

The background of the slide features a series of thin, black, intersecting lines that form various geometric shapes, including triangles and polygons. These lines are scattered across the upper and left portions of the slide, creating a complex, abstract pattern.

THE RELATIONSHIP BETWEEN POPULATION DENSITY AND ECONOMIC FACTORS IN US COUNTIES

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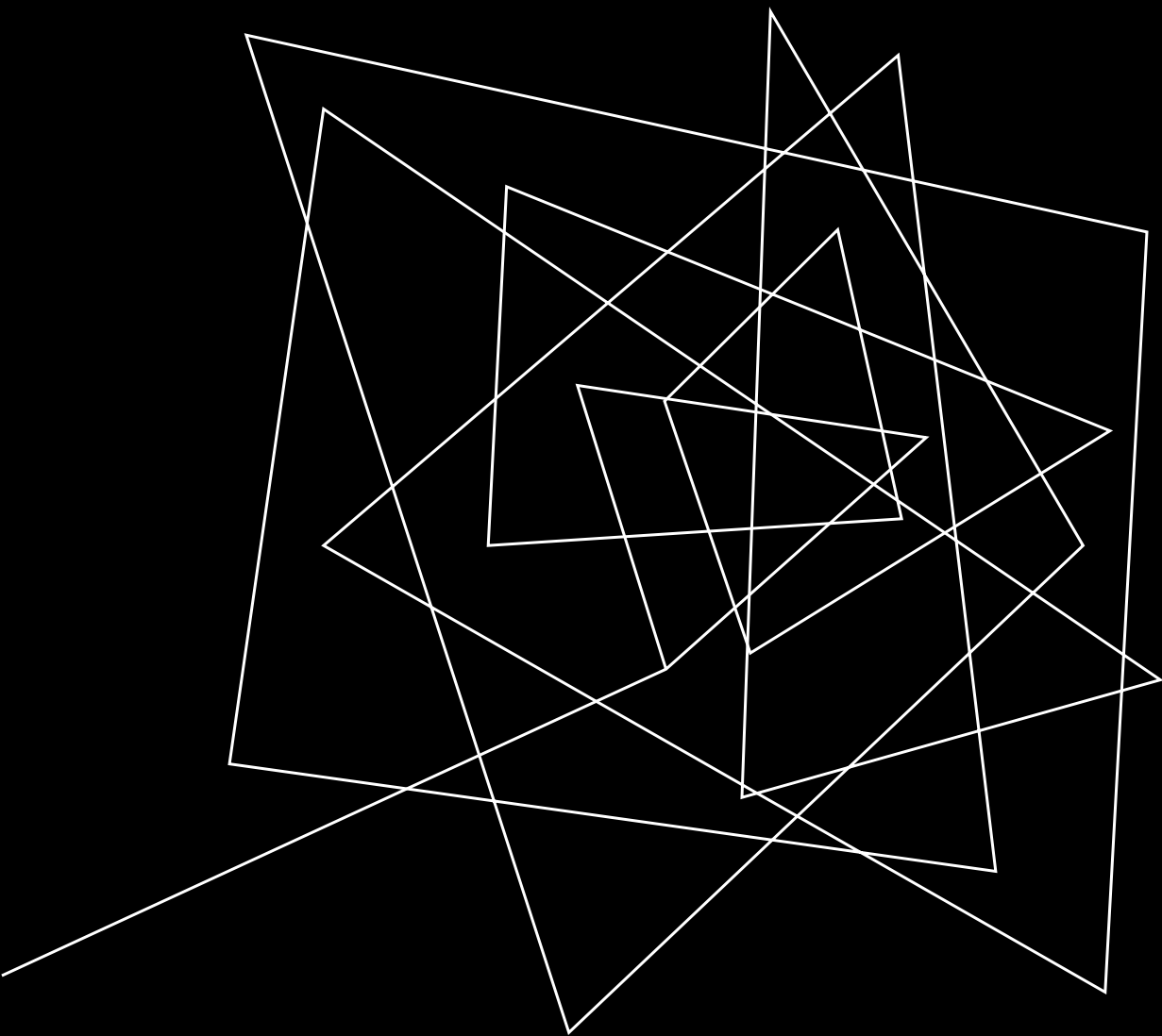
ECONOMIC FACTORS CONSIDERED

Cost of Living

Household Income

Income per Capita

Education Rates



PRIMARY GOAL

Determine if it is a better financial decision to live in a densely or sparsely populated county when choosing a place to live in the United States.

BENEFIT OF INVESTIGATING THIS RELATIONSHIP

- Are most counties in the US densely or sparsely populated?
- Are most counties in the US similar in size?
- Does it cost more to live in a densely populated county?
- Do workers in densely populated counties have a higher income?
- What highest level of education is most common in dense versus sparse counties?
- Do you need to have a high level of education to have a high income in highly populated counties?



DATA COLLECTION & CLEAN UP

Data Sources

US County Level Census:

<https://www.ers.usda.gov/data-products/county-level-data-sets/>

Issue Experienced: When using this site, it is MUCH easier to use if the census wrapper is used as well.

Data Clean Up

Data was retrieved from these APIs and merged to create a single census data frame.

Issue Experienced: When attempting to merge this data, our resulting data frame had many "NaN" values added in. We found that this was due to different lengths of the datasets and adjusted our merge method to correct for this.

POPULATION DENSITY

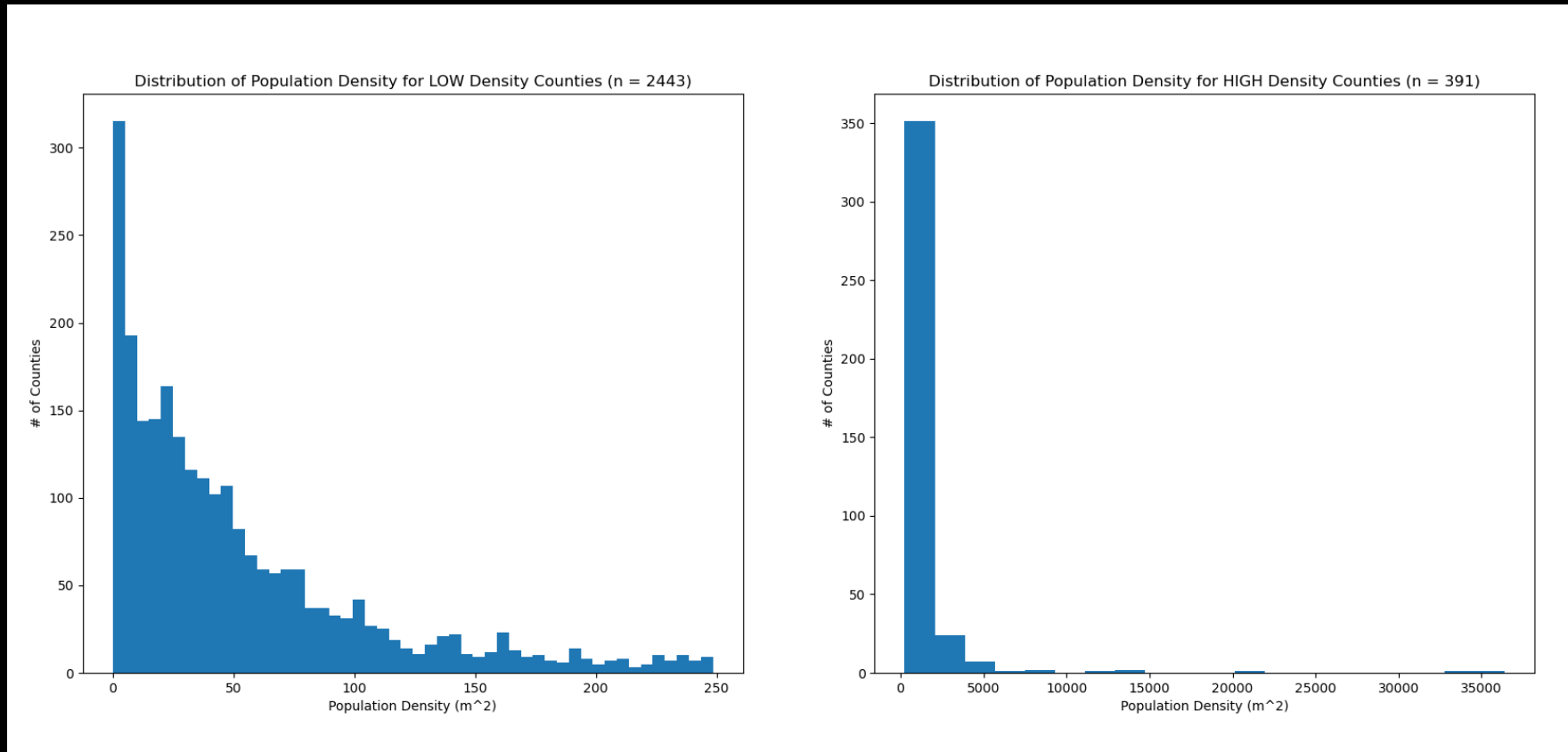


Figure 1: Histograms of Population Density

LAND AREA

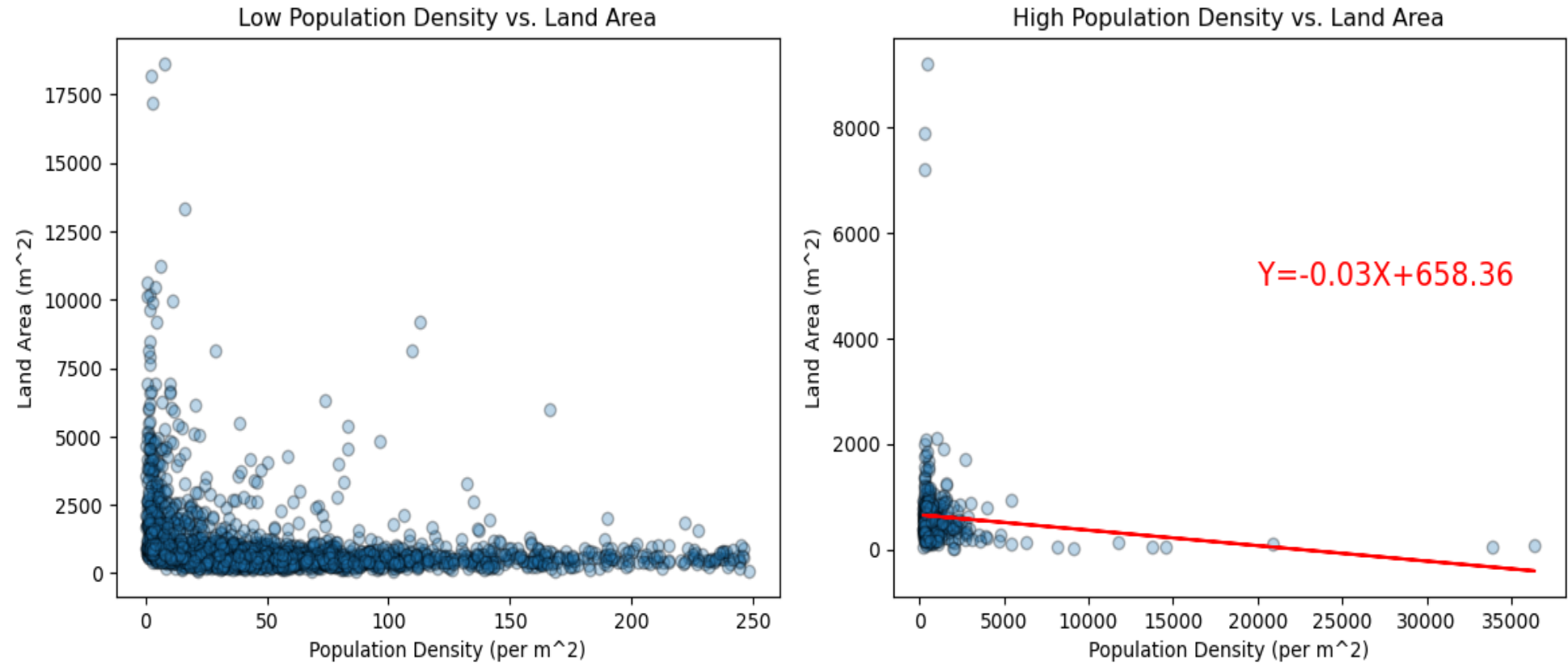
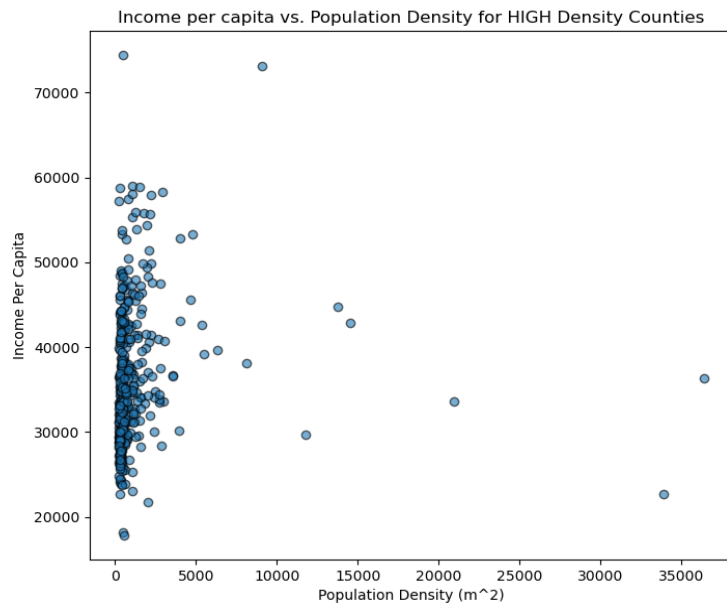
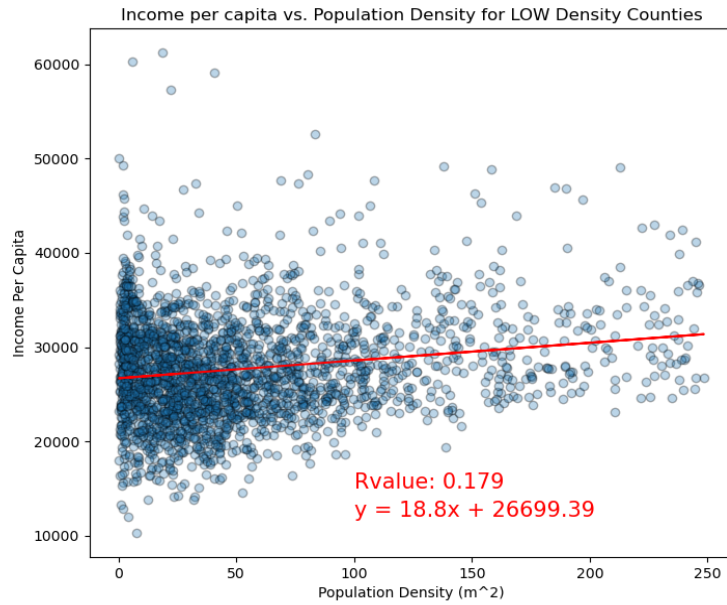


Figure 2: Scatter plots of Population Density vs. Land Area (by square mile)

COST OF LIVING

Figure 3: Scatter plots of Population Density vs. Median Rent

INCOME PER CAPITA



Subsequent T-test

Avg. Income per capita for low density counties is \$27686.5

Avg. Income per capita for high density counties is \$36181.54

```
Ttest_indResult(statistic=-19.547052778075447, pvalue=5.478775762275457e-62)
```

Figure 4: Scatter plots of Population Density vs. Income per Capita

MEDIAN HOUSEHOLD INCOME

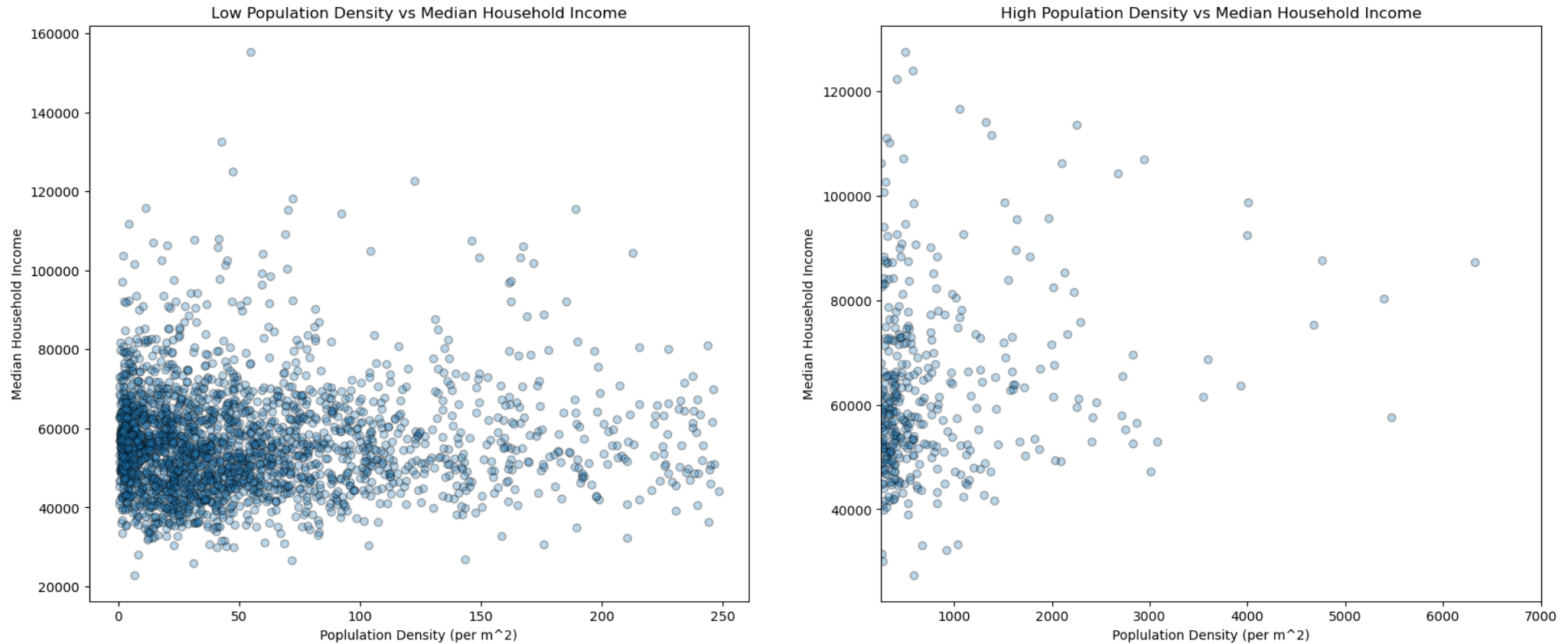


Figure 5: Scatter plots of Population Density vs. Median Household Income

EDUCATION – LESS THAN HIGH SCHOOL DEGREE

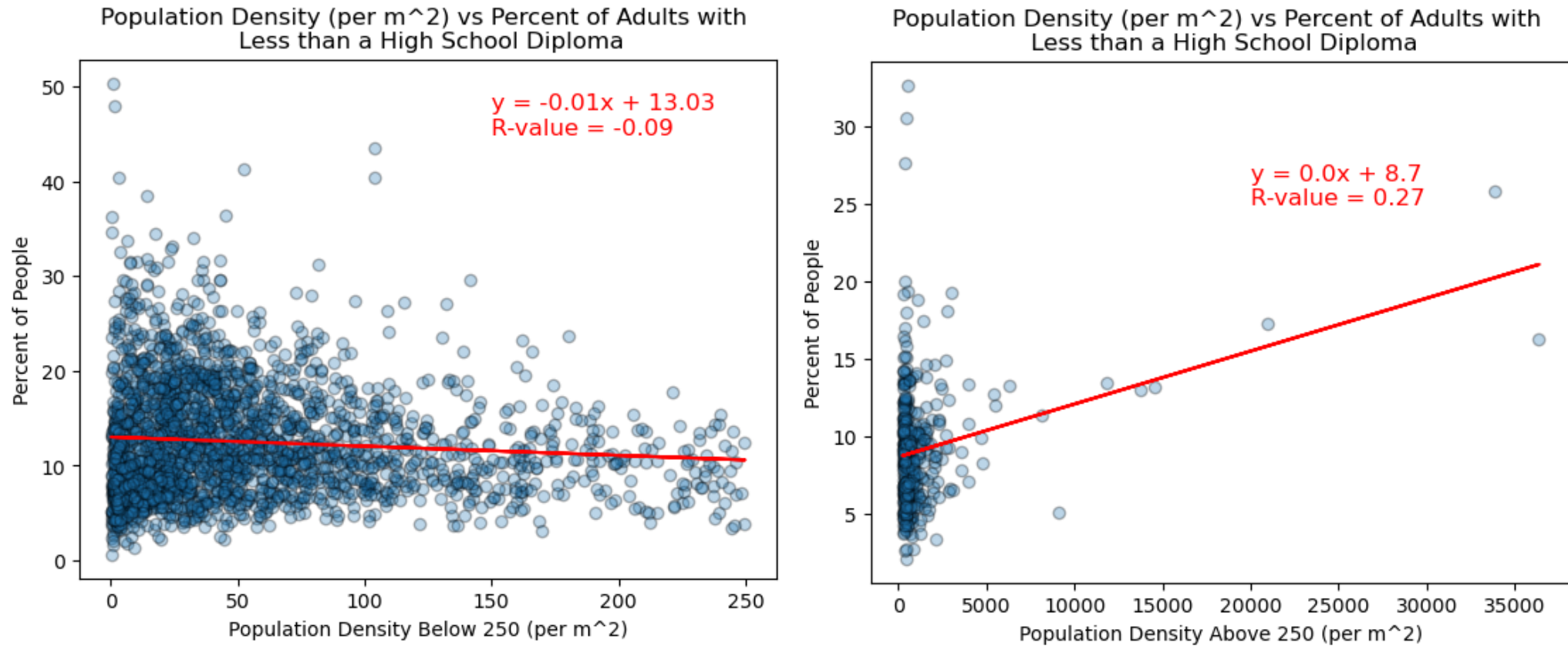


Figure 6: Scatter plots of Population Density vs. Percent of People with Less than a High School Degree

EDUCATION – HIGH SCHOOL DEGREE

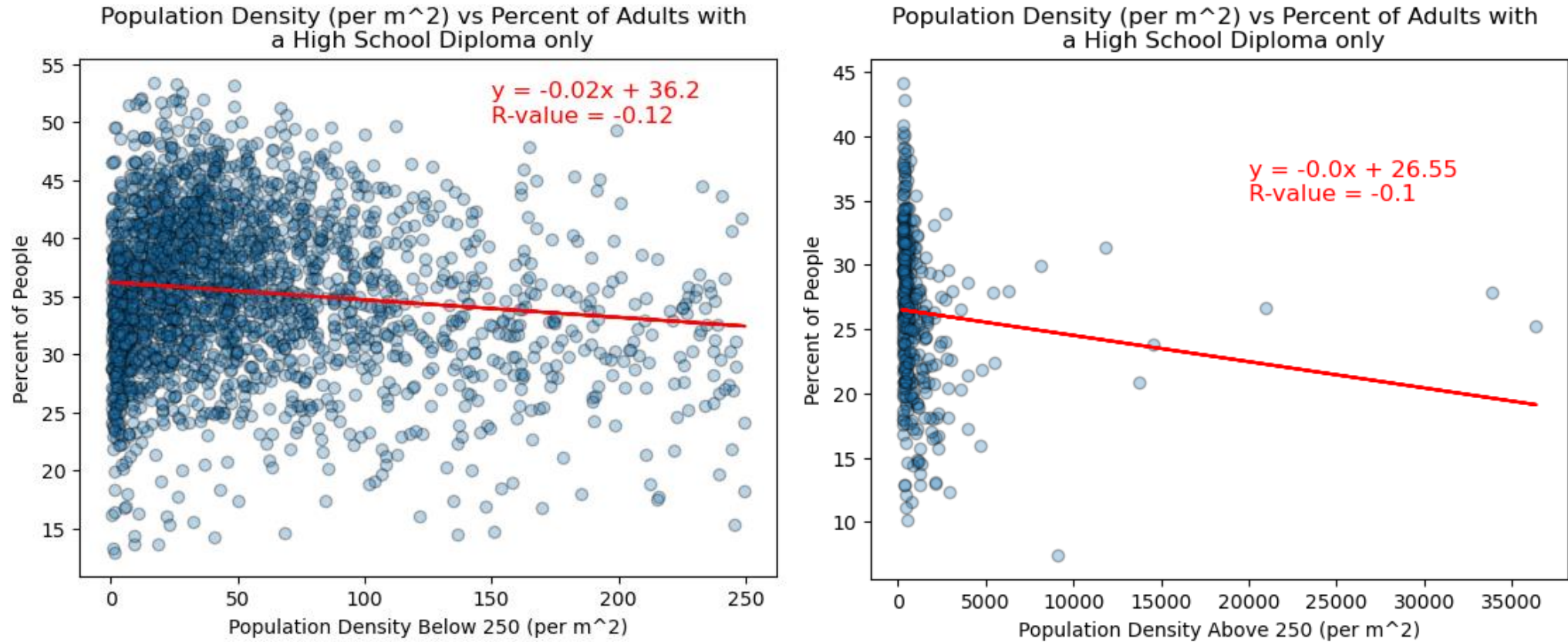


Figure 7: Scatter plots of Population Density vs. Percent of People with Only a High School Degree

EDUCATION – SOME COLLEGE/ASSOCIATE'S DEGREE

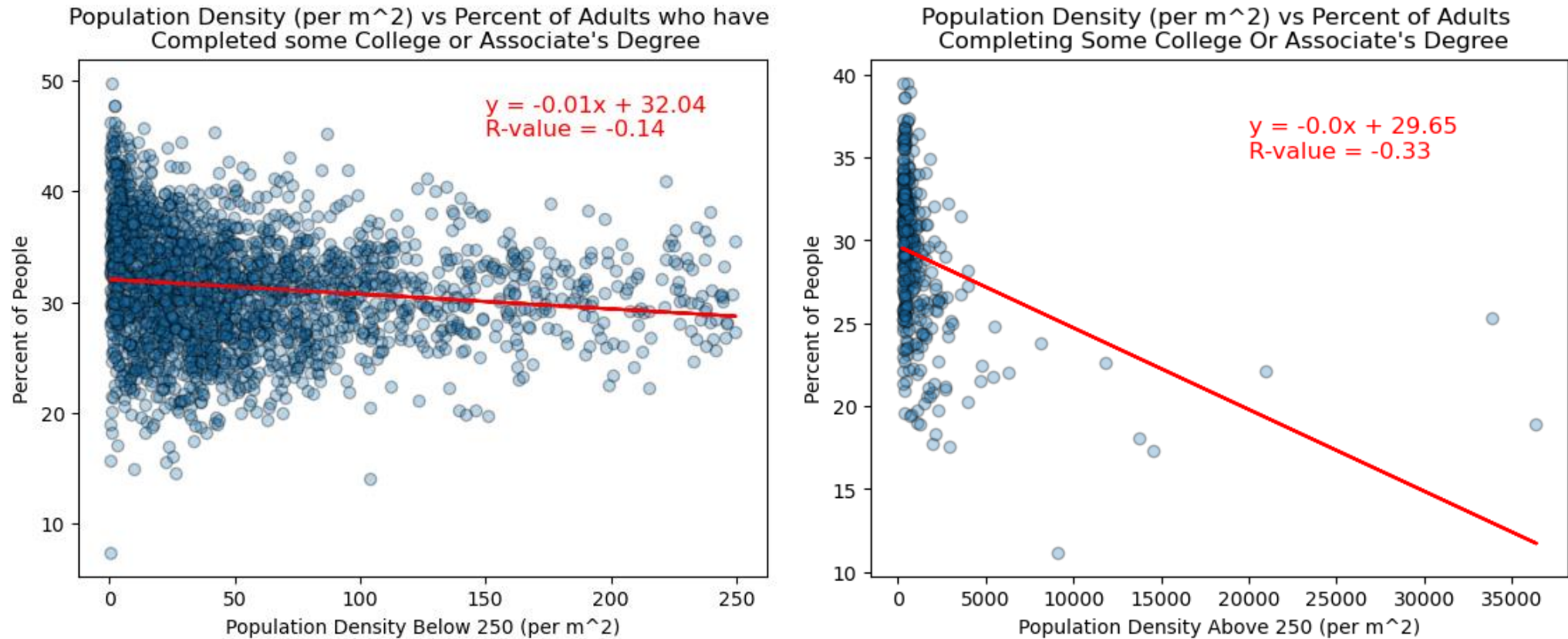


Figure 8: Scatter plots of Population Density vs. Number of People with Some College/Associate's Degree

EDUCATION – BACHELOR'S DEGREE OR HIGHER

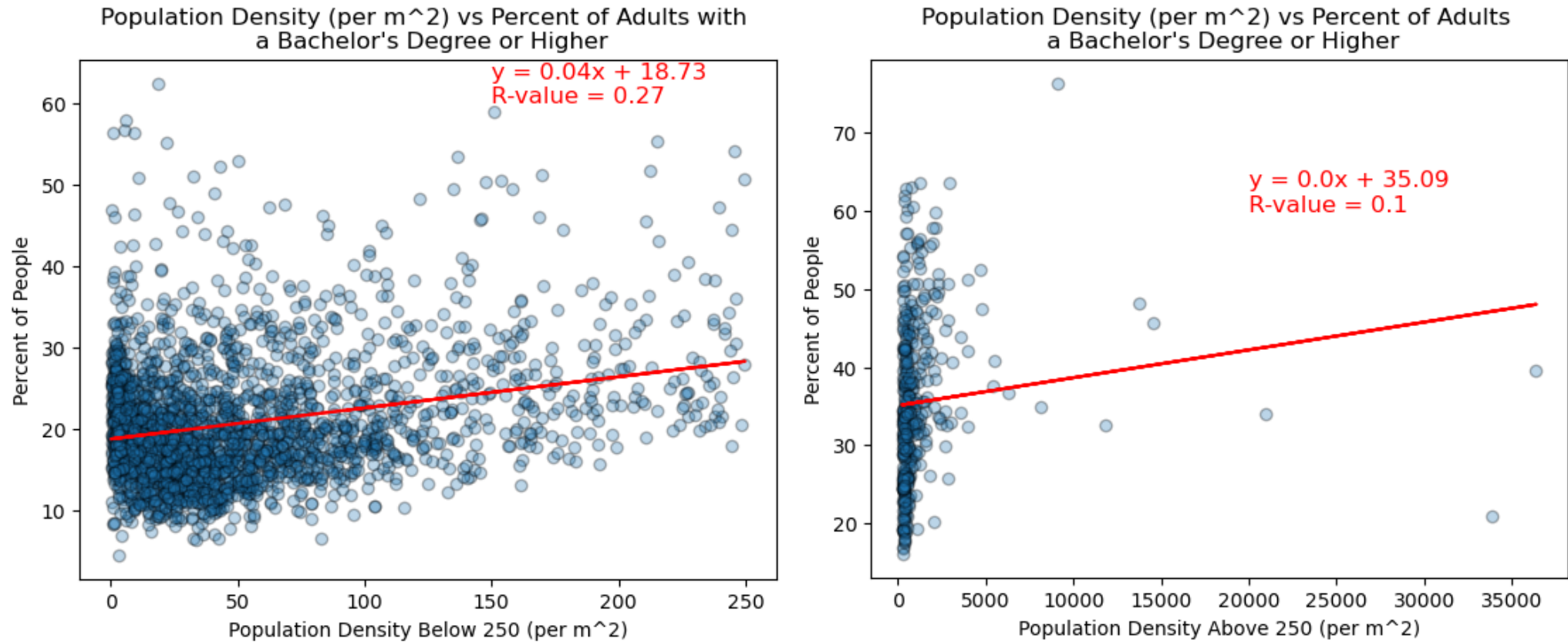


Figure 9: Scatter plots of Population Density vs. Percent of People with a Bachelor's Degree or Higher

EDUCATION VS. INCOME IN SPARSELY POPULATED COUNTIES

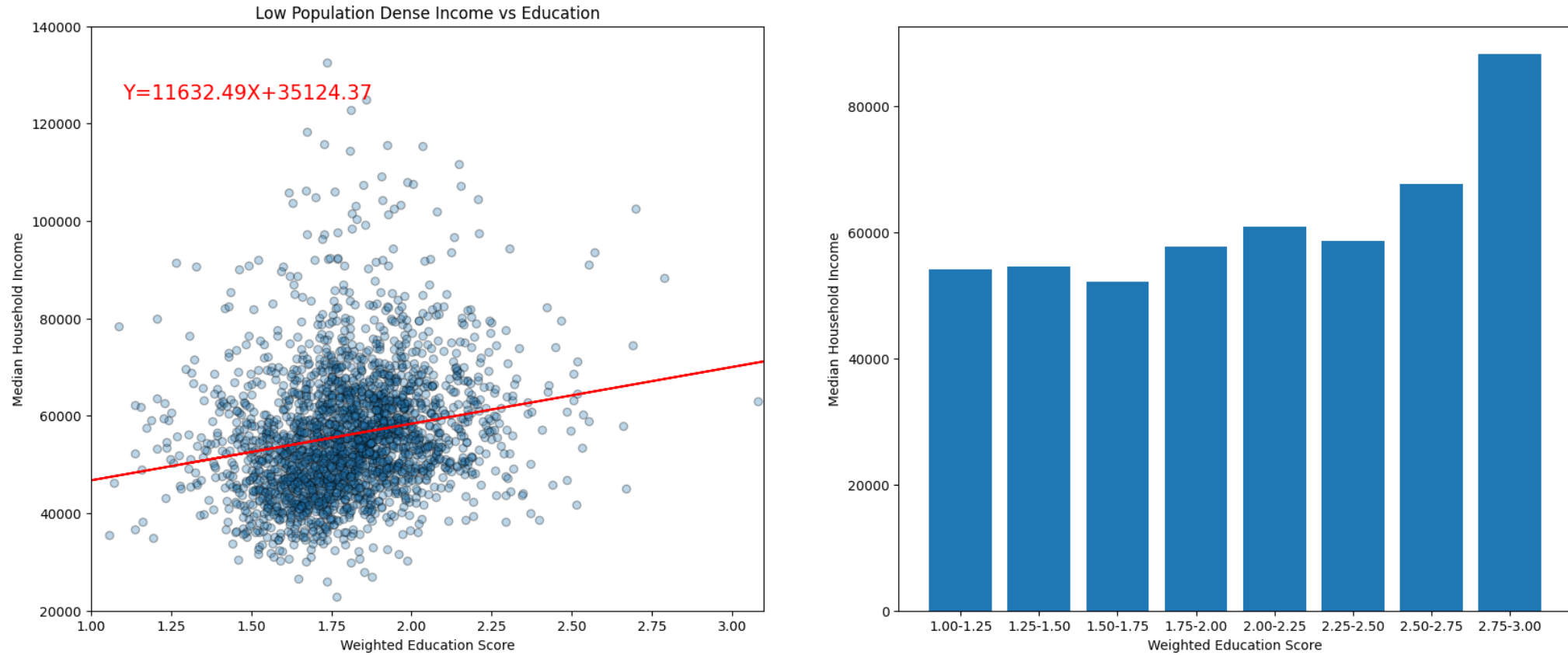


Figure 6: Scatter plots of Number of People with Higher Education vs. Median Household Income

EDUCATION VS. INCOME IN DENSELY POPULATED COUNTIES

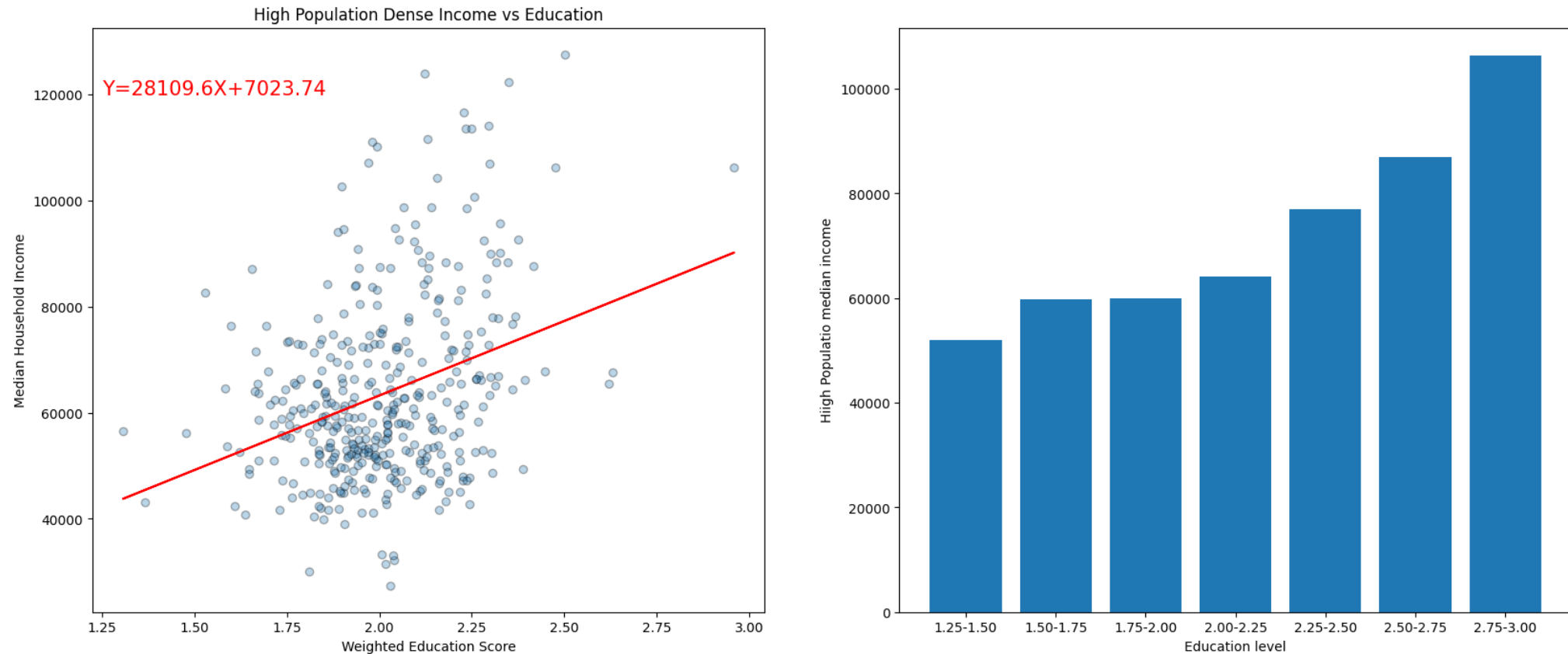


Figure 6: Scatter plots of Number of People with Higher Education vs. Median Household Income



SIGNIFICANT RELATIONSHIPS

Low Population

Readdress what the statistical relationship we found between pop density and this factor.

Sig Factor 2

Readdress what the statistical relationship we found between pop density and this factor.

Sig Factor 3

Readdress what the statistical relationship we found between pop density and this factor.



ANALYSIS SUMMARY

One sentence summarizing
finding

More detail about finding



THANK YOU FOR
YOUR ATTENTION