

11, April

Chapter 10: Business & the cost of production.

* Economic & Accounting Cost:

تتضمن تكاليف الإنتاج الفعلية = تتشمل تكاليف الإنتاج الفعلية

Explicit & implicit cost.

تكاليف فعلية

تكاليف ضمنية

Example

تكاليف مدفوعة فعلياً

لها مدفوع لكن

تكاليف اجور العمل والمواد

ضمنية غير زبدي

الضرائب

example:-

example:-

- payments of wage of workers
- payment for ~~the~~ material
- transportation cost
- Maintenance expenses
- Taxes

- forgone rent from the building & used by a company
- forgone wages
- forgone interest

Accounting Cost = Explicit Cost

Economic cost = Explicit cost + implicit cost

Accounting profit = Total Revenue - Total Cost
 إجمالي الإيرادات الفعلية - التكاليف الفعلية

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

⊗ Normal profit = implicit cost.

$TR > TC \rightarrow$ profit

$TR < TC \rightarrow$ losses

$TR = TC \rightarrow$ Economic profit = 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?

Normal profit = \$300,000

Ⓑ what is firm's Accounting profit?

A.p = $TR -$ 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 القليل

المسعى الكثير

كمية بعض العناصر

كمية كل العناصر

تكون متغيرة وكمية

الباقي تكون متغيرة

الوقت يكون ثابت

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.

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Short Run Production Relationships

Production → the relationship between inputs & outputs.

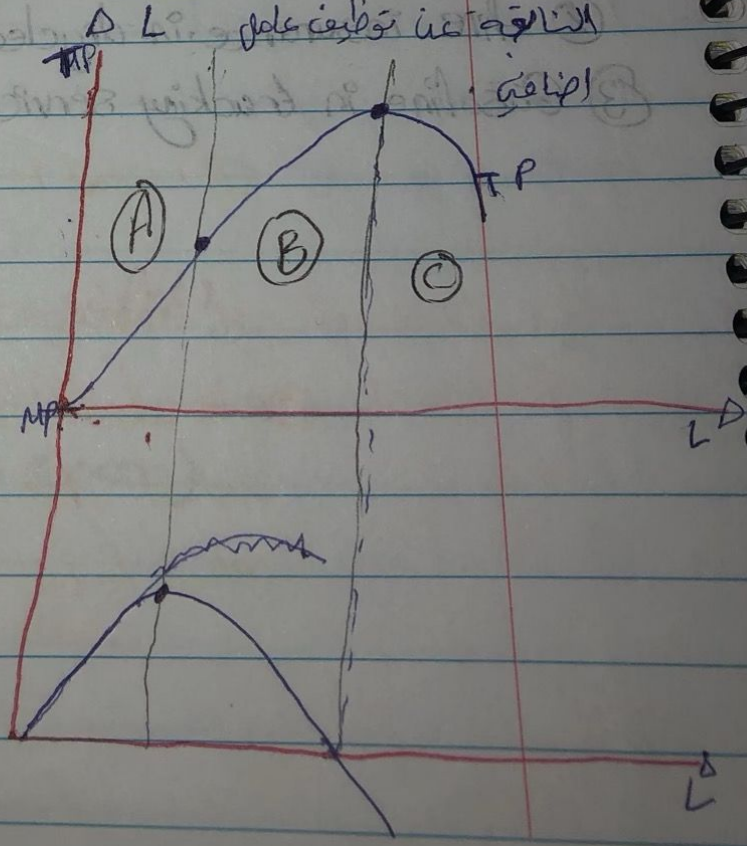
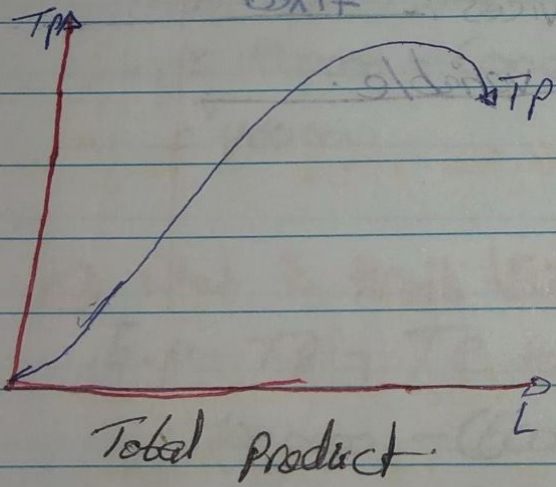
→ Total product (TP), Average product (AP), Marginal product (MP)

↳ Total product → كمية الإنتاج
المنتج المنتجة توفره وحدة واحدة.

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

↳ Example: $\frac{TP}{L}$ = ...

→ Marginal product (MP): $MP = \frac{\Delta TP}{\Delta L}$
التغير في الإنتاج
التغير في توظيف عامل
إنتاجية



العلاقة بين كمية الإنتاج وعدد العمال
وهي علاقة انجناوية

* 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
 $L \uparrow \rightarrow MP$ Negative

مرسوة ال MP
 الى بالقيمة التي

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

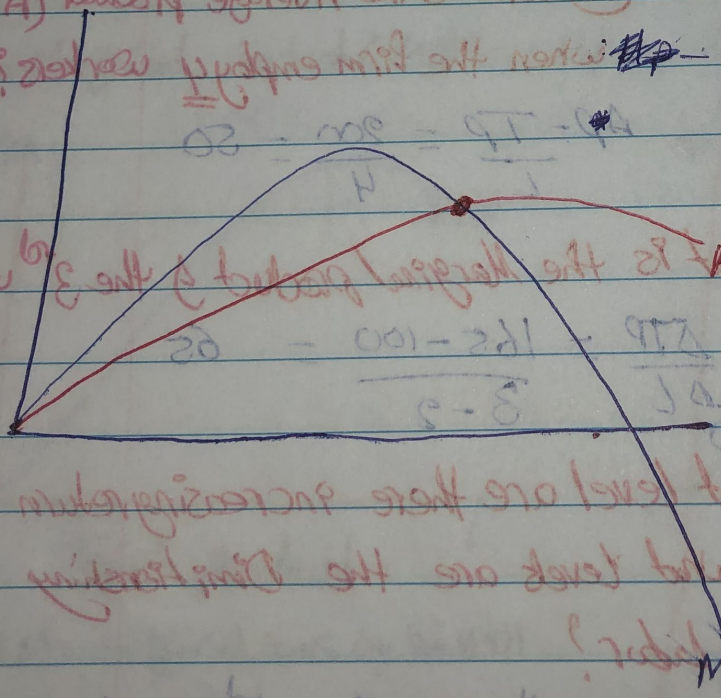
سؤال الجواب \rightarrow تعريف MP

MP
$40 - 0 = 40$
$100 - 40 = 60$
$165 - 100 = 65$
$200 - 165 = 35$
25
15
-5

Increasing
Diminishing

Law of Diminishing return \rightarrow
 $\downarrow \text{MP} \rightarrow \text{AP}$

بمرحلة متزايدة الإنتاج، MP و AP يتزايدان
 بعد ذلك MP و AP يتناقصان



- ① when $\text{MP} > \text{AP} \rightarrow \text{AP}$ increasing
- ② when $\text{AP} > \text{MP} \rightarrow \text{AP}$ decreasing
- ③ Marginal Product intersects AP when AP is at Maximum.

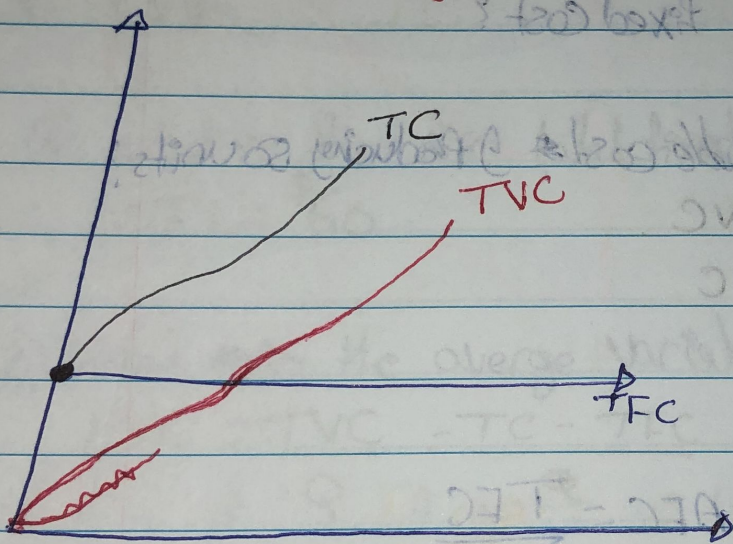
Short run production cost:-

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

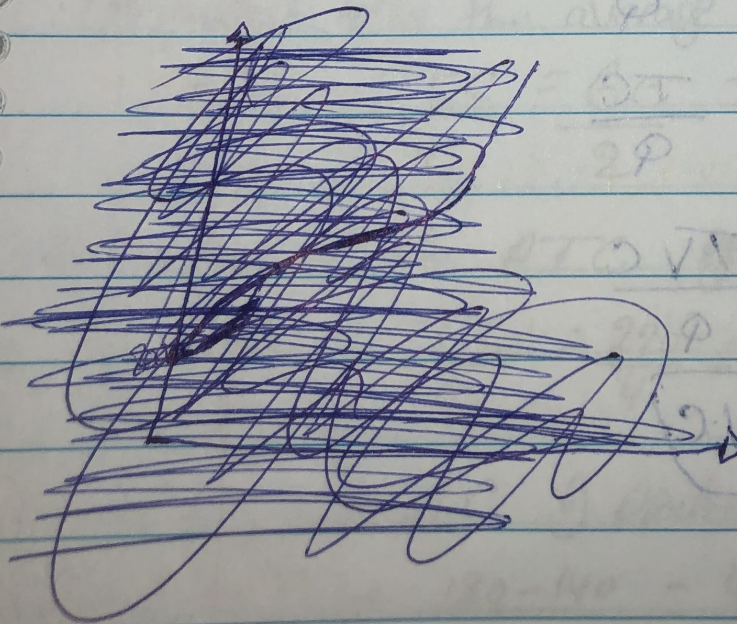
$TC = TFC + TVC$

Examples

- Rental payments → اجار العقار
- Interest on loans → الفوائد القروض
- Insurance premium → دفعات التأمين

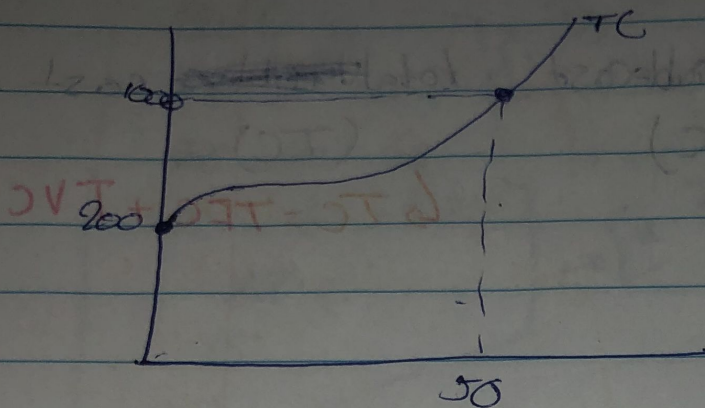


Average cost



$ATC = AFC + AVC$

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

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

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

$$\text{Average variable cost} = \frac{TVC}{Q}$$

$$ATC = AFC + AVC$$

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~~AFC~~

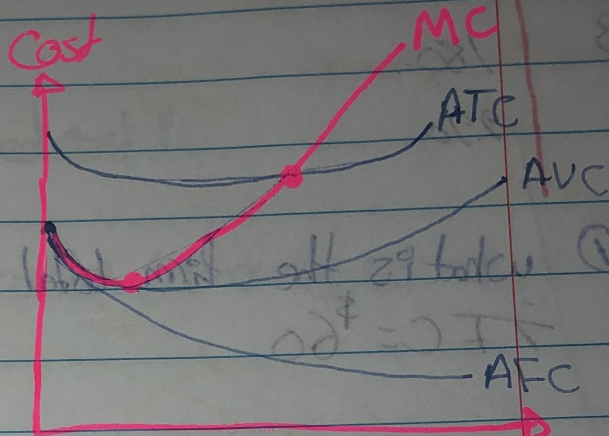
$$* AFC = \frac{TFC}{Q}$$

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

$$TFC + TVC = TC$$

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

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



① MC curve cuts through ~~average~~ ATC & AVC at their

Minimum points

② when MC is below average total cost, then ATC is decreasing

→ when MC is above ATC, then ATC is increasing

③ when MC is below AVC ⇒ AVC is decreasing

→ when MC is above AVC ⇒ AVC is increasing

* Shift in cost curve

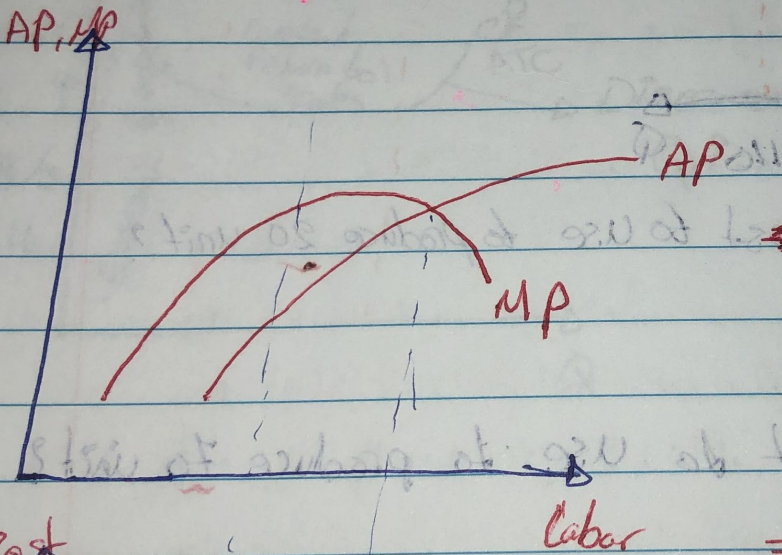
① Resources prices \rightarrow \rightarrow (زيادة في الموارد)

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

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

② Technology

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

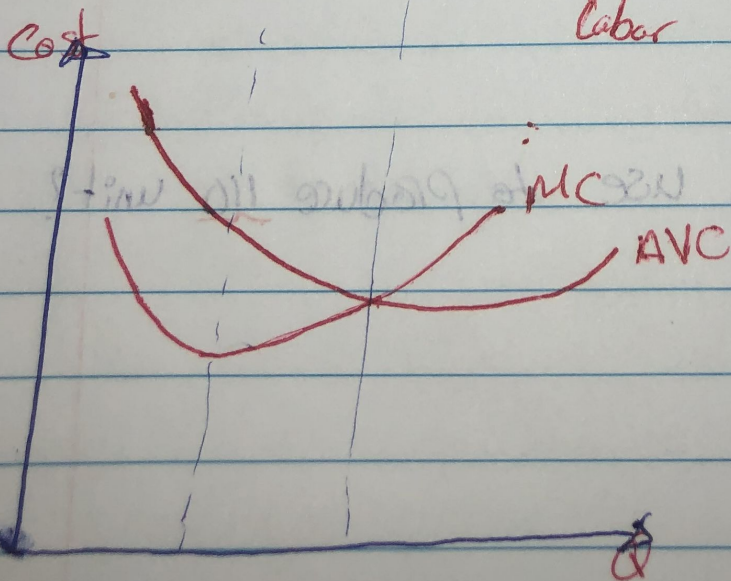


⊕ when (MP) increase \rightarrow MC \rightarrow decrease

⊕ MP decrease \rightarrow MC increase

⊕ when MP at Max \rightarrow MC at min

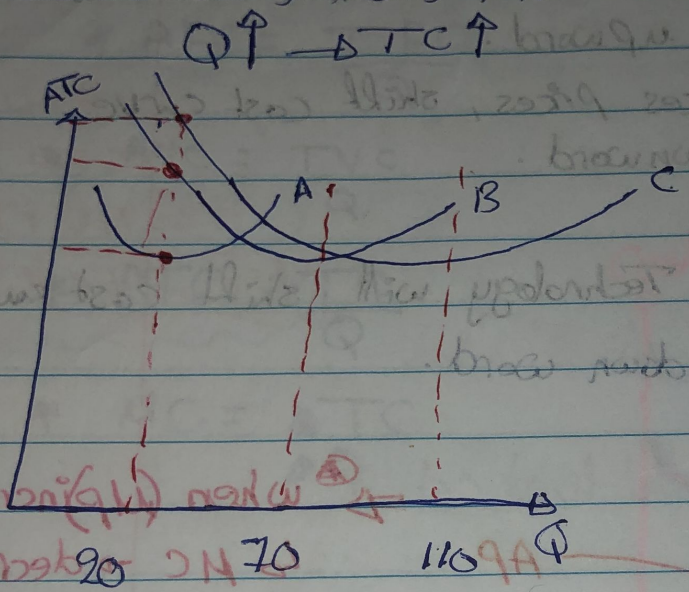
⊕ when AP at Max point \rightarrow AVC at min point.



⊙

Long Run production cost

كلما زادت كمية الإنتاج، انما تكاليف المنتج وبتنوع لا
تزيد بل انما تكون اكثر، مواد اكثر، و يمكن اكثر.



A → small size
B → Medium size
C → large size.

90
70
110
Q

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

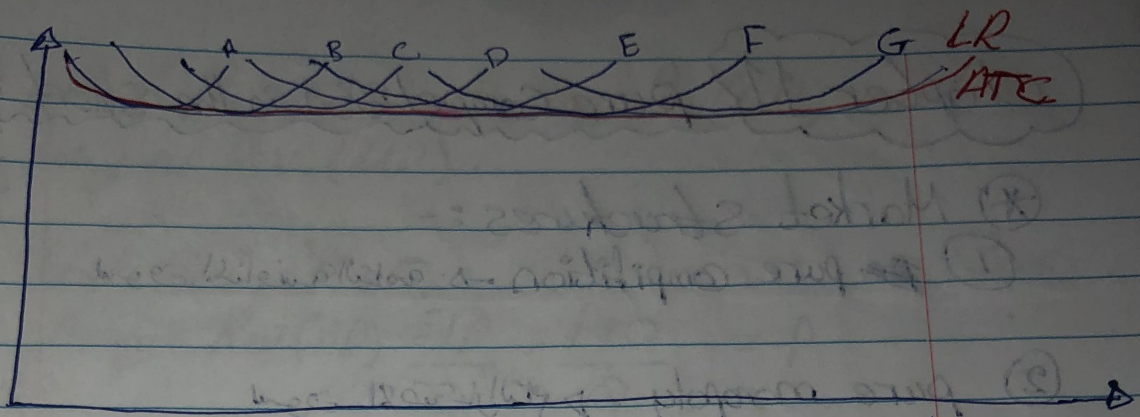
A

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

B

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

C



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

