

# CAN PEOPLE AFFORD A HOUSE?

**A DATA VISUALIZATION PROJECT FOCUS ON  
CALIFORNIA HOUSING MARKET  
AFFORDABILITY**

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# Dataset Introduction



A bar chart with three bars of decreasing height from left to right. The first bar is green and labeled 'Redfin'. The second bar is red and labeled 'HUD'. The third bar is dark blue and labeled 'HDPulse'. The background is light orange with white clouds on the left.

Redfin

HUD

HDPulse

## Redfin Monthly Housing Market Data

Housing market activity across US counties, including home prices, inventory levels, sales counts, days on market, and other market indicators.

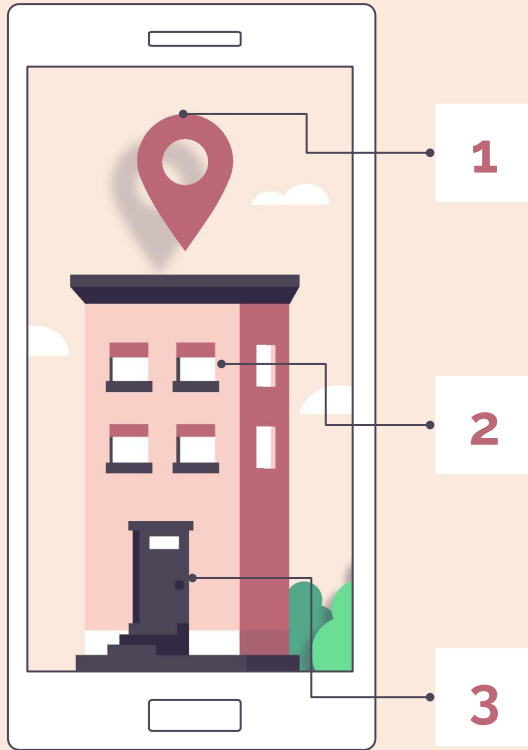
## Housing and Urban Development

Annual counts of building permits for new housing construction, broken down by single-family vs. multi-family units, with county-level geographic detail.

## HDPulse (2019-2023 )

An Ecosystem of Health Disparities and Minority Health Resources. We are using median household income data and population data by county from this dataset.



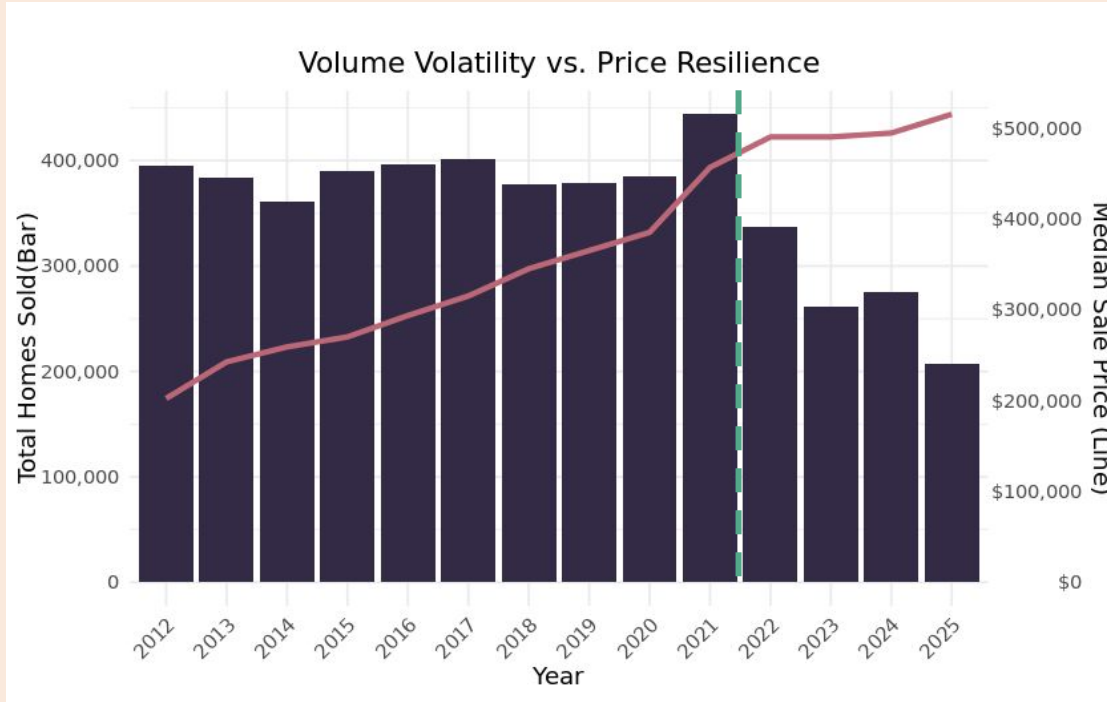


## Question of interest

1. Landscape: How is affordability distributed?
2. The “Gravity of Affordability” :  
*H1: Low affordability pushes people out*  
*H2: High demand impacts affordability*
3. Does any market adjustment mechanism on construction supply respond to price signals?



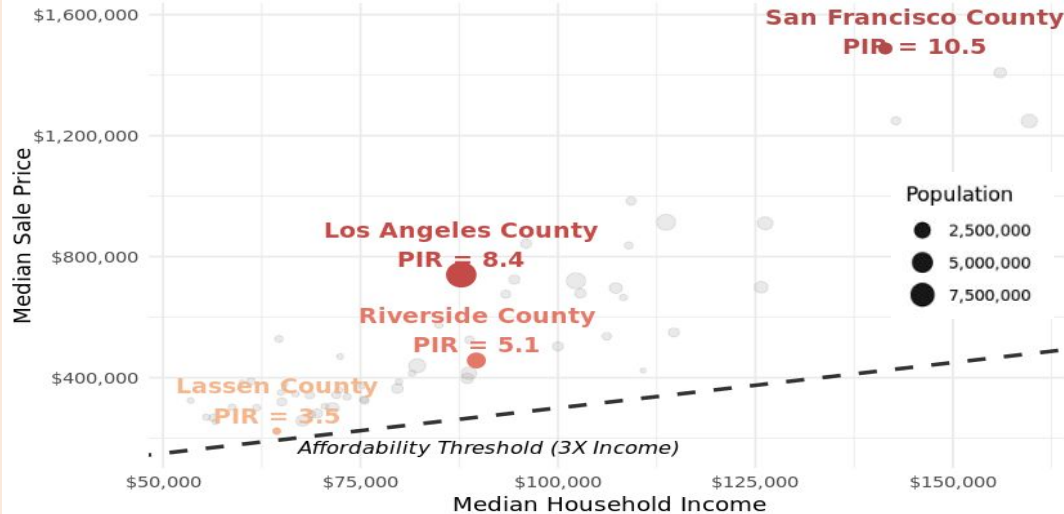
# Housing Market Overview



While transaction volume collapsed in 2022, prices remained near historic highs.

# The Affordability Gap

Home prices far exceed what income can support  
Using price-to-income ratio (PIR) to calculate gap



## Price-to-income Ratio (PIR)

Represents the years of gross income needed to buy a house. A higher ratio indicates lower affordability.

## The Extremes

### San Francisco: The "Ceiling"

Highest prices and worst affordability gap.

### Lassen: The "Floor"

Best affordability, representing the few remaining accessible markets.

## The Comparison

Similar Median Income (~\$88k).  
LA home prices are nearly 2x higher.

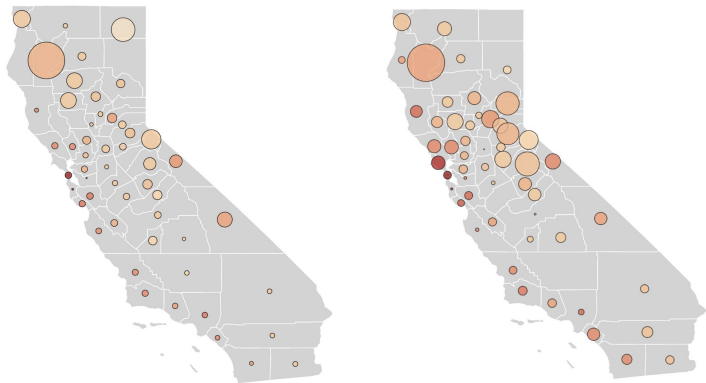


# Market Migration Map

Bubble Size: YoY housing sold change  
Color: PIR

2019

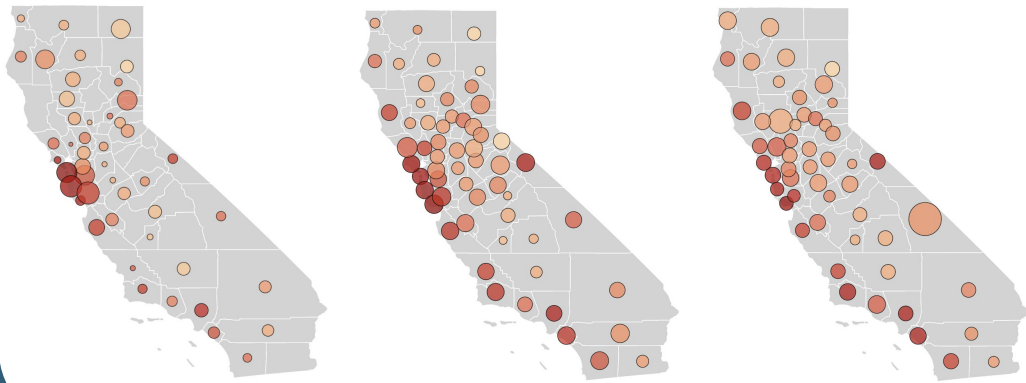
2020



2021

2022

2023



## Phase 1 (2019-2020): Push Effect (Validating H1)

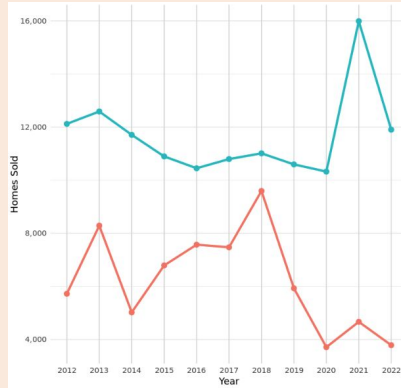
High-PIR coastal counties saw slower growth, while Inland counties saw a surge in sales volume.

## Phase 2 (2021-2023): The Affordability Trap (Validating H2)

Even as PIR was bad in major hubs, sales activity persisted or rebounded, which make it even worse.

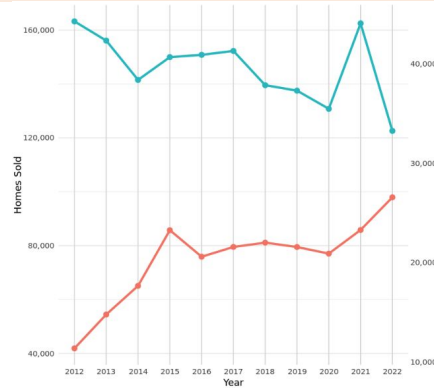
# Adjustment Mechanism

## Chronic Inelasticity



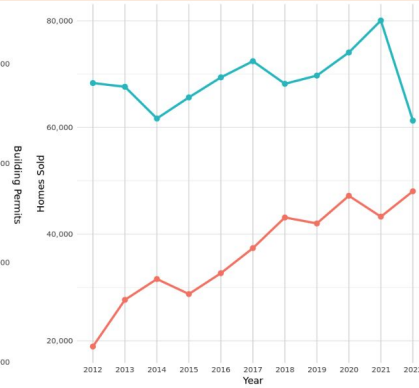
**SF**  
**PIR**  
**10.8**

## The Supply Lag



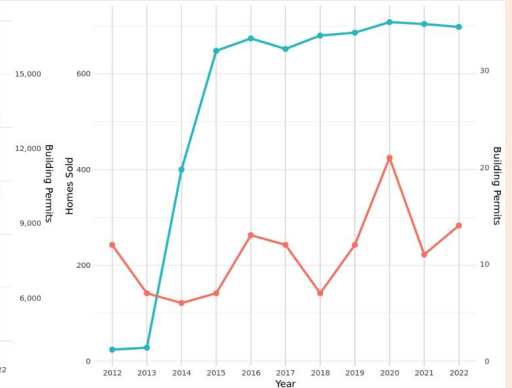
**LA**  
**PIR 8.4**

## Elastic Response



**Riverside**  
**PIR 5.1**

## Market Equilibrium



**Lassen**  
**PIR 3.5**





# Key Takeaways

## The Migration Paradox



Low affordability initially drives a "Flight to Value" toward inland counties. However, coastal demand proves inelastic. Continued buying in high-priced zones actively worsens the affordability crisis.

## The Supply Crisis

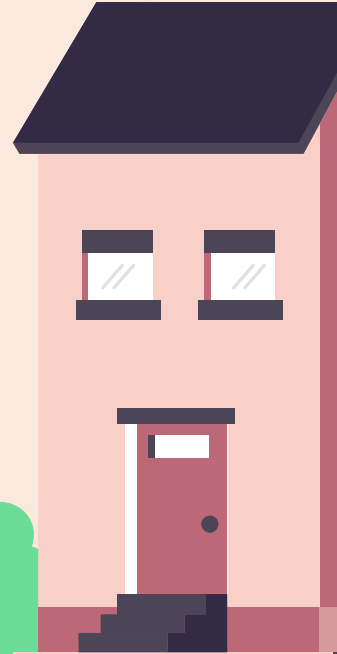


The root cause of the affordability gap is supply rigidity. In Los Angeles and SF, high prices are not triggering enough new construction to balance the market.

## Market Outlook



Without zoning reform or increased housing density in coastal hubs, the migration trend will continue to push prices up in previously affordable inland areas.



# THANKS

DOES ANYONE HAVE ANY QUESTIONS?

