

Hawaii: Telling Stories with Univariate Data

State and Variable

Hawaii

Variable: Gross Rent As Percent Of Income

We chose Hawaii as it is an interesting state which is often considered a vacation spot. It was assumed that Hawaii would be an expensive place to live in with a wide range of different incomes which would give us interesting data.

Conjecture

Since Hawaii is one of the most expensive states to live in, we expect that the percentage of income going towards gross rent will be relatively high.

Summary Statistics

Mean: 41%

Median: 31%

Mode: 101%

Range: 100%

Max: 101%

Min: 1%

Story

There are a wide range of percentages when it comes to paying gross rent and income in Hawaii, with it being anywhere from 1% to 101%. Typically, individuals should spend only about 30-40% of their income on rent, in which both the median (31%) and mean (41%) fall within that range. Most residents are paying the reasonable amount of their income on rent, however, there are still a great number of people who are paying up to 101% on rent.

Comparing our Conjecture to our Story

Our conjecture was only slightly mistaken compared to the story the summary statistics tell. Residents in Hawaii don't seem to be paying an absurd amount of their income on rent; most are spending the desired amount, on average, in order to maintain financial stability. Although, our conjecture was supported by the data showing that there are a frequent number of people who indicated that they are paying over all of their income on rent.

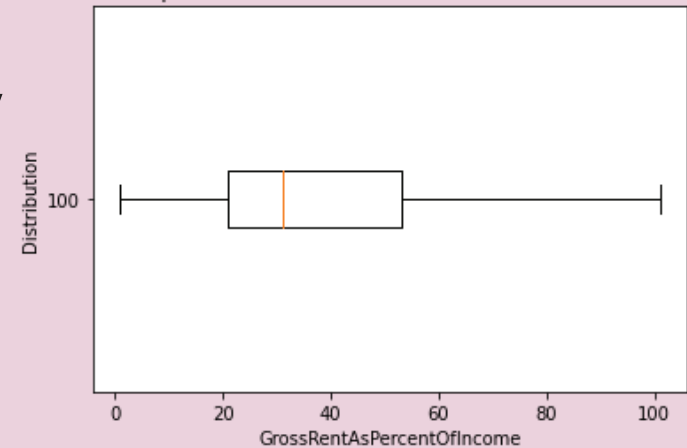
Histogram and Box Plot Predictions

Because the median is less than the mean, we predict the histogram will be skewed to the right. We also predict that for a box plot, the box will be more on the left side, with a longer side on the right and a wide range overall.

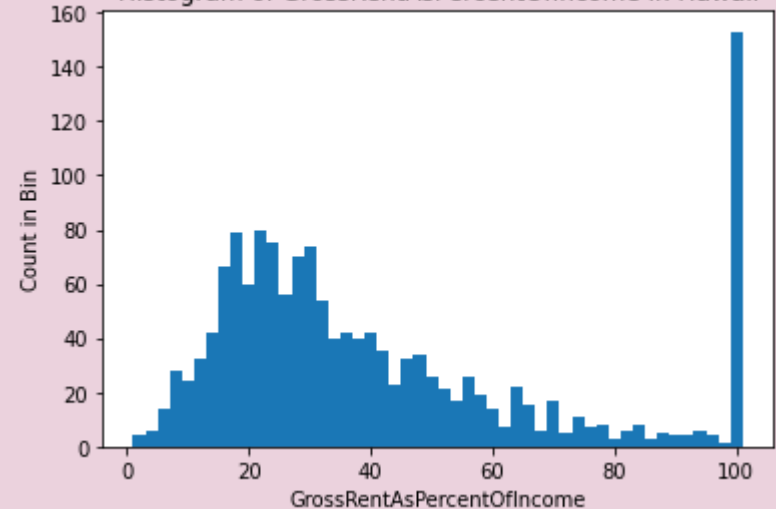
Visuals from Colab/Updated Story

We can see from the visual that the data is skewed right; however, there is an incredibly large quantity of people on the 101% mark. These graphs are able to support the notion that Hawaii can be expensive, because there are still a significant number of people who are spending excessive amounts of their income on rent, despite half of the data ranging between the reasonable economic percentage for rent and income. As seen in the box plot, the third quartile falls more into the 50% range, which is where rent starts to become more on the expensive side, as well as in the histogram – there are a considerable amount of people in the 40-60% range. The visuals add to our story by telling us there is a large sum of people between 20% and 40%. It also tells us that there is a large group of people paying 101% of their income.

Boxplot of GrossRentAsPercentOfIncome in Hawaii



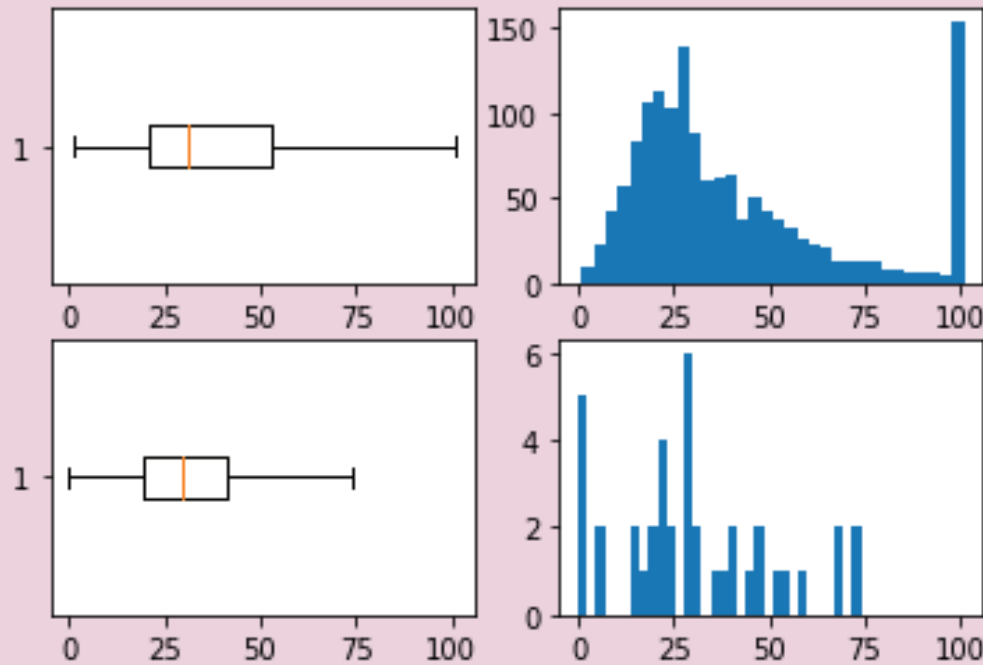
Histogram of GrossRentAsPercentOfIncome in Hawaii



Comparing Datasets

Hawaii vs. Our Community

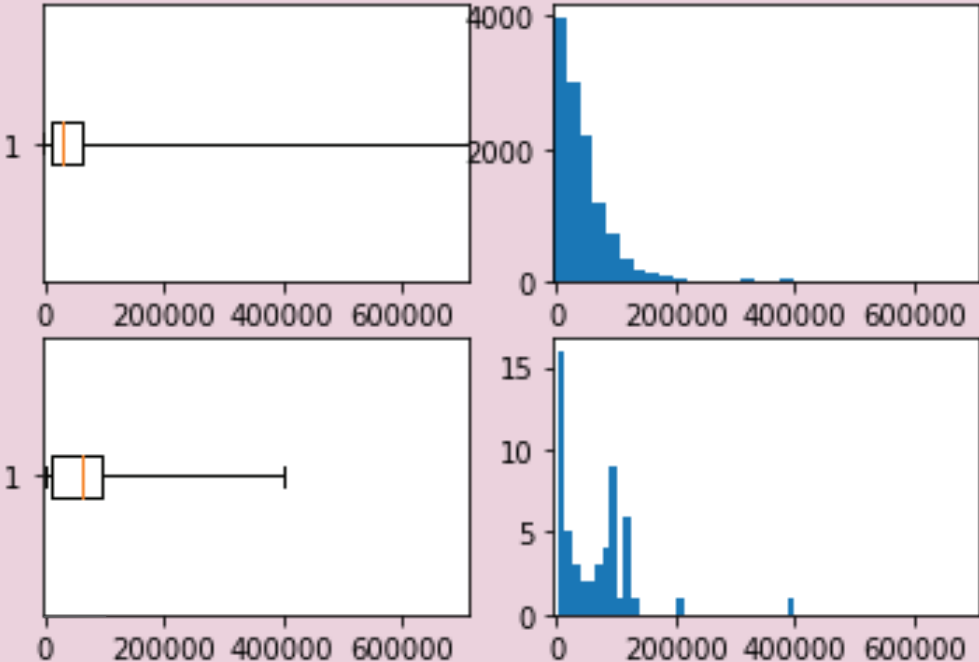
Gross Rent as Percent of Income



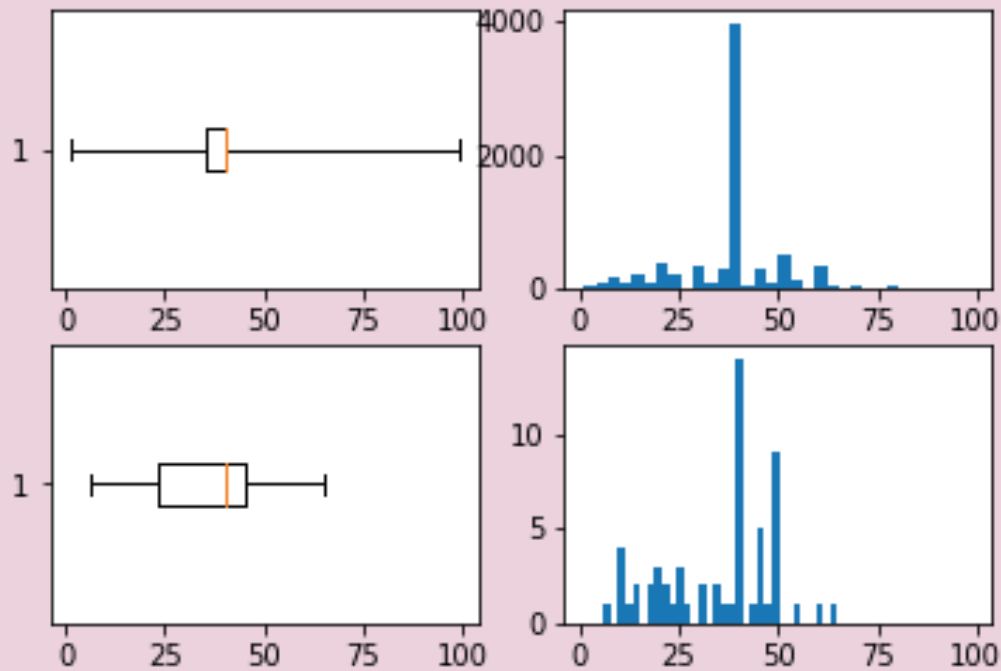
Hawaii

Our Data
(California)

Total Income in Dollars



Hours Worked Weekly in the Past Year

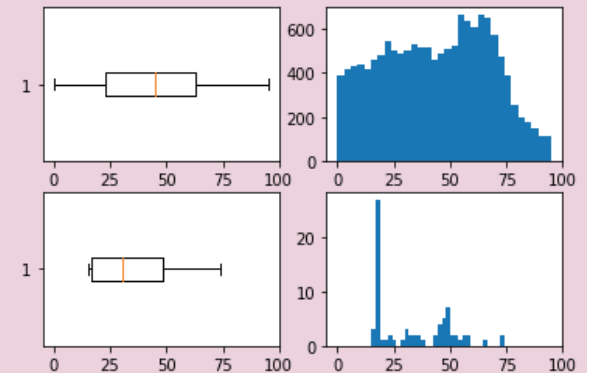


What we Learned/Comparing and Contrasting

- For gross rent as percent of income, Hawaii's data shows that residents generally tend to be spending more on rent, especially with the high frequency of people spending more than all of their income. The spread for our community falls within the reasonable range of how much of your income you should spend on rent, so Hawaii ultimately seems to be the more expensive place to live in.
- We learned that we have a bigger spread in our total income: with 50% of our population making 0-100,000 dollars and 50% of Hawaii's income making 0-75,000 dollars.
- We learned that we have a larger spread of hours worked in our community compared to the community in Hawaii with 25% of our population working 25-50 hours a week and 25% of Hawaii's population works 35-45 hours a week. We also learned that most people work full time: 40 hours in both Hawaii and our local community. However, the shape of both histograms are very similar to each other, especially with the highest instance.

Conjectures

- A reason why we have a higher median total income is because we might have more job opportunities than those on an island in the middle of the ocean.
- The reasoning why we have a bigger spread of hours worked is because we have a large amount of adults working full time but we also have a massive concentration of people around the teenage years who work part time. The following graph shows the brief comparison of ages between Hawaii and our community, in order to visualize the age distribution within our community.



Reflection

- When it came to choosing which questions to include or not include in our survey, it was mostly based off the likelihood of the respondents to answer the question, and how relevant it might be. For instance, something like age, how long it takes to get to work, hours worked weekly, etc. are questions that could be answered rather easily and don't take as much effort to figure out. Moreover, other individuals may not be comfortable answering questions that deal with income and how much they spend on rent/mortgage. Since these people wouldn't want to disclose certain information, it overall gave us less data to work with. If we had more time to collect data for our survey, we would've probably had a larger sample to work with, which would create visuals that would be easier to interpret.
- One thing that caused drastic bias was the amount of young people in our community. The amount of young people contributes to things such as hours worked (younger people tend to work part time jobs). This might also affect how the total income question was answered; any teenagers who completed the survey may have entered their personal income, rather than a household income, for instance.