Social Networks and Housing Markets

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Motivation

• Mounting evidence that people disagree about whether buying a house is a good investment

If someone had a large sum of money that they wanted to invest, would you say that relative to other possible financial investments, buying property in your zip code today is:

- A very bad investment
- A somewhat bad investment
- Neither good nor bad as an investment
- A somewhat good investment
- A very good investment

• What are the drivers of this disagreement?
Motivation

- Growing sense that social dynamics might affect house prices:
  - Shiller (2008): "People were excessively optimistic about housing investments; this optimism was part of a social epidemic."
  - Little systematic empirical evidence for underlying mechanism.
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  • Shiller (2008): "People were excessively optimistic about housing investments; this optimism was part of a social epidemic."
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• Recent Research: Bailey, Cao, Kuchler and Stroebel (JPE, 2018):
  1. Individuals discuss property investments with friends, and adjust their expectations based on house price experiences within social network.
  2. By influencing expectations, social interactions have a large effect on individual-level housing investment decisions:
     • Extensive margin
     • Intensive margin
     • Willingness to pay
Social Network Data from Facebook

- Facebook largest global and U.S. online social network
  - ~ 60% of U.S. adults regularly use Facebook.

- Observe anonymized snapshot of social graph of friendship links.
  - Average user in sample: 420 friendship links
  - >90% have met more than once in real life.

- Demographics, including county-level location.
Empirical Strategy and Data

Friends’ House Price Experiences \[\xrightarrow{Social\ Interactions}\] Beliefs about Local Housing Market Investments
Empirical Strategy and Data

Friends’ House Price Experiences

Social Interactions

Beliefs about Local Housing
Market Investments

Facebook Social Graph
+ House Price Movements
in Friends’ Location

Survey on Facebook,
1,242 Responses
Friends’ House Price Experiences

\[ \text{FriendHPExp}_{i,t,t-24m} = \sum_{c} \text{ShareFriends}_{i,c} \times \Delta \text{HP}_{c,t,t-24m} \]
Friends’ House Price Experiences

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- Example: LA resident I
Friends’ House Price Experiences

\[
FriendHPExp_{i,t,t-24m} = \sum_c ShareFriends_{i,c} \times \Delta HP_{c,t,t-24m}
\]

- Example: LA resident II
Friends’ House Price Experiences

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\text{FriendHPExp}_{i,t,t-24m} = \sum_c \text{ShareFriends}_{i,c} \times \Delta HP_{c,t,t-24m}
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- Example: LA resident III
Friends’ House Price Experiences

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Housing Survey

- November 2015: Target FB users through newsfeed; 1,242 responses
- Focus on a few LA zip codes; Fairly representative demographics

How often do you talk to your friends about whether buying a house is a good investment?
Housing Survey

- November 2015: Target FB users through newsfeed; 1,242 responses
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How often do you talk to your friends about whether buying a house is a good investment?

- Never: 200 responses
- Rarely: 400 responses
- Sometimes: 500 responses
- Often: 300 responses

- Housing investment regularly topic of discussion within social network.
Housing Survey

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- A very bad investment
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- A very good investment

- Substantial dispersion in beliefs within the same housing market.
SurveyExpectations_{i,t} = \alpha + \beta \text{FriendHPExp}_{i,t,t-24m} + \gamma X_{i,t} + \epsilon_{i,t}
**Housing Survey**

\[ \text{SurveyExpectations}_{i,t} = \alpha + \beta \text{FriendHPExp}_{i,t,t-24} + \gamma X_{i,t} + \epsilon_{i,t} \]

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<td>All Friend Appreciation 2013-15 (%)</td>
<td>0.040**</td>
<td>0.036*</td>
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Friend Appreciation 2013-15 (%) x
Talk with Friend about Housing Investment

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<tr>
<td>Never</td>
<td>-0.050</td>
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<td>Rarely</td>
<td>0.001</td>
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<tr>
<td>Sometimes</td>
<td>0.086***</td>
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<td>Often</td>
<td>0.096**</td>
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Demographic Controls        Y   Y   Y
Zip Code Fixed Effects       Y   Y   Y
Sample                       LA in 2012
N                             1,242 1,110 1,242

- Larger effect of friends’ experiences when talking more about housing.
Friend Experiences and Housing Market Expectations

Geographically-Distant Friends’ House Price Experiences

Facebook Social Graph + House Price Movements in Friends’ Location

Social Interactions

Beliefs about Local Housing Market Investments

Survey on Facebook, 1,242 Responses
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Beliefs about Local Housing Market Investments

1) Show Correlation
2) Argue Effect Through No Other Channel Except Expectations

Individual Housing Market Investments

LA county deeds data, 100,000s of observations
Having friends who experience a 5 percentage point higher house price experience over the previous two years:

- Increase probability that a renter buys a house over next two years by 3 percentage points
  - Relative to baseline probability of 18 percentage points
  - About half the effect size of having a kid

- Increases square footage by 1.6%

- Conditional on the type of house you buy, increases price paid by 2.3%
Rational Behavior?

• Why are individuals influenced by the house price experiences of their friends?
  • Social learning? FOMO?

• Hard to rule out fully rational behavior, but three thoughts:
  1. Effect is (weakly) declining in education levels.
  2. Effect is independent of the true informativeness of network house price experience for future LA house prices.
  3. House prices across the country available for free and in real time.
Summary of Individual-Level Findings

What have we learned?

1. Individuals discuss property investments with friends, and adjust their expectations based on house price experiences within social network.

2. By influencing expectations, social interactions have a large effect on individual-level housing investment decisions:
   - Extensive & intensive margin, willingness to pay

Does this affect county-level house prices, or does this average out across people within counties?

Move from individual level to county level

Need to measure county-level social connectedness

Introducing the “Social Connectedness Index”
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- Move from individual level to county level
- Need to measure county-level social connectedness
- Introducing the “Social Connectedness Index”
San Francisco County, CA

Data Source: Bailey, Cao, Kuchler, Stroebel, and Wong (2018, JEP)
Kern County, CA (Bakersfield)

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Data Source: Bailey, Cao, Kuchler, Stroebel, and Wong (2018, JEP)
Cook County, IL (Chicago)

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Top Connected Counties (with populations larger than 1,000)

1. Cook IL
2. McDonough IL
3. DuPage IL
4. Will IL
5. DeKalb IL
6. Lake IN
7. Jackson IL
8. Champaign IL
9. Lake IL
10. Kane IL
11. Kankakee IL

50 miles: 63%
100 miles: 66%
500 miles: 79%

Data Source: Bailey, Cao, Kuchler, Stroebel, and Wong (2018, JEP)
Summary of County-Level Findings

- Use this data to measure county-level social connectedness
- Show that when house prices in socially-connected counties have risen, this predicts future house price increases in own county
- Data available: Send 1-page research proposal to sci_data@fb.com.
High-Level Conclusions

- People’s beliefs about whether buying a house is a good investment are driven by the house price experiences of their friends.

- Through this channel, social interactions have a large effect on home purchasing behavior and even aggregate house prices.