**The relationship between Income and Home Prices in the U.S.**

## **Introduction:**

* Median home price to income multiplier has ranged between 3.08 in 2014 to 4.03 in 2022
* During this period, relationship between median home prices and median household incomes has strengthened
* Economic theory suggests that home prices are a function of interest rates, income, population growth, and supply-side effects (Zhou, 2024); In this piece we understand the interaction between household incomes and home prices, while taking into account the effects of population to contextualize county size and the effects of wealth migration to understand edge cases

## **Methodology:**

* We used three datasets to perform our analysis—median home prices from Zillow and household income and population estimates from the Census Bureau.
* The baseline of our analysis is at the county level to best absorb the local income levels and their effect on home prices.

## **Explaining 2022:**

* Interpretation: Every $1K increase in median household income, on average, are associated with a $7,060 increase in median home prices
* Relationship with population:
  + Counties with relatively smaller populations (blue) are concentrated in the bottom quadrant of our visualization
  + Counties with medium to large populations (orange and red) tend to have relatively higher levels of incomes and home prices
* Highlighted cases: Cases marked below are special cases that give insight into the real estate market of 2022
  + *Kauai County, Hawaii:*
    - Median home price in Kauai was $898K, with median incomes at $87K
    - Home to Zukerberg’s 1,400-acre real estate along with other A-list celebrities like Ben Stiller, Pierce Brosnan, Bette Midler, Julia Roberts, and Dwayne "The Rock" Johnson have real estate in the region
    - The area has supply constraints due to its distance from mainland, high regulatory requirements due to Zoning laws; demand overload due to increased inflow of retirees, celebrities and UHNIs.
    - As a result, median prices have almost doubled, increasing from $463K to $898K between 2014 and 2022
  + *Loudoun County, VA*
    - Loudoun has the highest median household income in the country at $167K, as of 2022 and yet, does not have prices as high as lesser rich counties like San Francisco County, SF and New York County, NY ($711K v. $1.5 M and $1.39M respectively)
    - Loudoun, located 50 miles west of Washington, D.C. experiences very limited supply constraints due to its location and proximity to natural resources and a strong blue-collar labor market; Demand forces are strong due to in-migration, especially with an expanding tech market in the region and stable governmental contracting opportunities
  + *Coller County, FL*
    - In 2022, Collier County's median household income was $80,815, while the median home value reached $596,221. This reflects a significant rise from 2014, where the median income was $58,026, and the median home value was $275,548. This represents a growth of more than 100% in home values over the period, indicating strong real estate appreciation in the county.
    - Collier County, particularly areas like Naples, stands out as one of the most expensive real estate markets in Florida, alongside markets like Miami-Dade and Palm Beach counties. The county attracts affluent retirees and wealthy seasonal residents, driving demand for luxury properties and pushing median home values to some of the highest levels in the state.
    - Between 2014 and 2022, home prices in Collier County more than doubled, reflecting the strong and consistent demand for real estate in this affluent region. This increase aligns with the broader trend seen across Florida, where desirable locations with a high quality of life and favorable tax conditions have seen significant property value appreciation. The increase in home values in Collier County also corresponds with a nearly 40% increase in median income during the same period, further fueling the local housing market.
  + *Clark County, NV*
    - By 2022, Clark County's median household income reached $70,797, with median home prices at $431,103. This represents substantial growth from 2014 when the median income was $51,214, and homes averaged $189,236. The rise in home values aligns with the county's booming population and economic expansion, particularly in Las Vegas.
    - The strong housing demand in Clark County is fueled by continuous population growth, driven by the appeal of Las Vegas's entertainment industry, expanding tech sector, and relatively affordable housing compared to other metro areas. The availability of land for development has kept housing prices more stable than in other high-demand regions.
  + *Bronx County, NY*
    - In 2022, the Bronx had a median income of $45,517, with home prices averaging $508,922. Since 2014, when incomes were $33,712 and homes were $379,302, both figures have climbed steadily. This increase reflects New York City's broader trend of rising real estate prices amid high demand.
    - Despite lower incomes compared to other NYC boroughs, the Bronx's housing prices remain high due to the city's dense population, limited space, and ongoing gentrification in certain areas. These factors maintain strong demand and push home prices upward despite economic challenges.

A graph showing a number of houses

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## **Relationship between incomes and home prices in 2022 (Was iffy on deleting this section since I don’t feel that this adds any value)**

* When we compare the median home price to income across the country (in Figure 3), we note that it closely aligns with areas of professional domination. New York and Massachusetts in the Northeast; Florida and Texas in the South; Nevada, Arizona, California, and Seattle in the West; and Illinois and Wisconsin in the Midwest have relatively high home price to income ratios compared to the rest of the country.
* As a function of policy decisions, we note that counties with higher home price to income ratios tend to be in 'Democrat-run' states.

A map of the united states

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## **Understanding time trends**

* Comparing our analysis with 2014, we note that an increase in median income by $1,000 was correlated with an increase in median home prices by $5,200 in 2014. On the other hand, as mentioned earlier, a $1,000 increase in median income led to an increase in median home prices by $7,060 in 2022.
* Across all our highlighted cases, we see that they run in sync with the trend of generalized upward pressure on pricing, despite relatively slower growth of income. This has caused the median home price to income multiplier to rise
* Between 2014 and 2022, median home prices have developed a stronger relationship with income. While this apparent from the impact of additional income, we also note that the model’s fit progressively increases (R2 increased from 46% to 52% during this period), indicating that income has a very strong relationship with home prices
* However, as cited in our use cases, migration of wealth is an important factor to consider when estimating income effects

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## **Special Case - Florida**

* Further understanding of migration of wealth can be understood by understanding the home price – income relationship in Florida.
* Miami, Palm Beach and Collier, have all experienced periods of in-migrations, especially during and after COVID.
* General Trend:
  + From 2014 to 2022, Florida saw a consistent strengthening of the relationship between median household incomes and median home prices. The median home price to income multiplier increased, indicating that for every $1,000 increase in income, home prices rose at an accelerating rate. By 2022, this multiplier had reached a new high, showcasing how housing costs are increasingly outpacing income growth across the state.
* Key Counties:
  + Collier County: By 2022, Collier County stood out with the highest median home prices, driven by an influx of wealth. The county has become a hotspot for wealthy retirees and affluent buyers, which has pushed home prices sharply upward.
  + Palm Beach County: Palm Beach consistently ranks high in both income and home prices. The county's real estate market benefits from continuous wealth migration, with affluent individuals moving in, driving demand for luxury homes and lifting property values.
  + Miami-Dade County: Miami-Dade remains a major urban center with rapidly increasing home prices, though its income growth has been slightly more moderate. Despite this, the county is still a key destination for wealth, particularly from international buyers, which continues to fuel the housing market
* Wealth Migration: The influx of wealth into Florida, particularly into counties like Collier and Palm Beach, has been a significant driver of rising home prices. The trend of affluent individuals relocating to Florida, seeking favorable tax conditions and a desirable lifestyle, has put additional upward pressure on the housing market, especially in affluent areas.
* Population Considerations: Smaller counties generally see lower home prices and incomes, while larger counties, such as those highlighted, show more substantial increases in both metrics.

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