

# JOB SECURITY AND HOUSING MARKET

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# Outline

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# I. Motivation

Would a software developer be more likely to buy a house in a city with only one or two IT firm? or in a city with multiple ones?

Why does housing market in RTP area have become very popular in recent years?

**Job security matters!**

## Questions:

- How would job security impacts currently employed household homeownership choice?
- Would job security play a role in explaining local dynamics in homeownership and price-to-rent ratio?

## Why do we care?

Recent macro trends impact job security and then may have impacts on housing market.

- Automation: non-routine workers feel more secured
- Labor outsourcing: manufacturing workers feel less secured
- Clustering: workers work in clustered area feel more secured

## What is job security?

An individual's psychological feeling based on own unemployment, relocation and earning risk.

- An individual has higher job security if
  - less worried about relocation
  - expect stable income or faster income growth
- An area provides higher job security if
  - job vacancy/unemployment is high
  - wages grow faster
  - lower job searching friction
  - better employment protection

## How to measure job security?

- Survey (Working on this)
- Employee tenure from CPS(national level, by occupation/ industry) : higher tenure=>higher security. But more opportunities may imply higher tenure.
- Job openings (national level, by industry, 2007-2016)=>approximate regional level using local industry size as the weight.
- Scorelogix (national index, 2006-2008 only)
- Use firm leverage as a proxy of job security level (regional level)
- MIMIC model(Muthen, 1989): take job security as a latent variable (need to identify all factors that determine job security)

## **A PRELIMINARY test for motivation:**

- Assume cluster provides higher job security
- Test whether households in highly(barely) clustered area are more(less) likely to own.



# Clusters provides higher job security?

- **Lower unemployment and growing job opportunities:**  
Porter, 1990,1998a, 2003; Delgado, Porter and Stern, 2010;  
Combes and Duration, 2006.
- **Lower job searching friction:**  
Fallick, Fleischman, and Rebitzer, 2006; Freeman, 2008.
- **Earning certainty:**  
Glaeser and Mare, 2001; Freeman, 2008;  
Combes and Duration, 2006; Lorenzen, Mark and Frederiken,  
2008;  
Schmutte, 2015

## Predictions:

- Individual with higher job security  $\Rightarrow$  higher probability of owning a house
- County (with population  $>100,000$ ) with higher job security  $\Rightarrow$  higher ownership  $\Rightarrow$  higher price

## II. Literature

- **Factors impact household homeownership**

- Demographics: Goodman, 1988; Linneman and Wachter, 1989;
- Location certainty: Kan, 2002; Haurin and Grill, 2002; Sinai and Souleles, 2006;
- Financial constraint: Diaz-Serrano, 2005; Fisher and Gervais, 2011; Acolin, Arthur, Bricker, Coleman, Wachter, 2016.

- **Heterogeneity in regional housing prices**

Case and Shiller, 1988; Nieuweburgh and Weil, 2010; Ferreira and Gyourko, 2012; Katak, 2016; Tuzel and Zhang, 2017;

- **Clustering provides higher job security**

(see previous slide)

## III. Data

- **Homeownership and other demographics: 2013-2015**  
American Community Survey provided by IPUMS
- **Housing Prices: 1998-2015** county-level Zillow Home Value Index

- **County-level Cluster Strength** in 2012 from U.S. Cluster Mapping Project

$$\text{Cluster Strength}_r = \frac{\text{Employment in Strong Clusters}}{\text{Employment}_r}$$

A cluster is a strong cluster if  $LQ_{i,r}$  is above 75<sup>th</sup> percentile of the sample, where

$$\text{Location Quotient}_{i,r} = \frac{\text{EMPLOY}_{i,r} / \text{EMPLOY}_r}{\text{EMPLOY}_{i,US} / \text{EMPLOY}_{US}}$$

- A county is highly clustered if its cluster strength is above the 75<sup>th</sup> percentile.
- A county is barely clustered if its cluster strength is below the 25<sup>th</sup> percentile.

## Summary Statistics

Variable	2013	2014	2015
Proportion Owning	66.33%	65.53%	65.36%
Cluster Strength	55.56% [.1394]	55.52% [.1396]	55.52% [.1395]
Age (HH)	46.3 [12.8011]	46.4 [12.9012]	46.5 [12.9925]
Annual Income (HH)(\$)	60432.98 [64824.76]	60500.06 [64727.92]	61555.71 [67289.37]
Real House Price Per Sqft in t-1(\$)	156.19 [121.4852]	171.05 [135.7146]	180.04 [147.7]
Real House Price Growth	-8.53% [.0511]	-4.56% [.0285]	-0.20% [.0347]
Observations	411947	412931	418339

## Summary Statistics (cont.)

Variable	If Cluster Strength above 75 pctl	If Cluster Strength below 75 pctl	If Cluster Strength above median	If Cluster Strength below median	If Cluster Strength above 25 pctl	If Cluster Strength below 25 pctl
Proportion Owning	68.94%	64.93%	66.98%	64.83%	67.12%	63.08%
Cluster Strength	74.72% [.0652]	50.69% [.1081]	68.04% [.0796]	46.44% [.0968]	63.37% [.0902]	40.45% [.0819]
Age (HH)	46.15 [12.7475]	46.42 [12.9367]	46.34 [12.8475]	46.38 [12.9368]	46.44 [12.8956]	46.22 [12.9051]
Annual Income (HH)(\$)	67930.87 [70273.05]	59043.32 [64288.81]	63460.45 [66967.11]	58922.34 [64581.37]	62577.4 [68011.98]	57476.77 [60658.68]
Real House Price Per Sqft (\$)	162.68 [133.0453]	170.74 [136.4302]	156.01 [121.5856]	178.25 [144.1396]	166.88 [155.2341]	173.00 [93.5558]
Real House Price Growth	-3.61% [.0409]	-4.60% [.0542]	-4.16% [.055]	-4.57% [.0497]	-4.33% [.0531]	-4.52% [.0499]
Observations	250354	992863	523441	719776	818053	425164

## IV. PRELIMINARY Results

- **Baseline:**

$$OWN_{k,r,t} = \beta_0 + \beta_1 Cluster_{k,r,t} + \theta X_k + \phi Z_{r,t} + \gamma_t + \epsilon_{k,r,t}$$

- **Controls:**

- $Cluster_{k,r,t}$ : equals to 1 if household  $k$  lives in a highly clustered county
- $X_k$ : household head's age, education, gender, race, log income, occupation, industry
- $Z_{r,t}$ : per square feet housing price in  $t-1$ , average housing price growth rate of previous five years.
- $\gamma_t$ : year fixed effect



VARIABLES	(1) own	(2) own	(3) own
Cluster_h75	0.0138*** (0.00164)		
Cluster_h50		0.00410*** (0.00155)	
Cluster_125			-0.0215*** (0.00171)
Age	0.0106*** (0.000252)	0.0106*** (0.000249)	0.0106*** (0.000250)
Log(income)	0.0643*** (0.00327)	0.0644*** (0.00327)	0.0642*** (0.00327)
Housing_Price	0.000485*** (1.27e-05)	0.000486*** (1.28e-05)	0.000486*** (1.21e-05)
HousingPrice_GrowthRate	0.169*** (0.0158)	0.181*** (0.0156)	0.178*** (0.0158)
Marriage Status	YES	YES	YES
Gender	YES	YES	YES
Race	YES	YES	YES
Education	YES	YES	YES
Occupation	YES	YES	YES
Industry	YES	YES	YES
Year FE	YES	YES	YES
Observations	1,076,318	1,076,318	1,076,318
R-squared	0.2881	0.2878	0.2877

- Column (1) shows that the probability of a household in a highly clustered area owning a house is 1.4 percentage points higher than those of a household in less clustered county.
- Column (3) shows that the probability of a household in a barely clustered area owning a house is 2.15 percentage points lower than those of a household in more clustered county.
- **Households in area with higher job security are more likely to own.**

## V. Future Research Agenda

- Use MIMIC model to estimate the impacts of unobserved job security on tenure choice, homeownership and price-to-rent ratio
- Combine Employee tenure and job opening to measure job security
- Set up a model and simulate results