Can Stay-at-Home Orders Create a Pandemic Housing Boom?\(^{1}\)

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Preliminary Results

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\(^{1}\)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-SA 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

[Map of the United States showing the staggered adoption of stay-at-home orders by date, with dates ranging from March 17 to April 7, 2020.]
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)

Log of ZHVI All Homes

Data Source: Zillow
SAH Effects on Sales Volume

Log of Sales

Stay at Home Order time series

Data Source: Redfin
SAH Effects on Sales Volume

County-level Sales with Boundary Fixed Effects (<2 miles to county border)

Stay at Home Order time series

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

Log of Time on Market

Log of (1 + Number of New Listings)

Data Source: NAR
SAHs Affect Construction Dynamics Through Price

Log of ZHVI: Single Family Homes

Data Source: Zillow

Log of (1 + Single Family Permit Units): County Level

Data Source: Census Building Permits Survey

Log of ZHVI All Homes

Data Source: Zillow

Log of (1 + Total Permit Units): County Level

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.