

Housing Affordability and Income

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Background or Abstract

The topic of this research project is housing prices versus affordability. The reason why this is an important topic is because we are becoming

increasingly more aware about our standards of living. Our results show that housing prices can vary based on location, and income across individuals can vary. Capital gain is assessed in one of the datasets.



Figure 1: A beautiful nice looking house.

Research Questions

- 1) Do housing prices in the United States vary by location?
- What is the average capital gain?

Related Research

According to Moritz, housing prices have increased significantly to the point some people spend 30% of their income on housing. According to research by Delgado, housing prices have expanded exponentially more than the average increase in income.

Data

The first dataset showing income data was from Kaggle and Toronto.edu Delve website. The housing dataset which includes median prices for individual homes, as well as a dataset across the 50 states with median home prices was collected from Zillow website through Kaggle (Table 1).

RegionID	RegionID	Begion(D)	Region(D)	RegioniD	Begion/D	2/29/2000
9	0	California	State	CA	202077	202996
54	1	Texas	State	TX	113412	113536
43	2	New York	State	NY	148428	149188
14	3	Florida	State	FL	116033	116375
21	- 4	Hinois	State	K.	146564	146885
		Pennsylv				
47	5	ania	State	PA	105733	106091
44	6	Ohio	State	OH	109412	109574
30	7	Michigan	State	MI	122423	122628
16	8	Georgia	State	GA	131067	131509
		North				
36	9	Carolina	State	NC	134129	134457
		New				
40	10	Incomy	State	NI	184847	185611

Table1: Housing Prices Across States

Preprocessing

These are the key steps taken to process the data for analysis and visualization.

- 1. The datasets were downloaded from Kaggle or the source site linked to Kaggle.
- Home prices were filtered to show the latest home prices in year 2022.

Methods or Analysis

Methods of analysis include 3D plot analysis, bar charts. histograms, and summary statistics.

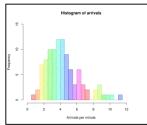


Figure 2: Histogram analysis

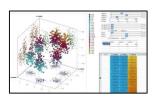


Figure 4: 3D Plot

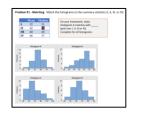


Figure 3: Summary statistics

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for 905 houses surveyed.

Results

Here are the charts showing the results.



Figure 5: Median housing prices for the year 2000. The maximum housing price is \$200,000 compared to \$800,000 for 2022

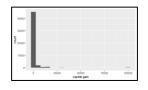


Figure 7: The amount of people with average capital gain is mostly zero

Mean	247338.3
Standard I	5601.942
Median	194447
Mode	211455
Standard I	168524.4
Sample Va	2.84E+10
Kurtosis	11.57569
Skewness	2.787426
Range	1545150
Minimum	33225
Maximum	1578379
Sum	2.24E+08
Count	905

Figure 9: Summary statistics



Figure 6: This spatial map shows the median price range across the various 50 states for 2022. California has a significant higher median housing price compared to other states.

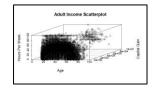


Figure 8: This chart shows that the distribution of people with age, capital gain, and hours worked per week.

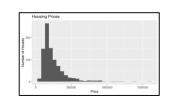


Figure 10: Median housing prices are right skewed, with most being around 200,000

Discussion

The results indicate from the spatial map data that housing prices have increased significantly since the year 2000 (Zillow Research). The average housing prices vary by a great margin across the 50 states, with California being the most expensive state. Based on the analysis of people working, most people have earned a capital gain of 0, and indicates a likely chance that they are living paycheck to paycheck. A further analysis of capital loss would be interesting to see if people are in debt or not.

Conclusion

The reason why this research is important is because our living expenses have been increasing, and housing affordability is becoming more and more unlikely. The analysis of trends can determine what measures we should implement in terms of our standard of living.

Future Work

- Analyze the role of race, gender, and age in income inequality.
- Compare these results to the research by person Moritz.
- Perform this analysis on other datasets to compare validity of result.

References

- 1. Moritz, S. (n.d.) et al. 2018 Affordable Housing Research Report | Pace Law School.
- Delgado, M. 2021, October 22 RealEstateWitch
- Delve Adult Dataset, 1996, October 6th
- Zillow Research, March 25, 2021 Zillow Research

