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Homelessness in America

The Team



Suma Karanam



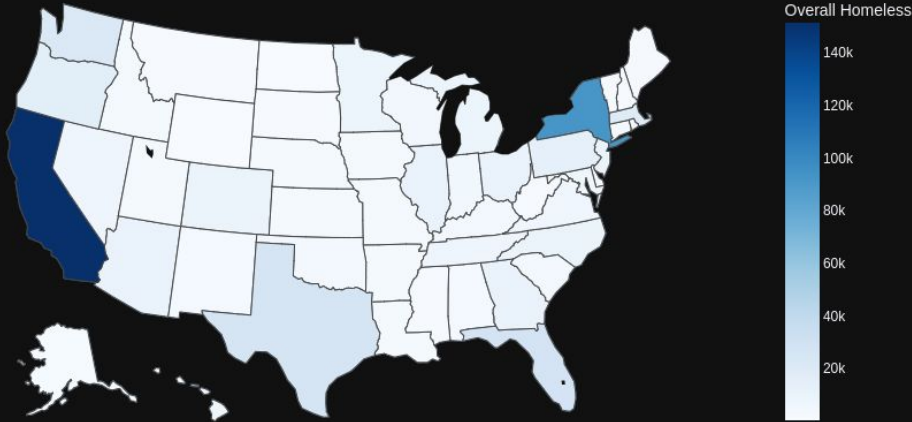
Eric Swanson



Andrew Gossage

Introduction

Homeless in the US in 2020: 574577



STATE	HOMELESS COUNT
California	161548
New York	91271
Texas	27229
Florida	25977
Washington	22923

In 2020, over half a million people were homeless in the US

Problem Statement

- Identify if there are any determinants of homelessness at the city level
- Compare cities with similar features but different trends in homelessness to identify mitigating factors
- Present areas of focus that aid in fighting homelessness

Data

Homeless and Housing Inventory Counts

- The department of Housing and Urban Development (HUD) publishes counts of sheltered and unsheltered homeless populations every year (source).
- These counts are based on Point-in-Time (PIT) information provided to HUD by Continuum of Care (CoC) Homeless Assistance Programs in the application for CoC Homeless Assistance Programs.
- The PIT Count provides a count of sheltered and unsheltered homeless persons on a single night during the last ten days in January for each CoC.
- The HUD also publishes the number of housing units available (HIC) to house homeless people in each CoC
- Data cleaning involved aggregating these counts (PIT and HIC) at the city level for each year between 2014 to 2020

Data

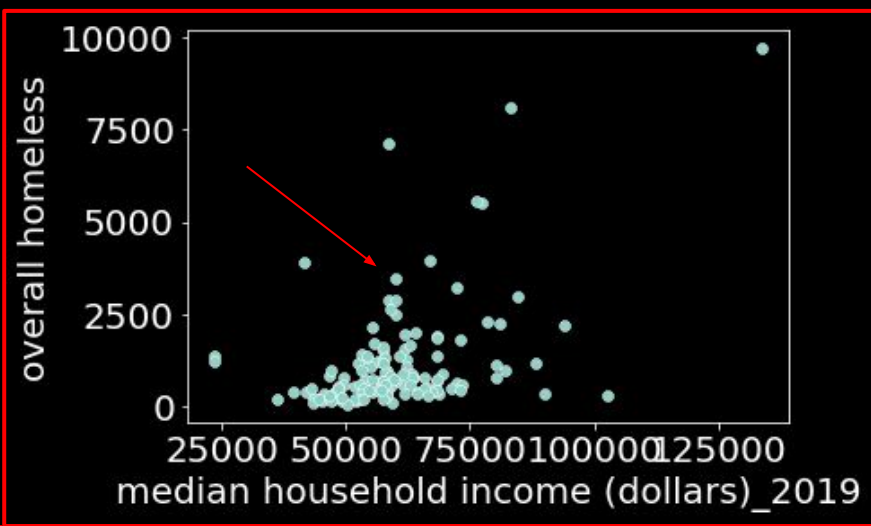
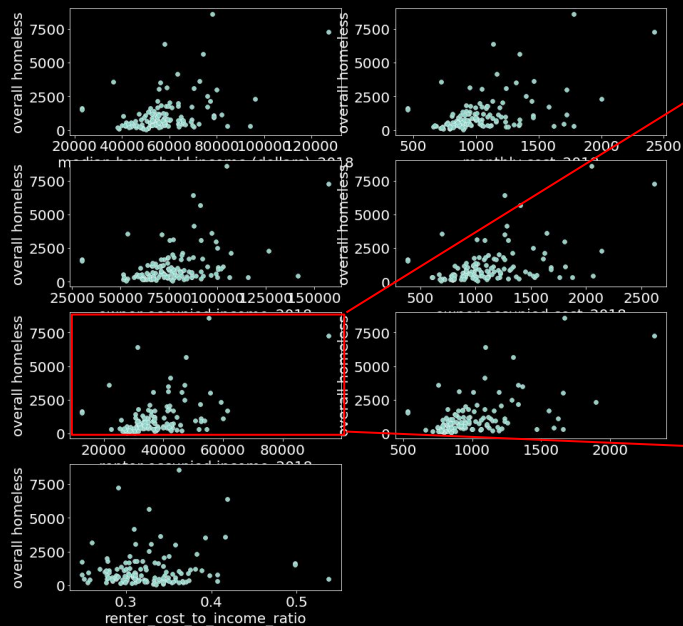
Other Data

The following data was collected from multiple sources for the cities being analyzed:

- Median housing costs (renting and owning)
- Median income (for renters and homeowners)
- Population and population density
- City budget
- Average temperatures by quarter
- Precipitation and snowfall
- Others

Trends in The Data

2018 Housing Economic Income and Costs



Modeling

- Ran a Linear Regression model on homeless numbers and housing economics
- Results:
 - R^2 of 33%
 - Look at the coefficients for what features had the biggest impact

Coefficients

Features	Average 2017-2019
owner occupied income	0.12572
owner occupied cost	1.4026
renter occupied income	-0.042566
renter occupied cost	3.211

Workflow

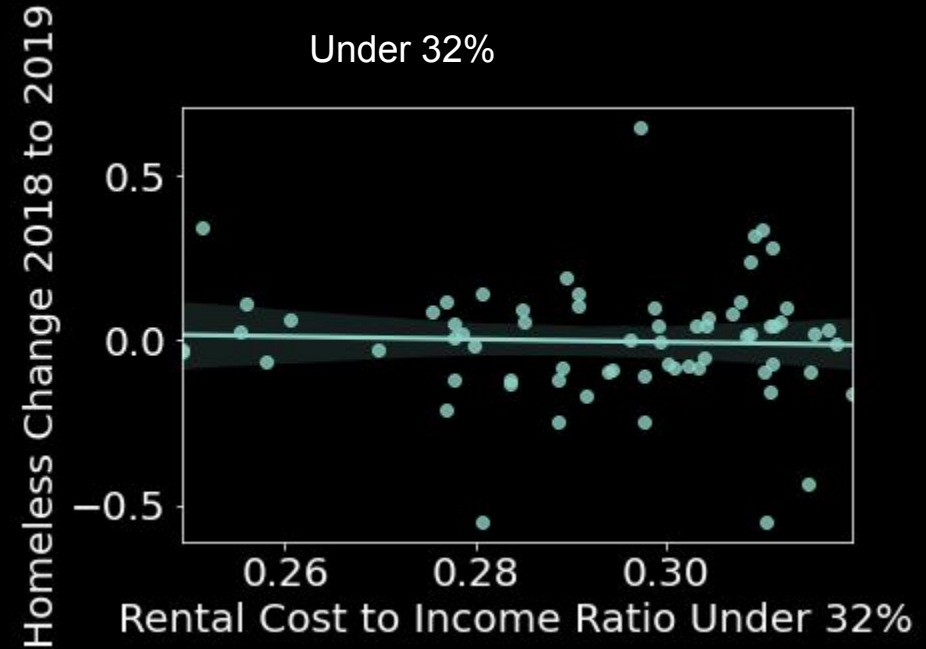
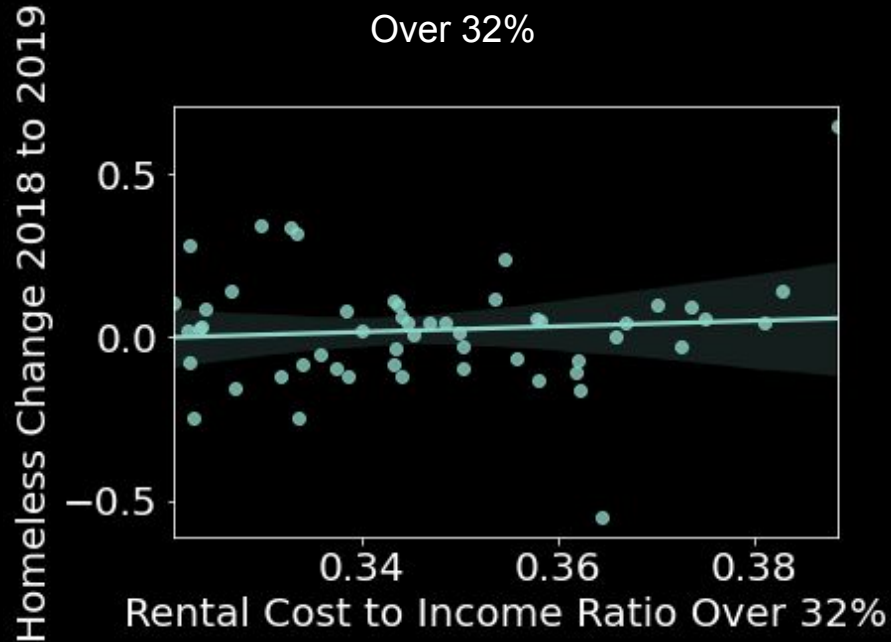
- Researched the effects of rental cost and homelessness
- Featured Engineered a renters ratio
 - Research showed that when renters cost to income is over 32% the area is more prone to homelessness

[Source](#)

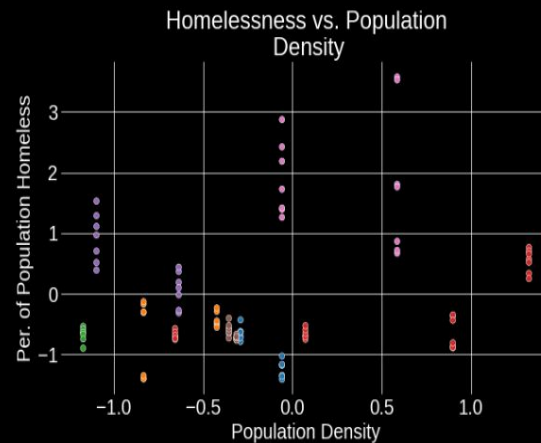
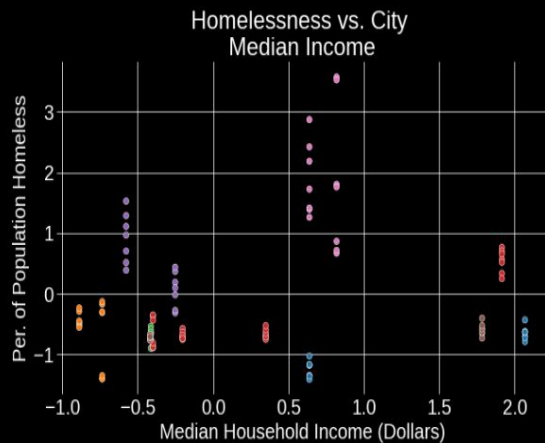
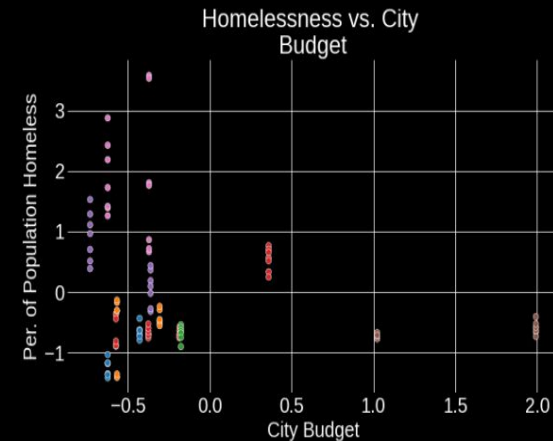
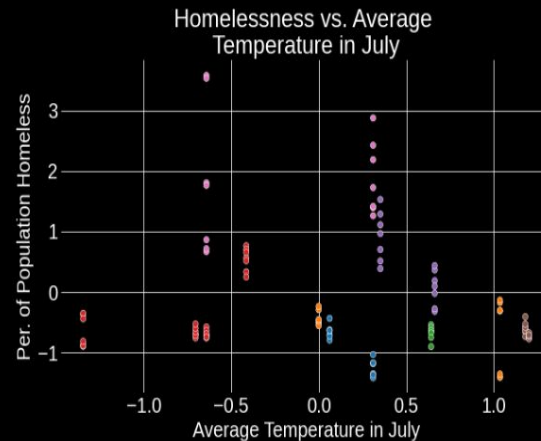
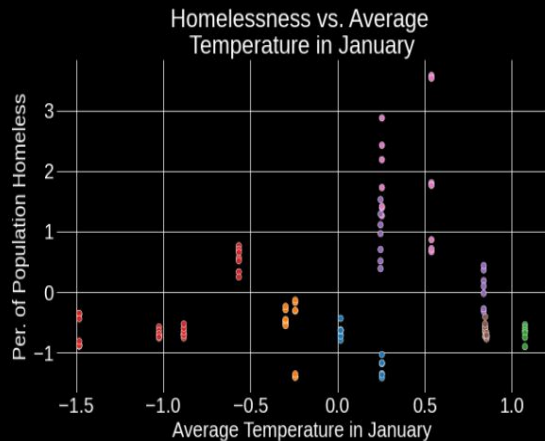
Number of Cities over the 32% Ratio

- 2017: 119
- 2018: 62
- 2019: 49

Homeless Change in 2019 and Rental Cost to Income Ratio(2018)

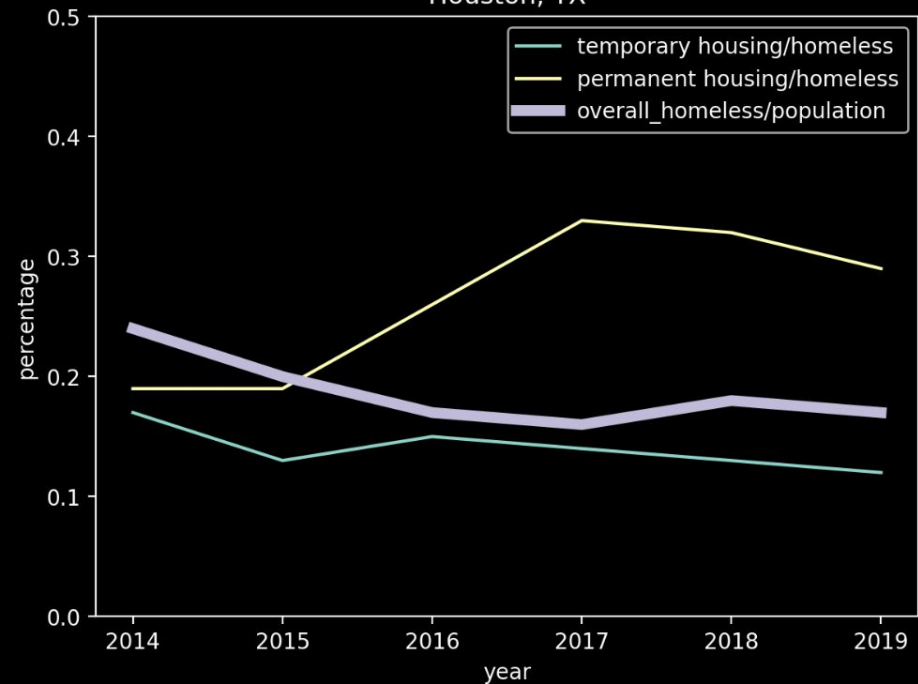


Cities by KMeans Group

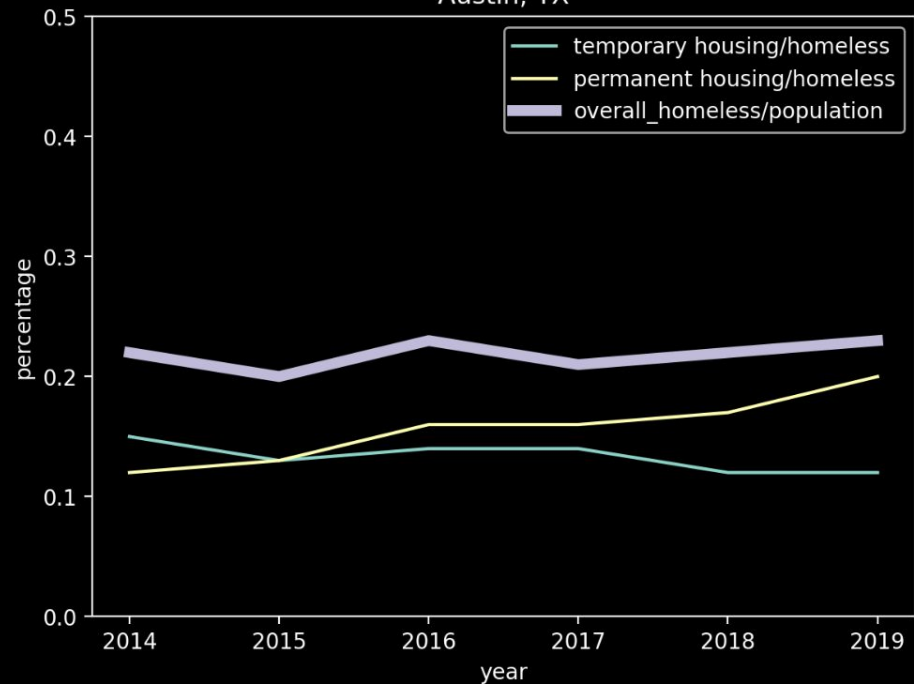


- Houston
- Albuquerque
- Madison
- Columbus
- Atlanta, Baltimore, Buffalo, Cleveland, Detroit
- Baton Rouge, Birmingham
- Austin, Jacksonville
- Indianapolis

Houston, TX

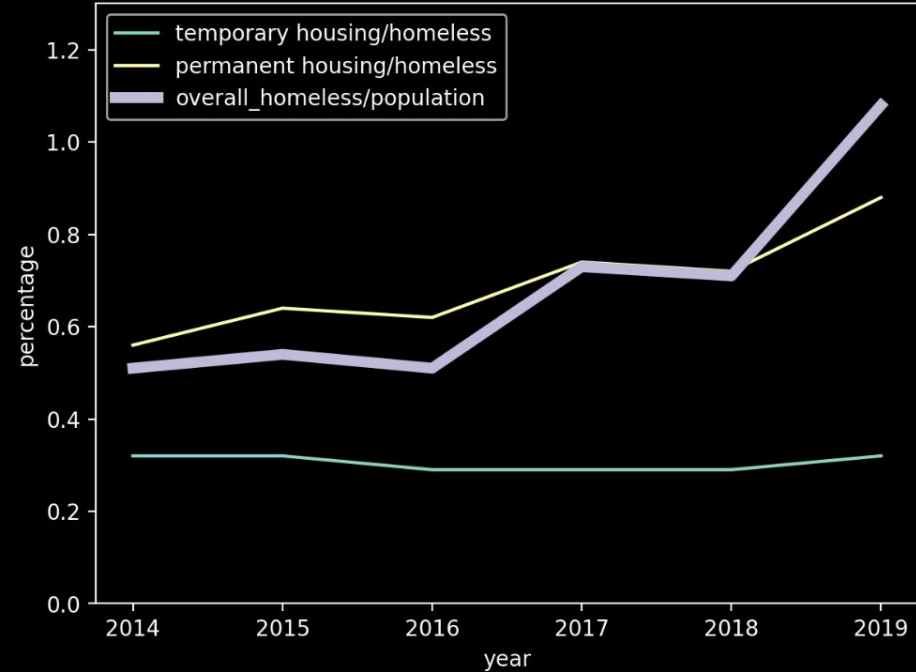


Austin, TX

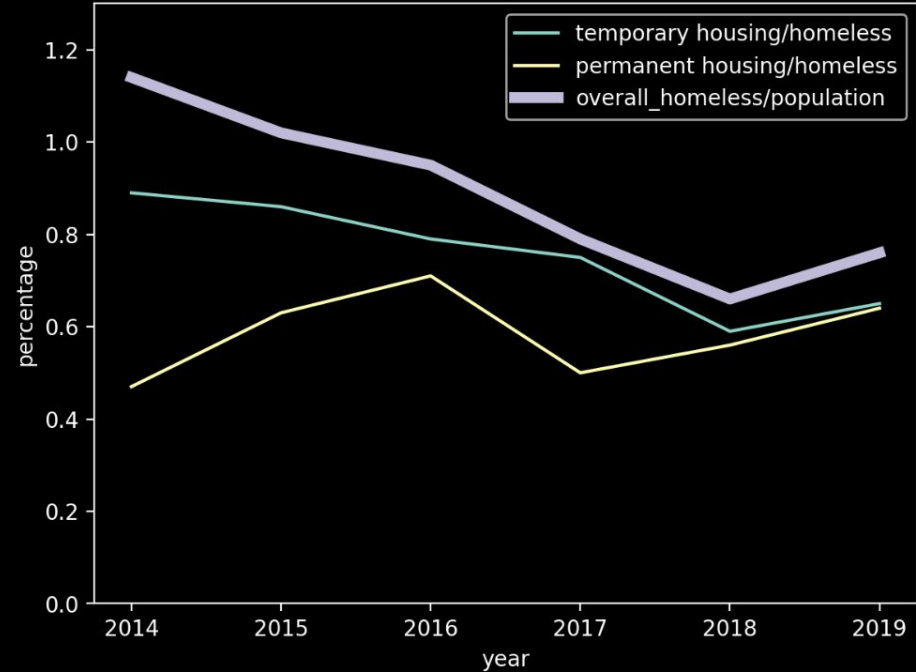


Houston Vs. Austin

Sacramento, CA



Atlanta, GA



Sacramento Vs. Atlanta

Conclusions

- During our research we failed to find a universal solve for homelessness, however, there are a couple noteworthy patterns:
 - Cities that are not extremely wealthy but do rank above the national median income tend to suffer more homelessness.
 - Homeless individual are drawn towards more temperate climates.
 - One of the major issues in determining a universal answer is that even like cities in other respects can perform vastly differently in combating this issue.
 - Establishing a HMIS system to help organize coordinated organization involvement tends to boost the effectiveness of a city fighting homelessness.
 - Prioritizing permanent housing over shelters was helpful to come cities such as Tulsa, Atlanta and Houston in reducing homelessness.

Next Steps

- Incorporate additional features (Gini index, poverty levels, etc.)
- Some of the data that was collected was much more granular than what was used in our analysis. Look further into this breakdown.
- A number of studies suggest that the PIT estimates are an undercount of the actual homeless numbers. Research ways in which this can be accounted for in the modeling process.