

Housing Affordability

Non-technical Summary

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The affordability of a housing unit for an individual or family can be contingent on many different factors - income, housing price, housing size, location, etc. The extent to which each of these plays a role can be determined through various statistical analyses. In order to take a closer look at these factors and relationships, public records from the Housing Affordability Data System were observed and run through different methods to analyze results.

Often times with public datasets, many factors are represented and it can be difficult to interpret at face value; in the case of this particular dataset, 99 factors of housing affordability are represented. In an effort to reduce the number of factors that are being looked at to ensure easier interpretation of results, a numerical subset of these factors was run through statistical analysis to group these factors into categories. The results showed that there are six major categories that are related to housing affordability: 1) income level, which determines whether someone falls under the extremely low income, very low income, low income, or median income category; 2) housing costs, either the entire cost of the household or other various housing costs; 3) income level plus the number of persons living in the household, which is similar to the first category but incorporates that level in

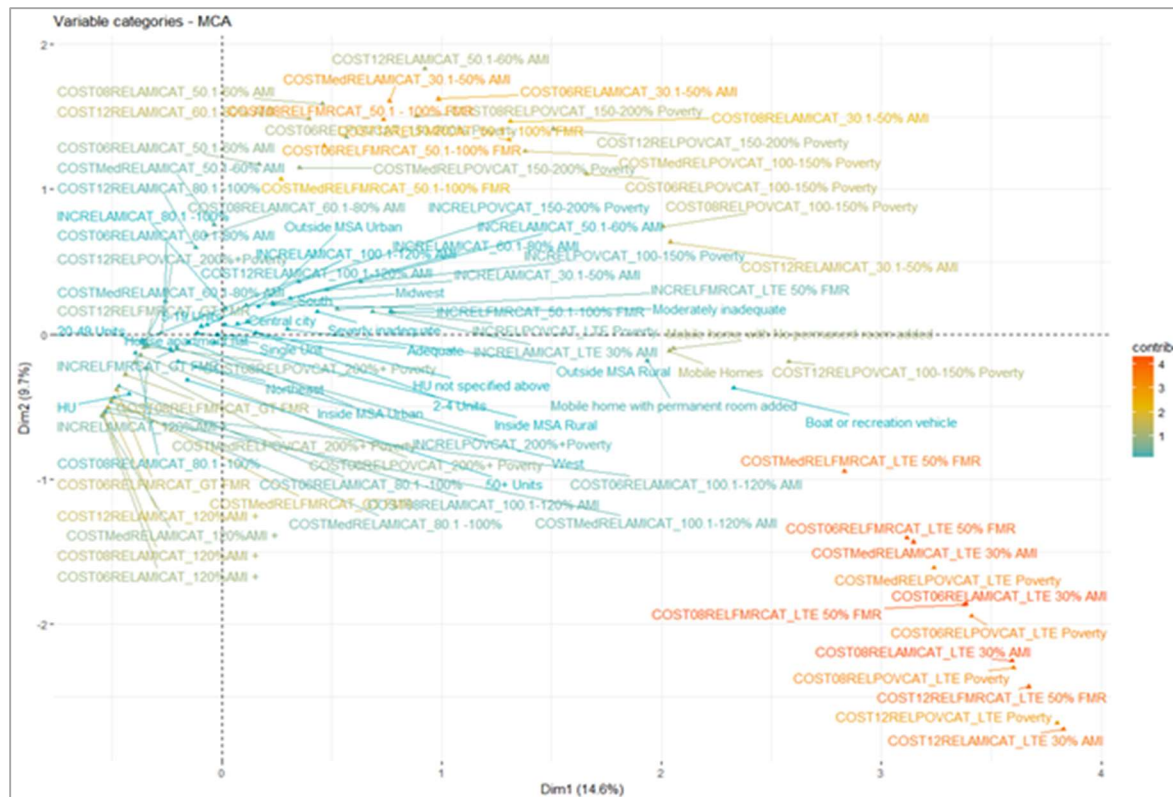
	Category 1	Category 2	Category 3	Category 4	Category 5	Category 6
Median Income						
Fair Market Rent						
Extremely Low Income Adjusted for # of Bedrooms						
Very Low Income Adjusted for # of Bedrooms						
Low Income Adjusted for # of Bedrooms						
Median Income Adjusted for # of Bedrooms						
Extremely low income						
Very low income						
Low income						
Poverty income						
Number of persons in household						
Growth-adjusted extremely low income						
Growth-adjusted very low income						
Growth-adjusted low income						
Median income adjusted for number of persons						
Current market value of unit						
Housing cost at 6% interest						
Housing cost at 8% interest						
Housing cost at 12% interest						
Housing cost at median interest						
Number of bedrooms in unit						
Number of rooms in unit						
Household income						
Total wage income						
Number of units in building						
Insurance, condo, land rent, other mobile home fees						
Monthly housing costs						

relation to the number of people living in the household; 4) number of rooms in the household; 5) income amount, which is the dollar amount of salary and income for the household; 6) costs related to number of units, which are more related to structures with more than one unit, like condos, apartment buildings, or townhomes. The chart to the left shows these results, indicating which factors belong to which categories and are color coded to indicate weight:

green indicates the heaviest weight; yellow indicates medium weight; and red indicates the lowest weight.

Another iteration of a similar method was performed on a different angle of the data with two major categories related to housing affordability rising to the surface. The first category consists of housing costs and includes factors such as expenses, mortgage rates, and interest rates adjusted by fair market rent (FMR); the second category consists of income levels and includes factors such as whether someone is in the extremely low, very low, low or median income level, number of bedrooms, number of members of household and FMR. Both these categories closely mirror the patterns from the first analysis.

From another analysis looking at the data from the perspective of both numerical and categorical quantifiers, the general trend is that cost is a significant indicator of housing affordability. Housing costs relative to area median income, costs relative to area poverty level income, and cost relative to FMR adjusted by different mortgage interest rates all have strong impacts on housing affordability. Although income level shows strong relation with housing affordability from the two previous analyses, it doesn't have the same influences by result from this analysis. Housing cost with an 8% interest rate relative to area low income adjusted by household size, housing cost with an 8% interest rate relative to FMR for households that spend 50% of their family income on rents, cost relative to area median income level adjusted by household size, and housing cost with a 6% interest rate relative to FMR for households that spend 50% of their family income on rents appear to be the most significant in deciding whether certain groups of housing are more affordable than the others. It can also be seen from this conclusion that housing costs with mortgage interest rates of 6% and 8% and households that spend 50% of their family incomes associate most with housing affordability. Other variables such as the census region of the housing unit, whether the house is in metro area, and housing adequacy have very little impact on housing affordability from the results of this analysis. However, because there are some housing type categories and housing adequacy categories with extremely low frequencies, the result may not be 100% accurate. For example, housing type of boat and recreational vehicles have extremely low frequency and are less common, including data from households with this type of housing may distort the final result by increasing influences of housing costs.



The graph above summarizes the findings from this analysis – the red indicating the factors of the most significance and the blue indicating the factors of the least significance, per the legend to the right. Each of the factors in the red section are housing costs, which are the same factors found to be significant in the previous two analyses.

To sum up the results of these separate analyses, housing affordability appears to be heavily dependent on two major categories of factors: income level and housing cost, with the latter appearing to bear more weight than the former. Factors such as location of the housing unit, both in relation to the broader category of census region and the narrower category of metropolitan or rural, are less significant in their association to how affordable housing will be.