Chapter 16

Price Discrimination and Sophisticated Pricing Strategies

1. Price Discrimination
2. Group Pricing
3. The Hurdle Method

Chapter 16 (1 of 4)

Tailor the price you charge each customer, charging the highest price you can get them to pay:

- How price discrimination works
- Efficiency and feasibility of price discrimination

1. Price Discrimination
2. Group Pricing
3. The Hurdle Method

How much are you paying for your college education?

The price you're paying probably is quite different from that of your classmates — not just one price like colleges seemingly advertise.

The price you pay is the annual tuition, minus grants and scholarships you receive.

- Scholarships = highly targeted discounts

Your college is following a sophisticated pricing strategy: **charging different people different prices,** even though they're purchasing the **same product.**

Let's explore how businesses in imperfectly competitive markets can ***increase their customer base*** *and* ***increase their revenue*** *by engaging in these types of pricing strategies.*

Asiseeit/Getty Images

Key Definitions (1 of 2)

Price discrimination: Selling the **same product** at **different prices.**

- Goal of price discrimination: Charge each individual customer the *highest* price that you can get them to pay.

Reservation price: The **maximum price** a customer will pay for a product.

- It's equal to their *marginal benefit.*

Perfect price discrimination: Charging each customer their reservation price.

- You set the price for that particular customer EXACTLY at their maximum willingness to pay.

Diving into the Definition

Concert scenario: You are excited to see Taylor Swift perform in your hometown.

After considering how much you love Taylor Swift's music, you conclude that the very most you are willing to pay to see her perform is $100.

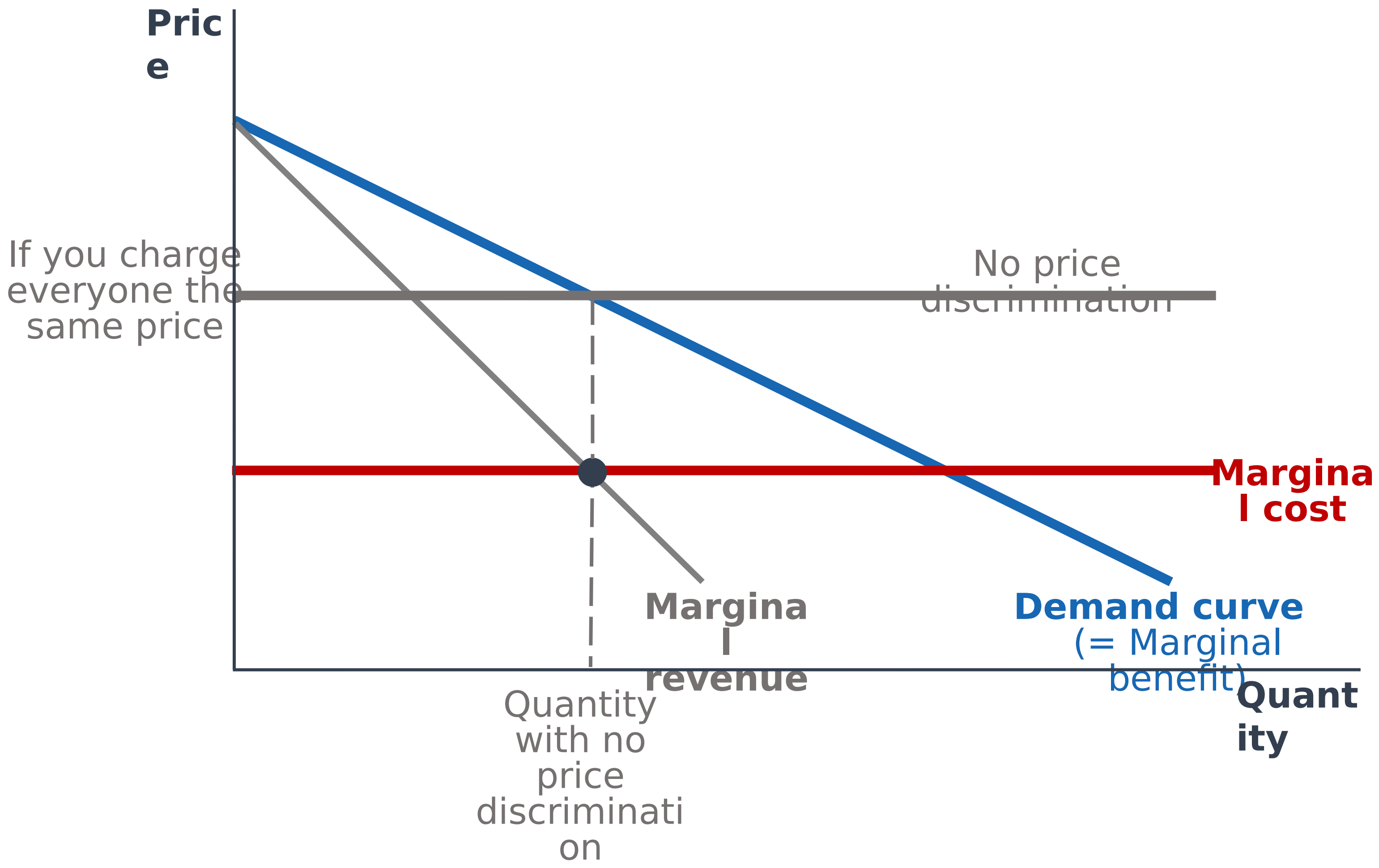
- Your **reservation price** is $100.

You look at the ticket prices online and see that there is a seat somewhat close to the stage selling for $100!

While you don't end up with a seat at the very front (it cost more than you were willing to pay at $400), you are still satisfied with your purchase.

The concert organizers engaged in price discrimination!

Comparing Outcomes:
No price discrimination versus price discrimination (1 of 2)

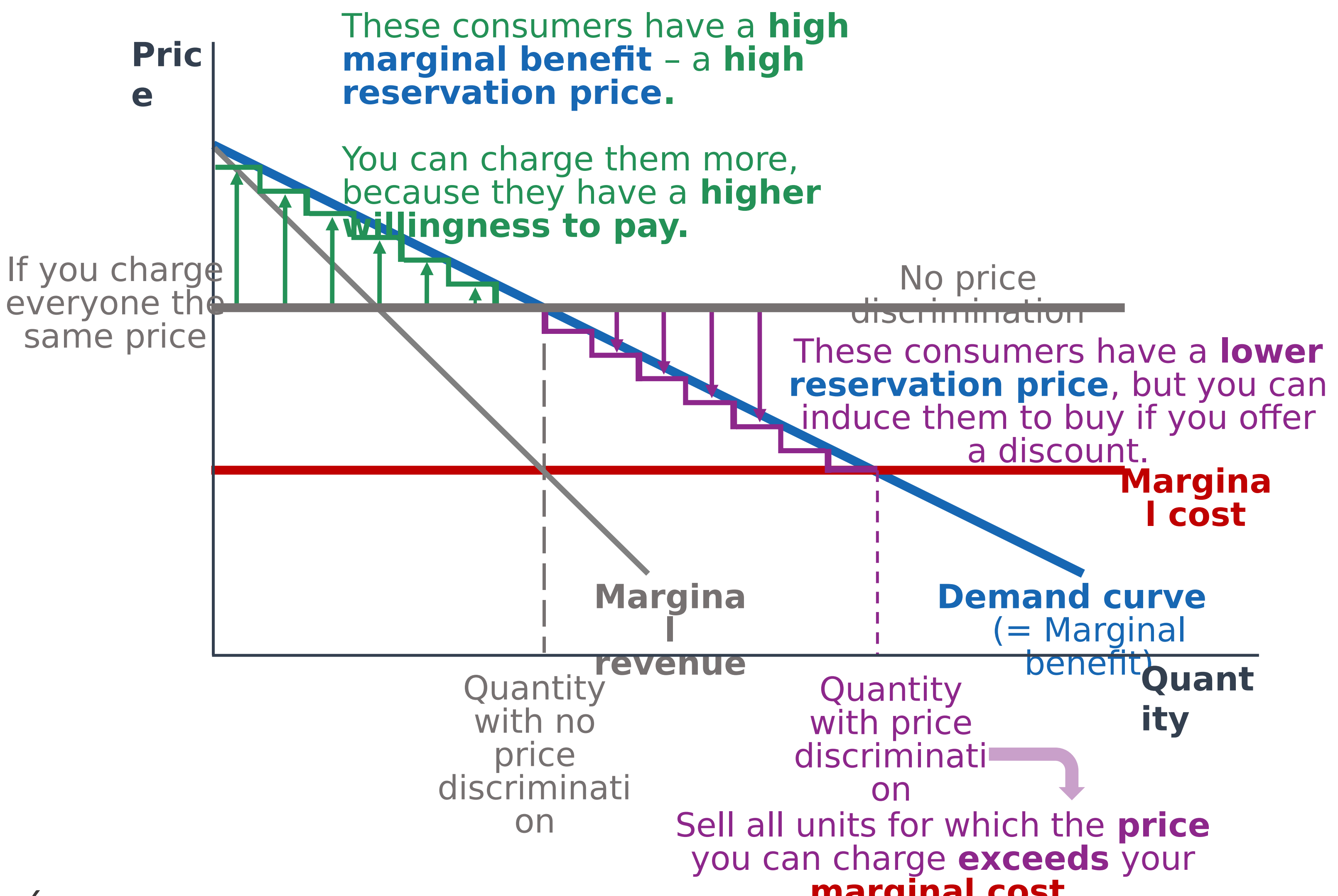


No price discrimination: Everyone pays the same price.

A manager with market power:

1. chooses their quantity at the point where **marginal revenue equals marginal cost.**
2. chooses their price by looking up to the **demand** curve.

Comparing Outcomes:
No price discrimination versus price discrimination (2 of 2)

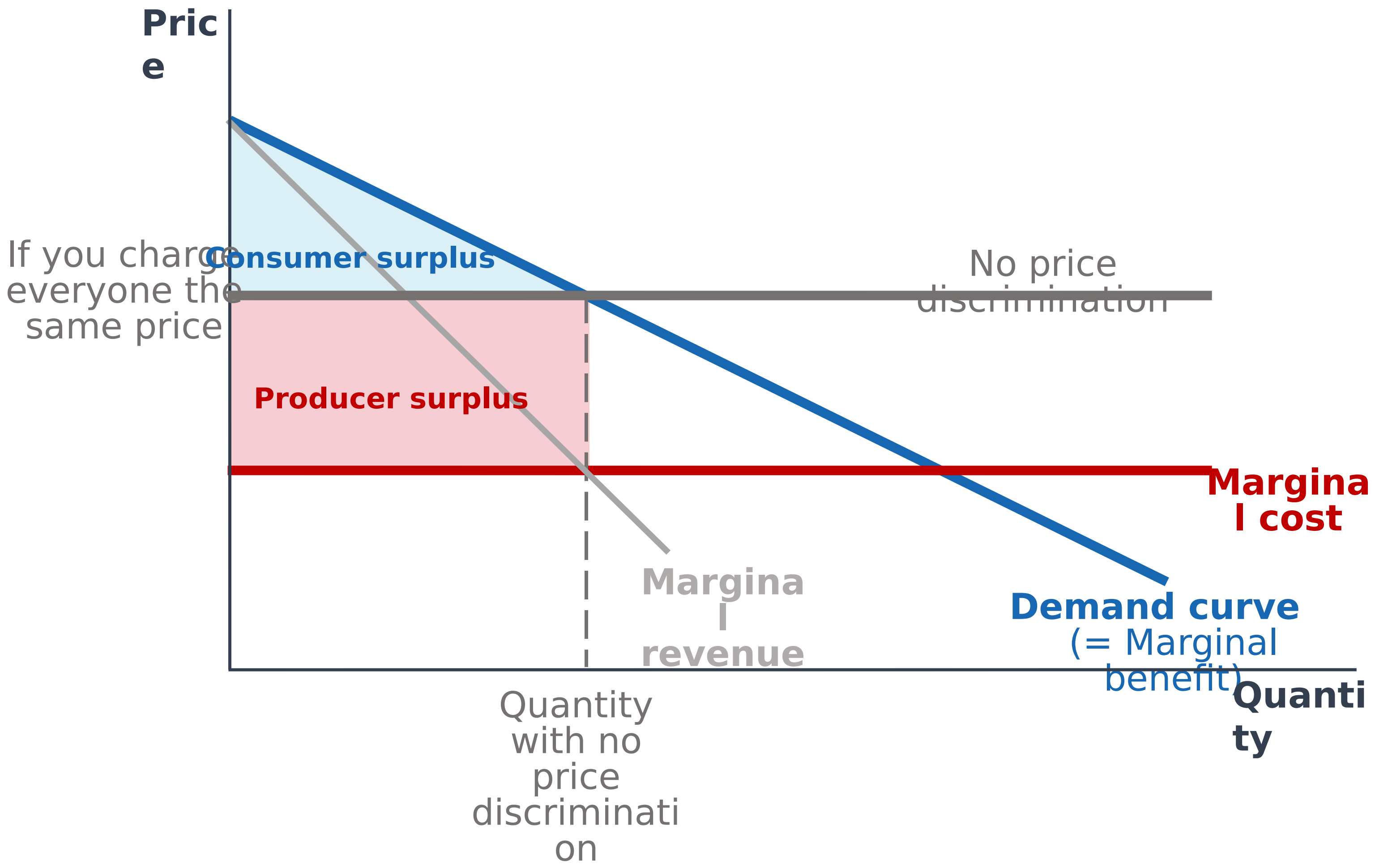


With price discrimination: Different people pay different prices for the same product.

Under price discrimination, a manager will:

1. charge higher prices to those who will pay them.
2. offer selective discounts to induce new customers to buy.

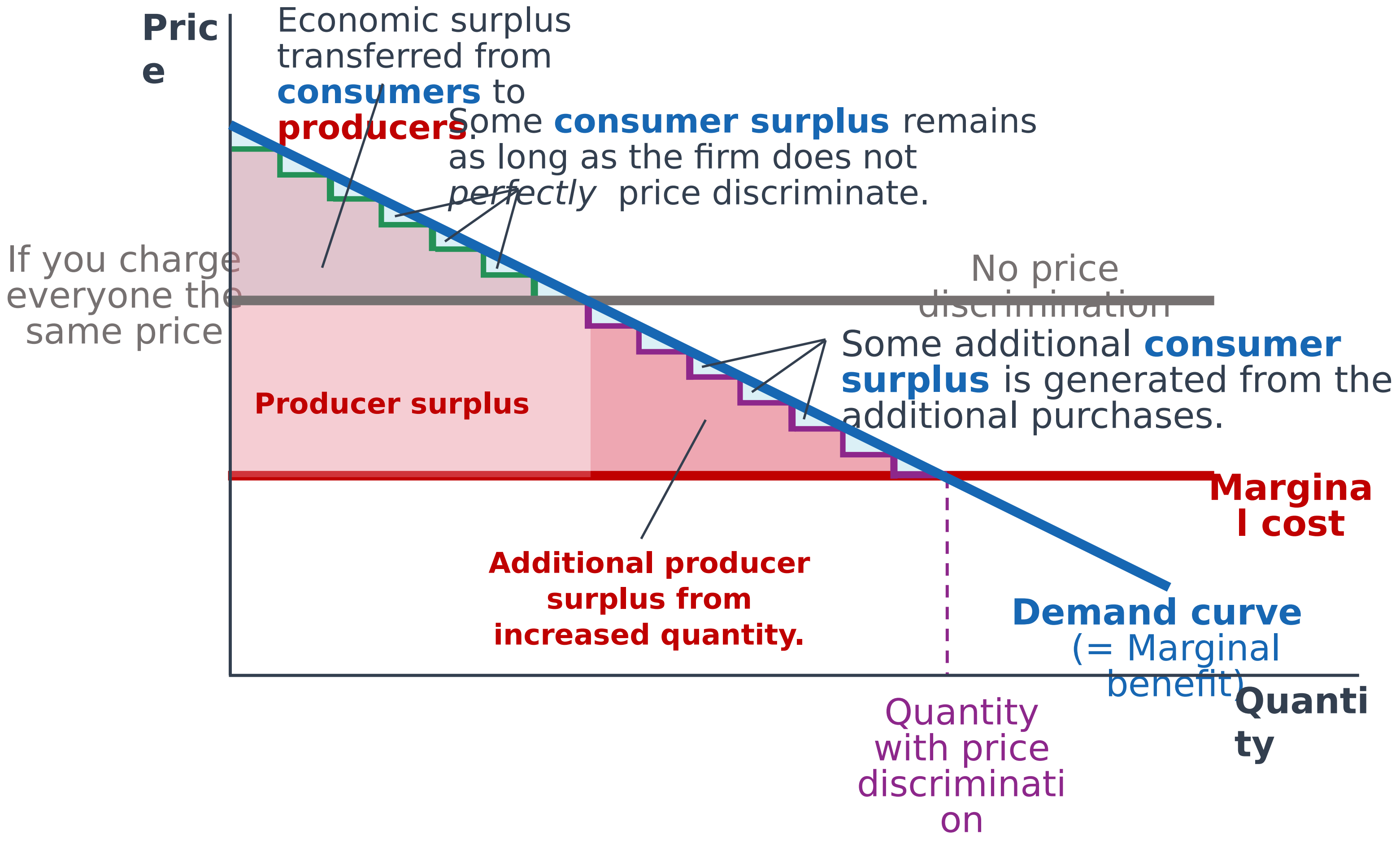
Economic surplus under "no price discrimination"



No price discrimination:

- Sizable **consumer** and **producer surplus**

Economics surplus under price discrimination



No price discrimination:

- Sizable **consumer** and **producer surplus**

With price discrimination:

- Redistribution of surplus from **consumers** to **producers**
- Increased quantity creates:
  - lots of additional **producer surplus.**
  - a little additional **consumer surplus.**

Profit, Economic Surplus, and Efficiency Outcomes

STEP 1: Charge higher prices to those who will pay them.

- While these consumers aren't *happy*, they continue to buy the product.
- You receive a greater profit margin on each sale.
- Redistribution of economic surplus from buyers to sellers.
  - Total economic surplus is unchanged during this redistribution.

STEP 2: Offer selective discounts to induce new customers to buy.

- You increase the quantity you sell.
- Your profits increase.
  - The price you charge is still above your marginal cost of production.
- Additional economic surplus for both you and your new customers.

Big picture impact of price discrimination:

- Quantity supplied increased.
- Total economic surplus increased.

Solved **underproduction problem** associated with imperfect competition.

When is price discrimination feasible?

Price discrimination is only feasible if:

1. **your business has market power.**
   - If your business has no market power, then you are a **price-taker** (perfect competition).
     - Raise your price: Your customers buy from someone else.
     - No reason to offer a discount because you can already sell whatever quantity you want at the prevailing price.
2. **you can prevent resale.**
   - Otherwise people who received the discount will simply resell to others.
3. **you can target the right prices to the right customers.**
   - Up next, study strategies you can use to target the right prices to the right customers.

Key take-aways: Price discrimination

Price discrimination

- Selling the **same product** at **different prices.**
- Goal: Charge as close to a customer's reservation price as you can.

Under price discrimination:

1. Charge higher prices to people with higher reservation prices.
2. Offer selective discounts to induce new customers to buy.

<u>Price discrimination market outcome relative to "no price discrimination":</u>

- Redistributes economic surplus from consumers to producers.
- Quantity supplied increased.
- Total economic surplus increased.

Chapter 16 (2 of 4)

Segment your market and offer group discounts:

- Setting group prices
- How to segment your market?

1. Price Discrimination
2. Group Pricing
3. The Hurdle Method

Key Definitions (2 of 2)

Group pricing: Price discrimination by charging **different prices** to **different *groups*** of people.

- If you don't know *each* customer's reservation price, then tailor your price to different *segments* of customers.

Effectively divides what had been **one** market **into several** smaller market segments.

- Different demand curves in each of these markets, so set different prices.

Diving into the Definition

Examples of group pricing:

Movie theater ticket pricing by age

Laptop and software pricing for students

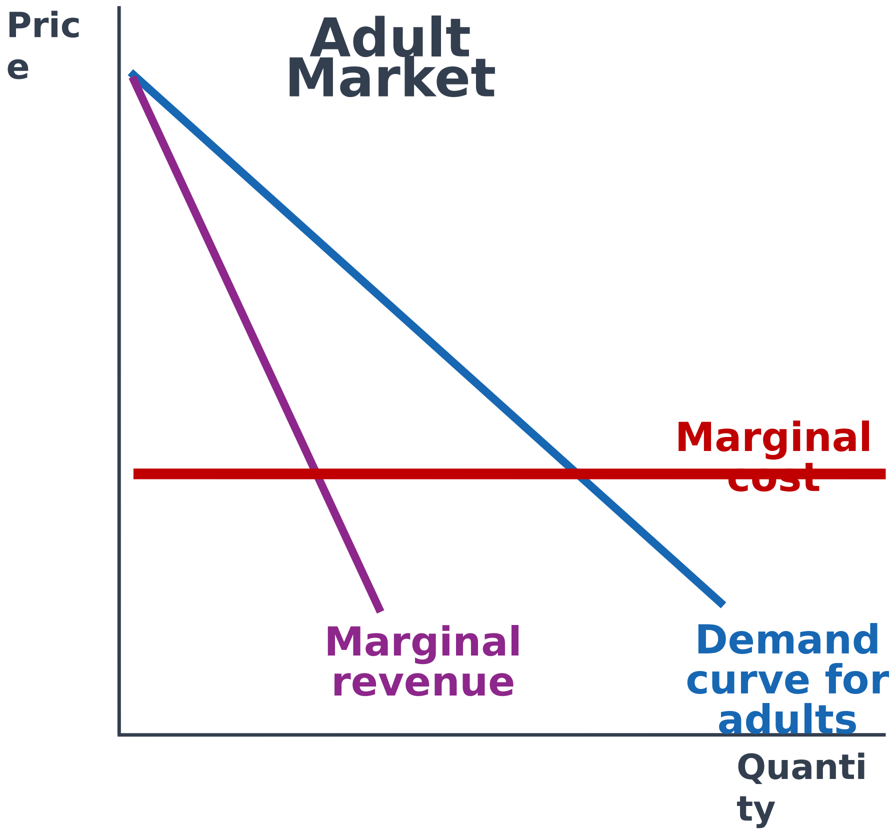
Internet companies charge lower prices for residential service, than for business service.

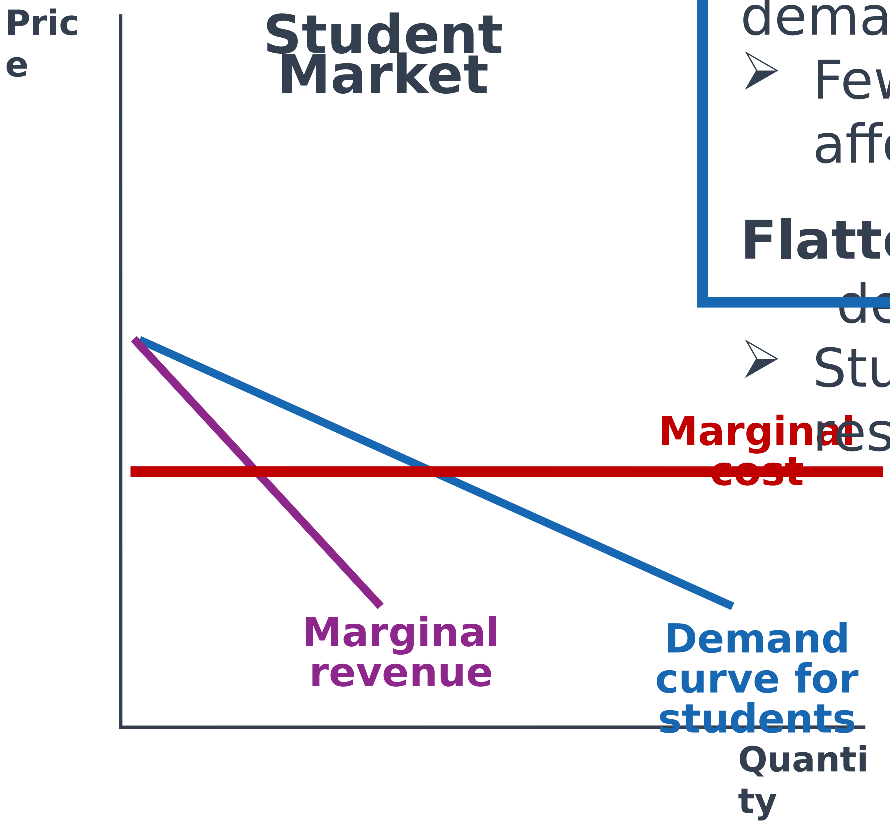
"Pink" versions of shampoo, razors, lotion, deodorant are priced higher than otherwise identical corresponding men's products.

Home Depot and Lowe's military and veterans' discounts

Setting group prices: Movie theater scenario (1 of 2)

Let’s look at two segments of the market for movie theater tickets: **adults** and **students.**





Student demand curve:

Lower than adult demand curve.

- Fewer students can afford to see a movie.

Flatter than adult demand curve.

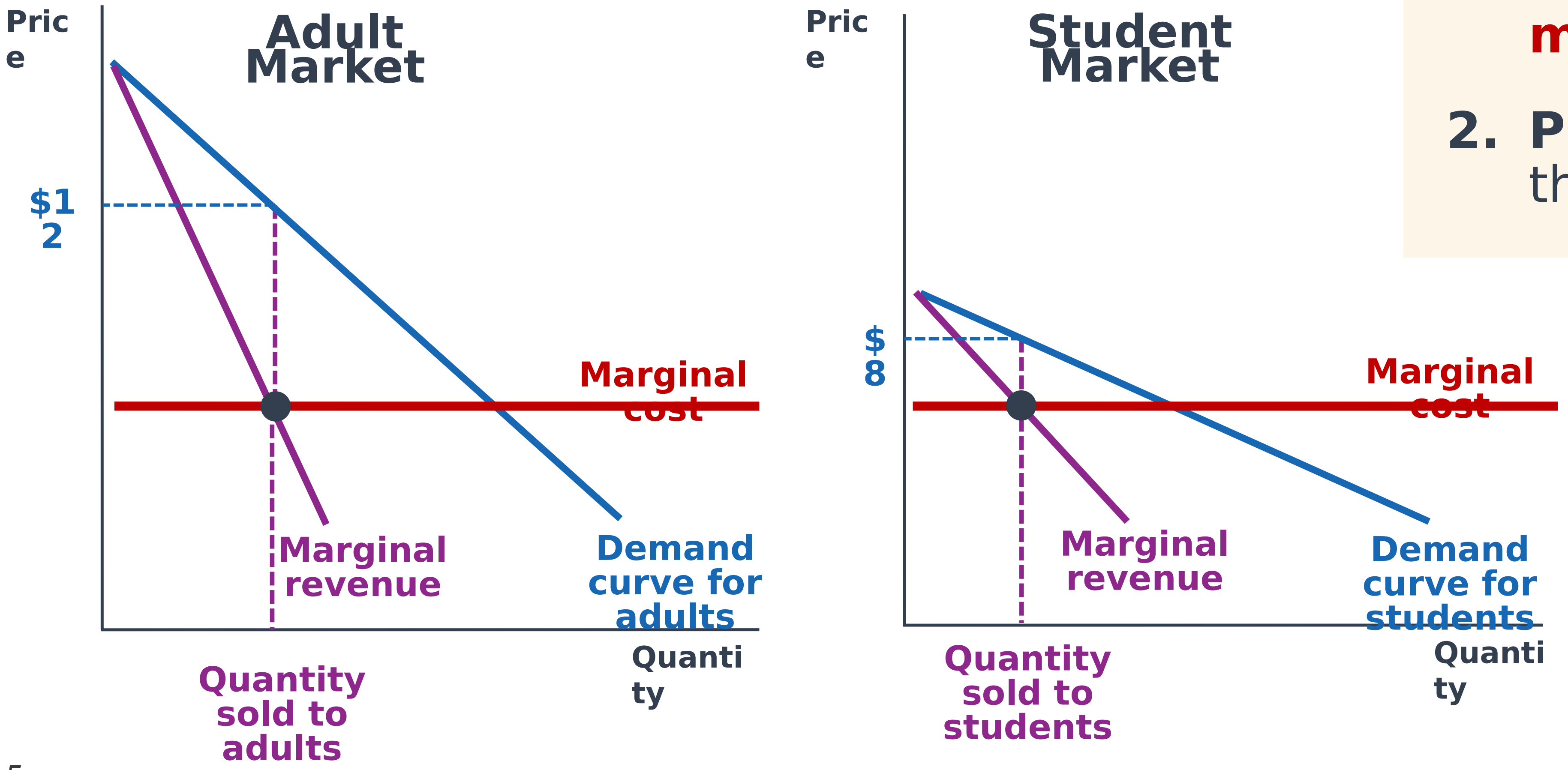
- Students are more responsive to prices.

Setting group prices: Movie theater scenario (2 of 2)

What price to charge? Follow the same two-step recipe we already know *separately* for *each* market segment.

Two-step recipe:

1. **Quantity:** The point where **marginal revenue equals marginal cost.**
2. **Price:** Look up to the **demand curve.**



Group pricing insights

Insight 1: Charge **higher prices** to groups that value your product more.

- Higher marginal benefit ☾ higher reservation price ☾ you can charge more!

Insight 2: Charge **lower price** to groups that are especially price sensitive.

- You don’t have much market power with price-sensitive groups.
  - Even a small price increase will lead you to lose a lot of customers (i.e., elastic).
- Thus, more price-sensitive ☾ charge lower prices.

Concept Check: Group Pricing

Given the three demand curves shown below…

a) rank the consumer groups from most elastic to least.

b) which group will end up paying the highest price if they are segmented into three markets?

a) Rank the consumer groups from most elastic to least

- G
- G
- G

b) Which group will end up paying the highest price?

- Group A will end up paying the highest price.

Can data-based prices be racist?

College student Christian Haigh was doing research for a class called "Data Science to Save the World." He went to The Princeton Review's website to look up the **price of online SAT tutoring** — surprisingly, the website asked for his zip code.

Christian and his classmates coded a script to harvest the price for all 32,989 zip codes in the United States. **They found some notable (and troubling) pricing trends:**

- Charged higher prices to customers in **wealthier zip codes.**
- Areas with a high density of **Asian residents** were nearly twice as likely to be charged higher prices (even after controlling for income).

The media coverage dealt a major blow to The Princeton Review's reputation.

Lesson: Data can help you price discriminate but doing so may be **unpalatable** or **illegal!**

How to segment your market (1 of 2)

Identify groups…

1. whose demand differs,
2. based on verifiable characteristics,
3. based on difficult-to-change characteristics.

Segment your market into groups whose demand differs.

How? ☾ Use observable proxies that are related to each customer's reservation price.

Movie theater ticket market

<u>Useful proxy: "student" status</u>

➢ Students' demand differs from that of other adults because they have less money to spend.

<u>Not a useful proxy: gender</u>

➢ Men and women have similar demand for movies.

➢ Gender is not a useful proxy for their reservation prices.

To what degree should you segment your market?

Answer: Depends on available information.

➢ Course market segmentation: movie tickets

➢ Fine-grained segmentation: college price

  ➢ Colleges know a lot about their applicants.

How to segment your market (2 of 2)

Identify groups…

1. whose demand differs,
2. based on verifiable characteristics,
3. Based on difficult-to-change characteristics.

Target your group discounts based on verifiable characteristics.

Why? ☾ Ensure that people can't lie about their status to get the discount.

<u>Verifiable characteristics</u>: Age, student status, address, etc.

Can vary a little based on industry:

- Movie theaters can ask to see you student ID, but online retailers cannot.

Base group discounts on difficult-to-change characteristics.

Why? ☾ Minimize the possibility that customers switch into a different group to get the discount.

<u>Difficult-to-change characteristics</u>: Student discounts, children discounts, military discounts, etc.

Key take-aways: Group pricing

Group pricing

➢ Selling the **same product** at **different prices** to **different groups.**

For each group of consumers:

1. Quantity: Where that group's **marginal revenue** = **marginal cost.**
2. Price: Look up to that group's **demand curve**.

Charge <u>higher prices</u> to people with <u>higher reservation prices</u> and more <u>inelastic</u> demand.

Charge <u>lower prices</u> to people with <u>lower reservation prices</u> and more <u>elastic</u> demand.

Effective pricing strategy when **verifiable** and **hard-to-change factors** do a good job sorting out which buyers have high reservation prices.

Chapter 16 (3 of 4)

Apply the hurdle method to target your discounts to those who value them most.

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The hurdle method

What if there aren't any easily observed characteristics that allow you to sort your customers into groups?

Solution: Tweak incentives in just the right way such that you induce your **customers to sort themselves** into high-reservation price and low-reservation price groups.

Hurdle method: Offer lower prices only to those buyers who are willing to overcome some obstacles.

An effective hurdle is:

- **not too difficult:** want some customers to overcome to obstacle to get the discounted price.

BFA/Alamy

Alternative Versions and Timing (1 of 3)

Big fans of the Marvel Universe want to see the newest movie as soon as it opens.

- Fans get a **high marginal benefit** from seeing the movie and so they have a **high willingness to pay,** which means they have a **high reservation price.**

Theaters know this, and so on opening weekends, theaters often have a **"No Discounts or Passes"** policy.

<u>Time as "the hurdle" to the discount:</u>

People with lower marginal benefit have a lower reservation price and wait to see the movie until they can use a discount or pass.

Streaming services set up similar time-based hurdles:

- Most expensive = newly released movies.

Alternative Versions and Timing (2 of 3)

Airlines want to charge **high prices to business travelers** who typically have higher reservation prices (the company is paying!).

Airlines charge **different prices** based on **departure and return dates** hoping business travelers and leisure travelers **sort themselves.**

Example:

- A flight that leaves Wednesday and returns that Friday

  is more expensive than

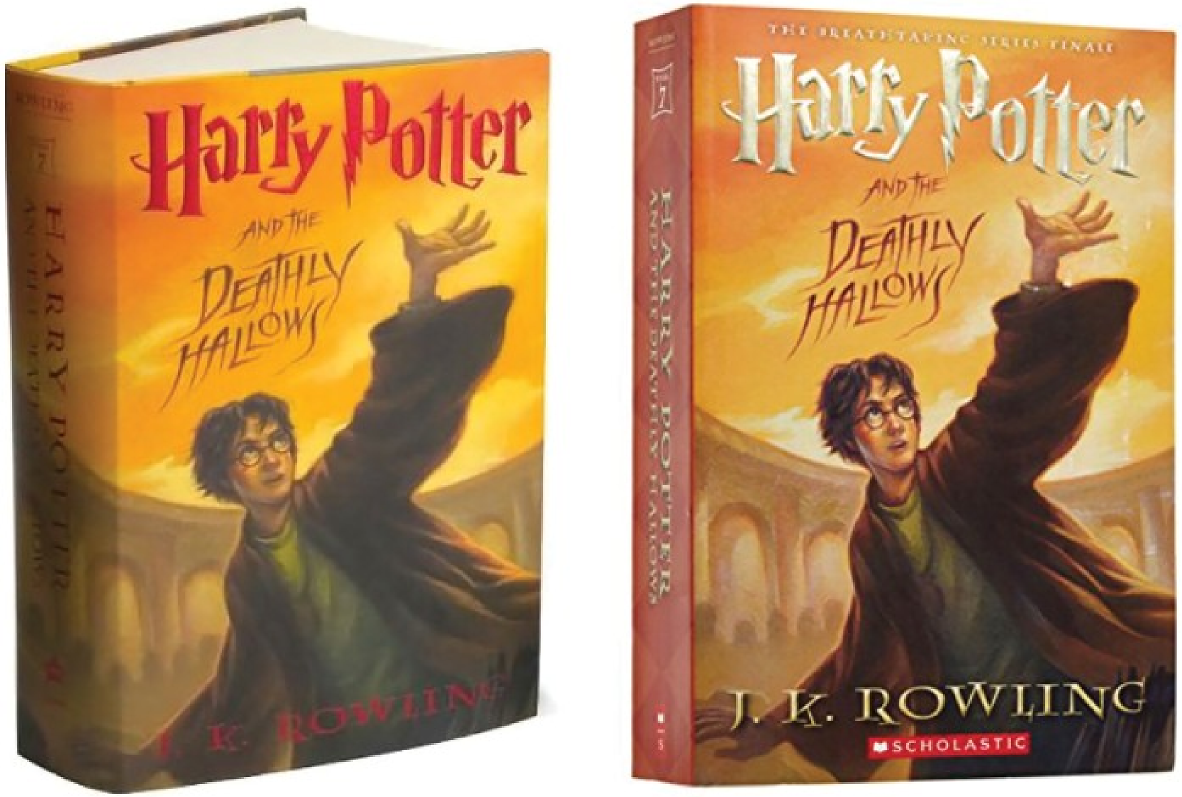
- A flight that leaves Friday and returns that Sunday.

The Logic: Business travelers have meetings during the week but want to be home on the weekend.

- The willingness to **stay Saturday night in another city** is a hurdle that many business travelers won’t leap over to just to get cheaper airfare (especially since the company is likely paying).

Alternative Versions and Timing (3 of 3)

<u>The discount</u>: Paperback book versions of the book are typically **half the price** of hardcover versions.



<u>The hurdle</u>: Wait **six months** until the paperback version is released.

<u>Who will NOT jump the hurdle?</u>

- Customers who are big fans and thus have a high marginal benefit.
- **Result:** Customers with high reservation prices are charged the higher price.

<u>Who will jump the hurdle?</u>

- Customers with lower marginal benefit (less devoted readers).
- **Result:** Customers with low

Fluctuating prices as a hurdle

It's common to see prices fluctuate, especially at the grocery store.

- In the cereal aisle, Coco Pebbles is on sale this week, and Coco Krispies was on sale last week.

The discount: Cheaper cereal if you buy whichever one is on sale.

The hurdle: Switching over to a less preferred brand or type of cereal.

Who will NOT jump the hurdle: People who have a high marginal benefit from a specific cereal type.

- High reservation price for THAT type/brand.
- **Result:** They pay more, on average.

Who will jump the hurdle: People who don't care what type or brand they end up with.

- Lower reservation price for types and brands.
- **Result:** They end up paying less, on average.

Hurdle: Fluctuating Prices

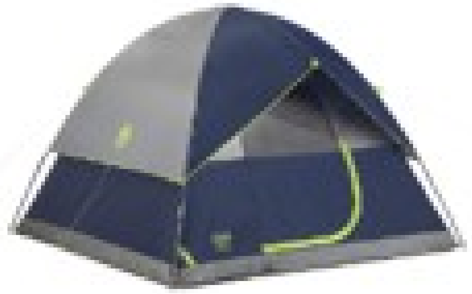
You might be surprised how much prices fluctuate online:

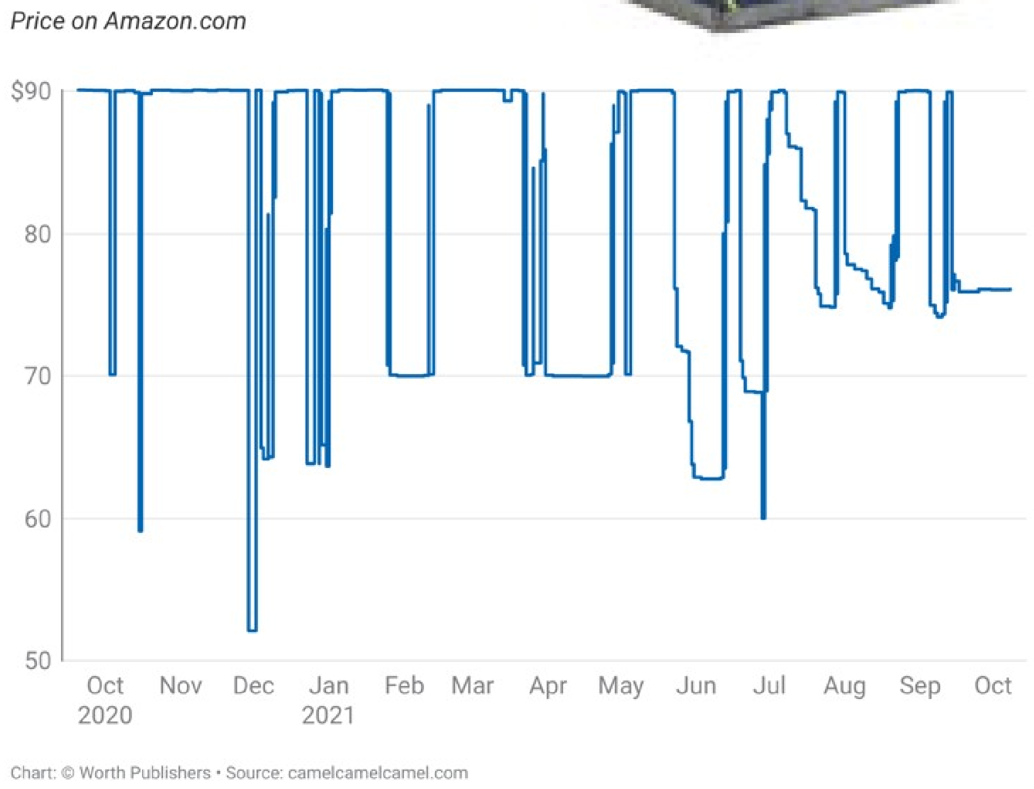
- Coleman Sundome Tent’s price on Amazon changes frequently
  - Maximum Price: $90
  - Minimum Price: $52

But it’s a **hassle to check** the price every day — and that’s the hurdle!

Jumping the hurdle: Price-tracking website camelcamelcamel.com e-mails you when an item’s price drops to your target level.

Price of a Coleman Sundome Ter Amazon.com





Haggling as price discrimination

Sellers haggle because it can be a powerful form of price discrimination — they can **tailor the price to each customer.**

Car sellers are infamous for haggling — only cutting the price if they think you are about to walk away from the sale.

The hurdle: The annoying, time consuming, and sometimes uncomfortable process of haggling.

Who will NOT jump the hurdle: People who prefer to pay a bit more in order to avoid spending time and energy haggling.

- High willingness to pay (and high reservation price)
- **Result:** End up paying the higher price

Who will jump the hurdle: People who are price-sensitive, with low reservation prices.

- **Result:** End up paying a lower price

Extra hassle, bad service, and imperfect goods

Hassle: Outlet stores with cheaper prices are located far away.

Hassle: Grocery store deals are only available to those who clip coupons.

Service: Business class travelers get better service on flights than economy passengers.

Imperfect: High-def movies and shows are only available to stream if you pay more.

Imperfect: Tesla artificially reduced the driving range of the S60 model — otherwise identical to the S75 model with greater range.

Why do sellers do these annoying things on purpose?

Only people who jump the hurdle get the deal.

The hurdle: Putting up with the extra hassle, bad service, or imperfection.

Who will NOT jump the hurdle: Customers who are less budget-conscious and are willing to pay higher prices to avoid the hassle.

- **Result:** People with the higher reservation price end up paying more.

Who will jump the hurdle: Customers who are price-sensitive, with lower willingness to pay.

- **Result:** People with the lower reservation prices end up paying lower prices.

Quantity Discounts

Quantity discount: When the per-unit price is lower when you buy a larger quantity.

Examples:

- Discount the second (or third) item you buy from a clothing shop.
- Buy-one-get-one half off at the grocery store.
- Buy the larger carton of eggs or milk at a discounted per-unit price.

The hurdle: Hassle of storing the larger quantity (and using it before it spoils), or must have already purchased the item before you get the second unit at a discount.

The logic: Customers willingness to pay drops once they have the first unit.

- I already have a box of cereal in my cart — do I really want to buy a second box right now?

Bundling as form of quantity discount

Bundling: Selling different goods together as a package.

- ➢ sold for a lower price than if you bought the components separately.

Example: Netflix, Hulu, HBO Max, and any other streaming service.

- ➢ You pay for the shows you actually want to watch.
- ➢ AND for the shows you don’t have any interest in.

Companies often bundle something you like with something you don’t really want or need.

Microsoft software example:

Individually, Word and Excel are priced at $160.

- ➢ English majors only really want Word.
- ➢ Data Science majors only really want Excel.

To sell more software, Microsoft needs to figure out how to target their discounts.

- ➢ **Solution:** Bundle Word and Excel for $250!

<u>Data Science major perspective:</u>

- ➢ Already planned to spend $160 for Excel.
- ➢ With the bundle, they can now add Word for only $90 more.

And vice versa for the English major.

Key take-aways: The hurdle method

Hurdle method

- **Targeting discounts** to people who are the most price-sensitive by **creating hurdles** that induce **customers to sort themselves** into high- and low-reservation price groups.

Hurdle options:

- Alternative versions and timing; fluctuating prices; haggling; extra hassle, bad service, imperfect goods; quantity discounts; and bundling.

Chapter 16 (4 of 4)

1. Tailor your prices such that each customer pays the highest price they are willing to pay.
2. Segment your market into groups based on verifiable and hard-to-change characteristics.
3. Offer lower prices only to buyers who are willing to overcome some obstacle.

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