

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) The government gives a lump sum subsidy of 20,000 bahts to each firm.

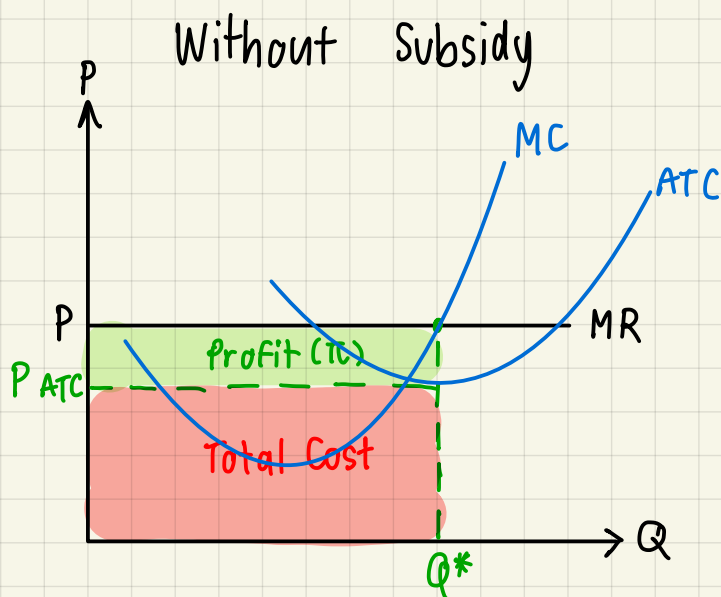
$$\text{Total Cost} = FC + VC$$

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

$$TC = FC_2 + VC$$

$$ATC_2 = AFC_2 + AVC$$

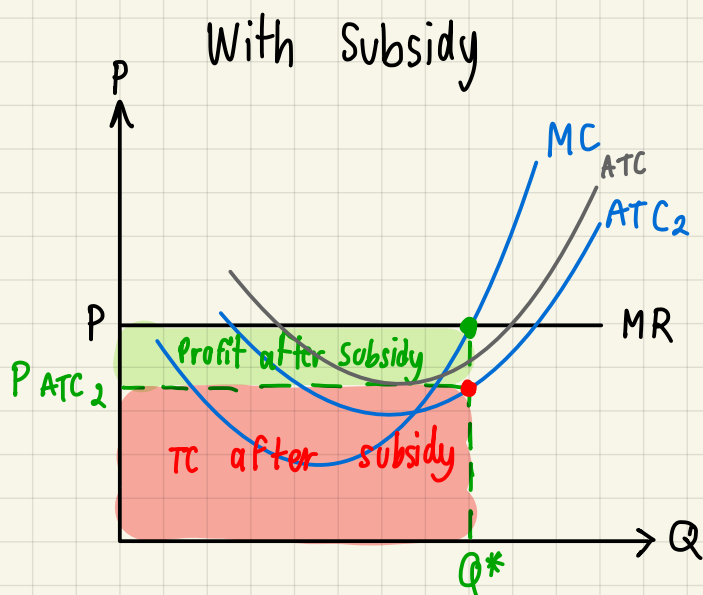
$\therefore$ FC decreases $\rightarrow$ AFC decreases
 VC doesn't change $\rightarrow$ AVC doesn't change
 MC doesn't change
 TC decreases $\rightarrow$ ATC decreases



Maximum Profit at $MC = MR$

$$\text{Total Revenue} = P \times Q^*$$

$$\text{Total Cost} = ATC \times Q^*$$



MC doesn't change so maximum profit (π) remain the same at Q^* . But with subsidy TC decrease meaning, having more profits

In conclusion, firm won't change its production since receiving lump sum subsidy
 $\therefore P = MC$ so Q^* doesn't change but ATC decreases and profit increases
 $\overline{TR} - TC \downarrow$: total revenue remain the same and total cost decrease.