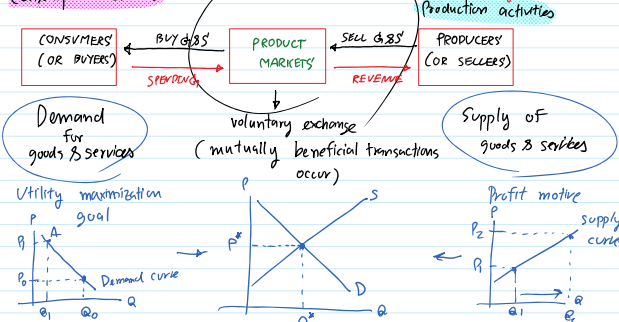


DEMAND, SUPPLY, AND MARKET EQUILIBRIUM

Consumption activities



Demand (Buyers' behavior)

Q₁: What are the factors that buyers take into a/c when they make a purchase decision?

Q₂: IF a factor changes, how does it affect a consumer's demand for a good or service?

Quantity demanded = amount or quantity of a good or service that buyer(s) is (are) willing and able to buy at a given price for a given time period.

Ex: quantity demanded for icecream = 30 scoops / week. ✓

quantity demand for icecream = 30 " " ✗

demand for icecream = 30 " " ✗

Let's talk about market where buyer(s) engage...

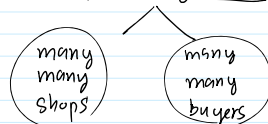
Let's assume that market we are going to observe is perfectly competitive.

- Large number of buyers and sellers ①
 - goods are non-differentiated goods ② (= homogeneous goods)
 - Free entry & Free exit ③
- } → imply that...

buyers are price takers!
sellers are price takers!

they have no control over mkt price
(or they cannot influence mkt price)

Ex: Photo-copy services



$P = 0.50$ baht/page

Consider Mr. Tom, an icecream buyer...

Assume that icecream mkt is... perfectly competitive.

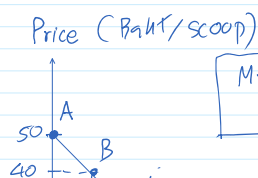
X = icecream

P_X = Price of good X (Icecream) → baht/scoop

Q_X^d = Quantity demanded for good X → #scoops/wk

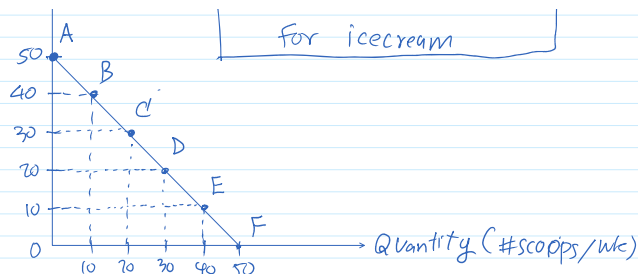
Demand Table (or Demand Schedule)

P_X (Baht/scoop)	Q_X^d (#scoops/wk)
A 50	0
B 40	10



Mr. Tom's demand curve for icecream

A	50	0
B	40	10
C	30	20
D	20	30
E	10	40
F	0	50



Fact #1

When there is no change in weather
no change in his income
no change in Price of other related goods
no change in tastes
no change in - - - -

if $P_x \downarrow$, $Q_x^d \uparrow$
and if $P_x \uparrow$, $Q_x^d \downarrow$

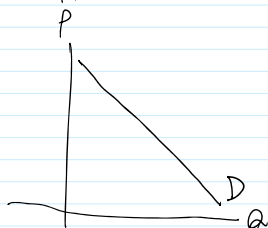
LAW OF DEMAND

When all other factors that may affect Tom's demand for icecream ARE HELD FIXED, if $P_x \downarrow$, $Q_x^d \uparrow$ and if $P_x \uparrow$, $Q_x^d \downarrow$

LAW OF DEMAND (more compact form)

Fact #2

Notice that demand curve is... **downward sloping**.



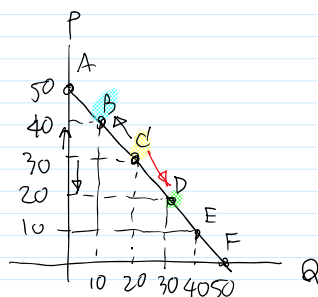
It implies that price of good x and its quantity demanded are **inversely related**:

when $P_x \downarrow$, $Q_x^d \uparrow$
" $P_x \uparrow$, $Q_x^d \downarrow$

Fact #3

When price of good x "changes", we will observe

"a movement along the demand curve" (either upward



downward movement)

IF $P_x = 40$, $Q_x^d = 10$ (point B)
IF $P_x = 30$, $Q_x^d = 20$ (point C)
IF $P_x = 20$, $Q_x^d = 30$ (point D)



or

)



Fact#4 How to derive "a market" demand curve ...

Consider market for ice cream w/ 2 buyers: Tom & Jerry

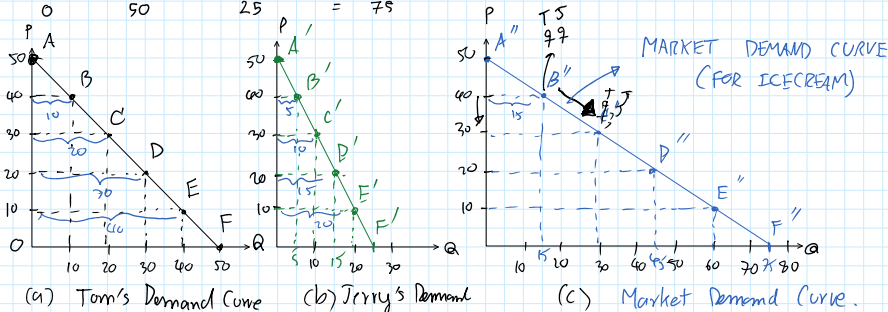
P_x	$Q_{x,TOM}^d$	$Q_{x,JERRY}^d$	Q_x^D	
50	0	0	= 0	
40	10	5	= 15	
30	20	10	= 30	
20	30	15	= 45	
10	40	20	= 60	
0	50	25	= 75	

$x = \text{icecream}$

$Q_{x,TOM}^d = \text{Tom's quantity demanded for icecream}$

$Q_{x,JERRY}^d = \text{Jerry's quantity demanded for icecream}$

$Q_x^D = \text{Market Quantity demanded.}$



(a) Tom's Demand Curve (b) Jerry's Demand Curve (c) Market Demand Curve.

We have got "the mkt demand curve" by ... summing up the two quantities on each price level. ("horizontal summation method")

Fact#5 Demand can shift!!! (How?)

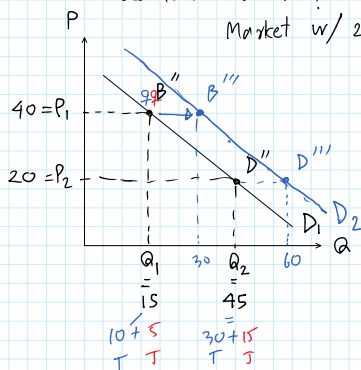
The factors that cause a (market) demand curve to "shift" are so called "Demand Shifters"

Demand Shifters are as follows:

- Change in buyers' income
- Change in price of related goods (Let's say Δ in P_y)
- Change in buyers' taste
- Change in number of buyers in the market
- change in buyers' expectation on price of good x in the future
on their future income

Change in buyers' income

Q: How does a change in buyers' income affect the (market) demand curve?



Market w/ 2 buyers: Tom & Jerry

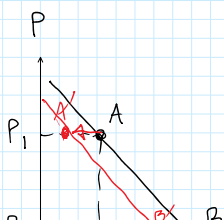
Suppose both of them get richer...

Result... demand curve for icecream will "shift" to the right from D_1 to D_2 , implying that both of them are willing to buy more at any observable price level.

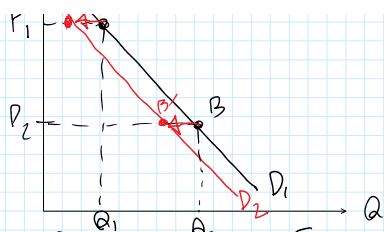
quantity demanded has increased at any observable price level.

Note

When the good is a normal good when income $\uparrow$, buyers and $u \rightarrow r \downarrow, u \rightarrow$



Consider instant noodle which is assumed to be "an inferior good": the good



Demand curve for
instant noodle.
(inferior good)

to be "an inferior good": the good that buyers buy more when they are poorer and buy less when they become richer.

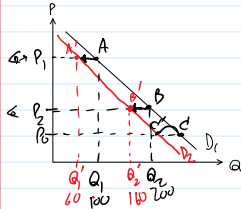
Suppose buyers become richer...

demand curve for an inferior good will shift to the left from D_1 to D_2 , implying that... buyers are less willing to buy the good at any observable price level.

Shifts in Demand (curve): A summary

Changes in Demand
(= Demand Curve shifts)

Decrease in Demand
($\Rightarrow$ Demand curve shifts left)



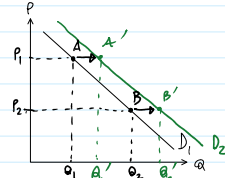
Suppose buyers become poorer...

and the good is a normal good: when $I \uparrow$, $Q_d \uparrow$
when $I \downarrow$, $Q_d \downarrow$

Result? $\rightarrow$ demand curve shifts to left, meaning that buyers are willing to buy **less** at any observable price level.

In other words, quantity demanded **has decreased** at any observable price level.

Increase in Demand
($\Rightarrow$ Demand curve shifts right)

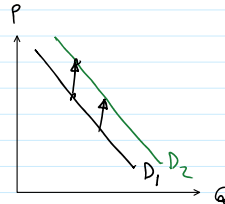
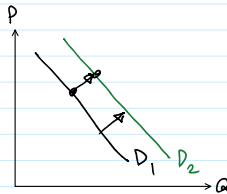
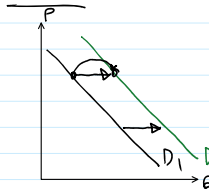


Suppose eating icecream becomes more popular...

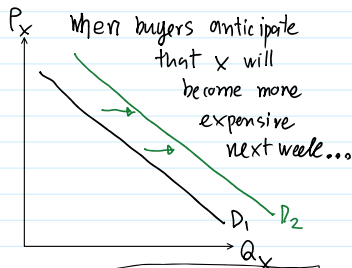
Result? $\rightarrow$ Demand curve shifts to the right from D_1 to D_2 , implying that buyers are willing to buy **more** at any price we observe.

That is, quantity demanded for icecream **has increased** at any observable price level.

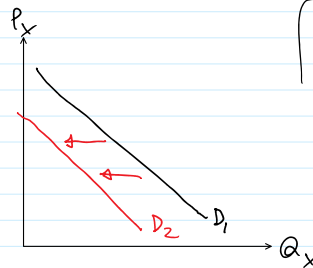
Remark



Quiz

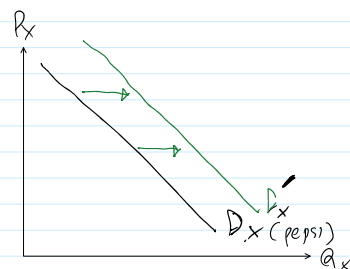


Demand curve shifts to the right



If price of gasoline becomes more expensive, what will happen to the demand for new cars?

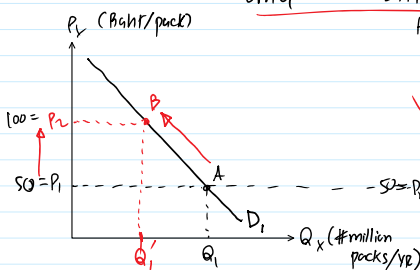
Ans: Demand curve for new cars shifts to the left.



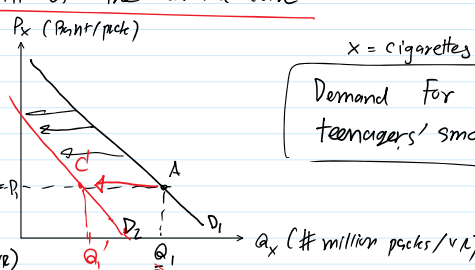
Q: If $P_Y \uparrow$, what will happen to the demand for pepsi?

A: Demand curve for Pepsi would increase, i.e., demand curve shifts rightward from D_X to D'_X .

Distinction between "movement along the demand curve" and "shift of the demand curve"



When P rises from $P_1=50$ to $P_2=100$, quantity demanded will drop



By educational campaign,

When P rises from $P_1 = 50$ to $P_2 = 100$,
quantity demanded will drop
from $Q_1 = 10$ to $Q_1' = 5$ million
packs/yr!

[movement along the
curve from A $\rightarrow$ B]

Q: Why teenagers smoke less?

A: b/c of price increase

↓
responsible factor
in this case

~~When price rises, demand decreases
from Q_1 to Q_1'~~

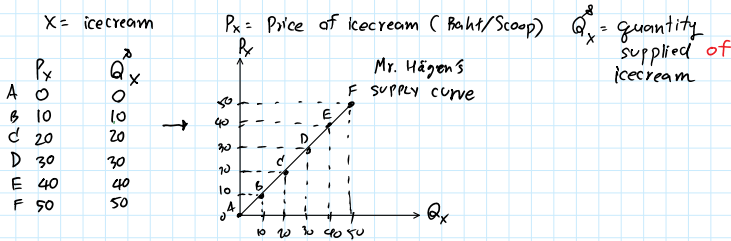
10
By educational campaign,
demand curve would shift
leftward from D_1 to D_2
and Q_1' is also obtained.

SUPPLY (Sellers' Behavior)

Quantity supplied = amount of a good or service seller(s) is (are)

quantity supply willing and able to produce and sell at a given price for a given time period.

Consider an icecream seller, Mr. Hägen.



Fact#1 Law of Supply: Holding all other factors that may affect supply constant, if P_x rises, Q_x^s also rises and if P_x falls, Q_x^s also falls.

Fact#2 Supply curve is upward sloping (from left to right), i.e., P_x and Q_x^s are "positively related."

Fact#3 2 different ways of looking at the supply curve



Horizontal look

Q: If $P = \dots$, what is Q ?

Ex: If $P_x = 10$, $Q_x^s = 10$

If $P_x = 30$, $Q_x^s = 30$



Vertical look (from bottom up)

Q: If $Q = \dots$, what is P ?

Ex: If $Q_x^s = 10$, P must be 10

If $Q_x^s = 30$, P must be 30

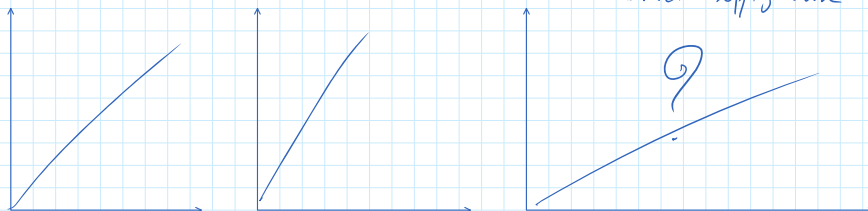
Interpretation: To induce Hägen to bring, let's say, $Q = 10$ to sell, the lowest price he would be willing to accept is 10 baht/scoop.

Fact#4 Where does a market supply curve come from?

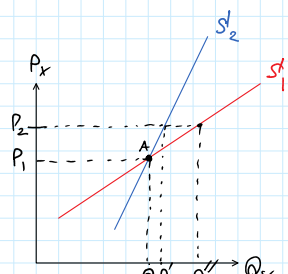
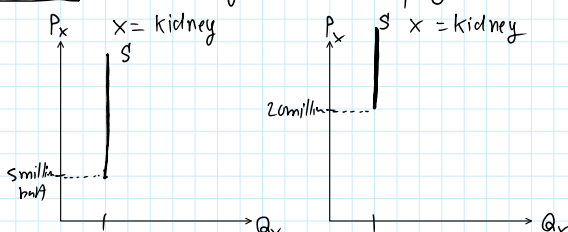
Consider market w/ 2 sellers: Hägen and Daz

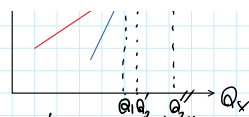
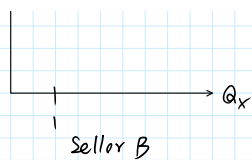
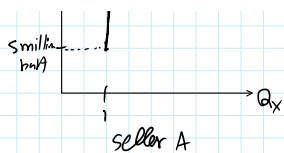
P_x	$Q_{x, \text{Hägen}}^s$		$Q_{x, \text{Daz}}^s$	Q_x^s = Market (or total) quantity supplied of icecream
0	0	+	0	= 0
10	10	+	5	= 15
20	20	+	10	= 30
30	30	+	15	= 45
40	40	+	20	= 60
50	50	+	25	= 75

market supply curve



Fact#5 Variety of supply curves



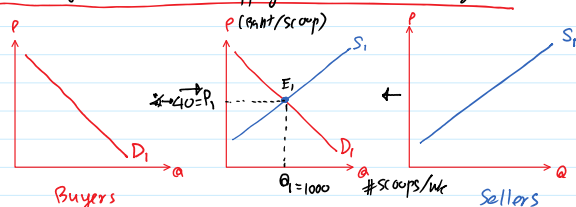


S_1 is relatively flatter than S_2
 (or S_2 is relatively steeper than S_1)
Implication Red seller is more price-sensitive
 than Blue seller.

So, we can say that...

The flatter the supply curve, the higher the seller's price sensitivity.
 The steeper the supply curve, the lower the seller's price sensitivity.

Market Equilibrium: supply and demand together

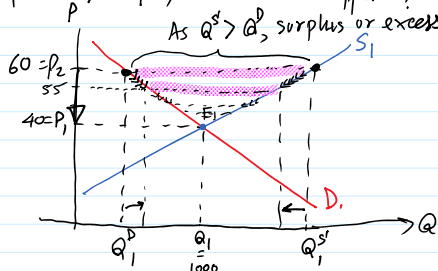


At E_1 , equilibrium price = P_1
equilibrium quantity = Q_1

Fact#1 At price = P_1 , $Q^D = Q^S \rightarrow$ Excess demand = 0
Excess supply = 0

So equilibrium price is the price that equates Q^D and Q^S .

Fact#2 At price $> P_1$, what will happen?



At P_1 , ~~demand = supply = 1000~~
quantity demanded = quantity supplied

At $P_2 = 60$, as $Q^S > Q^D$, surplus occurs...

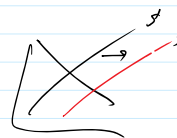
To get rid of unsold quantities, some seller will cut the price to attract more buyers. As P is reducing, quantity demanded will rise and quantity supplied fall, and so excess supply becomes smaller and smaller...

Price continues to fall until excess supply becomes zero which occurs at $P_1 = 40$ (no excess supply)

Price adjustment mechanism in free mkt.

Fact#3 At $P < P_1 = 40$, what will happen?

D - I - Y



Changes in market equilibrium

Basic idea

imagine that if Demand curve or supply curve or both curves shift(s), equilibrium price and equilibrium quantity "may change"

3 cases (1A) Decrease (1B) Increase

① Changes in Demand (i.e., Demand curve shifts)

(2A) Decrease (2B) Increase

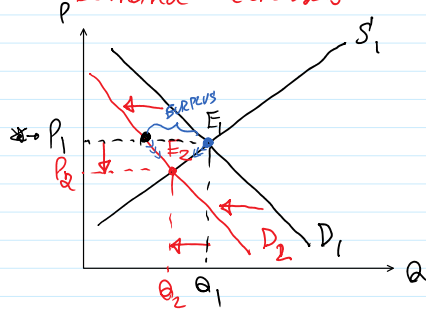
② Changes in Supply (i.e., Supply curve shifts)

③ Changes in Demand & Changes in Supply (i.e., Both demand and supply curves shift)

① Changes in Demand

1A

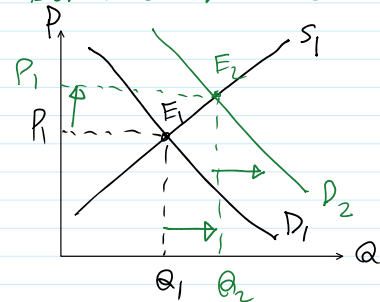
Decrease in Demand
or
Demand decreases



Effect on P : $\downarrow$
Effect on Q : $\downarrow$ (Market becomes less active)

1B

Increase in Demand
or
Demand increases

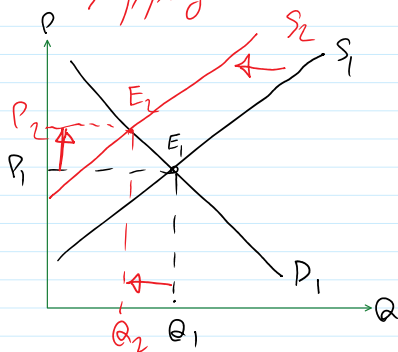


Effect on P : $\uparrow$
Effect on Q : $\uparrow$

② Changes in Supply

2A

Decrease in Supply
or
Supply decreases

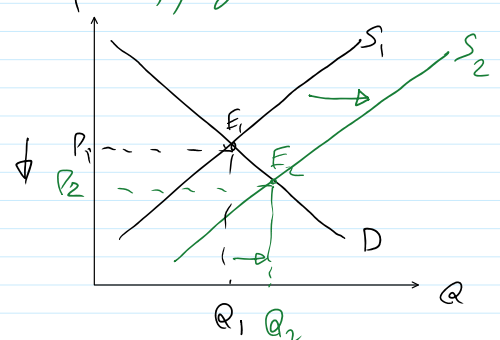


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Effect on P : $P \uparrow$
Effect on Q : $Q \downarrow$

2B

Increase in Supply
or
Supply increases



Effect on P : $P \downarrow$
Effect on Q : $Q \uparrow$

③ Changes in Demand & Changes in Supply

3A

Decrease in Demand & Decrease in Supply

3B

Increase in Demand & Increase in Supply

(39)

Increase in Demand & Increase in Supply

(30)

Decrease in Demand & Increase in Supply

(37)

Increase in Demand & Decrease in Supply.