Recap auctions, demand & supply and Introduction to elasticity

Econ 1101

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ECON 1101 Lecture 3.1

1. Recap of Auctions and quick Review of Aplia experimental auction

2. Recap and finish Shifts in Supply and Demand

3. Short Run Elasticity

Announcements

- HW 2 due today 11:45 pm CST on (aplia.com)
- Aplia student grace period for payment expires in 5 days on September 22
- For auctions and elasticity please read:
  - Last part of slides of lecture 2.2 (elasticity)
  - Chapter 5 of Mankiw

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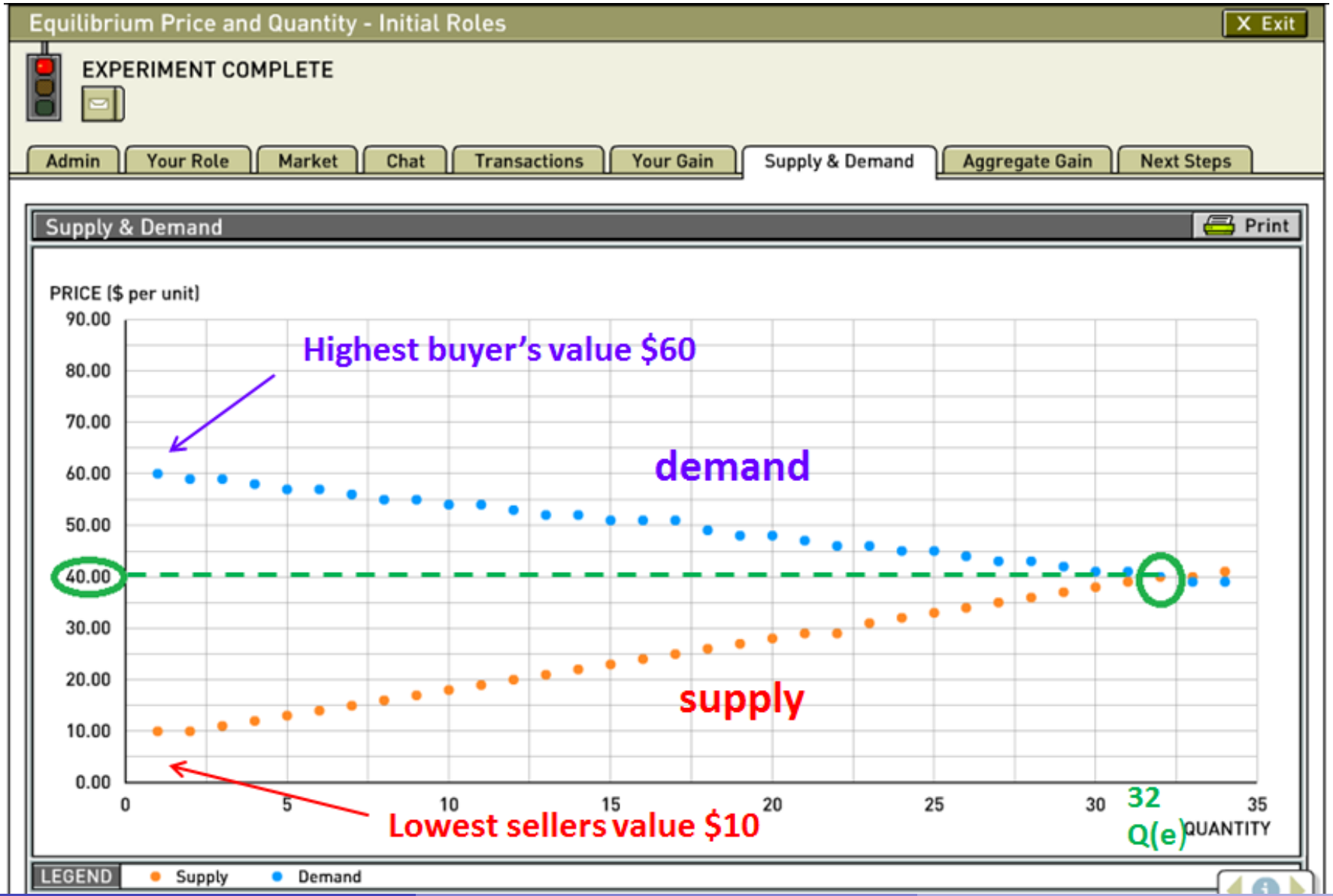
1. Review of Aplia experimental auction

From what we learned in Auctions

- Plotting Supply and Demand:
  - Supply: line up the sellers form lowest to the highest and plot costs. Get supply curve (S)
  - Demand: line up the buyers form highest to the lowest and plot values. Get supply curve (S)
- Equilibrium price is **$40**, equilibrium quantity is around **32**
- Can see this on next slide:
  - Each blue dot is a buyer (sorted form highest value to lowest)
  - Each orange dot a seller (sorted from lowest cost to highest)

Auction Result: Supply and demand



Profits

- Profits:
  - for sellers = Price - Cost
  - for buyers = Value - Cost
- Highest value of buyer \$60, at competitive price a profit = 60-40 = 20
- Lowest cost of seller: \$10, at competitive price a profit = 40-10 = 30
- Average between them is \$25 in profit
- Some buyers have a value of 40, at competitive price profit of = 40-40=0
- At the perfectly competitive price, on average profit per student (per round) was \$11.42

Winners

Winners are those students that make the highest exess gains

Excess gain is the actual profit minus the predicted profit (the difference between your value/cost and the price)

Is by what amount you beated the market outcome

For example a buyer that bid quickly a low price and got a transaction below $40 (form a seller with a low cost)

We have the following rankings

Ranking according to excess gain

	Last Name	First Name	Excess gain	Average excess gain
1	Imsdahl	Jack	$27.86	$5.57
2	Han	Elizabeth	$27.00	$5.40
3	Mezea	Rachel	$26.90	$5.38
4	Niu	Bo	$21.00	$4.20
5	Steffl	Justin	$21.00	$4.20
6	Wessel	Ian	$20.00	$4.00
7	King	Sarah	$17.50	$3.50
8	Gaetz	Rachel	$15.99	$3.20
9	Thao	Chue	$15.30	$3.06
10	Chi	Fei	$15.00	$3.00
11	DeJongh	Sydney	$13.00	$2.60
12	Kennedy	Keegan	$11.54	$2.31
13	Ren	Wen	$10.99	$2.20
14	Stadnick	Joseph	$10.99	$2.20
15	Ballweg	Matthew	$10.00	$2.00
16	Osberg	John	$9.74	$1.95
17	Wiringa	Peter	$9.45	$1.89
18	Cunningham	Allyson	$9.00	$1.80
19	McGregor	Brandi	$8.50	$1.70
20	Cho	Mansoo	$8.14	$1.63
21	Tommerdahl	Cassie	$7.99	$1.60

Transactions

Lets look at the transaction's patterns of each round:

The general pattern of learning is:

- In the first couple of rounds: transactions (prices were happening all over the place)
- Then as the game is repeated prices start converging to the equilibrium price (40)
- Buy the last round convergence to the equilibrium price is fast.

Lets see the chart in Aplia

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2. Review of Shifts in Demand and Supply

Example1: Shift of the Demand Curve - price of substitute

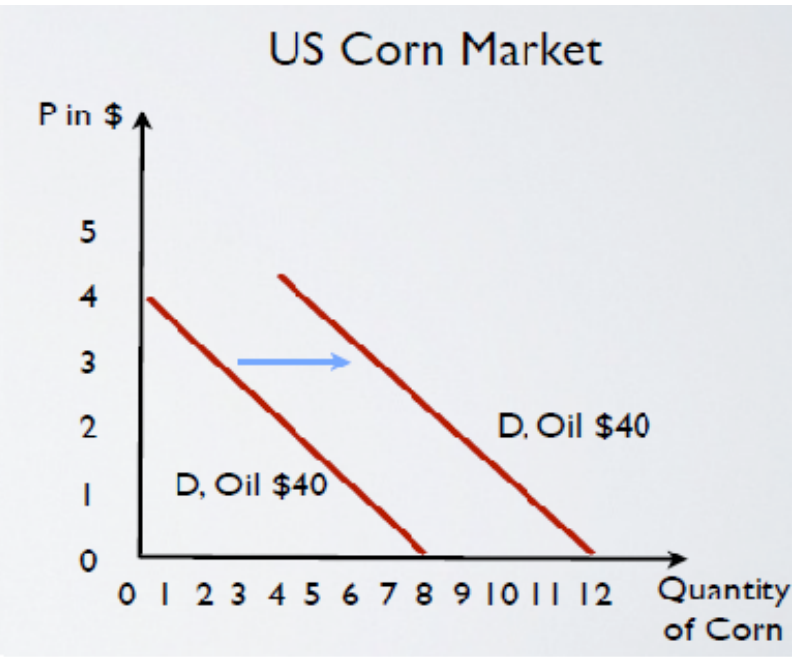
Example: Corn and oil

- substitutes: corn can be used to make ethanol–a substitute for gas
- suppose the price of the oil increases and we own of cars that run on gas and on ethanol
- Price of Oil going up causes people to buy **more** corn (for their cars that run on ethanol) at each price level (of corn)
- this is a SHIFT to the right of the D curve of corn

Example1: Shift of the Demand Curve - price of substitute

- An increase in the price of oil (from \$40 to \$80) will increase the quantity demanded of corn for all prices (of corn)
- This is will shift to the right the Demand curve (of corn)

Corn Price	Q(D), Oil \$40	Q(D), Oil \$80
0	8	12
0.50	7	11
1.00	6	10
1.50	5	9
2.00	4	8
2.50	3	7
3.00	2	6
3.50	1	5
4.00	0	4

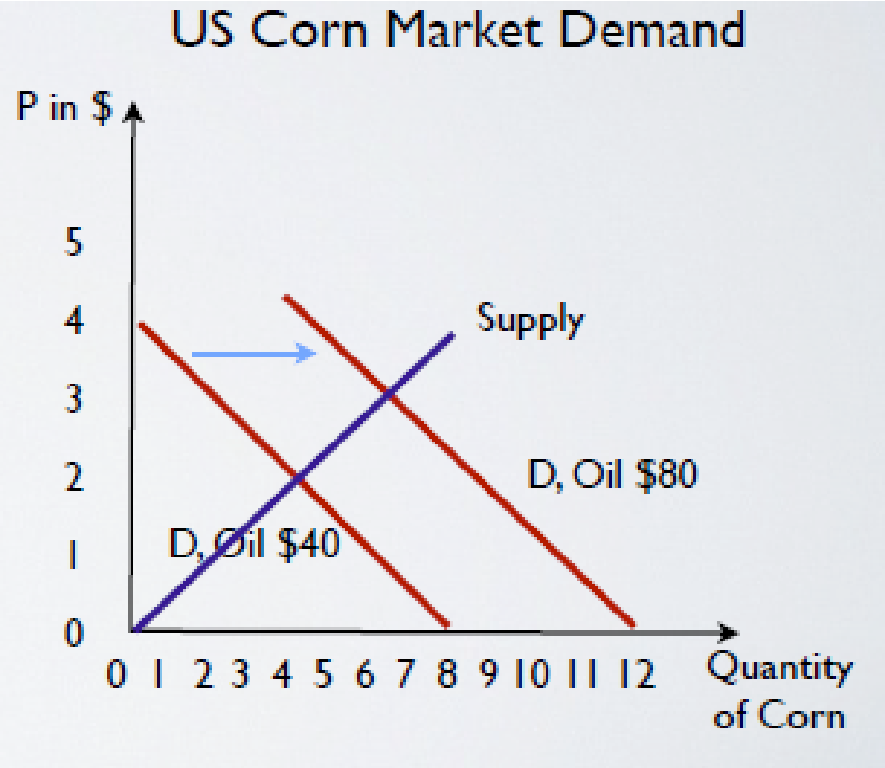


- Corn and cars that run ethanol are complements (increase in price of ethanol cars decreases demand of corn at each price level)

2. Effects of Shift of Demand only (substitutes)

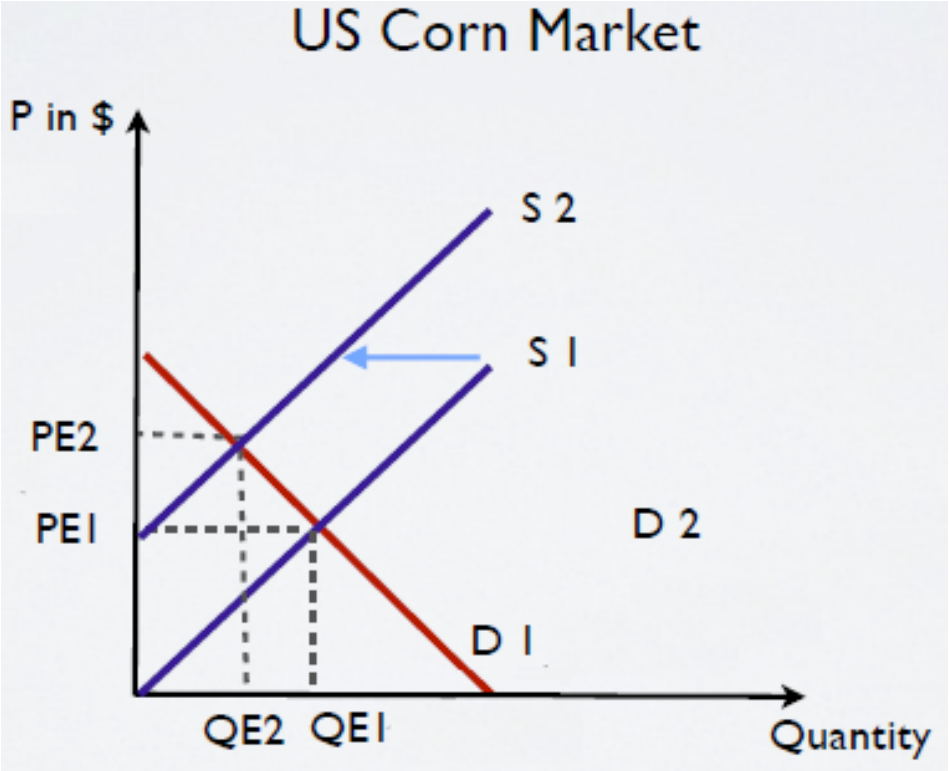
Assume supply is unchanged, how has the equilibrium changed?

- We can see **price and quantity have increased**
- Why? Higher demand increases scarcity, which forces up prices
- Higher prices increase supply so supply and demand "meet" somewhere in the middle



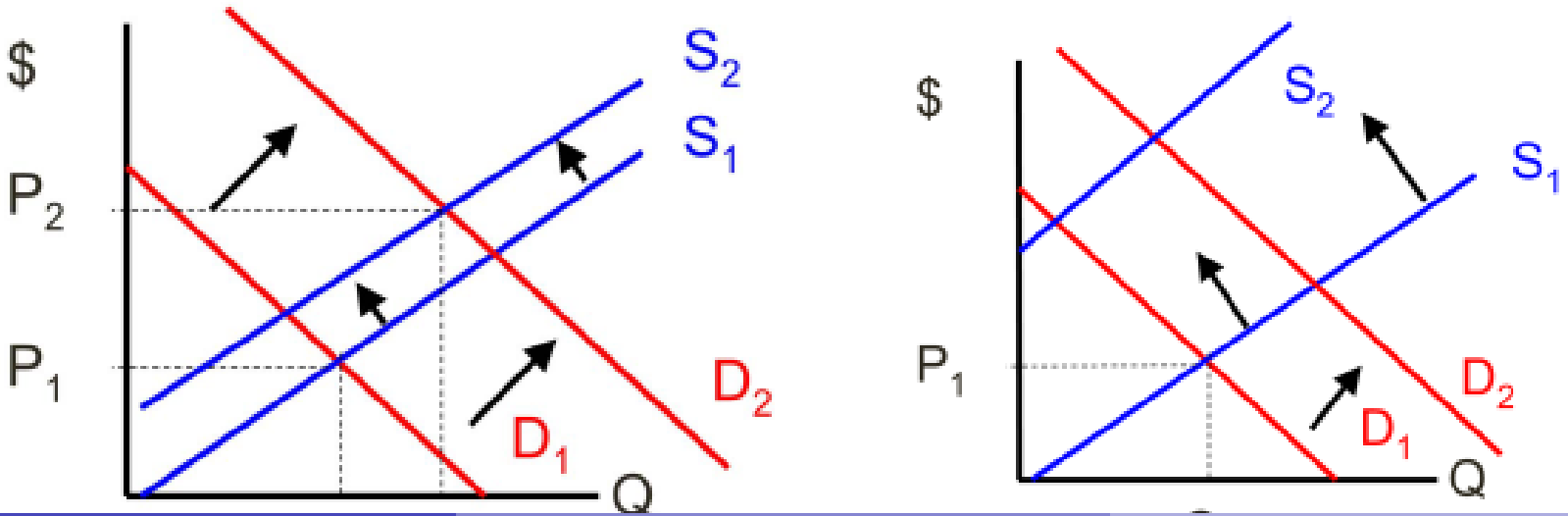
Example 2: Shift of Supply only (increse price of inputs)

- Assume demand is unchanged, how has the equilibrium changed?
- We can see **price has increased and quantity decreased**
- Why?: Smaller supply increases scarcity, which forces up prices
- Higher prices decreases demand so demand and supply "meet" at a smaller quantity



3. Simultaneous shift of Supply and Demand

1. Only the demand shifts to the right (example price of substitute): increase in quantity, increase in price
2. Only the supply shifts to the left (example price of input): decrease in quantity, increase in price
3. What happens if both changes occur at the same time?
   - Price will increase, But what about quantity?
   - The result is ambiguous. It will depend upon the relative increase of the demand with respect to the increase of the supply (and viceversa)



3. Simultaneous shift of Supply and Demand

	Shifts	ΔP_{corn}	ΔQ_{corn}
Price of Substitute ↑	D	Increase	Increase
Price of Input ↑	S	Increase	Decrease
Combined:	D, S	Increase	Ambiguous

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4. Elasticity (short run)[1]

[1] Notes from Thomas Holmes Lectures Fall 2012 UMN

Price Elasticity Excercise

Gasoline Market in the US

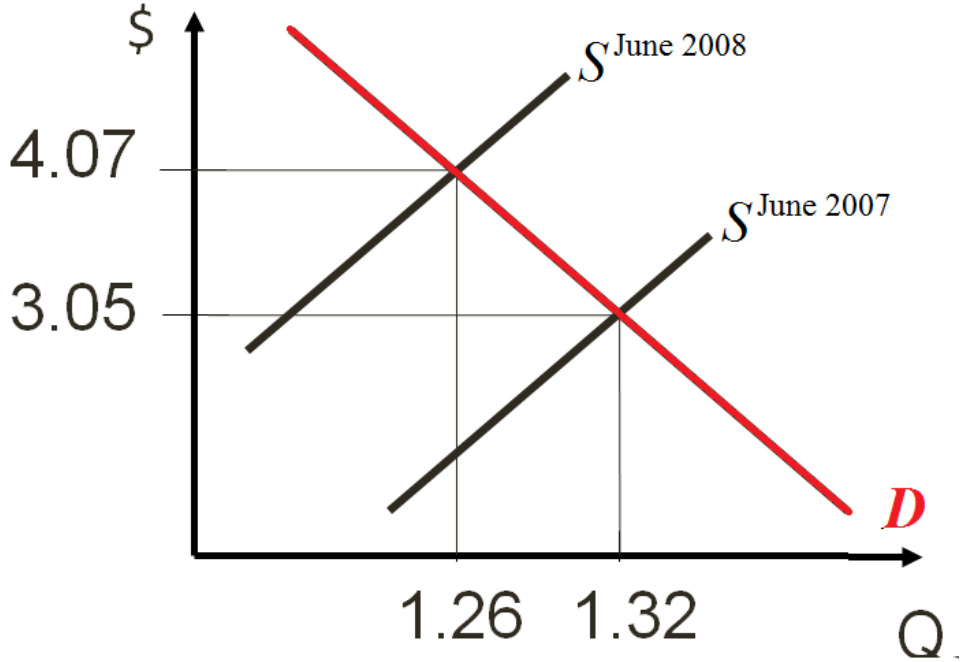
June 2007 and June 2008

Time Period	Per Capita Daily Consumption of Motor Gasoline	Average Price Per Gallon in Dollars
June 2007	1.32	**3.05**
June 2008	1.26	**4.07**
Δ	–.06	**1.02**
Average of Both Years	1.29	**3.56**
%Δ	**–.05**	**.28**

Discussion about Price Elasticity

- When estimating demand elasticity, we need to hold fixed other determinants of demand to isolate impact of change in price
- We also need to take into account supply. some of you might be thinking "Why did we calculated the elasticity of the demand and not the elasticiuty of the supply" since we simply took quantity consumed, Could it be supply and not demand? Great question!

- We will make the case that supply shifted and that demand was relatively stable.
- So that we can interpret what happened as a movement along a fixed demand curve.
- For a valid estimate of the elasticity of demand, that is what we need.



Make the Case

1. Supply curve did shift:
   - The price of a barrel of oil increased from \$65 to \$121.
   - This is an important input in the production of gasoline, that shifts the supply as in the figure.
   - Note the reason for the increase in the oil price had nothing to do with demand in the U.S.
2. The Demand Curve did not Shift (so its a movement along the demand)
   - We have to argue that the determinants of demand (the things that make it shift) remained unchanged, lets see.

Making the Case: demand curve did not shift

Demand curve did not shift (looking at determinants of demand)

1. Tastes of consumers:
   Tastes for driving is higher in summer months than rest of the year.
   But we are already taking this into account by comparing June to June
2. Number of consumers:
   Population grows about 1% a year. Take this into account by using a per capita measure
3. Income:
   Income in June 2007 not that much different than June 2008
4. Prices of substitutes and complements:
   Didn't change much over this one year period.

So we are good to go...

Note this is short run elasticity

Elasticity we have estimated is a short-run elasticity

Consumers have not had much time to make a response.

However over a long period of time, if gas is significantly higher in price:

- Consumers will buy different cars
- Might live different places
- Society might change laws, like lower the speed limit.

So consumers will have time to adjust

For the long-run elasticity, need to compare cases where prices have been different a long time.

Determinants of the Demand, Supply and Shifts

Determinants of the Demand and Shifts

- Before we claimed that the most important determinant of the demand is the price.
- **Law of demand**: (negative relation of P and Q(D)) as the own price increases (decreases), quantity demanded decreases (increases).
- Other factors that affect the demand: (shifters)
  1. Prices of other related goods [substitutes (+) and complements (-)]
  2. Income [normal goods (+) and inferior goods (-)]
  3. Number of Buyers (-)
  4. Consumer Tastes (preferences)
- A change in the own-price will cause a shift along the curve, a change in 1-4 will cause a shift of the curve

Determinants of the Supply and Shifts

Similarly for the supply we have:

- **Law of Supply**: as the own price is higher more suppliers are willing to sell (positive relation of P and Q(S))
- Other determinants of the supply (shifters):
  1. Price of inputs (labor and materials) (-)
  2. Number of sellers (+)
  3. Technology (+)
- A change in the own-price will cause a movement along the curve according to the law of supply

A shifter that increases (decreases) the supply shifts S curve to the right (left)