PAI 897
Lecture 3
Market equilibrium and market forces

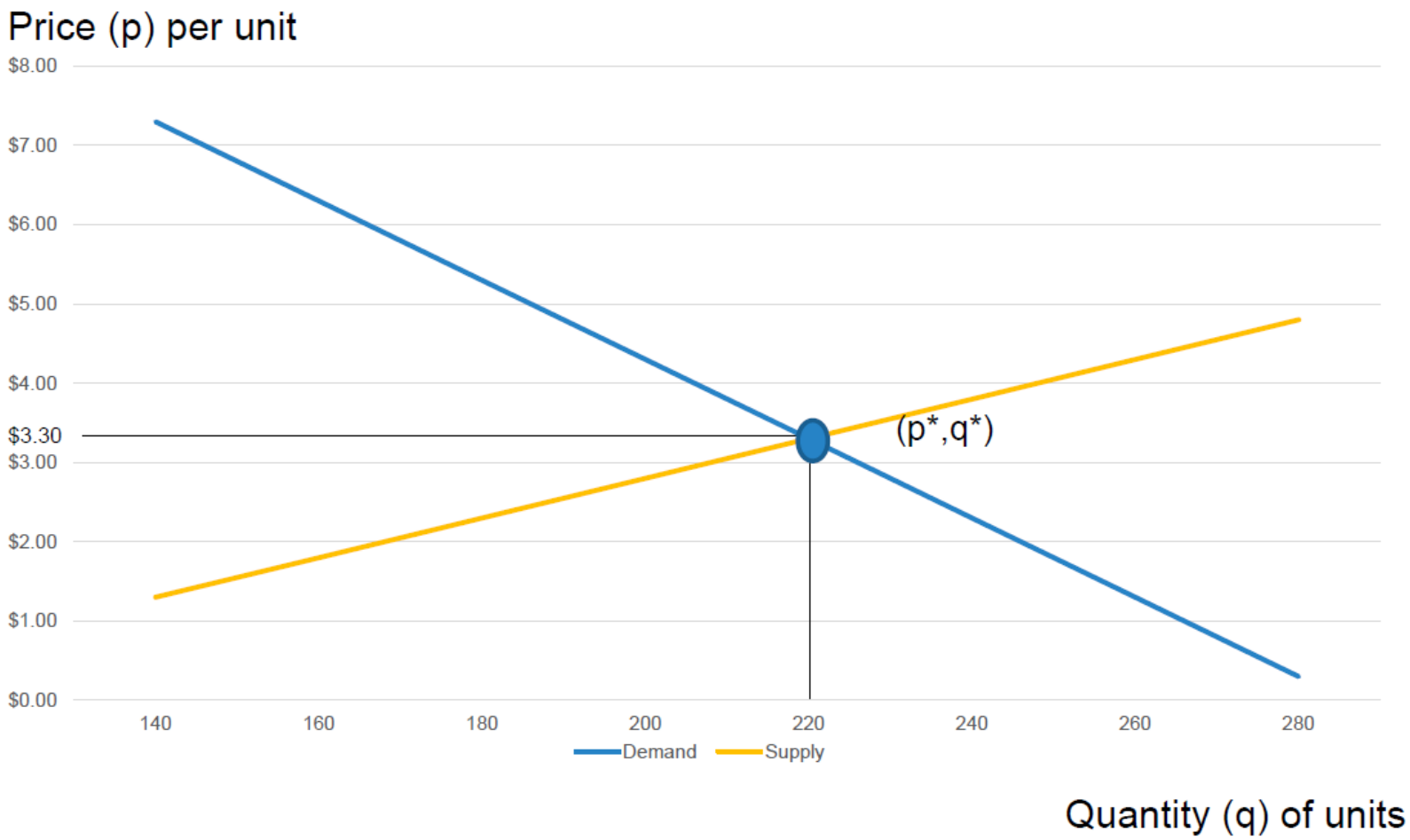
A market is in equilibrium at the point where the demand and supply curves cross.

The equilibrium price is the market price at which consumers can buy as much as they want and sellers can sell as much as they want.

The equilibrium quantity is the quantity demanded / quantity sold at the equilibrium price.

The equilibrium price quantity pair (p^*, q^*) is the price and quantity at which neither buyers nor sellers have an incentive to change their behavior.

Market Equilibrium



Solving for the equilibrium

- Demand: q=286-20*p
- Supply: q=88+40*p
- Question: what p will make the q supplied equal to the q demanded?

286-20*p=88+40*p

+20*p +20*p

286=88+60*p

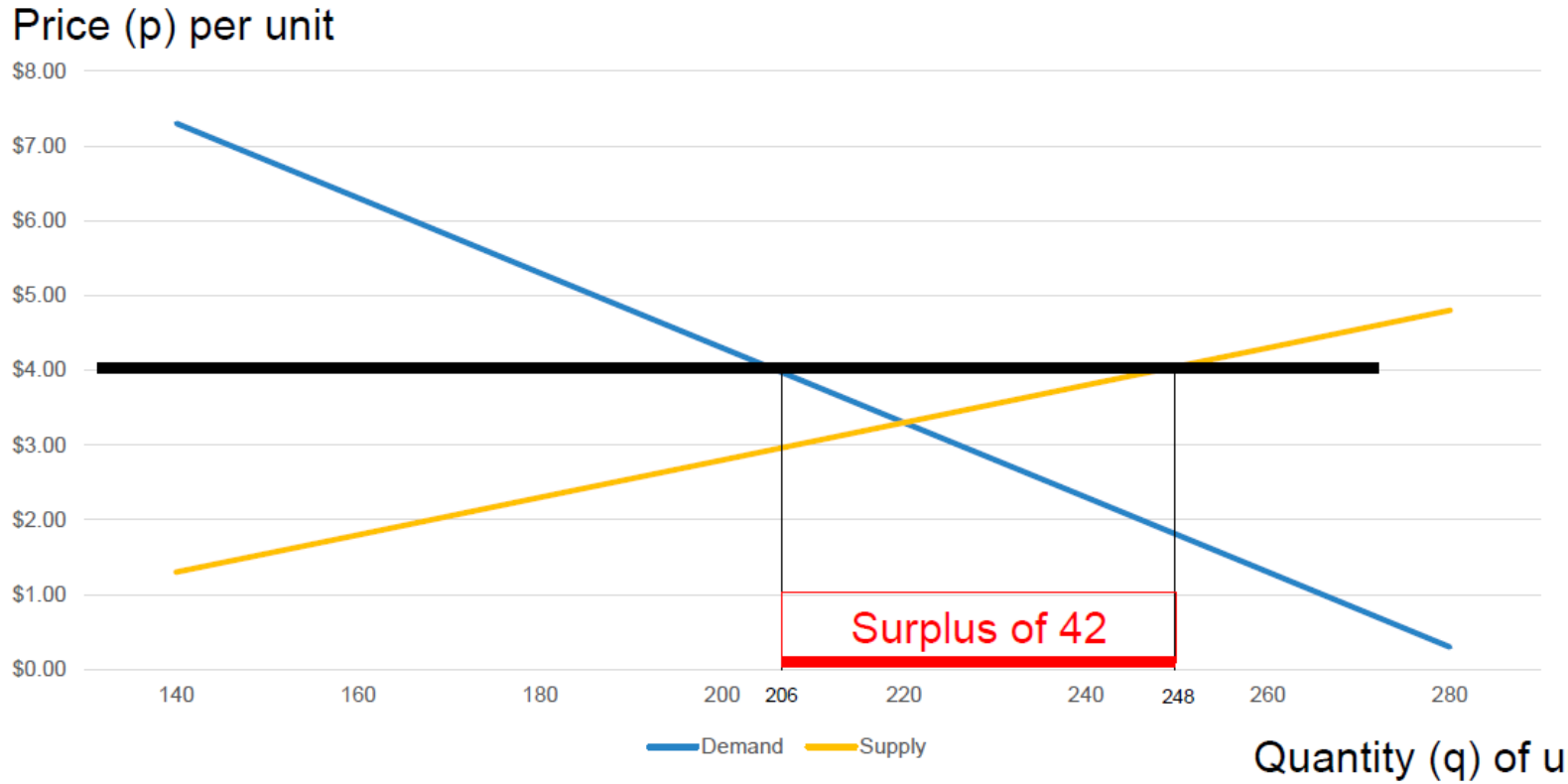
-88 -88 .

198=60*p, multiply both sides by (1/60),

p*=198/60 or $3.30, q*=286-20*$3.30=88+40*$3.30 = 220

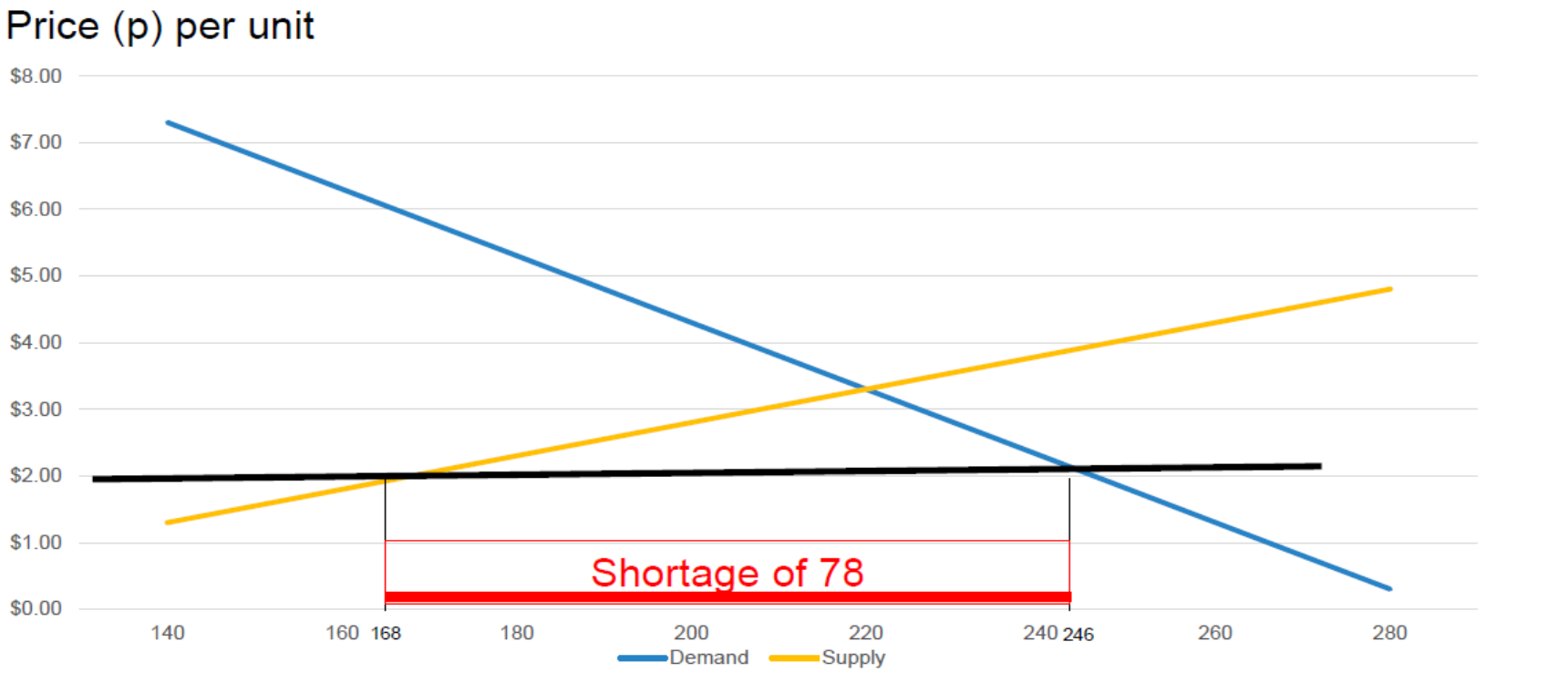
(p*,q*)=($3.30, 220)

Out of equilibrium (price too high)?



At a price of $4.00:
q supplied is 88+40*$4.00 =248,
q demanded is 286-20*$4.00 =206
Surplus of 42

Out of equilibrium (price too low)?



At a price of $2.00:
q supplied is 88+40*$2.00 =168,
q demanded is 286-20*$2.00 =246
Shortage of 78

Markets are self-regulating

- If price is too high, there will be a surplus
- If price is too low, there will be a shortage
- The equilibrium price is the ‘market clearing price’, where the quantity demanded and the quantity sold are equal.
  - No shortage
  - No surplus

What does equilibrium look like?

- Firms not entering or leaving the sector.
- Firms not expanding or contracting production.
- Prices are relatively stable over time.
- No visible surplus
- No visible shortage

What is to be made of the statement “supply = demand”?

By definition, they are equal in equilibrium.

However, this is only in equilibrium.

In our first example, we had the observed price $4, and the corresponding consumer demand of 206. If we see a $4 price, and observe that 206 units were sold, does this tell us supply = demand? No, recall this was a case of excess supply. Quantity supplied > quantity demanded at going market price.

Likewise, when we had $2 and 168 units supplied. This was a case of excess demand. Quantity demanded > quantity supplied at going market price.

In economic terms, (q) supply = (q) demand only at the equilibrium point.

Arriving at the equilibrium is an example of moving along a supply curve and along a demand curve to arrive at a stable point.

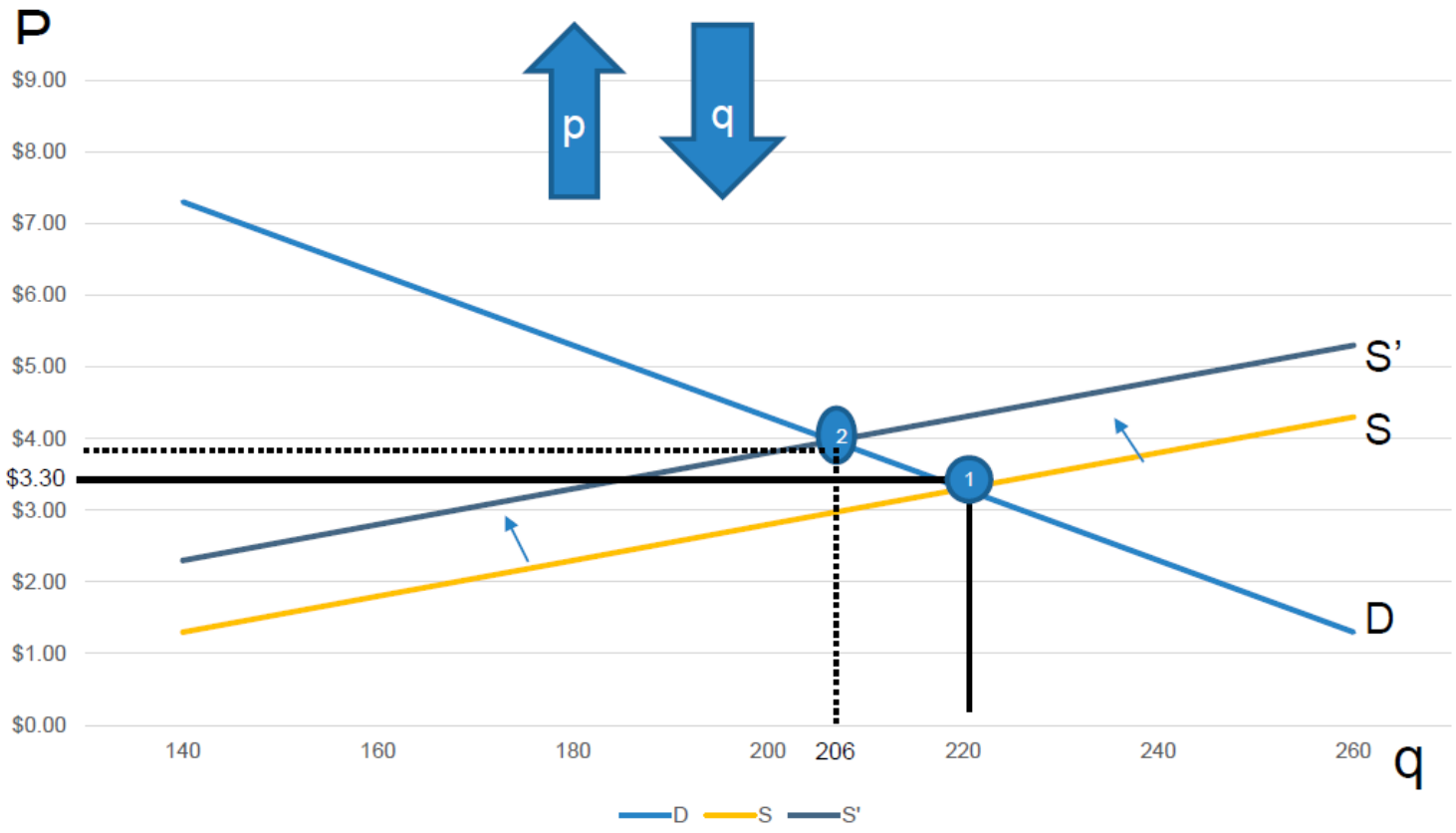
Return to the idea of supply and demand curves shifting as introduced in an earlier lecture.

Now, we want to think about what happens to the market equilibrium when “all else constant” that is in the background experiences a change.

Recall that there are things like prices of complements, prices of inputs, rules and regulations that can lead to shifts in supply or demand curves.

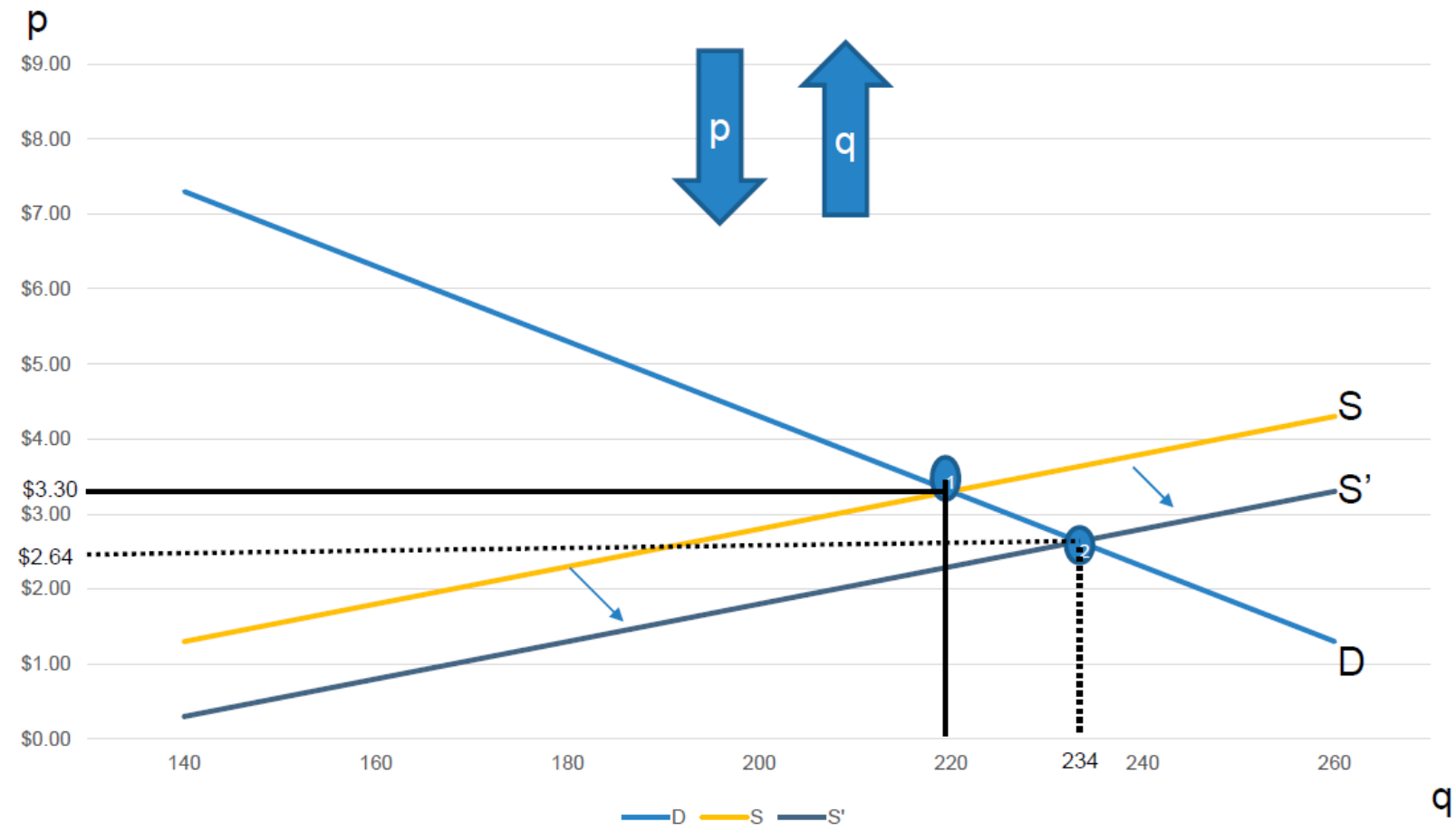
Let us move some supply and demand graphs around

A shift up in supply leads to movement along a demand curve



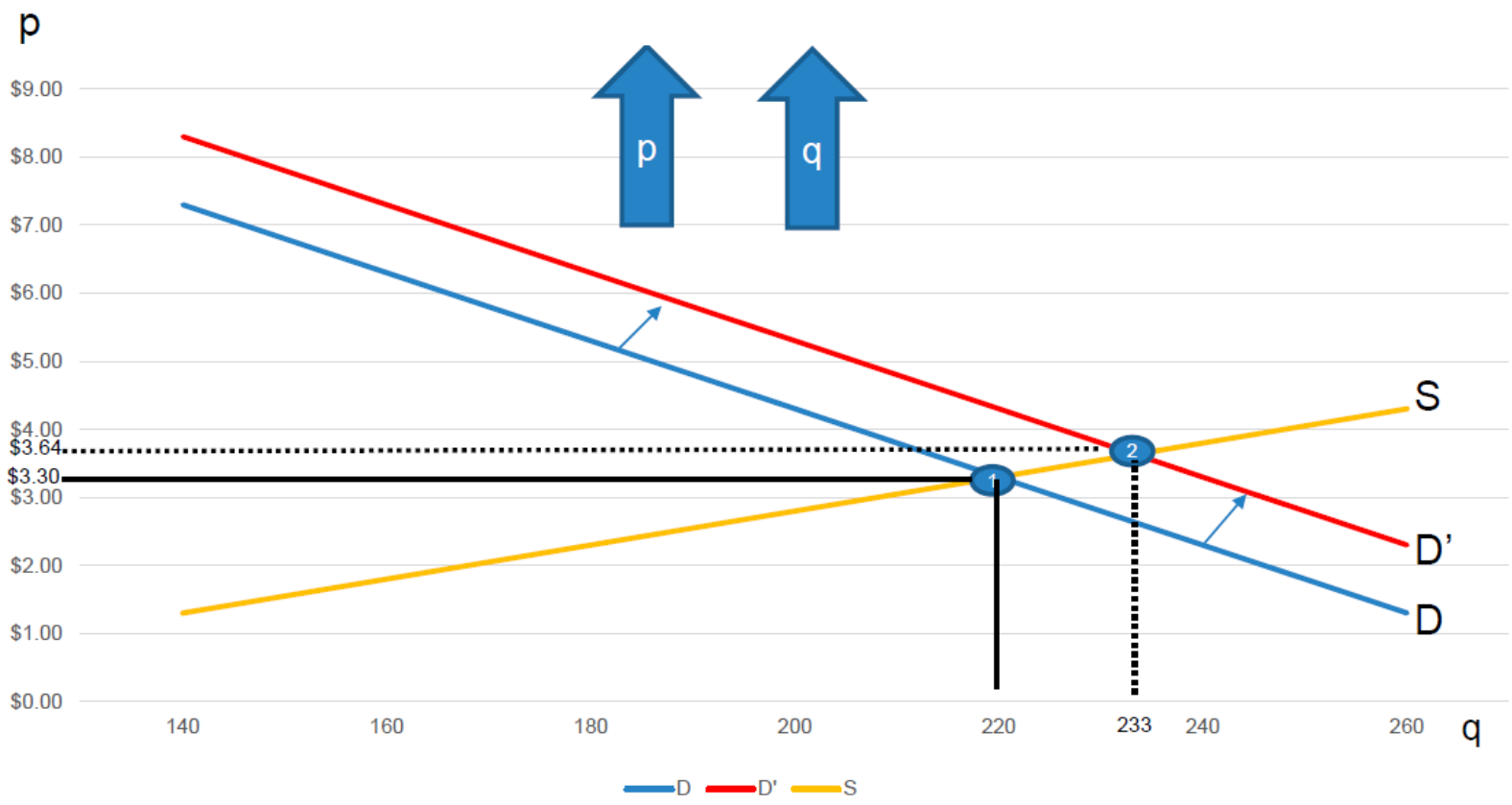
Increase in input costs, more costly to meet regulation

A shift down in supply leads to movement along a demand curve



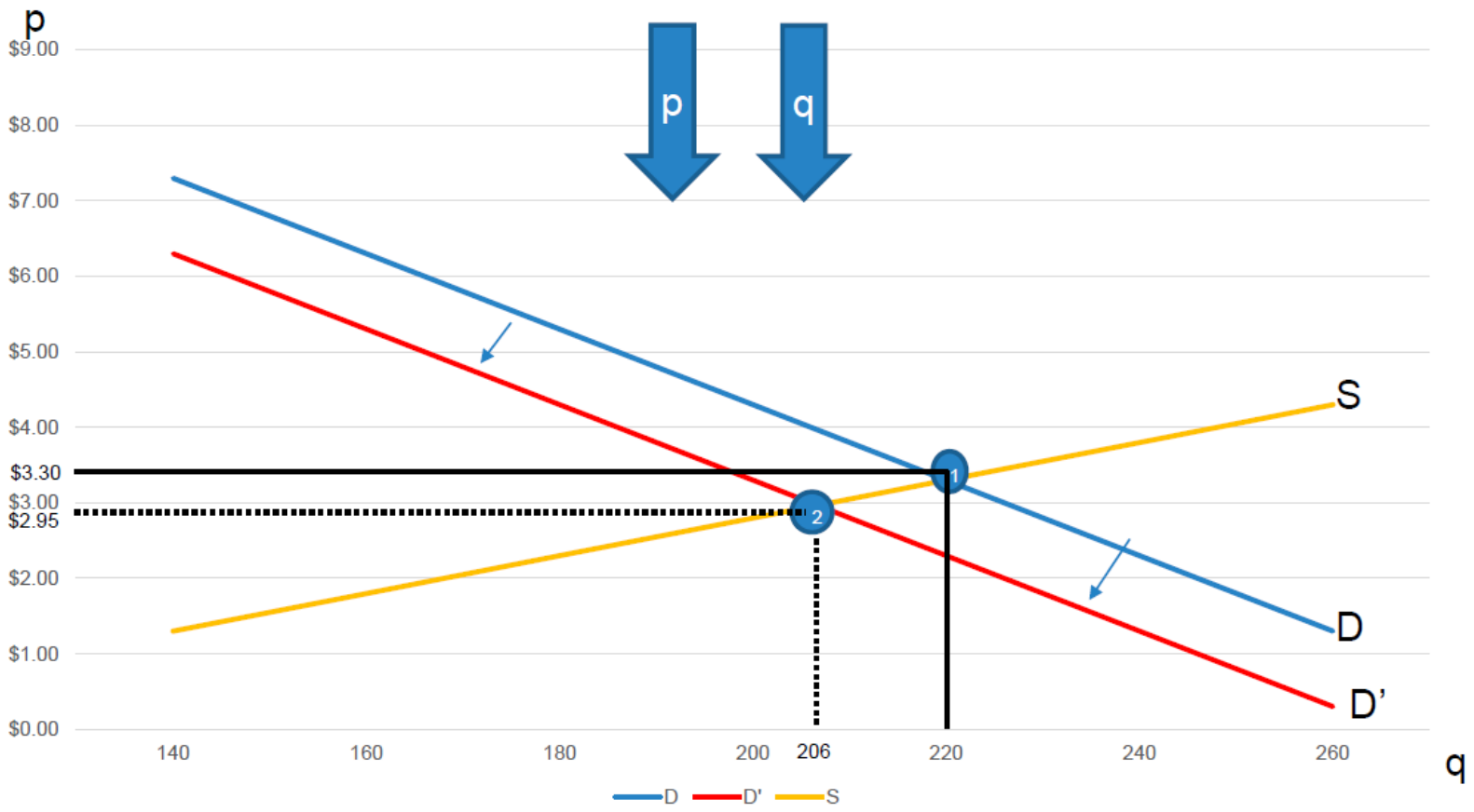
Input cost decrease, regulations less costly to meet, technological progress

A shift up in demand causes movement along a supply curve



Income increase, preference shift, information changes, price of complement decreases, price of a substitute increases, regulations change.

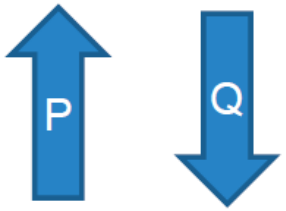
A shift down in demand causes movement along a supply curve



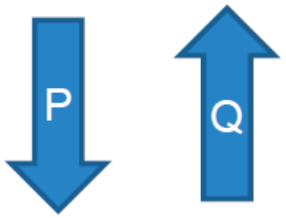
Incomes decrease, preference shift, information changes, price of complement increases, price of substitute decreases, regulations change

There are four possible outcomes

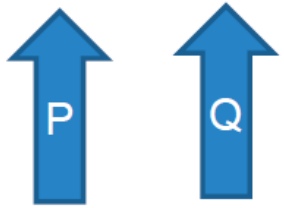
1) Supply shift up,



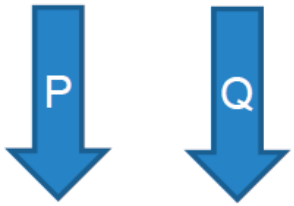
2) Supply shift down



3) Demand shift up

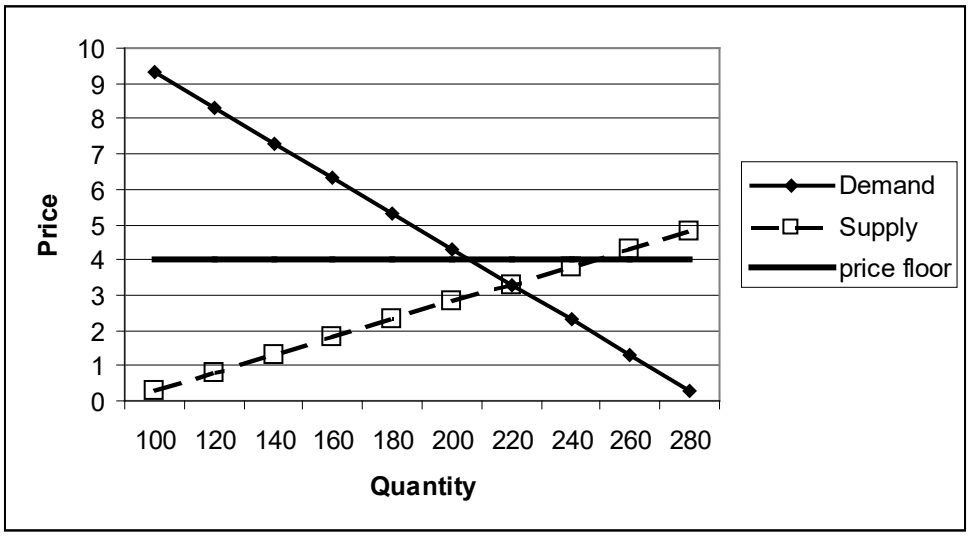


4) Demand shift down



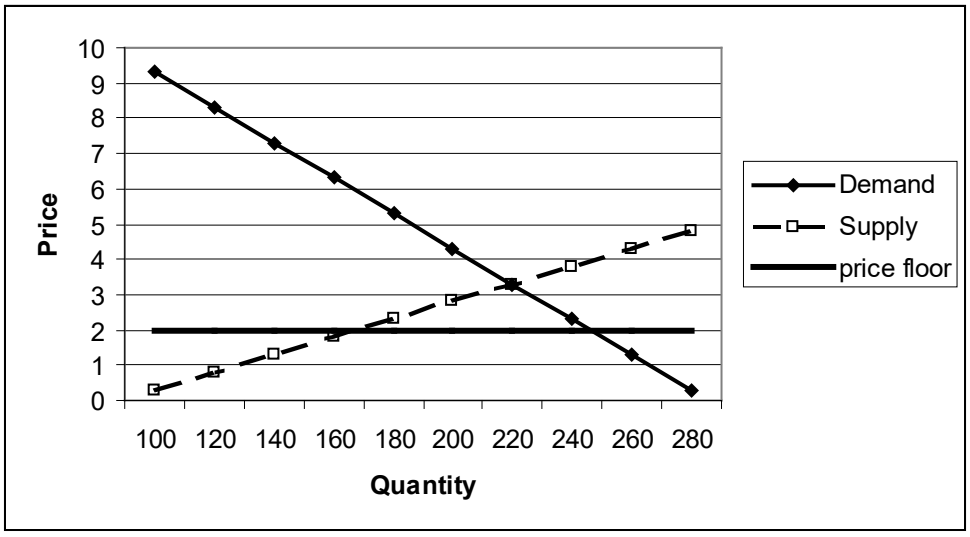
How do policies influence the intersection of supply and demand?

1) Price Floor. There is a minimum price, legally enforced, below which a commodity can not be purchased.



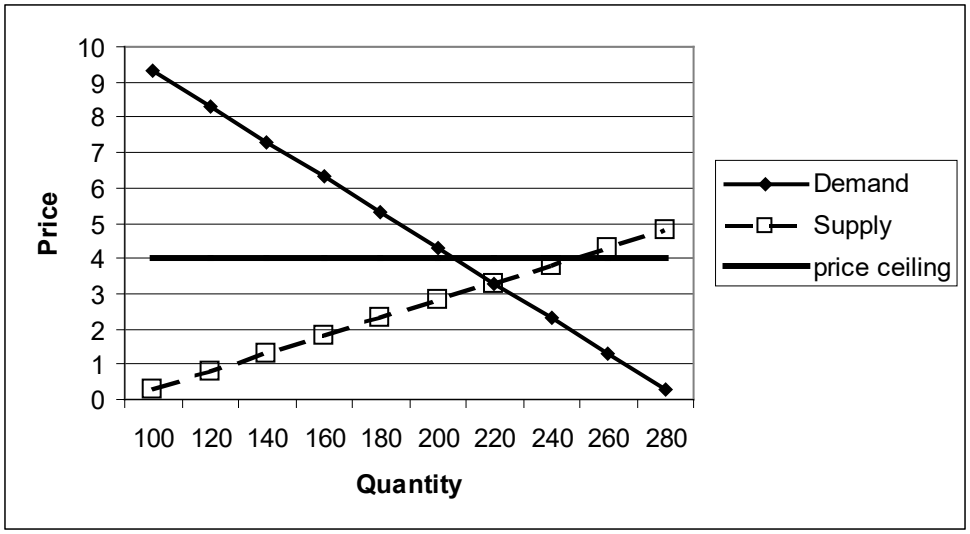
Excess supply – agricultural surplus, unemployment.

What if the price floor is set at $2?



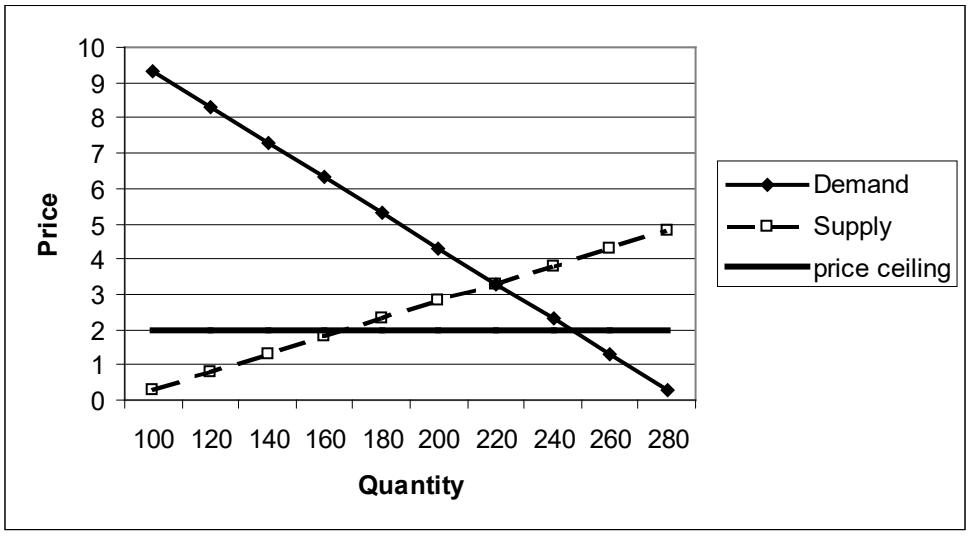
The price floor is non-binding. It is there, but has no effect on the market equilibrium.

2) Price Ceiling. There is a maximum price, legally enforced, above which a commodity can not be sold.



Non-binding.

What if the price ceiling is set at $2?



There is excess demand. Waiting in line, black market exchange.