Market - the place the buyers & sellers make the transactions
- not necessarily a physical place.

Market with perfect competition

Assumptions:

1) Many buyers
2) Many sellers.

} a single individual cannot affect the market price by buying or selling more or less.

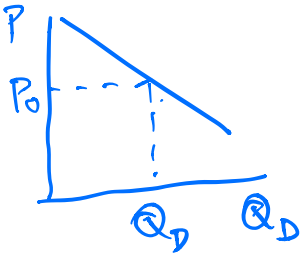
3) Every seller sells the same product. (homogeneous product)

-sellers sell products that can perfectly substitute each other's

4) Every seller has the same technology and access to the same quality and prices of inputs.

5) Given a price P_0, the market Demand and market supply will respond with Q_D & Q_S

If $Q_D > Q_S$, the buyers will offer higher price. ($Q_D < Q_S$)



Excess D = $Q_D - Q_S$

Excess S = $Q_S - Q_D$

If Excess $D > 0 \Rightarrow$ market price increases.
Excess $S > 0$ ⟵ decreases.

Note Excess $D = -$ Excess S.
$\therefore$ when Excess $D = 0 =$ Excess S — there is no pressure on the price to change $\Rightarrow$ Equilibrium

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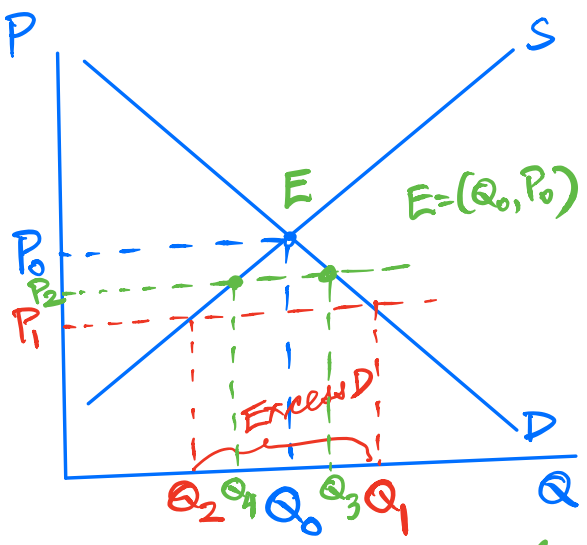
Market Equilibrium. is the point $E(Q_0, P_0)$ where at price P_0 the buyers and sellers are willing and able to buy and sell at the same quantity Q_0



ie. at P_0, $Q_D = Q_S = Q_0$

Excess $D = Q_D - Q_S = 0$
Excess $S = Q_S - Q_D = 0$

} Equilibrium Conditions.

no single buyer or seller can change the equilibrium price. P_0.

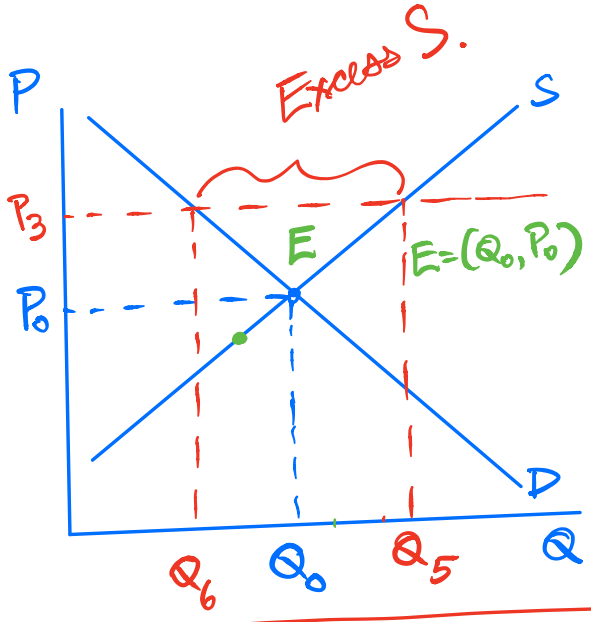
Why does the price have to be at P_0 ?

Because, if the price is not at P_0 — at P_1

At P_1, Excess $D = Q_1 - Q_2 > 0 \Rightarrow$ price increases

If the price increases a little to $P_2 < P_0$
$\Rightarrow$ we still have Excess $D = Q_3 - Q_4 > 0$
so the price cannot stay at P_2. It will keep going up until it reaches P_0 where Excess $D = 0$ (or $Q_D = Q_S$)

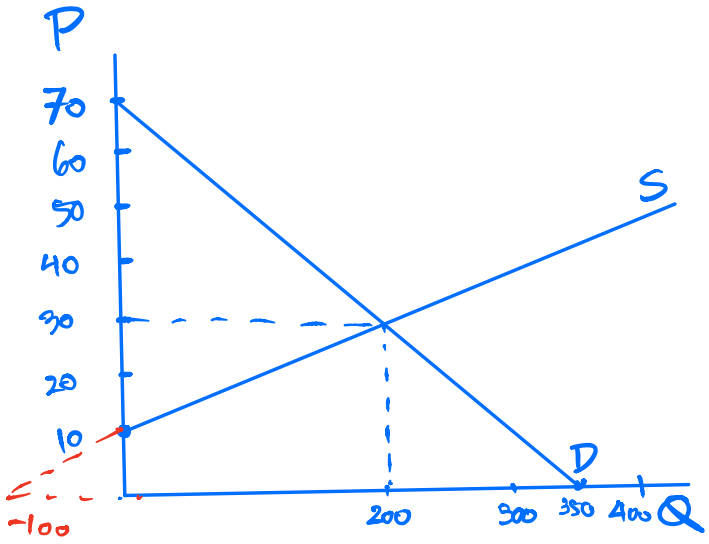
we have Equilibrium condition at (Q_0, P_0)



At P_3, we have
Excess $S = Q_5 - Q_6$

Example. D: $P = 70 - \frac{1}{5}Q_D$
S: $P = 10 + \frac{1}{10}Q_S$.

D: $Q_D = 350 - 5P$
S: $Q_S = -100 + 10P$



Equilibrium will be where the price equates the Q_D & Q_S

$70 - \frac{1}{5}Q_D = 10 + \frac{1}{10}Q_S$, $Q_D = Q_S = Q_0$

$Q_0 = 200$
$P_0 = 30$

D: $P = 70 - \frac{1}{5}(200) = 30$
S: $P = 10 + \frac{1}{10}(200) = 30$

$$Q_D = \boxed{350 - 5P_0 = -100 + 10P_0} = Q_S$$

$P_0 = 30$ } same answer.
$Q_0 = 200$ }

equals

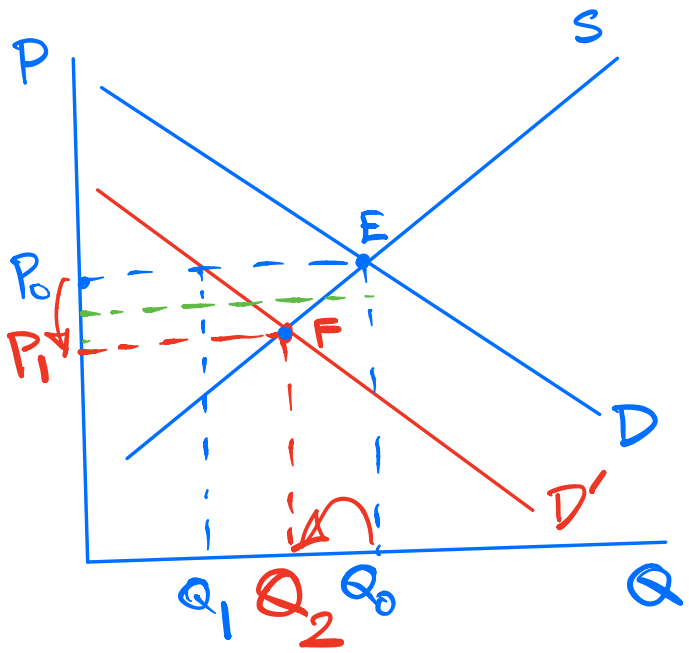
$$70 - \frac{1}{5}\overset{Q_0}{\overbrace{Q_D}} = 10 + \frac{1}{10}\overset{Q_0}{\overbrace{Q_S}},$$

$$60 = \frac{1}{10}Q_0 + \frac{1}{5}Q_0 = \frac{3}{10}Q_0$$

$$Q_0 = \frac{60 \times 10}{3} = 200$$

Change of Market Equilibrium.

Covid-19 causes income to decrease ⇒ Lower D.



Before COVID-19, the equilibrium is at (Q_0, P_0) at point E where we have Eq. cond. $Q_D = Q_S$.

COVID-19 lower the D from D to D'

Then at the original eq. price P_0, we have

Quantity Demanded $= Q_1$

Quantity Supplied $= Q_0$

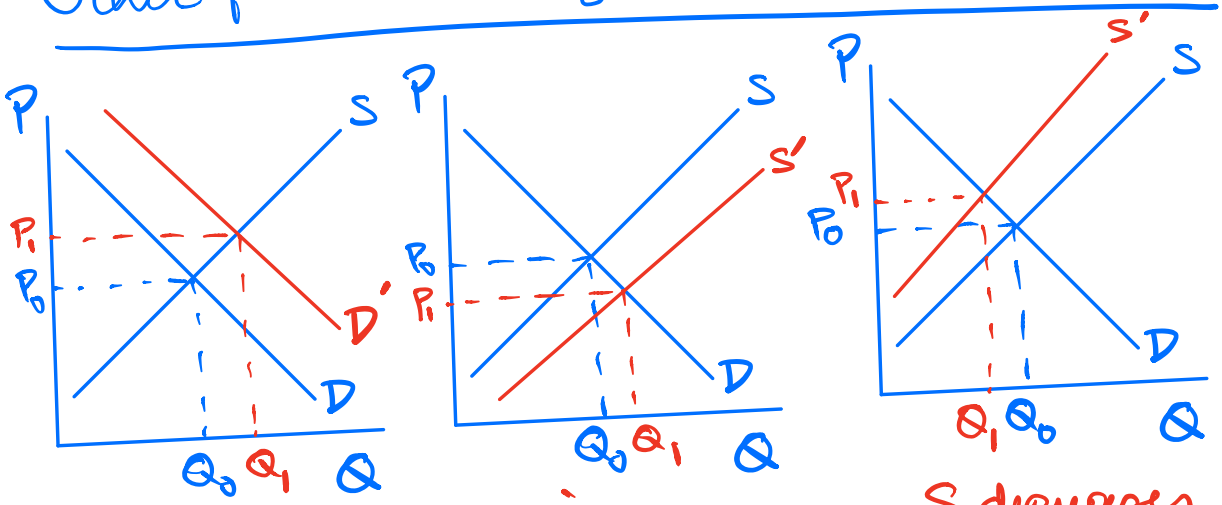
$\therefore$ Excess S $= Q_0 - Q_1 > 0$

This leads to lower price (by Assumption #5 when Excess S ⇒ P↓)

The price will keep decreasing until it is at P_1 where Excess S = 0 because $Q_D = Q_S$. ← we have Eq. condition.

The new eq. point is at $F = (Q_1, P_2)$ { Lower eq. price, Lower eq Q.

Other possible changes in Market Equilibrium.

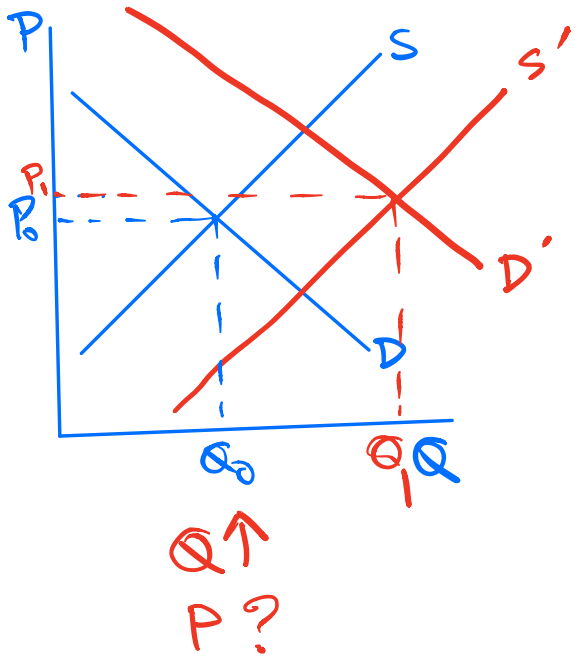


D increases
P↑
Q↑

S increases.
P↓
Q↑

S decreases
P↑
Q↓

When D and S change at the same time



D \ S	Increases	Decreases
Increases	Q↑ P?	
Decreases		