

Local Experiences, Attention and Spillovers in the Housing Market

NBER Innovative Data in Household Finance

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Motivation

- ▶ Personal experiences explain differences in economic decisions
Nagel and Malmendier (2011, 2016 QJE)
- ▶ In the housing market, **experienced local price growth** affects
 - ▶ **Expectations** on future growth (extrapolation)
Kuchler and Zafar (2019, JF), Armona, Fuster and Zafar (2019, REStud)
 - ▶ **Homeowners' home equity and collateral constraints**
Stein (1995, QJE), Fuster and Zafar (2016, AER)

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- ▶ Limited field-evidence on impact on **homebuyers' behavior**
 - Q1 Does local price growth explain differences in homebuyers' search behavior?
 - Attention allocation across different aspects of house search
 - Q2 Through which channels do experiences influence behavior?
 - Expectations vs home equity
 - Q3 What are the real effects on house sales prices?
 - Spillovers from origin to destination locations

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Lack of datasets combining all aspects needed for comprehensive analysis

The Ideal Dataset

Match homebuyers with local (vs aggregate) price growth

Need to know precise location (postcode) of residence

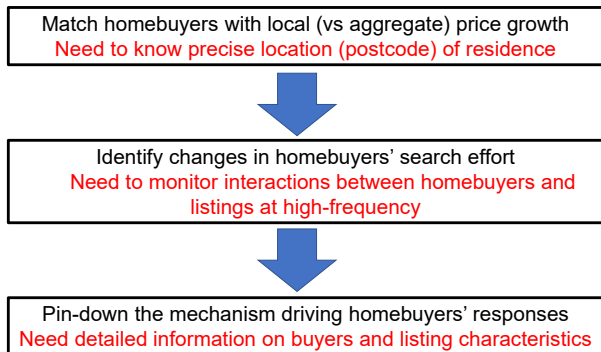
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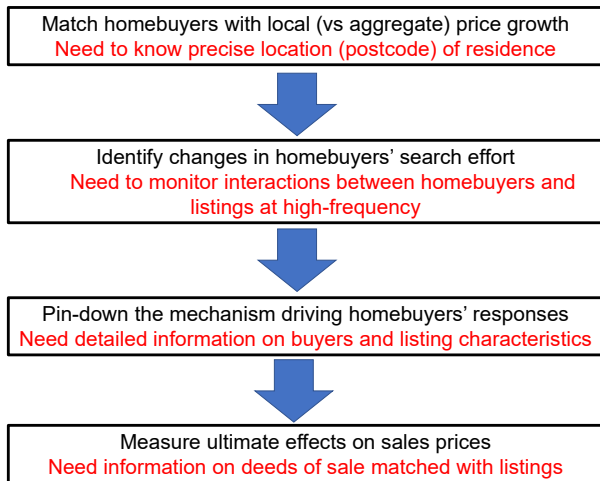


Identify changes in homebuyers' search effort
Need to monitor interactions between homebuyers and listings at high-frequency

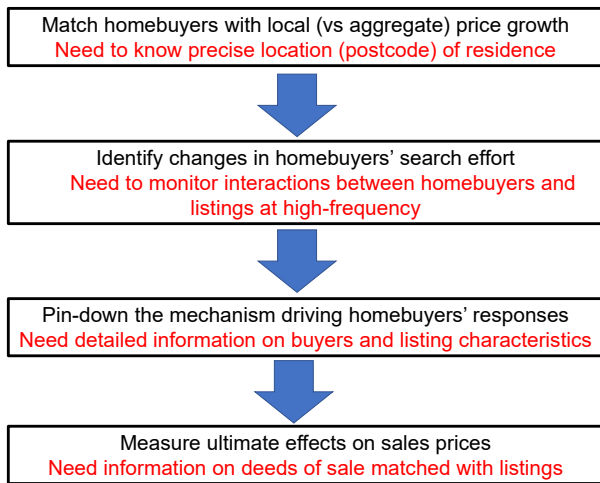
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The Ideal Dataset



Our Dataset: Captures all aspects, using information from Australia's largest property website

Data Sources and Sample

- ▶ Data is provided by realestate.com.au
 - ▶ **Australia's largest property website and apps suite**
 - ▶ **January 2017 – April 2019, covers all of Australia**
 - ▶ Variation both in the time-series and the cross-section
 - ▶ Random sample of $\approx 9,000$ **homebuyers** actively searching for a house
 - ▶ Representative of Australian population
- ▶ **Key features**
 1. Users **postcode** of residence
 2. **Individual users interactions with listings on daily basis**
 3. User characteristics (**homeownership, demographics, use of new home**)
 4. Detailed listing characteristics
 5. Listing matched with **final sales**



Price guide \$440,000 - \$480,000

Footscray

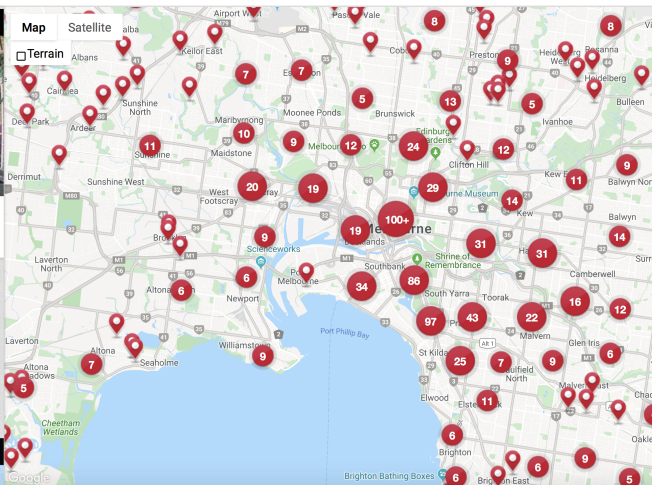
1/155 Gordon Street

Agent: Joshua Lowman

2 1 1



COMPASS
REAL ESTATE



Data Tables

► User Behavior

- **User.ID**
- Date
- Site section
- **Listing.ID**
- Visits
- Time

reaid	date	site_section	listing_id	visits	page_time
0380d517ee0200008a6ef959330000004b0a0000	27nov2017	buy	126911346	1	73
0380d517ee0200008a6ef959330000004b0a0000	27nov2017	buy	126933658	1	76
0380d517ee0200008a6ef959330000004b0a0000	27nov2017	buy	126978406	2	389
0380d517ee0200008a6ef959330000004b0a0000	02dec2017	buy	7876290	1	210
0380d517ee0200008a6ef959330000004b0a0000	02dec2017	buy	7928670	1	131
0380d517ee0200008a6ef959330000004b0a0000	02dec2017	buy	7930234	2	526
0380d517ee0200008a6ef959330000004b0a0000	02dec2017	buy	7931070	1	36
0380d517ee0200008a6ef959330000004b0a0000	02dec2017	buy	7933314	1	58
0380d517ee0200008a6ef959330000004b0a0000	02dec2017	buy	7938206	1	77
0380d517ee0200008a6ef959330000004b0a0000	02dec2017	buy	126751754	1	96
0380d517ee0200008a6ef959330000004b0a0000	02dec2017	buy	126914570	1	101
0380d517ee0200008a6ef959330000004b0a0000	02dec2017	buy	127012030	1	175
0380d517ee0200008a6ef959330000004b0a0000	02dec2017	buy	127114822	1	58
0380d517ee0200008a6ef959330000004b0a0000	04dec2017	buy	127006938	1	119
0380d517ee0200008a6ef959330000004b0a0000	07dec2017	buy	126831782	1	86
0380d517ee0200008a6ef959330000004b0a0000	07dec2017	buy	126926350	2	585

► Listings

- **Listing.ID**
- Listing date, listing price
- Property type (house/townhouse, unit, land or other)
- Postcode, #bedrooms, #bathrooms, # parking spots and size
- Sold date and sold price (if sold)

► User Characteristics

- **User.ID**
- Postcode
- Own a property
- Age and gender

Summary of Findings

Q1 Does local price growth explain differences in search behavior?

- ▶ Higher postcode price growth → increase in **Search Breadth**
Search Breadth: range of houses, locations, characteristics considered
- ▶ Attention per listing is unchanged

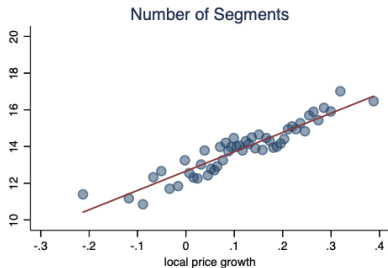
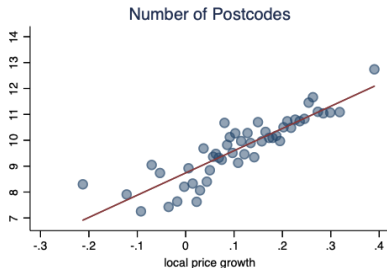
Q2 Through which channels do experiences influence behavior?

- ▶ **Collateral constraints** rather than extrapolative beliefs
- ▶ Collateral constraints: homeowners infer they have higher home equity

Q3 What are the real effects on house sales prices?

- ▶ **Spillovers** induced by network of searches, **not location proximity**

Postcode Growth, Search Breadth and Attention Per Listing



Panel Regressions

- Panel regression at the user (i) - month (t) level:

$$y_{i,t} = \beta \Delta p_{post(i),t-1} + FE_i + FE_{t \times area(i)} + \epsilon_{i,t}$$

- $y_{i,t}$ is either breadth of search or listing-level attention
- $\Delta p_{post(i),t-1}$ price growth in the postcode $post(i)$ where user i lives

Number of Postcodes				
Δp_{2y}	0.421*** (3.16)	0.288* (2.00)	0.404*** (3.01)	0.345** (2.39)
$R^2_{adjusted}$	0.158	0.157	0.514	0.514
Nobs	55241	55231	52943	52935
Number of Segments				
Δp_{2y}	0.399*** (3.14)	0.316** (2.33)	0.357** (2.68)	0.323** (2.35)
$R^2_{adjusted}$	0.155	0.154	0.517	0.518
Nobs	53764	53763	51442	51441
Postcode FE	Yes	Yes	No	No
ID FE	No	No	Yes	Yes
Year-Month FE	Yes	No	Yes	No
Year-Month $\times$ Area FE	No	Yes	No	Yes

- One std higher price growth (15%) $\rightarrow$ 5-6% increase in search breadth

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- ▶ One std higher price growth (15%) $\rightarrow$ 5-6% increase in search breadth
- ▶ Effect 50% stronger if users observed recent sales prices in their postcode
- ▶ No effects on attention per listing in panel regressions:
 - Expansion of consideration set is margin delivering higher expected benefits

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The Mechanism Linking Local Price Experiences and Behavior

- ▶ Predictions of **extrapolative beliefs**; response to price growth:
 - ▶ Renters (+): incentive to match quicker before houses become less affordable
 - ▶ Homeowners (0 or -):
 - House hedges city/metro-level price fluctuations
 - Seller misses out on future local growth, would rather delay search
 - ▶ Predictions are not consistent with the data:
 - Response to price growth not significant for renters **X**
 - Response to price growth positive and significant for homeowners **X**

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 - ▶ Predictions are not consistent with the data:
 - Response to price growth not significant for renters ✗
 - Response to price growth positive and significant for homeowners ✗
- ▶ Predictions of **collateral constraints**; response to price growth:
 - ▶ Driven by homeowners ✓
 - ▶ Stronger for homeowners who are more constrained
 - ▶ Stronger for owners using current house equity to buy a new home
 - ▶ Predictions are consistent with the data:
 - Response stronger in low-price postcodes, and younger homeowners ✓
 - Response stronger for homeowners looking for a new primary residence ✓

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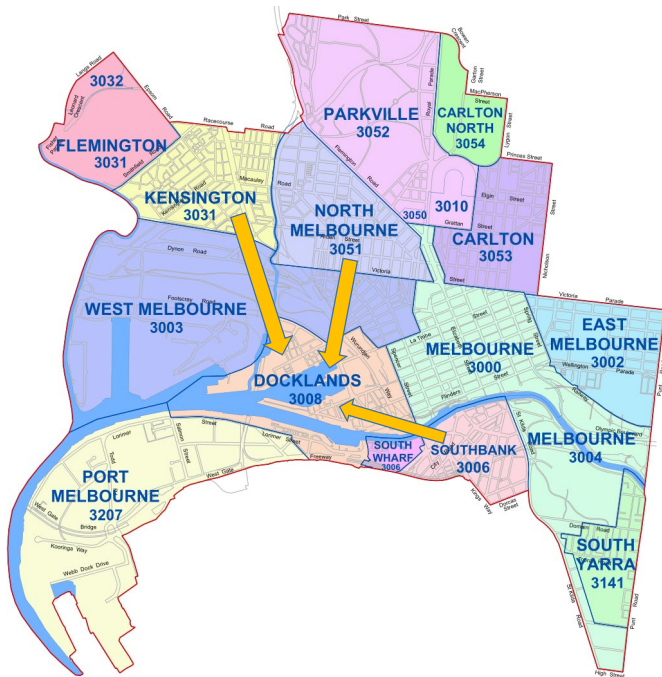
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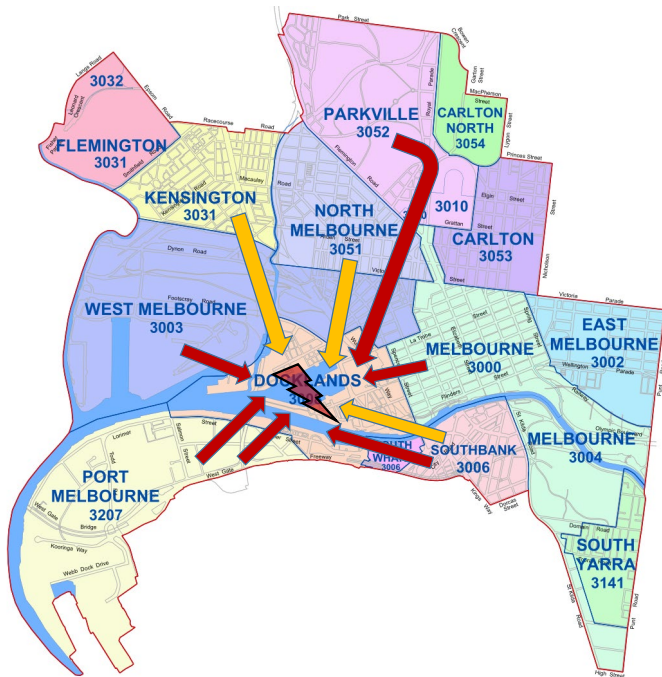
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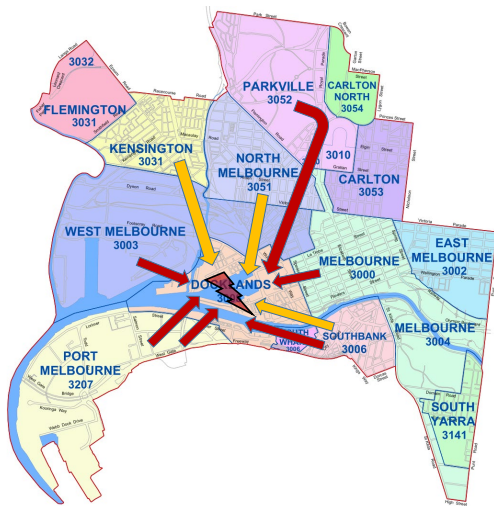
Effect on Sales Prices: Spillovers



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Effect on Sales Prices: Spillovers



- ▶ Match between searchers and houses is not random; **we use Bartik IV**
- ▶ One std higher growth in visitors' postcodes → 3% higher sales prices

Thank you!