

ECON-C5100 Digital Markets

Iivo Vehviläinen

February 9, 2022

Aalto University

iivo.vehvilainen@aalto.fi

Lecture 10: Sharing economy

Outline

- Recap: Platform strategies
- Sharing economy / peer-to-peer markets
- Reputation
- Externalities

Recap: Platform strategies

Recap: Platform pricing

- The structure and characteristics of a particular market determine how the sides of the platform affect each other.
- Pricing for users on one side of the platform needs to take into account the externality that the users create on the other side(s) of the platform.
- As a result, the price for a particular side does not need to fully reflect the cost of serving that side.

More general platform price structure

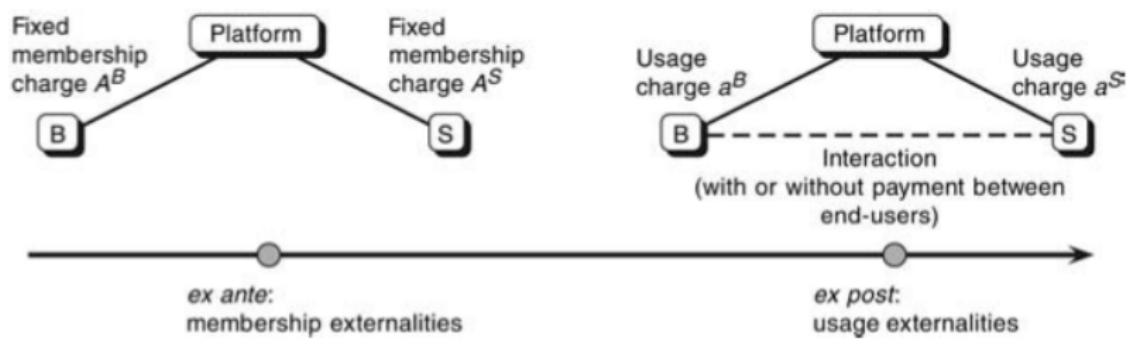


Figure. Simplified pricing structure on a platform.

- Price structure affects profits and economic efficiency.
- Firms use pricing to try to maximize profits and policy makers worry over efficiency, market power and consumer harm.

Rochet and Tirole, 2003; Armstrong, 2006; Figure: Rochet and Tirole, 2006.

Examples of platform pricing choices

Industry	Side	Access	Usage
Ad sponsored media	Advertisers	0 ($< MC$)	✓
	Users	0	0
Clubs	Men	✓	✓
	Women	✓	✓
Mobile phone apps	Developers	✓ ($< MC$)	✓
	Users	Cost of device	✓
Newspapers	Advertisers	0	✓
	Readers	✓ ($< MC$)	0
Online market places	Buyers	0	0
	Sellers	✓	✓
Payment cards	Cardholders	✓ ($< MC$)	0
	Merchants	0	✓
Shopping malls	Shoppers	0	0
	Stores	✓	0

Adapted from Evans and Schmalensee 2007.

Recap: Platform pricing

Some general guidelines can be given:

- A social planner would set the prices based on cost plus the externality to the average user on the other side of the platform.
- Monopoly prices would be different from social optimum:
 - the monopoly would withhold production
 - monopoly is only interested in the externality to the marginal user on the other side of the platform
 - pricing account for the distortions in the number of users
- Prices are usually lower on the market side where users are more price responsive and which exerts a stronger externality on the other side.

Sharing economy

Sharing economy



Figure. BlaBlaCar connects people driving from A to B with passengers looking for rides.

Figure: BlaBlaCar.

Peer-to-peer or “sharing economy”

- In traditional rental markets, owners hold assets to rent them out in a professional capacity.
- Sharing economy has introduced a new kind of rental market, in which owners sometimes use their assets for personal consumption and sometimes rent them out.
- Such markets are referred to as peer-to-peer or sharing economy markets.

Examples of P2P markets

What are the P2P markets you have been using or providing services with?

Use the text field in the Presemo presemo.aalto.fi/digimar vote to add the site and the link.

Sharing economy provides flexibility

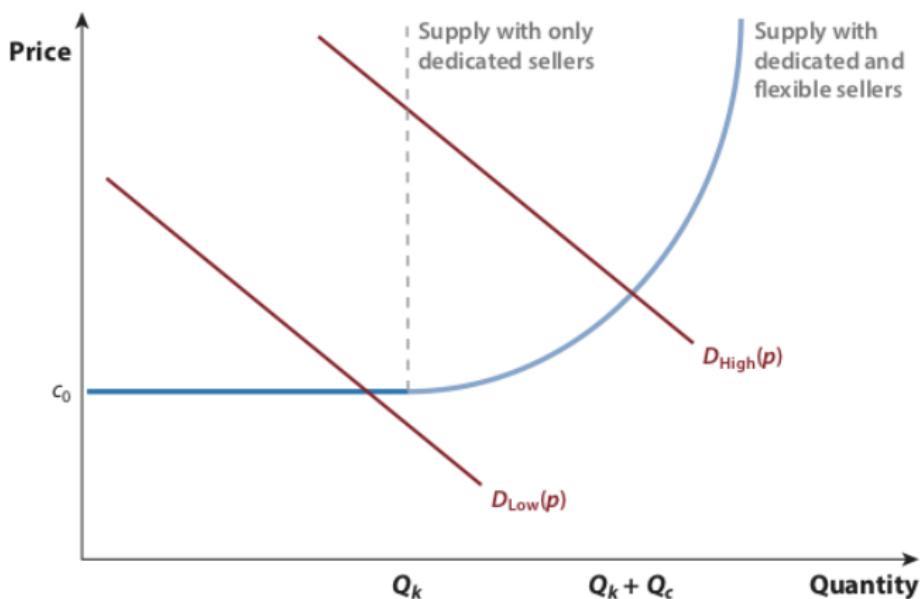


Figure. Sharing economy can increase capacity in traditional businesses.

P2P market design

- P2P markets require efficient search and matching algorithms and proper platform pricing strategies.
 - cf. Online market & Strategies of platforms
- But recommender systems and reputation systems are central to P2P rental markets. Consider e.g. Airbnb:
 - If apartment posters would be afraid to accept strangers to their home or apartment seekers would be afraid to go strange persons' homes, the platform would not exist.
 - Feedback on the quality of apartments and visitors establishes trust to individual participants and the system as a whole.
- In the words of Joe Gebbia, co-founder of Airbnb, “a crucial element of success of this platform is designing trust” .

Features of building trust at AirBnB

The screenshot shows a detailed view of an Airbnb listing. At the top left, a red dashed oval highlights the host's reviews: "★ 247 Reviews" and "Verified". Below this, another red dashed oval highlights the host's status as a "Superhost": "Is a Superhost · Superhosts are experienced, highly rated hosts who are committed to providing great stays for guests." A small gold shield icon is next to this text. The listing itself includes a message from the host: "Hei, I am an architect which currently living in Helsinki, Finland. You are truly welcome to our apartment, should you require further assistances, please do not hesitate to let us know as we will make sure that your time that you will spend here are enjoyable." Below the message, under "Interaction with guests", it says "We could recommend you for something that you might interested to do in Helsinki". It also provides guest statistics: "Response rate: 100%" and "Response time: within an hour". A green button labeled "Contact host" is visible. A large red dashed oval encircles the bottom of the listing, containing the text: "Always communicate through Airbnb · To protect your payment, never transfer money or communicate outside of the Airbnb website or app. [Learn more](#)". On the right side, a red dashed oval highlights the price information: "€82 €65 / night" and "★ 4.82 (76 reviews)". Below this, a "Reserve" button is shown in red. To the right of the "Reserve" button, another red dashed oval highlights a note: "You won't be charged yet. Certain reservations may also require a security deposit." At the bottom right, a red dashed oval highlights a "Report this listing" link.

Figure. Example of the interface of AirBnB with several design elements that try to make you comfortable in making the booking.

Figure: AirBnB.

Sharing economy compared to traditional business

- Effects of the removal of a professional third party owner:
 - Greater risk that the provider may fail to deliver.
 - The product will not be of the quality expected.
 - Safety may be a cause for concern.
 - The buyer may not pay.
 - Limited practical recourse after a transaction.
- The question for the sellers is how to signal their quality?
 - Note that the sellers own concerns need also to be accounted for by the platform, e.g. through insurance.

Reminder: The square and the tower



Market square in Siena, Italy. Source: Tuscany, Beautiful Everywhere.

Establishing trust

- Problem in online markets is how to trust your trading partner
 - Is the trade fulfilled at all? (fraudulent behavior)
 - What is the true quality? (market for lemons)
- Is this problem worse online than offline?
 - Offline it can often be easier to inspect goods, and trade might be more likely to be face-to-face.
 - Online trade can happen by mail (goods) or online (e.g. coding service) delivery, be initially anonymous (Craigslist, dating sites), and often payment needs to occur before delivery.
- How to make the marketplace safe to both buyers and sellers?

Establishing trust

- Third party verification or participation:
 - Amazon will pick, pack, ship and provide customer services for non-Amazon sellers.
 - Taobao (part of Alibaba) escrow service: pay after delivery.
 - eBay/Paypal buyer money-back guarantee.
- Online reputation mechanisms:
 - Allow buyers (and sellers) to give feedback.
 - Report the feedback to subsequent participants.
- Indirect measures also possible, e.g. use AI to follow messaging between the buyers and sellers post-trade.

E.g. Milgrom and Tadelis (2019).

Asymmetric information



Figure. Earl Munz.

Figure: CBS Television.

Reviews

- In addition to information asymmetries, the offering is not standardized (taxi vs. Uber, known hotel brand vs. Airbnb), and can be complex (e.g. coding services).
- Reviews are a natural response to each of these problems:
 - Describe the performance of a transaction counterpart, a user can alert others to what went right and what went wrong.
 - Simultaneously improving future matches and penalizing bad behavior.

Reviews: Airbnb experience

- Consider a two-sided review mechanism, used early on in Airbnb, where the other side gives the review first.
 - If the review is negative, then reply is likely to be negative.
 - If the review is positive, then reply is likely to be positive.
- The dominant strategy for the first reviewer was to give a positive review if she/he wanted a positive review in return.
- Overall, the reviews became too positively biased.
 - Observed also earlier, e.g. on eBay.
- As a result, Airbnb adjusted their review system so that reviews to parties are revealed only after both have been written (or after some time).
 - Alleviates but does not remove the problem.

Reviews

Review process has other complications as well:

- At the start, no reviews are available.
 - Reviews can't assist the first users of the platform.
 - Can't help matching with a rookie or a new product.
 - Invite free-riding: why be the first to try out?
- User reviewed unfavorably might decide to start over.
- Users who submit reviews might differ systematically from normal users, by selection or by collusion.
 - Targets of the reviews have an incentive to inflate their ratings.

Externalities – Discrimination

- To increase trust, many platforms encourage users to provide personal profiles and even to post pictures of themselves.
- These features may facilitate discrimination based on sellers' race, gender, age, or other aspects of appearance, e.g.
 - Non-black hosts charge ca. 12% more than black hosts for the equivalent rental on Airbnb in NYC (Edelman and Luca 2014).
 - Gender wage gap on a freelance labor online platform (Barzilay and Ben-David, 2017).
 - Minority males set lower prices at the beginning of their career on Blablacar platform (Lambin and Palikot 2017).

Externalities – Discrimination

The screenshot shows the BlaBlaCar search interface. The user has selected Lyon as the departure city and Paris as the destination. The search date is set to 07/07/2015. The results page displays 78 carpooling offers:

- Sebastien K**, 41 ans, Ambassadeur: **Demain à 00h10** Lyon — Paris. Price: **25 € par place**. 1 place restante. Acceptation: Automatique. Vehicle: SKODA FABIA ★★.
- David M**, 42 ans, Ambassadeur: **Demain à 01h40** Lyon — Paris. Price: **35 € par place**. 3 places restantes. Acceptation: Manuelle (< 8h). Vehicle: CITROEN C5 ★★★.
- Bertrand**, 27 ans, Ambassadeur: **Demain à 02h10** Toulon — Lyon — Paris. Price: **35 € par place**. 3 places restantes. Acceptation: Automatique. Vehicle: BMW SERIE 3 ★★★★.
- Lionel B**, 30 ans: **Demain à 04h15** Montpellier — Lyon — Chilly. Price: **33 € par place**.

On the left sidebar, there are filters for trip type (complete trips), departure time (0h - 24h), price (best prices, average prices, higher prices), response time (immediate, 1h, 3h, 6h, 12h, all), photo availability (with photo, all), and experience (ambassador, expert, confirmed, habitual, all).

Figure. Example of pricing on BlaBlaCar.

Figure: Farajallah et al. 2016.

Externalities – Discrimination

- Building trust without discrimination can be challenging:
 - Informational asymmetries need to be solved.
 - Hard to pick the proper signal.
- To reduce gender bias, symphony orchestras have started to arrange blind auditions:
 - In 1952, the Boston Symphony conducted an experiment with a series of blind auditions.
 - To their surprise, their initial audition results still skewed male.
 - The reason?
- In the digital world, easier to set curtains that manage the flow of information, but design still going to be tricky.

Properties of good market design

1. Provide *thickness*
 - Attract a sufficient proportion of potential market participants to come together ready to transact with one another.
2. Overcome the *congestion* that thickness can bring
 - Ensure that market participants can consider enough alternative possible transactions to arrive at satisfactory ones.
3. Make it *safe* to participate in the market as simply as possible
 - As opposed to trading outside of the marketplace or engaging in strategic behavior.
4. Some markets can be *repugnant*: they should not exist.
5. *Experimentation* to diagnose and understand market failures and successes, and to communicate results to policy makers.

Summary of platform design

- Openness
 - Decide the sides on the platform.
 - Decide compatibility with others.
- Pricing
 - Set pricing on all sides of the platform.
 - Take into account the externalities that a change in demand on one side causes in the other sides.
- Other considerations
 - Thickness, congestion, safe, repugnancy, experimentation.
- From a societal point of view also
 - Consumer protection, market power, externalities.
 - More on regulating these in lecture 12.

Learnings today

- Platform competition and pricing in the digital domain are complex; the outcomes are dependent on the specific market.
- Also other dimensions of platform design have real world implications.
- Sharing economy can increase economic efficiency, but does not magically solve old externalities.
- Establishing trust is essential for sharing economy transactions; implementation through reviews or other means complex.

Materials for this week

Online resources:

- **Moral hazard.** If need be, consult MRU on asymmetric information, moral hazard, and signalling. mru.org: Asymmetric information.

More technical sections from earlier readings

- Levin, Jonathan (2011) "The Economics of Internet Markets", NBER Working Papers 16852. Section 2.
- Evans, D. and R. Schmalensee (2007) "The Industrial Organization of Markets with Two-Sided Platforms", Competition Policy International. Section III A.

Reading assignment 5:

- **Platform strategies.** Rysman, Mark (2009). "The Economics of Two-Sided Markets. Journal of Economic Perspectives", Volume 23, Number 3. Section on Public Policy will be discussed in lecture 12.
- **Sharing economy.** Luca, Michael (2017). "Designing Online Marketplaces: Trust and Reputation Mechanisms." Innovation Policy and the Economy 2017.

Last week

- Digital goods
- Regulation

Appendix

Sharing economy

- Sharing economy or peer-to-peer markets increase efficiency of the use of durable goods or labor.
- Success based on new technologies, but also experience from market design.
- Sharing economy platforms solve frictions between the parties.

Other mechanisms to build trust

- Large volume of transactions makes the monitoring of feedback manually inefficient.
- AI algorithms may help to automatize such tasks, for example
 - Assess the quality of sellers by analyzing the communication between the buyers and the sellers.
 - Create a market for feedback by automatic ranking the informativeness of user feedback.
- Platforms can also add other information to reduce the need for reviews
 - Conduct their own verifications.
 - Collect and publish other information.

Examples of P2P markets

- Accommodations (Airbnb, Fairbnb.coop, Uniplaces)
- Computer programming (Andela, Freelancer, Upwork)
- Consumer loans (Lending Club, Prosper)
- Crafts (Etsy)
- Currency exchange (CurrencyFair, Wise)
- Dating (Tinder)
- Deliveries (Foodora, Wolt)
- Household tasks (Handy, TaskRabbit)
- Local goods and services (Craigslist)
- Marketplaces (eBay, Huuto.net, Tori.fi)
- Rides (BlaBlaCar, Grab, Uber)
- Start-up financing (Kickstarter)
- User generated content (Twitch, YouTube)