

ECON-A4000: Economics of Global Challenges

Lecture 8: TECHNOLOGY AND INNOVATIONS II

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Plan for the lecture

This lecture is a short introduction to the topics of the guest lecture and reading

Objectives of this lectures

- Economies of scale in supply side → implications for competition
- Economies of scale in demand side → network effects
- Economies of scale in two sided markets → digital platforms

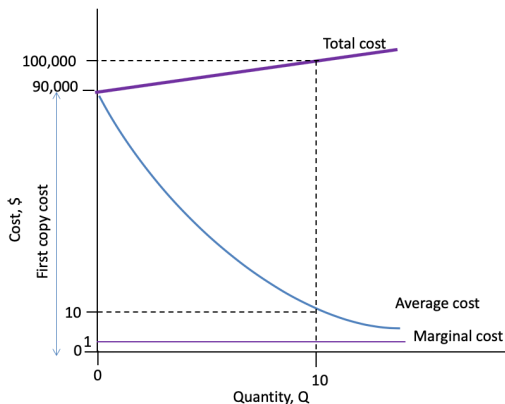
With the help of these concepts we can start understanding digital platforms.

Economies of scale: supply side

Scale economies in supply side

First-copy costs: costly to produce first copy of new knowledge, but much cheaper to reproduce e.g. CDs, software, movies

- Firms producing a knowledge-intensive good need to cover its first copy cost.
- Even with competition, firms set $P \geq AC > MC$ to cover this fixed cost (can never have $P = MC$).



Scale economies in supply side

The average cost curve, economic profits, and competition (complements Unit 8 in the book)

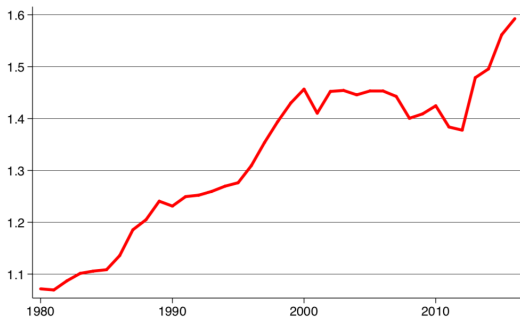
- To be covered in the class

	Restricted entry (IPR or other)	Unrestricted entry
Declining average costs	Economic profits $p > ac > mc$	No economic profits $p = ac > mc$
Non-declining average costs	Economic profits $p > mc > ac$	No economic profits; $p = mc = ac$

→ $P - MC > 0$ can thus follow both with restricted and unrestricted entry.

Markups globally

- From a database with 745,958 firm-year markup observations, for 67,491 distinct firms in 134 countries, over the period 1980-2016



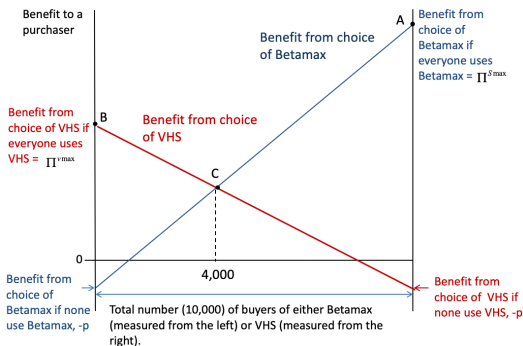
- The evolution of markups for the world as a whole. Globally, since 1980 there has been a steady rise from a markup of around 1.1 to a markup of 1.6 in 2016. Observe the steady rise in the first two decades (1980s and 1990s), and the virtually flat evolution in 2000s. In the last few years, there has again been a sharp increase.

credit: Jan De Loecker Jan Eeckhout, Global Market Power

Economies of scale: demand side

Scale economies in demand side

- Network external effects: Benefits to users increase with the number of users e.g. languages, game consoles
- Winner-takes-all competition: May not select the best technology due to first-adopter advantage (lock-in)



Economies of scale: two-sided markets

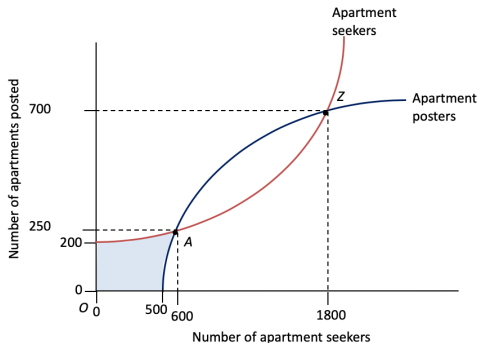
Two-sided markets

Differs from previous supply/demand models: Supply is a function of demand, and vice versa. A matching (two-sided) market matches members of 2 distinct groups, who each benefit from being matched with the right member of the other group. Activities of each group can be

- **Strategic complements:** engaging in one activity increases the benefits of the other activity
 - ▶ In this case, participating in one market has external benefits on users of the other market (chicken-and-egg problem)
- **Strategic substitutes:** (the opposite).

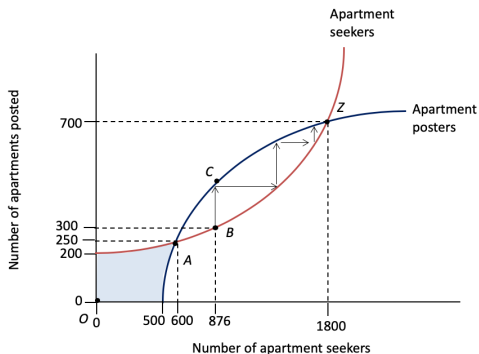
Two-sided markets: Example: AirBnb

- 'Posters' curve – how many apartments posted in response to number of seekers on the site.
- 'Seekers' curve – number of seekers in response to number of apartments posted.
- Need at least 500 seekers and 200 posters for market to exist.



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Forming two-sided markets

Chicken-and-egg problem: how can the new market be formed?

- Public policy can create the platform e.g. on the internet, or a physical marketplace
- Private initiative – individual(s) find resources to launch the risky project
- Companies can charge low/zero prices to one group of users, which will attract the other group e.g. software
- Once formed, companies benefit from innovation rents, and the chicken-and-egg problem deters new competitors.

Summary of this lecture

We covered three issues in economies of scale

- In production: prices must exceed marginal costs
- In demand: winner-takes-all technologies
- In two-sided markets: interdependencies between demand and supply

Policy questions are left open to be discussed next with the help of the reading