What is the Consumer Surplus From a New and Growing Marketplace? Evidence from Airbnb (very preliminary)

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Motivation

The chicken and egg problem in new marketplaces.

Across-side network effects.
  - More sellers increase utility for buyers.

Within-side network effects.
  - Competition for transactions.

Aggregate network effects.
  - Reviews, Technology, Policy, ..
Preview of the Results

- Descriptive evidence suggests large improvements in consumer surplus over time.

- Demand Estimates Show:
  - Overall decrease in average per transaction utility.
  - Decrease is mostly due to secular increase in transaction prices.
  - Utility gain from reputation over time occurs quickly and on the order of $30 per night.
10 minutes to Williamsburg, 20 minutes to Manhattan!

A sunny private room with a Queen size futon and big closet in a new renovated apartment (this March), with a SHARED bathroom, has Wi-Fi, it’s on the first floor, so no need to drag your heavy suitcase up down stairs.

The street is quite and safe, the building has its own washer and dryer, (though we still need to pay, but we don’t have to walk far to do the laundry).

3 minutes walk to M train Seneca stop, 6 minutes walk to L & M train Myrtle-Wyckoff stop.

The L & M both takes you to Manhattan in about 15 minutes ride, (that depends on where you are going to)

On the M train you can totally enjoy the sky ride, seeing Brooklyn views, takes you directly to the Central Park, MOMA, China Town, Queens, 5 Pointz (the amazing graffiti scene/blocks/gallery) etc.

The L train connects the most subway lines, hop on the L than very easy to switch to other places that you possibly wanna go to, also directly take you to Williamsburg, east village, Chelsea area, famous sky park - The High Line, and
Why Airbnb?

Transactions

Properties

2008

2012
Network Effects

Positive Effects

- More and better reviews
- Better quality
- More variety
- Increased competition amongst sellers

Negative Effects

- Worse quality
- Less competition amongst sellers

Other:
- Seller and Buyer Learning
- Platform Policy
- Platform Reputation
- Different Customers
Outline

- Descriptive Evidence
- Demand Model
- Consumer Surplus Calculation
- Decomposition
Share of Trip Attempts That Transact
Transaction Costs

![Graph showing median hours to book over months of booking from 2010-01 to 2013-01. The median hours decrease over time, with a gradual trend line and shaded area indicating variability.](image-url)
Share of Stays With 5 Star Review

![Graph showing the share of stays with 5 star reviews over time.](image-url)
Demand

\[ v_{gpt} = \beta X_{pt} + \alpha p_{pt} + \epsilon_{gpt} \]

*Property Characteristics*

Characteristics:

- Neighborhood
- Room Type
- Price
- Number of Reviews
- Avg. Review Score
Endogeneity

• Price: Instrument with suggested price

• Reviews: Control for bookings that have not actually stayed at the place yet.
Data

• Three Markets

• Searches in April 2013

• Choice Set: All properties seen in search on day of contact.

• Choices: Properties Contacted
## Demand

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<th>Austin</th>
<th>Seattle</th>
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<td>-79.385***</td>
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Utility Over Time

![Utility Over Time Chart]

- **Avg. Nightly Welfare**
  - 2009 to 2013
  - Markets: Austin, Chicago, Seattle

- **Number of Transactions**
  - 2009 to 2013
  - Markets: Austin, Chicago, Seattle
Decomposition of Utility Change: Austin

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<th>Characteristics</th>
<th>Average Utility Compared to 2009</th>
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<td></td>
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Thoughts

Gains from reputation over time depend on what matters more:

- Number of Reviews
- Review Score

Does secular increase in price suggest that sellers receive returns to scale in this market?

- Better properties may enter over time.

Gains from variety / better matching.

- Large N + large logit error suggests huge gains.
Future Work

Property Fixed Effects

More Markets

Outside Option

Host Utility

Guest Characteristics