

COOLING AUCTION FEVER: EVIDENCE FROM THE HOUSING MARKET

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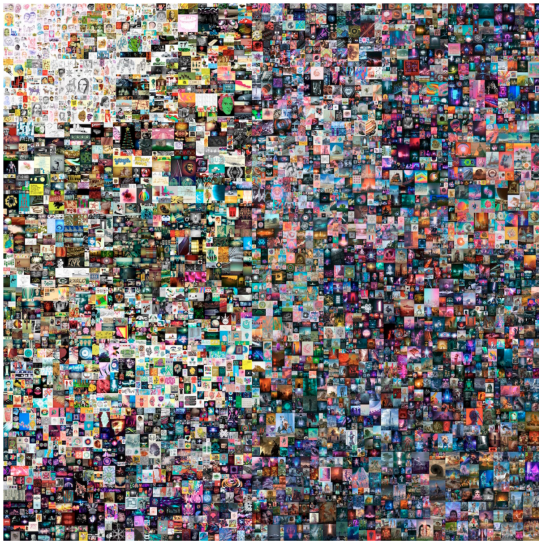
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THIS PAPER: HERDING BEHAVIOR IN HOME AUCTION CONTEXT

- New evidence on links between bidders' behavioral biases and real asset prices
- Setting: staggered reform in NSW (2016) and VIC (2017), Australia designed to deter sellers from “underquoting” values at home auctions
 - ▶ Sellers required to list a tight range of prices and info on comparable sales (“comps”)
- **Results:** listed prices lower for auctions, gap declines after reform along with bidding activity and bids with large increments (“auction fever”)
 - ▶ Robustness: border DiD, not-yet-treated control groups, placebos, bounds on OVB ✓
- **Punchline:** herding behavior can lead to inflated asset prices in auction markets
 - ▶ Generally problematic to extent we care about pricing efficiency
 - ▶ Herding contributes to housing unaffordability and wealth inequality between investors and prospective first-time buyers

RECENT AUCTION FEVER IN THE COLLECTIBLES WORLD



Beeple, *Everydays – The First 5000 Days*. Courtesy of the artist and Christie's.



Christie's
@ChristiesInc · Follow



.@beeple 's 'The First 5000 Days', the 1st purely digital NFT based artwork offered by a major auction house has sold for \$69,346,250, positioning him among the top three most valuable living artists. Major Thanks to @beeple + @makersplaceco. More details to be released shortly

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The opening bid, on February 25, was just \$100. That quickly soared to more than \$1 million, reached more than \$9 million by yesterday, and started jumping in \$10 million and \$15 million increments in the final two minutes of the sale today.

"My clients over 40 think this is either tulips or the emperor's new clothes," said attorney Thomas Danziger. "But younger clients think this could be the next da Vinci or bigger. People collect the art of their times. This may turn out to be the best thing since sliced bread, in the rearview mirror."

WHAT DO THESE FINDINGS CONTRIBUTE?

- Important because auctions are a common mechanism for real asset sales
 - ▶ Forced home sales: Campbell, Giglio, Pathak (2011) and Anenberg & Kung (2014) on mortgage foreclosures; Alm et al. (2016) and LaPoint (2022) on tax foreclosures
 - ★ Foreclosures more common during downturns; while general auction sales procyclical
 - ▶ Art and collectibles markets: Goetzmann & Spiegel (1995) and Lovo & Spaenjers (2018) on art auctions; Kräussl & Tugnetti (2022) on NFTs
- U.S. private value assets (residential real estate + all collectibles) worth **\$35.8 trillion** as of 2020 (Goetzmann, Spaenjers, Van Nieuwerburgh 2021)
- **Informational interventions could become part of the macroprudential toolkit**
 - ▶ Improve housing affordability without efficiency costs if public signal does not result in behavioral misoptimization
 - ▶ Contrast to deadweight losses of LTV limits and transaction taxes for which $\Delta P > 0$

COMMENT #1: SELECTION INTO THE AUCTION MARKET

- **How do sellers decide to list their property at auction vs. on regular market?**
 - ▶ Genosove & Hansen (2019): PSM for auction vs. regular properties in Sydney/Melbourne
 - ▶ Auction prices are better forecasts of future price levels \implies more sophisticated investors
- **Is the regular market an outlet for seller-broker pairs to offload **lemons**?**
 - ▶ Summary statistics similar for basic amenities like # rooms or parking (what else?) ✓
 - ▶ Are the atypical properties which see the largest reductions in sale prices after underquoting atypical because they have inherent problems?
- While fines are high ($\approx 20k$), estimates attenuated by fact that brokers can strategically select low-value comps \longrightarrow use broker FEs or repeat sales by flippers?
 - ▶ If digitized info on the specified comps (for VIC) how much do they vary relative to what Australian Zillow provides?
 - ▶ Broker has incentive to contribute to frenzy so that bid exceeds reservation value

COMMENT #2: WHY IS THERE A LACK OF INFORMATION? (1)

- **Why does provision of public information result in any economic response?**
 - ▶ Requiring the property quote to be benchmarked to comps should not matter to extent that local market analysis is readily available (e.g. through Zillow)
 - ▶ Example: can download zip code-level market report or get the “Zestimate”
 - ▶ And/or, look at sales history for individual property of interest or those at close proximity
 - ▶ realestate.com.au functions like the Australian Zillow
- **Buyers might also enlist a broker even if looking at auction properties**
 - ▶ Again, more information about selection into auctions vs. regular sales and commission structure would be helpful here
- **Common puzzle seen elsewhere in housing context:** Armona, Fuster, Zafar (2019); Bottan & Perez-Truglia (2020); Kuchler, Piazzesi, Stroebe (2022) on $\mathbb{E}[\Delta P]$
- Possible mechanisms: salience, attention costs, **sparse maximization** (Gabaix 2014)

Similar homes in Pendle Hill

Looking at similar homes in Pendle Hill, NSW 2145 can help you better understand this house's potential value.

Sold

For Sale

For Rent



19 Birtles Avenue, Pendle Hill, NSW 2145

🚗 5 🚲 3 🚗 2

\$1,200,500

25 Mar 2022



28 Arnett Street, Pendle Hill, NSW 2145

🚗 5 🚲 3 🚗 2

\$1,307,000

06 Mar 2022



480a Great Western Highway, Pendle Hill, NSW 2145

🚗 5 🚲 3 🚗 2

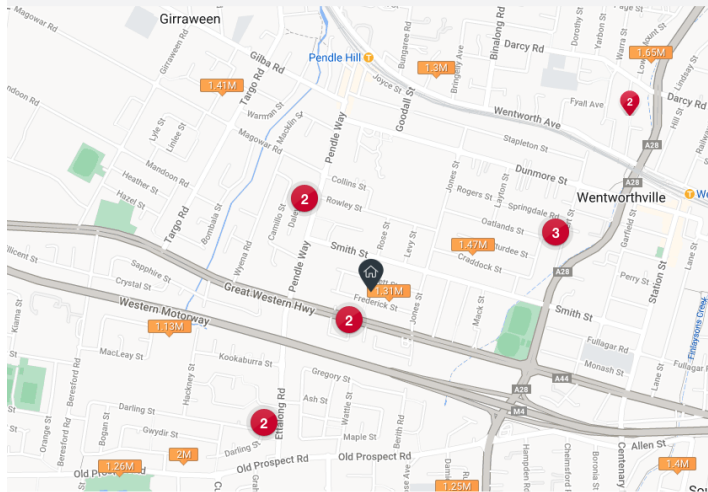
\$1,025,000

08 Feb 2022



Market Activity for 5 bedroom houses in Pendle Hill, NSW

4 For sale 28 Recently sold 0 Open for inspections this week 1 Auctions upcoming



Pendle Hill market wrap for all houses

\$1,225,000 MEDIAN SALE PRICE 6.9% ANNUAL GROWTH

Estimated value

\$1.13m
Low range

\$1.46m

\$1.79m
High range

● LOW CONFIDENCE ⓘ

Last updated 25 July, 2022

How do we calculate estimated value? ⓘ

To work out the estimated value of a property, our algorithm looks at:

Property features



Comparable sales



Past sales



A property's past sales are a great way to understand the market it's in. We consider what previous sale prices might be worth today, growth and demand trends as well as inflation.

[See the sale history of this property](#)

Property sale history

2015

Sold September 2015
\$1,188,000



2014

Sold December 2014
\$700,000

2012

Sold October 2012
\$700,000

2008

Sold November 2008
\$640,000

1997

Sold March 1997
\$160,000

COMMENT #2: WHY IS THERE A LACK OF INFORMATION? (2)

- Is the NSW/VIC reform really improving prospective buyers' information?

- ▶ Exercise using the atypicality of properties suggests yes, since public signals may not be informative about the **private value** of a real asset
- ▶ But more atypical properties have fewer true comps, so what is the added info?

- Following Haurin (1988); Glower, Haurin, Hendershott (1998), compute for each property:

$$ATYP = \frac{\sum_i |\exp(a + \hat{\beta}_i \cdot X_i) - \exp(a + \hat{\beta}_i \cdot \bar{X}_i)|}{SP} \times 100\%$$

- ▶ Index captures distance as fraction of expected sale price (SP) between hedonic value of property's characteristics and avg. of those in the data (e.g. swimming pool in Ohio)
- ▶ What are the X_i here? Same as controls in the DiD? Are results robust to model selection?
- ▶ Semi-parametric alternative: "token" approach from sales listings to capture private value components like internal renovations

Sample MLS listings

Listing 1

Date	Beds	Baths	Sq. ft.	Price	\hat{u}	\hat{u}_2
Oct. 10, 2002	3	2	1,484	\$124,000	0.141	0.012
MLS remarks: hallcraft <u>red brick</u> beauty!! in all the years i have been working this neighborhood this is the nicest home i have ever <u>seen!</u> home is beautifully decorated. custom kitchen is magnificent! <u>panelled</u> family room <u>w/fireplace</u> . wonderful <u>back yard is tiled</u> with beautiful in ground pool & spa! large windows in kitchen and front room for light, cheery atmosphere! lots of <u>extras!</u>						

Listing 2

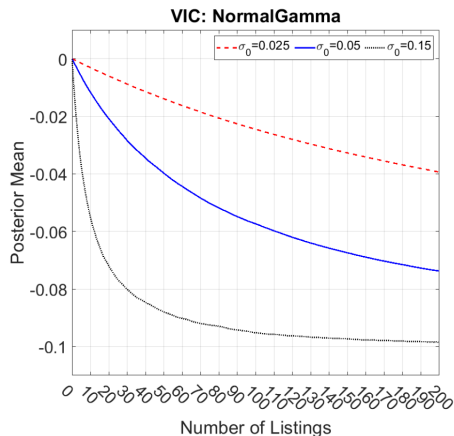
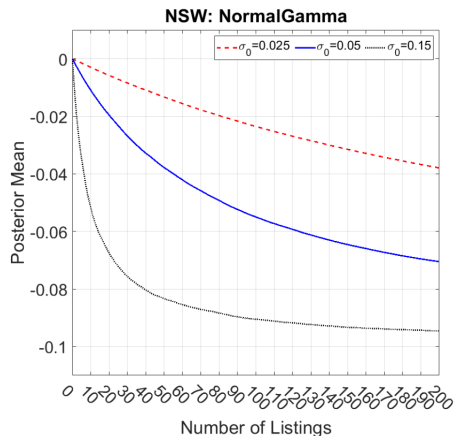
Date	Beds	Baths	Sq. ft.	Price	\hat{u}	\hat{u}_2
Oct. 28, 2002	3	2	1,480	\$88,000	-0.175	-0.037
MLS remarks: super <u>bargain</u> price on this great family home. needs cosmetic <u>fix-up</u> and cleaning and the pool needs to be replastered. great opportunity for someone who can do a little <u>work</u> . easy to show - <u>vacant</u> and on lockbox.						

Table 1 displays two transactions in the data with the original remarks in the MLS listing. Both listings are 3-bedroom, 2-bathroom houses with approximately 1,500 square feet of living area that sold within 2 weeks of each other and are located in the same census tract. \hat{u} is the baseline residual from a hedonic model using census tract by time fixed effects and property controls. \hat{u}_2 is the residual when the textual information from the remarks; \hat{S}_2 is included as indicator variables in the hedonic model.

COMMENT #3: MODELING HOW INVESTORS FORM VALUATIONS

- Test hypotheses consistent with standard auction theory model with rational agents
- Two key hypotheses pertain to mechanisms for underquoting:
 1. **Hypothesis 3a:** *If the information, or herding, channel is driving bidding wars, the effects of the reforms should be stronger when it is harder to identify comparable transactions for the auctioned real estate property. → use ATYP index (✓)*
 2. **Hypothesis 3b:** *If the information, or herding, channel is driving bidding wars, large price increments between consecutive bids should increase, rather than reduce, the likelihood of further bids. → use bid increments as outcome ✓*
- Both of these tests rely on buyers' uncertainty about degree of underquoting
 - ▶ Solution: show in Appendix that with normal-gamma conjugate prior, time cost would be prohibitive for buyers to become fully informed
- **How do we reconcile this with extensive public information on pricing?**

ARE AUCTION BUYERS BAYESIAN LEARNERS?



- Interpretation: buyers need to review comps for around 200 listings to move priors towards the true amount of under-reporting (≈ 67 hours)
- But buyers rely on brokers/Zillow, so true time cost lower even conditional on this model!

OVERALL ASSESSMENT

- **Policy implications for NFT market where underquoting occurs due to combo of uniqueness and strategic decision of the seller**
 - ▶ Cases of auction fever where NFT subsequently sells at a huge loss for the investor
 - ▶ Benchmarking starting bids to comps could be useful to extent that there are strong artist fixed effects and hedonic factors (Kräussl & Tugnetti 2022)
 - ▶ Potentially more effective as a cooling mechanism than transaction taxes on crypto
- A few loose ends to be tied up before making more general statements about auctions
 1. **Housing auctions are special:** tell us more about selection into negotiated vs. auction sales and role brokers play
 2. Are effects due to framing effects or actual information revelation?
 3. **Alternatives to Bayesian approach** to learning about underquoting given readily available public price signals → sparse max, inattention, etc.
- Looking forward to seeing the final version – hopefully in print soon!



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THANKS!
