

Derivation of Demand Curve

Recall.

→ Demand (in economics) → desire/wish/want
 ↓
 fulfilled by purchasing power.

Law of demand → relation between price and quantity demanded
 inverse

max NU is not
 ie $MU_x = \lambda P_x$ — (1)
 $MU_x \propto P_x$

Acc to the law of diminishing MU_x ,
 $MU_x \propto \frac{1}{x}$ — (2)

from (1) and (2): $P_x \propto \frac{1}{x}$
Law of demand.

from the f.o.c of utility maximisation,

$$\frac{\partial U}{\partial x} = \lambda P_x$$

ie $MU_x = \lambda P_x$

and s.o.c for utility maximisation is $\frac{\partial^2 U}{\partial x^2} < 0$

which implies that MU_x curve is
 a straight line and convex from the

diminishing and convex from the origin.

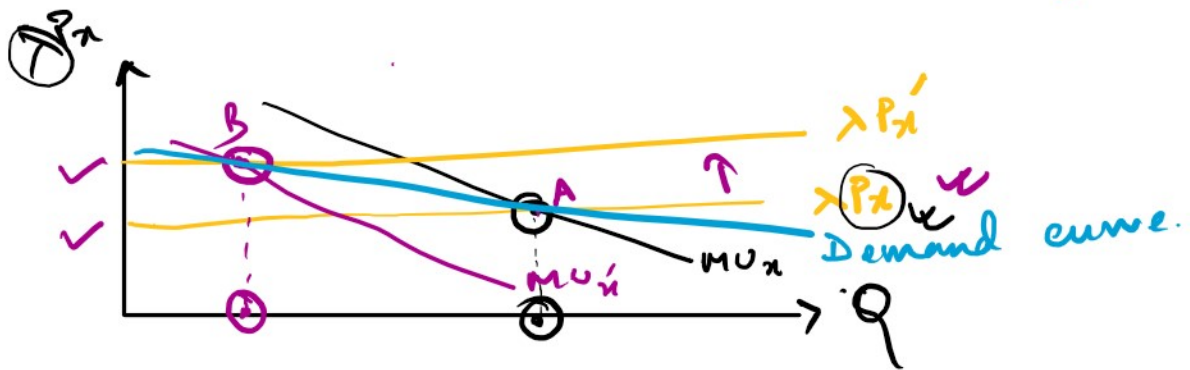
This can be used for derivation of demand curve i.e.,

$$\text{or } \lambda P_x = MU_x$$

if $\lambda = 1 \Rightarrow P_x = MU_x$ (MU_x curve will be the demand curve)

if $\lambda > 1 \Rightarrow \underline{MU_x}$ will be above demand curve.

if $\lambda < 1 \Rightarrow \underline{MU_x}$ will be below demand curve.



Law of equi-marginal utility:

from F.O.C we get $P = \frac{MU}{\lambda}$

Now in case of two commodities x and y

$$(i) \frac{MU_x}{\lambda} = P_x \Rightarrow \lambda = \frac{MU_x}{P_x}$$

$$(ii) MU_y = P_y \Rightarrow \lambda = \frac{MU_y}{P_y}$$

$$(ii) \frac{MU_y}{P_y} = P_y \rightarrow \lambda = \frac{MU_y}{P_y}$$

from (i) and (ii) $\lambda = \frac{MU_x}{P_x} = \frac{MU_y}{P_y}$

This means that the consumer gets same amount of extra utility by spending one unit of money on both x and y.

This is called Marshallian law of equi marginal utility.

Law of Demand: (All factors remaining constant),
ceteris paribus

when only price of the commodity increases, quantity demanded will decrease and vice versa.

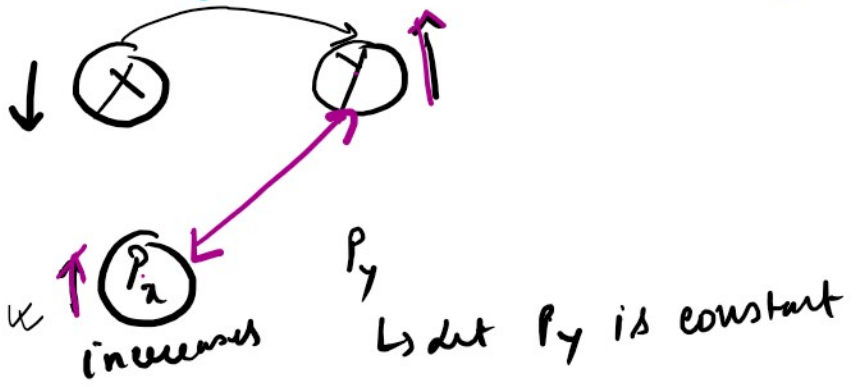
This negative relation between Price and quantity demanded is the Law of Demand.

Factors affecting demand

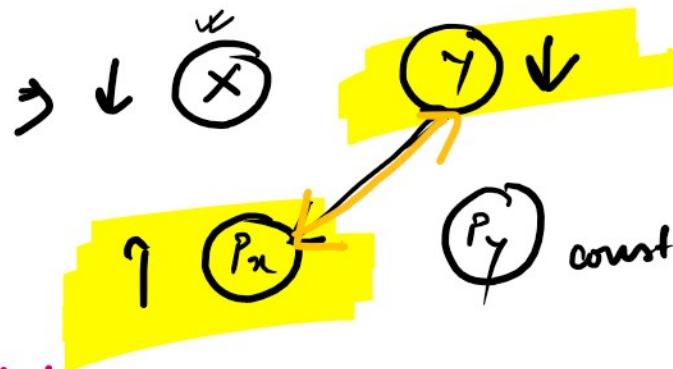
(1) Price of commodity (P_x)

- ① Price of commodity (P_x)
- ② Money / Income of consumer (M)
- ③ Price of related goods $\begin{cases} \text{Substitute Goods (+)} \\ \text{Complimentary Goods (-ve)} \end{cases}$

Substitute goods price of substitute good (P_c) is positively related to demand for other good (say Y).



complement good

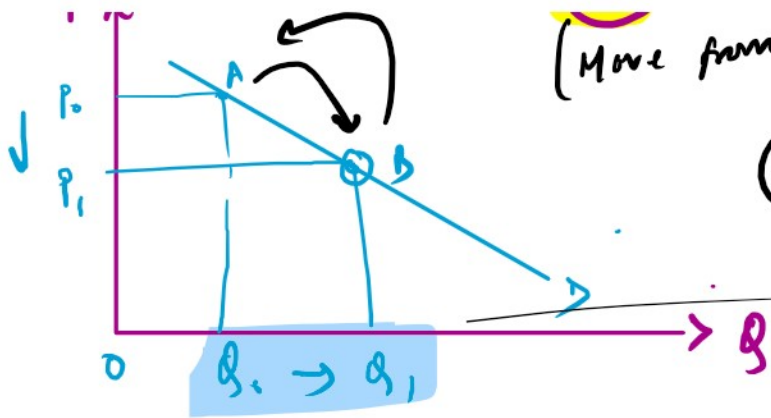


price of complimentary good (P_c) is negatively related to demand for other good (say Y).

- ④ Expectations regarding future price
- ⑤ Taste and Preference
- ⑥ Number of purchasers / buyers



Price is changing (all other factors const)
(Move from A to B along the same demand curve)



(Move from A to B) along the same demand curve)

No shift in demand
(This is called change in

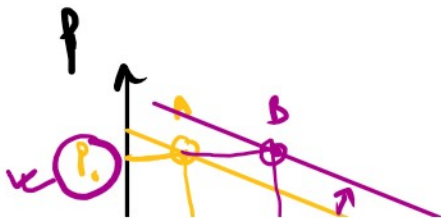
QUANTITY Demand.)

When will the demand curve shift?

- ↳ ① Price is constant with other factors
- ② only one of the other factors will change with **constant price** of commodity
- ③ This is called change in demand
- ④ **increase** in demand → **right shift** or **expansion** of demand.
- ⑤ **decrease** in demand → **left shift** or **contraction** of demand.

Suppose initially income of the consumer is M_0 . The buyers purchases Q_0 at price P_0 .

Now price remaining constant, if consumer's income increases to M_1 , then the demand increases to Q_1 .



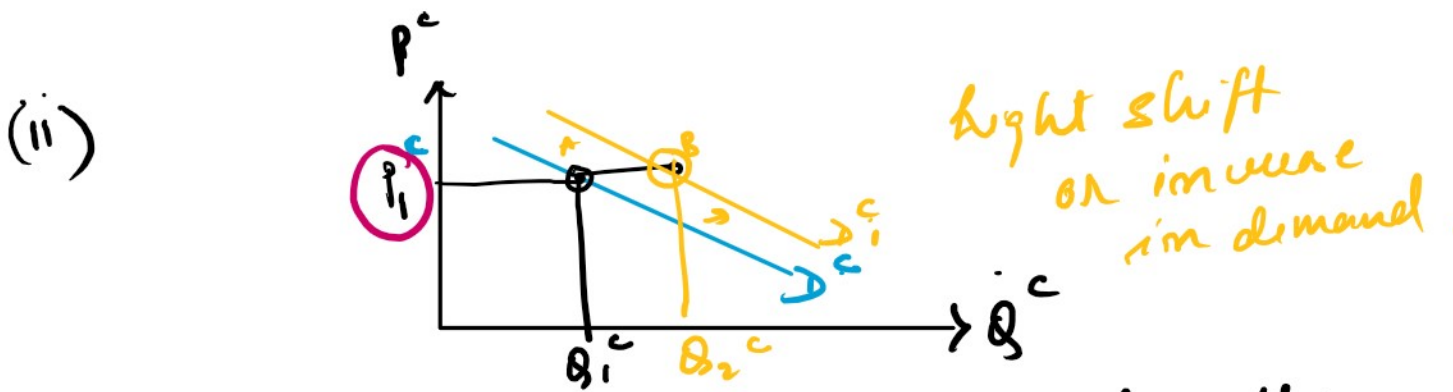
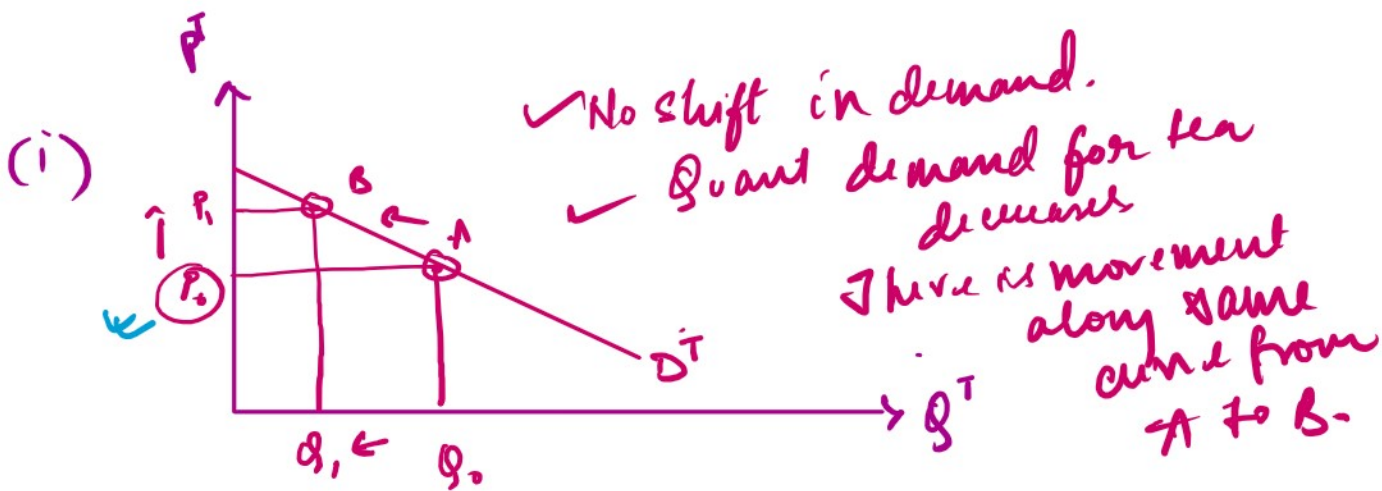
→ increase/expansion of demand.



Ex:

Suppose there are two commodities tea and coffee. If the price of tea increases, keeping all other factors constant,

- (i) what will happen to demand for tea?
- (ii) what will happen to demand for coffee?



(*) Difference between movement along the dem and curve and shift in demand curve.

dem and cur. and cur. curve.

OR

Difference between increase in quantity demanded and increase in demand.

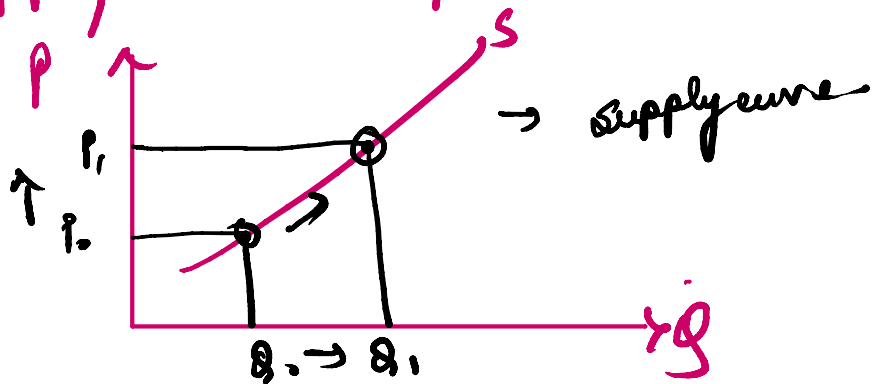
Law of Supply:

↳ All other factors remaining constant, if price of a commodity increases, then quantity supplied for that commodity will also increase.

This positive relation between price charged and quantity supplied is called the

Law of Supply.

∴ Supply curve is upward sloping.



Topics: { 1. Shift in Supply
2. Exception of Law of Demand
3. Market Equilibrium. }

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