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

| 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
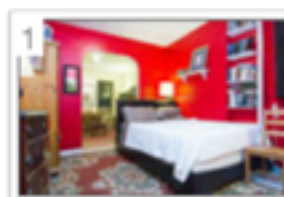☐ Private room   1455
☐ Shared room   150

Show More...

Price ▾

$10 $300+

3086 results with 241 popular on Wish Lists

SPACIOUS 1BR HELL'S KITCHEN APT
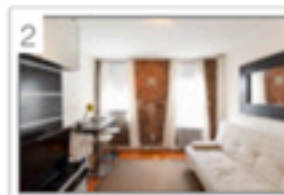Entire home/apt — New York > Hell's Kitchen

$135
Per night

72 reviews

Instant Book ➡

f 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

$210
Per night

42 reviews   34 other reviews

Massive! 1Bedroom/Elevator /Sleep 4
Entire home/apt — New York > Midtown East

$220
Per night

26 reviews   99+ other reviews

LG 1 BR APT IN MIDTOWN W/ TIMES SQ
Entire home/apt — New York > Hell's Kitchen

$115
Per night

65 reviews   44 other reviews

Gorgeous NYC Getaway

$140

Sunny Room in Queens & Brooklyn

From
$43
Per Night

Check in | Check out | Guests
mm/dd/yyyy | mm/dd/yyyy | 1

BOOK IT!

♡ SAVE TO WISH LIST

Saved 435 times
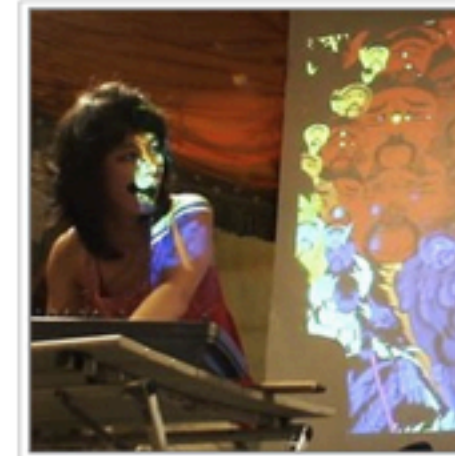
Yuchen

CONTACT ME

More about the host ▶

↩ **93%**
RESPONSE RATE

🕐 **within a day**
RESPONSE TIME

📅 **5 days ago**
CALENDAR UPDATED

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

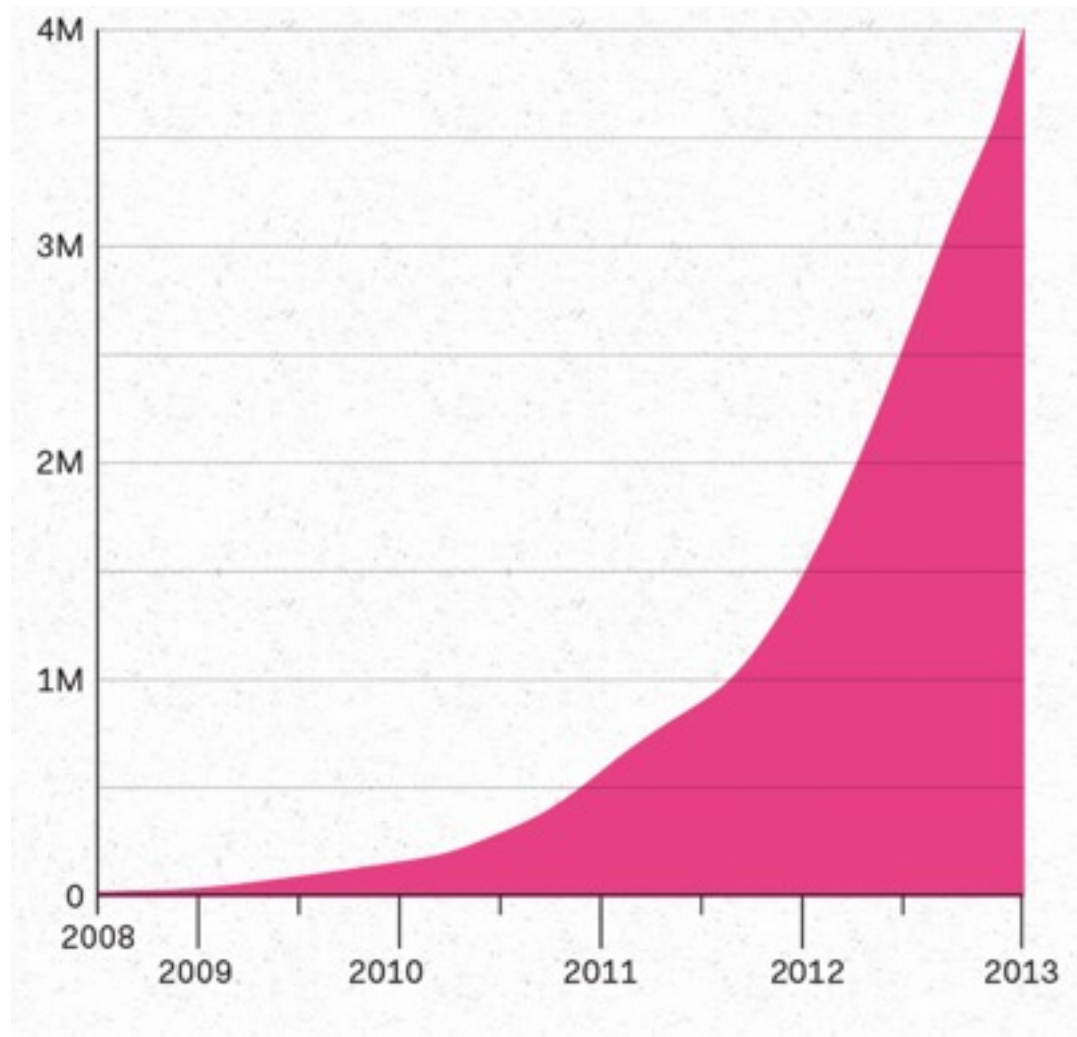**How does Airbnb promote safety?**

- 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
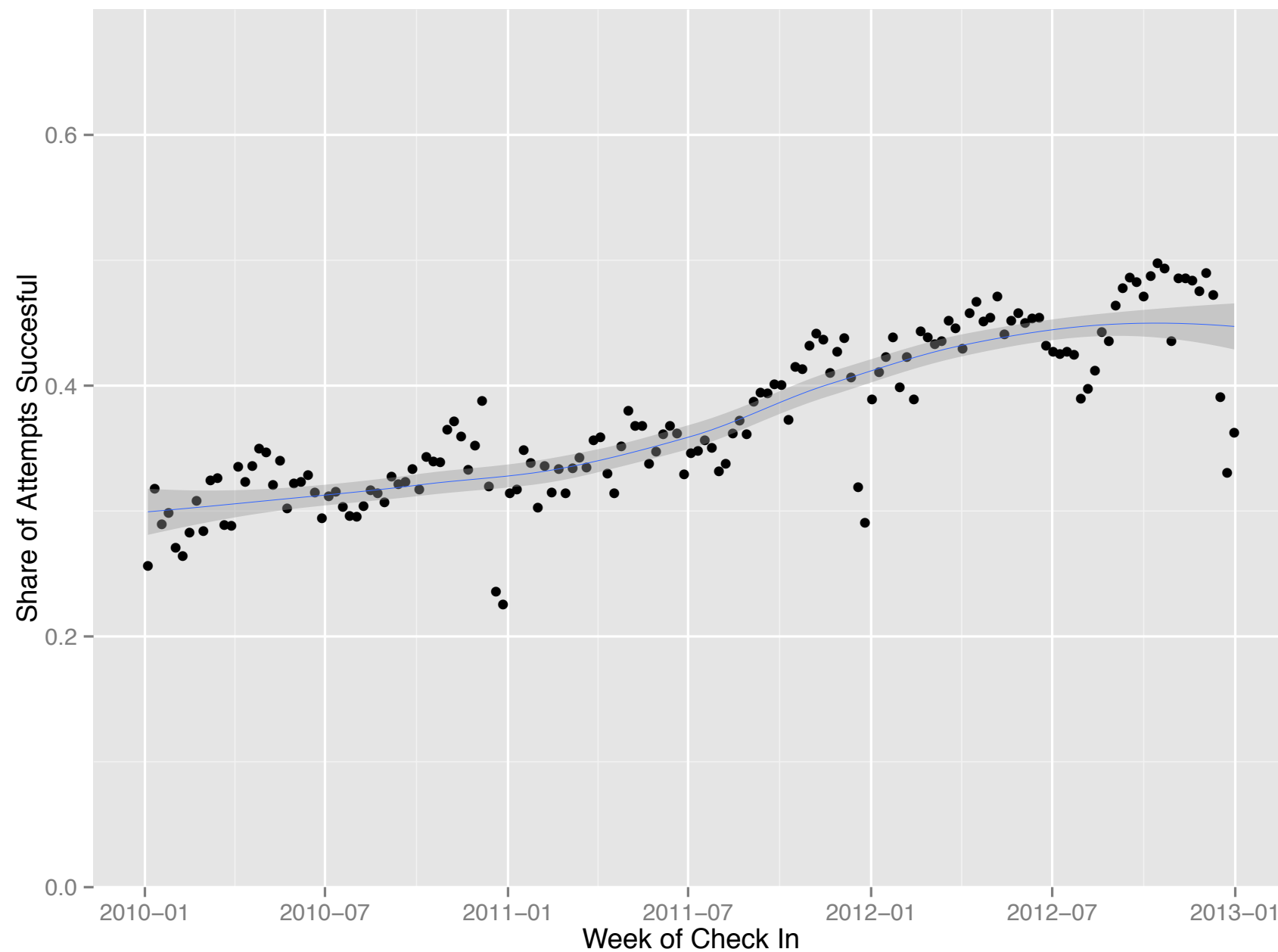- Less competition amongst sellers

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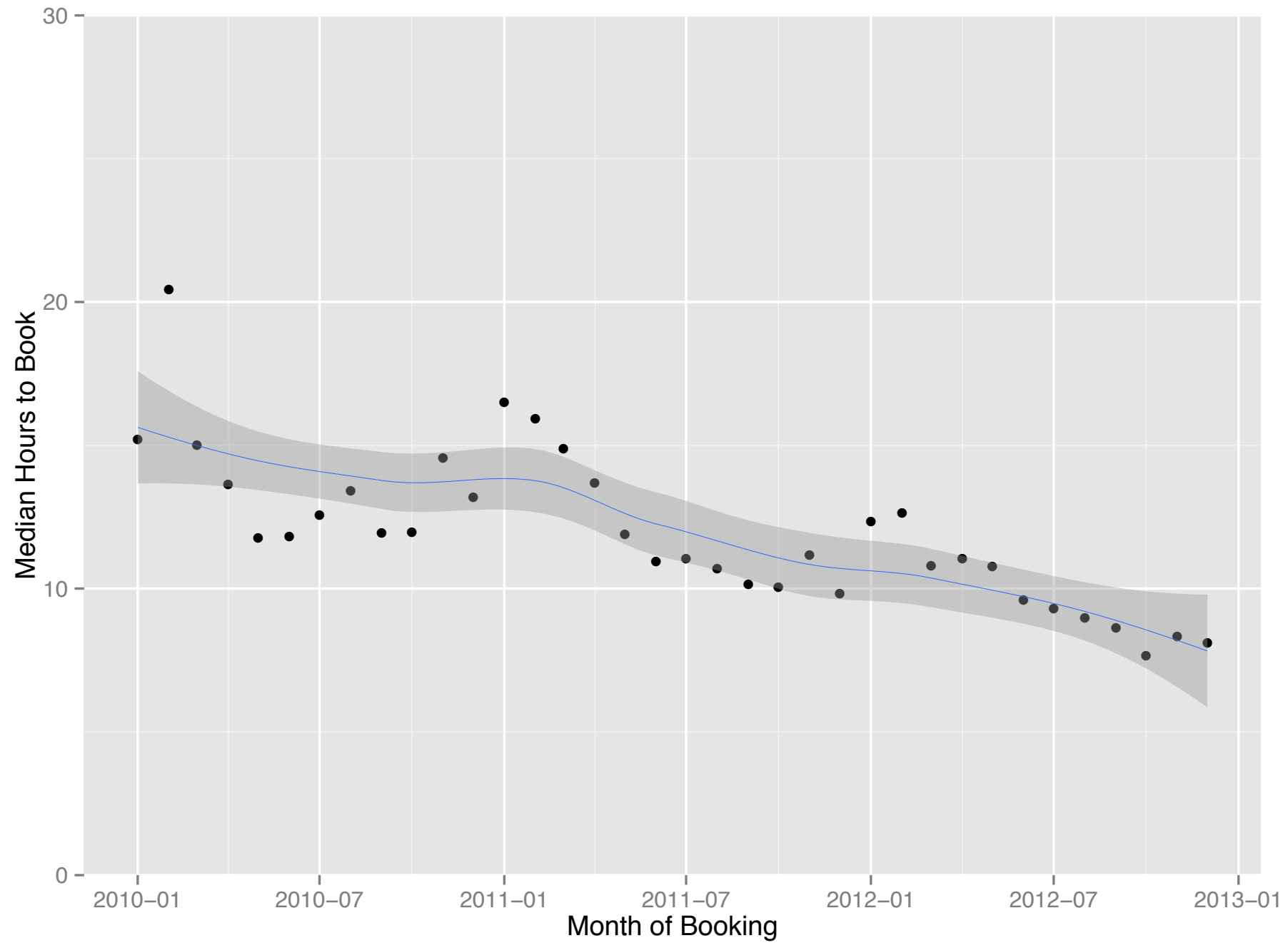- Platform Reputation
- Different Customers

Outline

▸ Descriptive Evidence

▸ Demand Model

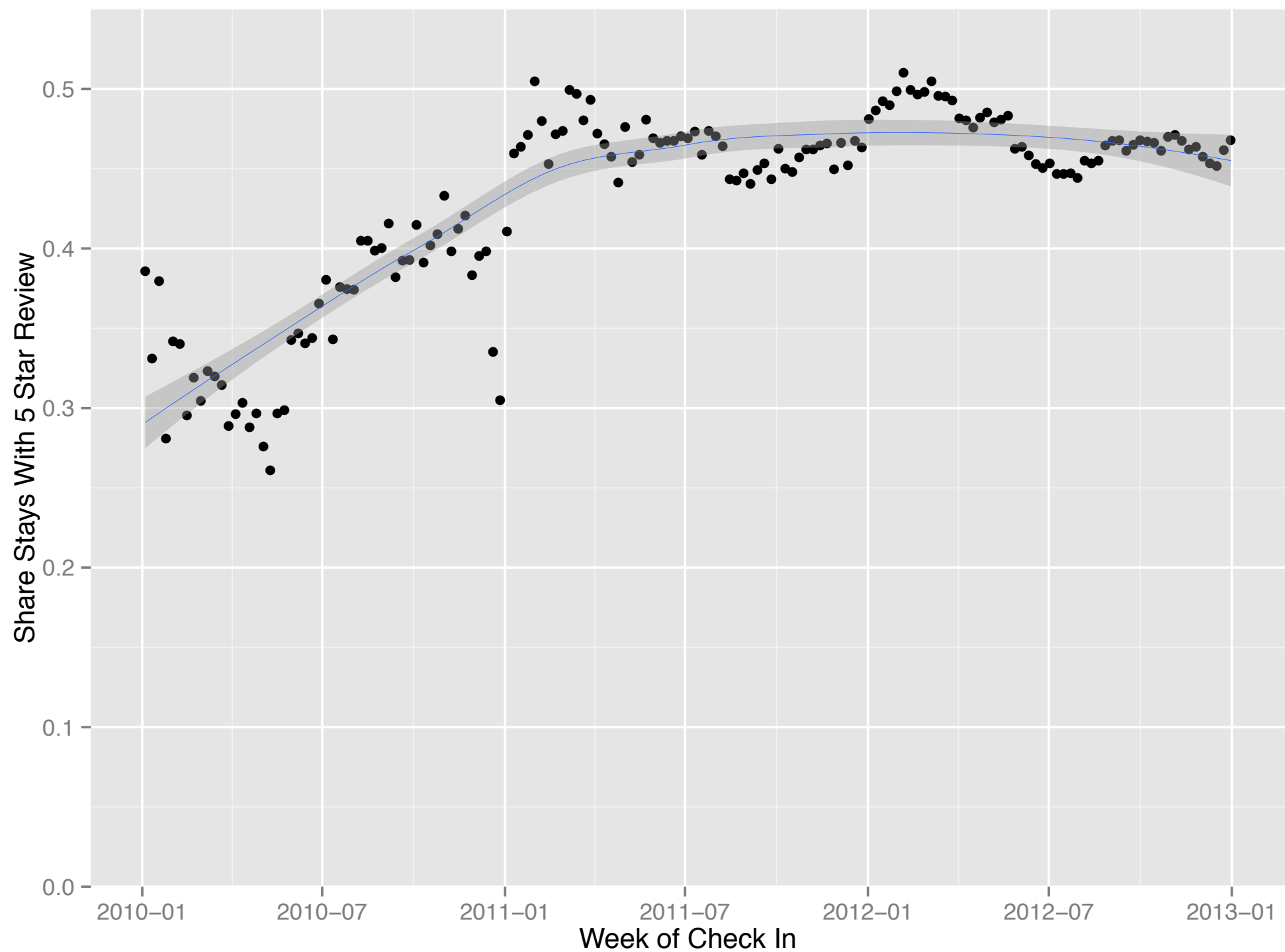▸ Consumer Surplus Calculation

▸ Decomposition

Share of Trip Attempts That Transact

Transaction Costs

Share of Stays With 5 Star Review

Demand

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

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

Utility Over Time
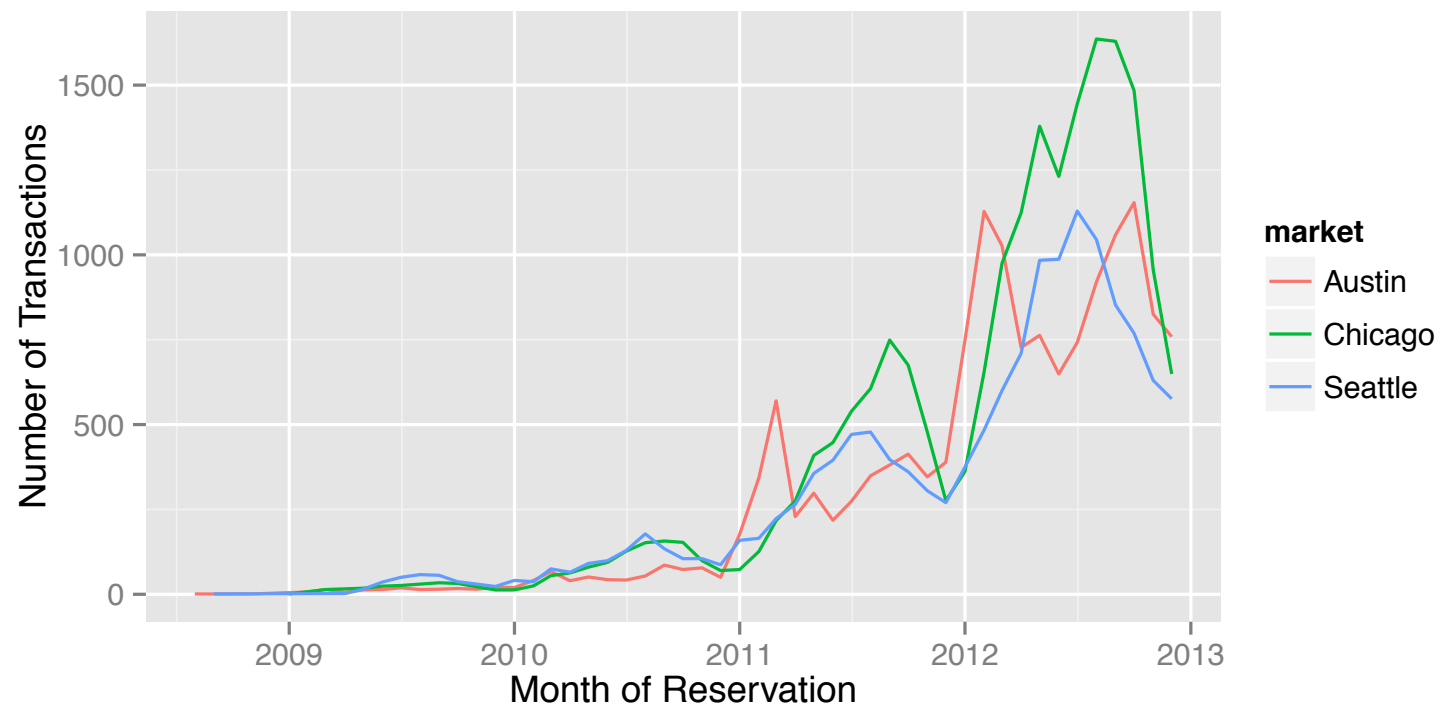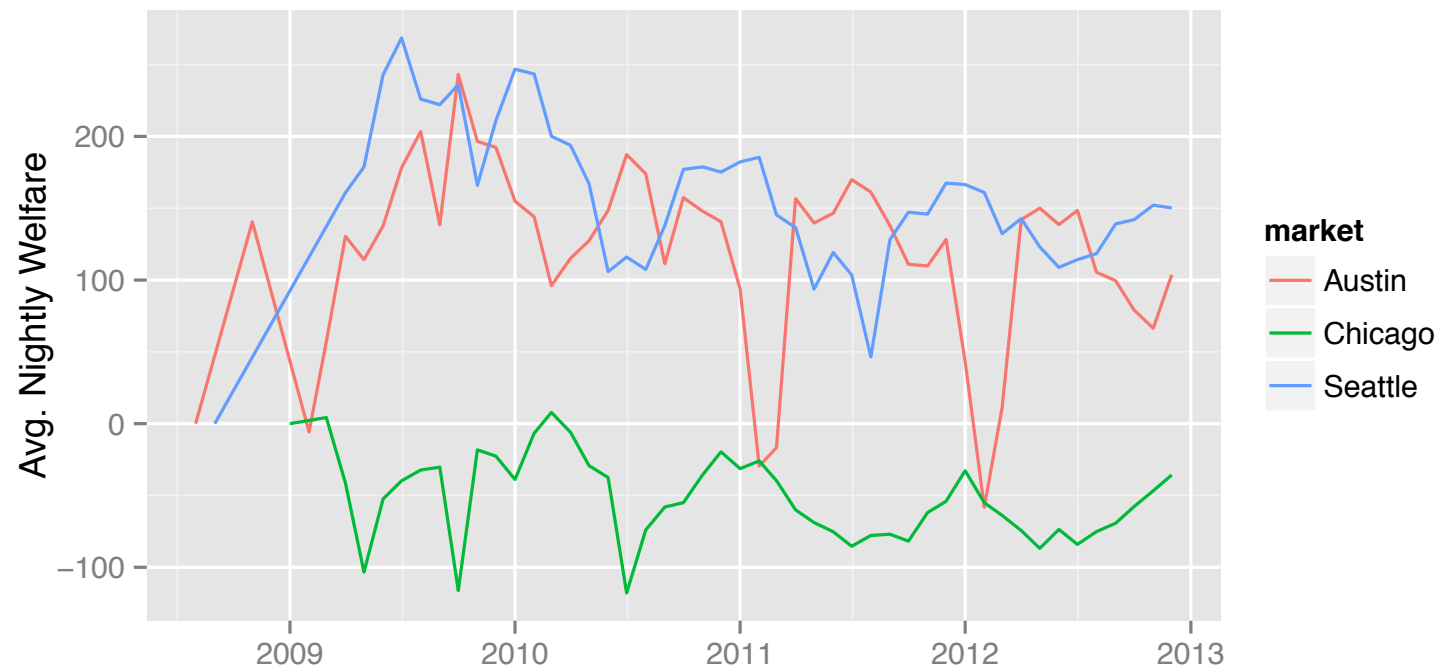
Characteristics Over Time
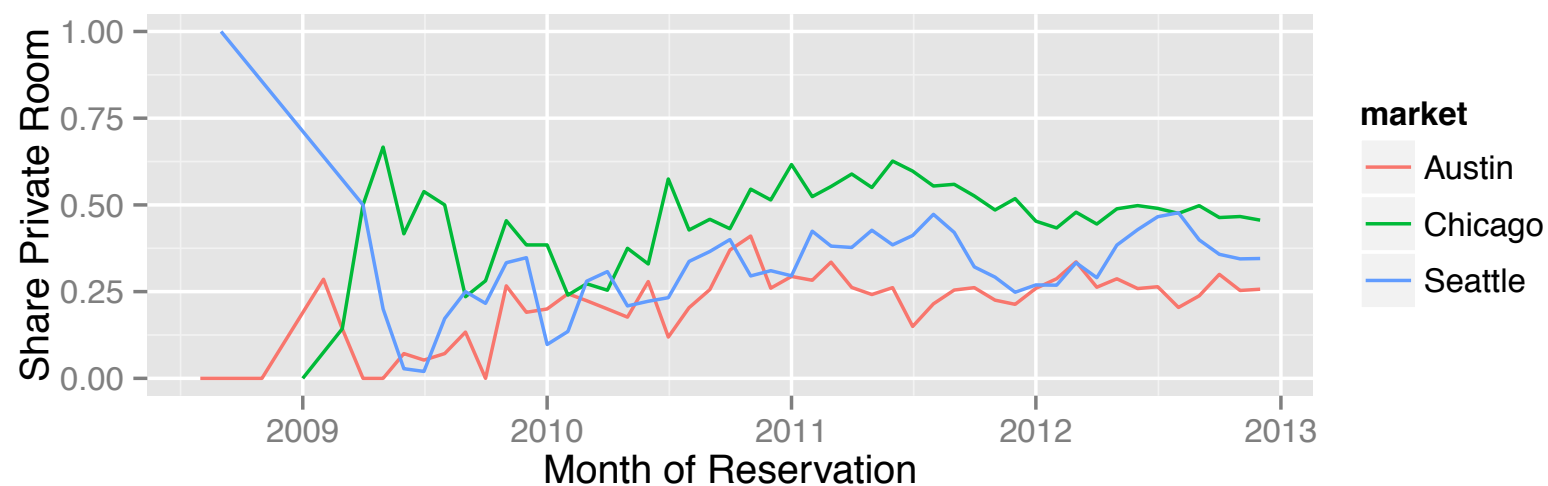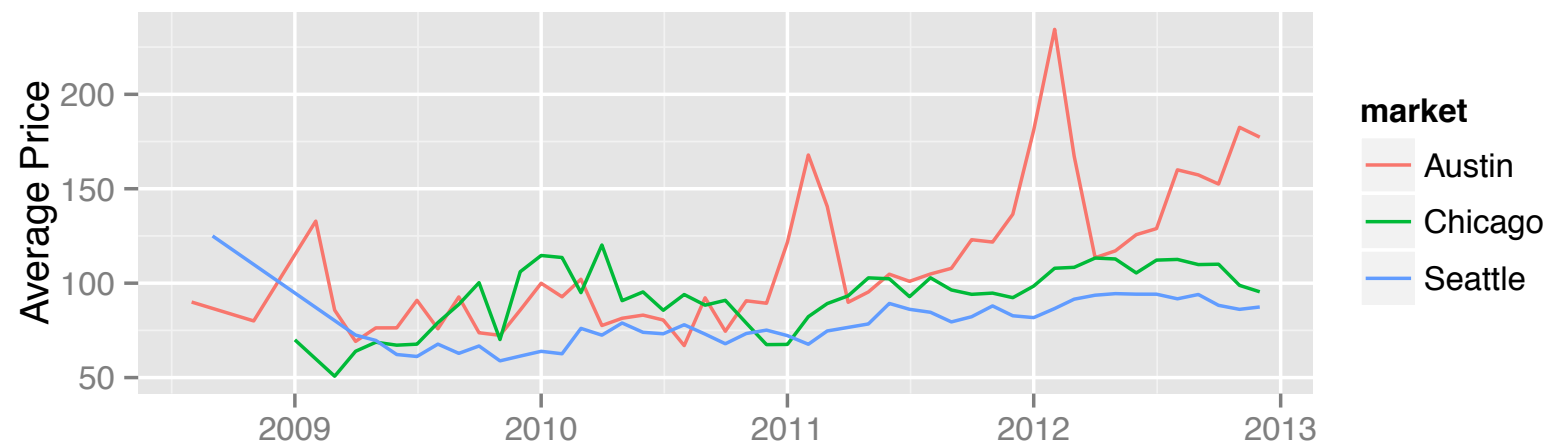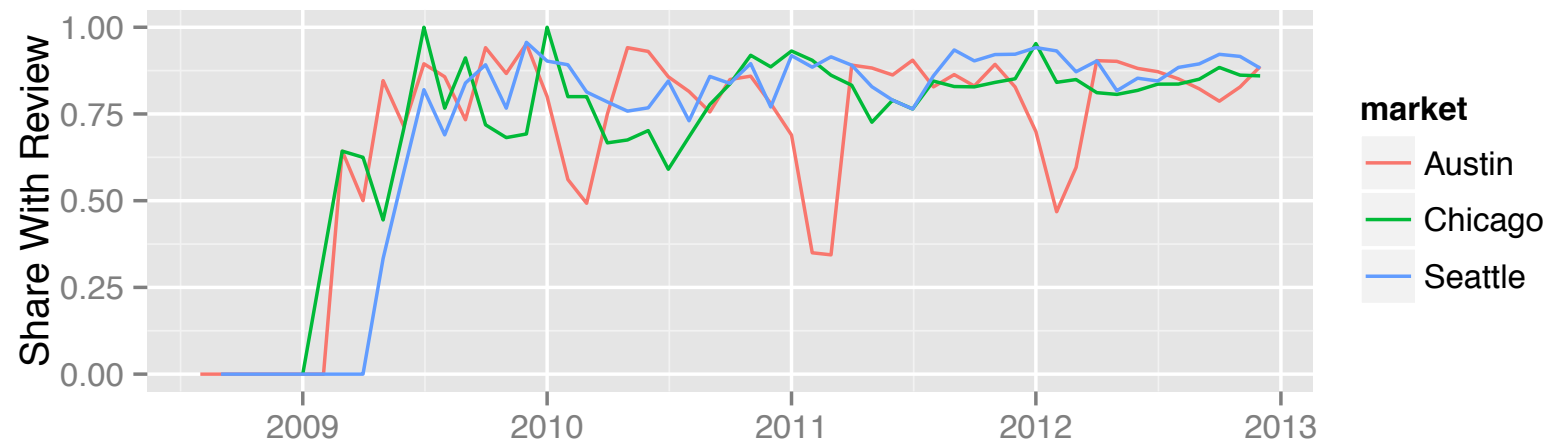
Decomposition of Utility Change: Austin

	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