The Economics of Peer-to-Peer Internet Markets

Liran Einav (Stanford and NBER)

(with Chiara Farronato and Jonathan Levin)

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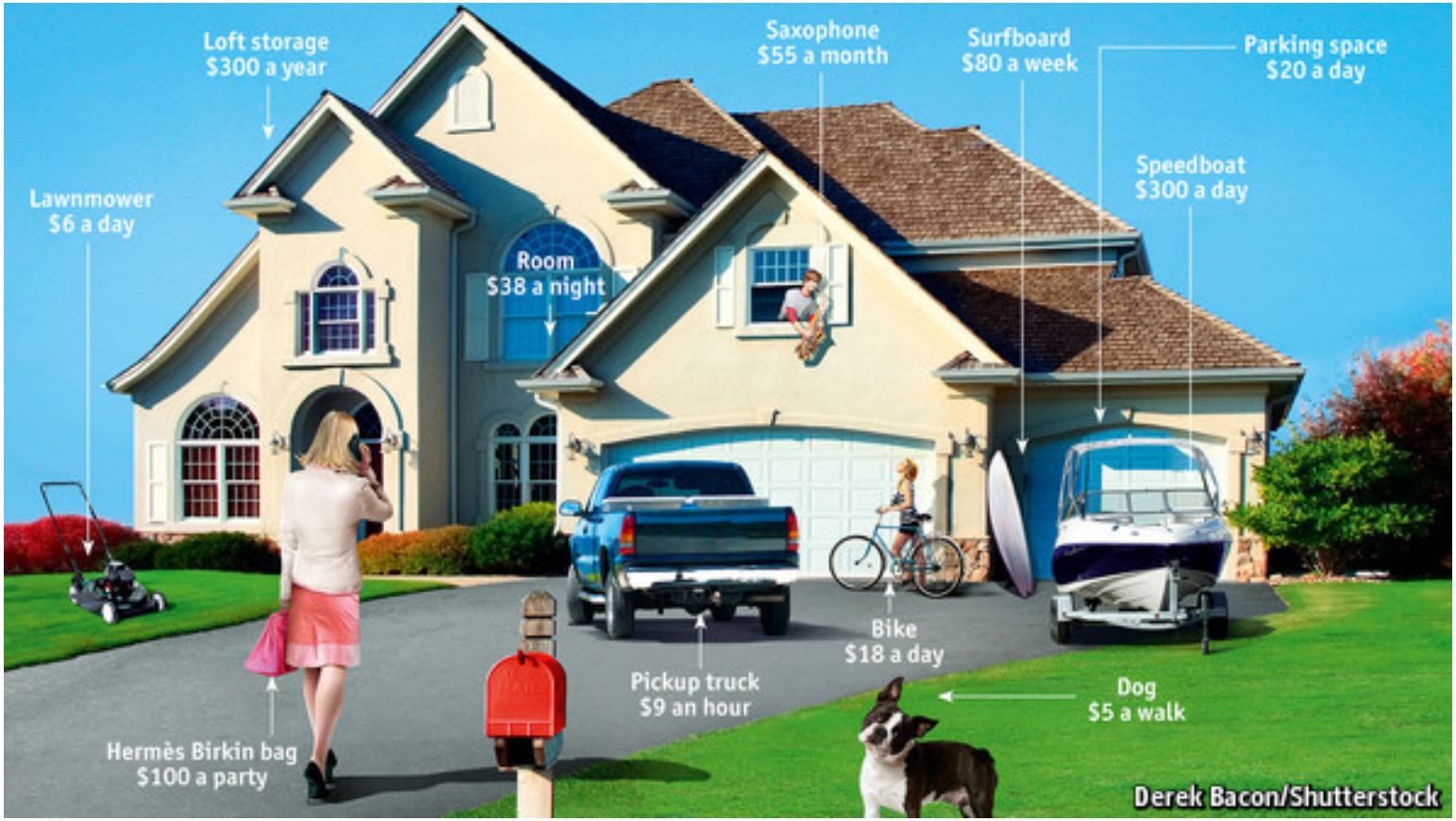
Peer marketplace businesses



Peer marketplace businesses

So far in 2014 alone:

- >380 start-ups listed on Angel List classified as “peer-to-peer”
- Peer-to-peer start-ups raised over $2 billion in venture financing
- Uber and Airbnb valued at over $20 billion

Of course, some of this may be a bubble

- 25 of the “peer-to-peer” startups on Angel List are characterized as the “Airbnb for X” (“cars in Denmark,” “wardrobe items,” etc.)

But many are probably here to stay …

Expansion of peer-to-peer model

"First generation" and followers (mostly remote interactions)

- e-Commerce: eBay (1995), Craigslist (1995)
- Labor markets: Freelance (1995), oDesk (2003), Mechanical Turk (2005)
- Lending: Kiva (2005), Zopa (2005), Prosper (2006), Lending Club (2007)
- Financial services: CurrencyFair (2009), Kickstarter (2009)

"Second generation" (getting more personal …)

- Accommodation: Airbnb (2008)
- Transportation: Uber (2009), RelayRides (2010) , Lyft (2012)
- Personal services: Taskrabbit (2009), Care.com (2007), Instacart (2012)

Note: Will try to narrow the focus to markets that match buyers and sellers, although many of the issues/points would apply to other matching sites (Match.com, 1995; eHarmony, 2000; Grindr, 2009; Tinder, 2012) or to content sharing (Napster, 1999; Grokster, 2001; YouTube, 2005)

Evolution over time

First generation e-commerce markets

- Turn existing but local/thin markets into thicker markets
- Reduce transaction costs, especially for “niche” goods
- Not “too personal” – although some trust required
- Can be anonymous or at least pseudonymous

Newer personal service companies

- Much more intimate
- Requires a lot of trust – letting someone stay in your home, getting into someone’s car, etc.
- Sometimes requires more technology (GPS, mobile phones)

What's in it for economists?

1. Market micro-structure and market design
   - Search and matching, pricing, trust and reputation

2. How markets evolve over time
   - Platform growth: network effects and scale economies
   - Changes in what gets transacted, how, and by whom
   - Standardization and "professionalization"

3. Competition with traditional markets and suppliers
   - Economic value created by peer-to-peer markets
   - Different models of supply / production
   - Looser regulatory and tax framework for online businesses

1. Market design: three main problems

A. Matching demand and supply

- Canonical problem: facilitate search and matching when people have heterogeneous preferences and the set of products is very large, diverse, and unstructured
- Markets can be thin in different ways: product definition (eBay), geographically (Uber), temporally (Taskrabbit)

B. Pricing

- Provide a mechanism to establish terms of trade
- Auctions, dynamic pricing, posted prices, risk scoring on lending sites
- Part of the problem can be defining what's being traded (a task, an hour of time)

C. Trust and reputation

- Transactions need to be "safe" for buyers and sellers
- Reputation systems, grouping (oDesk's agencies), diversification strategies (Prosper), and platform guarantees
- Does the platform set up institutions and let the market play out, or does it "take over" some of the quality verification / execution?

1.A. Matching Buyers and Sellers

- Typical idea of many internet platforms: create a huge and diverse market with many types of buyers and sellers. Key problem to solve is how to help participants find (good) matches?

- Different kinds of frictions
  - Search – finding best prices (Dinerstein et al., 2014), finding best matches (Hitsch et al., 2009)
  - Congestion – people crowd the best sellers/products (Horton (on oDesk); Fradkin (on Airbnb); Lee et al. (on Korean internet dating))
  - Informational – buyers don't always know what they want (recommender systems in Amazon or Netflix), uncertainty about quality (Lewis) or availability (Fradkin)

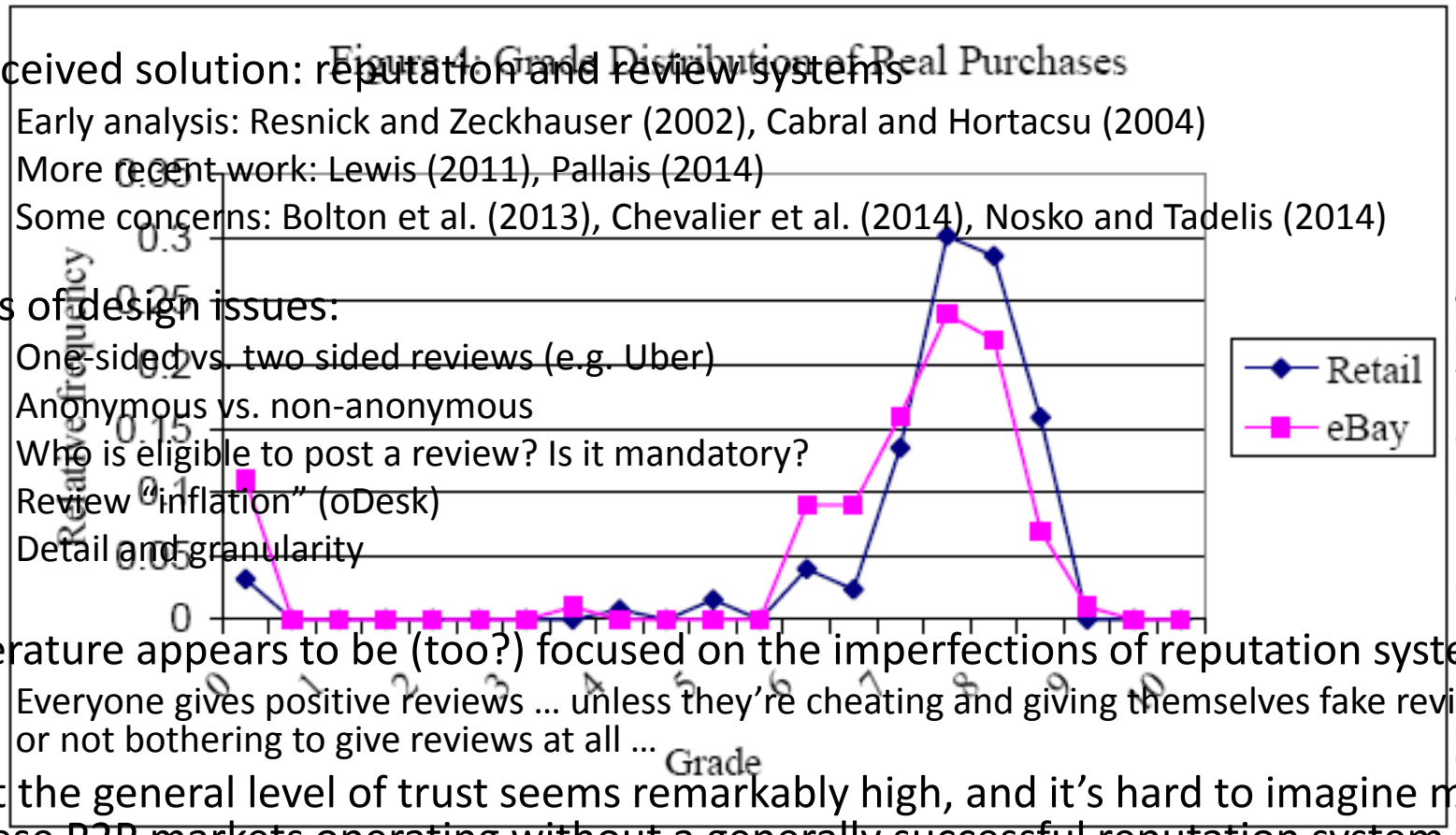
- Platform strategies
  - Search rankings, recommender systems
    - Main objective is to create matches, but could also be used to guide which matches are more likely
  - Conflation – every car the same as every other on Uber, eBay product pages
  - Informational – create structure for credible signaling (e.g., "propose with a rose")

1.B. Pricing and Products

- Internet facilitates wider range of pricing mechanisms
  - Proxy bidding on eBay allows online auctions (many)
  - Surge pricing on Uber helps balance demand and supply
  - Dynamic ticket pricing is easier (Stanford football …; Sweeting)
  - Price discrimination along many possible dimensions
- Often can be trade-off between more sophisticated pricing mechanisms and speed/convenience
- Related to pricing – what exactly are the products?
  - On Taskrabbit – originally price by task, then by hour (some similarities on oDesk)
  - In advertising – price by impression vs click vs conversion
  - On Airbnb – price per room, not per person
- Market design problem of whether and how to define "eligible" trades (Amazon limiting sellers vs. eBay allowing all sellers, etc.)

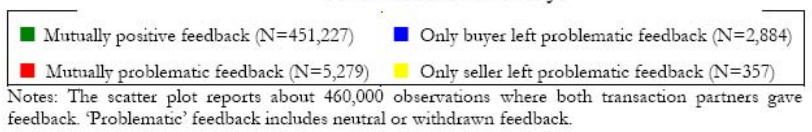
1.C. Trust and Reputation

- Early concern: problems of asymmetric info would be worse online where you couldn't "inspect" goods, and payment + delivery were asynchronous
  - E.g. Jin and Kato (2007) – more false claims of baseball card quality online.



- Perceived solution: reputation and review systems
  - Early analysis: Resnick and Zeckhauser (2002), Cabral and Hortacsu (2004)
  - More recent work: Lewis (2011), Pallais (2014)
  - Some concerns: Bolton et al. (2013), Chevalier et al. (2014), Nosko and Tadelis (2014)
- Lots of design issues:
  - One-sided vs. two sided reviews (e.g. Uber)
  - Anonymous vs. non-anonymous
  - Who is eligible to post a review? Is it mandatory?
  - Review "inflation" (oDesk)
  - Detail and granularity
- Literature appears to be (too?) focused on the imperfections of reputation systems
  - Everyone gives positive reviews … unless they're cheating and giving themselves fake reviews … or not bothering to give reviews at all …

Yet the general level of trust seems remarkably high, and it's hard to imagine many of these P2P markets operating without a generally successful reputation system



Notes: The scatter plot reports about 460,000 observations where both transaction partners gave feedback. 'Problematic' feedback includes neutral or withdrawn feedback.

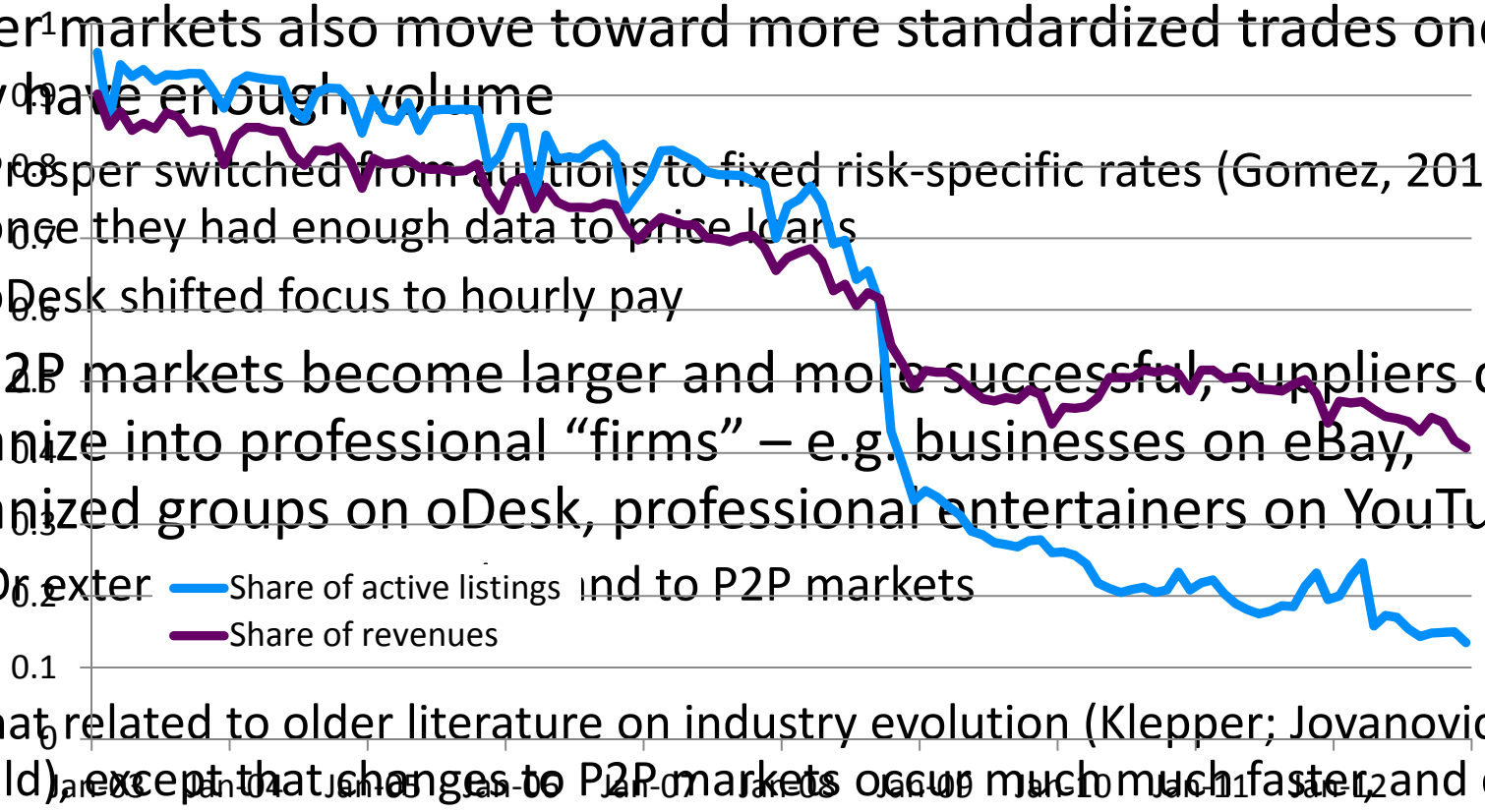
2. Market evolution

- Platform growth and competition between marketplaces
  - Lots of theoretical work in economics on this topic
  - Network effects, possibility of scale economies
  - Tipping toward larger or established marketplace (examples: eBay winning online auctions, but also counter-examples – e.g. online dating)
  - Empirical research more scarce …
- Platform problem a bit different early on and later
  - Initially market may be inherently thin, so need to find a way for balanced growth; may be less of an issue later, where activity driven more by intensive rather than extensive margins
  - Key issue: where does the supply / demand elasticity come from to equilibrate the market?
  - Farronato's upcoming JMP on taskrabbit: some markets work out, while others don't. Why?

Much evolution within a platform

Changes in what gets traded, by whom, and how:

- Auction decline on eBay (Einav et al., 2013)
- Other markets also move toward more standardized trades once they have enough volume
  - Prosper switched from auctions to fixed risk-specific rates (Gomez, 2014) once they had enough data to price loans
  - oDesk shifted focus to hourly pay
- As P2P markets become larger and more successful, suppliers can organize into professional "firms" – e.g. businesses on eBay, organized groups on oDesk, professional entertainers on YouTube
  - Or exter nd to P2P markets



Somewhat related to older literature on industry evolution (Klepper; Jovanovic and McDonald), except that changes to P2P markets occur much much faster, and data is systematically generated throughout

3. Peer-to-Peer vs. Traditional Markets

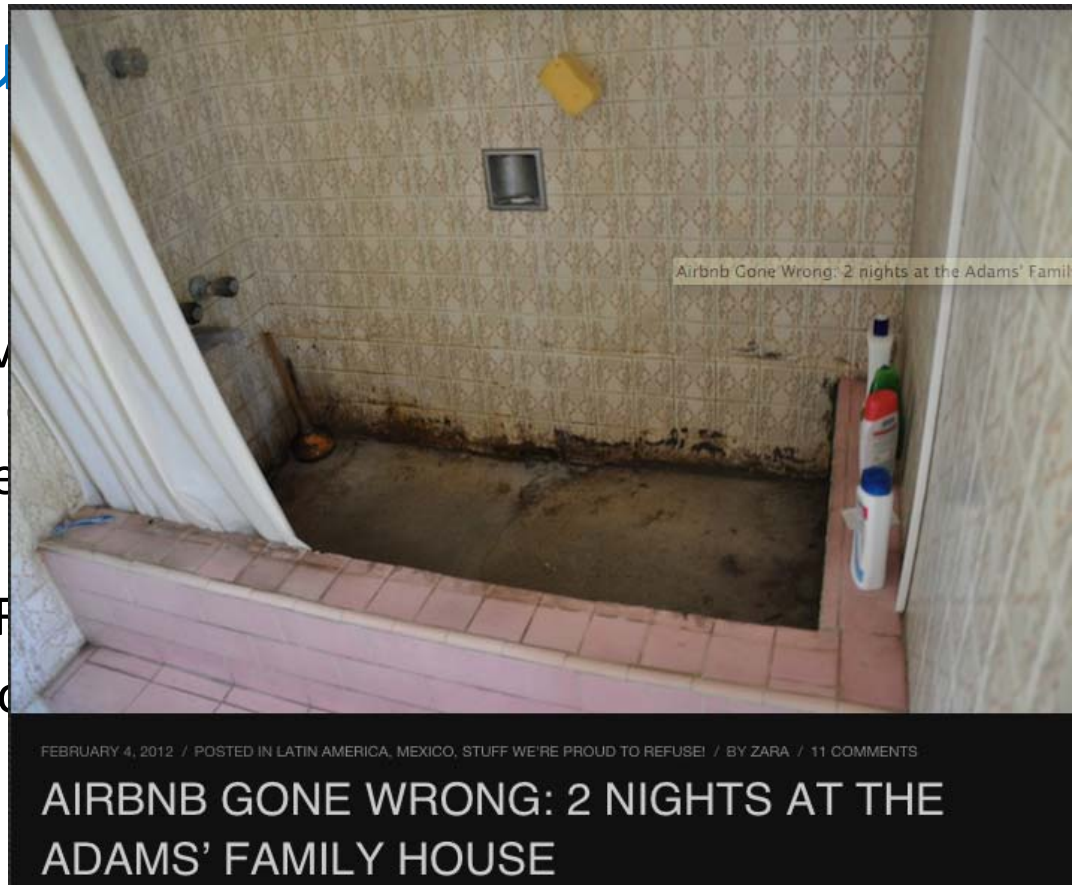
- Advantages of peer-to-peer markets:
  - Allows trades that otherwise wouldn't have occurred
  - Lower fixed costs of operation, perhaps higher variable costs:
    (a) Reduce entry barriers and open up the provision of products and services to a much wider range of suppliers
    (b) Scale less important, can substitute to/from other markets, so markets can adjust quickly/flexibly to temporal/seasonal fluctuations

- Disadvantages:
  - Harder to maintain quality standards and have predictable service
  - Less "professional" and "standardized"

Tax and Regu

Tax Advantages:

- Online sellers traditionally hav
  collected on inter-state sales.
  purchases. Consumers do care
- Airbnb renters haven't had to
  now started collecting in San F
- Online service providers may c



Regulatory Advantages:

- Hard to get a new hotel zoned, but Airbnb makes the entry barrier to renting out one's apartment very low
- Hard to get a taxi license, but Uber lets almost anyone be a taxi driver
- Lower regulatory burden for health and safety and occupational regulations

Not everyone is a winner …

Protest of Uber by Cab Drivers in London

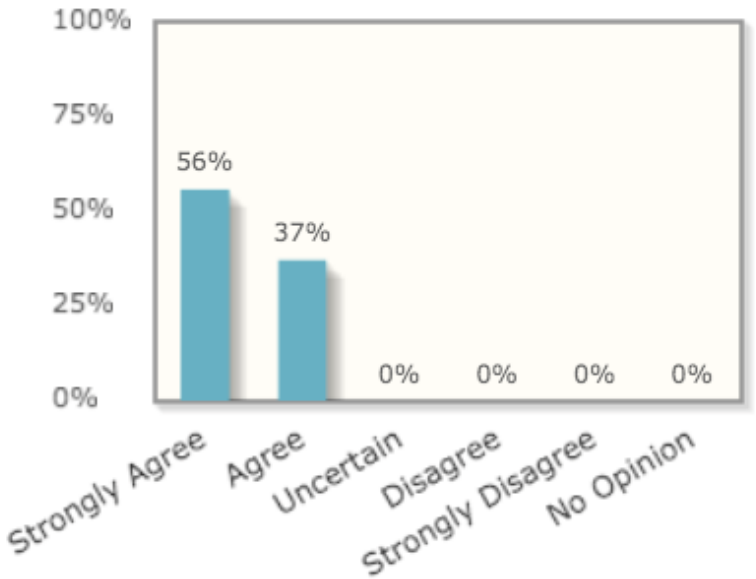
But most economists think it's worth it …

Monday, September 29, 2014 9:10am

Taxi Competition

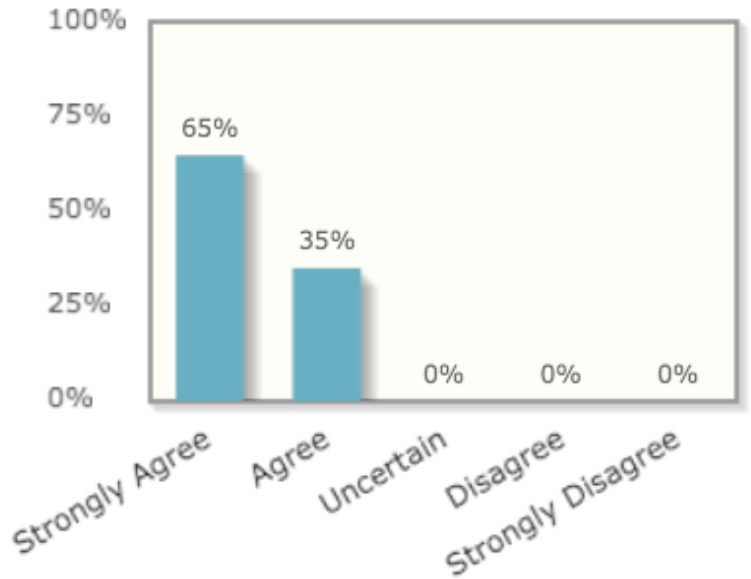
Letting car services such as Uber or Lyft compete with taxi firms on equal footing regarding genuine safety and insurance requirements, but without restrictions on prices or routes, raises consumer welfare.

Responses



Source: IGM Economic Experts Panel
www.igmchicago.org/igm-economic-experts-panel

Responses weighted by each expert's confidence



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Peer-to-Peer vs. Traditional Markets

Shopping malls did not disappear after Amazon and eBay, so seems unlikely that peer-to-peer market will fully displace these more traditional industries

But it would be interesting to see how these traditional industries respond:

- Change their product offering?
- Change the way they are organized or move online?
- Lose the labor to peer-to-peer markets?
- Lobby for regulation change/enforcement?

Final slide

- Peer-to-peer markets are taking over our lives …
- At the same time, they provide an excellent testing ground for economics
  - Great data
  - Lots of them
  - Fast moving
- A topic that will keep us busy for a while … as researchers, consultants, regulators, and users, and it'd be nice to have an organized way to think about all of it
- Thank you!