Comments on "Reference Dependence in Housing Markets"

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Puzzles in Housing Markets

- Positive price-volume relationship (Stein, 1995)
  - → A 10% drop in prices is associated with a reduction of transaction volume by over 1.6 million housing units.
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  - → When market price is lower than seller's reservation value, seller will:
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- **This paper (relative to literature):**
  - → New measure (more precise) of seller's relative gains and losses.
  - → Adds (reduced form) housing demand (Guren, 2018)
  - → Includes extensive margin (seller decides whether to list).
  - → Includes financial constraints (mortgage data)

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- Imagine there is an ending period T.

  → E.g., seller needs to move before the beginning of the school year or before her new job starts.

- Listing price will depend on how far away the seller is from the ending date T.

  → Also on seller's belief on future prices as T approaches.

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  - → Do we observe listing prices for same seller to decline over time (as T approaches)?
  - → Conditional on same loss/gain, does the pricing behavior of sellers with kids change as the beginning of school year approaches?
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- Hyperbolic discounting would predict:
  - → A cross-sectional pattern of concave fishing behavior
    (e.g., regress $log(fishing\ margin)$ on $(gains)^2$)
  - → Negative relation between prices and noise (difference between transaction prices and hedonic prices)
    (e.g., regress $variance(hedonic\ residuals)$ on $(price\ level)$)

Seasonality in Housing Markets

- Ngai and Tenreyro (2014) find evidence of thick-market effects in housing.
  - → Systematic above-trend increases in prices and transactions during the spring and summer ("hot season") and below-trend falls during the autumn and winter ("cold season").
- Williams (1999) shows that:
  - → In hot markets sellers ask for prices closer to the market price
  - → In cold markets many sellers exit after setting substantially higher than market prices
- **Is there any evidence of similar patterns in Denmark?**
  - → Hyperbolic discounting could explain seasonality trends, but not obvious to me whether reference dependent loss aversion could.

#2. Role of Real Estate Agents

- **How important are real estate agents in Denmark?**
  - → The real estate agency sector is dominated by a range of chains of estate agents.
    - Some owned by financial institutions, while others are independent chains.
  - → Sellers pay between 0.5% and 2% of the property value towards real estate agents' fees.
  - → **The largest chain of real estate agents hold over 20% market share of house sales.**
    - (Source: Antitrust Authority case against "Home", real estate agency owned by Danske Bank)

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- Panle, Pathak and Wong (2017) show how real estate agents affect:
  - → **Probability of sale**
  - → **Time on the market**
  - → **Listing price**
  - → **Transaction price**

Testing Impact of Real Estate Agents

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- Interesting to see **differences between intermediated and non-intermediated sales**.
  - → One key assumption in model is that *sellers know demand conditions*, i.e. probability of selling and equilibrium price of their property.
    - Differences between listing and market prices
    - Differences in time on the market
  - → Also, if brokers do affect equilibrium prices, it could generate some omitted variable biases in the hedonic price regressions.
  - → Estimates for costs of listing (φ) should be different across brokered and non-brokered sales.

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  - $\rightarrow$ Sample period right after a burst of a housing bubble.
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- How robust are findings and new stylized facts to different definitions of the reference point?
- It is key for the estimation of the two key parameters to get the reference point right.
  - → Use sellers with relative gains to pin down reference dependence (η), and sellers with losses to back out risk aversion ((λ).

#4. Heterogeneity: Geographical Differences

- Given richness of the data, it would be interesting to explore geographical variation in:
  - → **Regulatory constraints on new housing supply**
  - → **Rent controls**
  - → **Property taxes**
  - → **Stamp duty**
- These may affect sellers' market power, buyers' willingness to pay, and outside options for both.
- Nice exercise:
  1. Map each geographical variation to parameters that would be affected in the model.
  2. Do comparative statistics on those parameters and generate predictions across regions.
  3. See if the predictions match the data (e.g., across municipality variation).

#5. Comments on the Model

- Implications of normalizing market prices to $\hat{P}$=1.
  - → Losing significant regional variation and seller heterogeneity.
  - → Difficult to reconcile with stylized facts and data patterns, where this source of variation plays a key role.
  - → Do not follow how do you combine this normalization with heterogeneity across municipalities in their demand concavity.

- Parameter δ is defined as "sellers may perceive demand concavity differently from our measures in the data".
  - → It does not show up explicitly in any of the equations governing the model.
  - → We could think of it as an error term, but there is no distribution.

- What is θ capturing?
  - → Extensive margin decisions not explained by model.
  - → Potentially correlated with other parameters in both supply and demand.

#6. Imagine we believe the estimates, what now?

- **How to think about welfare?**
  - → Do we think about reference dependence as preferences or "mistakes"?
  - → Implications for home-ownership, labor mobility, consumption, savings...
- **Policy implications? Counterfactuals?**
  - → Implications for mortgage design? Restrictions on housing supply?
  - → Recommendations for monetary and macro-pru policies?
- **Future work: Think about sellers being simultaneously buyers.**
  - → Interesting to study how sellers' decisions get aggregated into demand.
  - → Search decisions for both buyers and sellers can also affect listings and transaction prices (e.g., Piazzesi, Schneider and Stroebel, 2020)