Reference Points in the Housing Market

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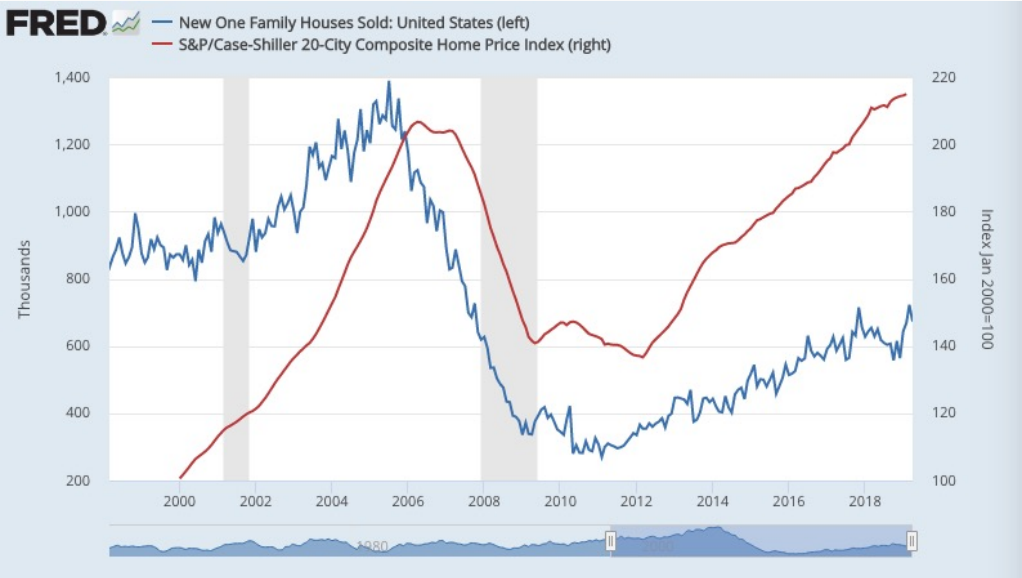
June 3, 2019

Motivation is Price-Transaction Correlation (here, US)



Paper Evaluates role of Disposition Effect and Downpayment Constraints in Explaining Price-Liquidity Correlation

- **Background:** Paper adjudicates between two competing explanations:
  - Loss Aversion/Disposition Effect: Avoid selling if you realize a nominal loss
  - Down Payment Constraint: Realize sufficient gain on sale to meet new downpayment
- **Identification:** Different implied reference point discontinuities:
  - Loss Aversion important around nominal gain/loss of zero
  - 80% LTV constraint (assuming comparable property) $\rightarrow$ 20% downpayment
- **Main Findings:**
  - Both constraints seem to matter
  - Disposition effect only when down payment constraint is not binding

My Thoughts

1. Comments on Housing Prices
2. Market Power and Behavioral Biases
3. Suggestions on Specification
4. Micro to Macro

What is a House Price

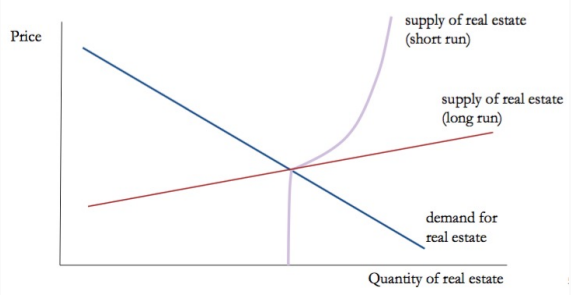


Figure 1: Traditional View

Figure 2: Search View

And really, more like: (days on market, sale price, Pr(sale))

Round Number Bias in Listings (Left) and Transactions (right)

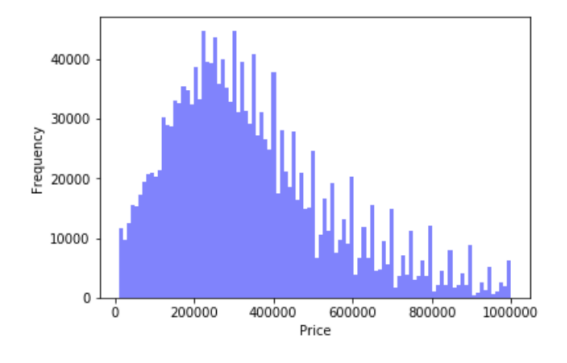


Figure 3: Listings Data

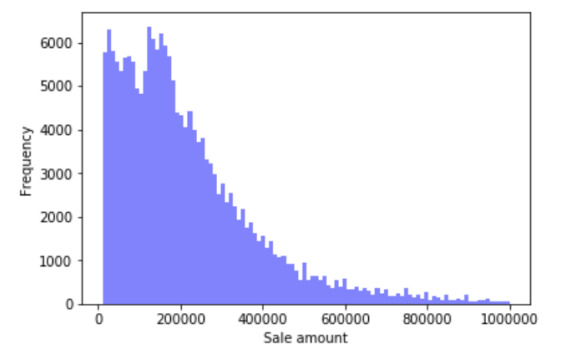


Figure 4: Deeds Data

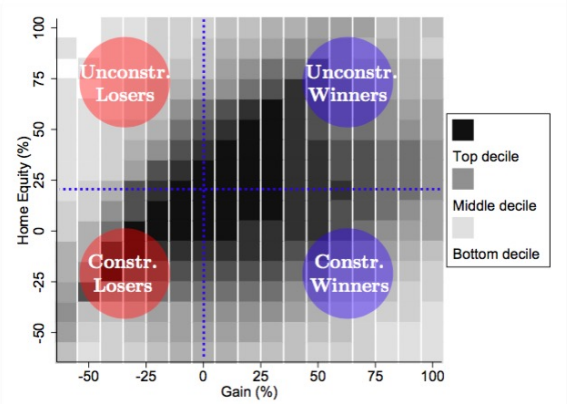
→ People *list* for round numbers, but transact for numbers that are disproportionately round, but not by as much

Round Number Bias is Indicative of Market Power

- Excess price mass requires *both*: behavioral bias *and* imperfect competition
  - 6 percent commission for real estate agents
  - wage bunching: Dube Manning Naidu (2017); 0.99 prices Levy et al. (2011)
- When there is substantial market power, the profit function is flatter and optimization errors are less costly (Akerlof Yellen 1986)
- Diminished role for round number bias in transactions rather than listings indicates that competition helps but is incomplete
- Why is there Market Power here?
  - housing market is thick; but house differentiation is important
  - search (informational) frictions are high
  - plus inattention and cognitive constraints

Implications for Constraints

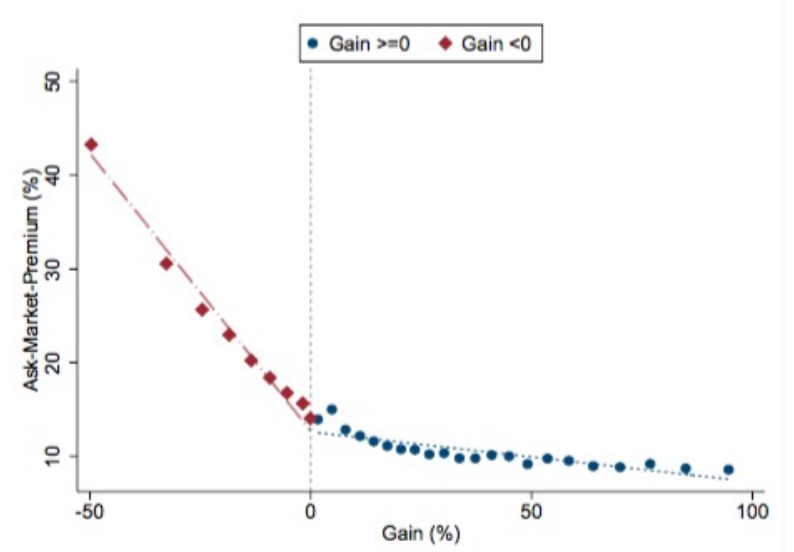
- Reference points should matter more in presence of market power
  - Test based on whether market is "hot" or "cold," whether home is unique or rare?
- Down Payment Constraint is like reaching for yield when forced to meet a consumption "commitment"
  - Greater risk of not selling in order to increase probability of moving in
  - Test directly: discontinuity around 80 LTV for Pr(sell), Pr(move)?
  - Divorce as exogenous shock?



Other Specification Suggestions

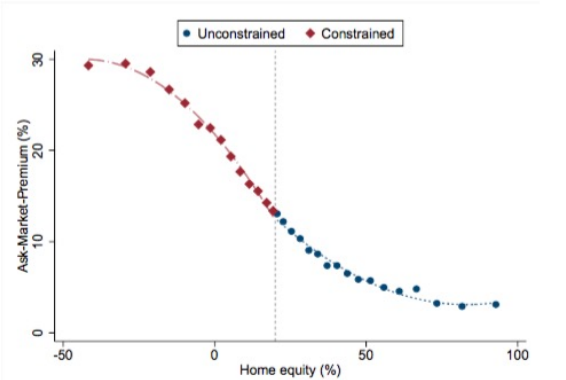
- Housing prices measured with error
  - Attenuation bias
  - Also misclassify properties on wrong side of kink
- Looking at subset of data with realized sales, implement measurement-error-corrected estimator from Indarte (2019)
- Could reference points capture other things, like price expectations?
  - Try control for previous house price trends, assuming extrapolative expectations (Kuchler Zafar [2015])

Equity gain/loss identification is strong

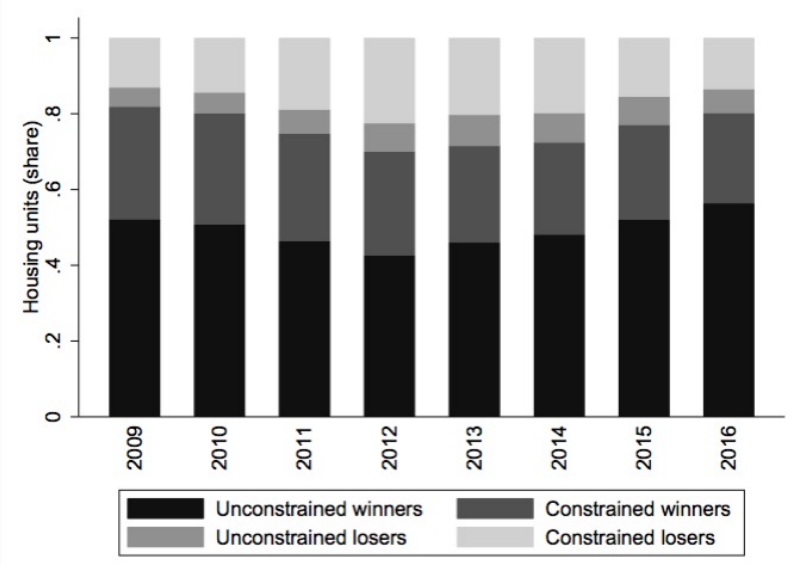


While home equity gain/loss driven by behavior further from the discontinuity?

- Try placebo discontinuities at different points in nominal gain/loss and equity percentile distribution
  - Negative Equity
- Robustness on bandwidth in RKD (25% used, try smaller)



Time-Series Variation in Aggregate Constraints



- Paper argues these shares are roughly constant which is good.
- I would say these shares are *not* constant which is good!

Housing as Moving Risk Hedge from Sinai and Souleles (2005, 2013)

Rents correlated AR(1):

$$
\begin{aligned}
r_t^A &= \mu_A + \phi r_{t-1}^A + \nu_t^A + \rho \varepsilon_t^B \\
r_t^B &= \mu_B + \phi r_{t-1}^B + \varepsilon_t^B + \rho \nu^A
\end{aligned}
$$

Risk premia for ownership π_O reflects asset price risk from 1) sale of house in A, 2) purchase of house in B, and 3) sale of house in B:

$$
\pi_O \sim \frac{\alpha}{2}\Big(\underbrace{\delta^{2t}(1-\rho)^2(\mathrm{Var}(r_A)+\mathrm{Var}(r_B))}_{\textit{net}\text{ risk from sell A buy B}} + \underbrace{\delta^{4t}(\mathrm{Var}(r_B))}_{\text{risk selling house in B}}\Big)
$$

α is risk aversion, δ is discount factor, $\rho = \mathrm{Cov}(r_A, r_B)$

Empirically — households move to areas with correlated price shocks, so home ownership is cross-sectional hedge

Assessing Macro Implications of Estimates

- Aggregate implications for down payment and loss aversion constraints are different:
- When more people are close to nominal price constrained — expect lower prices to further dampen liquidity, turnover, house prices
- But lower prices *in aggregate* lower both the price of your home, and the one you move into!
  - With *perfect* house price correlation, should have no effect!
  - Instead, increases in *house price dispersion* have negative aggregate consequences when people are down payment constrained

Danish Market Institutional Details

- In Denmark, gains on housing not subject to capital gains or VAT tax (I think)
- However — how much is a function of the 80 percent LTV limit?
- Try somewhere else that does not have these limits (UK)
  - Or compare TX v. other states in the US
- In 2013, 57% of borrowers had long interest-only periods
  - Up from 10% in 2004
  - Lasts up to 10 years, followed by reset
  - Danish mortgage amortization rate about 2% a year
- Suggests borrowers also feel that *payment* constraints are binding
- Implications about forward looking down payment constraints?

Conclusion

- Great data, great question: read the paper!
- Rich setting to quantify the role of behavioral biases on market outcomes, and the circumstances when they matter

Thanks!