

# 3 things

you must know  
for the slides

I have noticed that some students **do not take notes** during the lecture or take limited notes. I want to make 3 things clear about the slides:

First, I hope that you understand that I am not going to create **tests/exams** based on material that comes directly from the slides. If the material for this course was limited to the 20 slides per lecture with 40 words each, **everyone** would get a 10.

To convince you for this, here is a **sample of questions** that were **asked and answered in the lecture** and they do not appear anywhere on the slides but they will appear on the test and exam:

1. What are the two possible market structures in an industry where there are natural barriers to entry but continuous integration will eventually lead firms to diseconomies of scale? What is the key difference between them? [from Lecture 2]
2. A market is characterized by a U-shaped LAC. How is the demand curve going to affect the equilibrium concentration in the L-R? [from Lecture 2]
3. Under the concept of bounded rationality incentives for usual outcomes may be distorted. Explain how. [from Lecture 1]
4. Provide an example of how specificity in investment may lead to the opportunistic behavior. [from Lecture 1]

Moreover, reading only the slides may **mislead** you. For example, even though slide 15 from lecture 2 is perfectly correct, it **will deceive someone who reads it out of context** to think that the answer in question 1 is: "Monopoly and Oligopoly". However this is **NOT the right answer**.

Second, the slides will be of **small use for understanding** the material. To be honest, those slides are created to serve **one purpose**: to **guide ME** on what I have to say next and provide some optical reference to the audience for my narration. IE slides **are not standalone material** and the only reason I make them available is to **make it easier for you to keep notes** on what is said instead of copying the slides.

Third and most important, it is an **asset** to learn to take notes. It will be an important part of your career not only as students **but also as professionals**. Do you know who takes notes? All successful people! President Putin and President Trump take notes in conferences and debates, top CEO's take notes in meetings and negotiations, top academics take notes in workshops.

Kosmas Marinakis, Ph.D.



**Industrial  
Economics**

## Lecture 2

Technology & concentration  
★★★★★

Road-map

## What explains the size of firms?

There are **two factors** that affect the **optimal size** of a firm

1. The **market power** factor  
size allows to **exploit** the market more effectively
2. The **efficiency** factor
  - a) The **technological view** of the firm
  - b) The **transaction costs** approach  
avoid **transaction costs** and **asymmetric info**
  - c) The **property rights** approach  
alleviate **incompleteness** by authority systems

★ In this lecture we will **focus** on efficiency explanations for the size and structure of firms.

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### a) The technological view

- ★ What is **technology**?
- ★ Technology defines the firm's **production function**
- ★ The production function and the prices of the production factors yield the **cost function** of the firm,  $C(q)$
- ★  $C(q)$  summarizes the economically relevant **production possibilities** for the firm  
**technological efficiency**: the firm uses no more inputs than necessary to produce  $q$
- ★  $C(q)$  incorporates the notion of opportunity cost  
**opportunity cost**: the value of every factor in its next best alternative use.

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a) The technological view

### Short-Run vs. Long-Run

- ★ The S-R / L-R **distinction** has less to do with time and more with the **adjustability** of production factors
  - ◆ In the L-R **everything** can be adjusted and reconsidered
  - ◆ In the S-R **not everything** can be adjusted
- ★ This leads to another **distinction of costs** in the S-R:
  - ◆ **Fixed** costs do not vary with the rate of production
  - ◆ **Variable** costs are avoidable
- ★ In the L-R all costs are **avoidable**.

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a) The technological view

### Efficiency in the S-R

- ★ In the S-R, the firm is **stuck** with the decision of scale selected **initially**
  - ◆ If the firm initially **anticipated** to produce  $q^*$ , it will select the scale of fixed factors such that  $\min AC(q) = q^*$
  - ◆ If **ex post** the firm is needed to produce  $q^* - x$ , it still can but AC will not be minimum
  - ◆ The **same** will happen if it turns out that it needs to produce  $q^* + x$
- ★ In any case, in the S-R the firm is stuck with its initial decision on scale and has to **bear the inefficiency**.

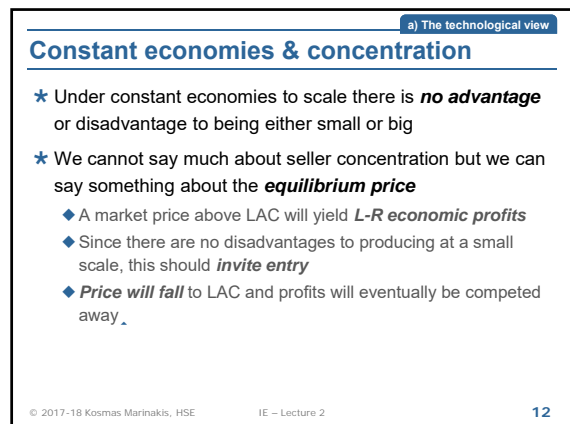
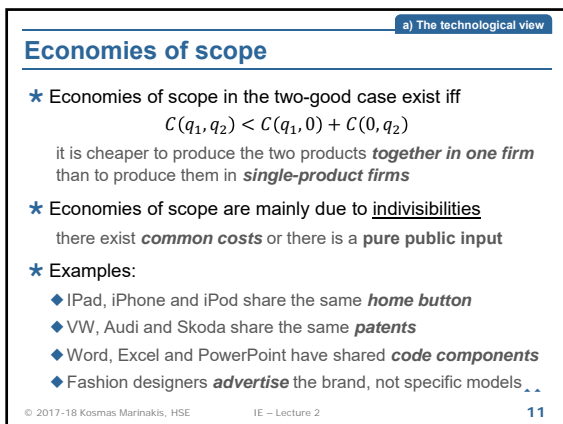
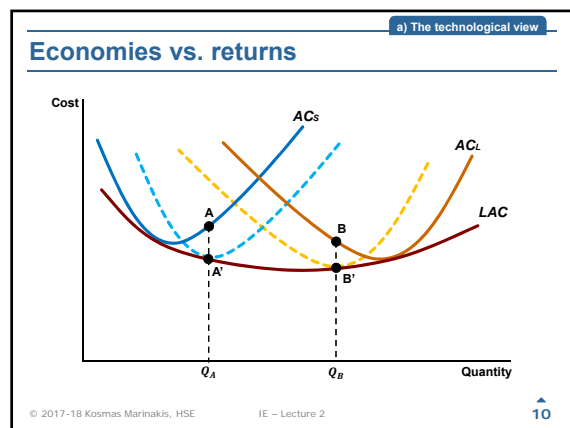
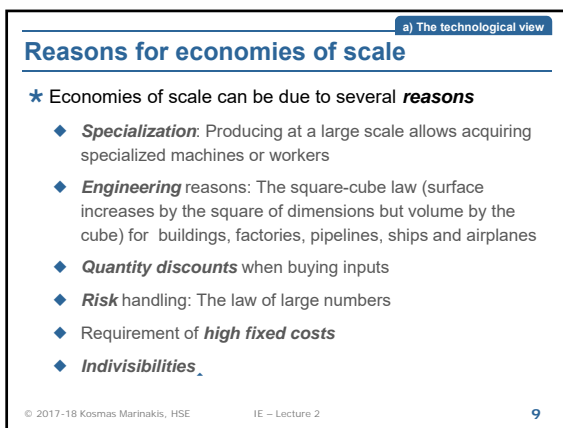
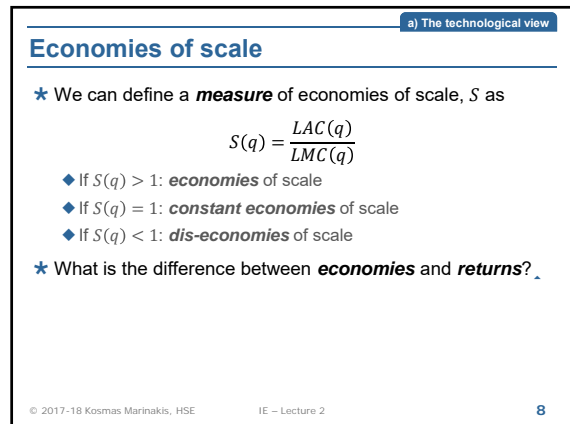
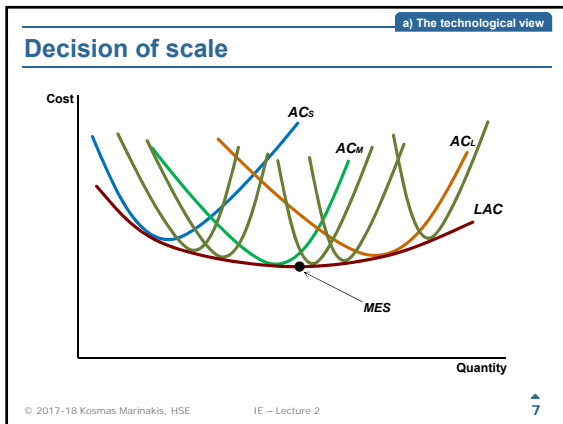
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a) The technological view

### Efficiency in the L-R

- ★ In the L-R, there is **nothing fixed**
  - ◆ The firm can **jump to any scale** it wants
  - ◆ Probably one that yields the **minimum AC** at the realized level of production
- ★ The LAC however is also **U-shaped**  
there is a production level where LAC is minimum – the **MES**
- ★ The **ideal efficiency size** for a firm is the one that will allow it to produce at the MES.

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a) The technological view

## Diseconomies & concentration

- ★ Maximum efficiency requires **many small firms**, each producing **small amounts** of output
- ★ In fact, it is hard to see why firms would **exist** in this case
  - ◆ This case corresponds to **household production**
  - ◆ Each consumer produces her own requirements and a **market does not exist**
- ★ **Example** brushing your teeth (!)

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a) The technological view

## Economies & concentration

- ★ Obvious **cost advantages** to being large
  - ◆ Even if the industry has **initially** many small firms
  - ◆ They will experience **losses** so that they have a strong **incentive to merge**
  - ◆ Firms will keep merging till **losses vanish**
  - ◆ Even then there is tendency to **keep merging**
- ★ This market may become a **natural monopoly**

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a) The technological view

## U-shaped LAC & concentration

- ★ Equilibrium concentration depends on the relationship between the **MES** and the **size of the market**
- ★ If the **MES is relatively small**, the market is likely to be similar to perfect competition
  - many firms* competing and price in equilibrium being driven to minimum average costs
- ★ If the **market is small relative to the MES**, only a few firms can remain viable
  - we expect to see some form of **oligopolistic competition**, if not **monopoly**

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a) The technological view

## Limits to firm size

- ★ Organizing in firms **eliminates** transaction costs and reduces the cost of production
- ★ Then, why are there **any** market transactions at all?
- ★ What are the factors that **limit the size of a firm**, so that an entrepreneur elects not to organize one more transaction internally?
- ★ Why don't firms keep merging till we make **one big firm**?

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a) The technological view

## The reason is... incentives

- ★ Merging results in a **loss** of high-powered **incentives** for one of the two merged firms
  - ◆ One of the previous owners now becomes an **employee** of the larger firm
  - ◆ As a **residual claimant** she had appropriate incentives to invest in cost minimization
  - ◆ As an **employee** she does not
- ★ Incentive problems within the firm arise because of **information asymmetries**

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a) The technological view

## Critic of technological approach

- ★ Technological constraints are important but they are **not the whole story**
- ★ Two **problems**:
  1. It may explain the joint use of facilities, but **not joint ownership**
    - why can't agents write **contracts** to exploit economies of scale and scope without joint ownership?
  2. If the LAC rises at high output, why firms don't produce in **independent divisions** under the same ownership?
    - ownership** should not affect **cost**

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Thank you!



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## WARNING!

This printout is provided as a courtesy, so that lecture time can be dedicated to note taking. These slides are **not standalone material** and should be used strictly as **reference**, side by side with notes taken in the lecture. Studying solely from the slides **is not recommended** and in some cases may **mislead** those who have not attended the relevant lecture. **Less than 5% of tasks in tests and exams can be answered from the slides.**