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HW#11, Due May 6, 2021 Analyze the case the firm receives subsidy for the following two different cases to find out how the firm's quantity and profit change.

- a) The government gives a lump sum subsidy of 20,000 bahts to each firm.
- b) Suppose that the firm was producing 1,000 units and the government gives a subsidy of 20 bahts/unit so the total subsidy is also 20,000 bahts if the firm does not change its production of 1,000 units. Do you think, to maximize its profit with the subsidy of 20 bahts/unit, the firm will increase/decrease its production from 1,000 units? Does the firm receive higher profit? Does the firm receive more/less subsidy than 20,000 bahts?

a.) Gov. provide lump sum subsidy 20,000 ₹

$$TC = FC + VC : TC_2 = (FC - 20,000) + VC$$

$$TC_2 = FC_2 + 1000$$

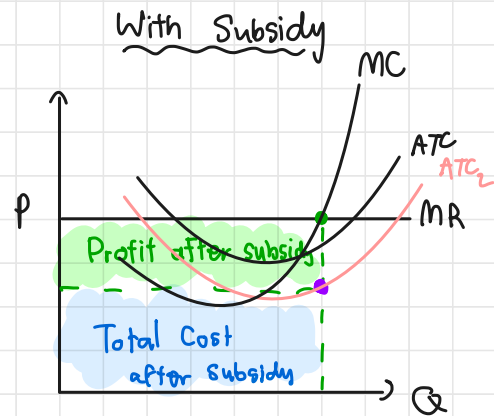
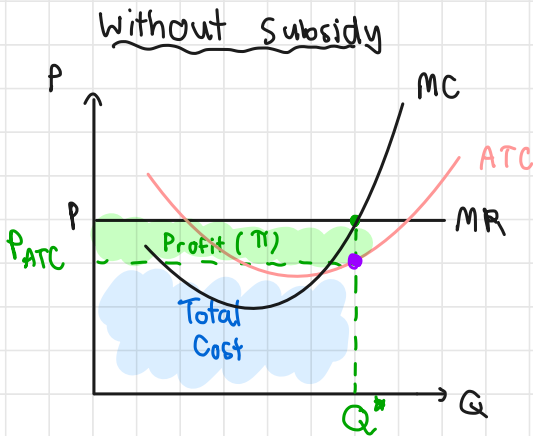
$$ATC_2 = AFC_2 + AVC$$

* since VC not change : MC not change

$$FC \downarrow \Rightarrow AFC \downarrow$$

VC not change $\rightarrow$ AVC not change
MC not change

$$TC \downarrow \Rightarrow ATC \downarrow$$



NOTE : profit maximise
when $MC = MR$
total revenue = $P \times Q$
total cost = $ATC \times Q$

as MC doesn't change
so max π remain the
same with subsidy so TC
decrease and have more
profit.

Ans. firm will not change its production since receiving lump sum subsidy

$\therefore \bar{P} = \bar{MC}$ so Q not change

but $ATC \downarrow$ and profit $\uparrow : TR - TC \downarrow$

; total revenue remain the same and
total cost decrease.

b.) Gov. give subsidy 20\$ / unit, producing 1000 units - 20,000\$

$$TC = FC + VC : TC_2 = (FC - 20,000) + VC$$

$$TC_2 = FC_2 + 1000$$

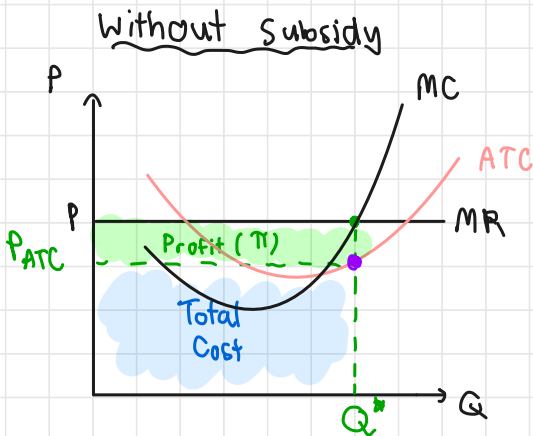
$$ATC_2 = AFC_2 + AVC$$

* since VC not change : MC not change

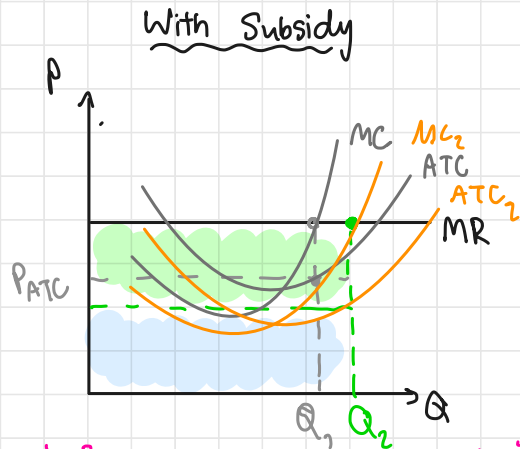
FC not change $\rightarrow$ AFC not change.

VC $\downarrow \rightarrow$ AVC $\downarrow$

MC $\downarrow$
TC $\downarrow \rightarrow$ ATC $\downarrow$



NOTE : profit maximize
when $MC = MR$
total revenue = $P \times Q$
total cost = $ATC \times Q$



$\therefore$ By providing subsidy 20\$/unit
quantity produce will be inc
profit also increase.

Ans. Since $MC \downarrow$ so firm will decrease quantity sells unit $P = MC_2$

$$\therefore Q \uparrow (Q_1 \rightarrow Q_2)$$

also $ATC \downarrow \rightarrow$ Profit $\uparrow : TR \uparrow - TC \downarrow$

$$\pi : (P \times Q) - (ATC \times Q)$$

firm get 20\$ / unit, but firm $\uparrow Q$ so firm subsidy =

$$(20)(1000) : 20Q$$

$\therefore$ subsidy will be more than 20,000