Lecture 6:
Individual and Market Demand

September 30, 2025

Course Administration

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2. Use Numbers 2 of 2
   - Graded, returned to your folders
   - We'll discuss in class today
3. Problem set 6 posted

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   - Today's lecture and one more lecture before exam
   - Last year's midterm is posted
   - Midterm review: which do you prefer?
     - online: Oct. 8, 6 to 8 pm
     - in person: 13th, evening

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5. We will not cover 5.3 in this class
6. Anything else?

Use Numbers 2

From Lecture 1: Factors that Influence Demand

- Price
- Number of consumers
- Consumer income or wealth
- Consumer tastes
- Prices of other goods

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Feedback

- Strong assignments linked these features to answers
- Common misunderstandings
  - number of consumers decreases –

Use Numbers 2

From Lecture 1: Factors that Influence Demand

- Price
- Number of consumers
- Consumer income or wealth
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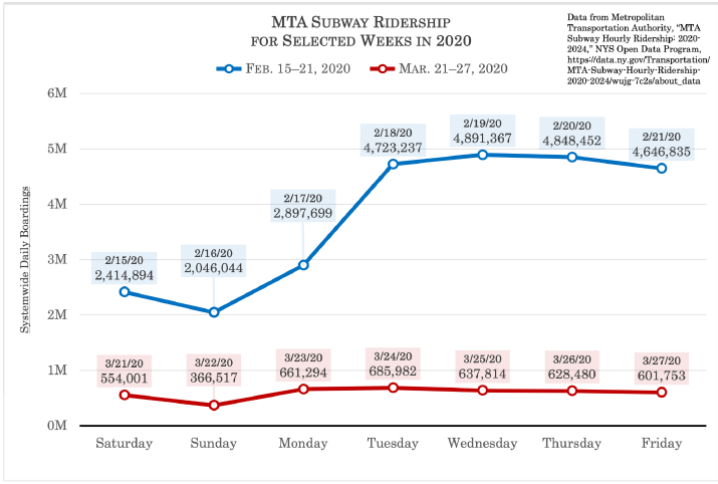
Feedback

- Strong assignments linked these features to answers
- Common misunderstandings
  - number of consumers decreases – why?
  - graphs with vertical lines

What Is Your Graph Trying to Explain?



- Can compare pre- and post-pande directly
- Avoids line that otherwise would connect

Ripped from the Headlines

As a reminder, next week

Afternoon

Finder	Presenter
Miguel	Kibin
Grace	Maria

Evening

Finder	Presenter
Iris	Mark
Raghan	Paula

How What You're Learning is Policy-Relevant

Ripped from Headlines presentation(s)

Afternoon

Finder	Presenter
Natalia	Mia

Evening

Finder	Presenter
Bhanu	Cara
(Natalia)	Bhanu

Big Ideas

Big Ideas for This Lecture

- Where your demand curve comes from
- Where the market demand curve comes from
- Measuring demand

Income and Changes in Consumption

Concepts from Last Class

- Utility
- Indifference curves
- Budget constraint
- Utility is maximized when

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$$MRS_{X,Y} = \frac{P_X}{P_Y}$$

$$\frac{MU_X}{MU_Y} = \frac{P_X}{P_Y}$$

How do Changes in Income Affect Consumption?

- Income effect $\equiv$ change in consumption due to a change in income
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- Does utility increase or decrease?

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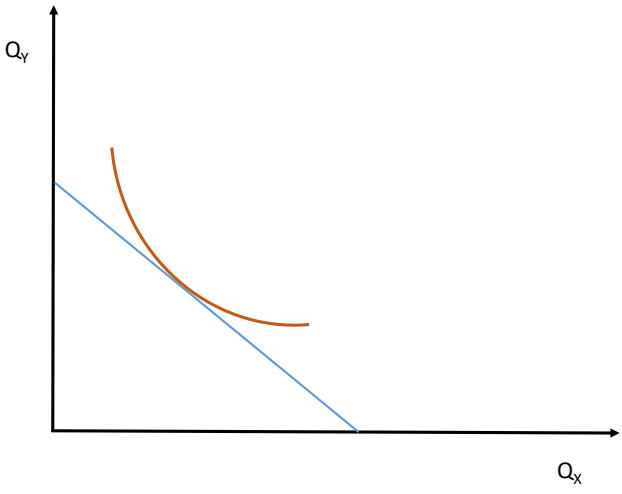
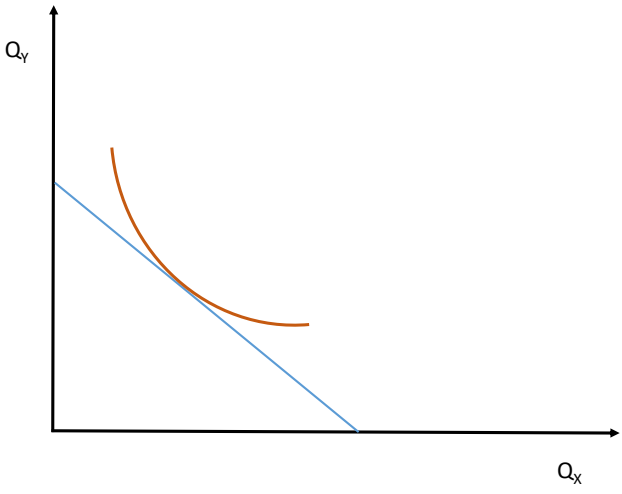
  - shape of indifference curves? nothing!
- Does utility increase or decrease? at a minimum, does not decrease

Increasing Income and Resulting Utility



- What is the blue line?

Increasing Income and Resulting Utility



- What is the blue line?
- What is the orange line?

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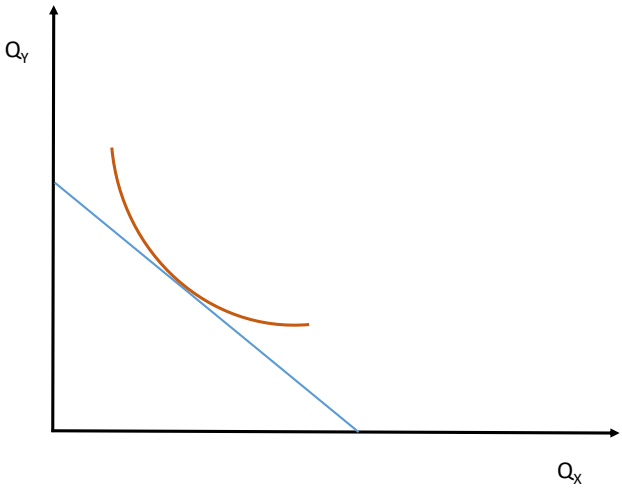

- What is the blue line?
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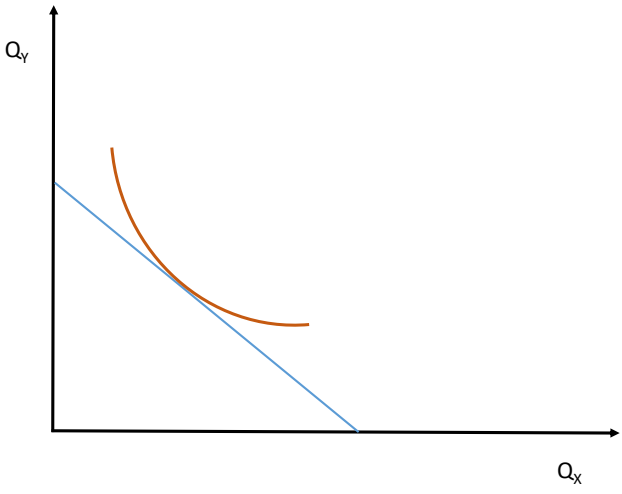
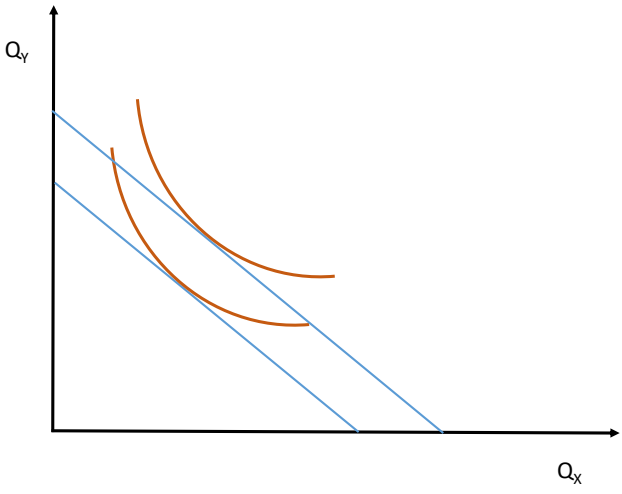
- What is true about the place where they touch?

Increasing Income and Resulting Utility



- What is the blue line?
- What is the orange line?
- What is true about the place where they touch?
- What happens if we increase income?

Increasing Income and Resulting Utility



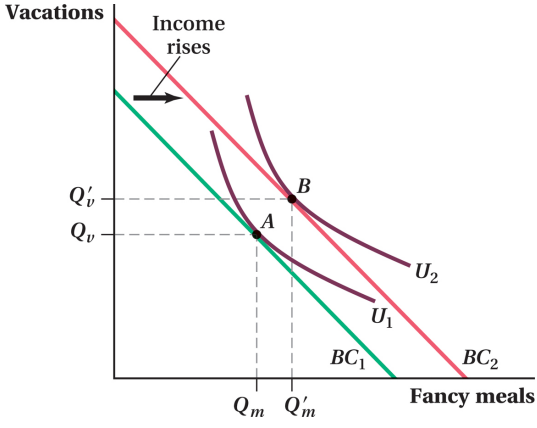
How do you see that utility can't decrease when income increases?

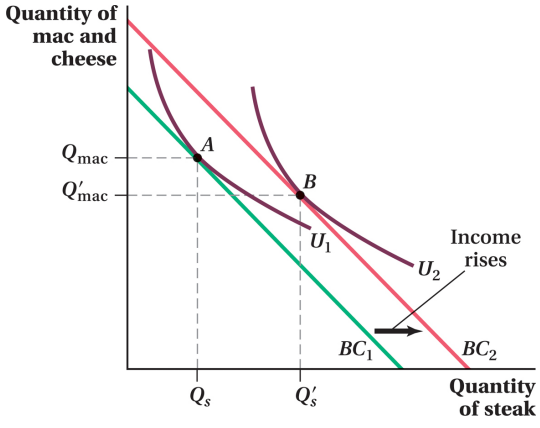
Reminder: Some definitions

- Normal good $\equiv$ good for which consumption increases with income
- Inferior good $\equiv$ good for which consumption decreases with income
- Whether a good is normal or inferior depends on your income. Example?

Normal and Inferior Goods in Pictures

Find the Inferior Good!





Income Elasticity and Types of Goods

$$E_I^D = \frac{\%\Delta Q}{\%\Delta I}$$

- Sign of E_I^D for inferior goods?

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- Sign of E_I^D for inferior goods? $E_I^D < 0$
- Sign of E_I^D for normal goods? $E_I^D > 0$
  - necessity goods: $0 < E_I^D \leq 1$
  - luxury goods: $E_I^D > 1$
- $E_I^D = 0$: Income inelastic

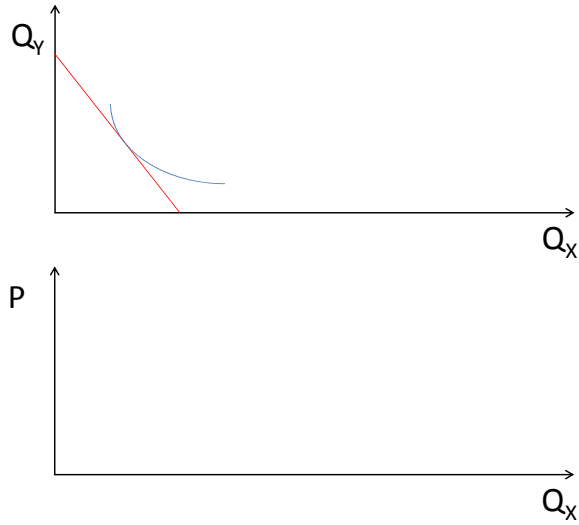
Note: Skipping income expansion path and Engel curves due to time constraints!

Your Demand Curve From First Principles

Using Income and Utility to Find Your Demand Curve

- Recall that a demand curve shows the quantity demanded at a given price
- In other words, what happens to consumption of X as price changes
- We now have the tools to figure this out for *you*
- We draw budget constraints and indifferences curves in Y vs X, but we need a P vs X graph for demand

Using Income and Utility to Find Your Demand Curve



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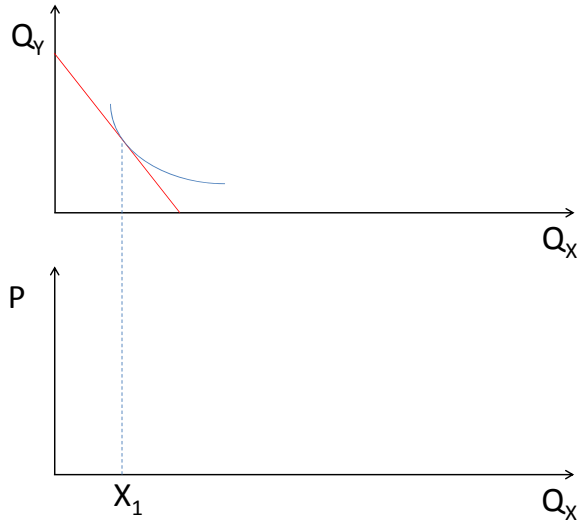

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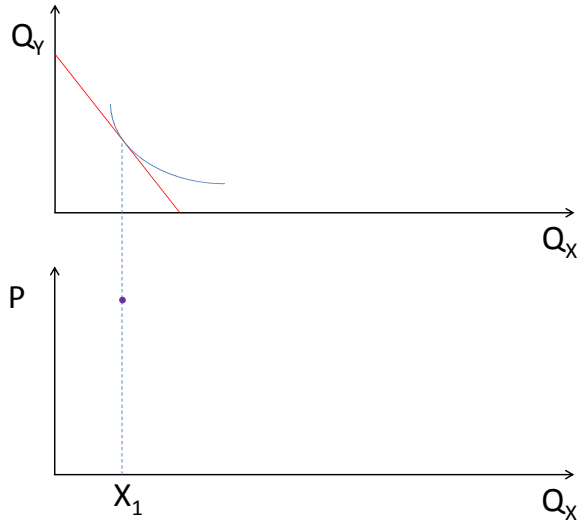

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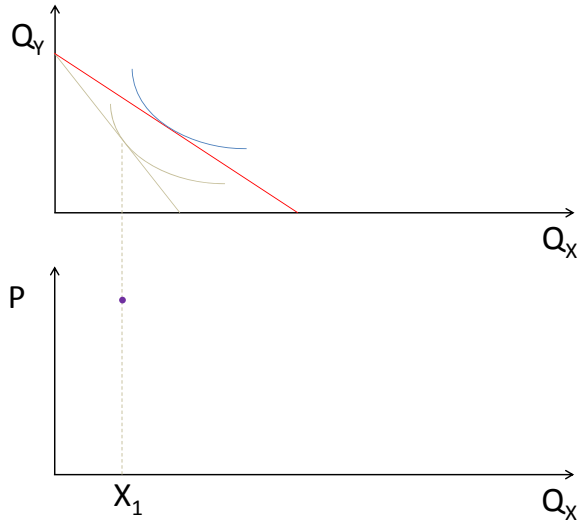

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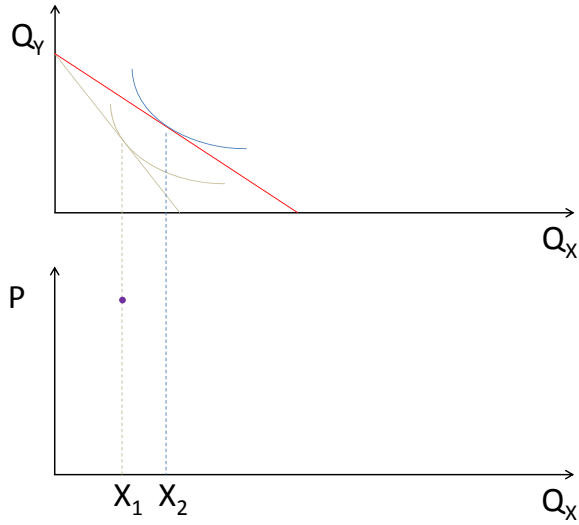

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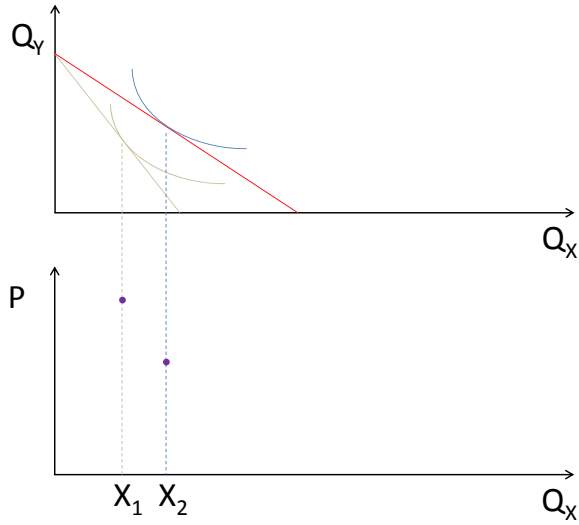

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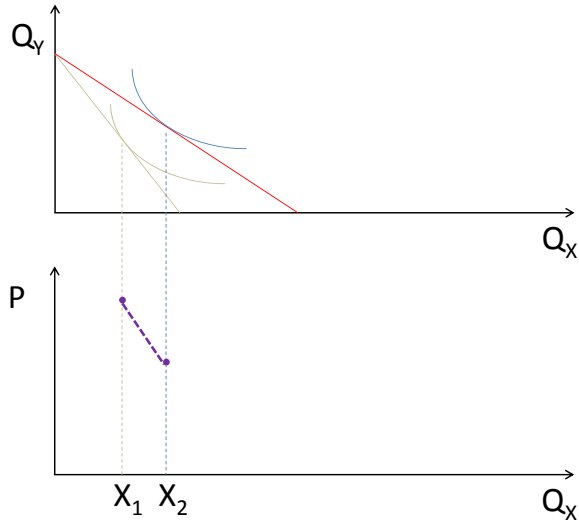

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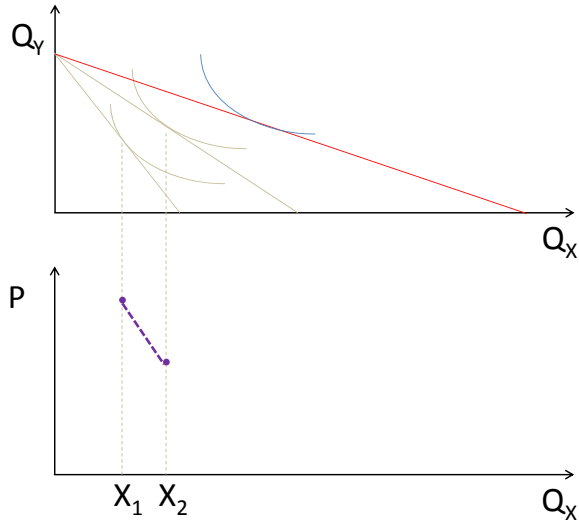

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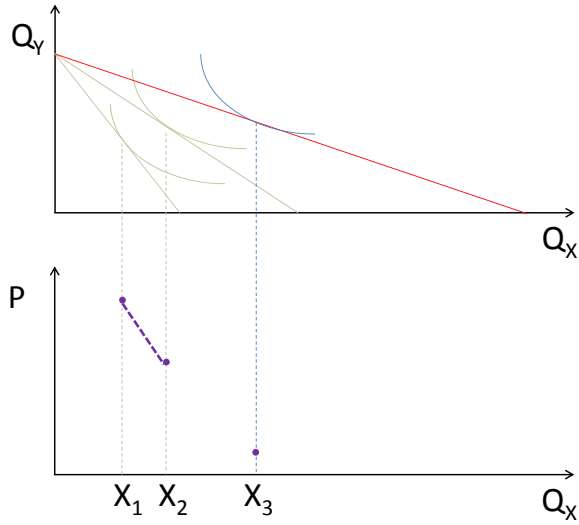

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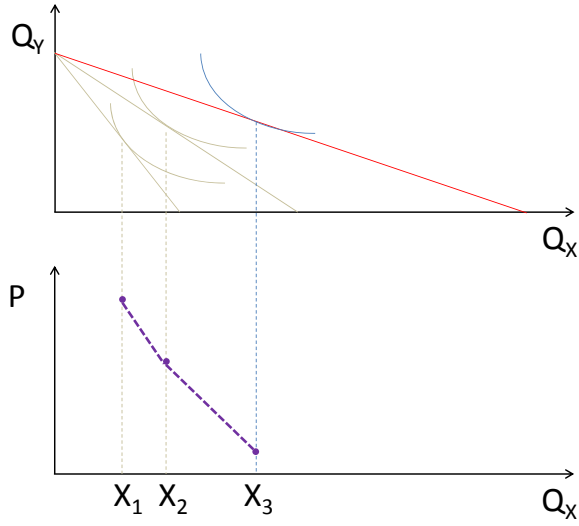

What Shifts Your Demand Curve?

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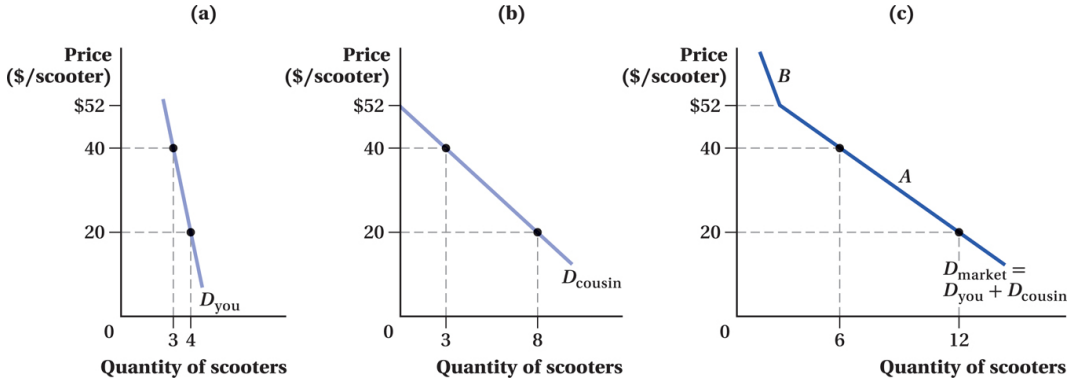
- Changes in price move us along the demand curve
- Changes in tastes or income or prices of other goods may shift the demand curve
- How would we change the preferences in the previous example?

Individual Demand and Market Demand

Finally, Getting to Market Demand!

- Market demand is the sum of all individual demands
- Add individual demands **horizontally**
- For any price, add the quantities

Adding Horizontally

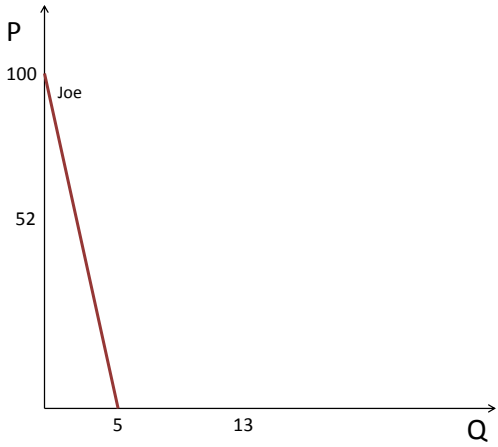


Using Algebra To Do This

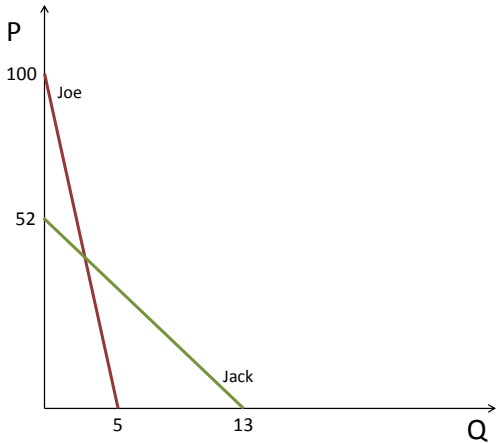
Suppose we have two demand curves

- $Q_{Joe} = 5 - 0.05P$
- $Q_{Jack} = 13 - 0.25P$

Joe's Demand in Pictures

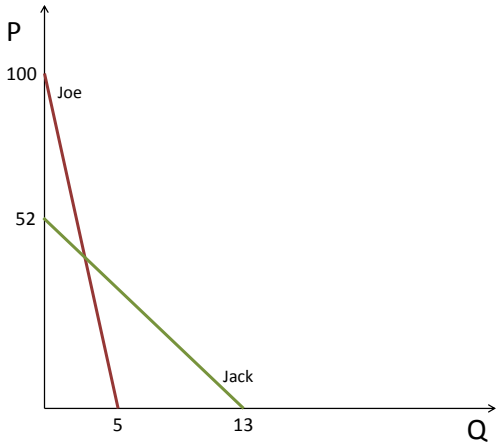


Joe and Jack's Demand In Pictures



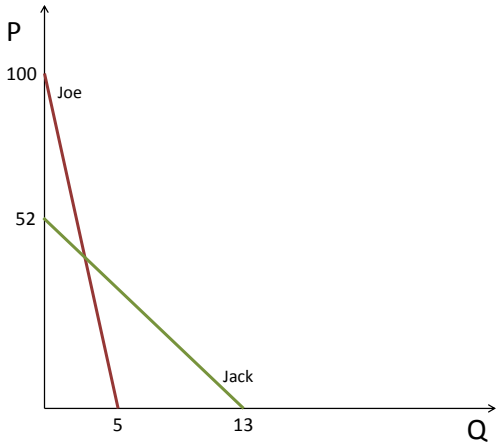
- For which prices is there only one person in the market?

Joe and Jack's Demand In Pictures



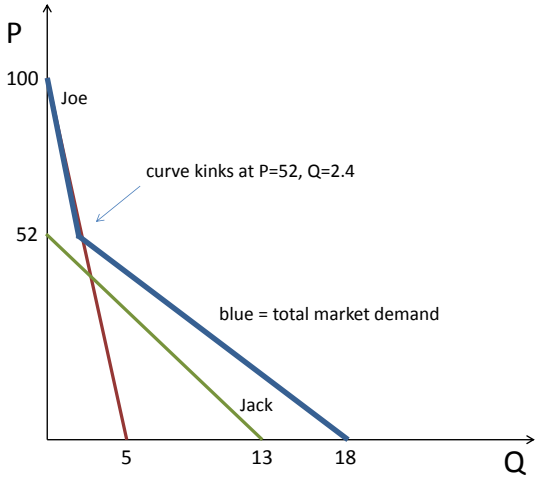
- For which prices is there only one person in the market? Joe, prices 52 to 100
- For which prices are both Joe and Jack in the market?

Joe and Jack's Demand In Pictures



- For which prices is there only one person in the market? Joe, prices 52 to 100
- For which prices are both Joe and Jack in the market? prices 0 to 52

Market Demand in Pictures



- A kinked demand has an economic meaning
- Not everyone is in the market for all prices

The Algebra of Demand Curve Addition

- At $P > \$52$, Jack doesn't want any more
- At $P > \$100$, Joe doesn't want any more
- No one wants to pay more than $\$100$
- The maximum total quantity demanded is $Q = 18$

The Algebra of Demand Curve Addition

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We write this as

$$Q_M = \begin{cases} Q_{Joe} + Q_{Jack} = 18 - 0.3P & \text{if } 0 < P \leq 52 \\ Q_{Joe} = 5 - 0.05P & \text{if } 52 < P \leq 100 \end{cases}$$

Adding Demand Curves

In a very small town, only Jim and Alice want gasoline. Jim's demand is $Q_J = 15 - 3P$ and Alice's is $Q_A = 30 - 5P$.

1. Draw individual demand curves
2. Find the equation for the market demand for gas
3. Draw the market demand curve

Answer: Adding Demand Curves

1. Draw demand curves – your job!
2. Equation for market demand
   - Find maximum willingness to pay, or price at $Q = 0$
   - For Alice, $0 = 30 - 5P$, or $P = 6$
   - For Jim, $0 = 15 - 3P$, or $P = 5$
   - $\rightarrow$ for prices 0 to 5, add the curves: $Q_M = 15 - 3P + 30 - 5P = 45 - 8P$
   - for prices 5 to 6, only Alice is in the market, and her curve is market demand

$$Q_M = \begin{cases} 45 - 8P & \text{if } 0 < P < 5 \\ 30 - 5P & \text{if } P > 5 \end{cases}$$

3. Market demand curve picture: your job!

Recap of Today

- Changes in Income and Utility Maximization
- Changes in Prices and Utility Maximization
- Market Demand

Next Class

- Taxes!
  - Reading packet: Gruber, Chapter 19, selected pages
  - skim GLS 19.4
  - Read introductions of two papers linked on course website