

11, April

Chapter 10: Business & the cost of production.

* Economic & Accounting Cost:

تكاليف اقتصادية = تكاليف صريحة + تكاليف ضمنية

Explicit & implicit cost.

تكاليف صريحة

تكاليف ضمنية

لها ما يدفعه لصاحب

لها ما يدفعه لصاحب

تكاليف صريحة

تكاليف ضمنية

الكلام

example:-

example:-

- Payments of wage of workers
- Payment for ~~the~~ material
- transportation cost
- Maintenance expenses
- Taxes

- Foregone rent from the building & used by a company
- Foregone wages
- Foregone Interest

→ Accounting Cost = Explicit Cost

→ Economic Cost = Explicit cost + implicit cost

* Accounting profit = Total Revenue - Total Cost

تكاليف صريحة + تكاليف ضمنية

* Economic profit = Total Rev - (explicit cost + implicit cost)

⊗ Normal profit = Implicit Cost.

$TR > TC \rightarrow \text{profit}$

$TR < TC \rightarrow \text{losses}$

$TR = TC \rightarrow \text{Economic profit} = \text{Normal profit}.$

Example your firm has total Sales Revenue of \$1,000,000 and total explicit Cost of \$600,000 & Total implicit cost of \$300,000.

Ⓐ what is firm's normal profit?

$$\text{Normal Profit} = \$300,000$$

Ⓑ what is firm's Accounting Profit?

$$A.p = TR - \text{Implicit Cost}$$

$$= 1,000,000 - 600,000$$

$$= \$400,000$$

Ⓒ what is firm's Economic profit?

$$E.p = TR - TC$$

$$= 1,000,000 - (600,000 + 300,000)$$

$$= 1,000,000 - 900,000$$

$$= \$100,000$$

④ Short run & long run.

المسعى القصير

المسعى الطويل

كمية بعض العناصر

كمية كل العناصر

تكون متغيرة وكمية

الاشياء تكون متغيرة

البعض تكون ثابتة

In the short run:- Some Resources are fixed and another are variable.

In the long run :- All Resources are variable

Example :- Indicate whether the inputs are variable or fixed In the short run.

- ① Meat in producing Shawarma : variable.
- ② Fire insurance in dryclean services : fixed.
- ③ Gasoline in trucking services : variable.

April, 18

Short Run Production Relationships

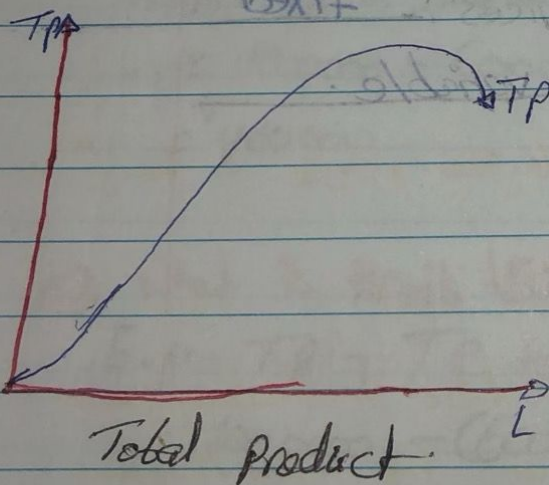
Production → the relationship between inputs & outputs.

→ Total product (TP), Average product (AP), Marginal product (MP)

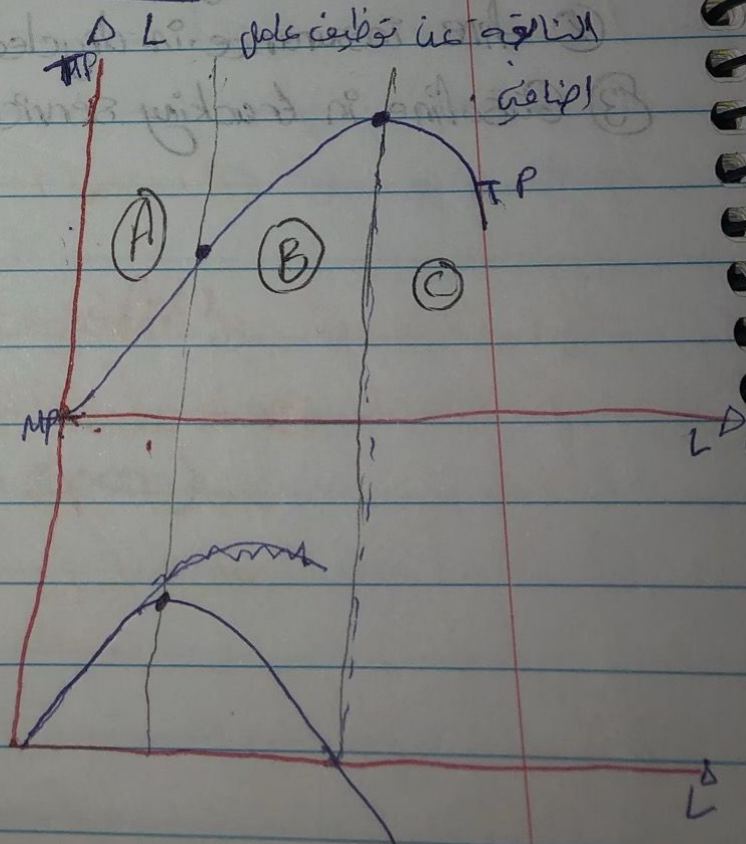
→ Total product → الإنتاج الكلي
المنتج الكلي الناتج عن توفير مقدار محدد.

→ Average product (AP): $AP = \frac{TP}{L}$ → # of labor.
متوسط الإنتاج
عدد العمال

→ Marginal product (MP): $MP = \frac{\Delta TP}{\Delta L}$
الزيادة في الإنتاج الناتجة عن
زيادة وحدة عامل



العلاقة بين كمية الإنتاج وعدد العمال
هي علاقة انحدارية.



* Marginal Product = zero when TP at Maximum.

(A) Increasing MP return
 $L \uparrow \rightarrow MP \uparrow$

(B) Diminution Return
 $L \uparrow \rightarrow MP \downarrow$

(C) Negative Return
 $L \uparrow \rightarrow MP \text{ Negative}$

مرسدة MP
 الى بالزيادة القليل

Example

# of Labor	total Product (TP)
1	40
2	100
3	165
4	200
5	225
6	240
7	235

(A) what is the Average product (AP) when the firm employ 4 workers?

$$AP = \frac{TP}{L} = \frac{200}{4} = 50$$

(B) what is the Marginal product of the 3rd worker?

$$MP = \frac{\Delta TP}{\Delta L} = \frac{165 - 100}{3 - 2} = 65$$

(C) At what level are there increasing return?

(2) and at what levels are the Diminishing return to labor?

(1) Increasing return to labor through the 3rd worker [1-3]

(2) Diminishing Return to labor set in with the 4th worker

سورة البقرة

MP.

$$40 - 0 = 40$$
$$100 - 40 = 60$$
$$165 - 100 = 65$$
$$200 - 165 = 35$$

25

15

-5

عشاق عرف احمد (5)

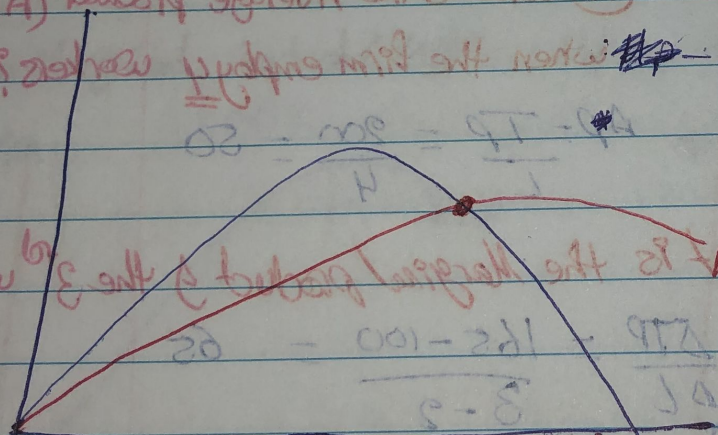
Increasing

Diminishing

④ Law of Diminishing return $\rightarrow$

19 - 0 MP ↓

بمجرد - متروحه البناء ، 20 / 10 / 2019
البيان الاقتصادي مع فصل



AP $\uparrow$ when $M_p > AP \rightarrow AP$ increasing

④ When $AP > MP \rightarrow AP$ decreasing

④ Marginal product intersect

~~the~~ ~~and~~ Ap when Ap
is at Maximum.

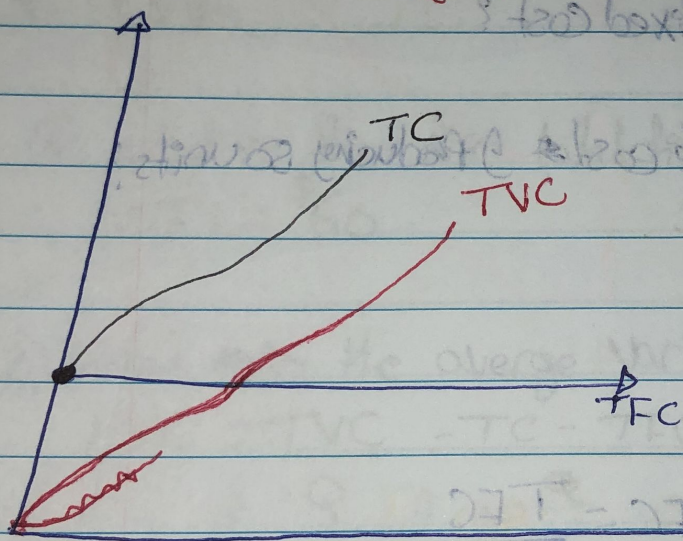
⑧ Short run production cost:-

→ Total Fixed cost, Total variable cost, total ~~total~~ cost.
 (TFC) (TVC) (TC)

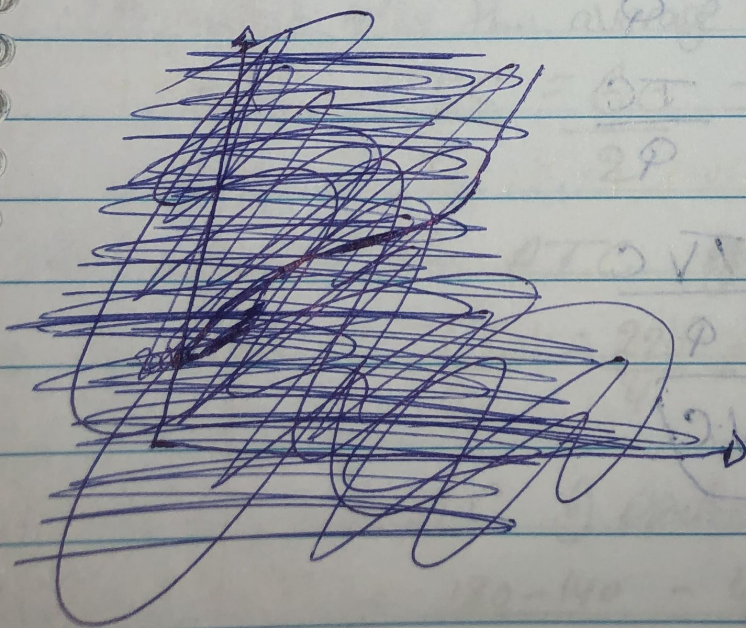
Examples:-

- Rental payments → استأجر المبنى
- Interest on loans → الفوائد
- Insurance premium → التأمين

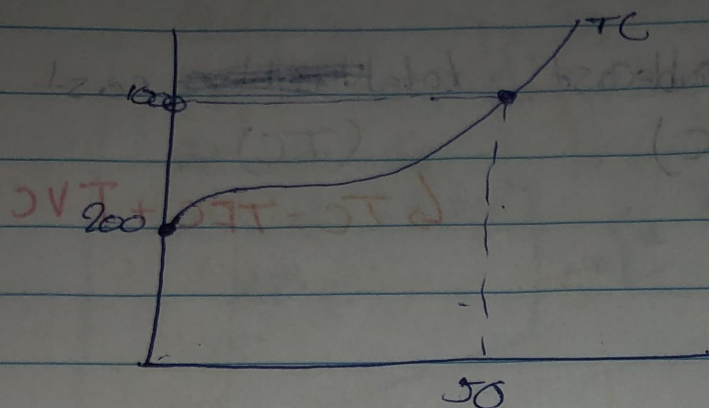
$$TC = TFC + TVC$$



Average cost



Example



1 what is the total fixed cost?

$$TFC = 200$$

② what is the total variable cost of producing 50 units?

$$TC = TFC + TVC$$

$$1000 = 200 + TVC$$

$$TVC = 800$$

Average Cost

④ Average fixed cost $AFC = \frac{TFC}{Q}$

④ Average total cost $ATC = \frac{TC}{Q}$

④ Average variable cost $AVC = \frac{TVC}{Q}$

$$ATC = AFC + AVC$$

Marginal Cost - ^{التكاليف} ~~التكاليف~~ ^{التي} ~~تتغير~~ ^{تتغير} مع ~~تغير~~ ^{تغير} الإنتاج

Additional cost from producing one more unit.

Q	TC
0	60
1	160
2	140
3	180
4	220

when $Q = 0$

$TVC = 0$

$TC = TFC + TVC$

$TC = TFC + 0$

① what is the firm total fixed cost?

$$TFC = \$60$$

② what is the average variable cost of producing 3 units?

$$AVC = \frac{TVC}{Q} = \frac{TC - TFC}{Q} = \frac{180 - 60}{3} = \frac{120}{3} = \$40$$

③ what is the average fixed cost of producing 2 units?

$$AFC = \frac{TFC}{Q} = \frac{60}{2} = 30$$

④ what is the ATC of producing 4 units?

$$ATC = \frac{TC}{Q} = \frac{220}{4} = 55$$

⑤ what is the MC of producing 3rd units?

$$MC = \frac{\Delta TC}{\Delta Q} = \frac{180 - 140}{3 - 2} = 40$$

April, 23

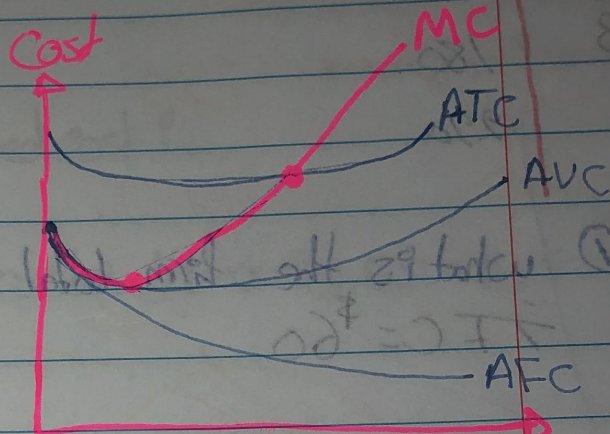
~~AFC~~

$$* AFC = \frac{TFC}{Q}$$

$$* AVC = \frac{TVC}{Q}$$

$$* ATC = \frac{TC}{Q}$$

$$* MC = \frac{\Delta TC}{\Delta Q}$$



(*) MC curve cuts through ~~average~~ ATC & AVC at their minimum points

(*) when MC is below average total cost, then ATC is decreasing

→ when MC is above ATC, then ATC is increasing.

(*) when MC is below AVC $\Rightarrow$ AVC is decreasing.

→ when MC is above AVC $\Rightarrow$ AVC is increasing.

* Shift in cost curve :-

① Resources prices $\rightarrow$ $\rightarrow$ (سوار کاواں)

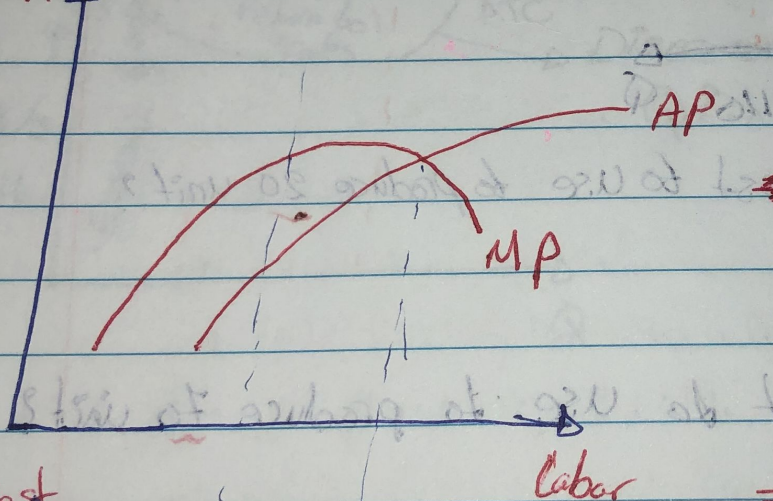
$\rightarrow$ Increase in Resources Prices, shift cost curves (AVC, ATC, MC) upword.

$\rightarrow$ Decrease in Resources prices, shift cost curve (AVC, ATC, MC) downword.

② Technology

~~Factor~~ in Technology will shift cost curve (AVC, ATC, MC) down word.

AP, MP



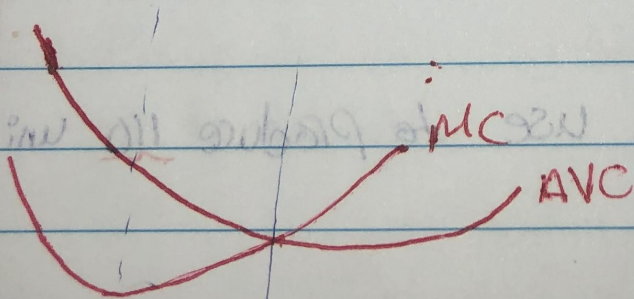
$\Rightarrow$ when MP increase $\rightarrow$ MC $\rightarrow$ decrease

$\Rightarrow$ MP decrease $\Rightarrow$ MC increase

$\Rightarrow$ when MP at Max $\rightarrow$ MC at min

$\Rightarrow$ when AP at Max point $\rightarrow$ AVC at min point.

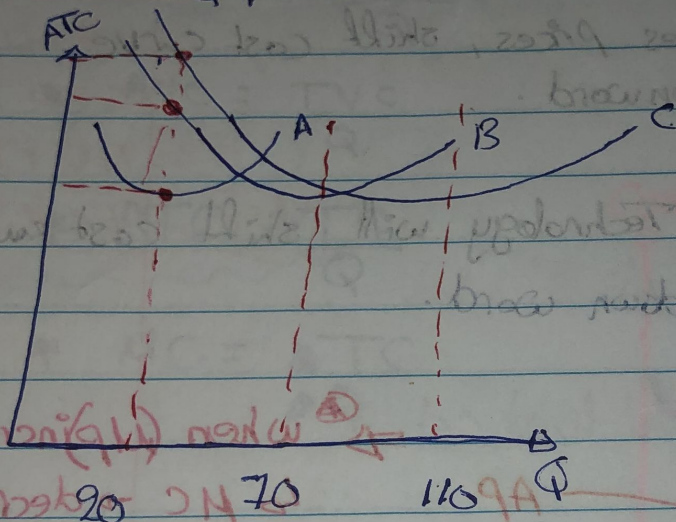
Cost



④ Long Run production cost curve at different Q

كلما زادت كمية الإنتاج، كلما قلَّت التكاليف المتوسطة للمنتج في فترة لا نهائية. لذلك، كلما زاد الإنتاج، كلما قلَّت التكاليف المتوسطة للمنتج.

$$Q \uparrow \rightarrow ATC \downarrow$$



A → Small size
B → Medium size
C → Large size

① Which plant is best to use to produce 20 unit?

(A)

9M

② Which plant is best to use to produce 70 unit?

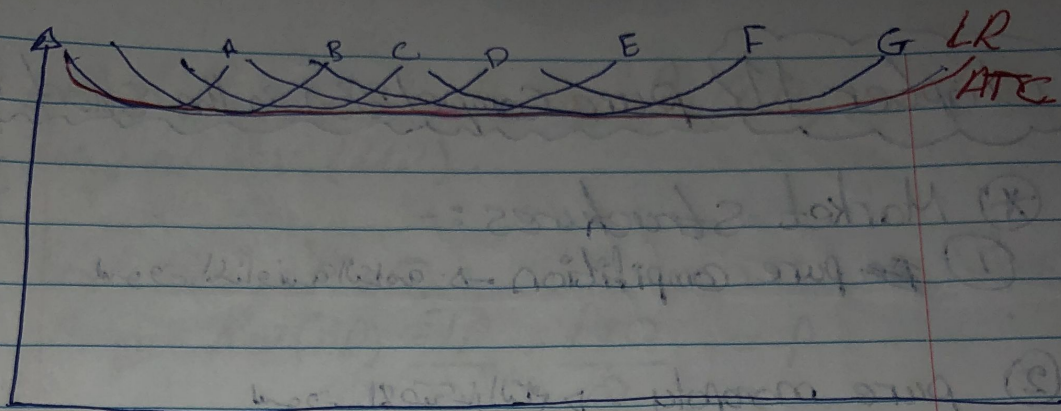
(B)

trying aim to CVA

③ Which plant is best to use to produce 110 unit?

(C)

CVA



Draw with long Run average ~~cost~~ total cost (ATC)

If inputs $\uparrow$ by 10%

$\rightarrow$ outputs $\uparrow$ by 10%

