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DATA 5322 Written Homework 2: Support Vector Machines

April 29, 2024

Comparing Predictive Factors of Homeownership in Single-Family Households Across Age Groups

# Abstract

# Introduction

<https://www.urban.org/urban-wire/real-homeownership-gap-between-todays-young-adults-and-past-generations-much-larger-you>

<https://www.statista.com/statistics/184902/homeownership-rate-in-the-us-since-2003/>

# Background

# Methodology

## Data Preparation

## Modeling

# Results

## Young Adults Home Ownership

|  |  |
| --- | --- |
| SVM Kernel | Test Accuracy |
| Radial | 79.76% |
| Poly | 79.69% |
| Linear | 79.20% |

A graph of a bar graph

Description automatically generated with medium confidence

A graph of a number of people

Description automatically generated

## Middle-Aged Adults Home Ownership

|  |  |
| --- | --- |
| SVM Kernel | Test Accuracy |
| Radial | 82.59% |
| Poly | 82.87% |
| Linear | 82.61% |

A graph of a bar chart

Description automatically generated with medium confidence

A graph of blue bars with white text

Description automatically generated

## Older Adults Home Ownership

|  |  |
| --- | --- |
| SVM Kernel | Test Accuracy |
| Radial | 87.06% |
| Poly | 87.06% |
| Linear | 87.10% |

A graph of a bar graph

Description automatically generated with medium confidence

A graph of blue rectangular bars with white text

Description automatically generated

# Discussion

# Conclusion

# References

# Appendix

EDUC – make to 5 categories:

* Didn’t finish high school
* Finished high school
* Some college
* Bachelor’s degree
* Postgraduate

0 or 1 couples because that’s the majority, 2 or 3 couples of the same family living in the same household is an outlier.

Consider using ratio of bedrooms to rooms

Can’t use house value because its missing for all rented unit

House ownership for single family households with 0 or 1 couples only.

Head of household is 18 or older with highest income

Focus on personal data but add some house data to see which one is more predictive.

* Predictors: Age, education, personal income, marital status, by density of PUMA, age of structure, number of bedrooms, number of rooms, number of couples in household

Goal is to find how the predictive power of the predictors change for different age groups

* Grouping: Head of household is between age 18-34 (young adults), 35-64 (middle-aged adults), 65+ (older adults)