making a loss

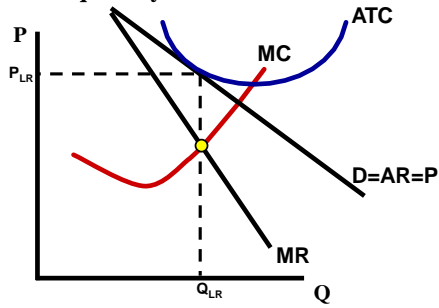


Firms leave so demand increases until there is no economic profit



Firms leave so demand increases until there is no economic profit

Price and quantity increase and $TR=TC$

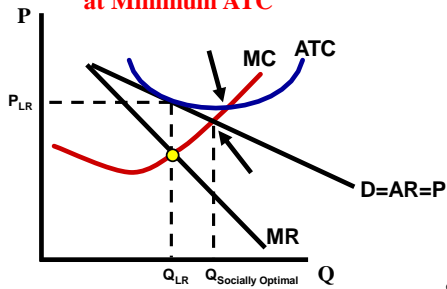


Are Monopolistically Competitive Firms Efficient?

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LONG-RUN EQUILIBRIUM

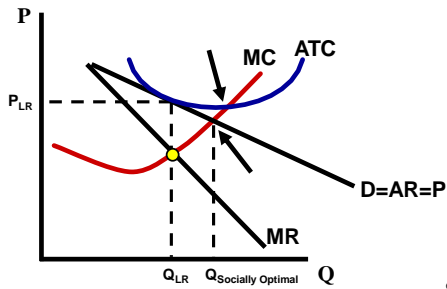
Not Allocatively Efficient because $P \neq MC$
 Not Productively Efficient because not producing at Minimum ATC



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LONG-RUN EQUILIBRIUM

This firm also has EXCESS CAPACITY



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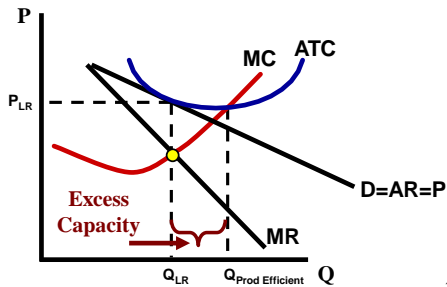
Excess Capacity

- Given current resources, the firm can produce at the lowest costs (minimum ATC) but they decide not to.
- The gap between the minimum ATC output and the profit maximizing output.

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LONG-RUN EQUILIBRIUM

The firm can produce at a lower cost but it holds back production to maximize profit



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Practice Question

Assume there is a monopolistically competitive firm in long-run equilibrium. If this firm were to realize productive efficiency, it would:

- A) have more economic profit.
- B) have a loss.
- C) also achieve allocative efficiency.
- D) be under producing.
- E) be in long-run equilibrium.

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Advantages of MONOPOLISTIC COMPETITION

- Large number of firms and product variation meets society's needs.
- Non-price Competition (**product differentiation and advertising**) may result in sustained profits for some firms.

Ex: Nike might continue to make above normal profit because they are a well known brand.

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Graphing

1. Draw the graph for a monopolistic competitive fast food restaurant making \$400 total profit by selling 200 burgers at \$4 each. Label D, MR, MC, Price, and Quantity.
2. Show shifts that will occur in the long-run and identify TR, TC, and profit.

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Oligopoly

FOUR MARKET MODELS



Characteristics of Oligopolies:

- A Few Large Producers (Less than 10)
- Identical or Differentiated Products
- High Barriers to Entry
- Control Over Price (Price Maker)
- Mutual *Interdependence*
 - Firms use Strategic Pricing

Examples: OPEC, Cereal Companies, Car Producers

HOW DO OLIGOPOLIES OCCUR?

Oligopolies occur when only a few large firms start to control an industry. High barriers to entry keep others from entering.

Types of Barriers to Entry

1. Economies of Scale/High Start-up Costs
 - Ex: The car industry is difficult to enter because only large firms can make cars at the lowest cost
2. Ownership of Raw Materials

Game Theory

The study of how people behave in strategic situations



An understanding of game theory helps firms in an oligopoly maximize profit.

Why learn about game theory?

- Oligopolies are **interdependent** since they compete with only a few other firms.
- Their pricing and output decisions must be strategic as to avoid economic losses.
- Game theory helps us analyze their strategies.

The Prisoner's Dilemma

Charged with a crime, each prisoner has one of two choices:
Deny or Confess



		Prisoner 2	
		Deny	Confess
Prisoner 1	Deny	Both Deny = 5 Years in jail each	Confess = Free Deny = 20 Years
	Confess	Confess = Free Deny = 20 Years	Both Confess = 10 Years in jail each

Game Theory Matrix

You and your partner are competing firms. You have one of two choices: Price High or Price Low.

Without talking, write down your choice

		Firm 2	
		High	Low
Firm 1	High	Both High = \$20 Each	Low = \$30 High = 0
	Low	High = 0 Low = \$30	Both Low = \$10 each

Game Theory Matrix

Notice that you have an incentive to collude but also an incentive to cheat on your agreement

		Firm 2	
		High	Low
Firm 1	High	Both High = \$20 Each	Low = \$30 High = 0
	Low	High = 0 Low = \$30	Both Low= \$10 each

Game Theory Matrix

Coke vs. Pepsi

		Coke	
		Advertise	Don't Advertise
Pepsi	Advertise	80 / 80	120 / 45
	Don't Advertise	45 / 120	100 / 100

Dominant Strategy

The Dominant Strategy is the best move to make regardless of what your opponent does

What is each firm's dominate strategy?

		Firm 2	
		High	Low
Firm 1	High	\$100, \$50	\$50, \$90
	Low	\$80, \$40	\$20, \$10

Video: Split or Steal

What is each player's dominate strategy?

		Firm 2	
		Split	Steal
Firm 1	Split	Half, Half	None, All
	Steal	All, None	None, None

Can You Trust Your Friend?

What is each player's dominate strategy?

		Student 2	
		Take Exam	Don't Take
Student 1	Take Exam	A, F	A, F
	Don't Take	F, A	B, B

What did we learn?

1. Oligopolies must use strategic pricing (they have to worry about the other guy)
2. Oligopolies have a tendency to collude to gain profit.
(Collusion is the act of cooperating with rivals in order to "rig" a situation)
3. Collusion results in the incentive to cheat.
4. Firms make informed decisions based on their dominant strategies

Firms that are part of the oligopoly
Market structure are interdependent

There are 3 types of Oligopolies

- 1. Price Leadership (no graph)
- 2. Colluding Oligopoly
- 3. Non Colluding Oligopoly

#1. Price Leadership

PRICE LEADERSHIP MODEL

- Collusion is ILLEGAL.
- Firms CANNOT set prices.
- Price leadership is a strategy used by firms to coordinate prices without outright collusion

General Process:

- 1. "Dominant firm" initiates a price change
- 2. Other firms follow the leader

PRICE LEADERSHIP MODEL

Breakdowns in Price Leadership

- **Temporary Price Wars may occur if other firms don't follow price increases of dominant firm.**
- **Each firm tries to undercut each other.**

Example: Employee Pricing for Ford



#2. Colluding Oligopolies

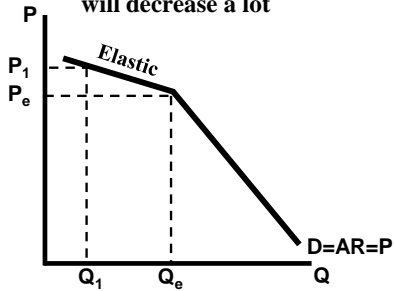
Cartel = Colluding Oligopoly

A cartel is a group of producers that create an agreement to fix prices high.

1. **Cartels set price and output at an agreed upon level**
2. **Firms require identical or highly similar demand and costs**
3. **Cartel must have a way to punish cheaters**
4. **Together they act as a monopoly**

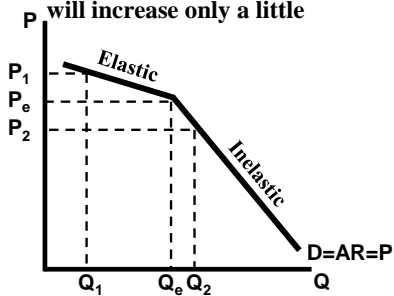
If this firm increases its price, other firms will ignore it and keep prices the same

As the only firm with high prices, Q_d for this firm will decrease a lot



If this firm decreases its price, other firms will match it and lower their prices

Since all firms have lower prices, Q_d for this firm will increase only a little



Where is Marginal Revenue?

MR has a vertical gap at the kink. The result is that MC can move and Q_e won't change. Price is sticky.

