

Lecture 5: Individual and Market Demand

September 22, 2026

Course Administration

- 1 Readings for next class are in reading packet: tax incidence

Course Administration

- ① Readings for next class are in reading packet: tax incidence
- ② Quizzes
 - Graded, returning at end of class
 - Answers posted in Lecture 4
- ③ Problem set 5 posted

Course Administration

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- ② Quizzes
 - Graded, returning at end of class
 - Answers posted in Lecture 4
- ③ Problem set 5 posted
- ④ Reminder: midterm October 20
 - Today's lecture, two more lectures, one week off before exam
 - Extra office hours day of no class
 - Last year's midterm is posted
- ⑤ We will not cover 5.3 in this class
- ⑥ Anything else?

Quiz Results

	Afternoon	Evening
Mean	8	7.3
Median	8.5	7.5
Min	3	2.5
Max	10	10

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Thinking about your score: Early warning system

- $\geq 8.5 \rightarrow$ great
- ≥ 6.5 and $< 8.5 \rightarrow$ ok – do you know where you went wrong?
- $< 6.5 \rightarrow$ something should change to do better on midterm

Quiz Content Based on Lecture 1

Factors Influencing Demand

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

Quiz Content Based on Lecture 1

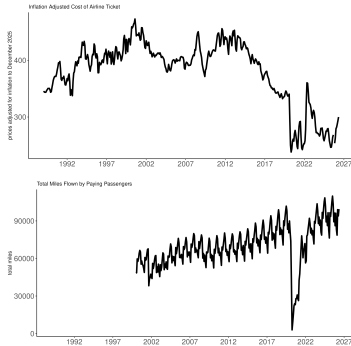
Factors Influencing Demand

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Factors Influencing Supply

- Price
- Suppliers' costs of production
- Number of sellers
- Sellers' outside options

Using Data From Graphs



- Prices and quantities here are equilibria
 - all points tell us about where demand and supply intersect
- Question asks what drives changes in equilibrium

Ripped from the Headlines

As a reminder, next week

Afternoon

Finder	Presenter
Alex G.	Toni W.
Angel L.	Lily M.

Evening

Finder	Presenter
Sophia E.	Katy T.
Emily G.	Tucker B.
Joshua F.	Emily S.

How What You're Learning is Policy-Relevant

Ripped from Headlines presentation(s)

Afternoon

Finder	Presenter	Summarizer
Michelle	Elizabeth	Lily M.
Bora	Jimmy	Bridget V.

Evening

Finder	Presenter	Summarizer
Karolina	Sophia E.	Maria U.
Fatima	Jewel Q.	Sarah T.
Olivia	Emily G.	Ava J.

Big Ideas

Big Ideas for This Lecture

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

Steps to Get There

A quick quick review from last class

Steps to Get There

A quick quick review from last class

- ① How does a change in income impact consumption?
- ② How does a change in price impact consumption? → demand curve
- ③ The role of substitutes and complements
- ④ Adding individual demand to market demand

0. Things That Should Seem Familiar from Last Class

Concepts from Last Class

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

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- Indifference curves
- Budget constraint
- Utility is maximized when

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

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

1. Income and Changes in Consumption

How do Changes in Income Affect Consumption?

- When income increases, what happens to
 - location of budget constraint?

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 - slope of budget constraint?

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 - shape of indifference curves?

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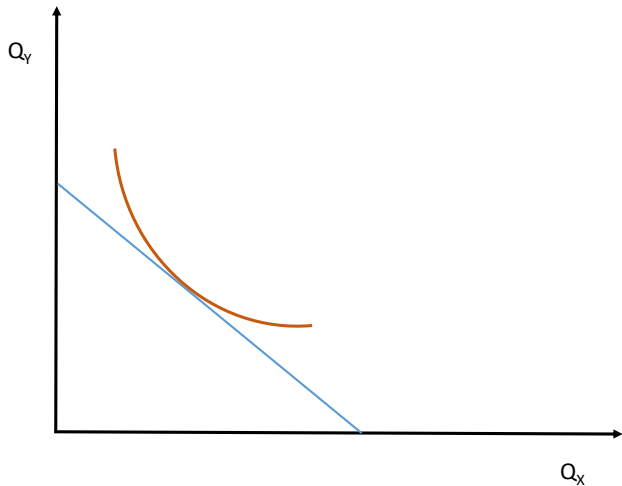
How do Changes in Income Affect Consumption?

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- Does utility increase or decrease?

How do Changes in Income Affect Consumption?

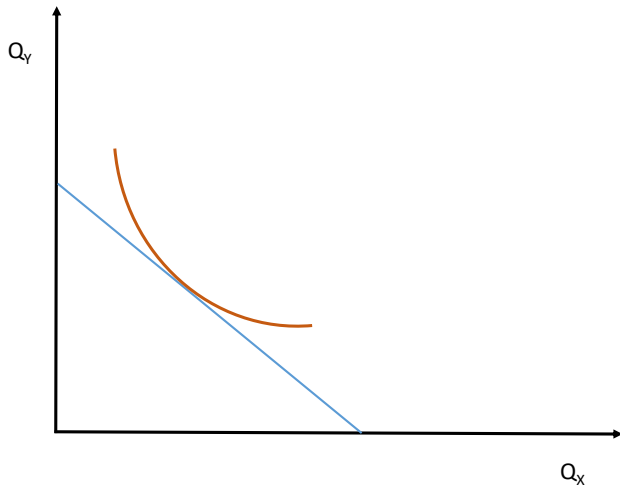
- When income increases, what happens to
 - location of budget constraint? shifts outward
 - slope of budget constraint? unchanged, since prices haven't changed
 - shape of indifference curves? nothing!
- Does utility increase or decrease? at a minimum, does not decrease

Increasing Income and Resulting Utility



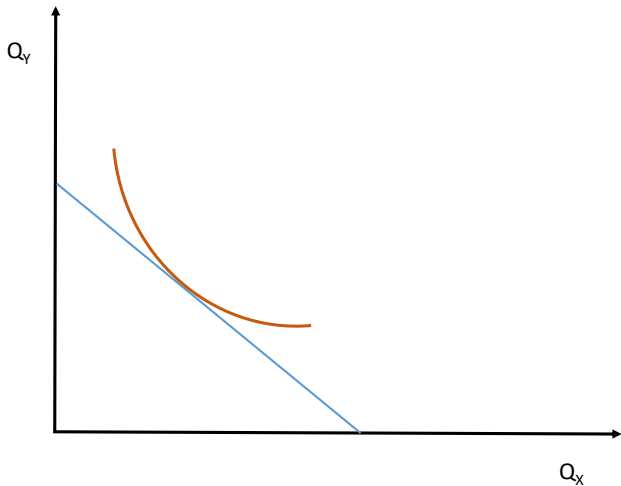
- What is the blue line?

Increasing Income and Resulting Utility



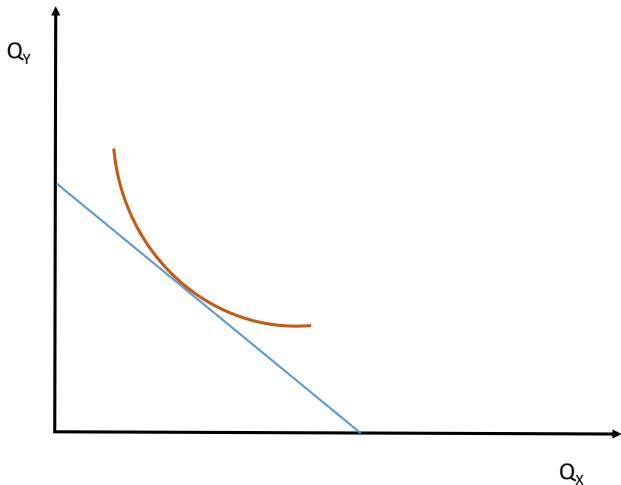
- What is the blue line?
- What is the orange line?

Increasing Income and Resulting Utility



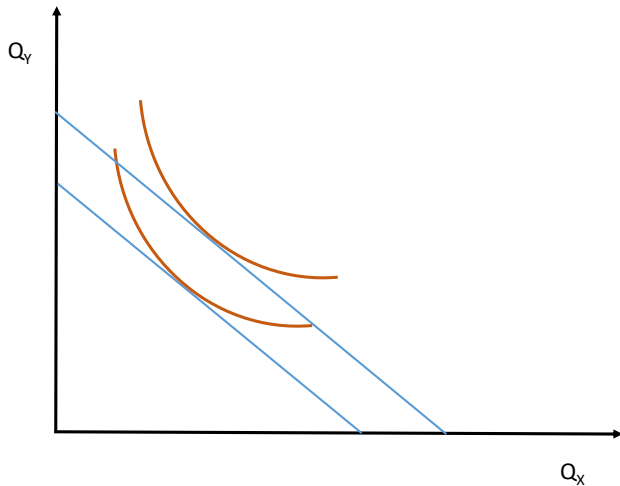
- What is the blue line?
- What is the orange line?
- What is true about the place where they touch?

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



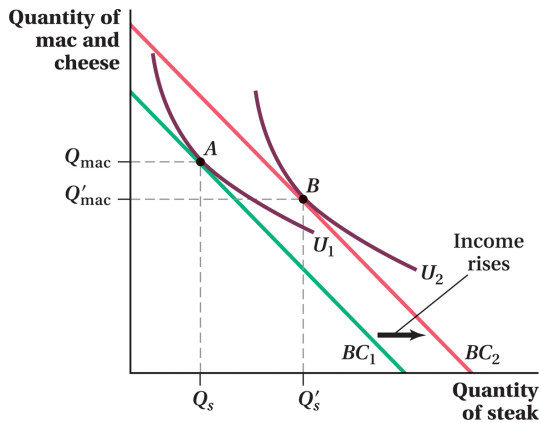
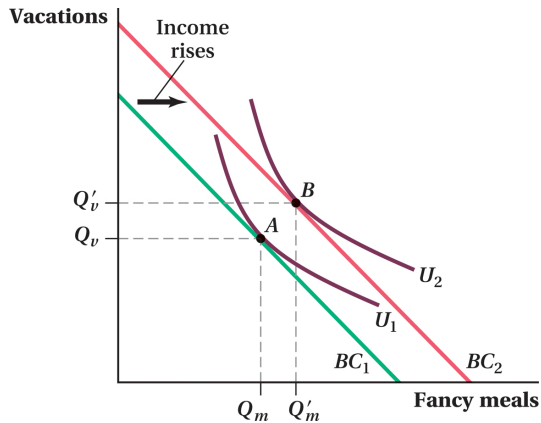
How do you see that utility can't decrease when income increases?

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?

Income Elasticity and Types of 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?

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Income Elasticity and Types of Goods

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

- 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!

Section 1 Recap

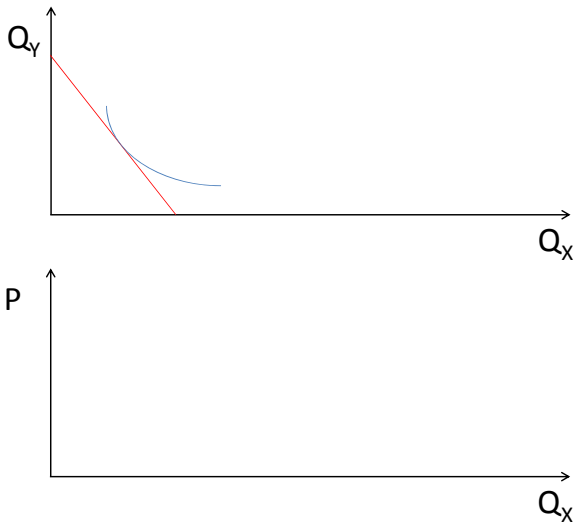
- Income **shifts** optimal consumption: you should be able to explain why
- Definitions for these goods
 - normal
 - inferior
 - luxury
- Don't confuse luxury goods with expensive goods

2. Impact of Price Changes, or Your Demand Curve From First Principles

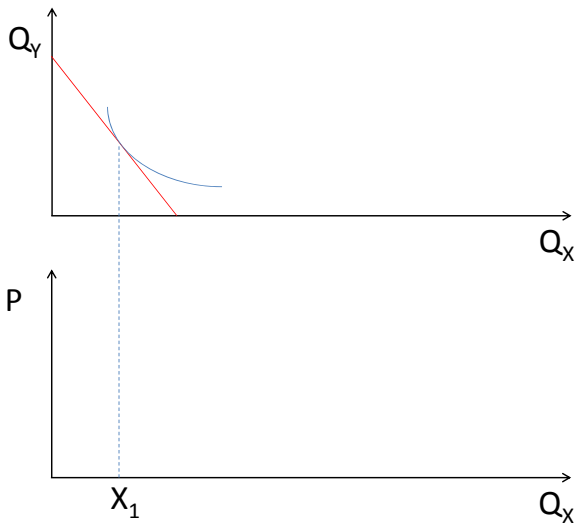
Using Income and Utility to Find Your Demand Curve

- 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 indifference curves in Y vs X , but we need a P vs X graph for demand

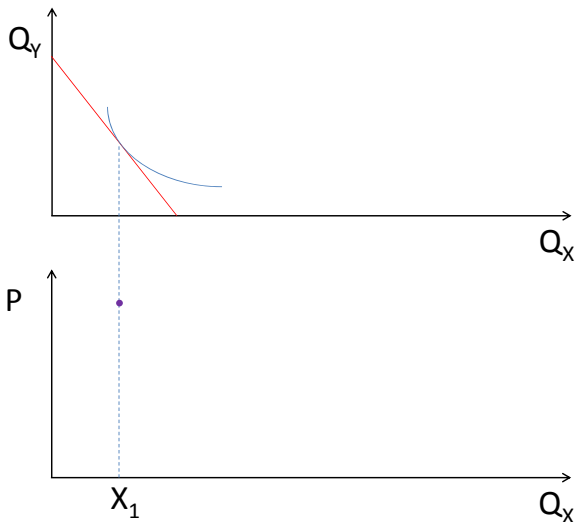
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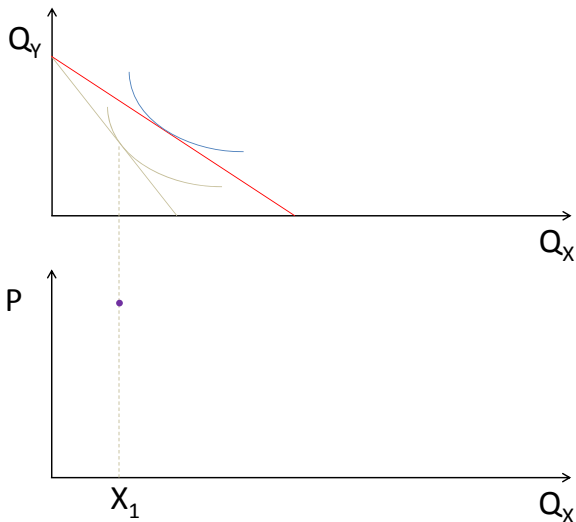
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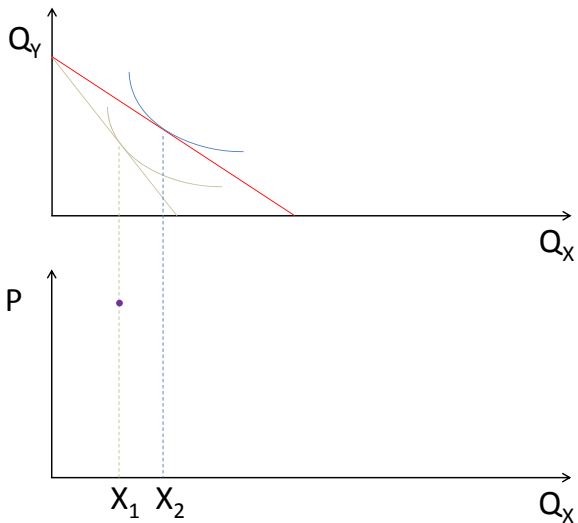
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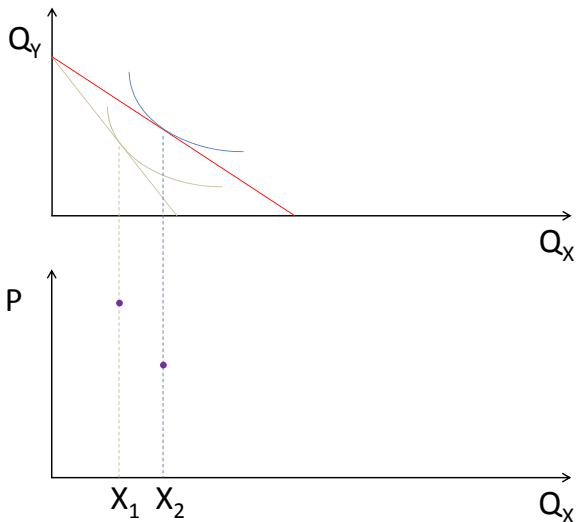
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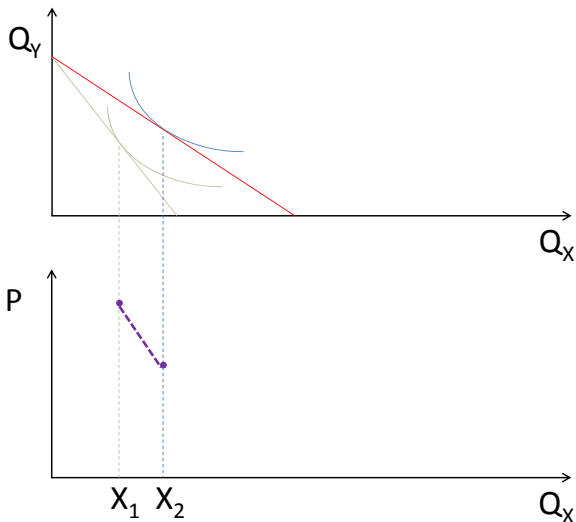
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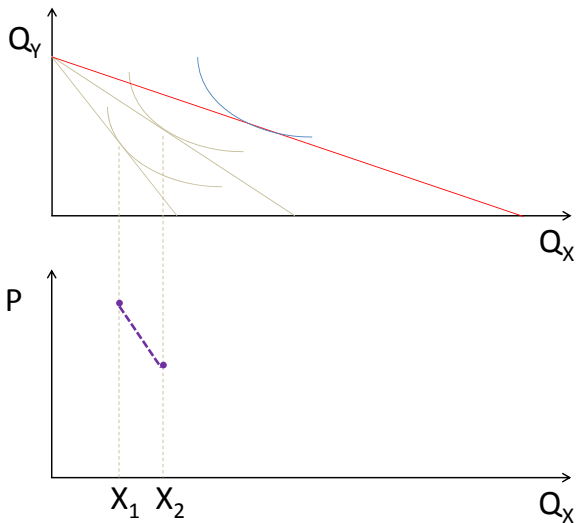
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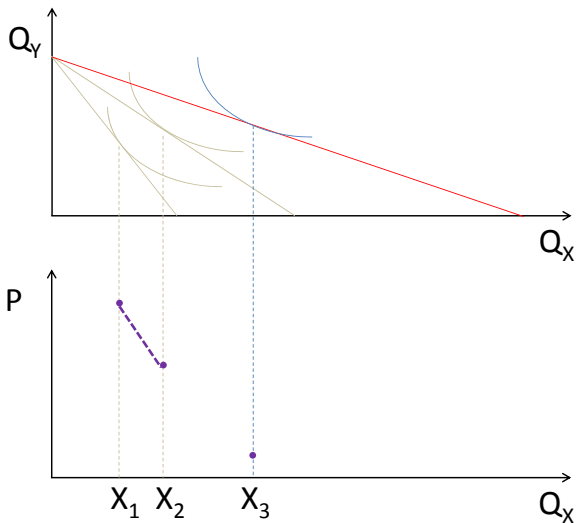
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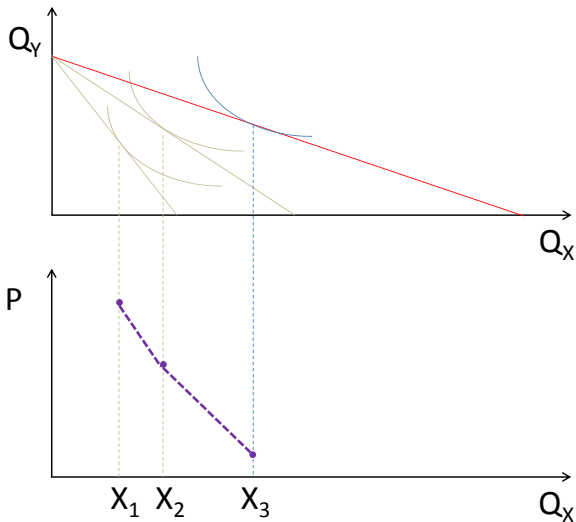
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Using Income and Utility to Find Your Demand Curve



Using Income and Utility to Find Your Demand Curve



What Shifts Your Demand Curve?

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- Changes in price move us along the demand curve

What Shifts Your Demand Curve?

- Changes in price move us along the demand curve
- Changes in tastes or income or prices of other goods may shift the demand curve
- If we change preferences, what changes on the previous slide?

Section 2 Recap: Impact of Price Changes

- Price changes allow us to **trace out** an individual demand curve
- This is why price changes move us along the curve, rather than shifting the curve
- Changes to preferences change indifference curves which may yield different responses to prices

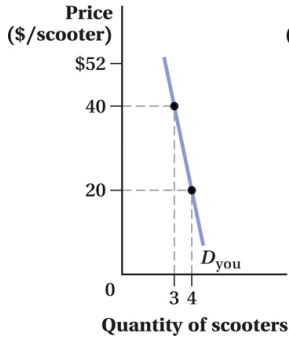
3. Individual Demand and Market Demand

Finally, Getting to Market Demand!

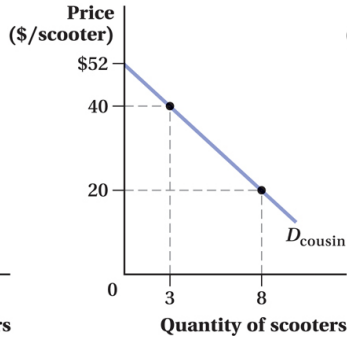
- Market demand is the sum of all individual demands
- Add individual demands **horizontally**
- For any price, add the quantities

Adding Horizontally

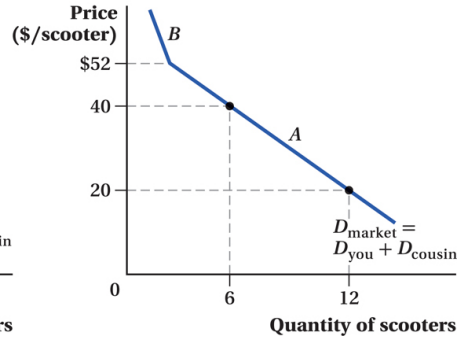
(a)



(b)



(c)

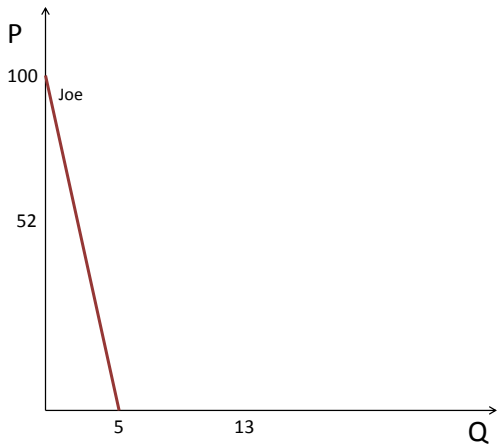


Using Algebra To Do This

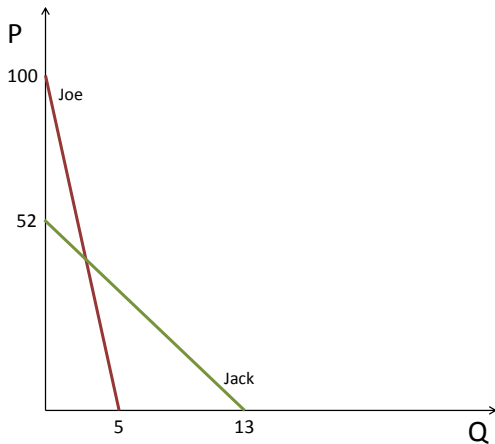
Suppose we have two demand curves

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

Joe's Demand in Pictures

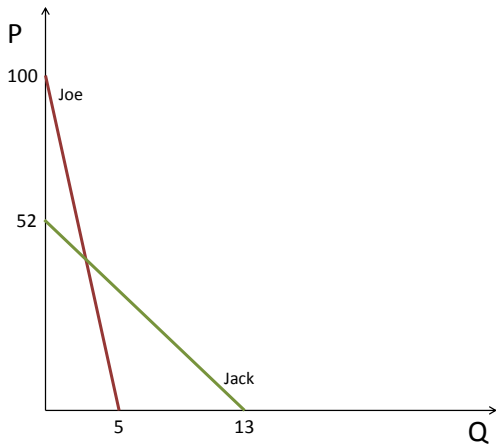


Joe and Jack's Demand In Pictures



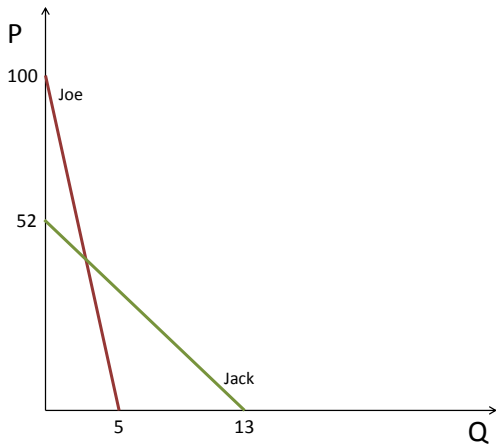
- For which prices is there only one person in the market?

Joe and Jack's Demand In Pictures



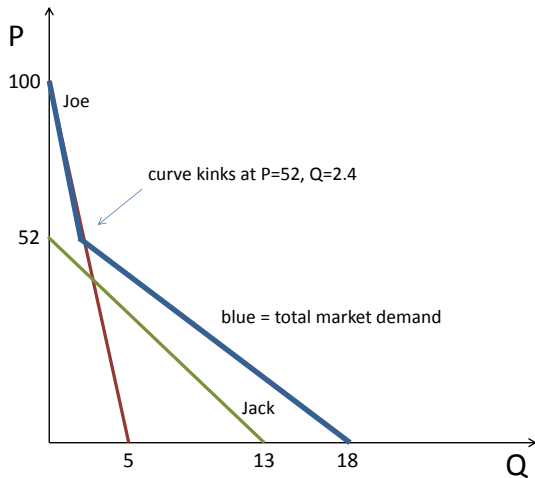
- For which prices is there only one person in the market? Joe, prices 52 to 100
- For which prices are both Joe and Jack in the market?

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

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 $\rightarrow$ demand curve
- 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