**Home Value & Income**

Relationship of Median Values by State

2004-2023

Regarding the relationship of median home value to median household income on a state-by-state basis over the 20-year period of 2004 to 2023, we have a few points to consider:

* How have these amounts changed? Are they consistent across all states?
* Which states have the greatest and least median home values? Median household incomes?
* Is there a linear relationship between home values and incomes?
* Which states are the most and least affordable?

Both median home value (MHV) and median household income (MHI) have overall increased over the time period. Across 50 states and District of Columbia, these values are distributed throughout their ranges, with few noticeable gaps between states. Only for MHV do three states stand out with large gaps in value compared to the next-lowest-valued state. Median income does not show such gaps. These points indicate that MHV and MHI cover a range of values without clustering at a single level and that there are no segmentations of groups of states separated by large gaps.

When looking with more granularity, we see a stark contrast in MHV compared to MHI. For the most expensive state, Hawaii, in 2023 MHV= $837,184 with MHI = $97,360. For the least expensive state, West Virginia, MHV = $154,388 and MHI = $60,410. The gap between MHV and MHI for these two states in 2023 is $682,795 in Hawaii, but only $36,950 in West Virginia.

Plotting linear regression models for MHV against MHI provides R2=0.56 in 2004 and R2=0.46 in 2023. This shows a moderate linear relationship. More interestingly, the linear fit has become weaker, indicating that income is less predictive of home value in 2023 than it was in 2004; other factors not analyzed here have increased in importance.

We can consider home affordability as the ratio of median household income to median home value. In 2004, the most affordable state was Oklahoma, with a ratio of 0.41. The least affordable was California at 0.15. It should be noted that for 2004, Montana and North Dakota are excluded because data on their median home values was not available.

In 2023, the most affordable state was Kansas at 0.40, and the least affordable was Hawaii at 0.11, moving California to the number two spot. But California’s ratio had dropped to 0.12, so while it was no longer the least affordable state, it was still less affordable in 2023 than 2004. Only 10 states became more affordable over that time period, though half of those only marginally so (<2% increase). The state with the greatest increase in home affordability was Illinois (+34%), and the state with the greatest decrease was Idaho (-49.2%).

Data Notes

* Datasets used:
  + Zillow Home Value Index for All Homes Including Single-Family Residences, Condos, and CO-OPs in the United States
  + Median Household Income in the United States
* Datasets acquired via API from Federal Reserve Economic Data (FRED) https://fred.stlouisfed.org/
* Data is time series for 2004-2023 (income data not available for 2024)
* 2004 Home Value data not available for Montana and North Dakota
* 5 missing monthly Home Value data points were interpolated between adjacent months