

Lecture 11: Market Structure and Degrees of Market Power

November 12, 2024

Overview

1. Administrative Notes
2. Ripped from headlines
3. Market Structure and Degrees of Market Power

Course Administration

1. Midterm answers posted, bottom of lectures tab
2. Please come to office hours
 - if you scored less than 50 on the midterm, I expect to see you
 - volunteers available for help
3. Vanilla summaries graded
 - Please don't use # in file names as it causes download problems
4. Case summaries remaining for Lectures 13 and 14
5. Problem Set 9 posted
6. Chapter 14 End-of-Chapter questions posted
7. Any other questions or outstanding issues?

How What You're Learning is Policy-Relevant

Ripped from Headlines presentation(s)

As a reminder, next week

Send the article by Wednesday midnight for approval

Afternoon, joint presentation

Finder	Presenter
Jenna A.	Rimsha A.
Corey D.	Rachel L.
Tosha S.	Michael J.

Evening, individual presentation

Finder	Presenter
Abimbola O.	Ramadan A.-A.
	Saumya Mutakar (use article from afternoon of your choice)

Today's Ripped from the Headlines

Afternoon, joint presentation

Finder	Presenter
Matias M.	Jenna A.
Elly H.	Motunrayo F.
Lillien S.	Tia V.

Evening, individual presentation

Finder	Presenter
Elizabeth A.	Heidi M.
Chase K.	Baylee W.

Today: Market Structure and Degrees of Market Power

1. Market Types
2. Setting Prices with Market Power
3. Problem with Market Power
4. Public Policy to Restrain Market Power

1. Market Types Beyond Perfect Competition

Reminder: Perfect Competition

- The baseline from which we measure everything else
- Perfectly competitive markets

Reminder: Perfect Competition

- The baseline from which we measure everything else
- Perfectly competitive markets
 - have many buyers and sellers
 - have firms selling identical products
 - are such that any one seller's behavior cannot impact the market price
 - deliver the largest possible economic surplus

Reminder: Perfect Competition

- The baseline from which we measure everything else
- Perfectly competitive markets
 - have many buyers and sellers
 - have firms selling identical products
 - are such that any one seller's behavior cannot impact the market price
 - deliver the largest possible economic surplus
- Name two markets, one less competitive than the other

Reminder: Perfect Competition

- The baseline from which we measure everything else
- Perfectly competitive markets
 - have many buyers and sellers
 - have firms selling identical products
 - are such that any one seller's behavior cannot impact the market price
 - deliver the largest possible economic surplus
- Name two markets, one less competitive than the other

Absence of perfect competition is

Market power \equiv the extent to which a firm can raise prices without losing sales

The Underlying Source of Market Power

Barriers to entry

The Underlying Source of Market Power

Barriers to entry

- the ability to keep new firms from entering an industry
- how does this happen?

Quick Definition: Product Differentiation

- Consumer belief that similar products are distinct
- Examples?

Quick Definition: Product Differentiation

- Consumer belief that similar products are distinct
- Examples?
- Firms spend a lot of money to achieve this

Quick Definition: Product Differentiation

- Consumer belief that similar products are distinct
- Examples?
- Firms spend a lot of money to achieve this



Chevy Prizm and Toyota Corolla are the same car. One has a higher resale value.

Types of Markets with Market Power

Market Type	Number of Sellers	Differentiation of Products
Perfect Competition	oodles	none

Types of Markets with Market Power

Market Type	Number of Sellers	Differentiation of Products
Perfect Competition	oodles	none
Monopoly		

Types of Markets with Market Power

Market Type	Number of Sellers	Differentiation of Products
Perfect Competition	oodles	none
Monopoly	one	—

Types of Markets with Market Power

Market Type	Number of Sellers	Differentiation of Products
Perfect Competition	oodles	none
Monopoly	one	—
Oligopoly		

Types of Markets with Market Power

Market Type	Number of Sellers	Differentiation of Products
Perfect Competition	oodles	none
Monopoly	one	—
Oligopoly	few	not req'd

Types of Markets with Market Power

Market Type	Number of Sellers	Differentiation of Products
Perfect Competition	oodles	none
Monopoly	one	–
Oligopoly	few	not req'd
Monopolistic competition		

Types of Markets with Market Power

Market Type	Number of Sellers	Differentiation of Products
Perfect Competition	oodles	none
Monopoly	one	–
Oligopoly	few	not req'd
Monopolistic competition	many	very differentiated

Types of Markets with Market Power

Market Type	Number of Sellers	Differentiation of Products
Perfect Competition	oodles	none
Monopoly	one	–
Oligopoly	few	not req'd
Monopolistic competition	many	very differentiated

Firms in which type of market have the most market power?

Types of Markets with Market Power

Market Type	Number of Sellers	Differentiation of Products
Perfect Competition	oodles	none
Monopoly	one	–
Oligopoly	few	not req'd
Monopolistic competition	many	very differentiated

Firms in which type of market have the most market power? The least?

Types of Markets with Market Power

Market Type	Number of Sellers	Differentiation of Products
Perfect Competition	oodles	none
Monopoly	one	–
Oligopoly	few	not req'd
Monopolistic competition	many	very differentiated

Firms in which type of market have the most market power? The least?

Most markets are imperfectly competitive

Example: Oligopoly – Maple Syrup Cartel

- Canada produces 77% of world's maple syrup
- 90% of Canadian maple syrup comes from Quebec
- 2004, Quebec starts *Productrices et Productrices Acericoles du Quebec*
- Goal is to provide price stability – not unlike vanilla market – in the face of very variable harvests

Example: Oligopoly – Maple Syrup Cartel

- Canada produces 77% of world's maple syrup
- 90% of Canadian maple syrup comes from Quebec
- 2004, Quebec starts *Productrices et Productrices Acericoles du Quebec*
- Goal is to provide price stability – not unlike vanilla market – in the face of very variable harvests
 - private organization granted legal enforcement powers
 - farmers must use PPAQ as distributor and marketer of bulk syrup
 - farmers pay to PPAQ \$0.14 per pound on direct sales to restaurants or supermarkets
 - direct sales to consumers untaxed by PPAQ

Example: Oligopoly – Maple Syrup Cartel

- Canada produces 77% of world's maple syrup
- 90% of Canadian maple syrup comes from Quebec
- 2004, Quebec starts *Productrices et Productrices Acericoles du Quebec*
- Goal is to provide price stability – not unlike vanilla market – in the face of very variable harvests
 - private organization granted legal enforcement powers
 - farmers must use PPAQ as distributor and marketer of bulk syrup
 - farmers pay to PPAQ \$0.14 per pound on direct sales to restaurants or supermarkets
 - direct sales to consumers untaxed by PPAQ
- PPAQ assigns each farmer an annual quota: maximum they are allowed to sell
- Excess above quota goes without compensation to Global Strategic Maple Syrup Reserve

Consequences of Oligopolistic Cartel

Consequences of Oligopolistic Cartel

- Prices stable and high

Consequences of Oligopolistic Cartel

- Prices stable and high
- Cross-provincial syrup smuggling springs up
- 2011 and 2012 Great Canadian Maple Syrup Heist
 - 3,000 tons of syrup valued at \$CAD 18.7 million
 - Largest theft ever in Canada

Consequences of Oligopolistic Cartel

- Prices stable and high
- Cross-provincial syrup smuggling springs up
- 2011 and 2012 Great Canadian Maple Syrup Heist
 - 3,000 tons of syrup valued at \$CAD 18.7 million
 - Largest theft ever in Canada
- Do farmers in Vermont benefit?

Consequences of Oligopolistic Cartel

- Prices stable and high
- Cross-provincial syrup smuggling springs up
- 2011 and 2012 Great Canadian Maple Syrup Heist
 - 3,000 tons of syrup valued at \$CAD 18.7 million
 - Largest theft ever in Canada
- Do farmers in Vermont benefit? Yes – and production moves south of border
- Production stagnates in Quebec

Example: Monopolistic Competition: Sneakers



- Market is athletic shoes
- How do producers create differentiated products?

Example: Monopolistic Competition: Sneakers



- Market is athletic shoes
- How do producers create differentiated products?
- Does this give them pricing power over you?

Five Market Power Insights – That We Don't Cover Further

1. More competitors yields less market power
2. Market power allows you to pursue independent pricing strategies
3. Successful product differentiation gives more market power
4. Imperfect competition among buyers gives market power
5. A firm's best choice depends on other firms' behavior

Five Market Power Insights – That We Don't Cover Further

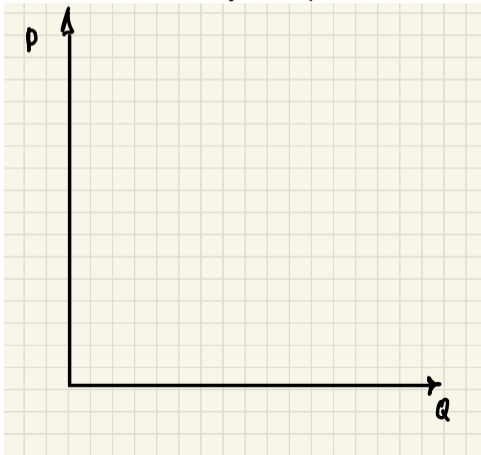
1. More competitors yields less market power
2. Market power allows you to pursue independent pricing strategies
3. Successful product differentiation gives more market power
4. Imperfect competition among buyers gives market power
5. A firm's best choice depends on other firms' behavior

Market power breaks firewall between supply and demand

2. Setting Prices with Market Power

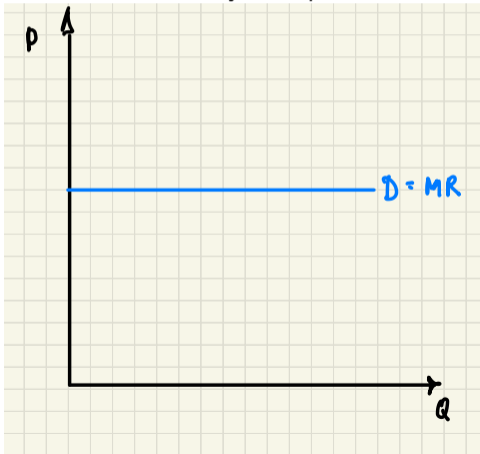
Market Power Determines Shape of Demand Curve

Demand in Perfectly Competitive Market



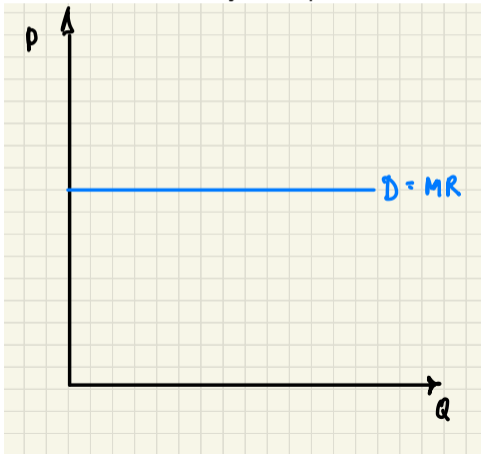
Market Power Determines Shape of Demand Curve

Demand in Perfectly Competitive Market

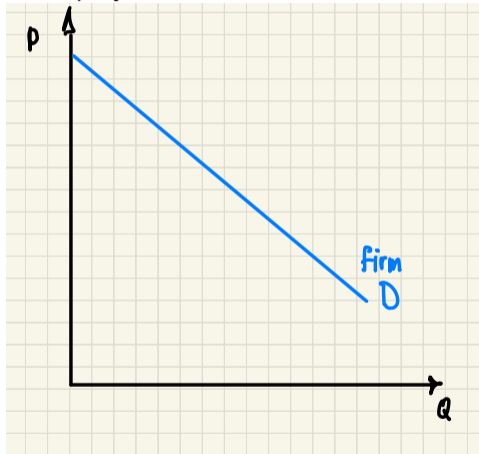


Market Power Determines Shape of Demand Curve

Demand in Perfectly Competitive Market

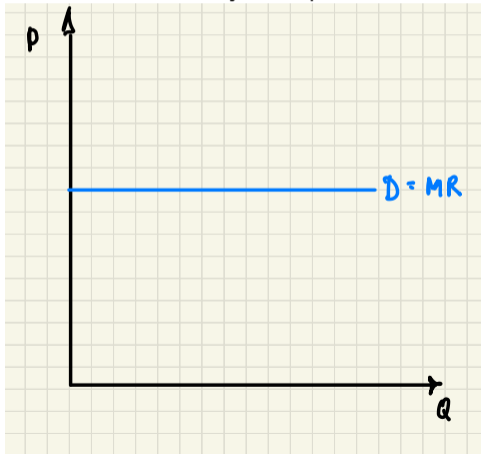


Monopoly Market

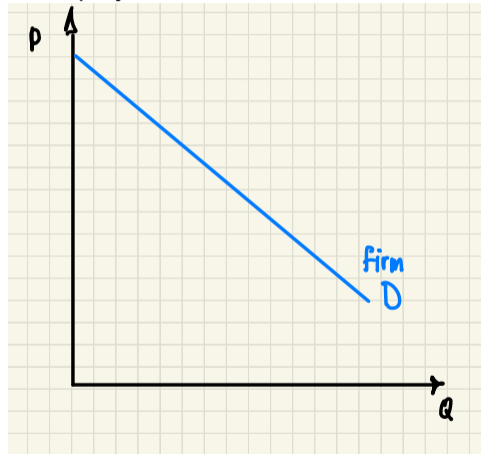


Market Power Determines Shape of Demand Curve

Demand in Perfectly Competitive Market



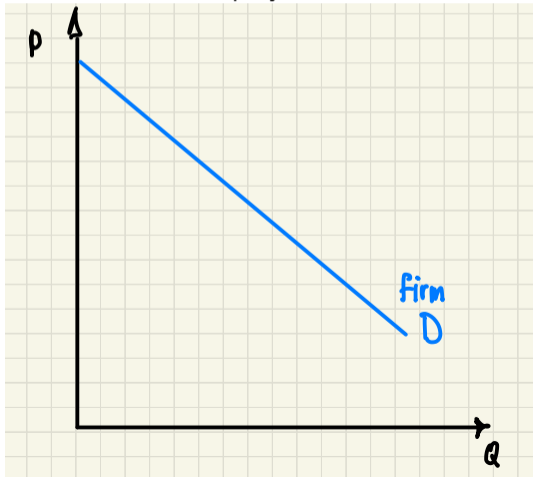
Monopoly Market



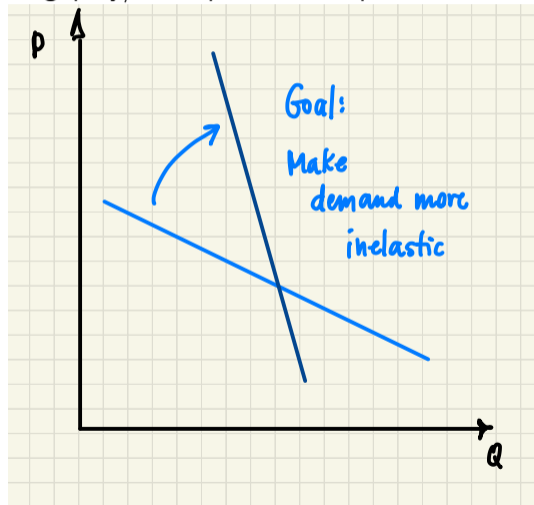
What about monopolistic competition and oligopoly?

Market Power Determines Shape of Demand Curve

Monopoly Market



Oligopoly/Monopolistic Competition



How do Firms Figure Out Demand Curves?

- They experiment
- How much does Q change when you change P ?

How do Firms Figure Out Demand Curves?

- They experiment
- How much does Q change when you change P ?
- Randomly assign website visitors to at least 2 groups
- Try two different pricing strategies



demandcurve.com

<https://www.demandcurve.com> › growth › ab-tests

A/B Tests | Growth Guide by Demand Curve

The process of improving conversion is called A/B testing: it's the science of testing changes to see if they improve performance.

Missing: revelation | Show results with: revelation



HubSpot Blog

<https://blog.hubspot.com> › marketing › how-to-do-a-b-te...

How to Do A/B Testing: 15 Steps for the Perfect Split Test

May 12, 2016 — A/B testing, also known as split testing, is a marketing experiment wherein you split your audience to test variations on a campaign and ...



HubSpot Blog

<https://blog.hubspot.com> › marketing › price-testing

How to A/B Test Your Pricing (And Why It Might Be a Bad ...

Mar 24, 2021 — A small but important detail — measure revenue, not conversions, to determine which price wins out on your A/B test. You'll likely have much ...

Once You Know Market Demand, Find Marginal Revenue

- **Marginal revenue** \equiv additional revenue from selling one additional unit
- Just like before, firm maximizes profits by setting

marginal revenue = marginal cost

Once You Know Market Demand, Find Marginal Revenue

- **Marginal revenue** \equiv additional revenue from selling one additional unit
- Just like before, firm maximizes profits by setting

$$\text{marginal revenue} = \text{marginal cost}$$

- Assume for now that firm must charge the same price to all consumers

Marginal Revenue in Different Markets

What is marginal revenue with perfect competition?

Marginal Revenue in Different Markets

What is marginal revenue with perfect competition?

- marginal revenue is additional revenue from selling one additional unit
- in perfectly competitive markets, demand curve is flat
- height of demand curve is the price
- $\rightarrow MR = P$

Marginal Revenue in Different Markets

What is marginal revenue with perfect competition?

- marginal revenue is additional revenue from selling one additional unit
- in perfectly competitive markets, demand curve is flat
- height of demand curve is the price
- $\rightarrow MR = P$

What is marginal revenue when a firm has market power?

- To sell one additional unit, the firm must decrease its price a smidge
- Firm trades off
 - additional revenue for selling additional unit

Marginal Revenue in Different Markets

What is marginal revenue with perfect competition?

- marginal revenue is additional revenue from selling one additional unit
- in perfectly competitive markets, demand curve is flat
- height of demand curve is the price
- $\rightarrow MR = P$

What is marginal revenue when a firm has market power?

- To sell one additional unit, the firm must decrease its price a smidge
- Firm trades off
 - additional revenue for selling additional unit – **output effect**

Marginal Revenue in Different Markets

What is marginal revenue with perfect competition?

- marginal revenue is additional revenue from selling one additional unit
- in perfectly competitive markets, demand curve is flat
- height of demand curve is the price
- $\rightarrow MR = P$

What is marginal revenue when a firm has market power?

- To sell one additional unit, the firm must decrease its price a smidge
- Firm trades off
 - additional revenue for selling additional unit – **output effect**
 - lost revenue on all previous units

Marginal Revenue in Different Markets

What is marginal revenue with perfect competition?

- marginal revenue is additional revenue from selling one additional unit
- in perfectly competitive markets, demand curve is flat
- height of demand curve is the price
- $\rightarrow MR = P$

What is marginal revenue when a firm has market power?

- To sell one additional unit, the firm must decrease its price a smidge
- Firm trades off
 - additional revenue for selling additional unit – **output effect**
 - lost revenue on all previous units – **discount effect**

Marginal Revenue in Different Markets

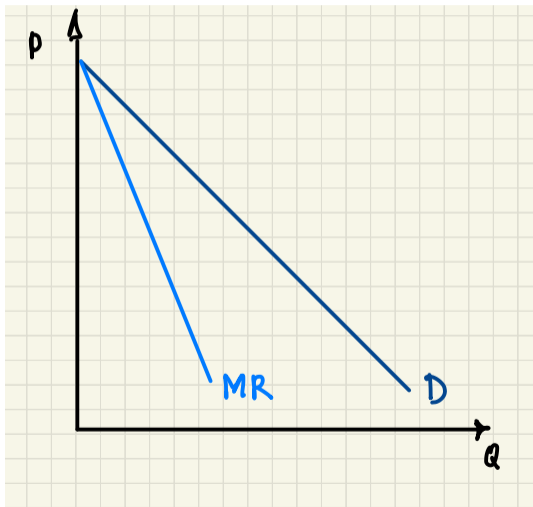
What is marginal revenue with perfect competition?

- marginal revenue is additional revenue from selling one additional unit
- in perfectly competitive markets, demand curve is flat
- height of demand curve is the price
- $\rightarrow MR = P$

What is marginal revenue when a firm has market power?

- To sell one additional unit, the firm must decrease its price a smidge
- Firm trades off
 - additional revenue for selling additional unit – **output effect**
 - lost revenue on all previous units – **discount effect**
- Whether to lower prices depends on this trade-off

Marginal Revenue for a Firm with Market Power

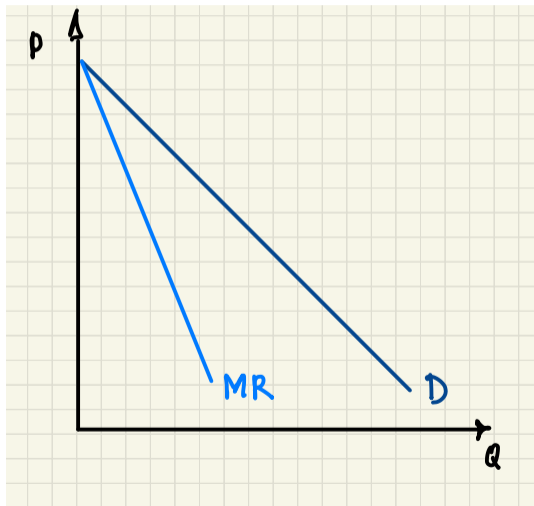


Marginal revenue is

- below demand curve
- for linear demand curves it
 - starts at the same place on the y axis
 - decreases at twice the rate of the demand curve

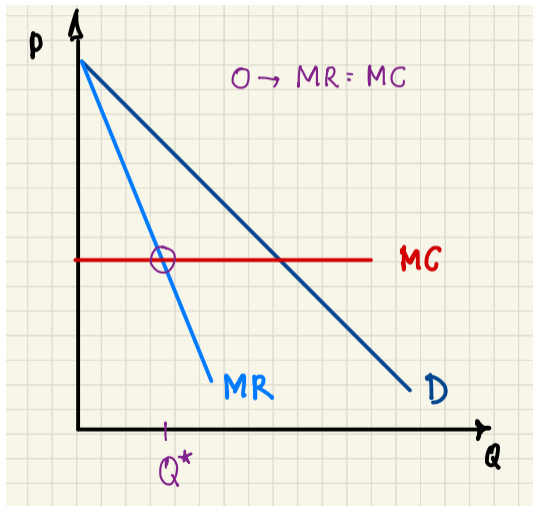
Given This, How Does a Firm with Market Power Maximize Profits?

- Set $MR = MC \rightarrow Q^*$



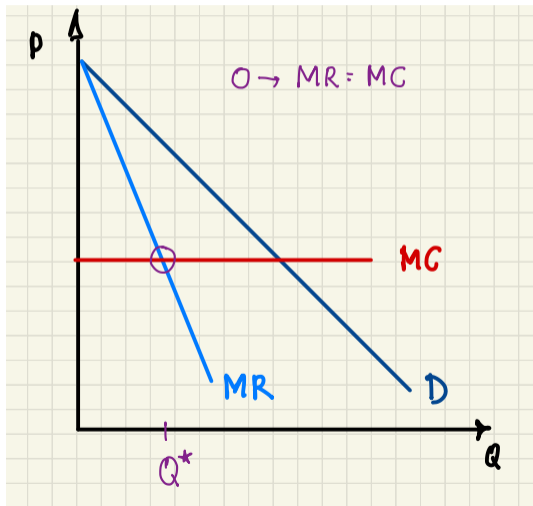
Given This, How Does a Firm with Market Power Maximize Profits?

- Set $MR = MC \rightarrow Q^*$
- Find highest price you can charge at Q^*



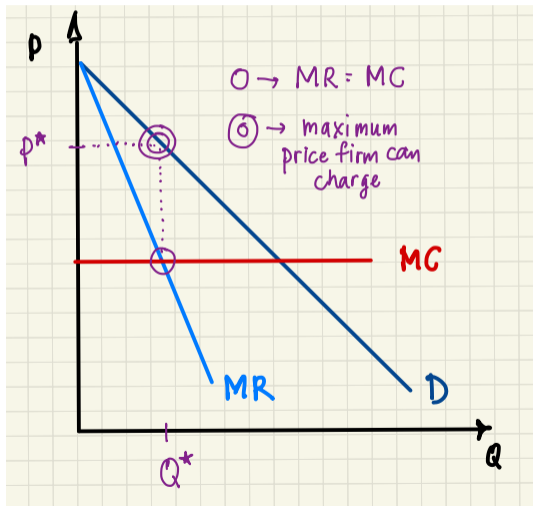
Given This, How Does a Firm with Market Power Maximize Profits?

- Set $MR = MC \rightarrow Q^*$
- Find highest price you can charge at Q^*
- Look up to demand curve to find highest possible price



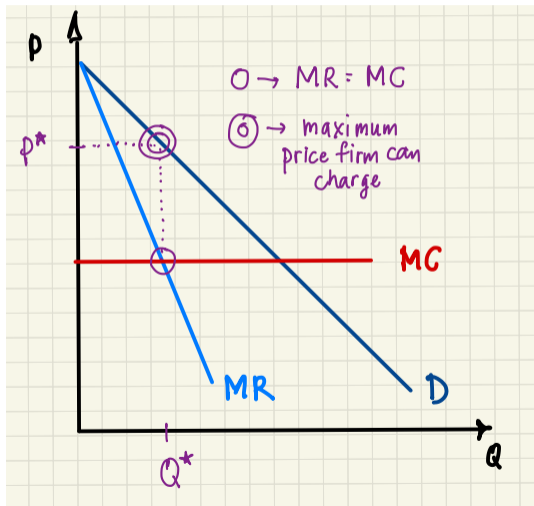
Given This, How Does a Firm with Market Power Maximize Profits?

- Set $MR = MC \rightarrow Q^*$
- Find highest price you can charge at Q^*
- Look up to demand curve to find highest possible price



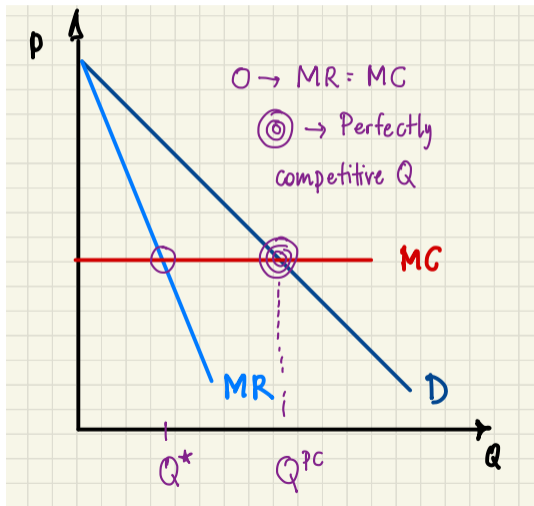
3. The Problem with Market Power

Outcomes with Market Power versus Perfect Competition



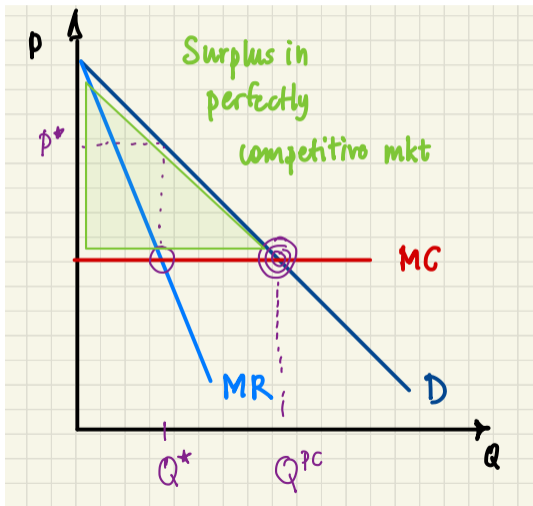
- Where is perfectly competitive quantity?

Outcomes with Market Power versus Perfect Competition



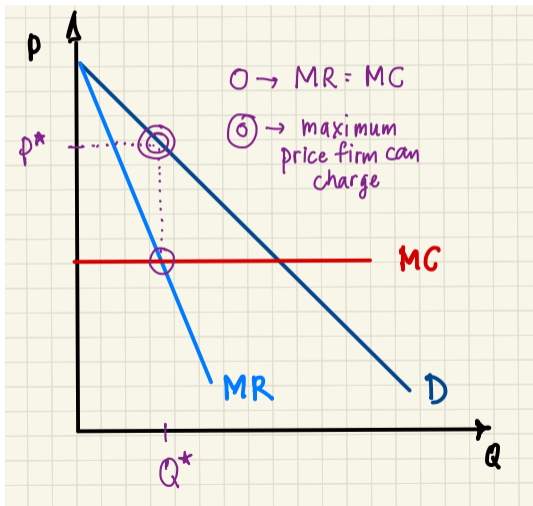
- Where is surplus with perfect competition?

Outcomes with Market Power versus Perfect Competition



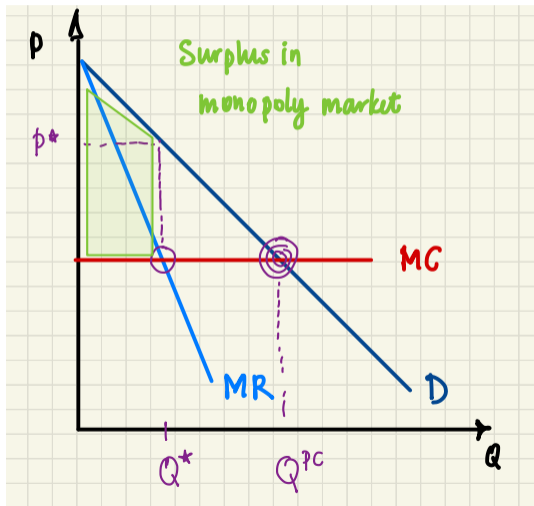
- This is the largest possible surplus

Outcomes with Market Power versus Perfect Competition



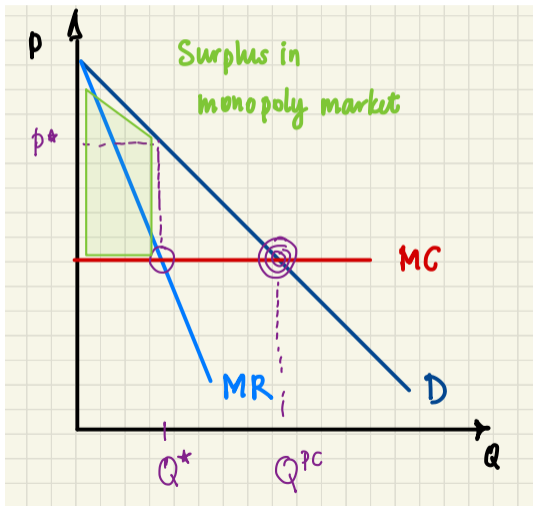
- Where is surplus with market power?

Outcomes with Market Power versus Perfect Competition



- Surplus with market power is not the full triangle
- Range from Q^* to Q^{PC} are units that do not get sold due to market power

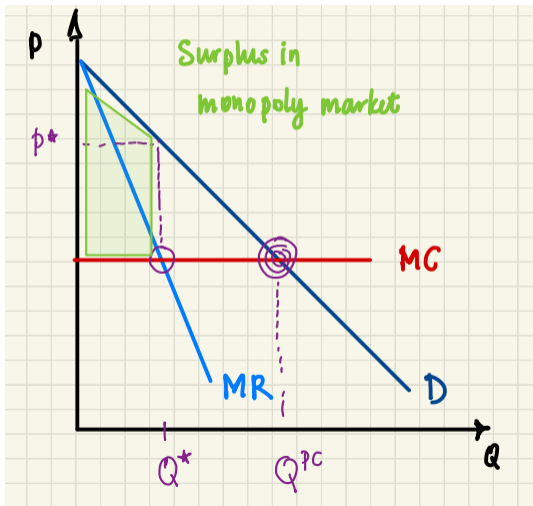
Outcomes with Market Power versus Perfect Competition



Relative to perfect competition, market power

1. leads to higher prices
2. leads to inefficiently smaller quantity
3. yields larger economic profits
4. businesses with market power can survive even with inefficiently high costs

Outcomes with Market Power versus Perfect Competition

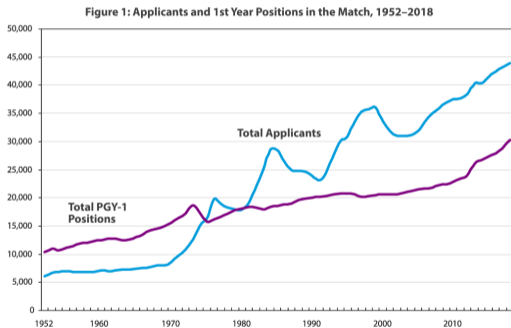


Relative to perfect competition, market power

1. leads to higher prices
2. leads to inefficiently smaller quantity
3. yields larger economic profits
4. businesses with market power can survive even with inefficiently high costs
5. **added:** erases economic surplus → deadweight loss

Example: Medical Residencies

- Physician salaries are a function of supply and demand for physicians
- Supply of physicians determined by medical school admissions + post-medical school residency slots
- Since 1980s, medical school graduates have exceeded residency slots
- US physician salaries have increased at a faster rate than international counterparts



Graph from [here](#)

4. Public Policy to Restrain Market Power

Government's Goals in Fighting Market Power

1. Whenever possible, ensure competition
2. When market power exists, limit its harms

Examples of Policies that Reinforce Competition

Examples of Policies that Reinforce Competition

- Cell phone number portability
- Require airlines to reveal prices all fees on websites
- Standardize mortgage estimates to make comparable

1. Government and Competition Policy More Generally

- Make collusion illegal
 - 1990s Phillip Morris and British American Tobacco set prices in Latin America and DOJ prosecutes [\[see here\]](#)

1. Government and Competition Policy More Generally

- Make collusion illegal
 - 1990s Phillip Morris and British American Tobacco set prices in Latin America and DOJ prosecutes [\[see here\]](#)
- Merger laws limit extent of consolidation
 - in the past, question was whether merger would cause consumer harm
 - this standard now being questioned

1. Government and Competition Policy More Generally

- Make collusion illegal
 - 1990s Phillip Morris and British American Tobacco set prices in Latin America and DOJ prosecutes [\[see here\]](#)
- Merger laws limit extent of consolidation
 - in the past, question was whether merger would cause consumer harm
 - this standard now being questioned
- OK to compete and monopolize, not OK to use non-competitive pressures to monopolize
 - can be hard to tell apart
 - are prices low due to competition? or to unfair trade practices?

1. Government and Competition Policy More Generally

- Make collusion illegal
 - 1990s Phillip Morris and British American Tobacco set prices in Latin America and DOJ prosecutes [\[see here\]](#)
- Merger laws limit extent of consolidation
 - in the past, question was whether merger would cause consumer harm
 - this standard now being questioned
- OK to compete and monopolize, not OK to use non-competitive pressures to monopolize
 - can be hard to tell apart
 - are prices low due to competition? or to unfair trade practices?
- International trade is another margin of competition
 - → tariffs yield inefficient production

2. Government Minimizing Harm From Market Power

- Some industries favor ever-increasing firm size
 - usually very high fixed cost industries – such as what?

2. Government Minimizing Harm From Market Power

- Some industries favor ever-increasing firm size
 - usually very high fixed cost industries – such as what?
 - water, sewer – in the past, wireline phones
- When marginal cost always declines with size, then industry is most cheaply served by one firm

2. Government Minimizing Harm From Market Power

- Some industries favor ever-increasing firm size
 - usually very high fixed cost industries – such as what?
 - water, sewer – in the past, wireline phones
- When marginal cost always declines with size, then industry is most cheaply served by one firm
- These industries are **natural monopolies**
- But we don't want to break them up because costs will increase

2. Government Minimizing Harm From Market Power

- Some industries favor ever-increasing firm size
 - usually very high fixed cost industries – such as what?
 - water, sewer – in the past, wireline phones
- When marginal cost always declines with size, then industry is most cheaply served by one firm
- These industries are **natural monopolies**
- But we don't want to break them up because costs will increase
- So government turns to regulation

2. Government Minimizing Harm From Market Power

- Some industries favor ever-increasing firm size
 - usually very high fixed cost industries – such as what?
 - water, sewer – in the past, wireline phones
- When marginal cost always declines with size, then industry is most cheaply served by one firm
- These industries are **natural monopolies**
- But we don't want to break them up because costs will increase
- So government turns to regulation
- In the DMV
 - DC Water (and sewer) governed by a 11-member appointed board
 - In VA, State Corporation Commission regulates Dominion Virginia Power and others

In Sum: Power of Markets

- What is market power and what forms does it take?
- How does it distort outcomes relative to the perfectly competitive case?
- Why do you care?
- What can government do to alleviate problems of market power?

For Next Class

- See you Nov. 19, but not Nov. 26
- Do problem set
- Read Chapter 15
- Read Ripped from Headlines articles

For Next Class

- See you Nov. 19, but not Nov. 26
- Do problem set
- Read Chapter 15
- Read Ripped from Headlines articles

I will

- post these lecture notes on my webpage
- post link to lecture recording on Blackboard
- anything else?