Lecture 2(ii)

Announcements

Aplia experiments this week.
Times for large lectures:
001AL Fri 9:05-9:30 am
001MZ Fri 9:30-9:55 am
022AL Fri 10:10-10:35 am
022MZ Fri 10:35-11:00 am
Times for small lectures announced in class.

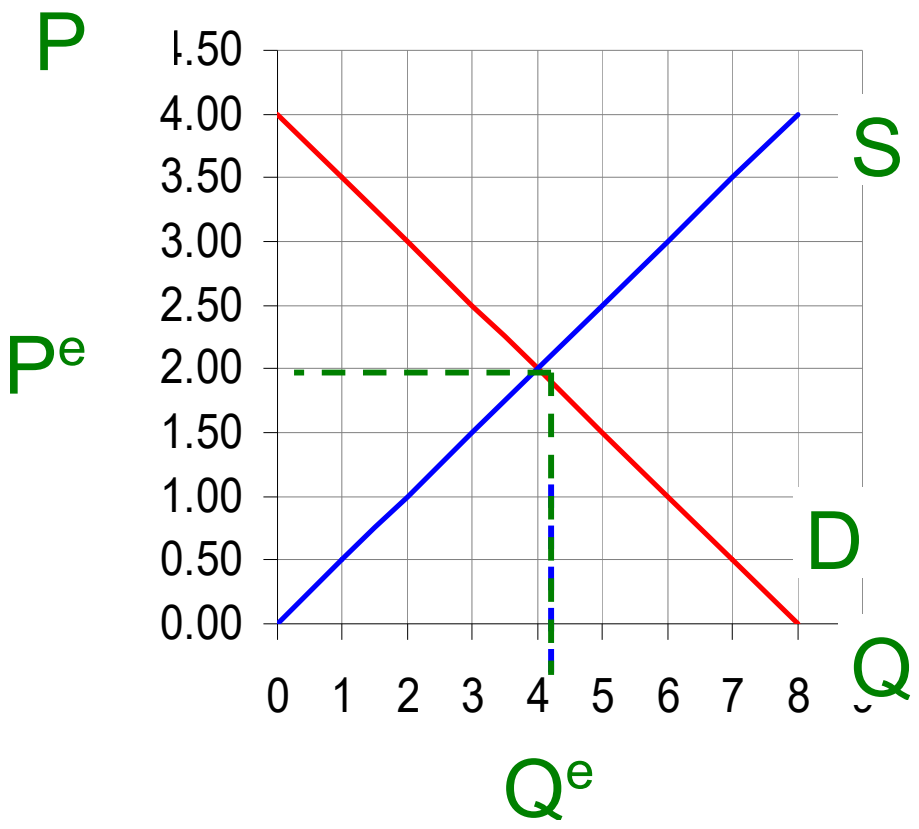
Note: just go to Aplia.com at the scheduled time. You can log on from anywhere on campus.

Lecture

1. Excess Demand and Supply Again

2. Shifting Supply and Demand Curves
(In equilibrium to start. But then S or D shifts, or both.
What happens?)

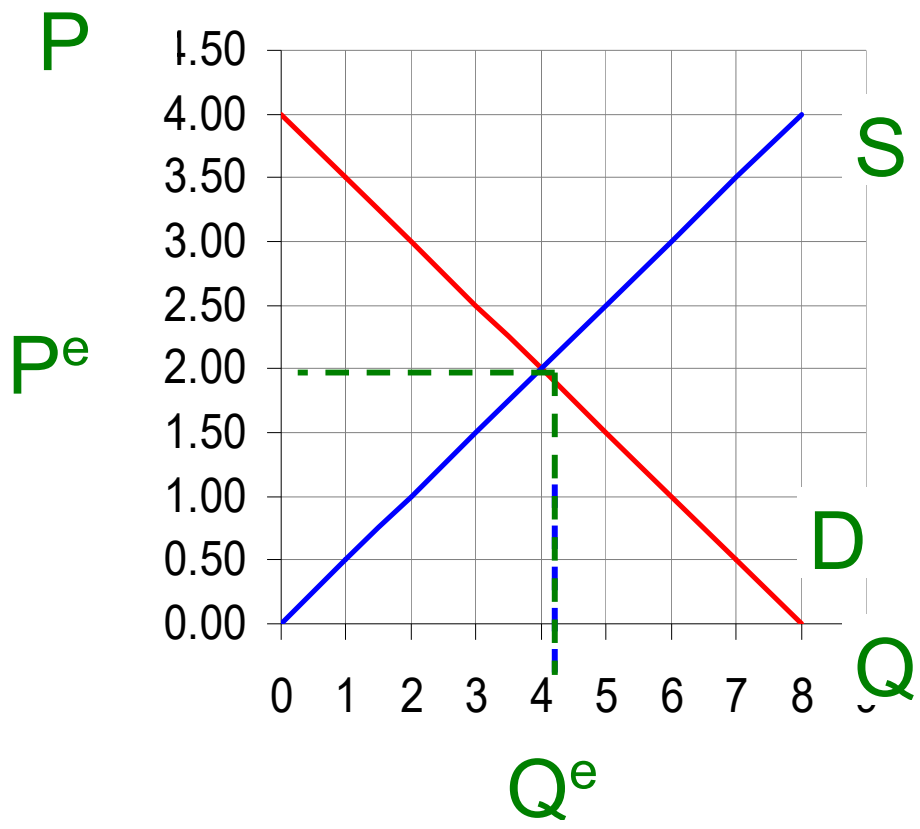
Case of Excess Supply



Suppose P=$3:

Excess Supply = _____

Case of Excess Demand



Suppose P=$1:

Excess Demand = _____

From now on assume the market is in equilibrium.

Look for how the market price and quantity change when the market fundamentals change.

Learn about shifting

Determinants of Demand

1. Price
   - A movement **along** a demand curve (not a shift!!)
   - P ↓ implies Q^D ↑ (**law of demand**)
2. Prices of other goods
3. Income
4. Number of Buyers
5. Consumer tastes

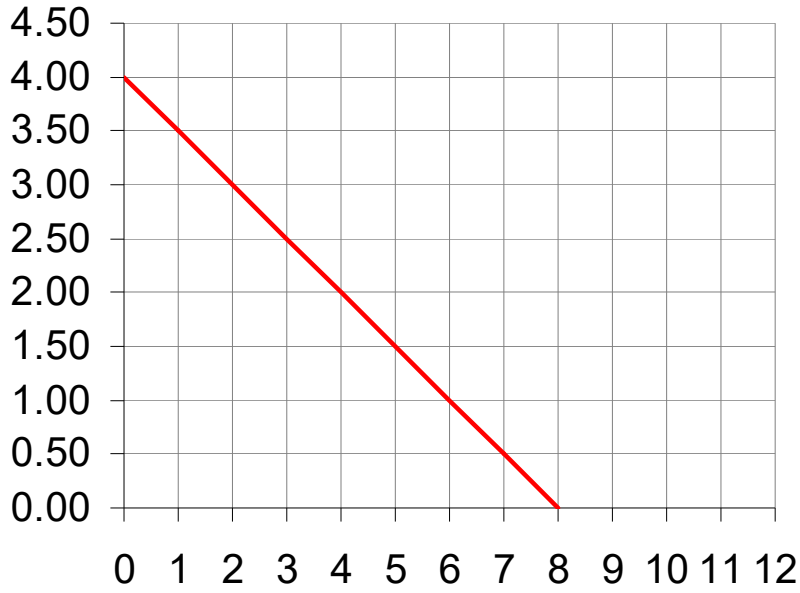
Look at 2: Price of other goods

Back to Demand For Corn

Price of corn	Q^D (Oil $40)	Q^D (Oil $80)
0	8	12
.50	7	11
1.00	6	
1.50	5	
2.00	4	
2.50	3	
3.00	2	
3.50	1	
4.00	0	

Corn and Oil are Substitutes

(P_{Oil} ↑ implies Q^D ↑)



Go back to initial equilibrium in market for corn

(With Supply Curve from earlier in class)

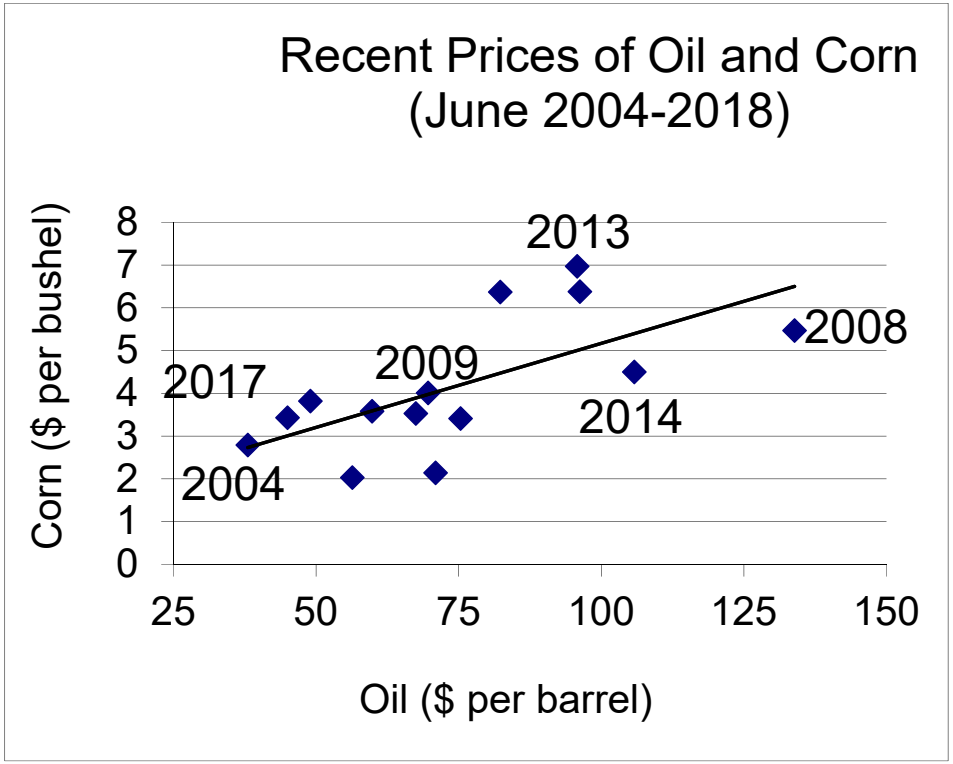
Equilibrium when Oil Price = $40

Equilibrium when Oil Price = $80

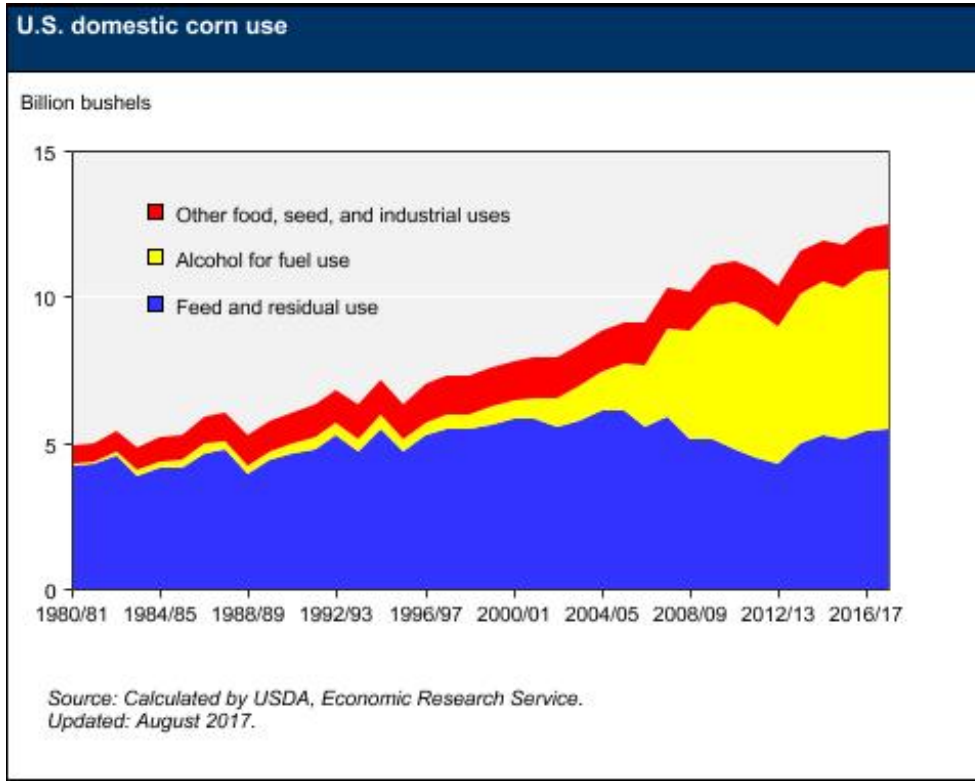
Effect of increase in Oil Price?

Facts: Avg Prices in June by Year

Year	$ Price Barrel of Oil (WTI)	$ Price Bushel Corn
2004	38	2.79
2005	56	2.03
2006	71	2.14
2007	67	3.53
2008	134	5.47
2009	70	4.01
2010	75	3.41
2011	96	6.38
2012	82	6.37
2013	96	6.97
2014	106	4.50
2015	60	3.58
2016	49	3.82
2017	45	3.43
2018	68	3.67



Compare 2004 and 2008
Then the crisis 2009
Then 2013
Then 2017
Then 2018.



Yellow is portion of corn crop going to ethanol

Of course the price of corn depends upon many things besides the price of a substitute good (oil).

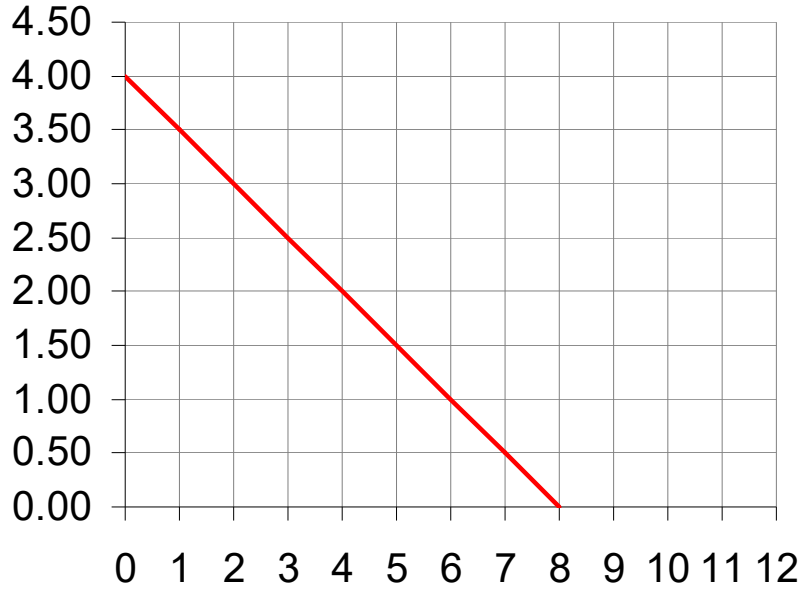
Like supply!

- 2014 had great corn weather, so no surprizing corn price below regression line

Like income!

- In June 2008 income growth of developing countries (particularly China) was driving up commodity prices like oil and corn.

What happens when decrease the price of substitute?



Other Substitutes For Corn?

Back to List
of Determinants of Demand

1. **Own Price** (A movement **along** a demand curve)

Shifters:

2. **Prices of other goods**
   - $P_{Substitute} \uparrow$ implies $Q^D \uparrow$
   - $P_{Complement} \uparrow$ implies $Q^D \downarrow$

Substitute: Use in place of.

Complement: Use together with.
Complements for Corn?
---Butter
---More interesting (and more important): Cars that use ethanol.

3. Income

Normal Good

Inferior Good

Note: Goods can be normal for some ranges of income and inferior for other ranges.

4 Number of Buyers

5. Consumer tastes

Supply: Depends upon

Own Price (Movement along the Supply Curve)

Shifters:
Prices of the everything used to produce the good (the inputs)
---Labor, Materials,Equipment
Example: If immigration cuts price of farm labor→ Q^S ↑

Number of sellers
Example: Wheat farmers switching to corn→ Q^S ↑

Technology (Example: New seeds or fertilizer invented → Q^S ↑)

When 2 things shift

The Market for Corn

Suppose price of oil goes up.

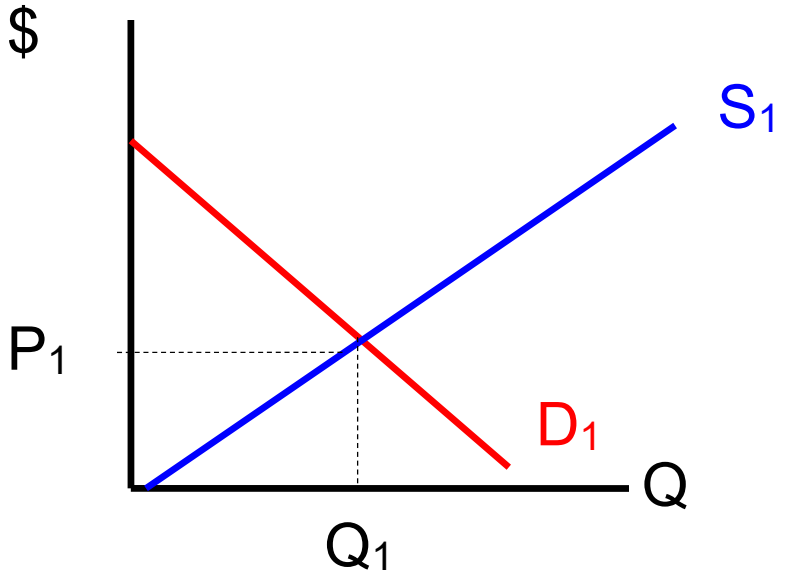
i) Oil and Corn are substitutes,

so:
Demand shifts up and to the right.

ii) Oil is an input into the production of corn (farmers need it for tractors)

so:
Supply shifts up and to the left

If Just Demand Shifts...



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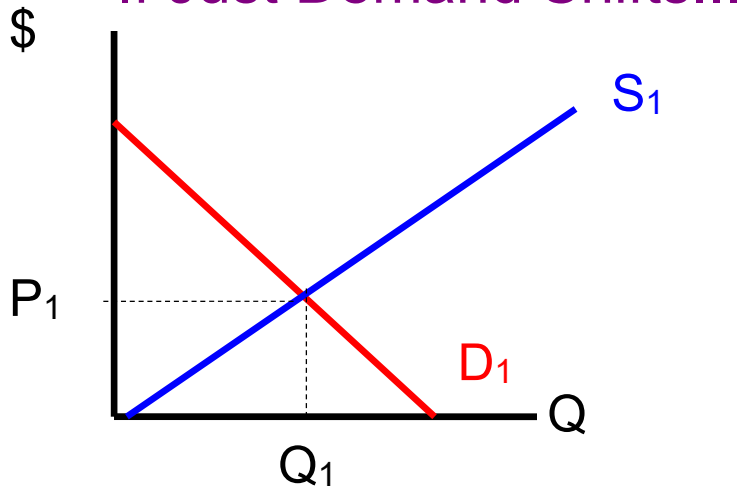
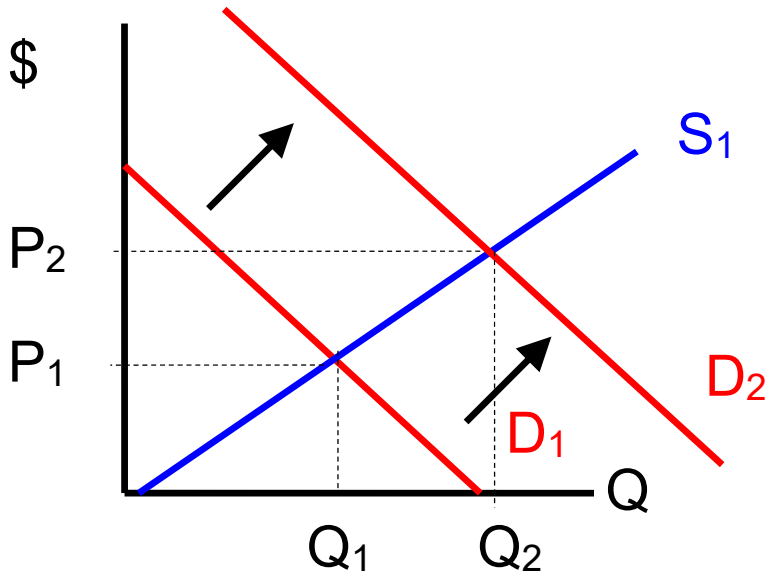
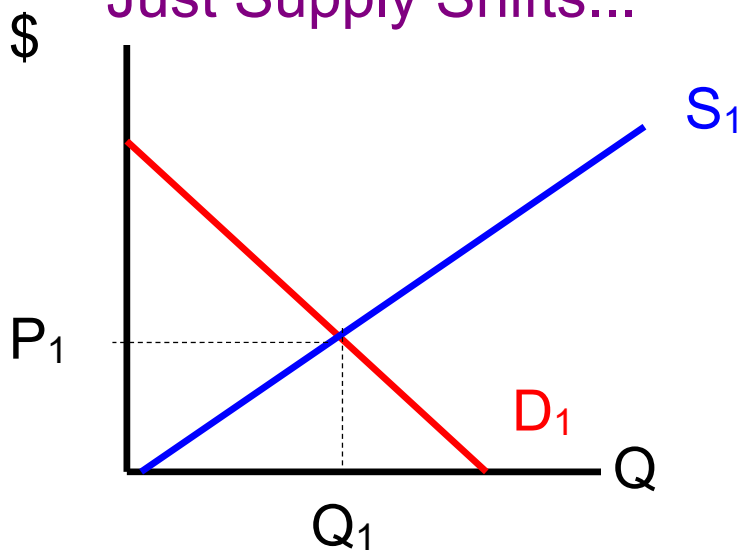
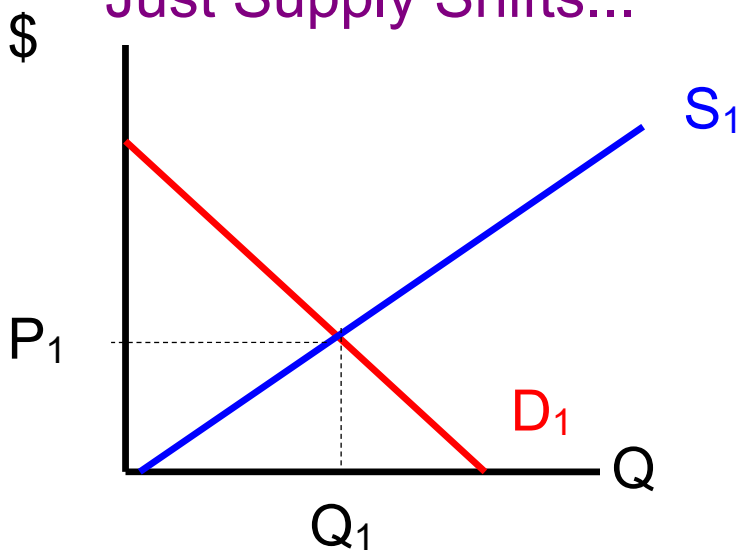


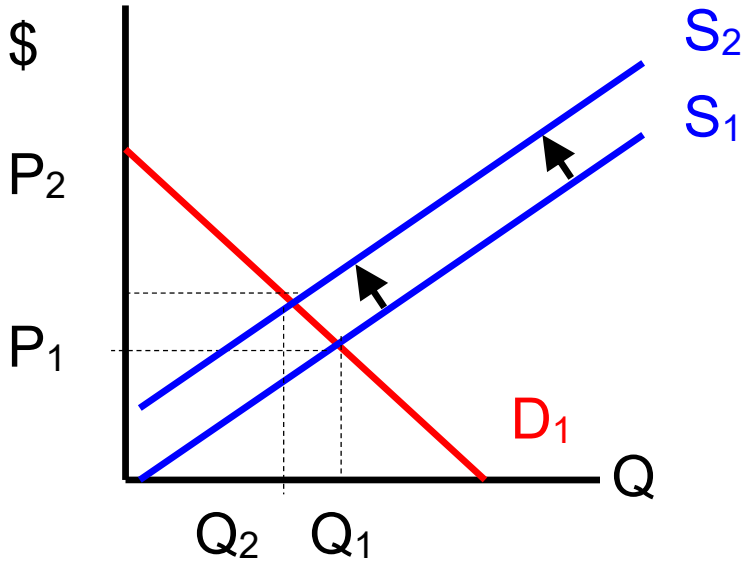


Just Supply Shifts...

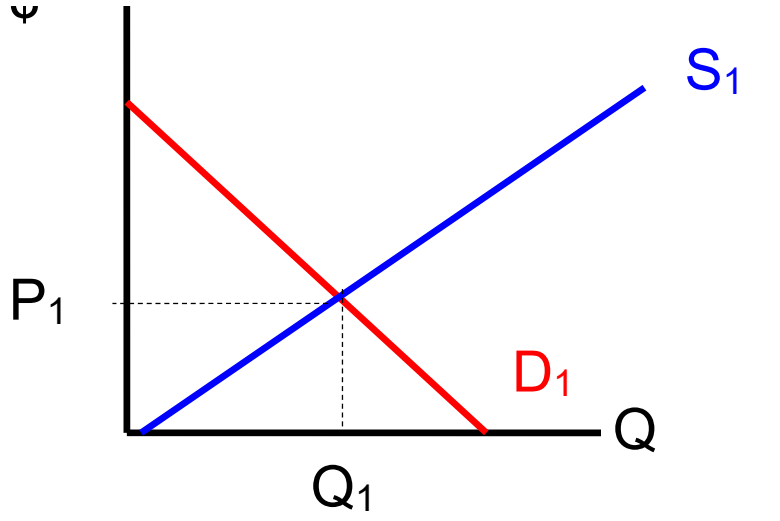


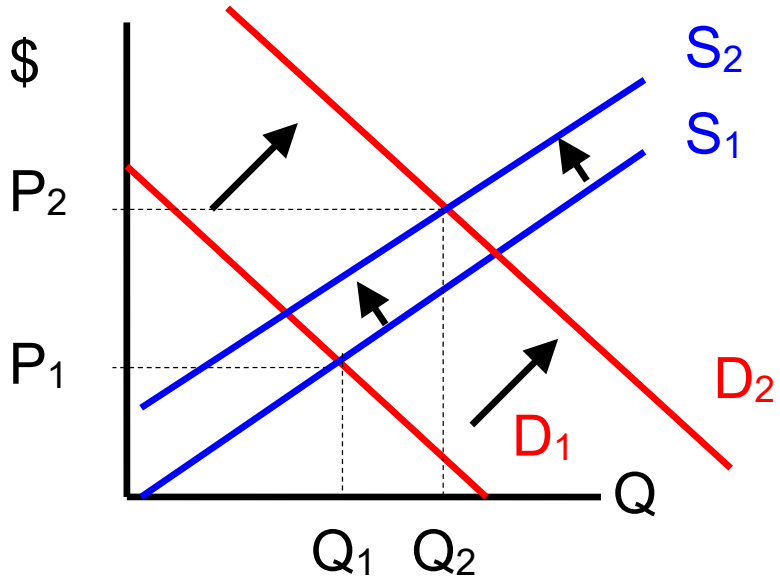
Just Supply Shifts...



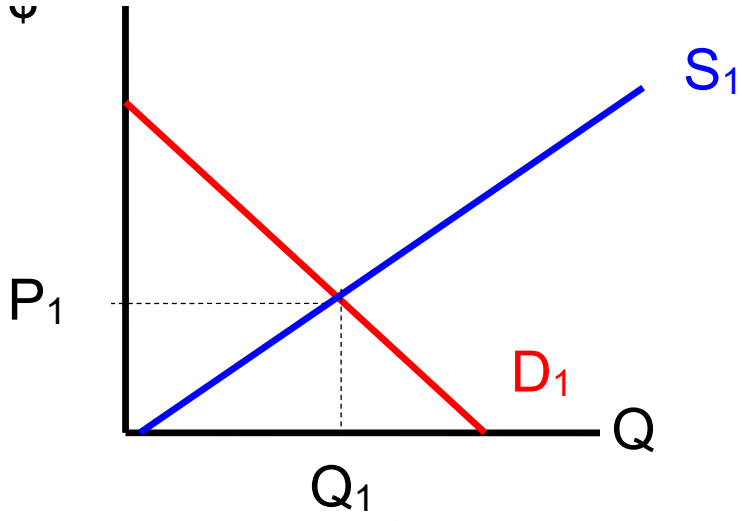


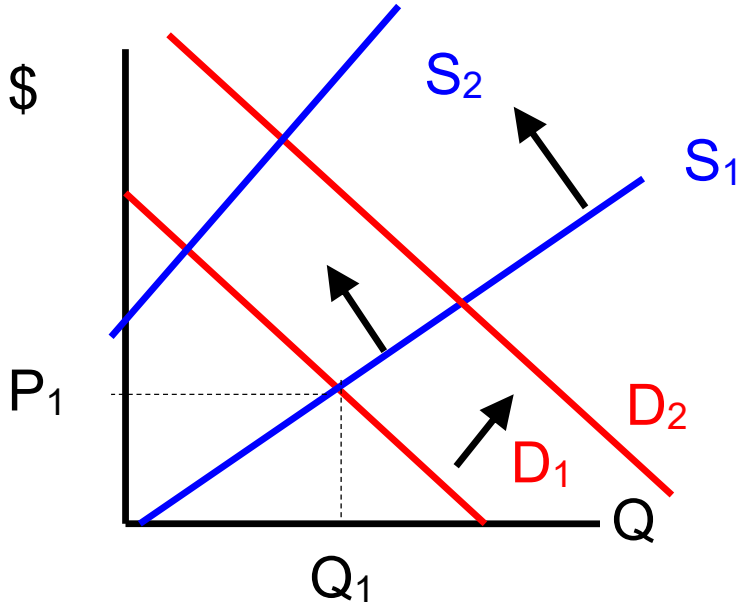
Both Demand and Supply Shift





Another Possibility with 2 shifts...





Put this all together:

	Shifts	ΔP_{corn}	ΔQ_{corn}
Price of Substitute ↑	Q^D		
Price of Input ↑	Q^S		
Combined:	Q^D, Q^S		