

# Can Stay-at-Home Orders Create a Pandemic Housing Boom?<sup>1</sup>

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Preliminary Results

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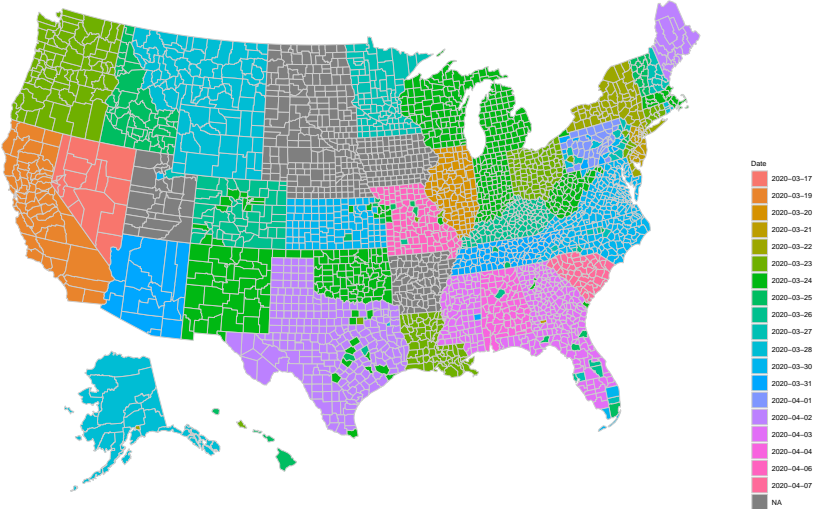
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<sup>1</sup>Data provided by Zillow through the Zillow Transaction and Assessment Dataset (ZTRAX). More information on accessing the data can be found at <http://www.zillow.com/ztrax>. The results and opinions are those of the authors and do not reflect the position of Zillow Group.

# Research Question

- Covid-19 shutdown or stay-at-home orders (SAH) prevented in-person viewings, inspections, and other supporting business.
- This provides a natural setting to test the dynamic housing market responses to a temporary increase in home search costs.
- This project aims to address the following questions through the lens of a search-based model:
  - ▶ How did the restrictions affect home search behavior and hence house price and sales during and after SAHs?
  - ▶ How did the changes in home search behavior indirectly affect new construction?
  - ▶ Could these restrictions create a post-SAH housing boom? Or is that just a recovery?
- We use the variation in the timing of SAHs to estimate the effects of these SAHs on the home search and housing markets.
- Data: Zillow, ZTRAX, Redfin, NAR, Census, John Hopkins, ACS.

# Staggered Adoption of Stay-at-Home Orders

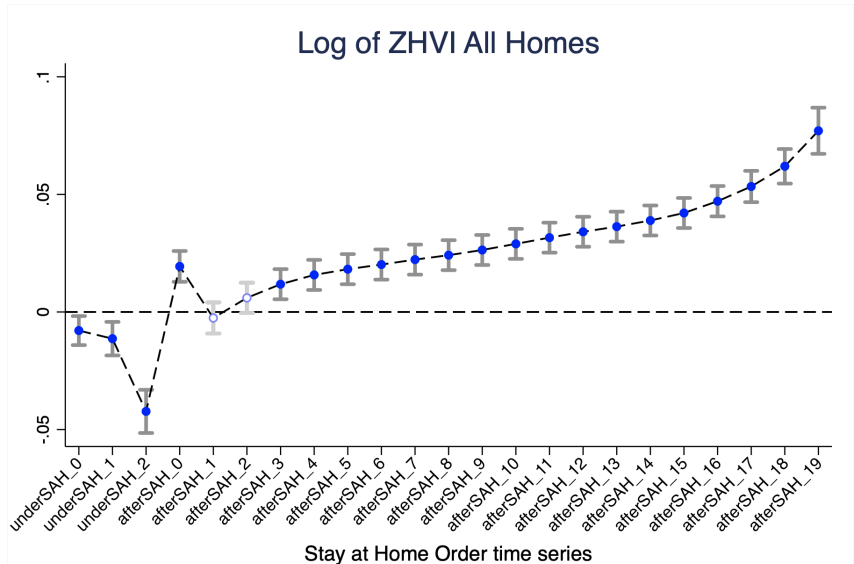


# Empirical Specification

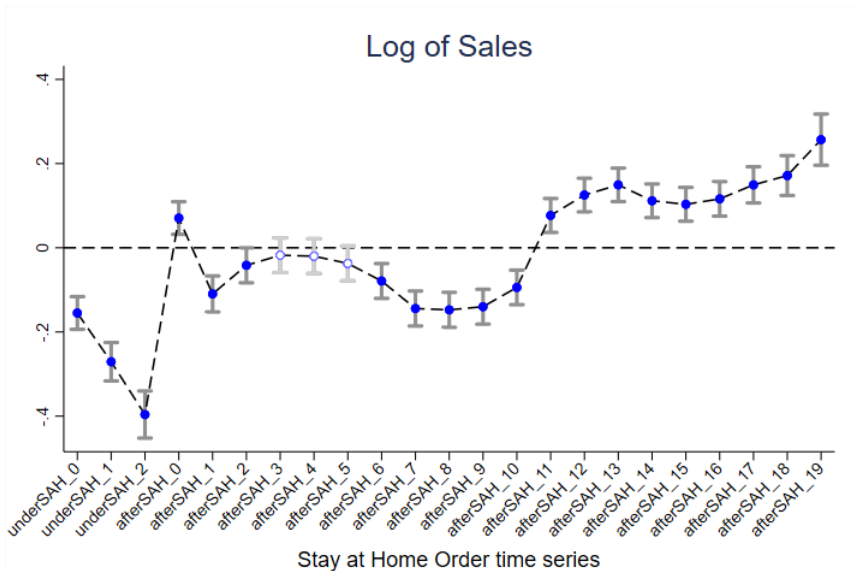
$$Y_{c,t} = \alpha_t + \sum_{m=0}^M \text{underSAH}_{m,c,t} + \sum_{m=0}^{M'} \text{After SAH}_{m,c,t} + I_{c,t}\beta_I + FE_c + \varepsilon_{c,t}$$

- $t$  - month,  $c$  - county,
- $Y_{c,t}$  - the outcome of interest in county  $c$  in month  $t$ ,
- $\text{underSAH}_{m,c,t}$  is equal to one if county  $c$  is under the stay-at-home order for the  $m$ th month within a month  $t$ ,
- $\text{afterSAH}_{m,c,t}$  - equals one if county  $c$  is in  $m$ th month after the end of the stay-at-home order within a month  $t$ ,
- $\alpha_t$  - month-year fixed effects,
- $I_{c,t}$  - mean daily & % increase in infections 2 months before  $t$ ,
- $FE_c$  - county fixed effects.

# SAH Effects on Quality Adjusted House Price (ZHVI)

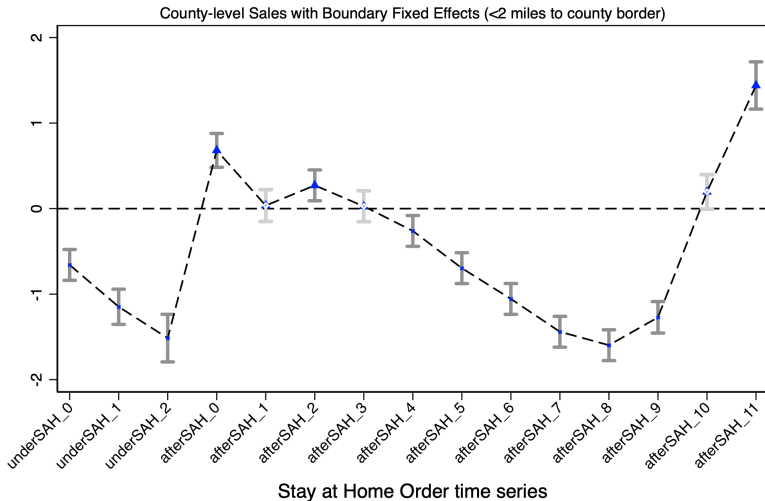


# SAH Effects on Sales Volume



Data Source: Redfin

# SAH Effects on Sales Volume



Data Source: Zillow's Transaction and Assessment Database'

# A Random Matching Model in a Nutshell

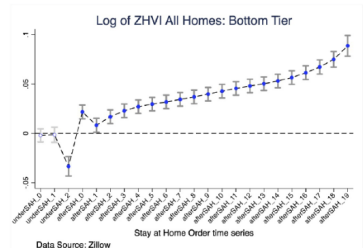
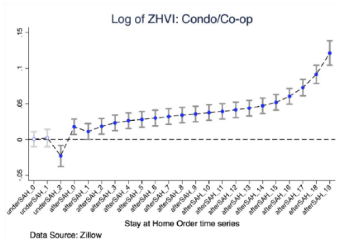
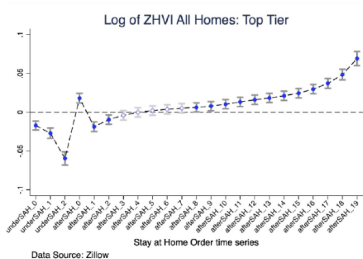
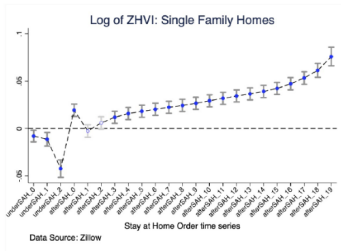
We provide a search-based explanation of the housing market dynamic during the pandemic:

- SAHs increased the search costs for buyers and sellers.
- This reduces the joint surplus of buyers and sellers.
- Reduced surplus leads to lower prices, dampened sales, longer time on the market, and fewer listings.
- Buyers and sellers that would have met under SAHs postponed transactions to a later time, creating the make-up demand and listings after the SAHs.
- Once SAH was lifted, most motivated buyers and sellers were pushed out to the market first, followed by less motivated ones.

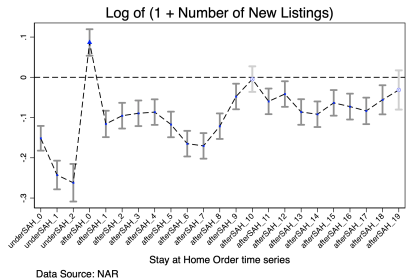
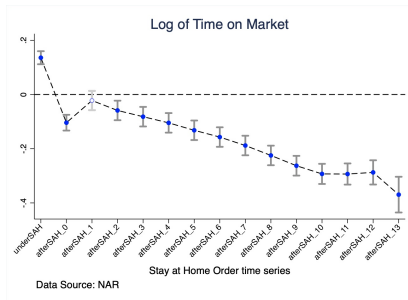
Additional evidence from cross-segment differences and search behavior from buyers and sellers.



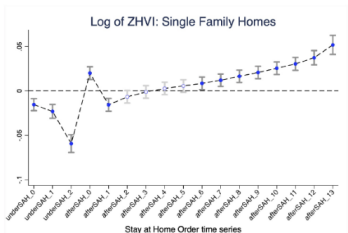
# Prices Respond More in Segments with Higher Search Costs



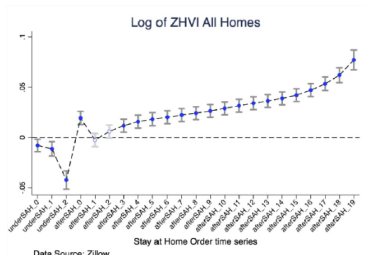
# SAH Effects on Search Behavior



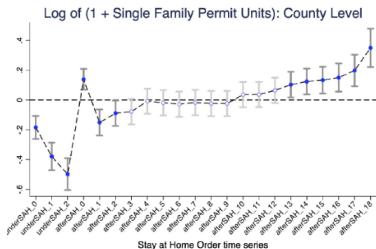
# SAHs Affect Construction Dynamics Through Price



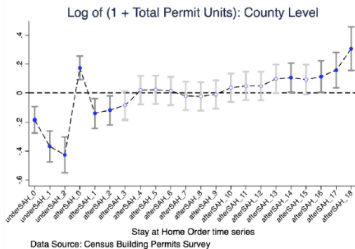
Data Source: Zillow



Data Source: Zillow



Data Source: Census Building Permits Survey



Data Source: Census Building Permits Survey

# Summary

- A sudden and temporary increase in search cost dampened house price and sales initially.
- Postponed transactions created an initial spike followed by a long and slow recovery after the SAH.
- SAHs also affected the dynamics of new constructions through price.
- The make-up demand after the SAH, combined with the lagged construction responses, created a pandemic housing boom.
- These effects are larger in less liquid housing segments.