

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.



BROWSE ▾

SIGN UP

LOG IN

HELP ▾

LIST YOUR SPACE

New York

02/21/2013

02/22/2013

1 Guest

Search

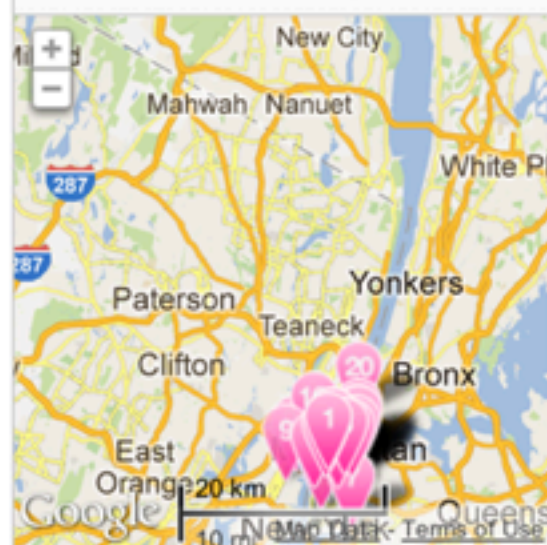
List

Photo

Map

Going to New York? Visit the Airbnb Neighborhood Guide to New York!

☒ Redo search in map



Room type ▾

☐ Entire home/apt 1481

☐ Private room 1455

☐ Shared room 150

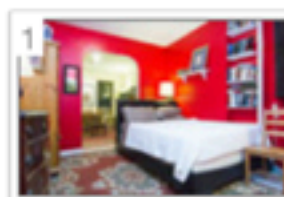
Show More...

Price ▾

\$10

\$300+

3086 results with 241 popular on Wish Lists



SPACIOUS 1BR HELL'S KITCHEN APT

Entire home/apt — New York > Hell's Kitchen

72 reviews

\$135

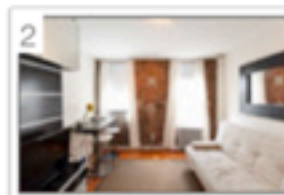
Per night

Instant Book



Connect with Facebook

See where friends have stayed and read their reviews.



1 Bedroom Apartment in Times Square

Entire home/apt — New York > Hell's Kitchen

42 reviews

34 other reviews

\$210

Per night



Massive! 1Bedroom/Elevator /Sleep 4

Entire home/apt — New York > Midtown East

26 reviews

99+ other reviews

\$220

Per night



LG 1 BR APT IN MIDTOWN W/ TIMES SQ

Entire home/apt — New York > Hell's Kitchen

65 reviews

44 other reviews

\$115

Per night



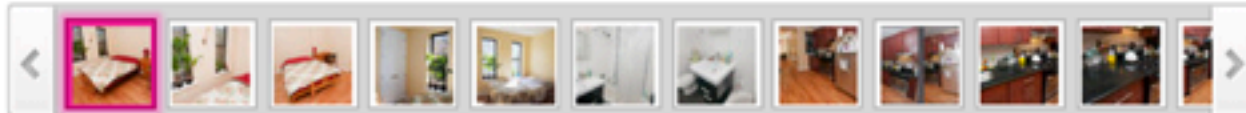
Gorgeous NYC Getaway

\$140



Airbnb.com
Verified Photo

Sunny Room in Queens & Brooklyn



Description

Amenities

House Rules

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 it's 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, (than 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

Room type:	Private room
Bed type:	Futon
Accommodates:	2
Bedrooms:	1
Bathrooms:	1
Country:	United States
City:	Queens
Neighborhood:	Ridgewood
Cancellation:	Strict

\$43

Per Night

Check in

mm/dd/yyyy

Check out

mm/dd/yyyy

Guests

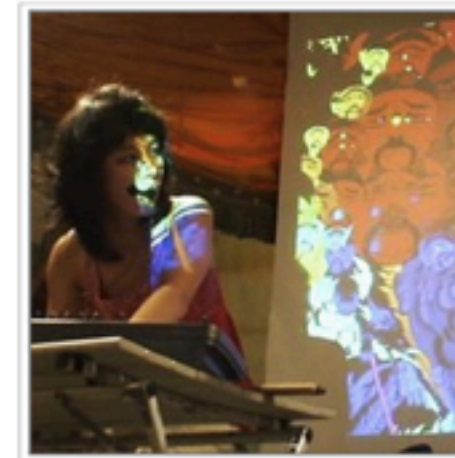
1

BOOK IT!



SAVE TO WISH LIST

Saved 435 times



Yuchen

CONTACT ME

[More about the host](#)

93%

RESPONSE RATE

within a day

RESPONSE TIME

5 days ago

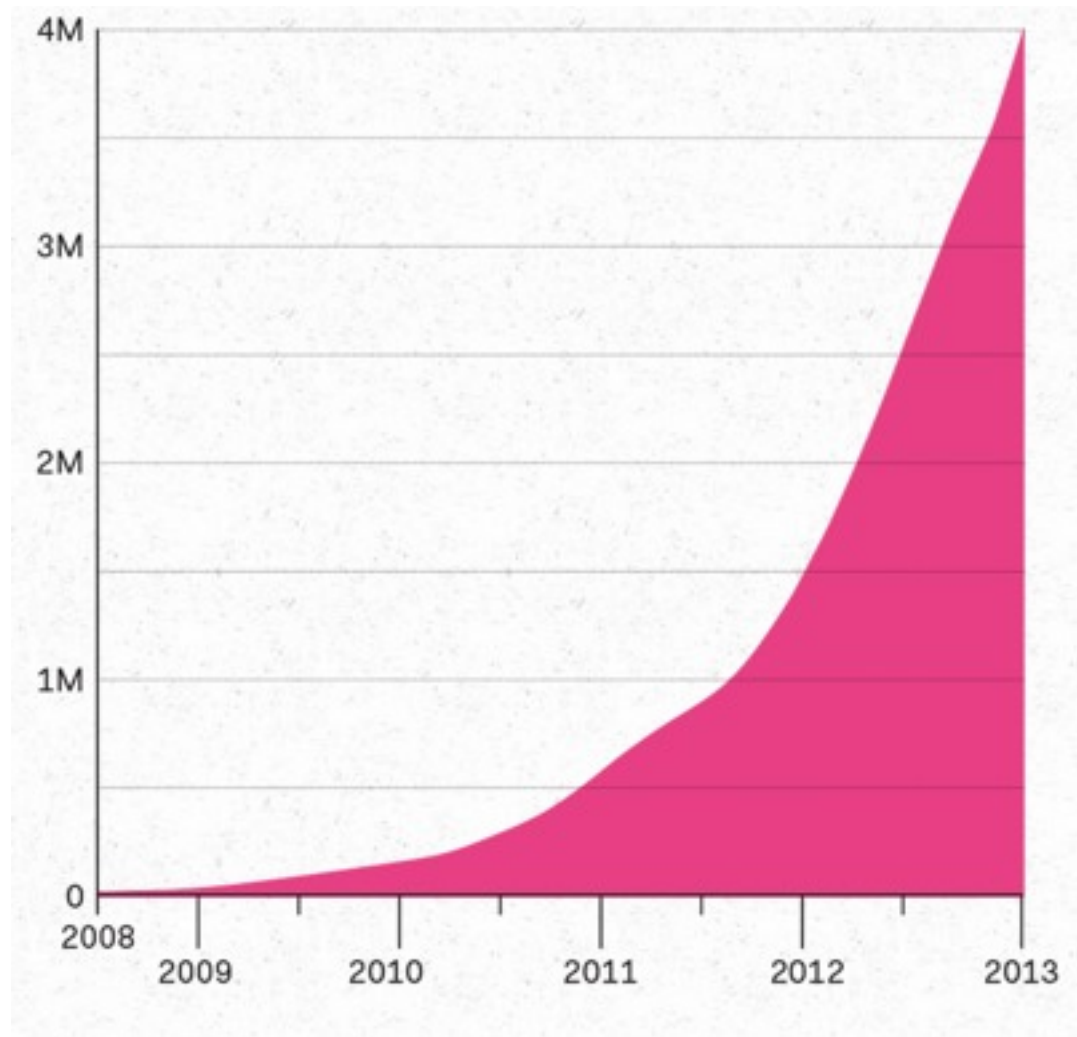
CALENDAR UPDATED

How does Airbnb promote safety?

- [Educate yourself about safety](#)
- [Protected by the \\$1,000,000 Airbnb Host Guarantee](#)
- 24/7 phone support
- Rich user profiles and

Why Airbnb?

Transactions



Properties



Network Effects

Positive Effects

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

Negative Effects

- Worse quality
- Less competition amongst sellers

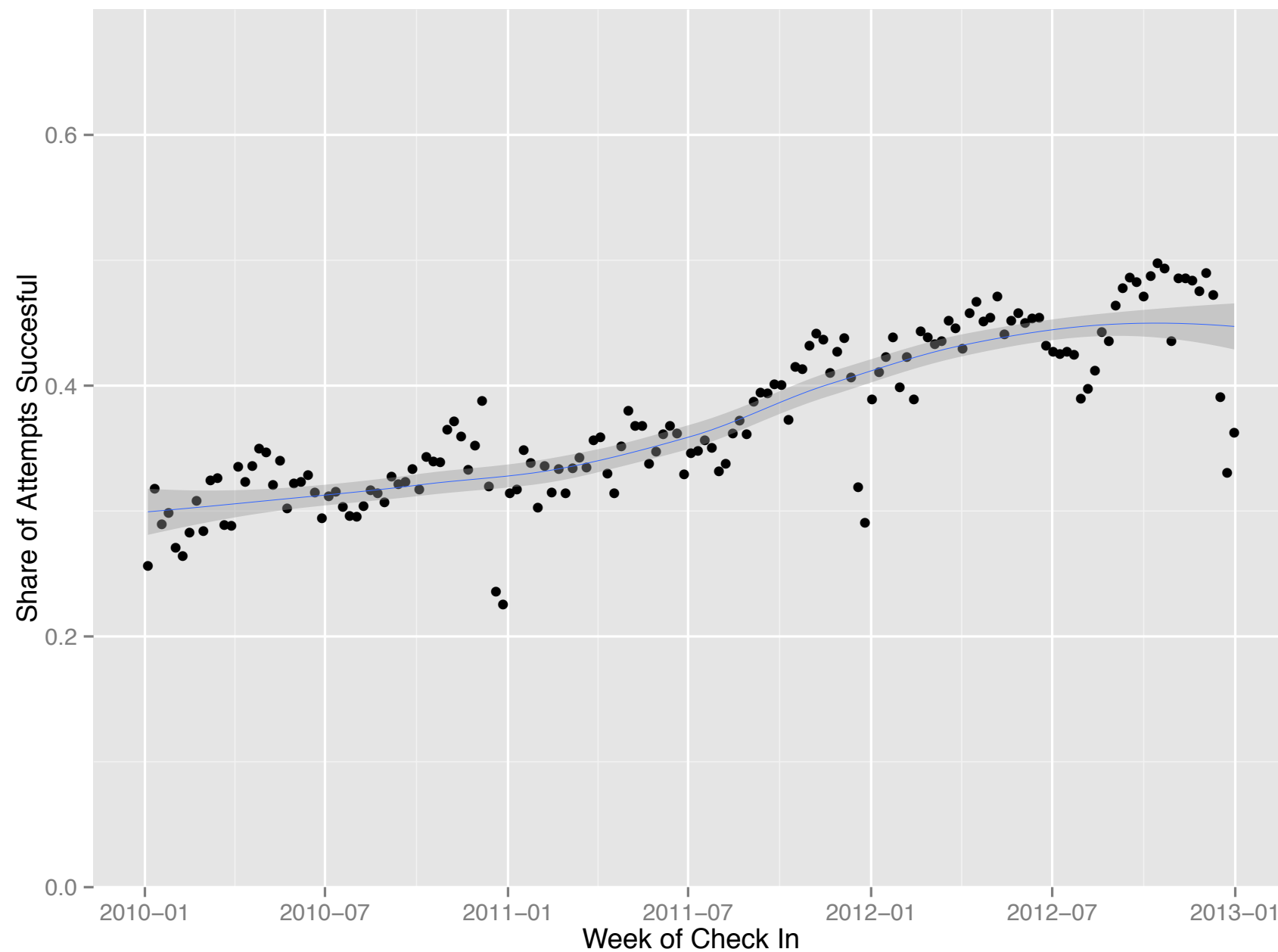
Other:

- Seller and Buyer Learning
- Platform Policy
- Platform Reputation
- Different Customers

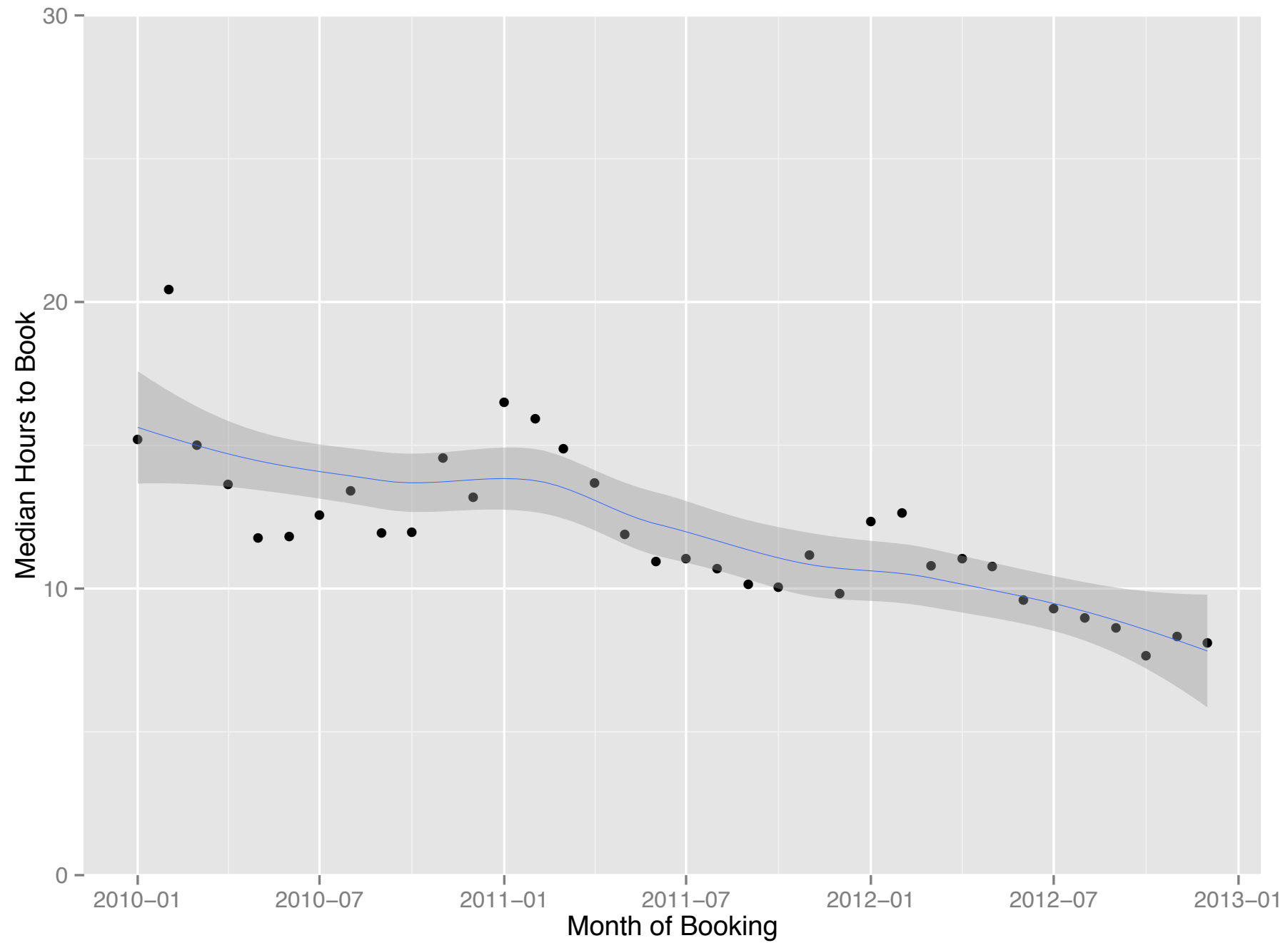
Outline

- ▶ Descriptive Evidence
- ▶ Demand Model
- ▶ Consumer Surplus Calculation
- ▶ Decomposition

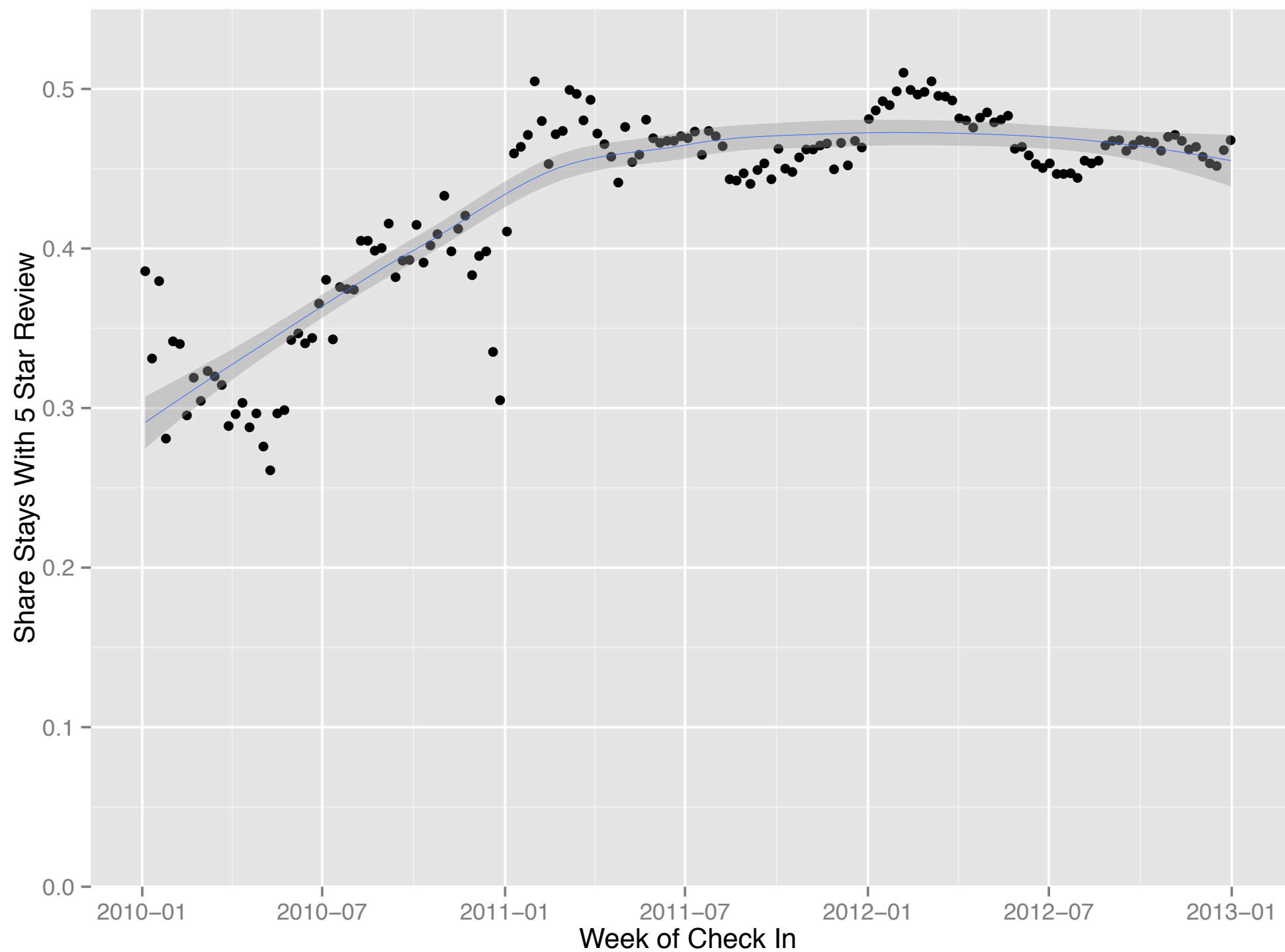
Share of Trip Attempts That Transact



Transaction Costs



Share of Stays With 5 Star Review



Demand

$$V_{gpt} = \underbrace{\beta X_{pt}}_{\text{Property Characteristics}} + \alpha p_{pt} + \epsilon_{gpt}$$

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.

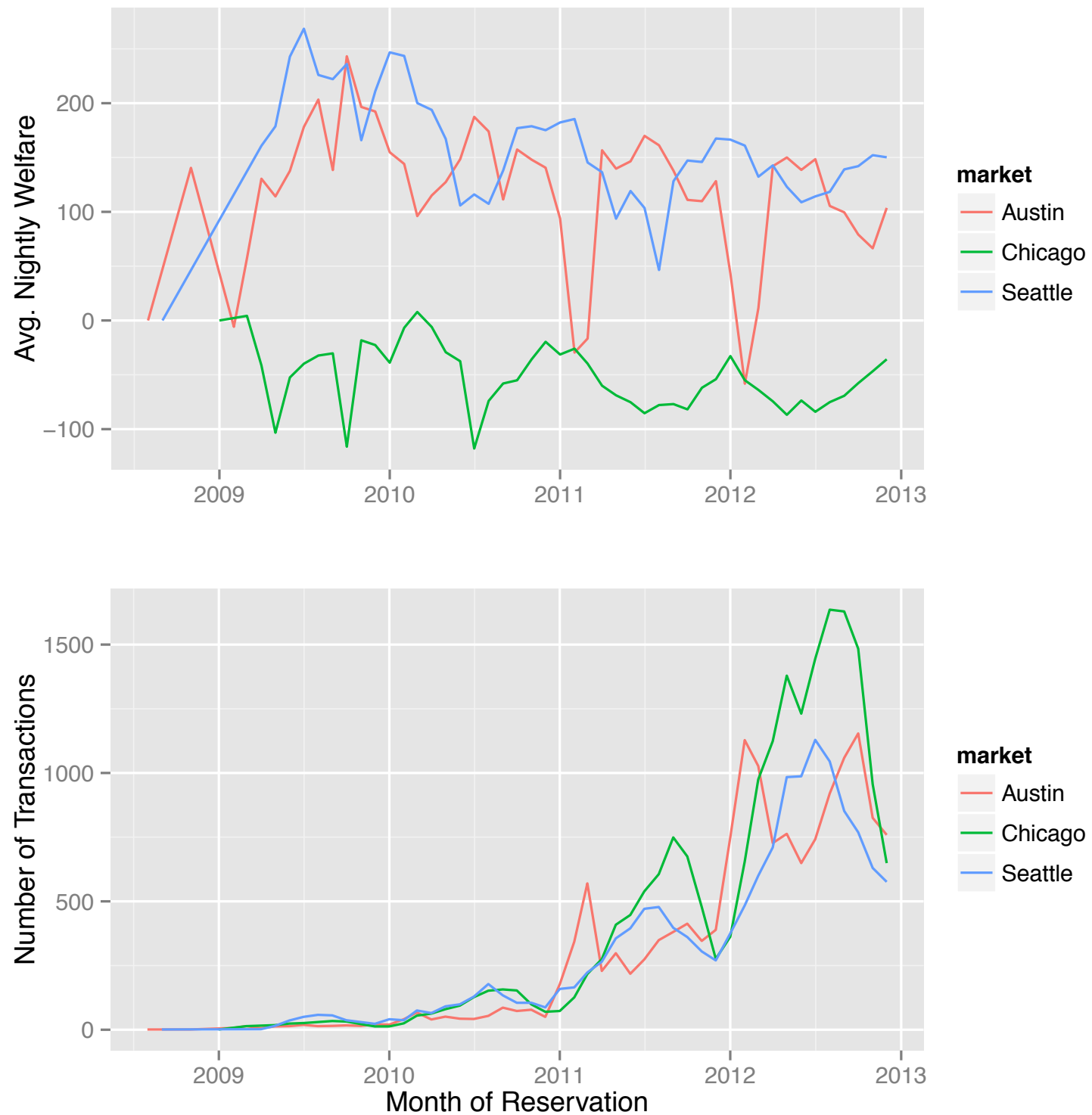
Data

- Three Markets
- Searches in April 2013
- Choice Set: All properties seen in search on day of contact.
- Choices: Properties Contacted

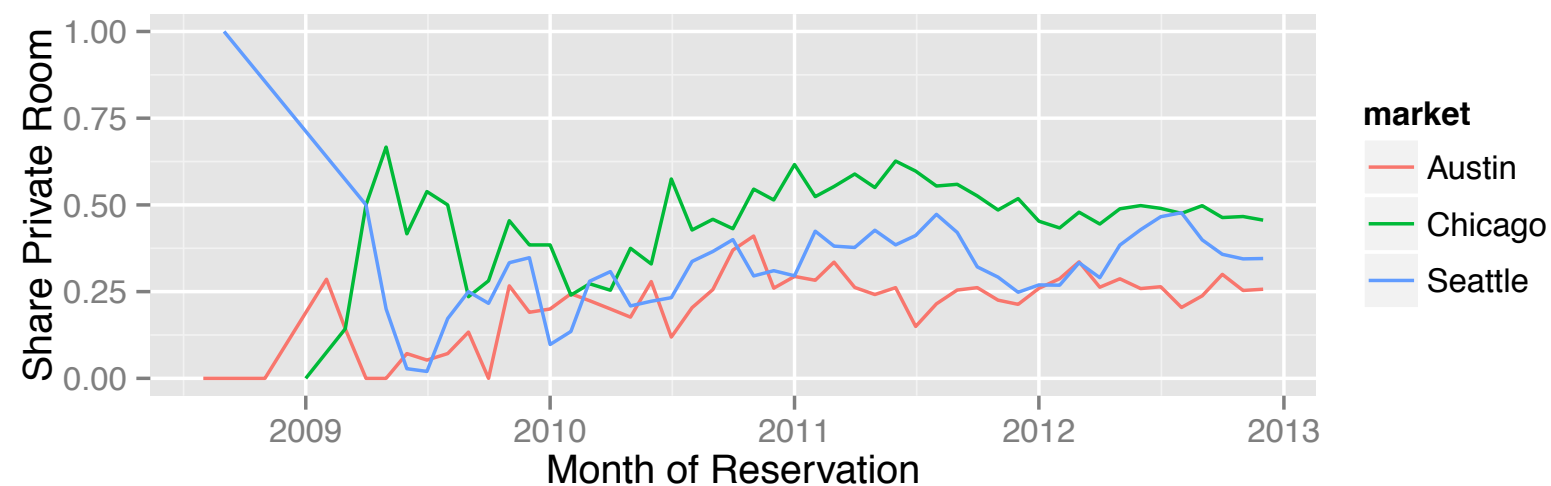
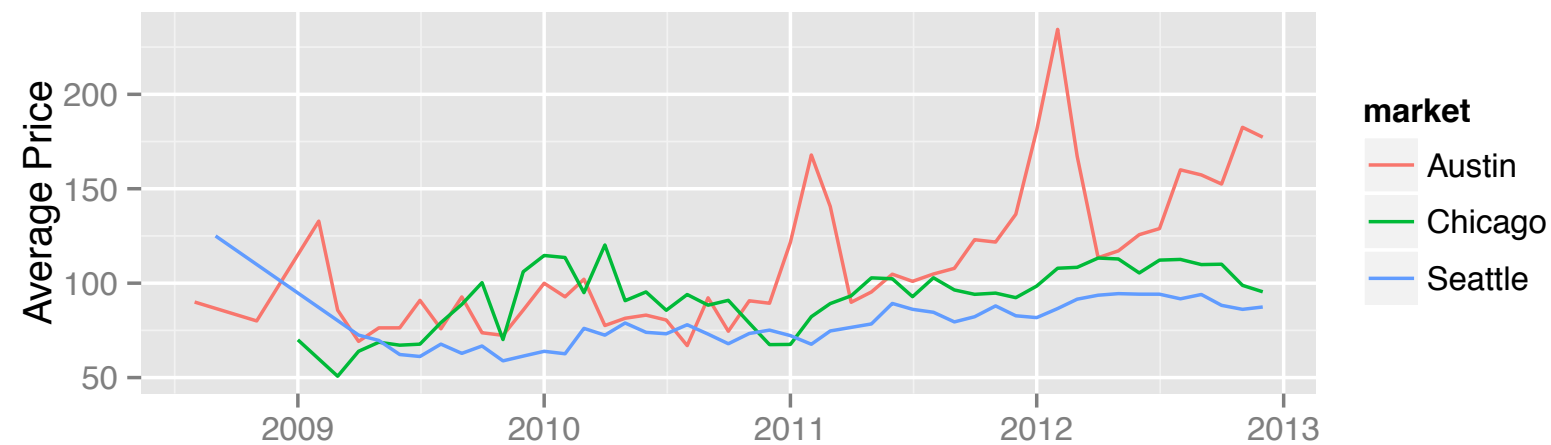
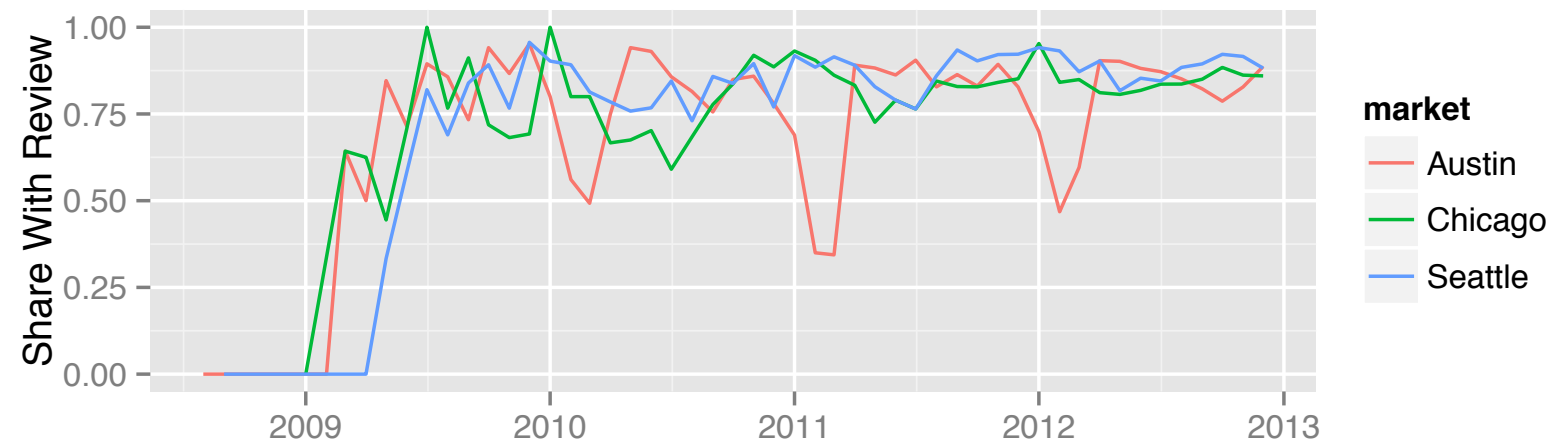
Demand

	Chicago	Austin	Seattle
Rating < 4	−79.385*** (2.723)	−65.994*** (3.955)	−38.459*** (4.076)
Rating 4 - 4.5	38.878*** (1.235)	116.714*** (3.031)	−36.435*** (3.218)
Rating > 4.5	41.396*** (1.072)	127.729*** (2.893)	54.393*** (2.855)
Private Room	−119.390*** (0.507)	−102.901*** (0.845)	−82.119*** (0.837)
Shared	−231.164*** (1.192)	−196.739*** (2.910)	−99.171*** (2.186)
1 - 4 Rev	−4.151*** (1.069)	−56.552*** (2.927)	22.215*** (2.867)
5 - 19 Rev	−29.809*** (1.157)	61.254*** (3.029)	24.458*** (2.997)
> 20 Rev	−5.870*** (1.192)	103.579*** (3.095)	21.927*** (3.006)
SD of Error	134.303	184.436	128.714

Utility Over Time



Characteristics Over Time



Decomposition of Utility Change: Austin

	Average Utility Compared to 2009		
	2010	2011	2012
Total	-\$18	-\$58	-\$79
Prop. Characteristics	-\$37	-\$36	-\$30
Reputation	\$21	\$15	\$29
Price	-\$2	-\$38	-\$78
Price Trend	\$2	-\$16	-\$41

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