Income vs Housing Costs in Los Angeles

A place to live is essential to all people. Many people renting apartments in Los Angeles are from lower income jobs. To these people, making monthly rent payments is a big expenditure that can exceed well over the 30% of monthly income that it is recommended to be. This problem is even greater when you consider these same people trying to buy and make mortgage payments on a house, if they ever do. In this project I will be taking a look at the minimum wage earner and how their monthly income compares to apartment monthly rent costs in Los Angeles, CA and monthly mortgage costs in Los Angeles County. The Movement for $15 is a nationwide movement with multiple organizations petitioning to have legislation that increases the minimum wage to $15 an hour in various cities and states. This movement has been heard in Los Angeles and has helped the city approve a minimum wage hike to $15 an hour by 2020. Is this wage hike enough to make a difference in affordability of housing costs? Also, how does the average LA County employee’s wages afford the same housing costs? By analyzing these questions, I hope to see how much the minimum wage hike to $15 an hour will make housing more affordable for these low income workers.

The data sets I am working with can help me answer many of the questions I have. The fields in the data contains information such as the year, the average weekly wages, the minimum wage, the median home value, and the average apartment rent. This data won’t let me see very far back into history as in-depth wage data from the Bureau of Labor Statistics was only recorded in recent years. I should be able to answer all of my questions, however the predictions may not be as accurate as if I had many decades of income data. I will also be looking at housing prices data in recent times to compare to the recent wage data. The housing prices data will not take into account the financial crisis of 2008 and will look at the trend developing after it. These databases will come from rentjungle.com and Zillow.com. The rent and home value database will also have the same problem as the income data in that they do not go far back into history. I thought it would not be good for comparing predictive models if the number of years looked at for each variable differed by too much. Also, I will be looking at only one bedroom apartment prices, since a single wage earner on their own would at the minimum be looking for a one bedroom apartment. Studio apartments are not represented in the rent database, but are usually not far behind one bedroom apartments in terms of pricing.

The data wrangling I will need to do includes selecting certain data for use, making new columns of information from the existing data, and combining databases. From the BLS databases I will need to get rid of many unnecessary columns such as those comparing the county to the rest of the nation since I am only looking at Los Angeles. I will need to make monthly wage data by mutating the databases based off the weekly income column. The income databases are all separated by year so I will need to combine these databases together to form a continuous variable for the year.

I have researched the problem while acquiring the databases necessary to do my analysis. My initial thoughts were that the housing market was doing better since the recession and that prices would be going up. This was the case. According to the data, it seems that not only home values were increasing, but rent costs have also been steadily rising since the 2008 recession. However, wages have also been increasing over the years for the average employee. My data showed that the average change in weekly wages over each year I observed was about 1.92% for the average LA Count employee. The minimum wage increases over time, but the frequency with which it increases is not every year like the average wage. Sometimes there is an increase in the minimum wage on back to back years and sometimes it stays the same for several years. From 1998 to 2016, the minimum wage has increased by an average of 2.78% per year. At first I was surprised that the minimum wage increases at a greater rate than other wages, but then I realized that it makes sense. The small increases in the minimum wage are a greater percentage of that total wage than it would be for the average employee’s income. When the average employee gets a raise, it is a bigger raise than a raise for a minimum wage earner, but it is not as big of a percentage of their total earnings. When I account for the minimum wage being $15 an hour by 2020, the average increase in the minimum wage by year from 1998 to 2020 is 3.74%. The increase from $10 an hour in 2016 to $15 in 202 is a 33.33% increase which is the largest in a 4 year period for the years I am observing (since 1998). I will need to analyze housing prices in a similar way to wages to compare how the wages are stacking up against them. In relation to my main problem, so far it seems like the minimum wage increase proposed for 2020 will not be make up a lot of ground in making houses more affordable for the minimum wage earner and may not even make much of a difference in how they afford a one bedroom apartment in Los Angeles. I will need to compare these variables in more detail and detail my findings in the final report.

Based on my current findings, I am going to approach this problem by using linear regression primarily across 4 variables pertaining to wages and housing prices. This hasn’t changed much from. Initially I thought I would use clustering to find certain groups of people that have differing levels of affordability, but with the data I was able to find, I think my current approach is the most clear and concise. I will continue to see how these linear relationships between years and the determined variables compare to one another and what they predict for the future.