Democratizing Travel: Research and Data

Peter Coles
Data Science, Airbnb
“All great literature is one of two stories: someone goes on a journey, or a stranger comes to town”

- Leo Tolstoy
Democratizing Travel

Many Journeys

Airbnb
Founding the platform

Hosts
Opening doors

Guests
Changing travel

Community
Working together
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Two designers create a new way to connect at this year's IDSA conference.

AB&B will be blogging live from the conference floor!

IDS attendees, welcome to San Francisco.

35 Hotels in Siena (IT) Book your hotel in Siena online. Good availability and great rates!

Inns Bed And Breakfast
Low rates on Bed and Breakfasts. Compare B&Bs and Save.

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2011
TOTAL HOMES ON AIRBNB

~5 Million
CITIES: 81K
COUNTRIES: 191+
What can we learn from the data?
Data education will help drive data-informed decision making

- Problem solving with data
- Using statistics & analysis
- Writing SQL & using data at Airbnb
- Visualizing data
- Setting up, delivering & interpreting experiments

- Single source of truth
- Access permissions
- Data documentation
- Data & tools request process

- Airpal
- Dataportal
- ERF
- Knowledge Repo
- Microsoft Excel
- Superset
- Tableau
Data University Vision

To empower EVERY employee at Airbnb...

to make data-informed decisions...

by providing data education...

that scales by role & team.
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Hosts

Challenging Assumptions

Entrepreneurship

Affordability

Quality
Hosts

• Define the space and house rules
• Set pricing and availability
• **Keep 97% of the list price**

Airbnb

• Manage payments, risk, customer service, and ratings system
Hosts Challenging Assumptions

Typical early adopters?

Younger men, higher-income adults prefer to be early technology adopters

% of U.S. adults with a strong preference for new technology products on a 6-item index

<table>
<thead>
<tr>
<th>Age/Gender</th>
<th>Family income</th>
</tr>
</thead>
<tbody>
<tr>
<td>Men 18-49</td>
<td>$150,000 or more</td>
</tr>
<tr>
<td></td>
<td>$75,000-$149,999</td>
</tr>
<tr>
<td></td>
<td>$30,000-$74,999</td>
</tr>
<tr>
<td></td>
<td>Under $30,000</td>
</tr>
<tr>
<td>Women 18-49</td>
<td>39</td>
</tr>
<tr>
<td>Men 50+</td>
<td>26</td>
</tr>
<tr>
<td>Women 50+</td>
<td>29</td>
</tr>
</tbody>
</table>


PEW RESEARCH CENTER
Women Hosts and Airbnb
Building a Global Community
Hosts: Women are a Driving Force

- Women make up ~55% of Hosts.
- Women hosts have earned nearly $20 billion globally.
- 50,000 women hosts report hosting has helped them launch their entrepreneurial career.

https://www.airbnbcitizen.com/women-hosts-earned-10-billion-airbnb/
Empty Homes Across the World

A GREATLY UNDER-UTILIZED GLOBAL RESOURCE

○ US: **12.8 million**
○ Japan: **8 million**
○ Brazil: **6.1 million**
○ Spain: **3.4 million**
○ Korea: **1 million +**

Source: Census Bureau, 24/7 Wall Street, The Guardian, Financial Times, & Trend Report on China Home-Sharing Consumption 2017
Underutilized Assets in the U.S.

12.8M Empty Homes

33.6M Empty Bedrooms
Median renters can’t afford median rent in most metro areas.
...renting a spare bedroom for one weekend a month
...renting a spare bedroom for two weekends a month
...renting a spare bedroom for one week a month
New York’s coolest Airbnb rental is an igloo (briefly)

Pranksters build snow home in back garden after historic winter snowfall - and offer its all-natural charms for $200 a night
Making a Difference in Affordability

68% of hosts state that Airbnb has helped them stay in their home.
Academic Spotlight: Measuring Quality Externalities on the Platform

• Peter Coles & Igor Popov from Airbnb partnered with Steve Levitt (Freakonomics author) and Sonia Jaffe from the University of Chicago.

• Q: how can we use economic principles to measure host quality on a platform?
Measuring Quality Using Economic “Revealed Preference”

Reviews are a useful indicator of quality...

...but this paper uses an economic lens: After staying with a host, does the guest return to Airbnb?
Our Metric: Guest Return Propensity (GRP)

- **Definition:** The **Guest Return Propensity (GRP)** is a listing’s influence on the likelihood that its guests return to Airbnb.

- Similarly rated listings can have different GRPs. Airbnb needs to consider this when matching hosts with guests to ensure value is maximized in the long run.
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Families

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Family Travel

FAMILY FRIENDLY AMENITIES

Amenities

- Heating
- TV
- Air conditioning
- Buzzer/wireless intercom
- Dryer
- Hair dryer
- Indoor fireplace
- Laptop friendly workspace
- Self Check-In
- Washer

- Kitchen
- Wireless Internet
- Breakfast
- Doorman
- Family/kid friendly
- Hangers
- Iron
- Lock on bedroom door
- Shampoo
Family Travel

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Data!
Family Travel Stats

15%
Percent of all “guest arrivals” that are families

7%
Percent of trips taken by families

Source: Airbnb
Convenient Locations & Local Spending

- 89% of guests who find their locations more convenient than traditional hotel districts
- 50% of Airbnb guest spending that occurs in the neighborhoods where guests stay

Source: Airbnb
Hotel vs Airbnb Locations in the US

Census Block Groups with a Hotel

Census Block Groups with an Airbnb

Source: Airbnb, STR
# Airbnb vs Hotel Presence in Block Groups

<table>
<thead>
<tr>
<th></th>
<th># Block Groups</th>
<th>Fraction with a Hotel</th>
<th>Fraction with an Airbnb</th>
</tr>
</thead>
<tbody>
<tr>
<td>All</td>
<td>216,331</td>
<td>12.1%</td>
<td>34.7%</td>
</tr>
<tr>
<td>Low Income</td>
<td>107,352</td>
<td>12.0%</td>
<td>32.1%</td>
</tr>
<tr>
<td>Rural</td>
<td>43,388</td>
<td>11.0%</td>
<td>27.2%</td>
</tr>
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</table>

Source: Airbnb, STR
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Academic Spotlight: Short vs Long Term Rentals
Research Collaboration With New York University

- Peter Coles & Mike Egesdal partnered with Stern School of Business and The Furman Center for Real Estate and Urban Policy at NYU.

- Asked: what are the determinants of short-term rental vs. long-term rental prices in New York?
Key Question: How many nights does it take to rent on Airbnb to “break even” with long term rental earnings?

High break even-nights means it is hard to outcompete long-term rentals… especially in the New York City Center.

<table>
<thead>
<tr>
<th>Borough</th>
<th>Break-even # nights</th>
</tr>
</thead>
<tbody>
<tr>
<td>Manhattan</td>
<td>237</td>
</tr>
<tr>
<td>Brooklyn</td>
<td>187</td>
</tr>
<tr>
<td>Queens</td>
<td>189</td>
</tr>
<tr>
<td>New York City</td>
<td>216</td>
</tr>
</tbody>
</table>
Democratizing Travel: Concluding Thoughts.

- Ask: who are the stakeholders in my platform, and how can I unlock value for them all?
- Ask: what are the externalities on and off our platform? How does this impact strategy?
- Democratize *data*
- Consider using experts — inside the company and out.
Thank you!
And let’s continue the discussion...
peter.coles@airbnb.com