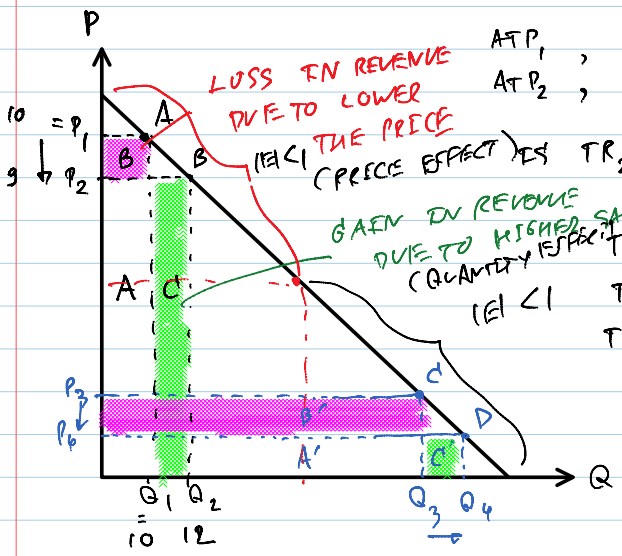
Wednesday, September 19, 2012
9:56 AM

19.09.2012

ELASTICITY AND TOTAL REVENUE



AT P_1, $TR_1 = P_1 \times Q_1$
AT P_2, $TR_2 = P_2 \times Q_2$

IS TR_2 BIGGER THAN TR_1 ?

$TR_1 = A + B$
$TR_2 = A + C'$
$TR_2 - TR_1 = (A + C') - (A + B)$
$= A + C' - A - B$
$= C' - B > 0$ ☺
(TR INCREASES)

AT P_3, $TR_3 = P_3 \times Q_3$ (= AREA $A' + B'$)
AT P_4, $TR_4 = P_4 \times Q_4$ (= AREA $A' + C'$)

$TR_4 - TR_3 = (A' + C') - (A' + B')$
$= A' + C' - A' - B'$
$= C' - B' < 0$ ☹
(SINCE $C' < B'$.)

C' ↑ GAIN
B' ↑ LOSS

LESSON

① WHEN DEMAND IS PRICE-ELASTIC ($|E| > 1$),

PRICE REDUCTION STRATEGY LEADS TO AN INCREASE IN REVENUE ☺ (SINCE Q.E. (AREA C') > P.E. (AREA B))

② WHEN DEMAND IS PRICE-INELASTIC ($|E| < 1$),

PRICE REDUCTION STRATEGY LEADS TO A DECREASE IN REVENUE. ☹ (SINCE Q.E. < P.E. AND THAT'S WHY REVENUE FALLS!)

DIY:
- THINK ABOUT WHEN P ↑ FROM P_2 TO P_1 (MOVEMENT FROM B TO A)
- THINK ABOUT WHEN P ↓ FROM P_4 TO P_3 (MOVEMENT FROM D TO C)

NUMERICAL EXAMPLE

DEMAND EQUATION

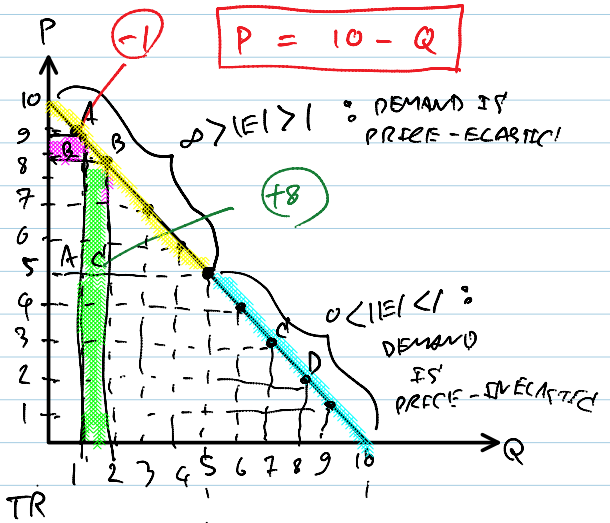
NUMERICAL EXAMPLE

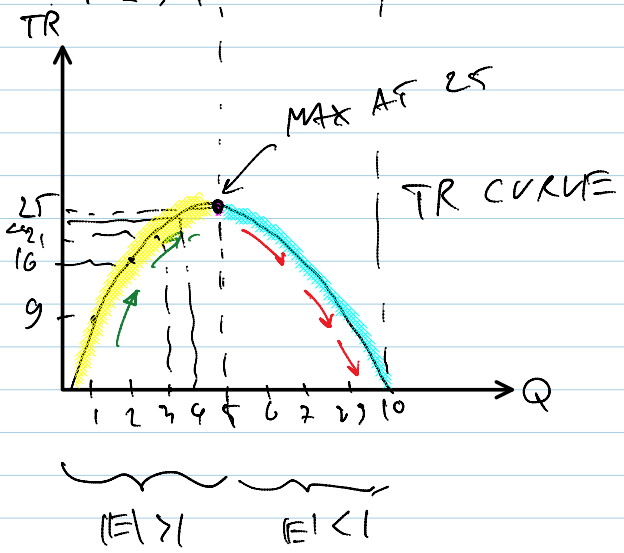
	P	Q	TR (= P×Q)
|E|<1	0	10	10
	1	9	9
	2	8	16
	3	7	21
	4	6	24
	5	5	25
|E|>1	6	4	24
	7	3	21
	8	2	16
	9	1	9
	10	0	0

(+8), (−1), (+7)

DEMAND EQUATION

$P = 10 - Q$





INCOME ELASTICITY OF DEMAND

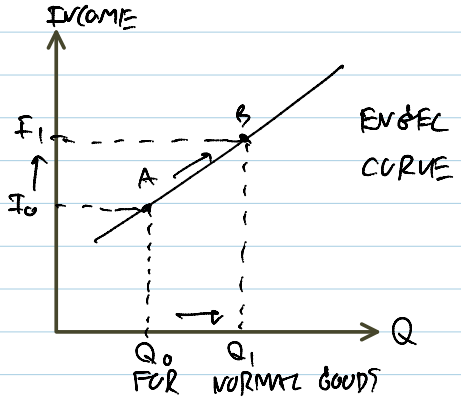
$$E^I = \frac{\%\,\Delta Q}{\%\,\Delta I}$$

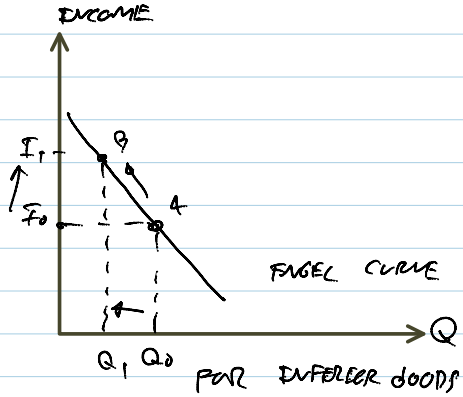
$\%\,\Delta Q$ ⇒ PERCENTAGE CHANGE IN QUANTITY DEMAND

$\%\,\Delta I$ ⇒ PERCENTAGE CHANGE IN INCOME

FOR NORMAL GOODS : E^I IS POSITIVE ($E^I > 0$)

FOR INFERIOR GOODS : E^I IS NEGATIVE ($E^I < 0$)





CROSS-PRICE ELASTICITY OF DEMAND

$$E^d = \frac{\%\,\Delta Q^D_x}{\%\,\Delta P_y}$$

$\Rightarrow$ PERCENTAGE CHANGE IN Q^D_x

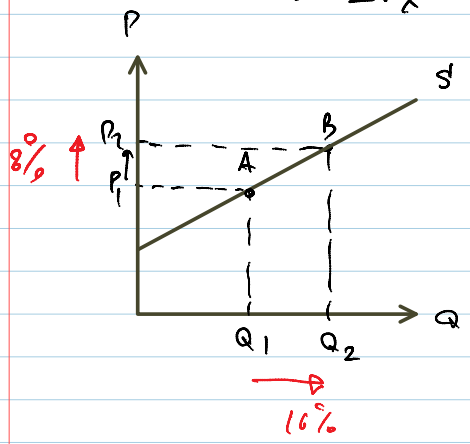
$\Rightarrow$ PERCENTAGE CHANGE IN P_y

IF THE TWO GOODS ARE SUBSTITUTES (RIVAL PRODUCTS), $E^d > 0$.

IF THE TWO GOODS ARE COMPLEMENTS, $E^d < 0$.

PRICE ELASTICITY OF SUPPLY

$$E^S = \frac{\%\,\Delta Q^S_x}{\%\,\Delta P_x} \quad (\text{ALWAYS} \geq 0)$$

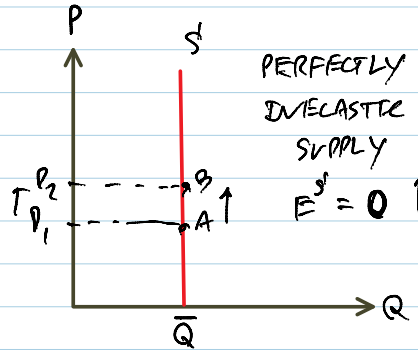


$$E^S = \frac{\%\,\Delta Q}{\%\,\Delta P} = \frac{16\%}{8\%} = 2.0$$

IF PRICE RISES BY 10%, THE QUANTITY SUPPLIED WILL RISE BY MORE THAN 10%, HERE IS 20%.

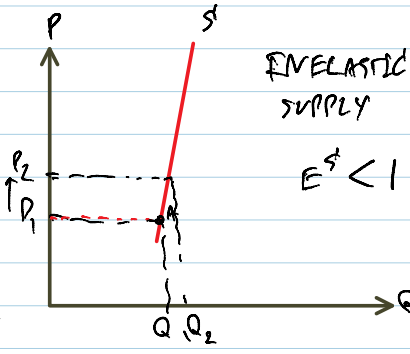
NOTICE THAT $E^S > 1$.

$\Rightarrow$ SUPPLY IS PRICE-ELASTIC.



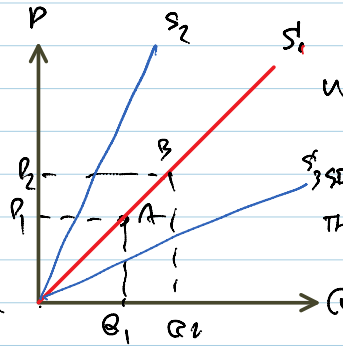
PERFECTLY INELASTIC SUPPLY

$E^S = 0$



INELASTIC SUPPLY

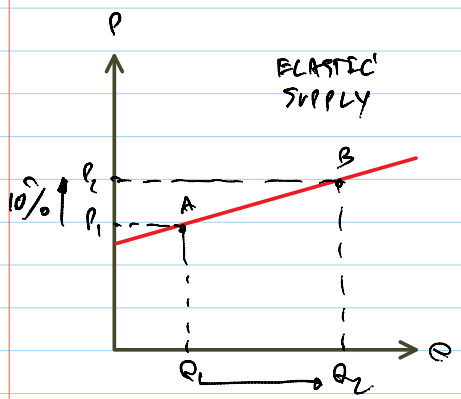
$E^S < 1$

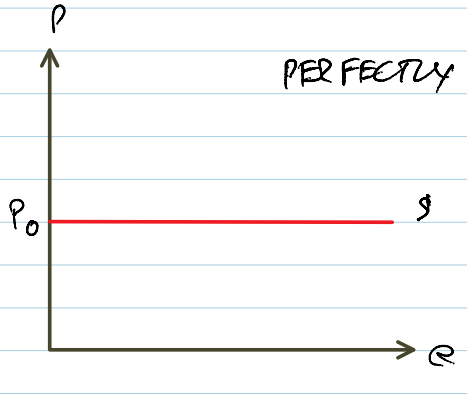


UNIT-ELASTIC SUPPLY

SINCE $\%\,\Delta Q = \%\,\Delta P$

THEN $E^S = 1$



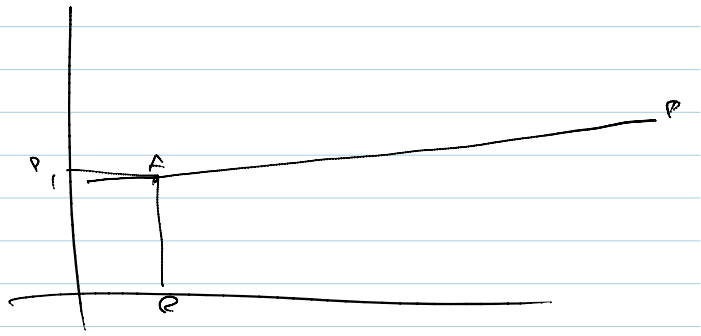


PERFECTLY ELASTIC SUPPLY

$$E^S = \frac{\text{any }\%}{0\%} = \infty \quad \text{(INFINITY)}$$

$E^S = \frac{30\%}{10\%} = 3$ $(\%\Delta Q > \%\Delta P)$

$E^S > 1$



Q: WHAT FACTORS DETERMINE E^S?

A: ① AVAILABILITY OF INPUTS

② TIME : E^S IN THE LONG RUN > E^S IN THE SHORT RUN

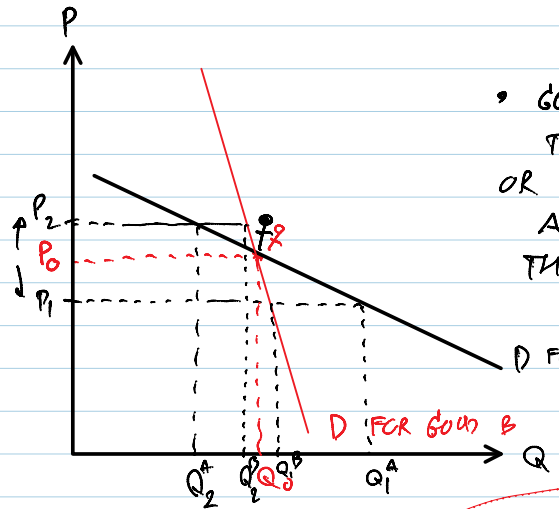
SELLERS HAVE MORE TIME TO ADJUST THEIR PRODUCTION IN RESPONSE TO PRICE CHANGE.

(READ MORE IN KW)

B/F WE LEAVE THIS CHAPTER, HERE ARE SOME REMARKS...

① THE STEEPER THE DEMAND CURVE, THE LOWER PRICE ELASTICITY OF DEMAND

OR THE FLATTER THE DEMAND CURVE, THE HIGHER PRICE ELASTICITY OF DEMAND.



• GOOD A IS MORE PRICE-SENSITIVE THAN GOOD A

OR CONSUMERS IN MARKET FOR A ARE MORE SENSITIVE TO THE PRICE CHANGE THAN CONSUMERS IN MARKET FOR GOOD B

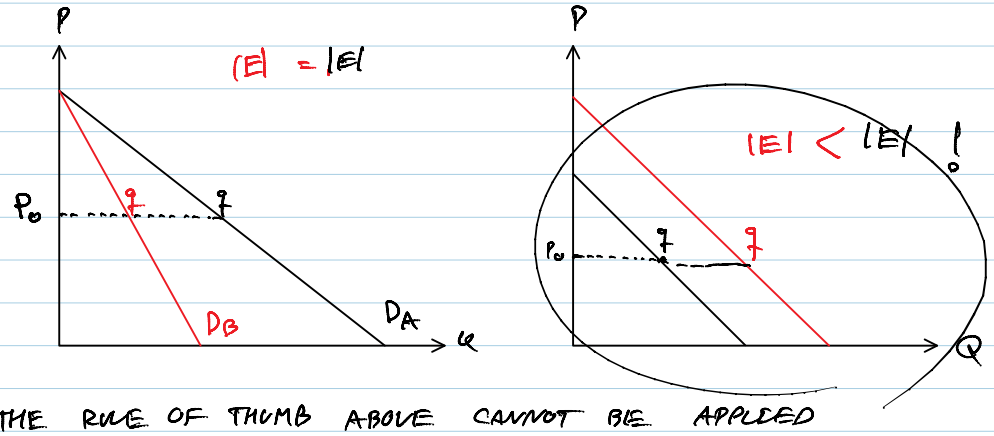
$|E| = \frac{1}{\text{SLOPE}} \cdot \frac{P_0}{Q_0}$ Vs. $|E| = \frac{1}{\text{SLOPE}} \cdot \frac{P_0}{Q_0}$ =

$|E| = \frac{1}{\text{SLOPE}} \cdot \left(\frac{P_0}{Q_0}\right)$ Vs. $|E| = \frac{1}{\text{SLOPE}} \cdot \left(\frac{P_0}{Q_0}\right)$

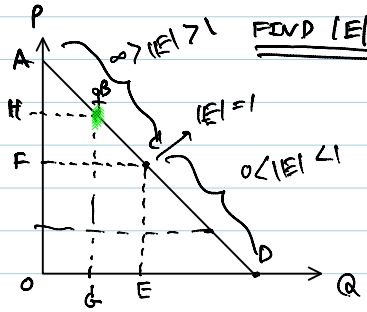
SINCE WE EVALUATE AT THE SAME P AND SAME Q AND

SLOPE OF D_B > SLOPE OF D_A

THEN ..... $|E|$ > $|E|$



THE RULE OF THUMB ABOVE CANNOT BE APPLIED HERE B/C HERE, WE EVALUATE AT SAME P BUT DIFFERENT Q !



FIND |E| AT B :

$|E| = \frac{1}{\text{SLOPE}} \cdot \frac{P}{Q}$

$= \frac{1}{\frac{AH}{BH}} \cdot \frac{OH}{OG}$

$= \frac{BH}{AH} \cdot \frac{OH}{OG}$

$= \frac{OH}{AH}$ $\left(\frac{\text{INSIDE LEGHT}}{\text{OUTSIDE LENGHT}}\right)$

|E| AT POINT B > 1

SINCE OH > AH