Chapter 14

Market Structure and Degrees of Market Power

1. Beyond Perfect Competition: Monopoly, Oligopoly, and Monopolistic Competition
2. Setting Prices When You Have Market Power
3. The Problem with Market Power
4. Public Policy to Restrain Market Power

Chapter 14 (1 of 5)

Evaluate how market structure shapes the market power your business has:

- Four market structures
- Market structure determines market power

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Market structure and your business strategy

The **market structure** refers to the **competitive environment** in which you are doing business.

- This environment informs your **pricing** strategy and **output** decisions.

You want to **tailor your strategy** to the specific competitive environment you face:

- Do you have lots of competitors, only a few strategic opponents, no opponents?
- Do you expect new competitors to enter your industry and try to steal market share?
- Are your products exactly the same as those of your competitor? Or are you offering higher-quality products, or better service?

The extent and type of competition you face is **summarized by the market structure of your market.**

Key Definition (1 of 7)

The **market structure** in which you find yourself operating **shapes your market power.**

Market Power: The extent to which a seller can **charge a higher price without losing many sales** to competing businesses.

- Market power informs your pricing strategy.

Diving into the Definition

Two scenarios:

1. If you are the only gas station in town, then you have **some market power.**

   You **won't lose many customers** if you increase your prices — not many people will drive to the next town for slightly cheaper gas.

2. If you are one of four gas stations at a busy intersection, then you have almost **no market power.**

   Your customers will **buy their gas elsewhere** if you raise prices

Exploring different market structures

Four market structures:

1. Perfect competition
2. Monopolistic competition
3. Oligopoly
4. Monopoly

While there are defining characteristics associated with each market structure, **don't worry about *sharp* distinctions** between these market structures.

- The focus is really on understanding the **market power**, which is aligned on a **spectrum**.

Key Definition (2 of 7)

Perfect Competition: Markets in which…

1. All businesses in an industry sell **identical goods.**
2. There are **many sellers and many buyers**, each of whom is small relatively to the size of the market.

<u>Result</u>: Businesses operating in perfectly competitive markets have **no market power.**

- You are a **price-taker.**
  - You **take the market price as given** and follow along,

Diving into the Definition

Gas Station Example: As one of four gas stations at a busy intersection, you are operating in a perfectly competitive market.

- **Identical good:** Everyone sells the same gas.
- **Many sellers and buyers:** There are many other gas stations in town (and at that intersection).

<u>You are a **price-taker:**</u>

- If you **raise your price,** your customers will buy elsewhere.
- No reason to **lower your price**

Perfect Competition

Other examples of perfectly competitive markets:

1. **Agricultural markets**
   - Many farmers sell corn, and "corn is corn."
2. **Commodities markets**
   - Gold, oil, livestock — many sellers, selling almost identical products.
3. **Stock market**
   - There are many people selling Apple stock, and one share of Apple stock is the same as any other share.

Note: Perfect competition is **relatively rare.** Most products are *not* identical, and many markets have just a handful of dominant players.

Key Definition (3 of 7)

Monopoly: When there is only **one seller** in the market.

- No other businesses are selling the same thing as you.

Result: If your business is operating as a monopoly, then you have **lots of market power.**

- You are **NOT** a price-taker.
  - **You can raise your prices** without losing customers to *competitors*.
  - But you may lose customers to other *products.*

Diving into the Definition

De Beers Diamonds Example: From its founding in 1888 until the mid-twentieth century, De Beers operated as a **monopolist in the diamond market.**

- At one point, De Beers held more than **85% of the world's diamonds.**

But emeralds and rubies compete with diamonds, and so despite having no *direct competitors in the diamond* market, De Beers still had to

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Key Definition (4 of 7)

Oligopoly: A market with only a **handful of large sellers.**

- Products can be somewhat different or somewhat similar.

Oligopoly result: You have **substantial market power** (but less than monopolists).

- You are **NOT** a price-taker.
    - As you choose your price, you think about how your rivals will respond to your choices — **strategic interaction**.

Diving into the Definition

Example: The cellular service market is dominated by three sellers:

- **AT&T: 45%**
- **Verizon: 29%**
- **T-Mobile: 25%**
- Other: 1%

If Verizon raises its prices, it loses some customers, but not all.

- Customer preferences; hassle of switching; reliability of network; price hikes by rivals

Key Definition (5 of 7)

Monopolist Competition: A market with **many small businesses** competing, each selling **differentiated products.**

- **Product Differentiation:** Efforts by sellers to **make their products differ** from those of their competitors.
  - Differences based on the goods themselves, brand image, quality, store location, customer service, return policy, shipping & packaging.

Result: The **more distinct** you

Diving into the Definition

Examples:

Apples differentiated by taste and brand:

- Red Delicious, Fuji, Honey Crisp, etc.

Jeans differentiated by cut, wash, quality, and brand:

- Skinny versus bootcut; light versus dark wash; Levi's versus Target

Monopolistic: Only **one seller** making each **specific** product.

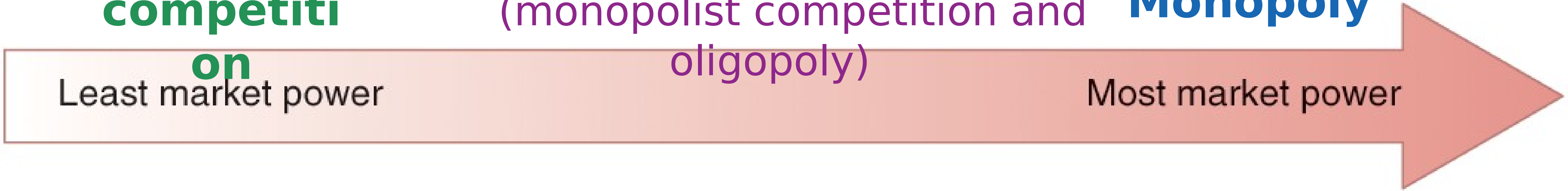
Competition: **Many businesses** trying to sell you apples or jeans.

The spectrum of market power (1 of 2)

Perfect competition

Imperfect competition
(monopolist competition and oligopoly)

Monopoly



Imperfect Competition: A market featuring **few competitors**, but with sufficiently limited competition that sellers still have **some market power.**

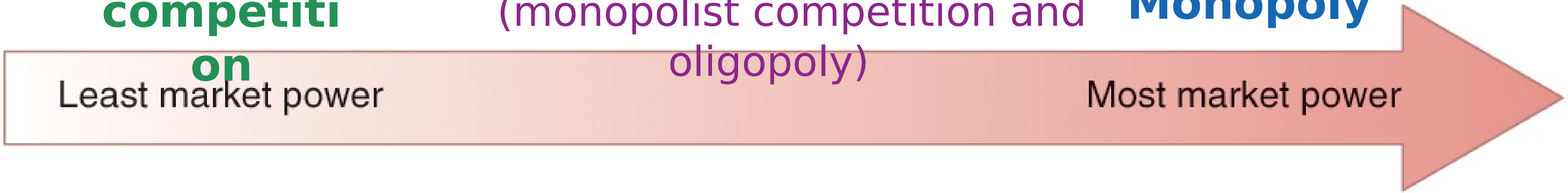
- Includes **monopolist competition** and **oligopoly.**
- "Some market power" either because there are <u>few competitors</u>, or because competitors sell somewhat <u>differentiated products</u>.
- **Most businesses operate** in the **imperfectly competitive**

The spectrum of market power (2 of 2)

Perfect competition

Imperfect competition
(monopolist competition and oligopoly)

Monopoly



Five key insights into imperfect competition (1 of 2)

1. Having **more competitors** leads to **less market power.**
   - Long-run profitability depends on how many rival businesses enter your market.
   - Are there **barriers** preventing entry? How strong are those barriers?

2. **Market power** allows you to pursue independent **pricing strategies.**
   - Market power allows you to set your price, but be mindful of the law of demand.

3. Successful **product differentiation** gives you more **market power.**

Five key insights into imperfect competition (2 of 2)

1. Having **more competitors** leads to **less market power.**
2. **Market power** allows you to pursue independent **pricing strategies.**
3. Successful **product differentiation** gives you more **market power.**
4. Imperfect competition among **buyers** gives them **bargaining power.**
   - When there are a limited number of *buyers*, then **keeping customers is important.**
   - Customers use their "valuable client" status to negotiate lower prices.
5. **Your best choice** depends on the actions that **other businesses** take

Key take-aways: Beyond perfect competition

Market structure and market power

- ➢ Perfect competition ☾ no market power
- ➢ Monopolist competition ☾ some market power
- ➢ Oligopoly ☾ some market power
- ➢ Monopoly ☾ most market power

Focus on market power

- ➢ The ability to charge a higher price without losing many customers.
- ➢ If your business has market power, then you are **NOT a price taker.**

Market power comes from

- ➢ Few competitors
- ➢ Differentiated products

Chapter 14 (2 of 5)

Calculate the best price to set when you have market power:

- Your firm demand curve
- Your marginal revenue curve
- Rational Rule for Sellers

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Setting prices when you have market power

Key business decision ☾ Figure out **what price** to charge.

If the price is too low…

- ➢ your profit margin disappears.

If the price is too high…

- ➢ you'll barely sell anything.

Trade-off between **selling a larger quantity** of items versus **making more money on each item** you sell.

- ➢ Two analytic tools to evaluate this trade-off:
  1. Firm's demand curve
  2. Marginal revenue curve

Key Definition (6 of 7)

Firm demand curve: Illustrates how the quantity that buyers demand **from an individual business** varies as it changes the price it charges.

- Focuses on YOUR specific firm or businesses
- Summarizes the market power of your firm:
  - How customers respond to YOUR price changes

Diving into the Definition

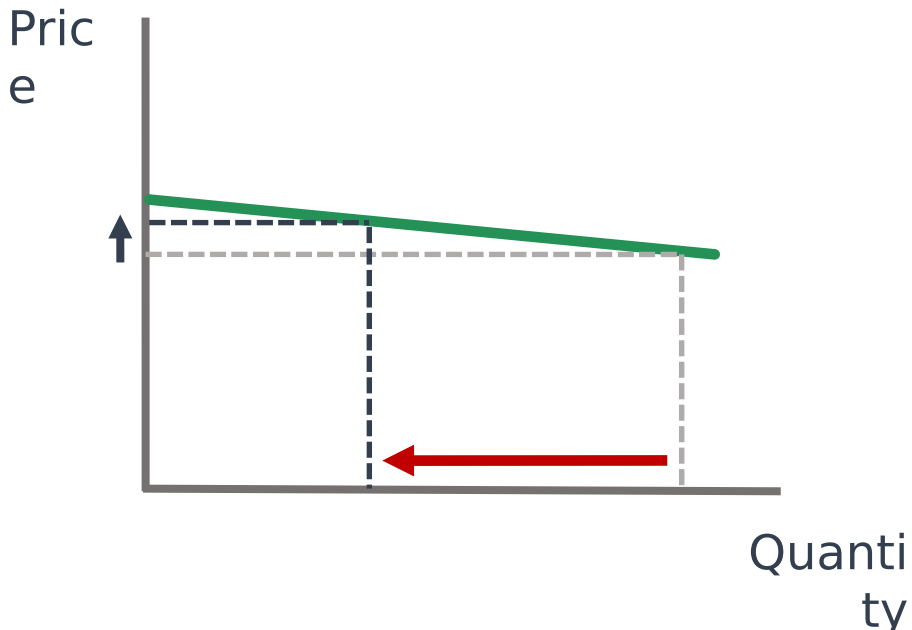
Don't get confused!

Your *firm's* demand curve is **different** from…

- the **market** demand curve: the quantity demanded across **all firms** in the entire market at various prices.
- an **individual's** demand curve: the quantity demanded by an **individual buyer** at various prices.

Least Market Power

		Imperfect competition		
Market type	**Perfect competition**	**Monopolistic competition**	**Oligopoly**	**Monopoly**
Competitors	Many competitors	Many competitors	Few competitors	No competitors
Products	Identical products	Differentiated products	Differentiated or similar products	Unique product
	Least market power	**Some market power**		**Most market power**



Not much market power means…

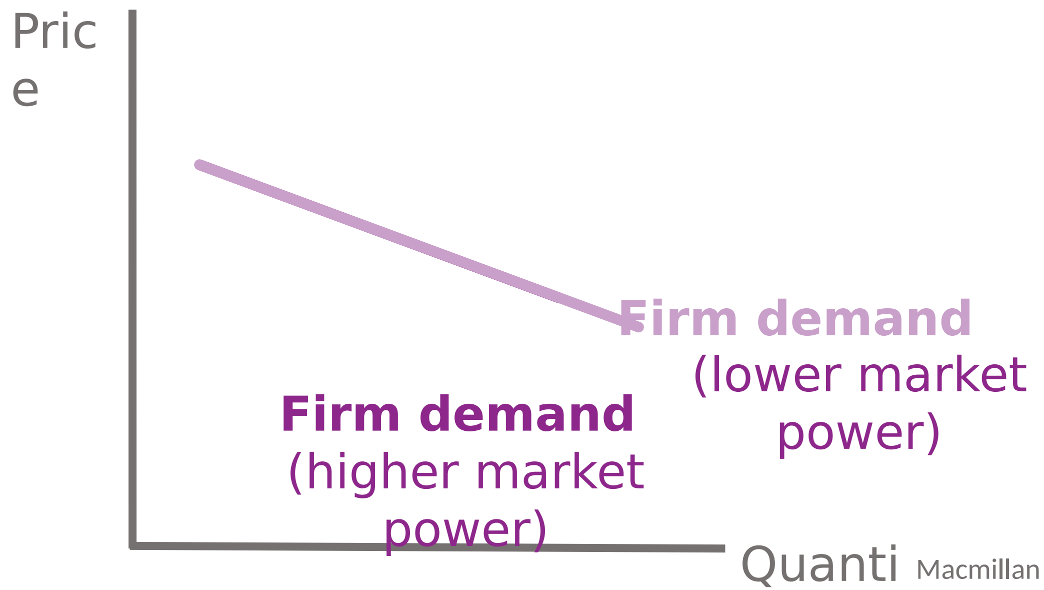
- Raising your prices, even a little, **sharply reduces** the quantity you sell.
- <u>Result</u>: Your firm's demand curve is relatively **flat.**
  - Highly **elastic** curve

Some Market Power (1 of 2)

Market type	Perfect competition	Monopolistic competition	Oligopoly	Monopoly
		Imperfect competition		
Competitors	Many competitors	Many competitors	Few competitors	No competitors
Products	Identical products	Differentiated products	Differentiated or similar products	Unique product
	Least market power	Some market power		Most market power

You have **some** market power…

- Raising your price will result in the **loss of some, but not all, customers.**
- More market power ☾ **more inelastic** demand curve.
    - Customers are less responsive to your price hike, so quantity demanded does not drop as much.



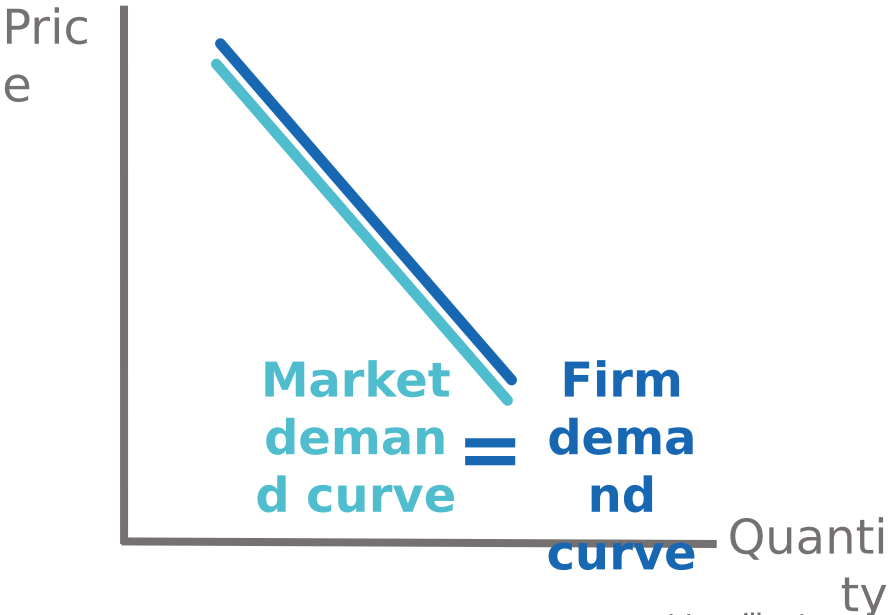
Most Market Power

Market type	Perfect competition	Monopolistic competition (Imperfect competition)	Oligopoly (Imperfect competition)	Monopoly
Competitors	Many competitors	Many competitors	Few competitors	No competitors
Products	Identical products	Differentiated products	Differentiated or similar products	Unique product

Least market power → Some market power → Most market power

As the **only seller** in the market…

- **Your firm's demand** curve IS the **market demand** curve.
    - Relatively **steep** demand curve (inelastic), since a price hike will lead you to lose very few sales.
    - But **law of demand** still applies since customers can choose not to buy your product in response to higher prices



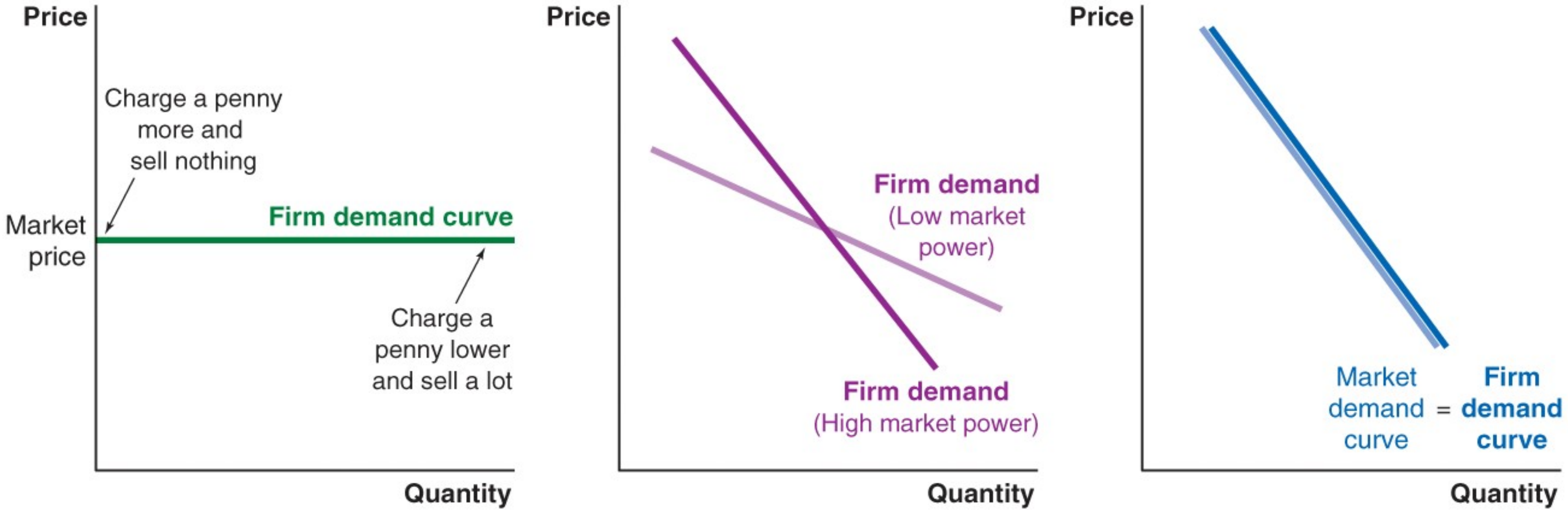
Least, Some, and Most Market Power

Market type	Perfect competition	Monopolistic competition	Oligopoly	Monopoly
		Imperfect competition	Imperfect competition	
Competitors	Many competitors	Many competitors	Few competitors	No competitors
Products	Identical products	Differentiated products	Differentiated or similar products	Unique product

With no market power, raising your price a penny above the market price means you'll sell nothing. Lower it a penny, and you'll sell a huge quantity.
Your **firm demand curve** is basically flat.

You have some market power, and hence a higher price will lose some, but not all, customers. Similarly, a lower price will gain some, but not all, customers.
Your **firm demand curve** is downward-sloping.

As the only seller in the market, you don't need to worry about competitors, and the demand for your goods is equal to the market demand.
Your **firm demand curve** is the **market demand curve**.

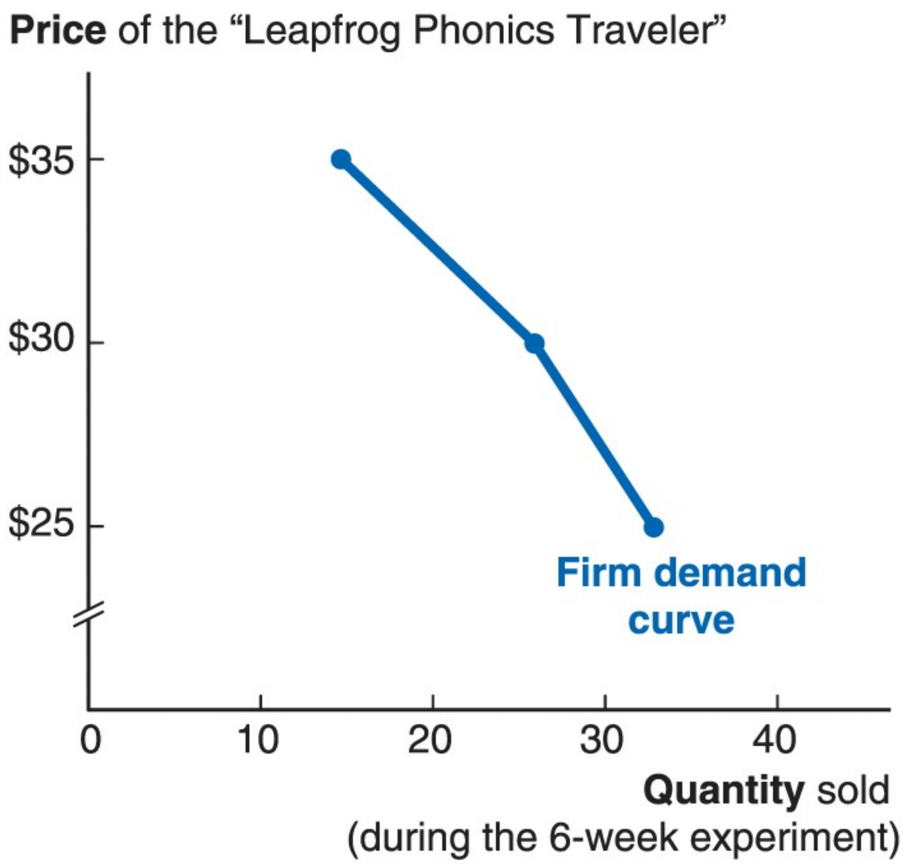


How retailers discover their own demand curves

A survey of large U.S. retailers revealed that 90% of them conduct pricing experiments.

<u>Charge different prices…</u>

- **To different groups of customers:**
  - Example: Amazon movie prices
- **To different locations:**
  - Example: Retailer Zany Brainy priced Leapfrog at $24.99, $29.99, and $34.99
- **At different times:**



Key Definition (7 of 7)

Question: How many units of my products should I sell?

Apply the core principles:

- **Marginal principle:** Should I sell one more unit?
- **Cost-benefit principle:** Consider the benefits and costs of selling the additional unit.

Marginal revenue: The addition to total revenue you get from selling one more unit.

- Use marginal revenue to **assess the benefit** of selling

Diving into the Definition

How to draw your marginal revenue:

Three-step recipe

1. **Calculate your total revenue**

   Total Revenue = Price × Quantity

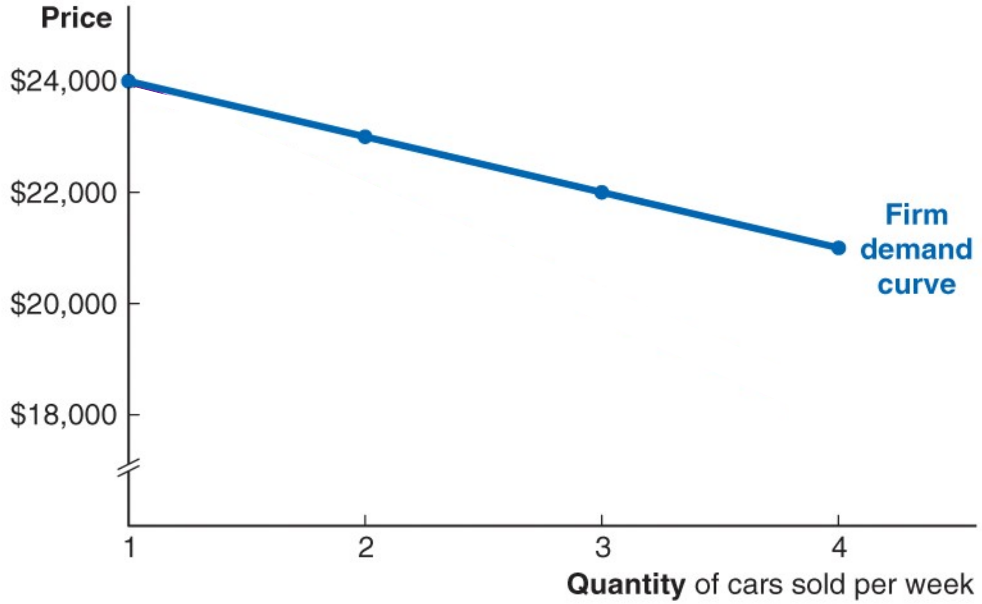
2. **Calculate your marginal revenue**

   Change in total revenue from selling one more unit

3. **Plot the marginal revenue curve**

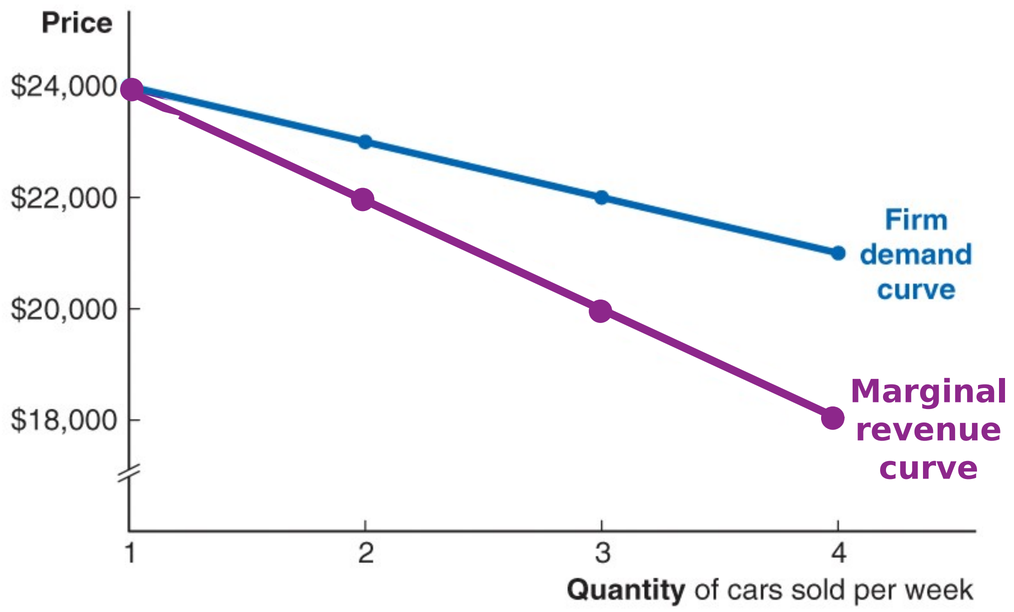
You Try! Calculate and plot the marginal revenue curve (2 of 3)

Price (P)	Quantity (Q)	Total Q)	Marginal evenue (change in total rev.)
$24,000	1	[illegible]	$24.000
$23,000	2	[illegible]	$22.000
$22,000	3	[illegible]	$20,000
$21,000	4	[illegible]	$18.000



You Try! Calculate and plot the marginal revenue curve (3 of 3)

Price (P)	Quantity (Q)	Total revenue (P Q)	Marginal evenue (change in total rev.)
$24,000	1	$24,000	$24,000
$23,000	2	$46,000	$22,000
$22,000	3	$66,000	$20,000
$21,000	4	$84,000	$18,000



Marginal revenue: Two opposing forces at work

Trade-off: If you lower your price, you sell more units, but you won't make as much money from each unit you sell.

The output effect: You **gain revenue** from selling a **larger quantity** of items.

- Selling this extra unit of output boosts revenue by an amount equal to the price of that item.
- **Output effect = Price**

  The price of the extra item you sell

The discount effect: You **lose revenue** when you **cut the price** a bit.

- To sell the extra item, you lower your price a bit. This **lower price applies to ALL** the units you sell.
- **Discount effect = $\Delta P \times Q$**

  The price cut you have to offer × the quantity subject to that price cut.

Your marginal revenue = Output effect – Discount effect

Your marginal revenue reflects the balance of these opposing forces.

You Try! Calculate the two effects for the third car sold (2 of 2)

Price (P)	Quantity (Q)	Total revenue (P × Q)	Marginal revenue (change in total rev.)
$24,000	**1**	$24,000	**$24,000**
$23,000	**2**	$46,000	**$22,000**
$22,000	**3**	$66,000	**$20,000**
$21,000	**4**	$84,000	**$18,000**

The output effect: You **gain revenue** from selling a **larger quantity** of items.

- By lowering the price to $22,000, you are able to sell three cars instead of two cars.

The discount effect: You **lose revenue** when you **cut the price** a bit.

- You lowered the price by $1,000 to sell that third car. This means cars 1 and 2 are sold at a $1,000 discount.

Marginal revenue = Output effect – Discount effect

Marginal revenue = $22,000 - $1,000 × 2

Marginal revenue from the third car is **$20,000.**

Summarizing Insights

Insight A: Your firm's demand curve is downward-sloping.

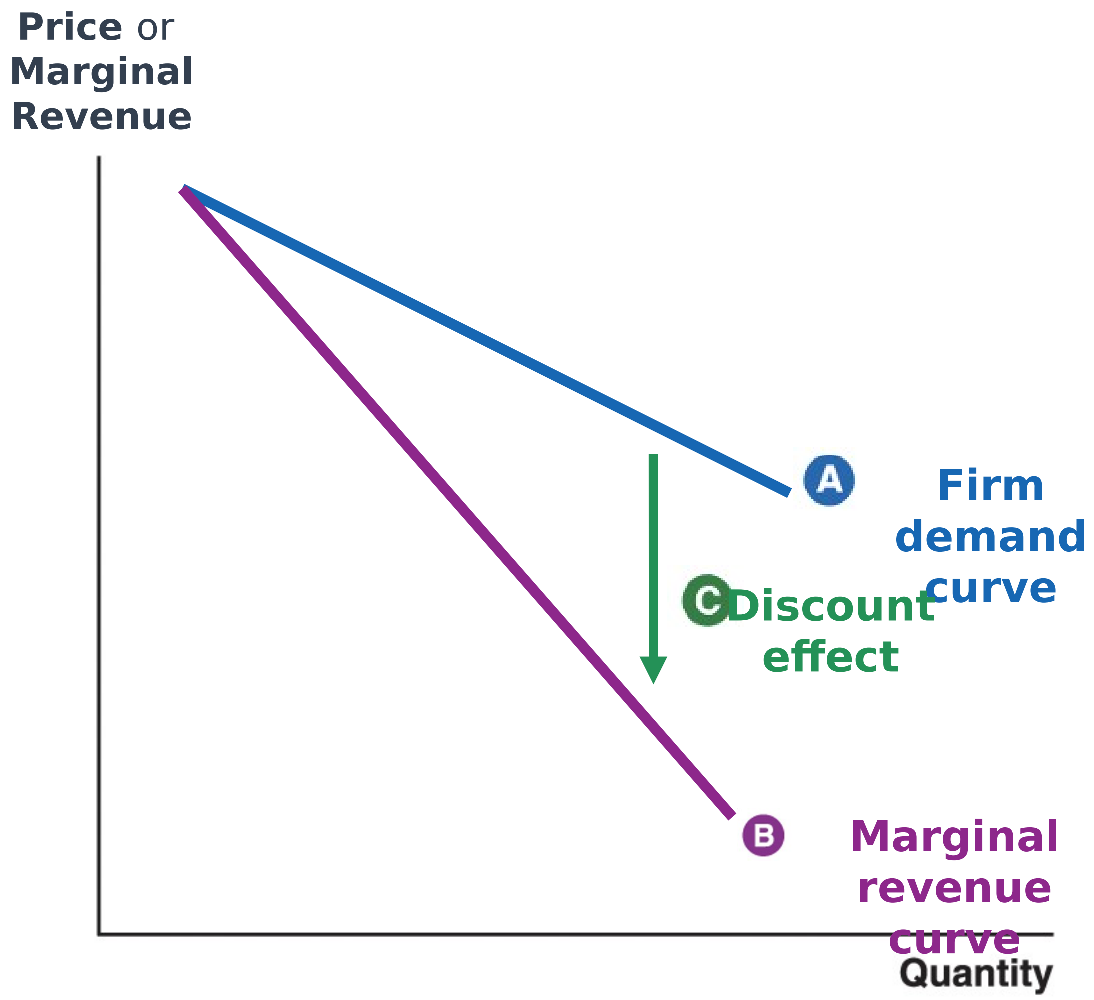
- Raising your prices will lead to the loss of some customers, but not all.

Insight B: Your marginal revenue curve lies below your firm's demand curve.

- Due to the discount effect

Insight C: Your marginal revenue curve declines more sharply than your firm's demand curve.

- The larger the quantity you



The rational rule for sellers

Question: What quantity should you produce, and what price should you charge?

Step 1: What quantity should you produce?

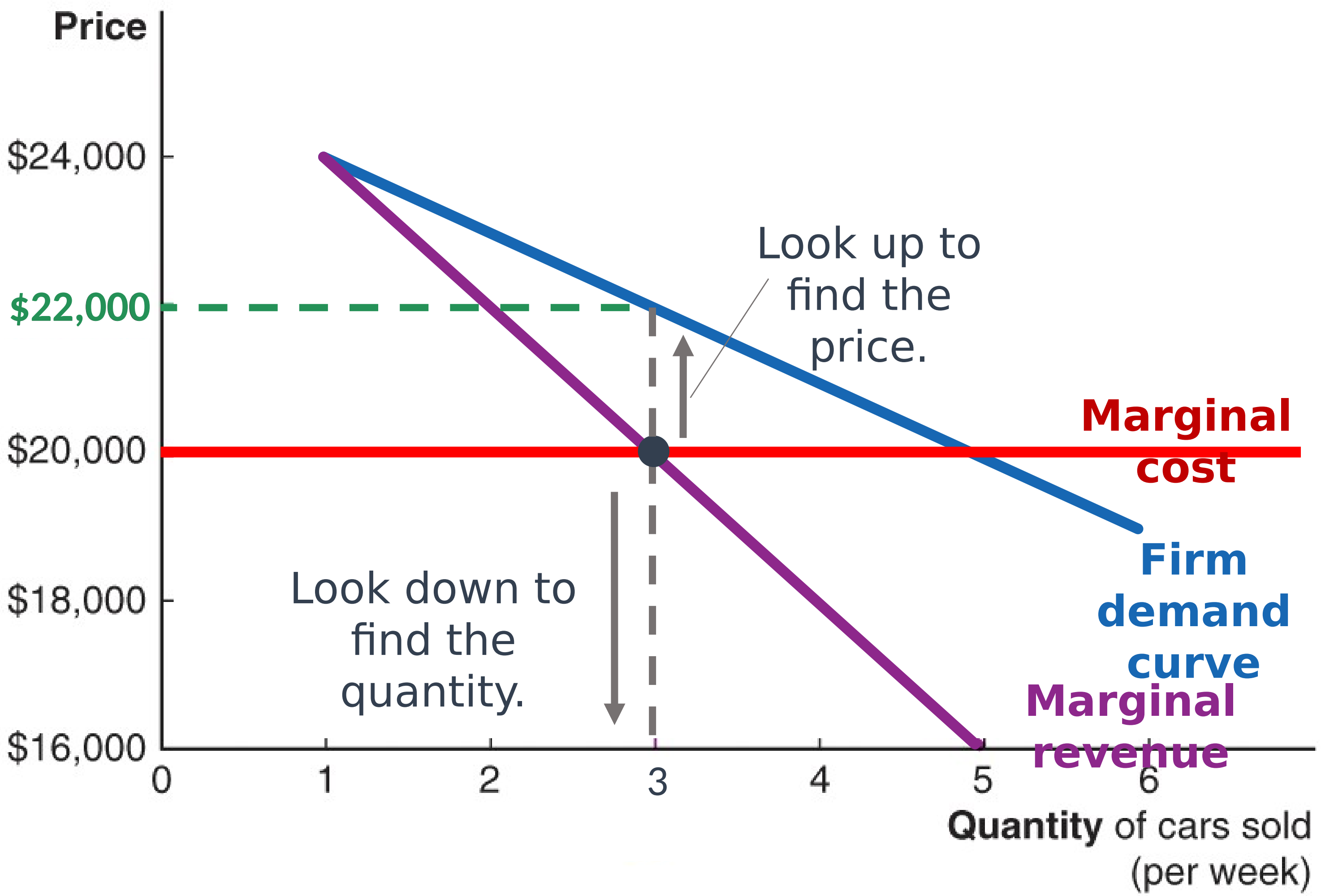
- Keep selling until **marginal revenue = marginal costs.**

The rational rule for sellers: Sell one more unit if the marginal revenue is greater than (or equal to) marginal cost.

Step 2: Set your price on the demand curve (not the marginal revenue curve).

- You want to charge the highest price you can (as long as you can sell the quantity you chose from Step 1).
- **Look to demand** because the demand curve illustrates the willingness to pay of your customers!

Graphically figuring out your firm's quantity and price



Step 1: Find the quantity where **marginal revenue** intersects **marginal cost**.

Step 2: Find the **price** for that quantity off of the **demand curve**.

Final answer: **Three cars** are sold per week for **$22,000**

You Try! Numerically figure out your firm's quantity and price (2 of 3)

Quantity (Q)	**Price** (P)	**Total revenue** (P × Q)	**Total cost** ($20,000 × Q)	**Marginal revenue** (change in total rev.)	**Marginal cost** (change in total cost)	**Profit** (total revenue − total cost)
1	$24,000	$24,000	$24,000	$24,000	$20,000	$4,000
2	$23,000	$46,000	[illegible]	$22,000	[illegible]	[illegible]
3	$22,000	$66,000	[illegible]	$20,000		
4	$21,000	$84,000	[illegible]	$18,000	[illegible]	[illegible]

You Try! Numerically figure out your firm’s quantity and price (3 of 3)

Quantity (Q)	Price (P)	Total revenue (P × Q)	Total cost ($20,000 × Q)	Marginal revenue (change in total rev.)	Marginal cost (change in total cost)	Profit (total revenue – total cost)
1	$24,000	$24,000	**$24,000**	$24,000	**$20,000**	**$4,000**
2	$23,000	$46,000	**$22,000**	$22,000	**$20,000**	**$6,000**
3	$22,000	$66,000	**$20,000**	**$20,000**	**$20,000**	**$6,000**
4	$21,000	$84,000	**$18,000**	$18,000	**$20,000**	**$4,000**

Marginal revenue equals marginal cost

Maximum profit

Key take-aways: Setting prices

When you have market power, you have price setting capabilities.

Your firm’s demand curve

- ➢ What quantity buyers demand from YOUR business specifically.
- ➢ Illustrates your market power.

Visually, **more market power** ☾ **steeper firm demand curve** (inelastic)

<u>Finding your firm’s quantity and price:</u>

1. Produce the quantity where **marginal revenue = marginal cost.**
2. Price off of the **demand curve.**

Chapter 14 (3 of 5)

Assess how market power distorts market forces:

- Market power leads to worse outcomes.
- Increasing competition can lead to better outcomes.

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Market power leads to worse outcomes

In 1987, scientists **discovered an antiretroviral drug** that could dramatically extend the lives of people living with AIDS.

- **The problem:** AIDS drugs were priced at **$10,000** per year.
  - **Unaffordable** for millions living in sub-Saharan Africa
  - Today, these same drugs are priced at **$100 per year**.

The drug was **not expensive to make:**

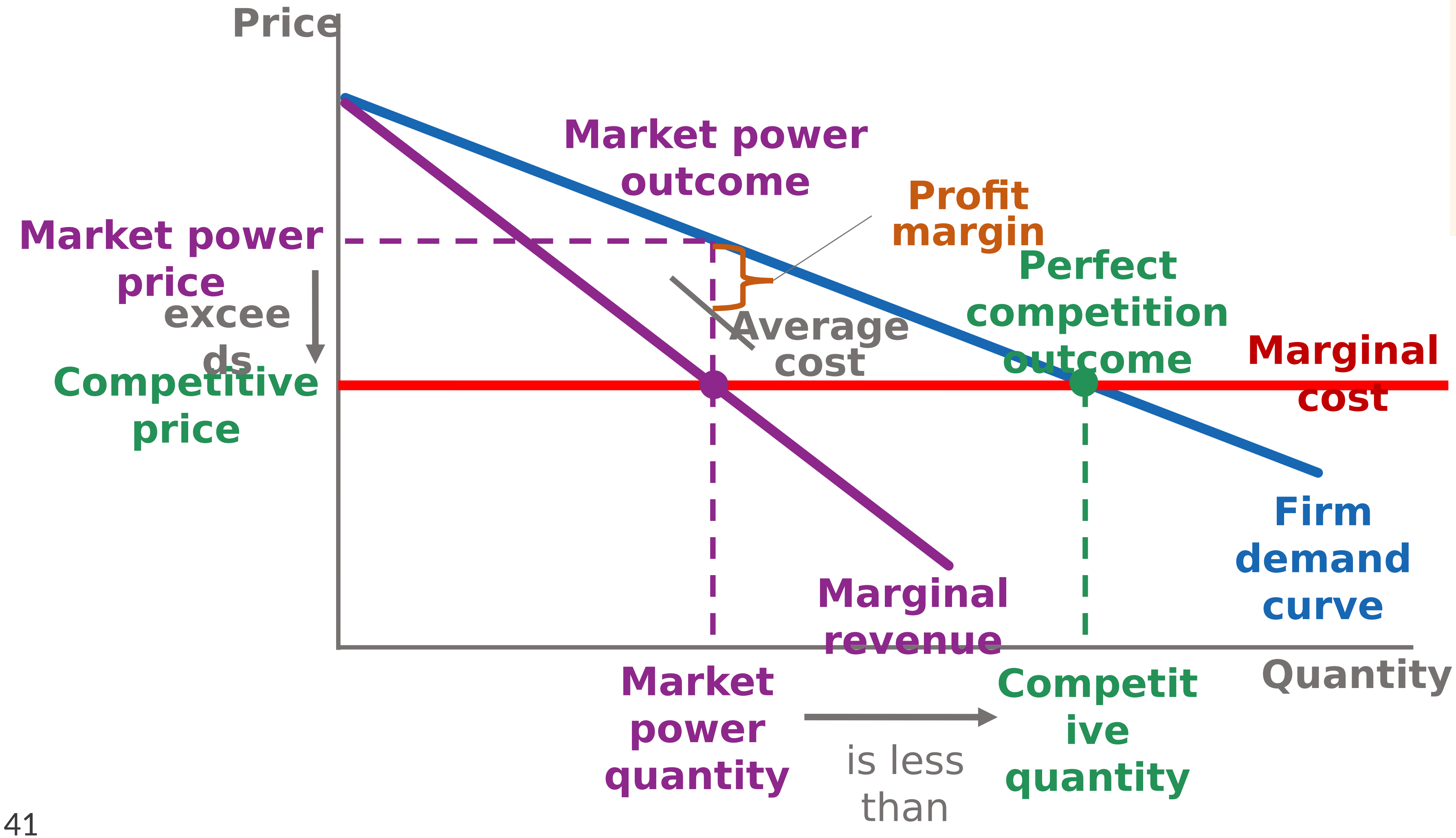
- Marginal cost of one dose was **less than a dollar.**

So why $10,000 per year?

- Pharmaceutical company's patent
  - A **patent** gives an inventor the right to be the only seller of the good they invented for a period of time (usually 20 years).

Result: The inventors of the drug used their monopoly status market power to charge high prices.

Comparing market power and perfect competition outcomes



Market power leads to…

1. Higher prices
2. Inefficiently smaller quantity
3. Larger economic profit
4. Survival despite inefficiently high costs

Summarizing outcomes

<u>Lesson One:</u> <u>Market power leads to **higher prices.**</u>

- Recall from Chapter 3 that under perfect competition price = marginal cost.
- Market power allows firms to charge a price above their marginal costs of production.

<u>Lesson Two:</u> <u>Market power leads to an **inefficiently smaller quantity.**</u>

- Higher prices lead to lower quantity demanded.
- **Inefficient quantity:** Firm's **marginal cost** is **BELOW** the **demand curve** (i.e., marginal benefit) at this quantity.
  - Since **MC** < **MB**, society would be better off (i.e., more economic surplus) if larger quantity were produced.
  - **Market failure:** Underproduction!

Summarizing outcomes continued

Lesson Three: Market power yields **larger economic profits.**

- The firm could produce the perfectly competitive outcome *but choose not to.*
  - Why? Because the “market power” outcome is more profitable.
- **Visually:** Profit margin = Price – Average per unit cost of production
  - **Market power price** exceeds average per unit cost!

Lesson Four: Businesses with market power can survive even with **inefficiently high costs.**

- Market power: Less pressure to adopt cost-saving measures due to outsized profitability.
- Perfect competition: Inefficient businesses aren’t competitive and eventually close.

Increasing competition can lead to better outcomes

RECALL the AIDS medication price point of **$10,000 per year.**

- Fatima Hassan, a South African human rights lawyer and Calgary Peace Prize winner, led a campaign to **end patent protection** for AIDS drugs.
  - **“Humanitarian crisis”** clause was triggered in the international patent agreements.

Result: Price fell to **$100 per year** as competitors start to supply the drug.

- Solved the underproduction problem associated with “market power” settings

Note: Most economists agree that overriding patents isn’t a policy that should be used often.

- Need to maintain strong incentives for drug companies to fund research for new cures.

Key take-aways: The problem with market power

Market power leads businesses to:

1. Charge a higher price
2. Sell a smaller quantity *(inefficient underproduction!)*
3. Earn larger profits
4. Survive with inefficiently high costs

Chapter 14 (4 of 5)

Assess policies to limit the problems caused by market power:

- Policies to ensure competition
- Policies to minimize harm

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Fundamental tension

More competition ☾ better outcomes for society as a whole

Less competition ☾ more market power and larger profits for incumbent firms

Businesses often strive to stifle competition, even though this makes society worse off.

Government response ☾ regulate markets through policy:

1. Policies to ensure competition thrives
2. Policies to minimize the harmful ways businesses might exploit their market power

Policies to ensure competition thrives (1 of 4)

Competition policy: Laws and regulations designed to ensure that markets remain competitive.

- Sometimes called *antitrust policy.*

Policies that encourage competition:

1. Anti-collusion laws
2. Merger laws
3. Illegal to attempt to monopolize
4. Encouraging international trade

Anti-collusion laws prevent businesses from agreeing *not* to compete.

Collusion: An agreement to limit competition.

- Effectively agreeing to act as if they were a single monopolist.

Examples: Agreeing not to offer lower price or better products; restrict quantity; divvying up the

Policies to ensure competition thrives (2 of 4)

Policies that encourage competition:

1. Anti-collusion laws
2. Merger laws
3. Illegal to attempt to monopolize
4. Encouraging international trade

Merger laws prevent competing businesses from combining to consolidate market power.

Mergers that benefit society:

- If the merger creates **cost savings,** which translates into **lower consumer prices.**

Mergers that harm society:

- If the merger yields greater market power.

Justice Department disallows any merger whose effect "may be substantially to lessen competition, or tend to create a monopoly."

Mergers that were blocked:

- AT&T and T-Mobile (2011)
- United Airlines and US Airways (2001)
- Office Depot and Staples (1997)

Policies to ensure competition thrives (3 of 4)

Policies that encourage competition:

1. Anti-collusion laws
2. Merger laws
3. Illegal to attempt to monopolize
4. Encouraging international trade

Predatory pricing:

- Charging prices so low that you force your competitor out of business, with the goal of then **raising prices later.**

It is not illegal for a business to *be a monopoly* but it's illegal to *attempt to monopolize*.

Legal: "being a monopoly"

- Some large companies acquire their dominant position by outcompeting rivals.
  - Providing better service at lower prices

Illegal: "attempting to monopolize"

Exclusionary practices:

- Push your supplier to not sell to your competitors.

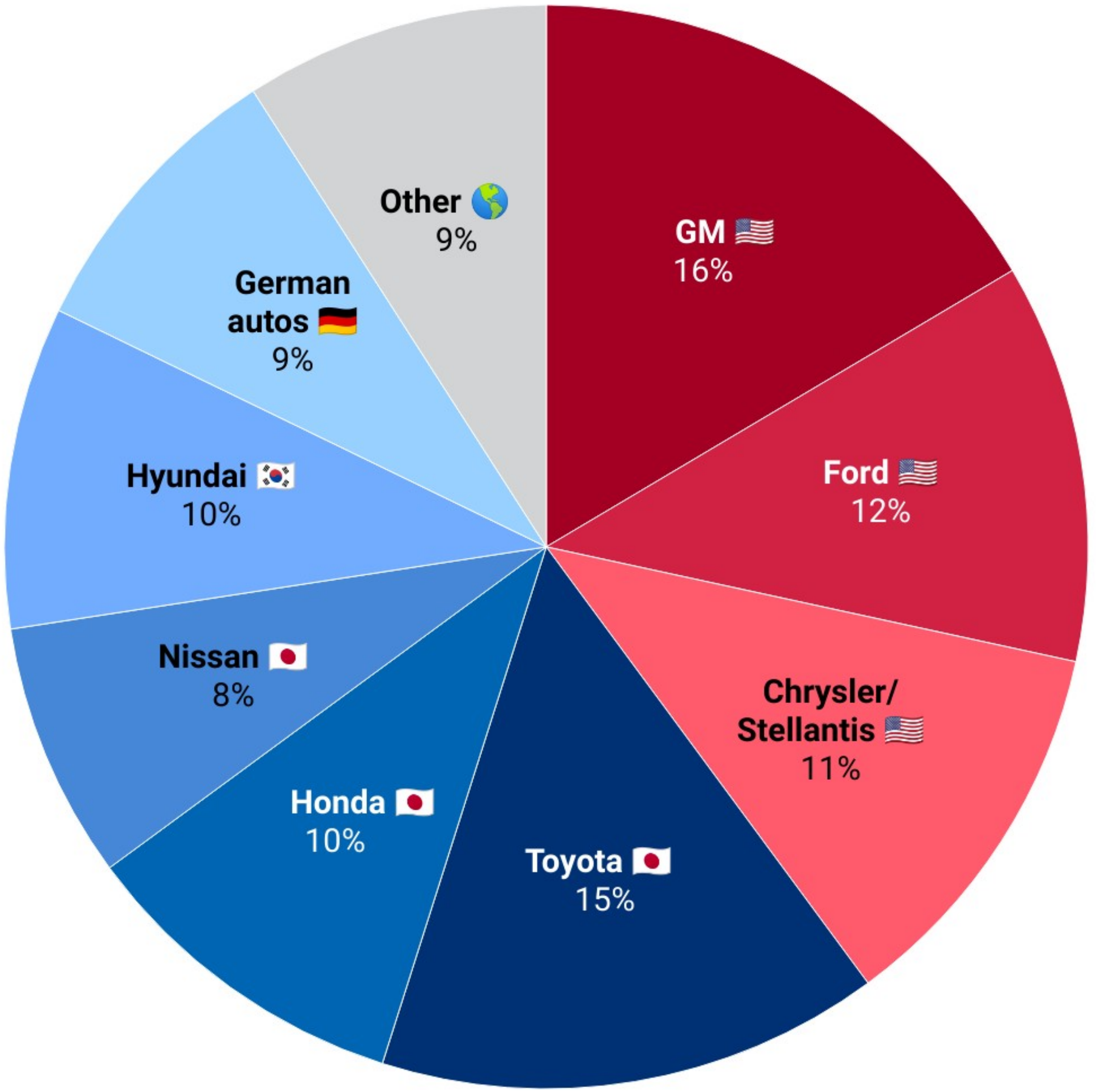
Policies to ensure competition thrives (4 of 4)

Policies that encourage competition:

1. Anti-collusion laws
2. Merger laws
3. Illegal to attempt to monopolize
4. Encouraging international trade

Encouraging international trade fosters competition.

➢ International trade makes it difficult for any business to build up much market power.



Policies to minimize the harm from exercising market power (1 of 2)

The balancing act of government regulators:

- Limit the worse abuses of market power while still allowing more productive businesses to outcompete their rivals.

1. A **price ceiling** can limit abuse of market power.

- Limit the extent to which monopolies can use their market power to charge high prices.
  - Eliminates incentive to restrict production

Policies to minimize the harm from exercising market power (2 of 2)

2. Natural monopolies often lead to government intervention.

Natural Monopoly: A market in which it is **cheapest for a single business** to service the market.

- **The logic:** If <u>marginal costs always decrease as you expand</u> your output, then new entrants will always be at a cost disadvantage.

Examples: Local water, gas, and electric companies are all natural monopolies.

- Massive start-up costs (running pipes/wires throughout the city).
- Once the network has been established, it’s then easy enough to supply to an apartment/house already on the grid.
- Not cost-effective for a second business to lay their own network and start supplying.

Key take-aways: Public policy to restrain market power

Government regulates markets through policy:

1. **Policies to ensure competition thrives**
   - Anti-collusion laws
   - Merger laws
   - Preventing attempts to monopolize the market
   - Encouraging international trade
2. **Policies to minimize the harmful ways businesses might exploit their market power.**
   - Price ceilings
   - Government regulations regarding natural monopolies

Chapter 14 (5 of 5)

1. Market structure informs market power.
2. Market power allows you to set price above your marginal cost, off your firm's demand curve.
3. Market power leads to higher prices and smaller quantity.
4. Government intervenes to encourage competition and limit the harm from market power.

1. Beyond Perfect Competition: Monopoly, Oligopoly, and Monopolistic Competition
2. Setting Prices When You Have Market Power
3. The Problem with Market Power
4. Public Policy to Restrain Market Power