

# Pongpob Punnara

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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.

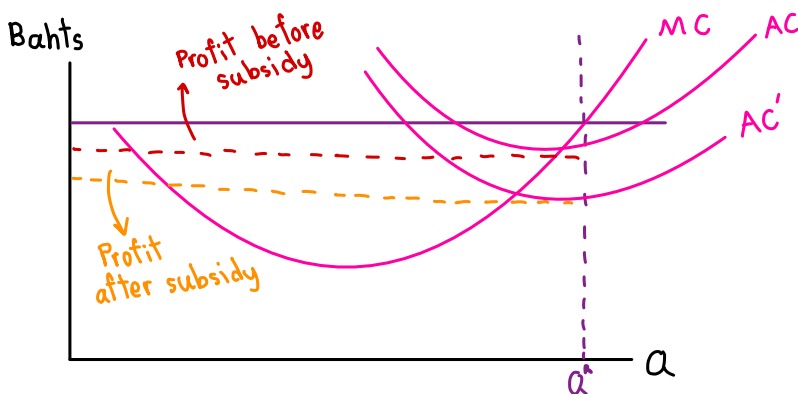
b) Suppose that the firm was producing 1,000 units and the government gives a subsidy of 20 bahts/unit so the total subsidy is also 20,000 bahts if the firm does not change its production of 1,000 units. Do you think, to maximize its profit with the subsidy of 20 bahts/unit, the firm will increase/decrease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

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

$$\left. \begin{aligned} TC(Q) &= TFC(Q) + TVC(Q) \\ TC'(Q) &= TFC'(Q) + TVC'(Q) \end{aligned} \right\} \text{unchanged} \Rightarrow \text{MC unchanged.}$$

$$\frac{d}{dx} TC'(Q) = \frac{d}{dx} [TFC'(Q) + TVC'(Q)]$$

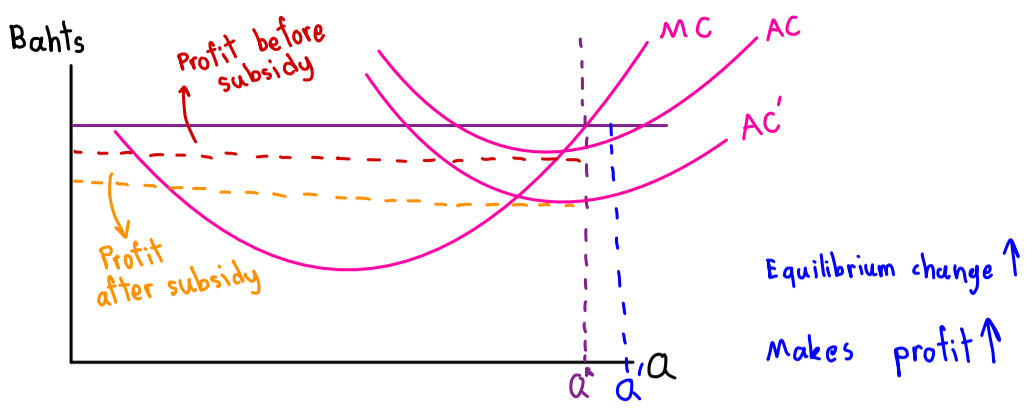
$$\frac{d}{dx} TC'(Q) = \frac{d}{dx} [TFC(Q) - 20,000 + TVC(Q)]$$



$\therefore$  MC, MR don't change because Q is still the same

and the amount of increasing profit =  $\frac{20,000}{Q^*}$  = Amount of lower fixed cost.

b)



∴ Firm will increase to maximize its profit and will get more profits.

It will receive more subsidy more than 20,000 bahts depends on how much the production produce the product more than  $Q^*$   
( $Q^* - Q'$ )