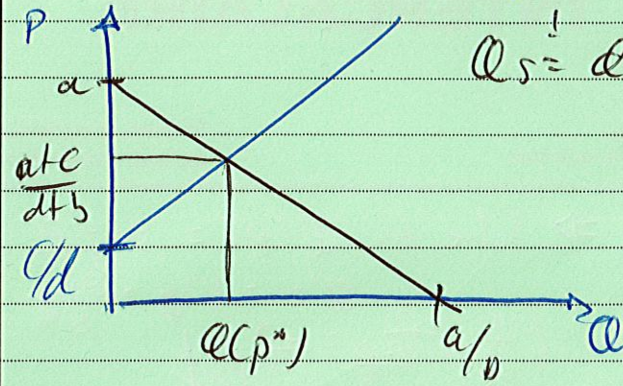
P7

$Q_D = a - bp$ $\quad Q_S = dp - c \stackrel{!}{=} 0 \Rightarrow p = c/d$



$Q_S \stackrel{!}{=} Q_d \Rightarrow a - bp = dp - c$

$a + c = dp + bp$

$\Rightarrow p^* = \frac{a+c}{d+b}$

Adding the tax

$P_{Bought} - P_{Sold} = \tau$

Two Points of View:

$\Rightarrow$ ① $P_B = \tau + P_S$ $\quad$ ② $P_S = P_B - \tau$

$Q_D(P_B) = a - bP_B$

$Q_D = a - b\tau - bP_S$

$Q_D = a_2 - bP_S$

$a_2 = a - b\tau$

$Q_S = dP_S - c$

$Q_d \stackrel{!}{=} Q_S$

$\boxed{P_S^* = \frac{a_2 + c}{d+b} = \frac{a - b\tau + c}{d+b}} < p^*$

$Q_S(P_S) = d(P_B - \tau) - c$

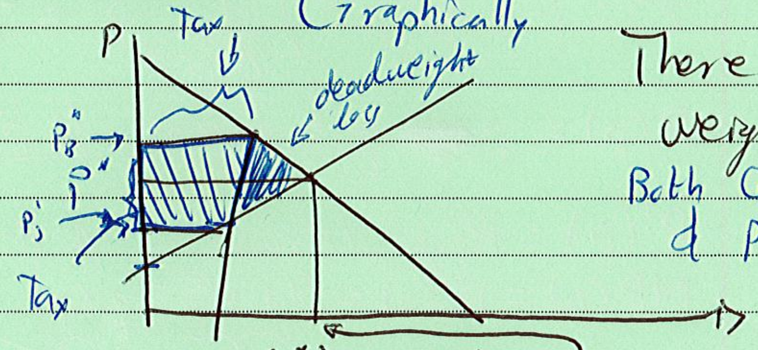
$Q_S(P_S) = dP_B - c_2, \quad c_2 = c + d\tau$

$Q_S \stackrel{!}{=} Q_D \Rightarrow dP_B - c_2 = a - bP_B$

$P_B = \frac{a + c_2}{d+b}$

$\boxed{P_B^* = \frac{a + c + d\tau}{d+b}} > p^*$

Graphically

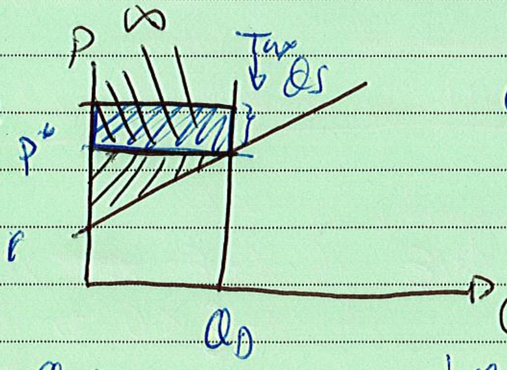


$q^*(P_B^*) = q(P_S^*) < q^*(p^*)$ $\quad$ Q

There is deadweight loss

Both Consumers & Producers Bear the tax!

Zusulin



$Q_S = dp - c = Q_d = Q_{ins}$

$p^* = \frac{c + Q_{ins}}{d}$

Note that $Q_D'(p) = 0 \Rightarrow \varepsilon_p^Q = 0$ demand is completely inelastic!

Tax $\Rightarrow$ $Q_S(p + \tau) = dp + d\tau - c \stackrel{!}{=} Q_d = Q_{ins}$

$\Rightarrow p_2^* = \frac{Q_{ins} + d\tau + c}{d} > p^*$

The consumer ~~comple~~ completely bears the tax. The opposite is true in the other exercise, with Q_S fixed.

DIPLÔME : Ps 3

Composition de :

INTERCALAIRE

Université Lille1 Sciences et Technologies

N° PLACE ← INDIQUEZ VOTRE N° de place (en cas de perte, seul indice de recherche)

Si votre composition comporte plusieurs feuilles, numérotez-les : .... / ....

P 6

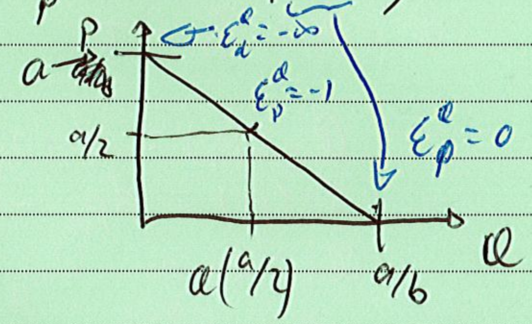
w.r.t. = "with respect to"

$P(q) = a - bq \Rightarrow$ Solve for $Q(p) = \frac{a-p}{b} = a^* - b^* p$, $\quad Q' = -b^* = \frac{-1}{b}$, $\quad a^* = a/b$, $b^* = 1/b$

$\varepsilon_p^Q \equiv \frac{dQ}{dp}\frac{p}{Q} = \underbrace{\left(-\frac{1}{b}\right)}_{Q'(p)} \frac{p}{\frac{a-p}{b}} = \frac{-p}{a-p}$

↑ "by definition"

$\varepsilon_p^Q \overset{!}{=} 0 \Rightarrow p = 0$, $\quad \varepsilon_p^Q = -1 = -p/a-p \Rightarrow p = a-p$, $p = \frac{a}{2}$



$\lim_{p \to a^+} \frac{-p}{a-p} = -\infty \Rightarrow \varepsilon_p^Q = -\infty$ at a, from the right

$p(q) = \frac{1}{A} q^{1/\varepsilon} \Rightarrow Q(p) = A p^{-\varepsilon}$

$\varepsilon_p^Q \equiv Q'(p) P/Q = \frac{Q'(p)\,p}{A p^{-\varepsilon}}$ $\quad Q'(p) = (-\epsilon) A p^{-(1+\epsilon)}$

↑ "by definition"

$\varepsilon_p^Q = (-\epsilon A \cancel{p^{-1}} \cancel{p^{-\epsilon}}) \frac{1}{A \cancel{p^{-\epsilon}}} \cancel{p} = -\epsilon$

$R(p) = p\,q = p\,q(p) = A p^{1-\epsilon}$

$R'(p) =$ Marginal Revenue $= A(1-\epsilon)p^{-\epsilon} = (1-\epsilon)A p^{-\epsilon}$

$MR(p) = R'(p) = [1 + \varepsilon_p^Q]\, q(p)$ → always positive

Recall $\varepsilon_p^Q = f(p)$

So marginal revenue is ~~mentioned~~ related to the elasticity of demand w.r.t. price! → It tells the fisherman what happens if he increases his price

The key parameter is $-\epsilon$:

if $1 + \varepsilon = 0 > 0 \Rightarrow R'(p) \Rightarrow$ He should increase price

if $1 - \varepsilon < 0 \Rightarrow R'(p) < 0$ he should decrease price

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