

UNAFFORDABLE HOUSING

AN ANALYSIS OF RENTAL PRICES IN DENVER



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INTRODUCTION

Affordable housing describes the level of housing access that residents of a specific area possess. It is usually defined in terms of monthly income compared to monthly rent or mortgage.

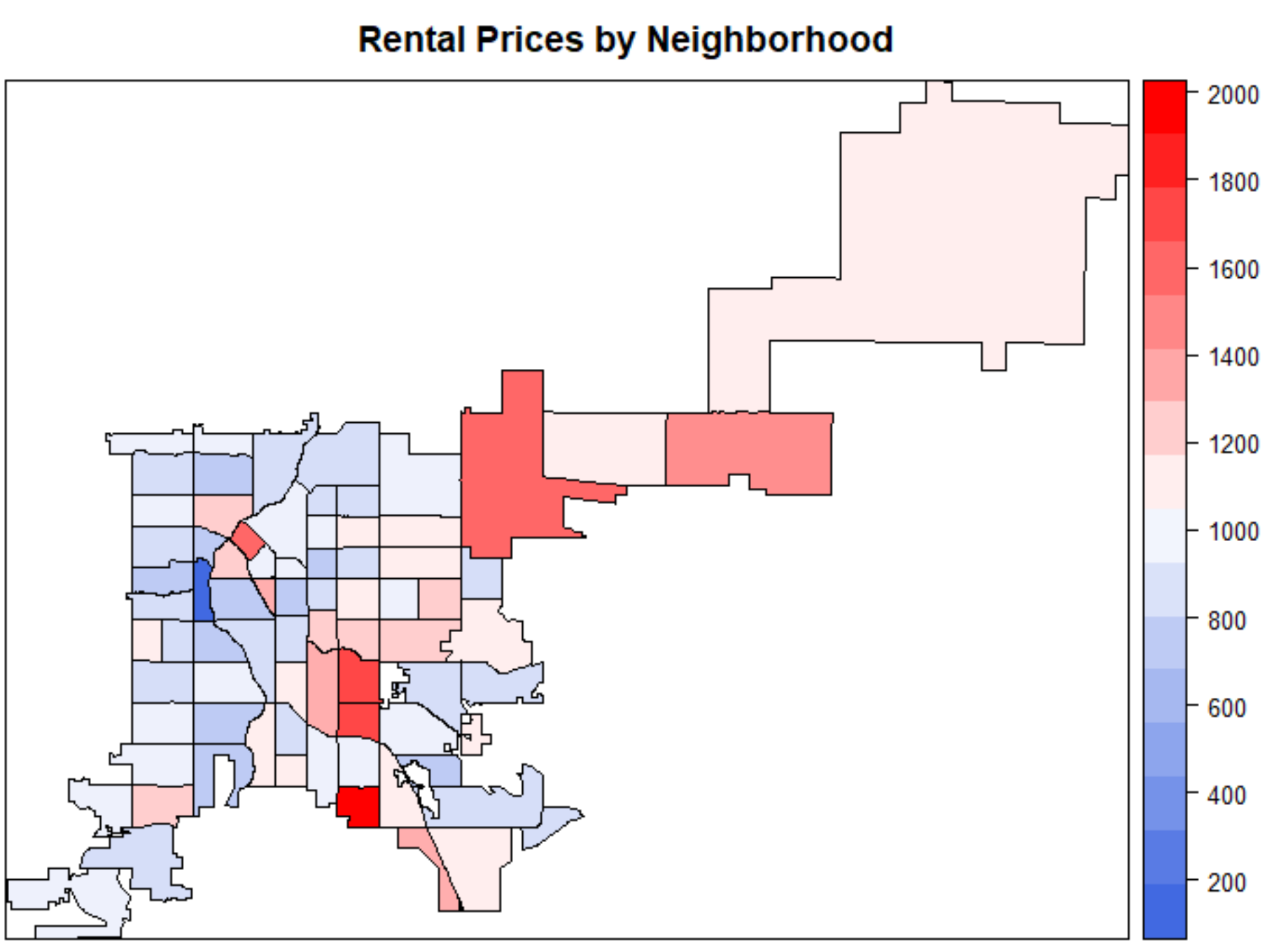
In Denver, affordable housing is an evolving and ongoing issue as the population continues to grow rapidly. The demand for housing far outweighs the supply, significantly increasing rental prices.

FOCUS

This study aims to determine which of the following factors are related to unaffordable (or increased) rental prices in 75 local Denver neighborhoods.

- Age
- Race
- Poverty
- Vacant Housing
- Renter Occupied Housing
- Education (no college)
- Family Households
- Income
- Size (area)
- Police Stations
- Schools
- Health Clinics
- Crimes
- Foreclosures
- Home Value

*excludes DIA, Sun Valley, and Kennedy

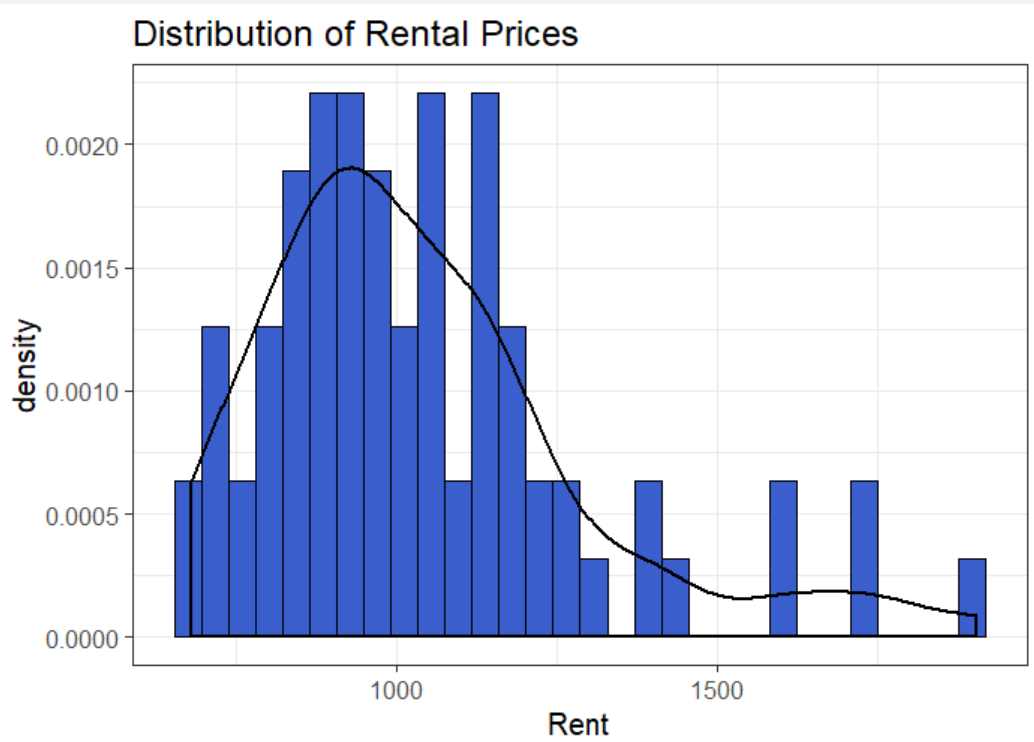


DATA

- Most of the data came from the American Community Survey, which contains 5-year averages from 2010-2014.
- The crime data includes incidents from the previous five calendar years and current year to date.
- The neighborhood characteristics data contains counts collected in the last couple of years.
- The foreclosure data is from 2003-2016, but an average from 2010-2014 was used.

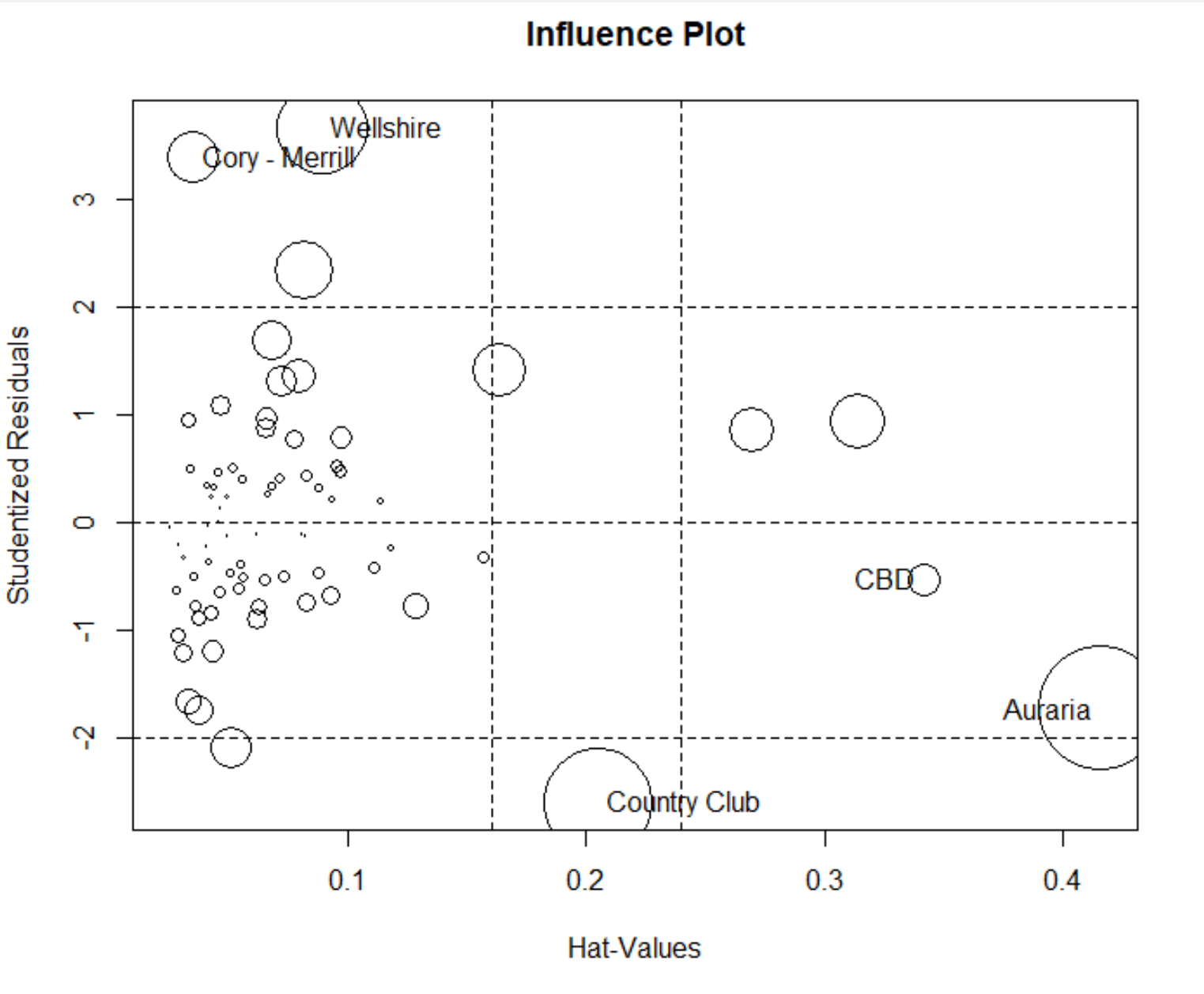
Summary

Min: 681.00
Median: 976.00
Mean: 1,038.20
Max.: 1,905.00



ANALYSIS

- A linear model was constructed with rent as the response and the previous factors as predictors.
- After adjusting for collinearity and performing variable selection, several of the predictors were removed from the initial model.
- Transformations were then applied to the predictors to enhance the model structure.
- Influential points were also evaluated to determine their effects on the model.

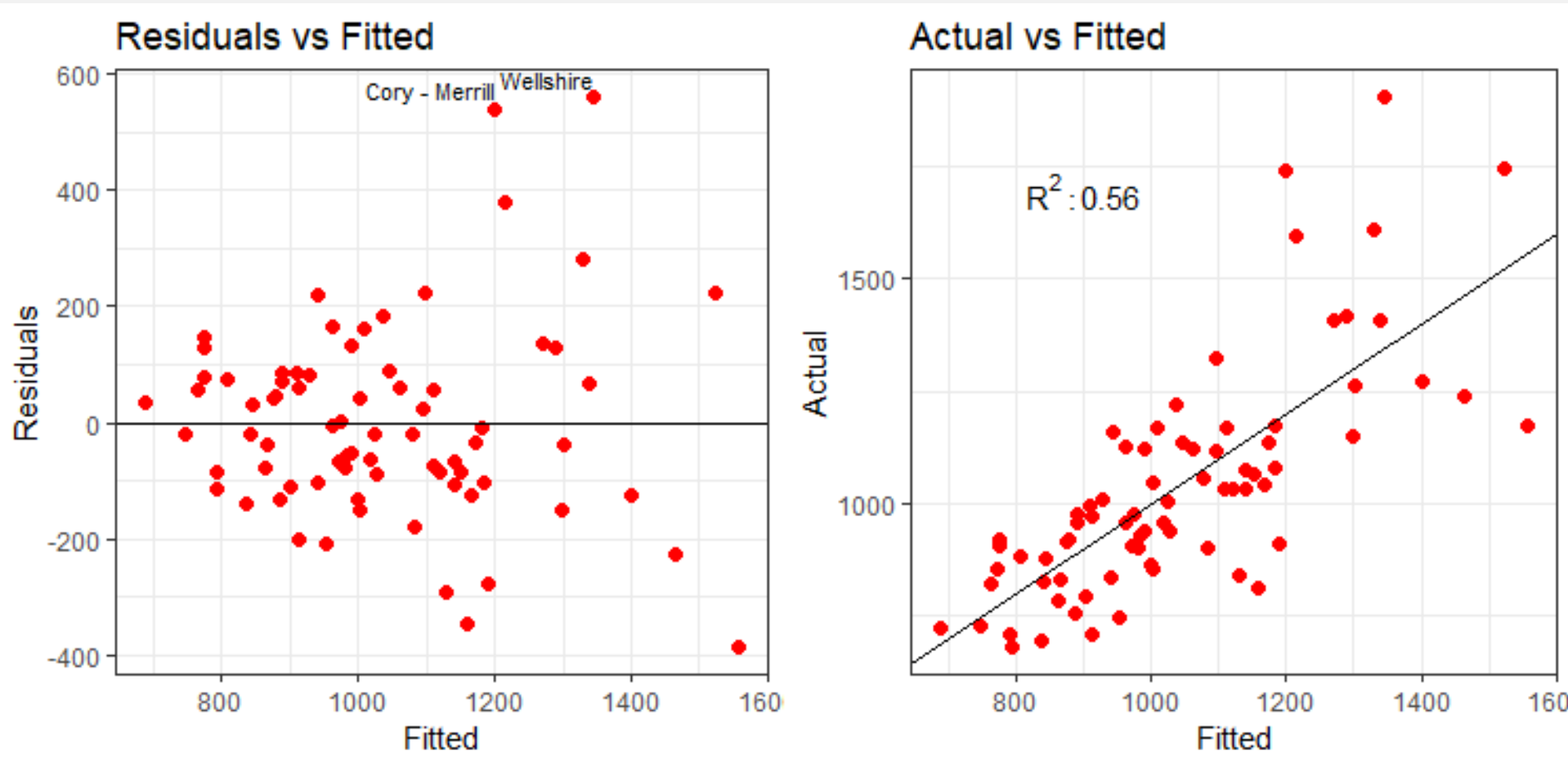


RESULTS

The table below shows the variables included in the final model. All of them are significant when compared to an alpha value of 0.05.

Term	Coefficient	P-value
(Intercept)	976.15	2.29E-11
renter	-4.78	0.00868
value	8.05	0.00068
poverty	-12.47	0.00036
foreclosures	7.30	0.01590
sqrt(crimes)	53.42	0.01730

The first graph below shows there is no pattern in the residuals so a linear model is appropriate for the data. The second graph shows that 56% of the variation in rent is explained by the model.



CONCLUSIONS

The resulting model shows that home value, foreclosures, and crime are related to increased rental prices while renter occupied housing and poverty are related to decreased prices.

It should be noted that when the four most influential values are removed, the percentage of variance explained by the model increases to 66%. Therefore, a robust linear model might be needed to accurately account for these values.

POLICY PROPOSAL

- One way to reduce the effects of home value and foreclosures on rental prices would be to encourage renting versus buying.
- There would be less demand to buy, decreasing home value, and fewer people signing mortgages they cannot afford.
- This could be achieved by reducing property tax and mortgage interest deductions, which would decrease the financial benefits of buying.
- Example: Tax Cuts and Job Reform Act
- One way to reduce the effects of crime would be to implement justice reinvestment initiatives.
- These initiatives cut spending on prisons by lowering the mandatory minimum sentences for nonviolent offenders, thus reducing the prison population.
- This money is then reinvested into programs that improve safety and lower crime.
- One such program is an accountability court, which provides effective alternatives to sentencing.
- These courts aim to address the cause of the criminal activity rather than just punish the behavior.
- The initiatives would also subject offenders to a risk and needs assessment in order to reduce recidivism rates.
- Example: Sentencing Reform and Corrections Act

SOURCES

- Data and background information were obtained from:
- The Denver Open Catalog
 - The Auraria Library Data to Policy Resources
- Public policy information was obtained from:
- “Rent Versus Buy: How Tax Reform Adds to the Decision” (Forbes, March 2018)
 - “Federal Tough on Crime Policies Have Failed – Here’s a New Path Forward” (The Washington Examiner, October 2017)