



Lecture 3

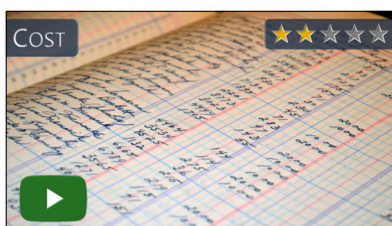
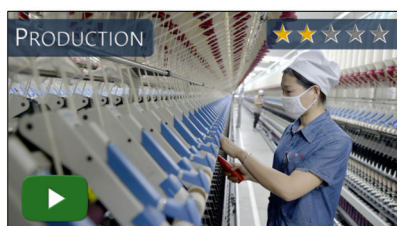
Cost, Supply & Competitive Markets

Economics
& Society

Kosmas Marinakis, Ph.D.

1

Cost, Supply & Competitive Markets



Lecture 3

3



18

Perfect Competition

> PC

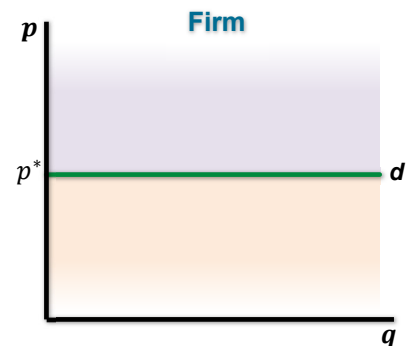
- ★ We have discussed how consumers **choose optimally** and how firms think about **production** and **cost**
- ★ Now, we will examine how consumers and firms **interact**
- ★ Let's start from an **ideal environment** of competition
- ★ A market is perfectly competitive when **3 assumptions** hold:
 1. There exists a **large number** of sellers
 2. The product is **homogeneous**
 3. There are **no barriers** for sellers and buyers to participate in the market.
- ★ Let's examine these assumptions **one by one**

19

1. Large number of firms

> PC > Assumptions

- ★ **How large** is “a large number of firms”?
enough firms that each one **can ignore** the behavior of its competitors
- ★ When firms are many, each holds a **negligible market share**
- ★ If a single firm **increases** its price
- ★ If a single firm **cuts** its price
- ★ The PC firm **takes its price** from the market
- ★ Thus, the PC firm, views the **demand** for its brand as a single “**fixed price**”



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20

20

2. Product homogeneity

> PC > Assumptions

- ★ All brands of a product have **small or big differences**
- ★ It is NOT the **actual differences** among brands that matter
BUT what the consumer **believes** for each brand
products are **homogeneous** when consumers cannot find meaningful differences
- ★ **Brand names** that can get away charging prices **above** the competition
indicate **deviation** from the PC model

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21

21

3. Free entry and exit

> PC > Assumptions

- ★ In PC, market **entry** or **exit** must have **no restrictions** (barriers)
no one should be **prohibited** or **prevented** from becoming a seller
- ★ This **does not imply** that a PC seller does not face **fixed costs**
fixed costs can be considered a barrier only when they are **high enough** to prevent most potential sellers from entering the industry
- ★ Markets that **resemble** a PC environment can be:
stock markets, online marketplaces, farmers markets, hawker centers etc. ▲▲

Generalized profit maximization condition !

> PC > Choice of quantity

- ★ The **problem** every firm must solve is: “at **which** q is my profit maxed?”
- ★ Profit (Π) is defined as the **difference** of **revenue** (R) and **cost** (C): $\Pi = R - C$
- ★ Each unit's **contribution** to profit is:
the **revenue** earned by that unit (MR) – the **cost** required to make that unit (MC)
- ★ If for a unit $MR > MC$
it **adds to profit** – **produce** it – **repeat** for the next unit.
- ★ If for a unit $MR < MC$
it **reduces profit** – you have produced **too much** – **repeat** for the previous unit.
- ★ The **optimal** q is when $MR = MC$:
 - ▶ Usually, **denoted** q^*
 - ▶ Same under **any market structure**. ▲

Profit maximization in PC !

> PC > Choice of quantity

- ★ In every market, the seller **maximizes** profit at the quantity where

$$MR = MC$$

- ★ In PC, **revenue from each extra unit** (MR) **IS** the **market price**

- ▶ So, the **profit maximizing condition** becomes

$$p = MC$$

- ★ In non-PC markets, firms may have the power to **set their price**:

- ▶ In that case, $MR \neq p$,

- ▶ So, the profit maximization condition **remains** $MR = MC$ ▲▲

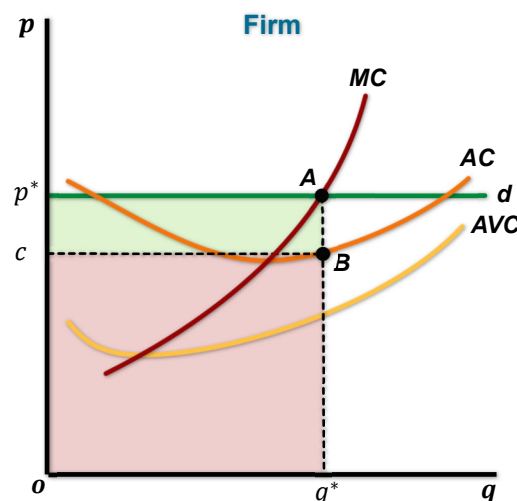


Choosing output: Short-run

> PC > Short-run

★ To maximize profit, the individual PC firm **will produce** the quantity (q^*) for which $p = MC$:

- ▶ Total revenue is $p^* \times q^*$ (area p^*Aq^*o)
- ▶ Cost per unit is c
- ▶ Total cost is $c \times q^*$ (area cBq^*o)
- ▶ Total profit is p^*ABc ▲



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26

26

Losses & shutdown

> PC > Short-run

★ A firm produces **chairs**:

- ▶ **Capital** is leased for \$120 / day for 1 year
- ▶ **Labor** costs \$80 / day and the worker can make 10 chairs a day.

★ Cost per chair is: $AC = \frac{\text{AFC}}{10} + \frac{\text{AVC}}{10} = \20

★ If $p = \$11$, should the firm **shut down**?:

- ▶ The firm makes operating loss of $\$20 - \$11 = \$9$ per chair or **\$90** per day
- ▶ Shut down losses are **\$120** per day
- ▶ When p is below AC (\$20) but above AVC (\$8) → **keep operating in the S-R.**

★ If $p = \$7$, operating losses would be $\$20 - \$7 = \$13$ per chair or **\$130** per day:

- ▶ Shut down losses still are **\$120** per day
- ▶ When p is below AVC (\$8) → **shut down immediately** ▲

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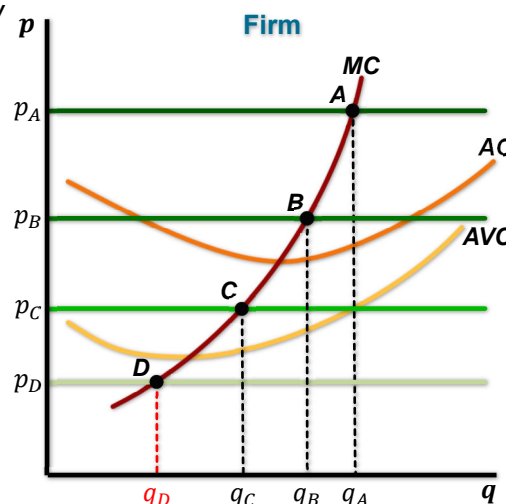
27

27

S-R supply curve

> PC > Short-run

- ★ The **supply curve** for a PC firm answers: “how much q it will produce for every possible p ?”
- ★ PC firms always **set quantity** where $p = MC$:
 - ▶ For price p_A , firm produces q_A
 - ▶ For price p_B , firm produces q_B
 - ▶ For price p_C , firm produces q_C
 - ▶ For price p_D , firm **shuts down**.
- ★ For every given price, quantity supplied is **on the MC**
- ★ The PC firm’s **supply curve** is the portion of the MC curve above the AVC curve.



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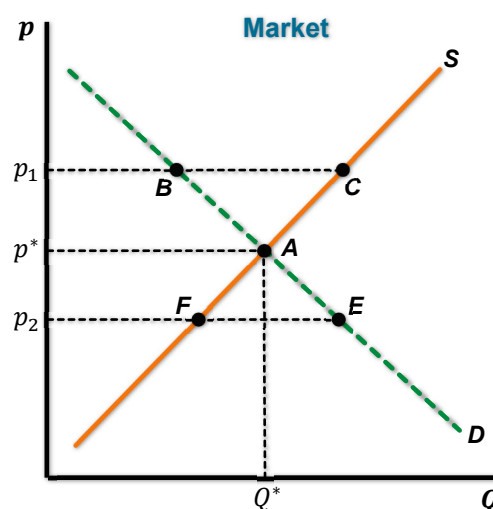
28

28

Market price in PC

> PC > Market price

- ★ The price in PC results from the **interaction** of market demand and market supply
- ★ YET firms **may know** their supply but **ignore** the position of the market demand
 - had they **not ignored** D, they would **price** at p^*
- ★ If firms price at p_1 , production (p_1C) **exceeds** quantity demanded (p_1B),
 - firms will take this as a **signal** to **lower the price**
- ★ If firms price at p_2 , quantity demanded (p_2E) **exceeds** production (p_2F),
 - firms will take this as a **signal** to **raise the price**.



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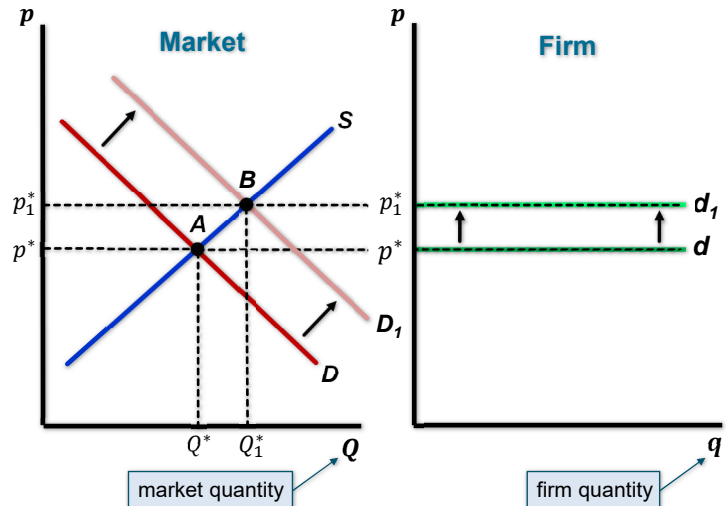
29

29

Market demand vs. Firm demand

> PC > Market price

- ★ p^* is determined in the **market**
- ★ Every firm takes p^* as **given**
- ★ If, say, the product becomes **more popular**
 - ▶ **Demand** increases to D_1
 - ▶ **Market price** becomes p_1^*
 - ▶ Firms who **still sell** at p^* will start experiencing **shortages** and **take the hint** that price must increase to p_1^* ▲▲



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30

30

PC: L-R PERIOD

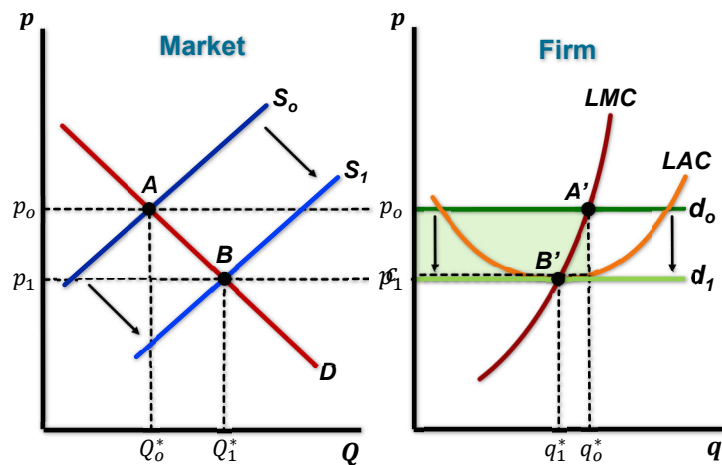


31

PC in the long-run: profit

> PC > Long-run

- ★ In the S-R, firms may earn **profits**
- ★ S-R profits, will **attract** new firms in the L-R:
 - ▶ The entry of new firms will **increase** market supply
 - ▶ Price will **drop**
 - ▶ Till profit will be **eliminated**



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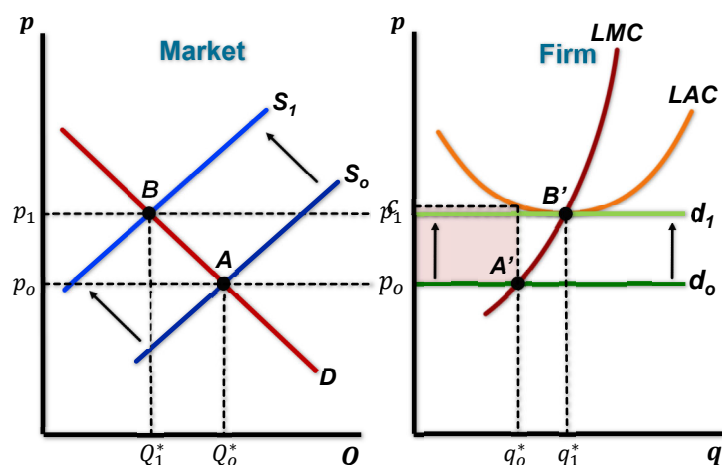
32

32

PC in the long-run: losses

> PC > Long-run

- ★ In the S-R, firms may have **losses**
- ★ S-R losses, will **push** some firms **out** in the L-R:
 - ▶ The exit of firms will **decrease** market supply
 - ▶ Price will go **up**
 - ▶ Till losses are **eliminated**



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33

33

Long-run competitive equilibrium

> PC > Long-run

- ★ In the L-R, the PC market will **equilibrate** once **entry** or **exit stops** at $\Pi = 0$
S-R profits vanish because of **entry**, NOT because of doing business poorly
- ★ When $\Pi = 0$, the firm has **no reason to exit** because: 
 - ▶ The owner covers the cost of **raw materials** and **labor**
 - ▶ The owner covers the **opportunity cost of her time**
(the **salary** she would earn at her next best alternative)
 - ▶ The owner covers the **opportunity cost of capital**
(the **rent** she would receive from using the equipment at its next best alternative use).
- ★ Zero profit **does NOT mean** no income for the owner
- ★ It simply means that **profit opportunities** do not last forever
unless there is **innovation**, **differentiation**, or **barriers of entry** ^^

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34

34

Thank you!

(you may stay for consultation)

35

WARNING!

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