

Rent and Annual Salary in Worcester

Cecilia Cortes and Tanner Honnef

Outline

1. Introduction
2. Background
3. Analyses, Visualizations, Methods Employed
4. Interpretation of Results
5. Discussion
6. Conclusions



Introduction

- Investigate
 - Impact of age on debt and salary in Worcester
 - Interest in variation among age groups
 - How salary and debt are correlated



Background

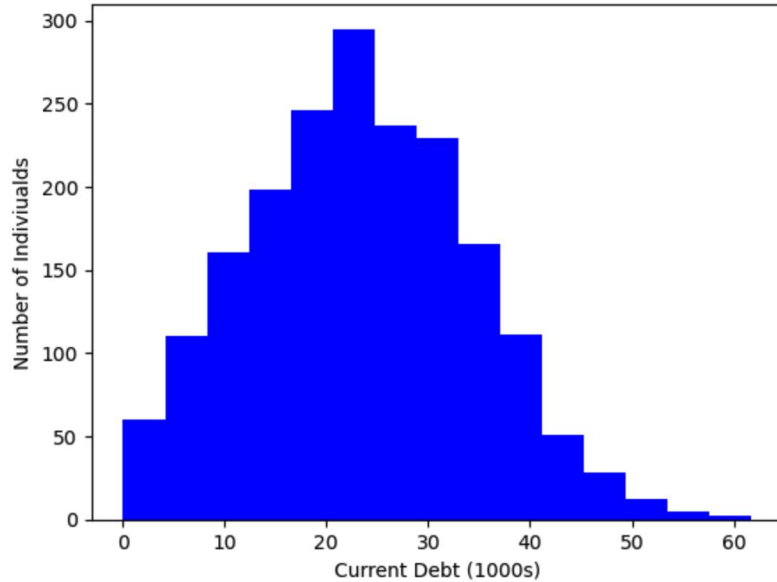
- Home to 8 centers of higher education
- High population of college student
- Diverse range of salaries
- Diverse range of ages



To optimize profit, who should Sofi Technologies market their mortgages and mortgage refinancing to?

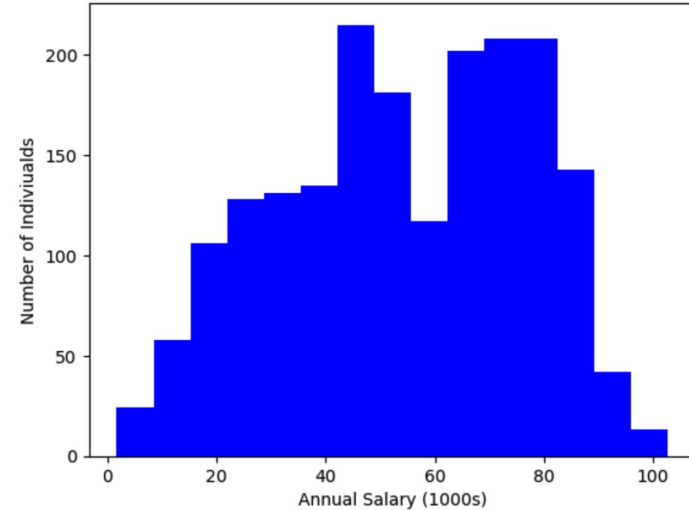
General Population

Current Debt Distribution



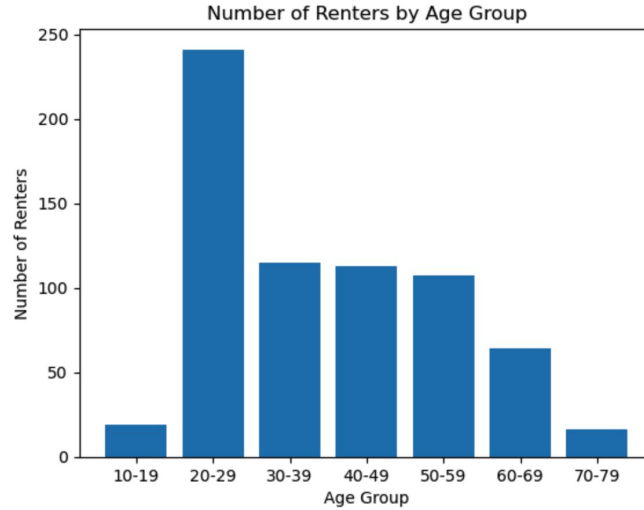
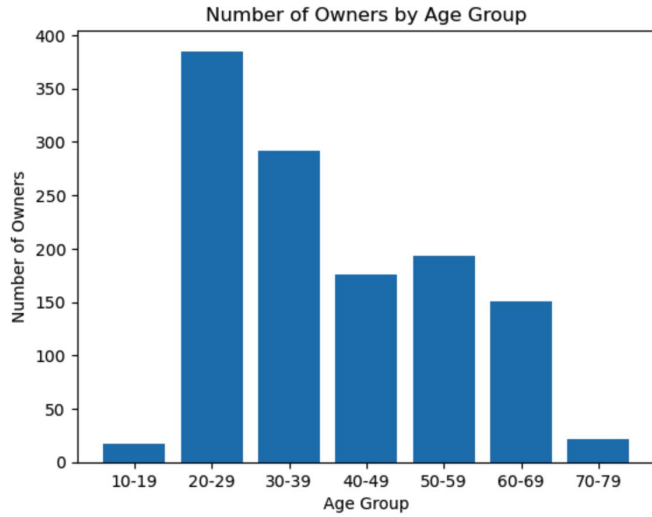
Majority of people have between 20-30 thousand dollars in debt

Annual Salary Distribution



Majority of people's salaries lay between 45-55 thousand and 65-85 thousand dollars per year

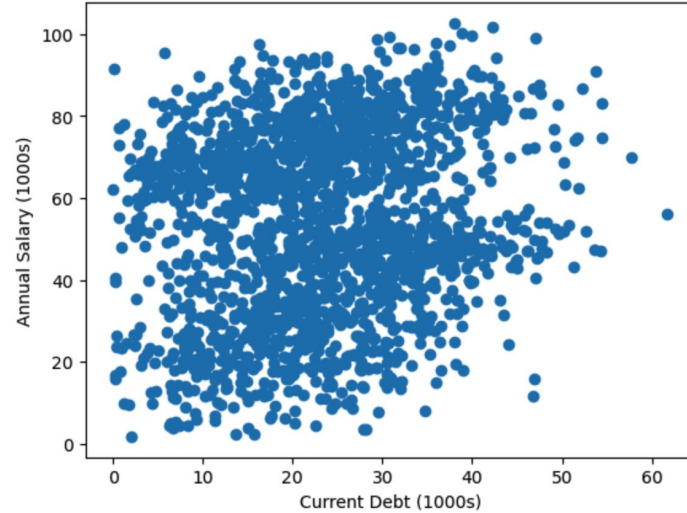
Population Distributions - Renter vs Owner



People in their 20s are highest population of owners

Significantly more people rent in their 20s than any other age group

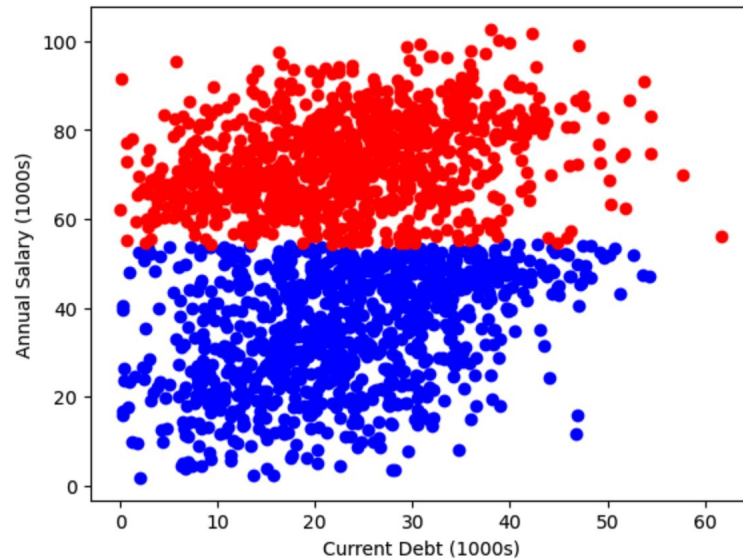
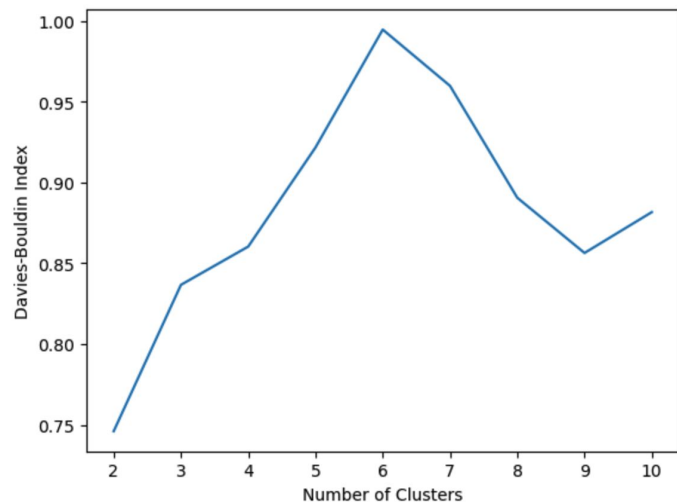
Current Debt vs Annual Salary



Positive correlation: as debt increases, salary increases

Slope = 0.339

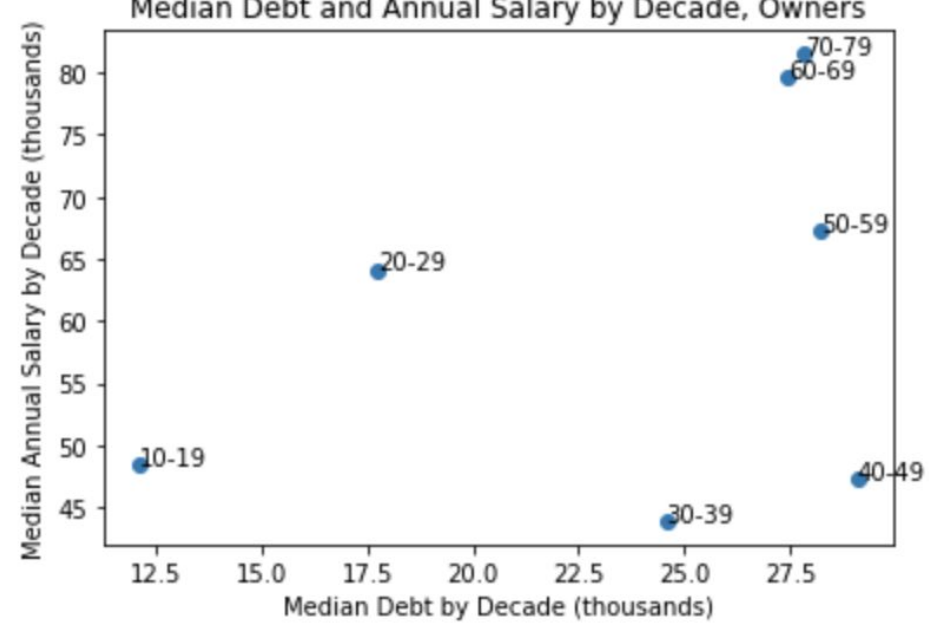
Clustering



Davies-Bouldin Index \Rightarrow 2 clusters are optimal

Notice: cluster splits around

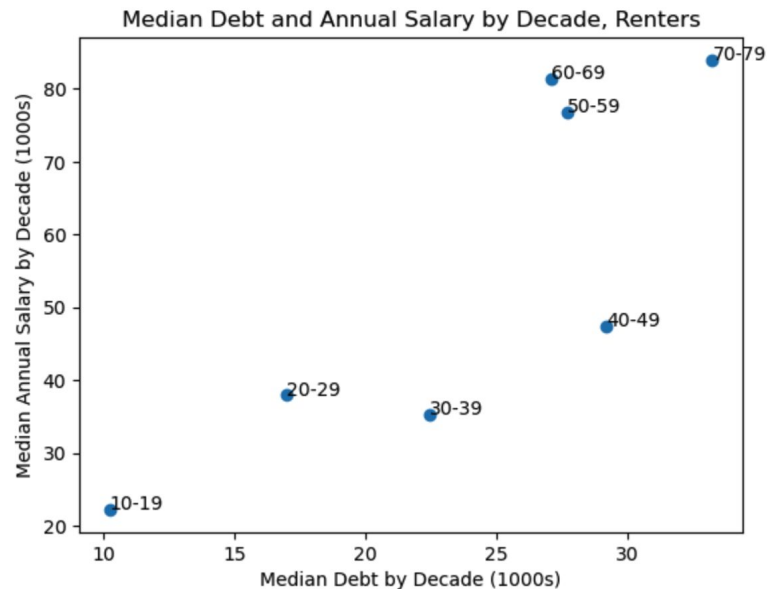
Debt vs Annual Salary (Owners)



Positive correlation: slope = .876

⇒ as debt increases so does annual salary

Debt vs Annual Salary (Renters)



Positive correlation: slope = 2.64

» as debt increases so does annual salary

» Renters increase debt and salary faster than owners

Interpretation of Results

1. Majority of people have between 20–30 thousand dollars in debt
2. Majority of people's salaries lay between 45–55 thousand and 65–85 thousand dollars per year
3. People in their 20s are highest population of owners
4. Significantly more people rent in their 20s than any other age group
5. Positive correlation between debt and annual salary
 - a. Renters accrue more debt and higher salary at a higher rate than owners

Discussion

- High population of young people makes rent less affordable
- In need of more rental housing
 - Prices will drop with more rentals



Conclusion

1. Sofi should market mortgages to renters in their 20s
2. Sofi should market mortgage refinancing to owners in their 40s-70s



END

Thank you for watching!

Research Sources (all are hyperlinked to sites)

[Worcester Rent is not Affordable](#)

[A High Portion of the Worcester Population is College Students](#)

[There are a lot of colleges in Worcester](#)

[Worcester Students are Struggling](#)

Image Sources

[612 × 530](#) – outline slide, worcester city hall

<https://www.rentecdirect.com/blog/for-rent-signs/> –discussion slide

<https://www.digitalcommonwealth.org/search/commonwealth:bk128t296> –
introduction slide

<https://www.istockphoto.com/photo/home-for-sale-real-estate-sign-and-house-gm177735411-24011698> – conclusion slide