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Project 1 Analysis

**Overview:**

For this project, our group attempted to answer the following question: which county in the United States offered the best quality of life for the most affordable price? In essence, we sought to determine which county would be most attractive for people seeking to move somewhere with a high quality of life – including good prospects for educational attainment, professional success, and life expectancy – with real estate markets and taxes that would not be detrimental to their budget.

In order to answer this question, we used various areas of measurement, including median income, median house price, life expectancy, sales tax rates, state property tax rates, and rates of attainment for high school diplomas and college degrees. This list is, of course, not exhaustive, as other environmental and budgetary considerations can affect decisions on where someone lives, but these criteria can often be predictive of a person’s quality of life and are often very impactful when people make decisions about where to live. Each county received rankings for each of these individual areas of measurement. Rankings for state-level data were weighted to consider the number of counties in a state, then each individual ranking was added to find an overall score. A final ranking was based on this overall score, with lower scores being preferrable, as they indicated preferrable rankings in the individual areas of measurement (e.g., a ranking of 34 is preferrable to 340 in life expectancy). This analysis will lay out our findings based on this process.

**Affordability:**

To measure affordability, our group used tax rates, real estate costs, and the ratio of income to the price of housing. In doing so, we found that rural counties in the Plains and Western regions of the United States offered some of the best prospects for people seeking an affordable place to live. In fact, counties in rural Kansas offered the most affordable destination for potential homebuyers, with low tax rates and high ratios of income to real estate prices. Counties in Kansas occupied each of the top five spots when we initially ranked the counties based on affordability.

Of course, some counties rank high in certain metrics of affordability, but they are ultimately outcompeted in others. The three measured counties of Hawaii (two counties were dropped because of null values) rank high in terms of property taxes, for example, but the ratio of incomes to real estate prices and combined sales taxes are less than optimal, causing these counties to fall in rankings of overall affordability. However, a state Hawaii would likely be attractive to people with very high incomes, who could more easily contend with higher sales taxes and real estate prices, while also not being dissuaded by the property taxes on their larger, higher-valued homes.

However, these metrics of affordability are likely limited, both in terms of the accommodations people may expect when moving somewhere, and in terms of the costs and benefits of certain environmental factors that are not represented in this data. For example, do these extremely affordable counties in Kansas have ready access to hospitals and grocery stores? People may have to factor in travel expenses for healthcare and food, if they are considering the affordability of these counties. Hopefully, future research considers the value of these sorts of accommodations, as they also tend to influence decision-making around homebuying and the costs and savings of living in a particular area.

**Quality of Life:**

To examine quality of life, our group considered the life expectancy and educational attainment in each county. Life expectancy is rather broad as a measurement, but it can be demonstrative of various environmental factors and resources that can affect the length of a person’s life in a certain area. Educational attainment indicates the ability of people to take advantage of educational resources in an area and gain favorable outcomes from them. Educational attainment, or the level of schooling a person achieves, can be very predictive of their occupational prospects and, therefore, of their ability to enjoy a higher standard of living after their academic career.

Again, Western states and counties tended to perform better in these metrics. Cheyenne County, Colorado, ranked first overall for life expectancy, and Petroleum County, Montana, ranked first overall for education, followed by counties in Colorado and Alaska. Individual focus on counties and states is perhaps necessary to pinpoint why, with special focus on the presence of hospitals, food sources, schools, and colleges, as well as common occupations, class sizes, and the curriculum used in these counties. Generally, however, these high-ranking counties tend to rank relatively well in terms of income and affordability, suggesting the presence of well-paying jobs and the ability of residents to spend more on resources that affect their quality of life, like healthcare and education. However, outside of these high-ranking counties, the trend does not seem to sustain for every county, as there is a slightly negative correlation (r-value: -0.18) between the ratio of salary to house price and life expectancy, as well as between educational attainment and that same ratio (r-value: -0.17).

Perhaps these negative correlations are the result of specific environmental or demographic factors in each county. For example, in terms of life expectancy, are more affordable, higher-salaried areas closer to sources of carcinogens, less healthy foods, or environmental harms. Considering education, is there a higher presence of school-age children in more affordable, higher-salaried areas, who have not yet officially attained high school diplomas or college degrees. Again, more individual attention is needed for the counties and states found in this data in order to say for certain.

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Chart, scatter chart

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**Conclusions:**

In terms of affordability and quality of life, Plains and Western states tend to offer the most affordable destinations and the highest standards of living. The highest-ranking counties are displayed below:

Graphical user interface, text, application

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Judging by this data, it seems the ratio of salary to house price was decisive for many of these counties, as six of the ten counties are in the top twenty for that metric. Meanwhile, counties that did not score as well in that metric still scored highly, and Ouray County, Colorado, which scored very low in terms of affordability, made up the difference in the quality of life metrics and outscored the rest of the top-ten overall counties for quality of life. Moreover, it seems that taxes did not affect the rankings much, as seven counties had state property taxes above the average and all of them had sales tax rates at or above the median. Again, these poorly ranking individual metrics do not harm these counties overall scores, as they can be made up in quality of life metrics and other affordability metrics.

From these rankings, we can conclude that no individual metric determines the county with the highest quality of life at the most affordable price. Where a county may rank poorly, other metrics may make it more attractive, such as its affordable real estate compared to lacking schools or such as its high life expectancy compared to its high tax rate. However, for people looking for extremely affordable homes, with little regard for other metrics, these top ten counties are skewed heavily toward a high ratio of salary to home prices. Still, they would need to understand that they are often moving to areas with higher taxes if they follow that metric alone – a fact that could nullify their savings on real estate.

Nevertheless, from our general exploration and analysis of this data, we can determine that Wallace County, Kansas, offers potential residents the highest quality of life at the most affordable price, due heavily to its high ratio of salary to house price and its relatively high scores on quality of life metrics, compared to 2,718 other counties.