Situation 1 : Gov. provide lump sum subsidy 20,000 ฿

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

$TC_2 = FC_2 + VC$

$ATC_2 = AFC_2 + AVC$

* since vc not change : mc not change

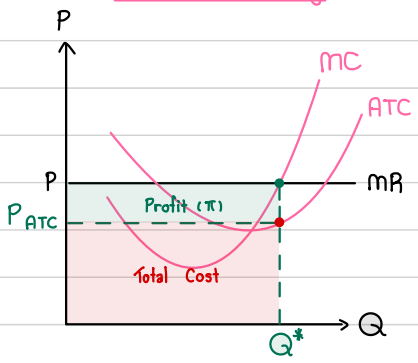
FC↓ → AFC↓

vc not change → Avc not change

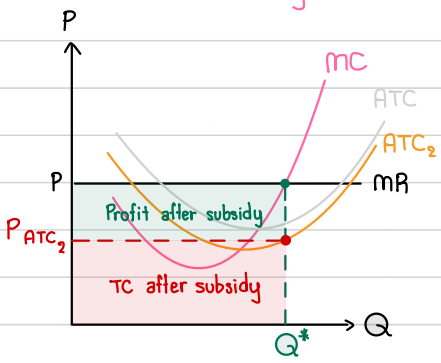
mc not change

TC↓ → ATC↓

Without Subsidy



With Subsidy



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 Q^* but with subsidy so TC decrease ∴ having more profit

Ans : firm will not change its production since receiving lumb sum subsidy

∴ $\overline{P} = \overline{MC}$ so Q^* not change

but ATC↓ and profit↑ : $\overline{TR}$ - TC↓

; Total revenue remain the same

and total cost decrease

Situation 2 : Gov. give subsidy 20 ฿/unit , producing 1,000 units = 20,000 ฿

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

$TC_2 = FC + VC_2$

$\Delta TC_2 = AFC + AVC_2$

* since vc change : mc change

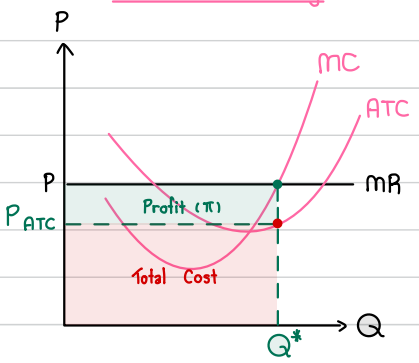
FC not change → AFC not change

vc ↓ → Avc ↓

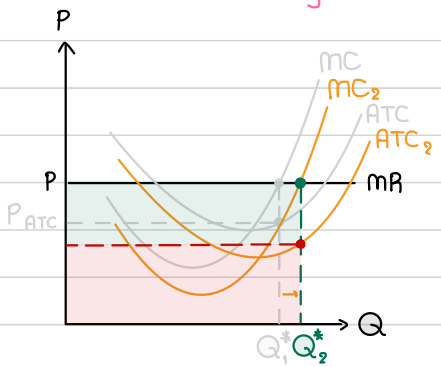
mc ↓

TC↓ → ATC↓

Without Subsidy



With Subsidy



note : profit maximise when MC = MR

total revenue = $P \times Q^*$

total cost = $ATC \times Q^*$

∴ By providing subsidy 20 ฿ / unit quantity produce will be increase and profit also increase

Ans : Since MC↓ so firm will decrease quantity sells until $P = MC_2$

∴ Q↑ (Q_1^* to Q_2^*)

also ATC↓ → Profit↑ : TR↑ - TC↓

π↑ . (P × Q↑) - (ATC↓ · Q↑)

* firm get 20 ฿/unit, but as firm ↑Q so firm subsidy = (20)(> 1,000) : 20Q

∴ subsidy will be more than 20,000

* = before subsidy

* = with subsidy