Lecture 12: Market Power

November 17, 2026

Course Administration

1. Quiz 2

Course Administration

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2. Problem Set 11 posted
3. Achieve problems posted
4. Two lectures to go after today!
   - Next week – Happy Thanksgiving!
   - Lecture 13: Externalities & maybe a little market power
   - Lecture 14: Public goods

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4. Two lectures to go after today!
   - Next week – Happy Thanksgiving!
   - Lecture 13: Externalities & maybe a little market power
   - Lecture 14: Public goods
5. Final exam December 15
   - Review Thursday December 10, 6 to 8 pm, Room TBD
   - Previous final exam posted at bottom of lectures tab
6. Post-class office hours
   - December 9, regular times
   - December 10, 12:30 to 2:30 pm
7. Any questions?

Next Week: Ripped from the Headlines

Send article by Wednesday midnight.

Afternoon

Finder	Presenter
Saniya J.-T.	Ali
Anders S.	Beylie

Evening

Finder	Presenter
Dylan W.	Aryaa T.
Sarah T.	Bianca G.

Today: Chapter 9: Market Power

1. Why markets may not be competitive
2. Marginal revenue with market power
3. Profit maximization with market power
4. How a firm with market power reacts to changes
5. Winners and losers from market power
6. Government responses to market power

What If We Don't Have Perfect Competition?

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Sources of Market Power

Why is Competition Great?

Why is Competition Great?

- Delivers products to consumers at cost
- Creates largest possible total surplus
- $\rightarrow$ competition is very valuable to consumers

Why is Competition Great?

- Delivers products to consumers at cost
- Creates largest possible total surplus
- $\rightarrow$ competition is very valuable to consumers
- $\rightarrow$ competition not so great for producers

Why Study Market Power?

- Most markets are imperfect to some degree
- Economists believe there is a role for government in easing market imperfections
- Today
  - How does limited competition impact consumption and production?
  - What is government's role in improving competition?

What is Market Power?

- Market power $\equiv$ when a firm has the ability to influence the market price
- Monopoly $\equiv$ market served only by one firm
- Monopolist $\equiv$ sole supplier and price setter of good on the market

Where Does Market Power Come From?

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Barriers to entry

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Barriers to entry

Inhibitions to entry include

1. "Natural" monopolies
2. Switching costs
3. Product Differentiation
4. Absolute Cost Advantages
5. Government barriers to entry

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Absence of these barriers keeps prices at costs in competitive markets

1. Natural Monopolies

- An industry in which average total cost always decreases as Q increases
  - Note that this also implies decreasing marginal cost
- This means that it is efficient for one firm to produce the entire industry output

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- An industry in which average total cost always decreases as Q increases
  - Note that this also implies decreasing marginal cost
- This means that it is efficient for one firm to produce the entire industry output
- And there is a rationale for government to regulate the monopoly

2. Switching Costs and Market Power

- Switching costs $\equiv$ cost to consumer in switching between products – examples?
- Network goods have particularly high switching costs
- Network good $\equiv$ good for which value to consumer increases with number of other consumers of the product

3. Product Differentiation and 4. Cost Advantage

Product differentiation

- Imperfect substitutability across varieties of a product
- Observable if you are willing to pay a little more for a particular variant

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Absolute Cost Advantage

- Firm owns something or has a technology that makes it have lower costs relative to competitors
- Examples?

5. Government Regulation as a Barrier to Entry

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  - occupational licensing
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- Remember, over the long run, high profits are a temptation to entry, perhaps in a slightly altered form

5. Government Regulation as a Barrier to Entry

- We've already given examples that limit entry – reprise?
  - patent rights
  - occupational licensing
  - education requirements
- Remember, over the long run, high profits are a temptation to entry, perhaps in a slightly altered form
- Don't conclude that barriers to entry are always bad
- Do compare cost of barriers to benefits

Market Power and Marginal Revenue

Neither Perfect Competition Nor a Monopoly

- We say a firm has market power if it faces a downward sloping demand curve
  - Recollect – what did a demand curve look like to a perfectly competitive firm?

Neither Perfect Competition Nor a Monopoly

- We say a firm has market power if it faces a downward sloping demand curve
  - Recollect – what did a demand curve look like to a perfectly competitive firm?
- Firms in these types of markets face downward-sloping demand curves
  - Oligopoly $\equiv$ an industry with few firms – examples?
  - Monopolistic competition $\equiv$ many firms selling differentiated products
  - Monopoly

Marginal Revenue: Perfect Competition and Not

Perfect Competition

- What is marginal revenue?

Marginal Revenue: Perfect Competition and Not

Perfect Competition

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- If the firm perceives the demand curve as constant, then $MR = P$

Marginal Revenue: Perfect Competition and Not

Perfect Competition

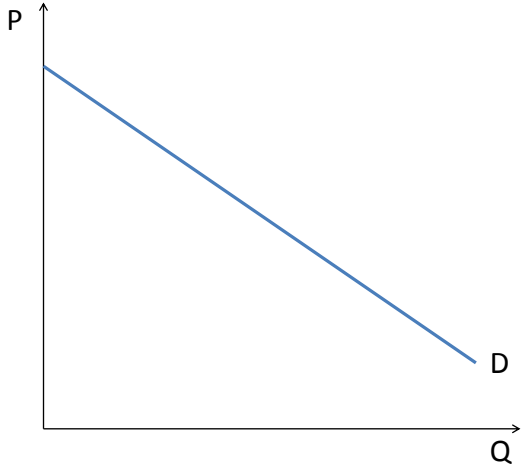
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- If the firm perceives the demand curve as constant, then $MR = P$

Market Power

- We assume that the firm has to charge the same price for all units of the good
- As before, marginal revenue is the additional revenue from an additional unit of output sold
- However, selling an additional unit of output now requires lowering the price on all units of output

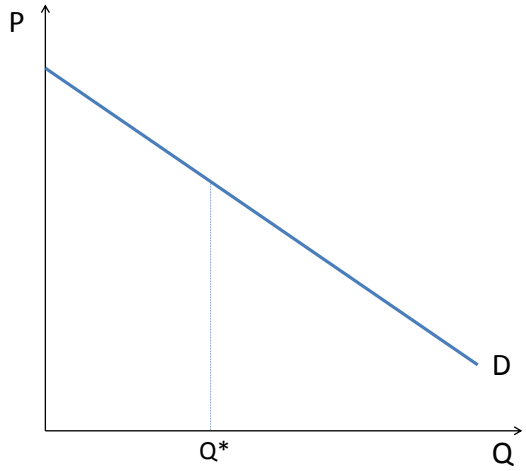
Market Power and Marginal Revenue in Pictures

Demand as Perceived by the Firm



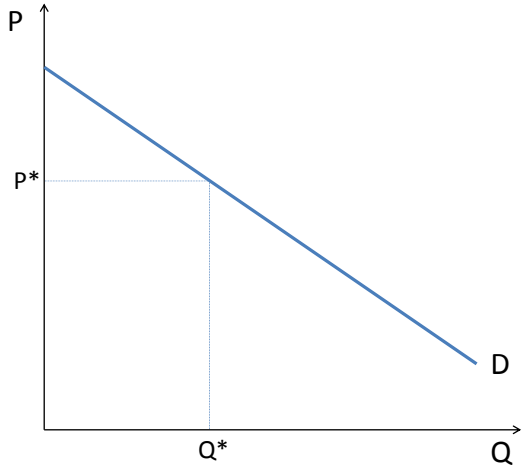
Market Power and Marginal Revenue in Pictures

Can Think of Firm Choosing Either P or Q



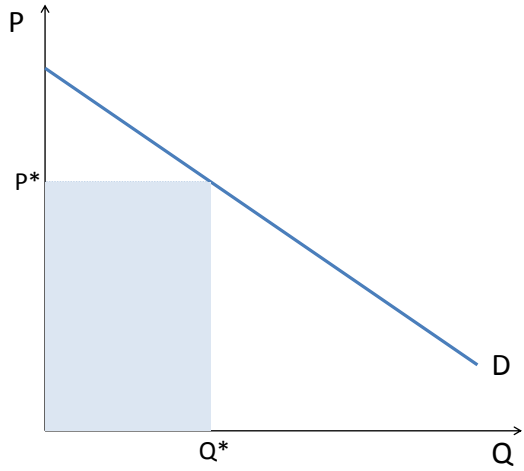
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What is Revenue?



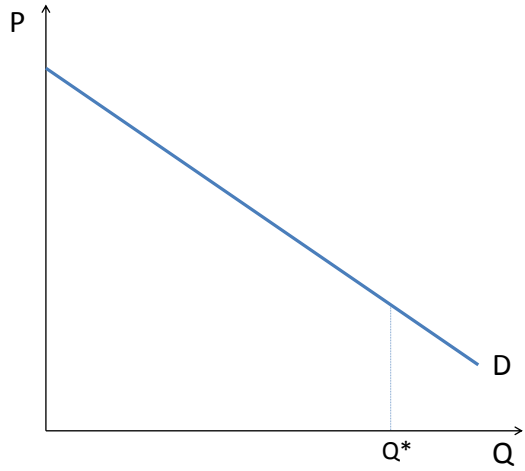
Market Power and Marginal Revenue in Pictures

Revenue



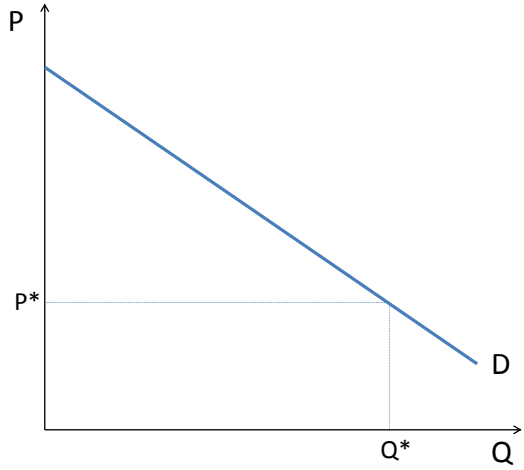
Market Power and Marginal Revenue in Pictures

Choose a Different Q



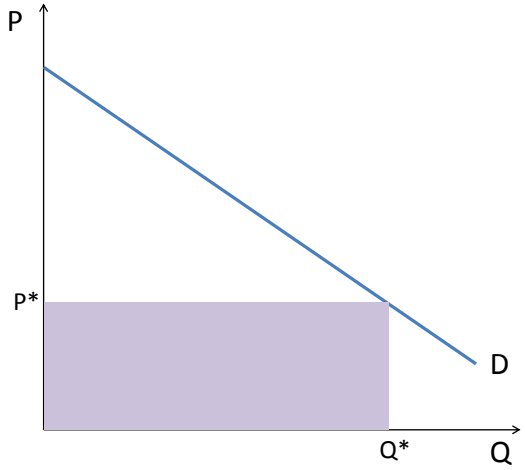
Market Power and Marginal Revenue in Pictures

Yields a Different P



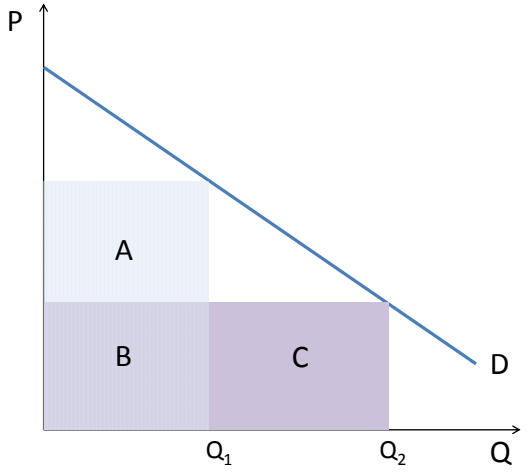
Market Power and Marginal Revenue in Pictures

Different Revenue



Market Power and Marginal Revenue in Pictures

Compare Gains and Losses From Change in Production



Market Power and Marginal Revenue in Algebra

Define

$$MR = P + \frac{\Delta P}{\Delta Q} Q = \left(\frac{\partial TR}{\partial Q} \right)$$

- We know that $\frac{\Delta P}{\Delta Q}$ is the slope of the demand curve, and that's negative
- Thus, MR decreases as Q increases

Market Power and Marginal Revenue in Algebra

For a linear demand curve,

- Consider an inverse demand curve of form $P = a + bQ$ (note similarity to $y = b + mx$)
- We can rewrite MR as

$$\begin{aligned} MR &= P + \frac{\Delta P}{\Delta Q} Q \\ &= (a + bQ) + bQ \\ &= a + 2bQ \end{aligned}$$

Market Power and Marginal Revenue in Algebra

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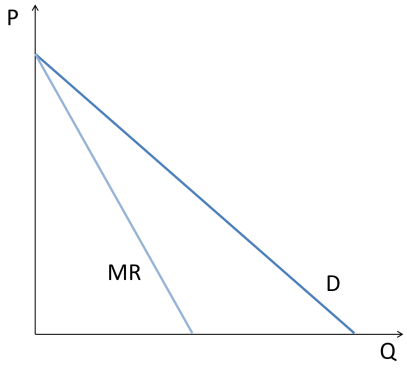
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- The intercept is the same as the inverse demand curve, but the slope is twice as steep
- Memorize this formula

Note: This is slightly different notation with signs than in the textbook; I find it clearer. Remember that b is negative, so the MR slope will always be negative.

Figure: Demand Curve and Marginal Revenue Curve



When demand is linear, MR curve has

- same P intercept
- slope twice as steep
- Q intercept half of the demand curve

Profit Maximization and Market Power

Profit Maximization

What does a competitive firm set equal for profit maximization?

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What does a firm with market power set equal for profit maximization?

- $MR = MC$

Profit Maximization

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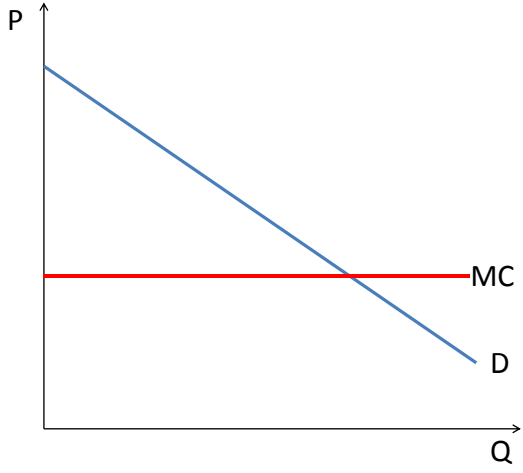
- $MR = MC$, and we know that $MR = P$

What does a firm with market power set equal for profit maximization?

- $MR = MC$
- But MR is more complicated
- And $MR \neq P$ (in general)

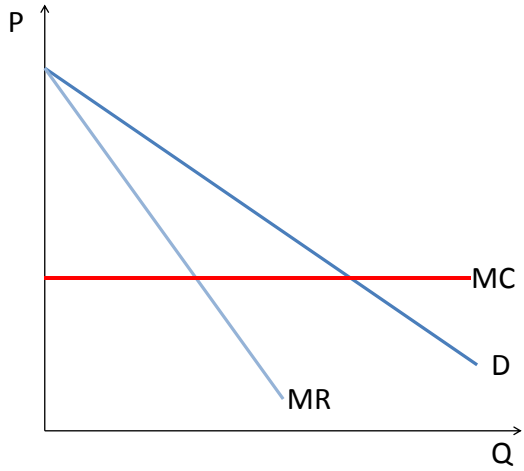
Maximizing π with Market Power: Constant *MC*

Where is *MR*?



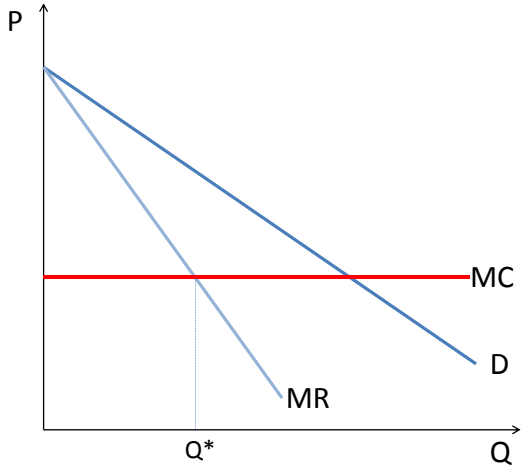
Maximizing π with Market Power: Constant MC

What is Profit Maximizing Q?



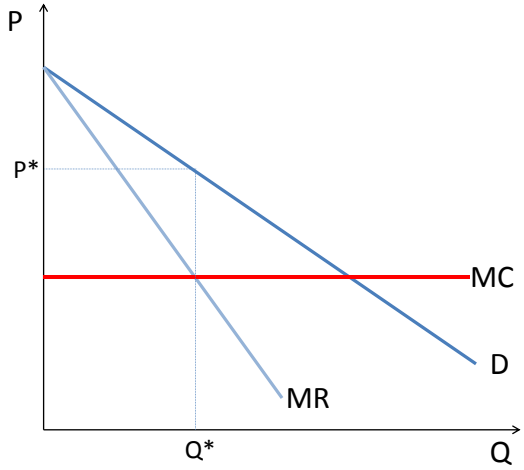
Maximizing π with Market Power: Constant MC

What is Profit Maximizing P?



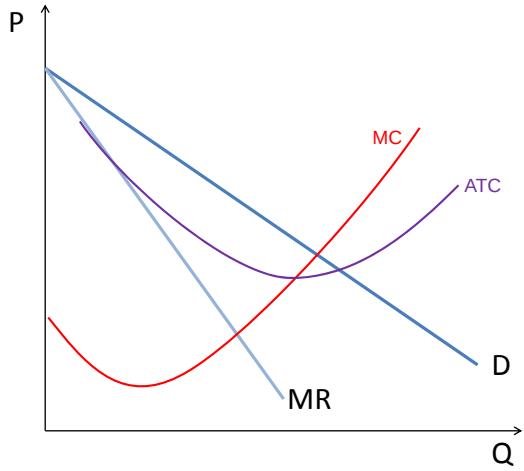
Maximizing π with Market Power: Constant *MC*

Can See Revenues, but Not Costs



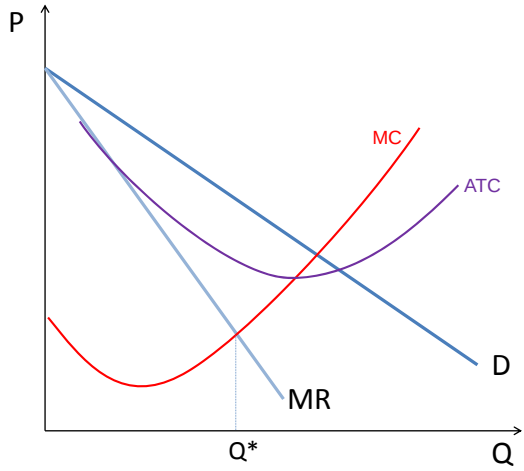
Maximizing π with Market Power: Increasing *MC*

Where is Profit Maximizing *Q*?



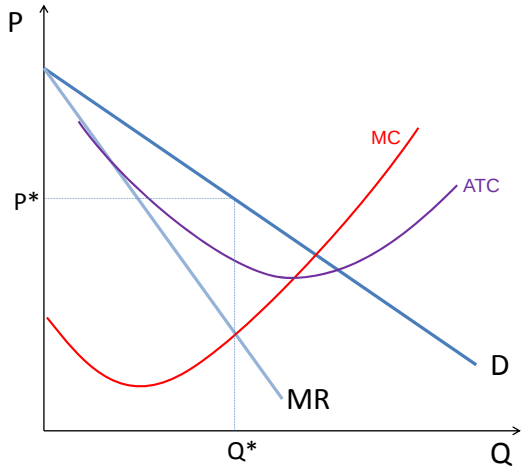
Maximizing π with Market Power: Increasing *MC*

What is Profit Maximizing *P*?



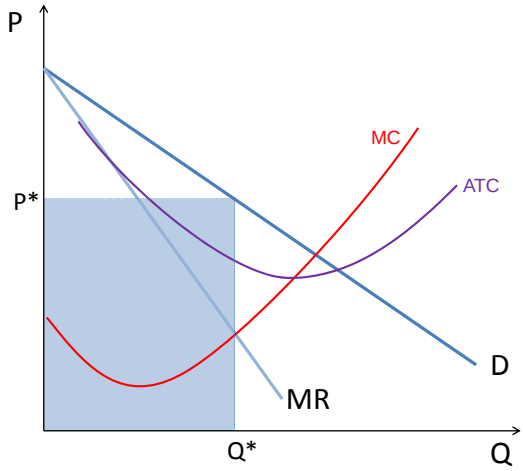
Maximizing π with Market Power: Increasing *MC*

What is Total Revenue?



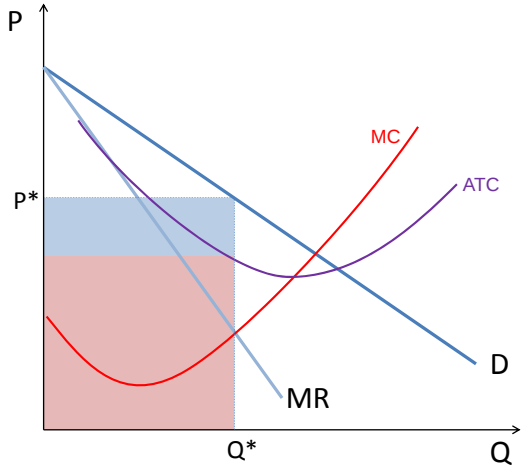
Maximizing π with Market Power: Increasing *MC*

What are Total Costs?



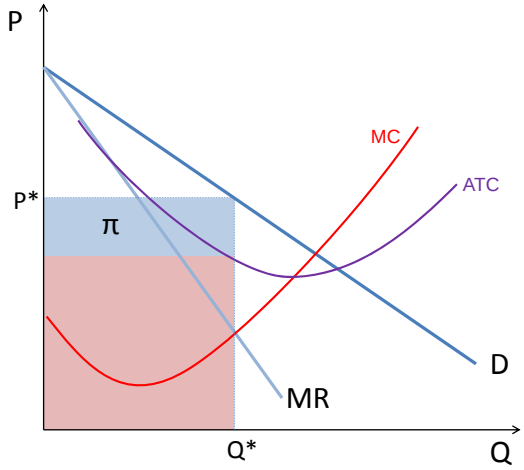
Maximizing π with Market Power: Increasing *MC*

What is Profit?



Maximizing π with Market Power: Increasing *MC*

Market Power Yields Profits!



Profit Maximization with Market Power in Math

Profits are maximized at Q^* such that $MR = MC$. What are Q^* and P^*?
Use these three steps:

1. Find MR
   - If you have a linear demand curve, you can find $MR = a + 2bQ$
   - where b is the slope of the **inverse** demand curve
   - a is the y-intercept
   - Remember that the inverse demand curve is $P = f(Q)$
2. Find profit-maximizing Q by setting $MR = MC$
3. Find profit-maximizing price by putting Q^* in demand curve

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Do not confuse MC curve with true supply curve, which is independent of demand.

Try it Yourself: Roofer Market Power

Suppose the local roofing company has market power and faces the demand curve $Q = 200 - P/10$, where Q is the number of roof jobs, and P is in dollars. The marginal cost for the firm is $MC = 200 + 16Q$.

1. What is marginal revenue?
2. What is the profit maximizing output?
3. Price?

And at home, if we don't have time, you can try...

4. If the firm's demand changes to $Q = 3500/3 - P/12$, what is the new marginal revenue?
5. Profit maximizing output?
6. Price?

1. Find marginal revenue
   The problem gives $Q = f(P)$. We need $P = f(Q)$.
   Re-write the demand curve as the inverse demand curve:

$$Q = 200 - P/10$$
$$P/10 = 200 - Q$$
$$P = 2000 - 10Q$$

   Use the formula to find $MR = a - 2bQ = 2000 - 2(10)Q = 2000 - 20Q$.
   (Or calculus way $MR = \frac{\partial PQ}{\partial Q} = \frac{\partial 2000Q - 10Q^2}{\partial Q} = 2000 - 20Q$.)

2. Find profit maximizing Q
   $MR = MC$. We know $MC = 200 + 16Q$. Set $MR = MC$.

$$\begin{aligned} 2000 - 20Q &= 200 + 16Q \\ 1800 &= 36Q \\ Q^* &= 50 \end{aligned}$$

3. Find profit maximizing price
   Plug Q^* into the demand curve. $P^* = 2000 - 10(50) = 2000 - 500 = 1500$.

4. Firm's demand changes, new MR? Find inverse demand curve:

$$\begin{aligned} Q &= 3500/3 - P/12 \\ P/12 &= 3500/3 - Q \\ P &= 14000 - 12Q \end{aligned}$$

$MR = 14000 - 24Q$

5. Firm's demand declines, new Q^*?

$$\begin{aligned} MR &= MC \\ 14000 - 24Q &= 200 + 16Q \\ 13800 &= 40Q \\ 345 &= Q^* \end{aligned}$$

End of Answer

6. New profit maximizing price? Plug into new demand curve
   $P^* = 14000 - 12(345) = 14000 - 4140 = 9860$

How a Firm with Market Power Reacts to Market Changes

Three Changes

1. Change in marginal cost
2. Outward shift in demand
3. Rotation of demand curve

Competitive Market and an Increase in *MC*

What happens to the equilibrium price and quantity?

Competitive Market and an Increase in MC

What happens to the equilibrium price and quantity?

- Supply curve shifts inward
- If supply is elastic, curve just shifts up
- Price increases
- Equilibrium Q declines

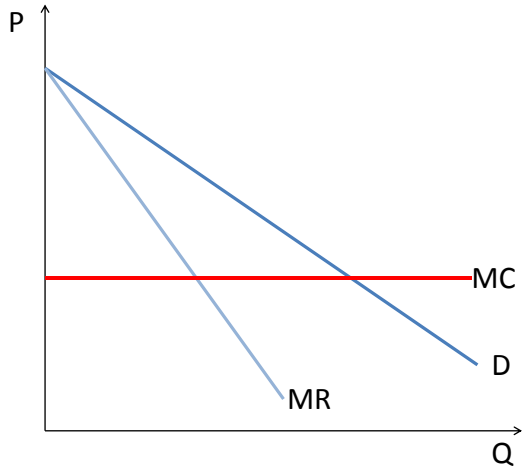
Competitive Market and an Increase in MC

What happens to the equilibrium price and quantity?

- Supply curve shifts inward
- If supply is elastic, curve just shifts up
- Price increases
- Equilibrium Q declines
- In the long run, cost increases fully passed along to consumers

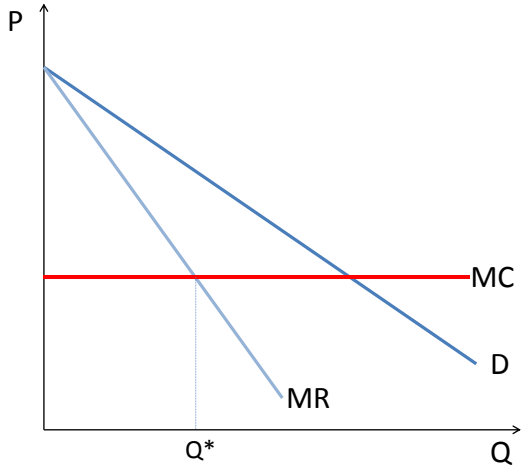
Market Power and an Increase in *MC*

Review: Where is profit maximizing *Q*?



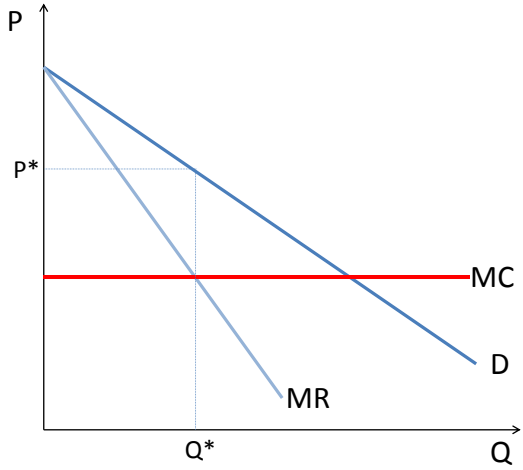
Market Power and an Increase in *MC*

Review: What is Profit Maximizing *P*?



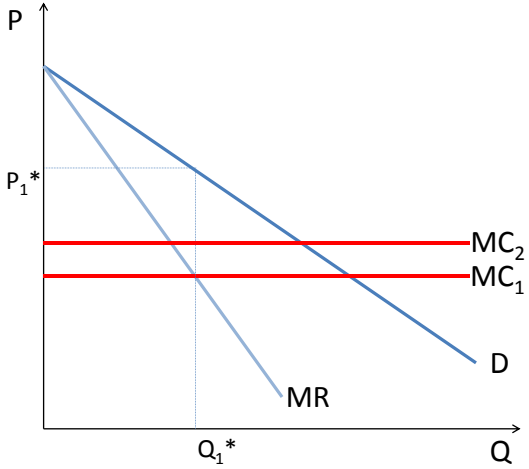
Market Power and an Increase in *MC*

Draw an Increase in *MC*?



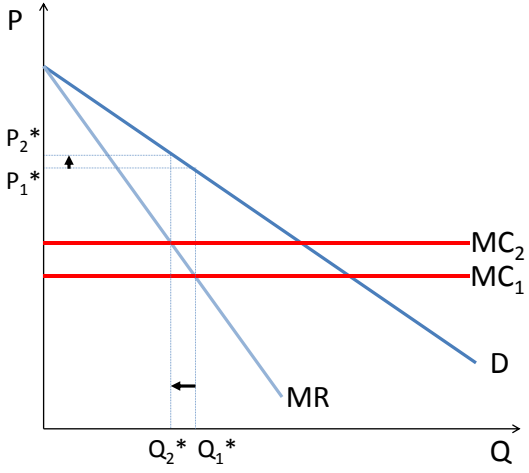
Market Power and an Increase in *MC*

What are New Profit Maximizing *P* and *Q*?

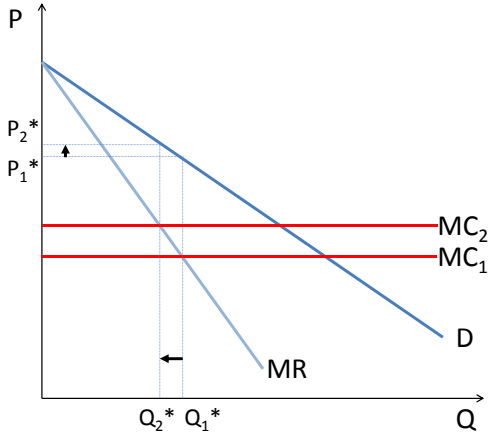


Market Power and an Increase in *MC*

Prices Increase, Quantity Falls

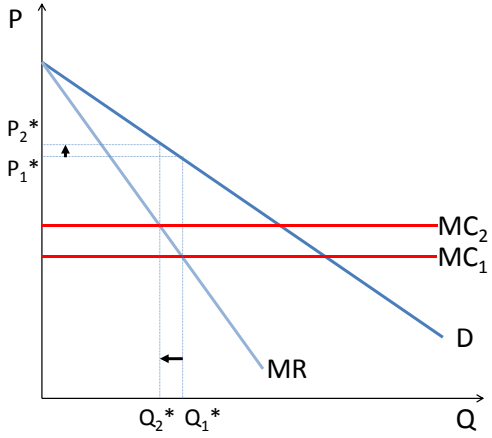


Market Power and an Increase in *MC*



Relative to competitive market

Market Power and an Increase in *MC*

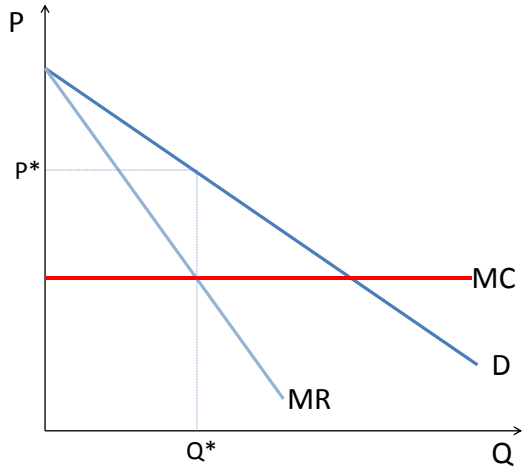


Relative to competitive market

- prices don't increase as much
- quantity declines less

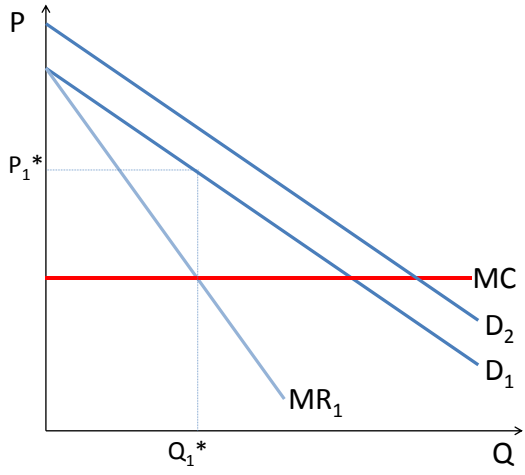
P and Q and Outward Shift in Demand

What Does an Increase in Demand Look Like?



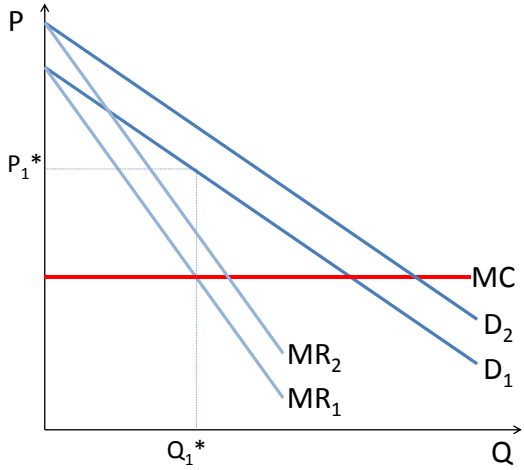
P and Q and Outward Shift in Demand

Where is the New MR?



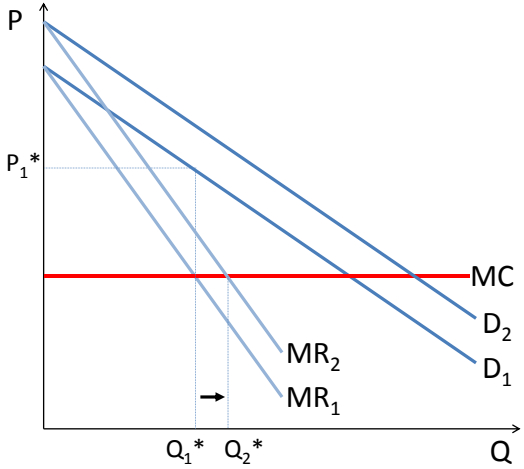
P and Q and Outward Shift in Demand

Where is the New Q?



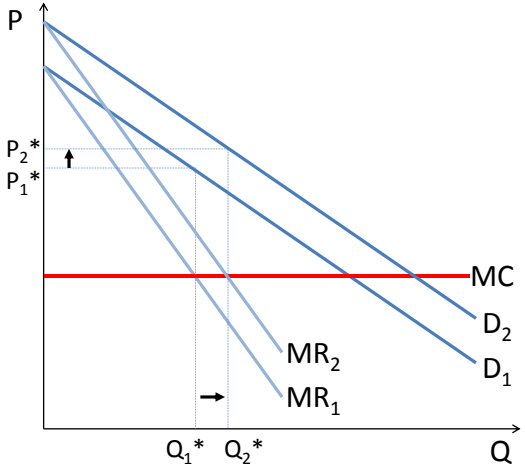
P and Q and Outward Shift in Demand

Where is the New P?

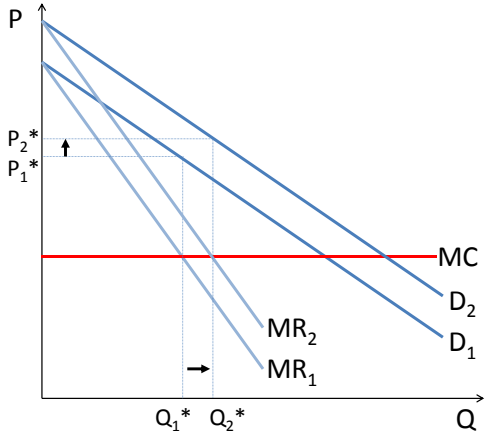


P and Q and Outward Shift in Demand

Q increases, P increases

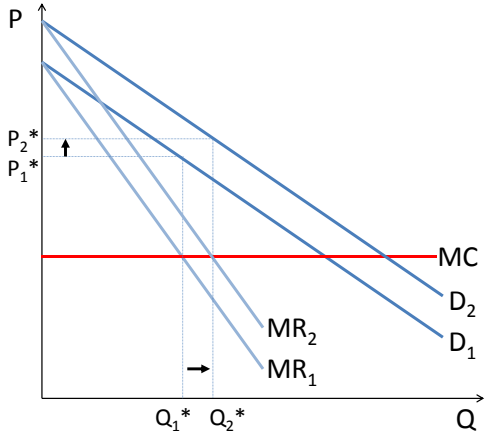


P and Q and Outward Shift in Demand



Relative to competitive market

P and Q and Outward Shift in Demand

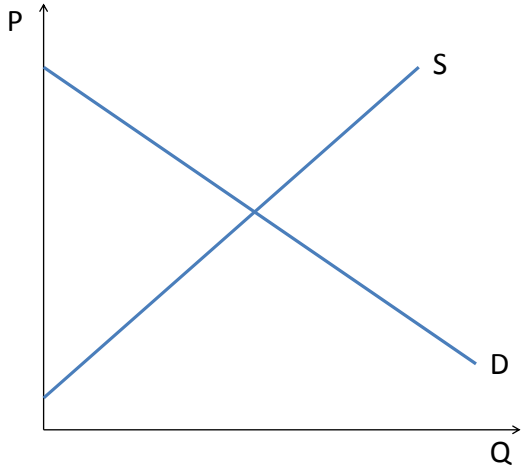


Relative to competitive market

- prices increase
- quantity doesn't increase as much

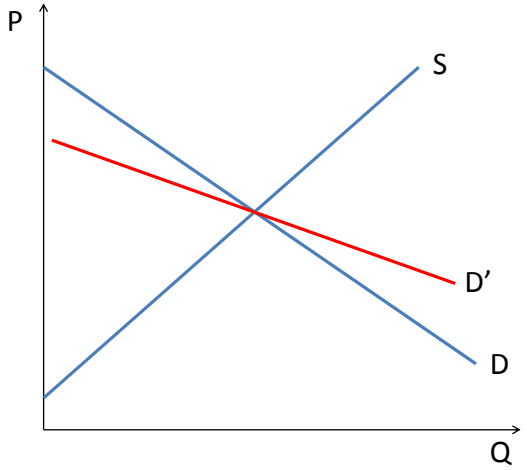
Rotation of the Demand Curve: Perfect Competition

With P Constant, Rotate Demand Curve



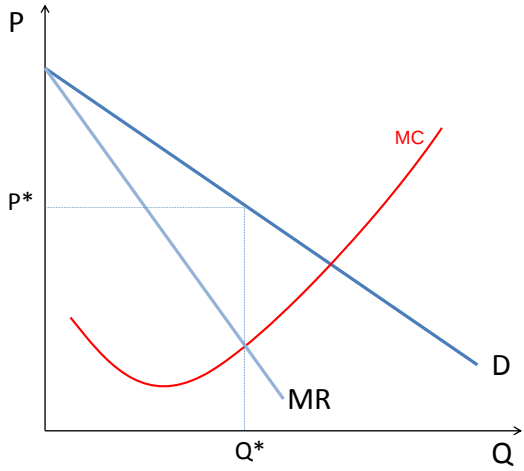
Rotation of the Demand Curve: Perfect Competition

No Response in P or Q



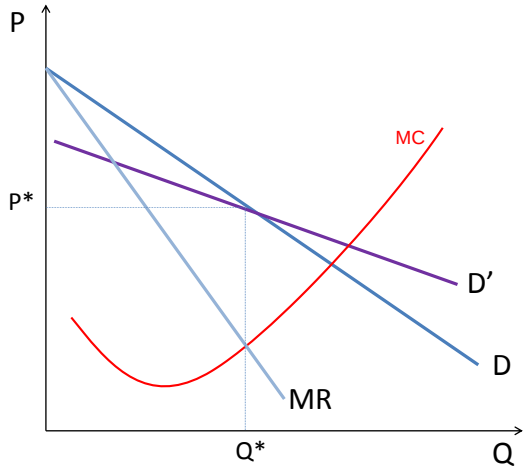
Rotation of the Demand Curve: Market Power

Rotate Demand Curve



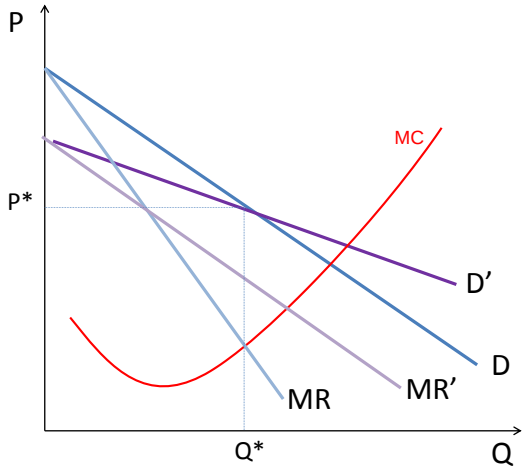
Rotation of the Demand Curve: Market Power

Where is New *MR*?



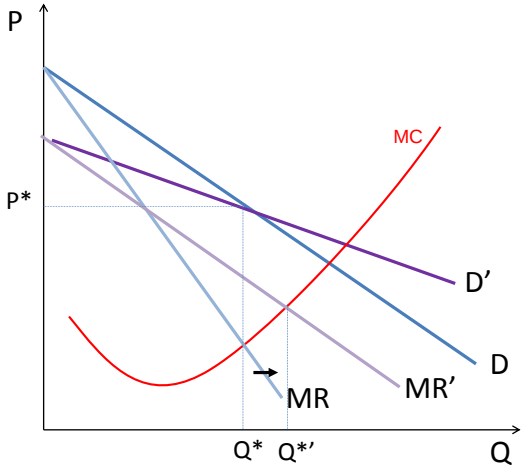
Rotation of the Demand Curve: Market Power

Where is the New Q?



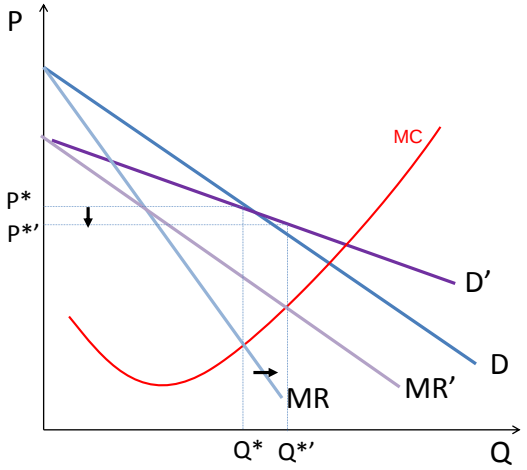
Rotation of the Demand Curve: Market Power

Where is the New P?

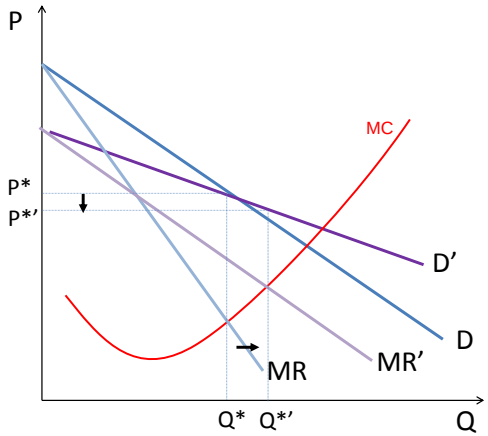


Rotation of the Demand Curve: Market Power

Q increases, *P* decreases

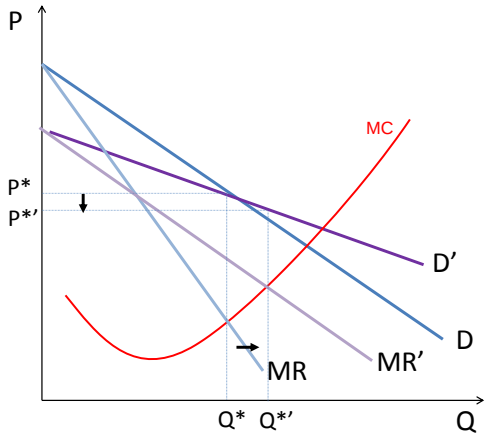


Rotation of the Demand Curve: Market Power



Relative to competitive market

Rotation of the Demand Curve: Market Power



Relative to competitive market

- prices fall
- quantity increases

Three Changes

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   - quantity increases, but not by as much as in a competitive market
   - prices increase – which would not happen in a competitive market
3. If demand becomes more elastic, what happens to price and quantity?
   - equilibrium quantity increases
   - equilibrium price declines
   - intuition: consumers can go elsewhere

Recap of Today: Market Power

1. Why markets may not be competitive
2. Marginal revenue with market power
3. Profit maximization with market power
4. How a firm with market power reacts to changes

Next Class

- Turn in Problem Set 11
- Finish Chapter 9
- Externalities