The Relationship between Educational Level and Poverty Population—— Taking the Midwest of the United States as an Example

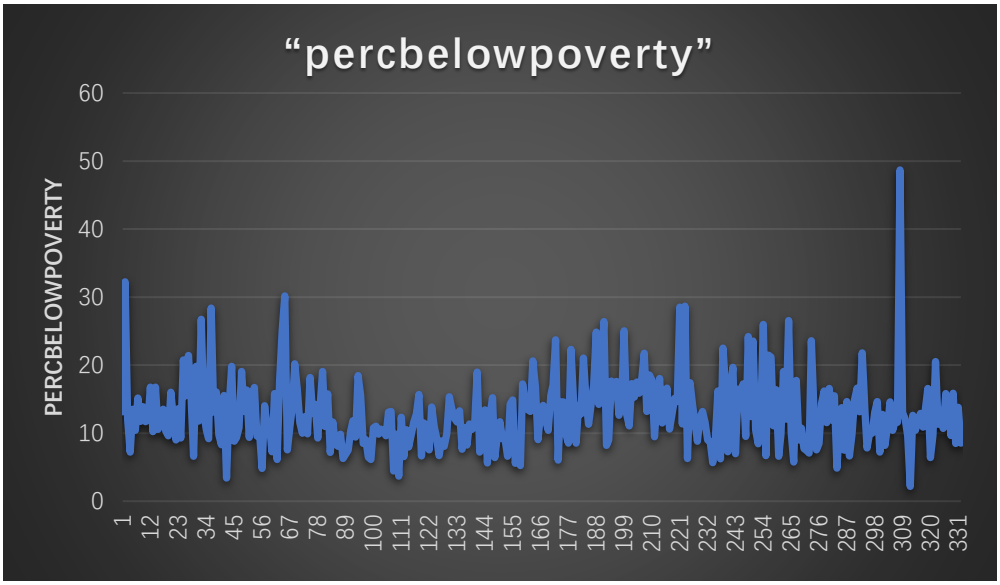

Figure 1.Probability Distribution of Poor Population

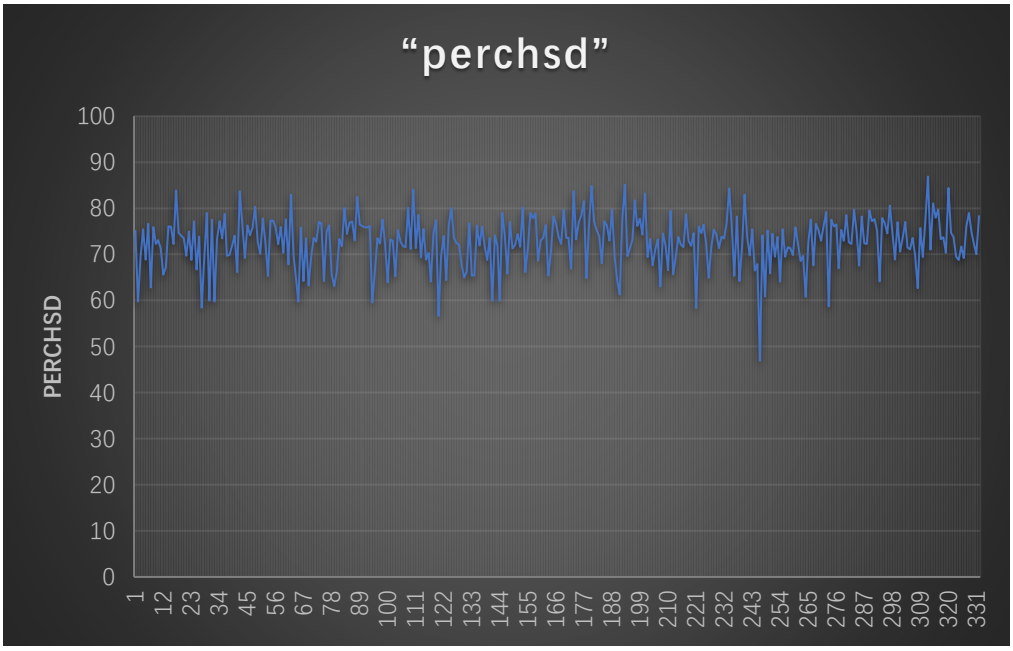

Figure 2.Probability Distributions with a High School Diploma

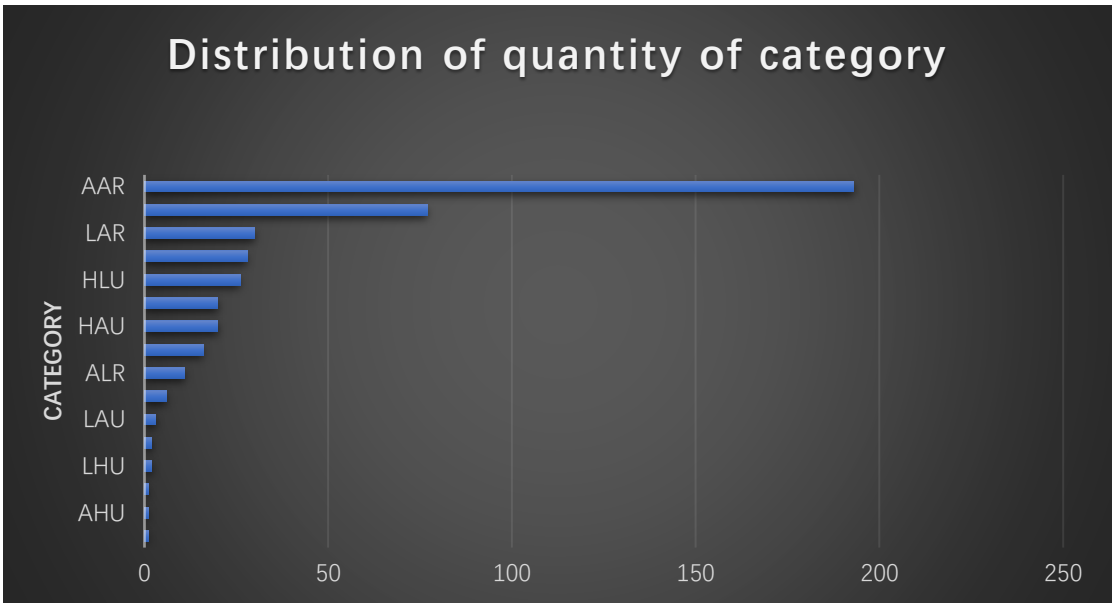

Figure 3.Distribution of quantity of category

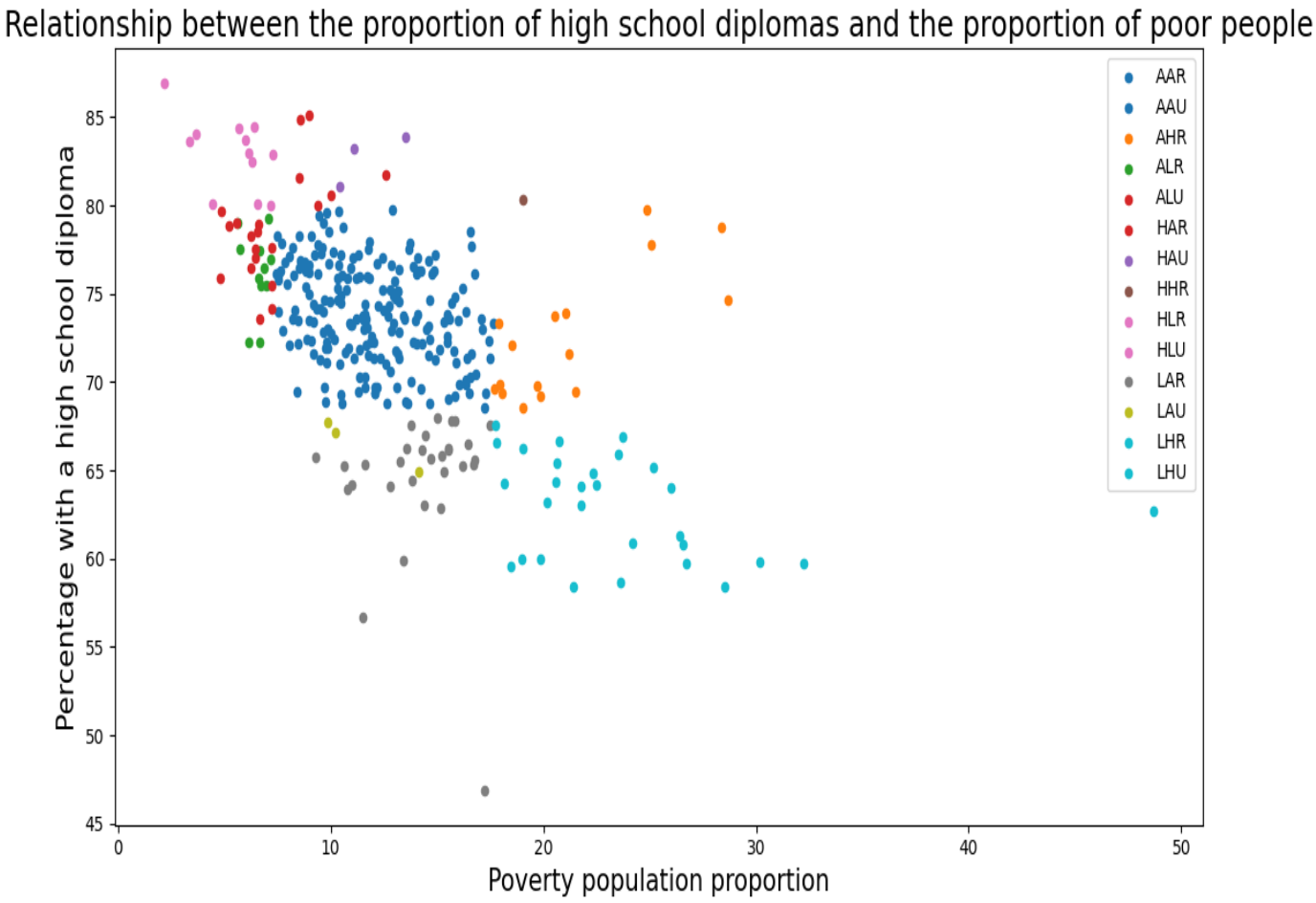

Figure 4.Relationship between the proportion of high school diplomas and the proportion of poor people

1) The Figure4 shows the relationship between the poverty population proportion and the percentage with a high school diploma in the Midwest.

2) Three attributes were used to create this figure: x-axis （ Poverty population proportion）, y-axis(Percentage with a high school diploma) and categories of city.

3）For legend, different colors represent different types of cities, including 14 types of colors in total.

4) As can be seen from the figure, the scatter points are mainly concentrated on the poor population below 30% and the proportion of high school diplomas between 55% and 85%.

For the scattered points classified as ARR, AAU, HAR, HLR, HLU, LAU LHR and LHU, the higher the proportion of high school population, the lower the poverty rate.

For the scattered points classified as ALR, ALR,ALU,HHR, there is no obvious relationship between the population of senior high schools and the poverty rate.

For scattered places classified as AHR,HAU.LAR, the higher the proportion of high school population, the higher the poverty rate.

By comparison, the number of the first type of scatter points is much greater than the sum of the second type and the third type of scatter points. At the same time, after removing the obvious abnormal scatter points, we can conclude that the proportion of the population with a high school diploma is inversely related to the proportion of the poor.

5)The dataset is available at Github:

https://github.com/selva86/datasets/blob/master/midwest_filter.csv.

In Figure4, it mainly used perchsdl and percbelowpoverty to stand for percentage with a high school diploma, poverty population proportion.

Here are the methods to make graphs.1. Determine the choice of horizontal and vertical coordinates.First, analyze the eigenvalue relationship in the data table, we need to study the relationship between the proportion of high school diplomas and the proportion of the poor population.2. Prepare the list and colors of the labels.First of all, we need to extract the unique values in the type (use unique in python to remove duplicates). There are 14 unique city types in the above figure, that is, we need 14 unique colors.3. Determine the value of the horizontal and vertical coordinates.Use a loop to get the horizontal and vertical coordinates of different labels, (percbelowpoverty, perchsdl).4. Draw the base image.

6) Through the research on perchsdl, percbelowpoverty and category, only a few have a low proportion of high school diplomas and a small proportion of poor people, but in most cities, the proportion of high school diplomas is inversely proportional to the proportion of poor people.

The project link: https://github.com/Williamlemon123/Enmin-Li-final