APPLICATIONS ON PC MARKET AND ON MONOPOLY

- EFFECT OF A LUMP-SUM TAX ON AC AND MC

SUPPOSE GOVT. IMPOSES A LUMP-SUM TAX = 10,000 BAHT.

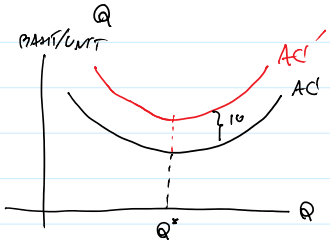
WHAT WILL HAPPEN TO AC AND MC?

$TC = FC + VC$ → $TC' = FC + VC +$ LUMP-SUM TAX

$AC = \frac{TC}{Q}$ → $AC' = \frac{TC'}{Q} = \frac{(FC + VC + \text{LUMP-SUM TAX})}{Q}$

$= \frac{TC}{Q} + \frac{\text{LUMP-SUM TAX}}{Q}$

$$AC' = AC + \frac{10{,}000}{Q}$$



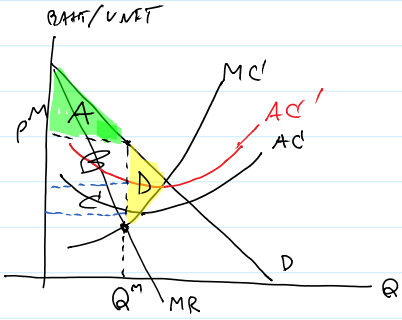
AC' SHIFTS VERTICALLY UPWARD BY THE SIZE OF $\frac{\text{LUMP-SUM TAX}}{Q}$ OR $\frac{T}{Q}$

EX: IF Q = 1000 UNITS PRODUCED

$\frac{T}{Q} = \frac{10{,}000}{1000} = 10$

(UNIT COST RISES BY 10 BAHT/UNIT FOR ANY Q YOU WANT TO PRODUCE)

APPLY THIS KNOWLEDGE TO "MONOPOLY"



LUMP-SUM TAX ON MONOPOLY

FINDINGS

Q → NO CHANGE (AS MC NOT AFFECTED)

P → ↑

CS → ↓

DWL → ↑

MONOPOLY PROFITS → DECREASE (B/F: B+C ; A/F: B)

EFFECT OF LUMP-SUM TAX ON MC'.

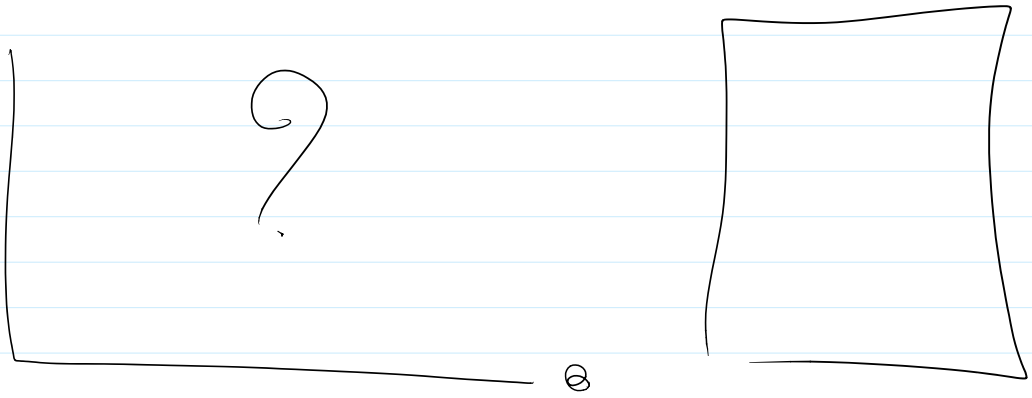
$MC' = \frac{dTC'}{dQ} = \frac{d(FC + VC + T)}{dQ}$ (T = LUMP-SUM TAX)

$= \frac{dFC}{dQ} + \frac{dVC}{dQ} + \frac{dT}{dQ}$ (dFC/dQ = 0, dT/dQ = 0)

$MC' = \frac{dVC}{dQ} = MC$

MC IS NOT AFFECTED BY A LUMP-SUM TAX B/C LUMP-SUM TAX HAS NOTHING TO DO W/ VC!

DIY → MONOPOLY W/ LUMP SUM SUBSIDY



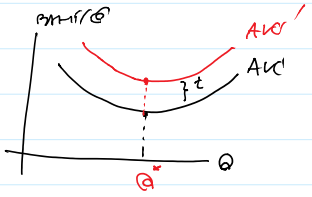
- EFFECT OF A UNIT TAX OR TAX PER UNIT OF OUTPUT ON AC & MC.

$AVC = \frac{VC}{Q}$ → $AVC' = \frac{VC'}{Q} = \frac{(VC + 10 \cdot Q)}{Q}$

$= \frac{VC'}{Q} + \frac{10Q}{Q}$

$AVC' = AVC + 10$

$t = 10$ UNIT/@



AVC' WILL SHIFT UPWARD W/ THE VERTICAL DISTANCE = 10

$MC = \frac{dTC}{dQ} = \frac{dVC}{dQ}$ → $MC' = \frac{d(VC')}{dQ}$

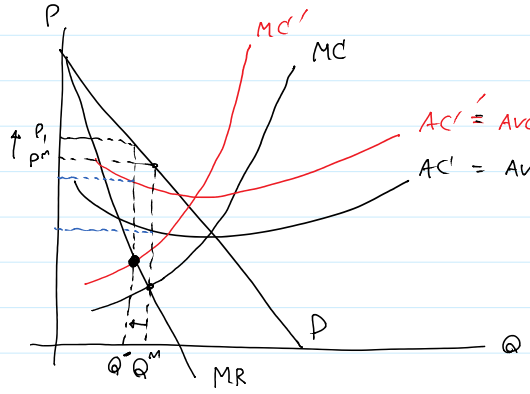
$= \frac{d(VC + 10 \cdot Q)}{dQ}$

$= \frac{dVC}{dQ} + \frac{d\,10 \cdot Q}{dQ}$

$MC' = MC + 10$

MC' SHIFTS UPWARD VERTICALLY W/ THE VERTICAL GAP OF 10

APPLY THIS KNOWLEDGE W/ MONOPOLY ...



B/F A UNIT TAX: $P = P^M$, $Q = Q^M$

A/F: Q ↓ (AS MC SHIFTS UP)

P ↑ (u ——— m)

CS ↓

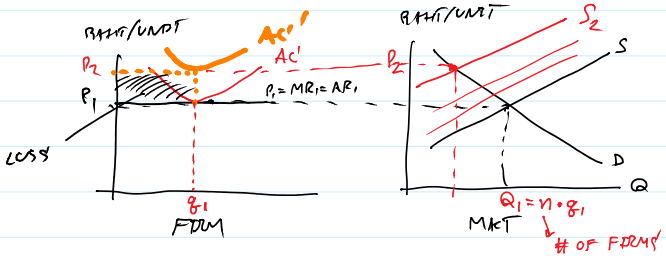
π^M ↓

DWL ↑ (AS P ↑ & Q ↓)

D-I-Y : WHAT HAPPEN TO A COMPETITIVE FIRM IN THE SHORT RUN & IN THE LONG RUN

CASE (1) GOVT IMPOSES A LUMP-SUM TAX (FIXED AMOUNT OF T BAHT)

CASE (2) GOVT IMPOSES A UNIT TAX (t BAHT PER UNIT)



SOME FIRMS

LOSS → EXIT → SUPPLY CURVE SHIFTS LEFT

↓

$P \uparrow, Q \downarrow$

THE EXIT ENDS WHEN ALL EXISTING FIRMS EARN ZERO PROFIT.

B/F TAX : FIRM PRODUCES $q = q_1$ AND GET $P = P_1$. EXCESS PROFIT = 0 [AS $P = AC$]