



● Impact of Library Concentration on Employment and Wages in the U.S

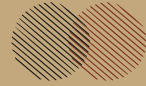
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Why Libraries Matter

Libraries are essential for creating a community, education and allowing people have access to resources career development and technological tools. People of all walks of life attend the library and go pick a book or use it as third space to hangout with friends. Libraries have been consistently been underfunded by government and local policies and the importance of its infrastructure is usually overlooked. This has caused a decrease in presence of libraries across the country and a stagnant wage cycle among many librarians that choose this profession to help their local community. This project will explore the relationship between library concentration and librarian employment and how librarian wages vary across states with different library systems.

Data set Overview



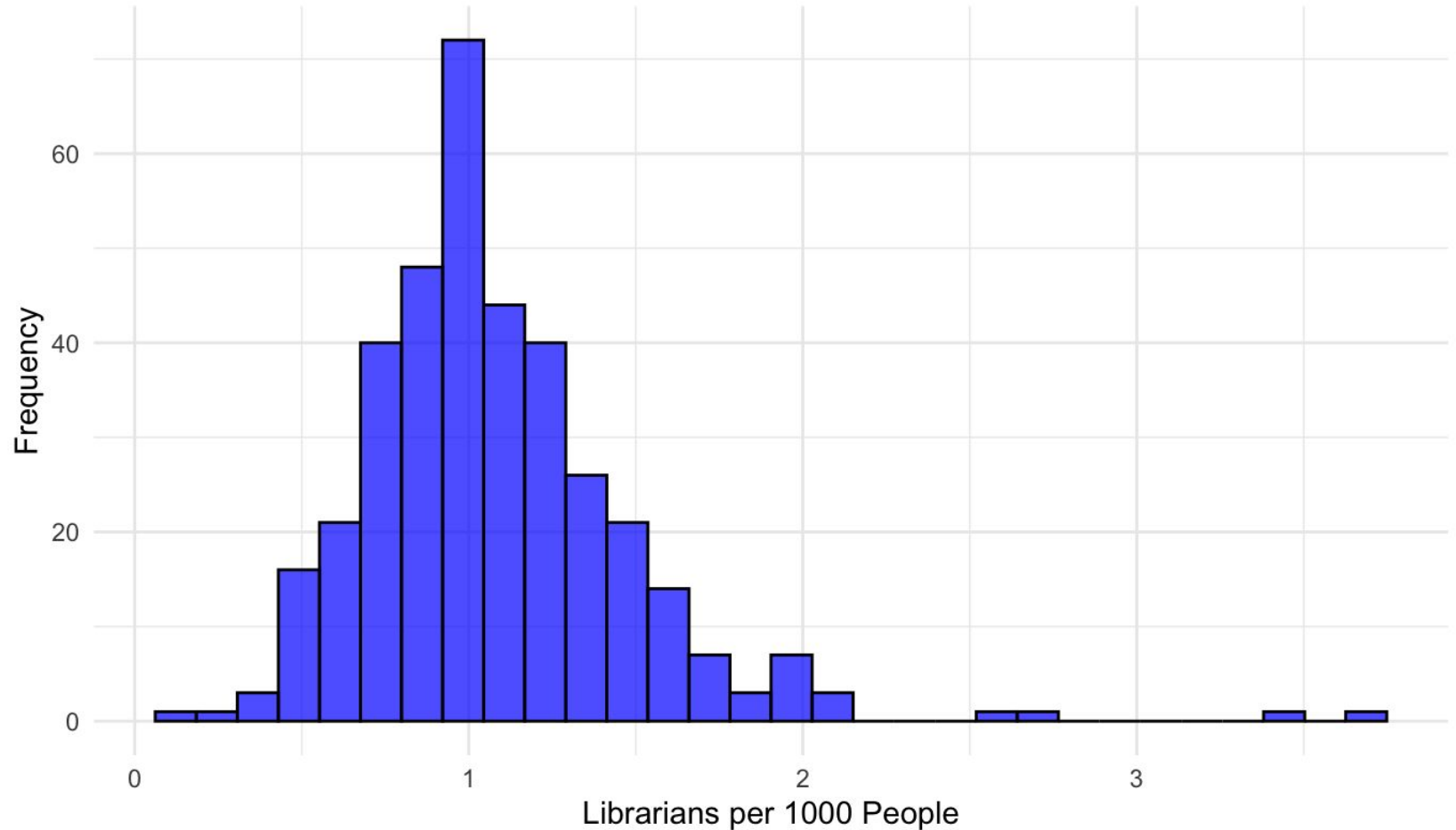
The first dataset observes the number of librarians employed per 1000 people and the concentration of libraries in metropolitan areas.



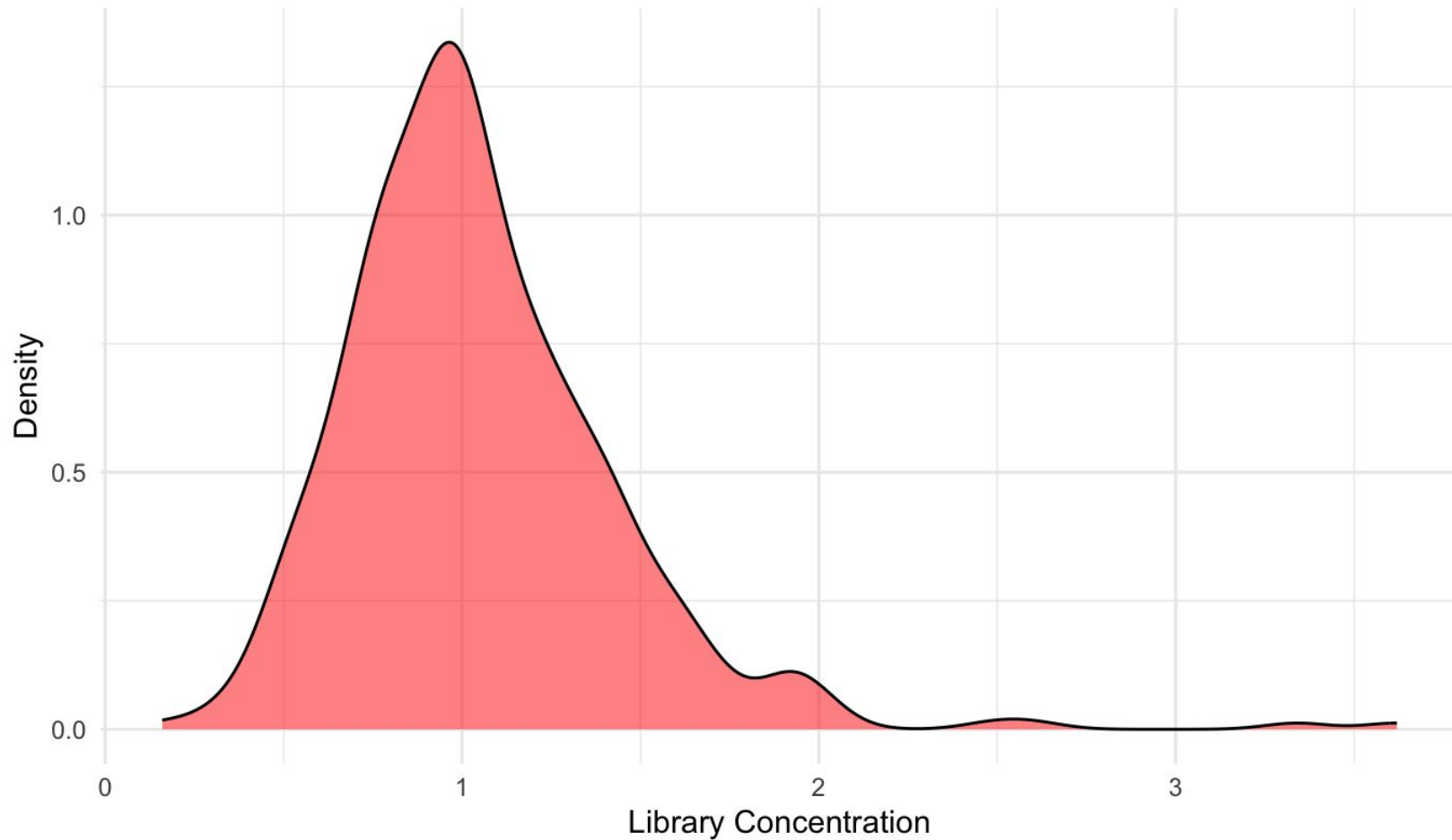
The second dataset observes the averages wages of librarians across different states from 2014 to 2017



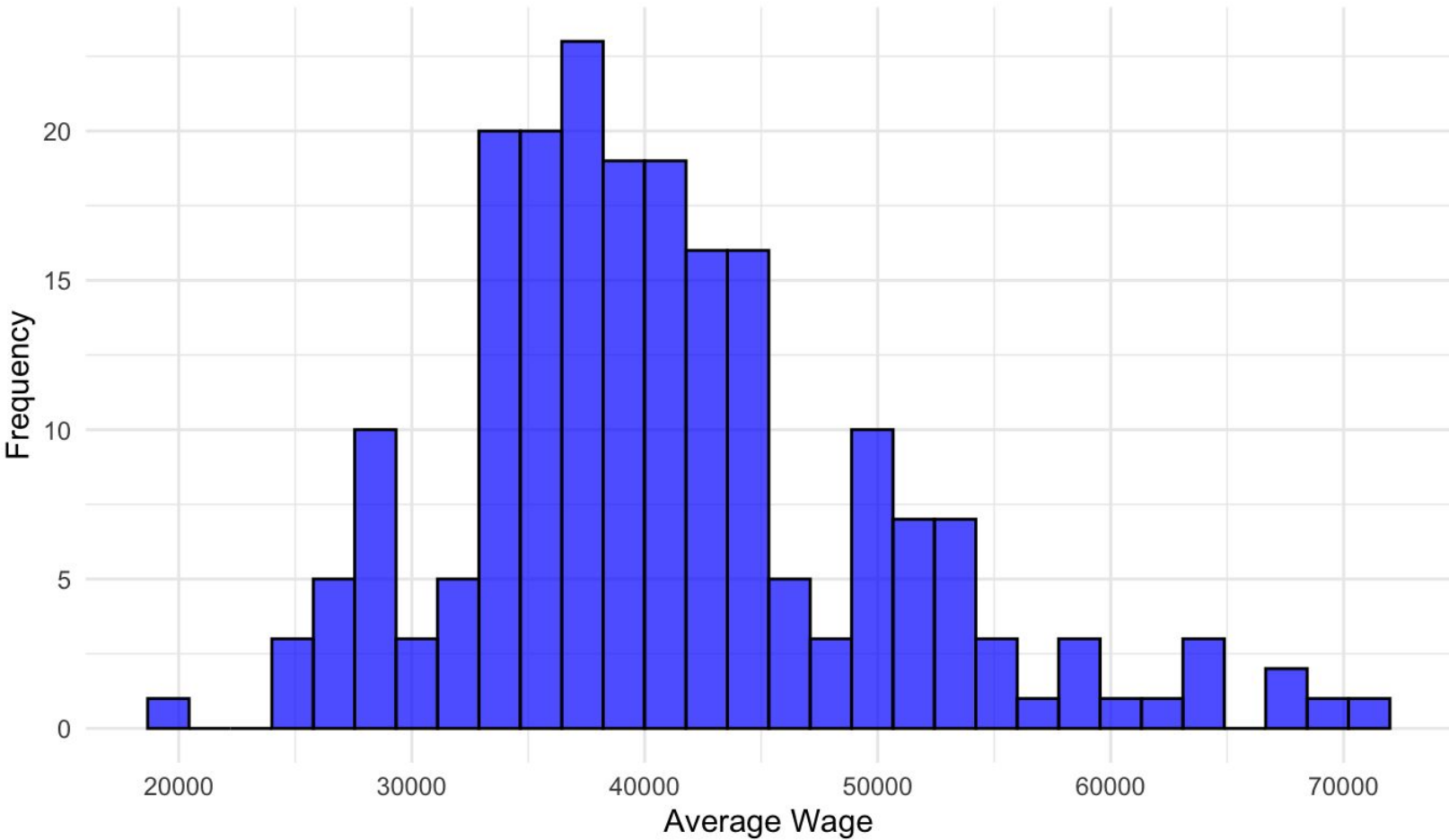
Distribution of Librarians per 1000 People



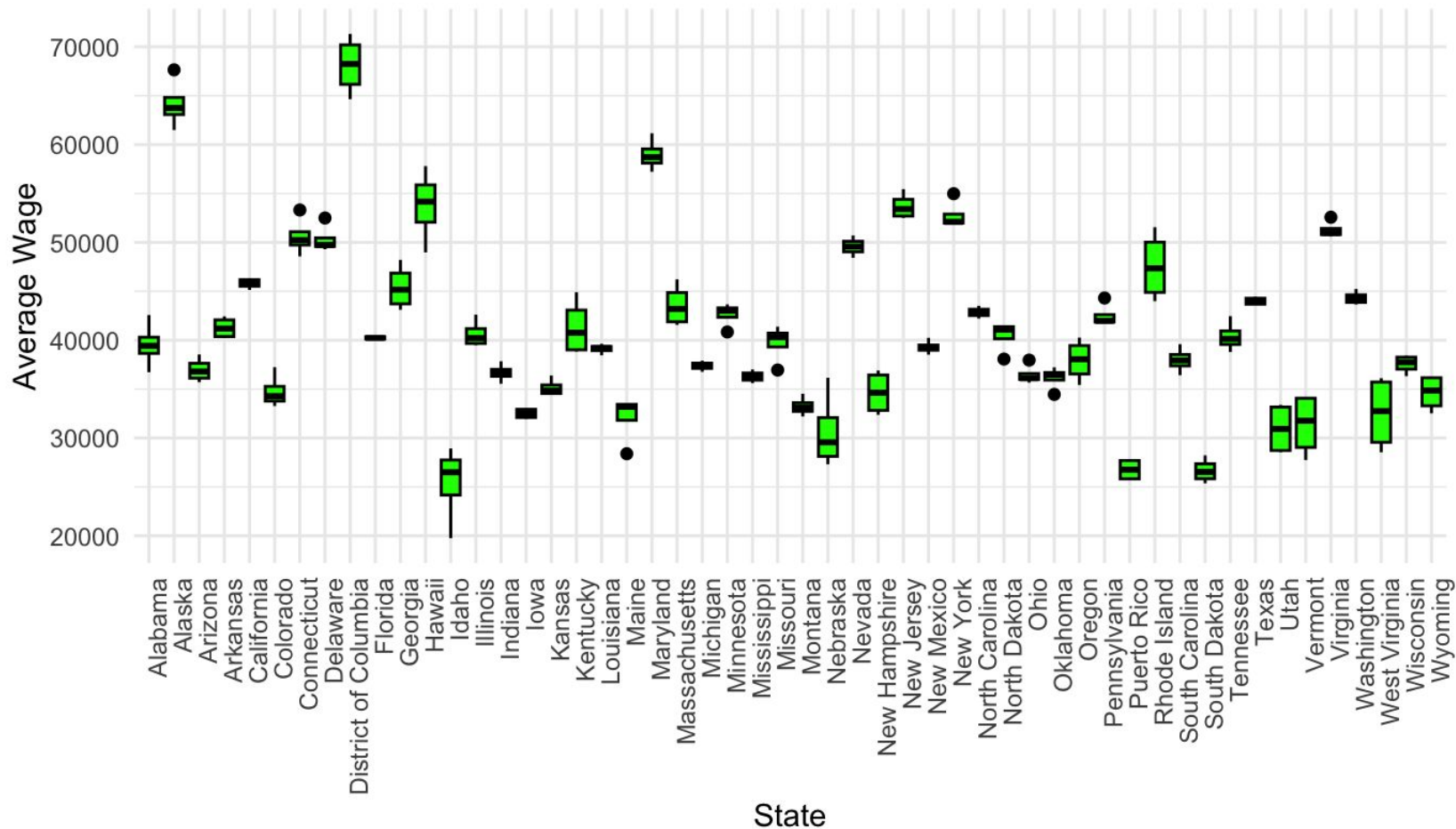
Density Plot of Library Concentration



Distribution of Librarian Wages Across States



Boxplot of Librarian Wages by State



Summary Stats for Library Concentration and Library Wages

mean_jobs_1000 <dbl>	median_jobs_1000 <dbl>	sd_jobs_1000 <dbl>	min_jobs_1000 <dbl>	max_jobs_1000 <dbl>
1.080935	1.024	0.4027596	0.163	3.727

mean_wage	median_wage	sd_wage	min_wage	max_wage
40931.34	39525.33	9041.549	19767.87	71314.55



What is the relationship between library concentration and librarian employment

Hypothesis Test

Null hypothesis - the mean number of librarians per 1k people is the same in low and high concentration of libraries.

Alternative - The mean number of librarians per 1k people is the different area with high and low library concentration

Using the T test we examine that the t-statistic was 18.867, indicating a large difference between both variables. The p value was low with a value of $2.2e^{-16}$, meaning we can reject our null hypothesis. The results show that that metropolitan areas with high concentration of libraries will likely have a mean of 1.37 librarians employed for 1000 people, compared to 0.80 librarians employed per 1000 people in metropolitan areas with low concentration.



How do librarian wages wavy across different states?

Hypothesis Test

Null hypothesis - the mean librarian wage is the same for states with above and below median wages

Alternative - the mean librarian wage are different between states with above median and below median wages

The t statistic was 15.965 which is big value showing that there is large difference between high and low wages. When observing my p value test statistic it was pretty small wit value of $2.2e^{-16}$ indicating that the null hypothesis will be rejected. Through my t test results librarian that live in states with above median wages can earn 47,635 dollars librarians and librarians that live in below median wages earn on average 34,227 dollars.

This does show there is a disparity in wages across the states can be influenced by cost of living, funding for libraries and local/ federal laws and policies.



Conclusion

Through my analysis we addressed the questions of “what is the relationship between the concentration of libraries in metropolitan areas and the number of librarians employed per 1000 people? And “How do librarians wages differ across states?. For the first question we addressed than metropolitan areas with higher library concentration while employed more librarians per 1000 people, specifically 1.37 librarians per 10000 people and areas with low library concentration will employ 0.80 libraries per 1000 people. Our second question revealed that there is ages disparities based on geographic factors, Librarians that live in states with above median wages will earn an average of \$47,635 dollars and librarians that live in states below median wages earn on average \$34,227. This disparities can be inflicted by library presences, cost of living and state funding.

Overall, the project highlight the lack of library funding and infrastructure that shapes the lives of many students across the country.

