

Team 4

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Examination of Factors Influencing Homelessness

Purpose of Study

- For this study, we determined which factor among real-estate pricing, poverty rate, & weather correlated the most to homelessness.
- To do so, we analyzed the correlation of each factor to homelessness by county throughout the United States.
- We compared 3,215 counties from all 50 states, Puerto Rico and the District of Columbia

Data Sources

Homeless Data:

US Census Bureau 2010 decennial (<https://api.census.gov/data/2010>)

Collected homeless populations by county/state

Poverty Data:

US Census Bureau 2017 American Community Survey (<https://api.census.gov/data/2017/acs/acs5>)

Collected poverty rates by county/state

Housing Data:

Zillow Real Estate Research site (<https://www.zillow.com/research/tag/housing-data/>)

Collected home median value by county/state

Weather Data:

Open Weather Map current weather data (<http://api.openweathermap.org/data/2.5/weather>)

Collected current temperature by county/state

Geographic Data:

Data Summary

- Data collected on poverty, population, and temperature for all 3215 counties of the US
- Data collected on real estate prices for 1900 counties

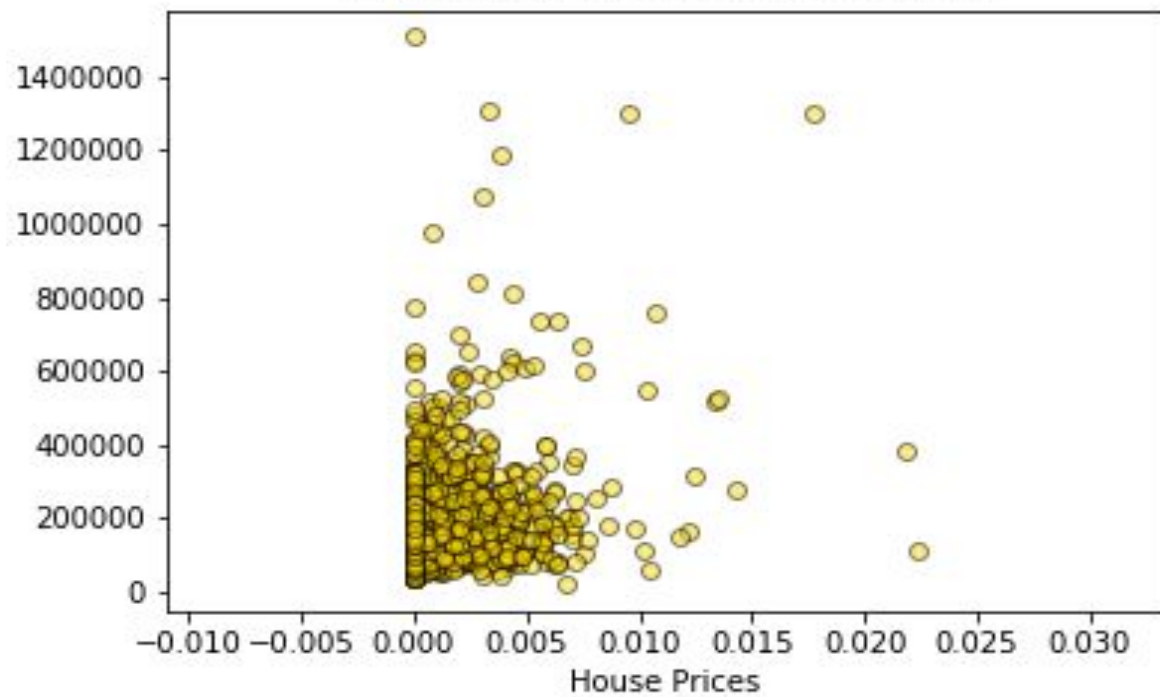
The final combined DataFrame includes Homeless count, Population, Poverty Rate, Median Housing Price, and Temperature of all these counties

	County	State	Homeless Pop	Population	Poverty Rate	Price_2018	Temp	Homeless Rate
0	autauga county	alabama	0.0	55036.0	13.596555	144599.999971	39.2	0.000000
1	cherokee county	alabama	0.0	25855.0	15.873139	102899.999979	73.4	0.000000
2	blount county	alabama	0.0	57667.0	15.466385	132499.999941	70.0	0.000000
3	chilton county	alabama	0.0	43805.0	19.157630	114299.999990	66.2	0.000000
4	coffee county	alabama	64.0	51073.0	15.902727	109500.000045	37.4	0.001253

Numbers for over 713,234 homeless people will be analyzed which is .22% of the total population of 321,751,802

	Average Poverty Rate	Homeless Rate	Total Counties	Total Homeless Population	Total Population
0	15.96	0.221672	3215	713234	321751802

Homeless Rate versus House Prices



Homelessness versus House Prices

Hypothesis:

Ho: $\rho=0$

Ha: $\rho \neq 0$

Spearman correlation coefficient: 0.29; Probability of not equalling zero: 1.0

Conclusion: There is a weak positive monotonic relationship between homelessness and house prices

Hypothesis:

Ho: $r=0$

Ha: $r \neq 0$

Pearson correlation coefficient: 0.29; Probability of not equalling zero: 1.0

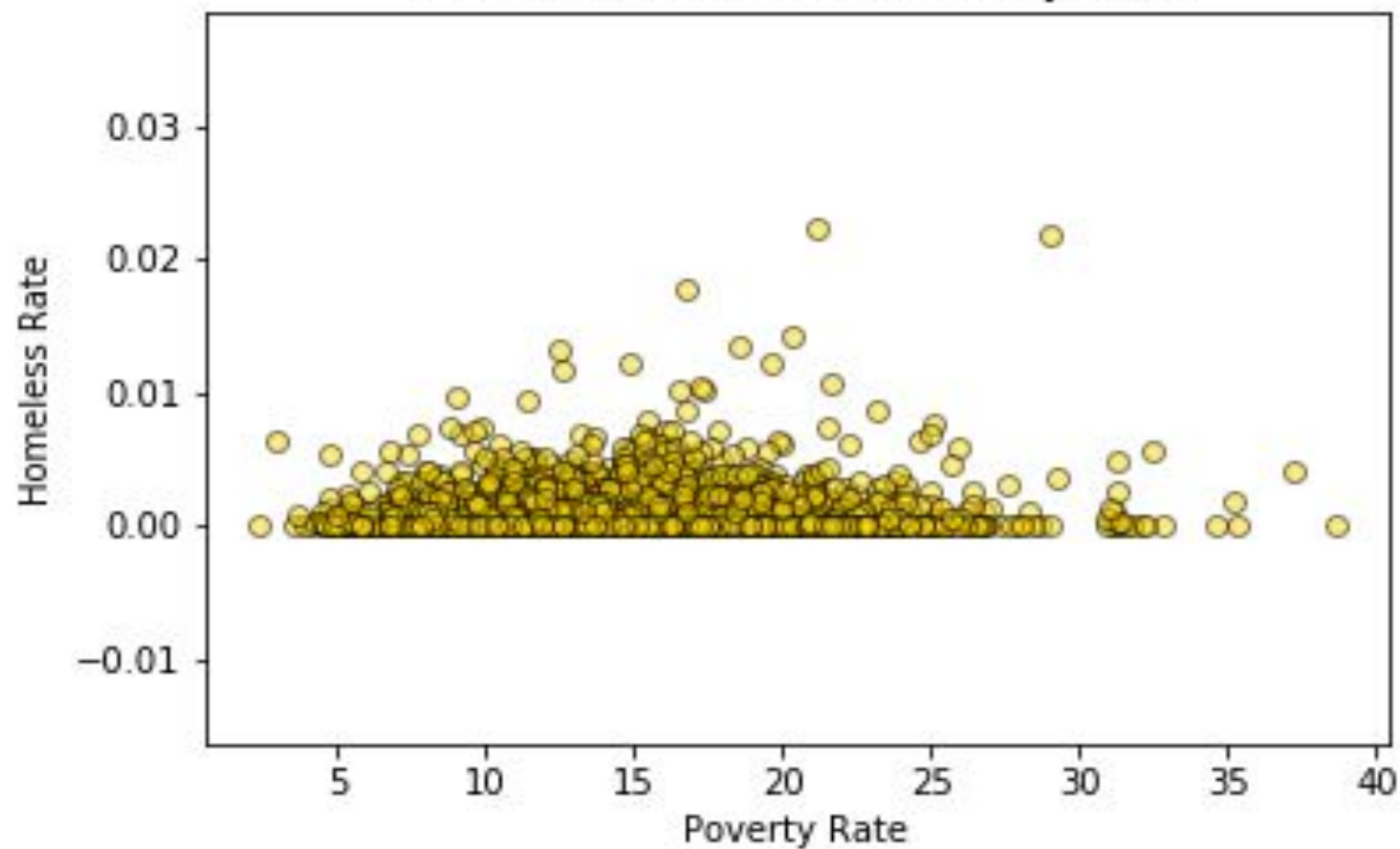
Conclusion: There is weak positive linear relationship between homelessness and house prices

Housing Cost and Homeless Rates



<u>Top 10 Counties by Homelessness</u>			<u>Homeless Rate</u>	<u>Housing Prices</u>	<u>Rank by Housing Price</u>
1)	Roanoke city	Virginia	0.022325553	\$ 113,100.00	#1278
2)	Bronx county	New York	0.021755735	\$ 384,200.00	#78
3)	New York County	New York	0.017763715	\$ 1,302,200.00	#4
4)	Humboldt County	California	0.014266736	\$ 278,000.00	#194
5)	Suffolk county	Massachusetts	0.013538111	\$ 526,700.00	#36
6)	Monroe county	Florida	0.013316828	\$ 518,200.00	#39
7)	Fredericksburg City	Virginia	0.012368935	\$ 316,000.00	#142
8)	Leon County	Florida	0.01216202	\$ 167,800.00	#687
9)	Staunton City	Virginia	0.011823837	\$ 148,800.00	#860
10)	Kings County	New York	0.010681103	\$ 761,800.00	#11

Homeless Rate versus Poverty Rate



Poverty versus Homelessness

Hypothesis:

$H_0: \rho = 0$

$H_a: \rho \neq 0$

Spearman correlation coefficient: 0.03; Probability of not equalling zero: 0.78

Conclusion: There is a weak positive monotonic relationship between poverty and homelessness

Hypothesis:

$H_0: r = 0$

$H_a: r \neq 0$

Pearson correlation coefficient: 0.08; Probability of not equalling zero: 1.0

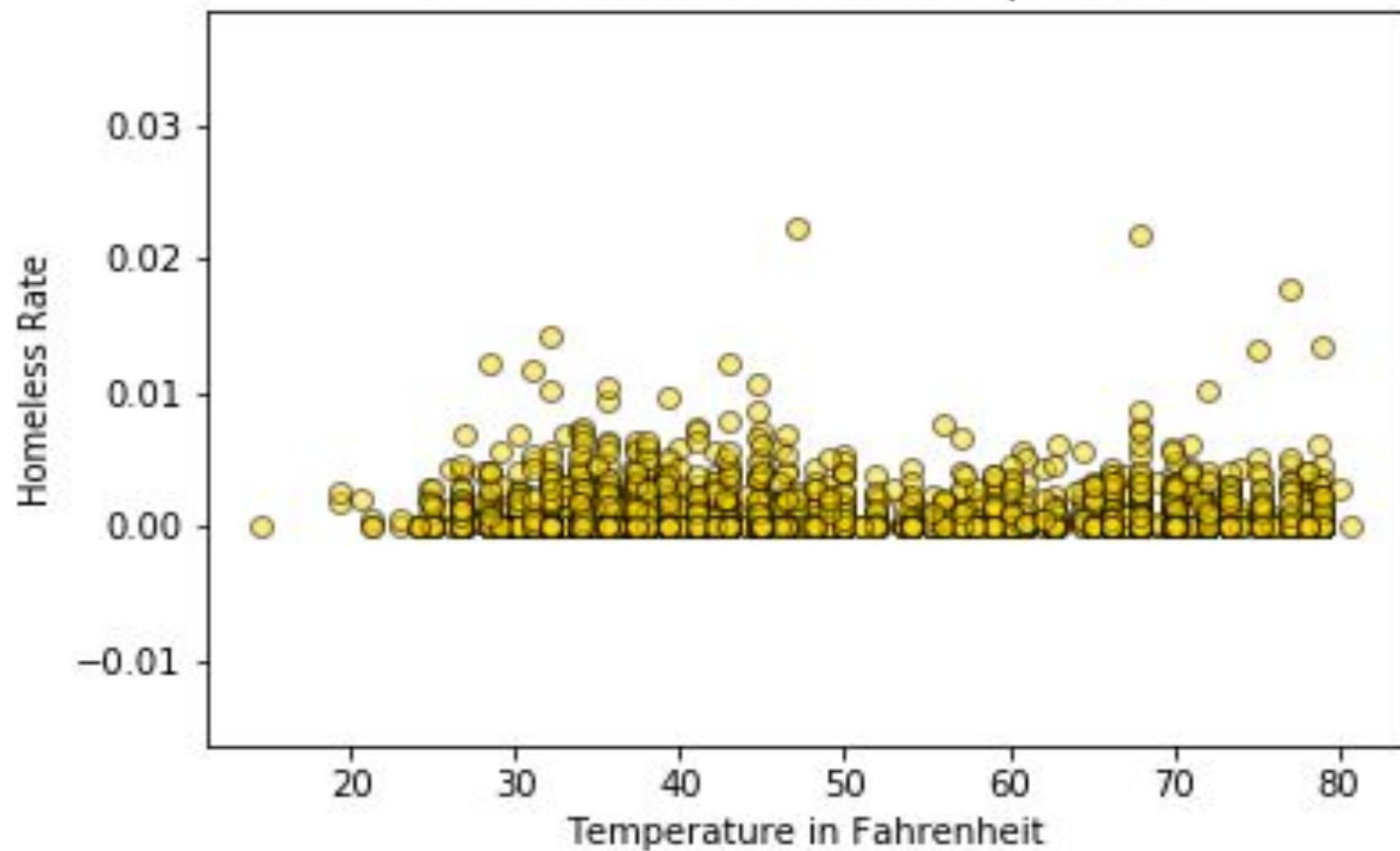
Conclusion: There is a weak positive relationship between poverty and homelessness

Poverty and Homeless Rates



<u>Top 10 Counties by Homelessness</u>			<u>Homeless Rate</u>	<u>Poverty Rate</u>	<u>Rank in Poverty Rates</u>
1)	Roanoke city	Virginia	0.022325553	21.13646407	#196
2)	Bronx county	New York	0.021755735	29.00011402	#23
3)	New York County	New York	0.017763715	16.77772894	#566
4)	Humboldt County	California	0.014266736	20.28267769	#241
5)	Suffolk county	Massachusetts	0.013538111	18.5300089	#362
6)	Monroe county	Florida	0.013316828	12.45944361	#146
7)	Fredericksburg City	Virginia	0.012368935	14.81784254	#845
8)	Leon County	Florida	0.01216202	19.65091469	#279
9)	Staunton City	Virginia	0.011823837	12.56540189	#1167
10)	Kings County	New York	0.010681103	21.65862592	#167

Homeless Rate versus Temperature



Homelessness versus Temperature

Hypothesis:

$H_0: \rho = 0$

$H_a: \rho \neq 0$

Spearman correlation coefficient: 0.03; Probability of not equalling zero: 0.77

Conclusion: There is no evidence of a monotonic relationship between homelessness and temperature

Hypothesis:

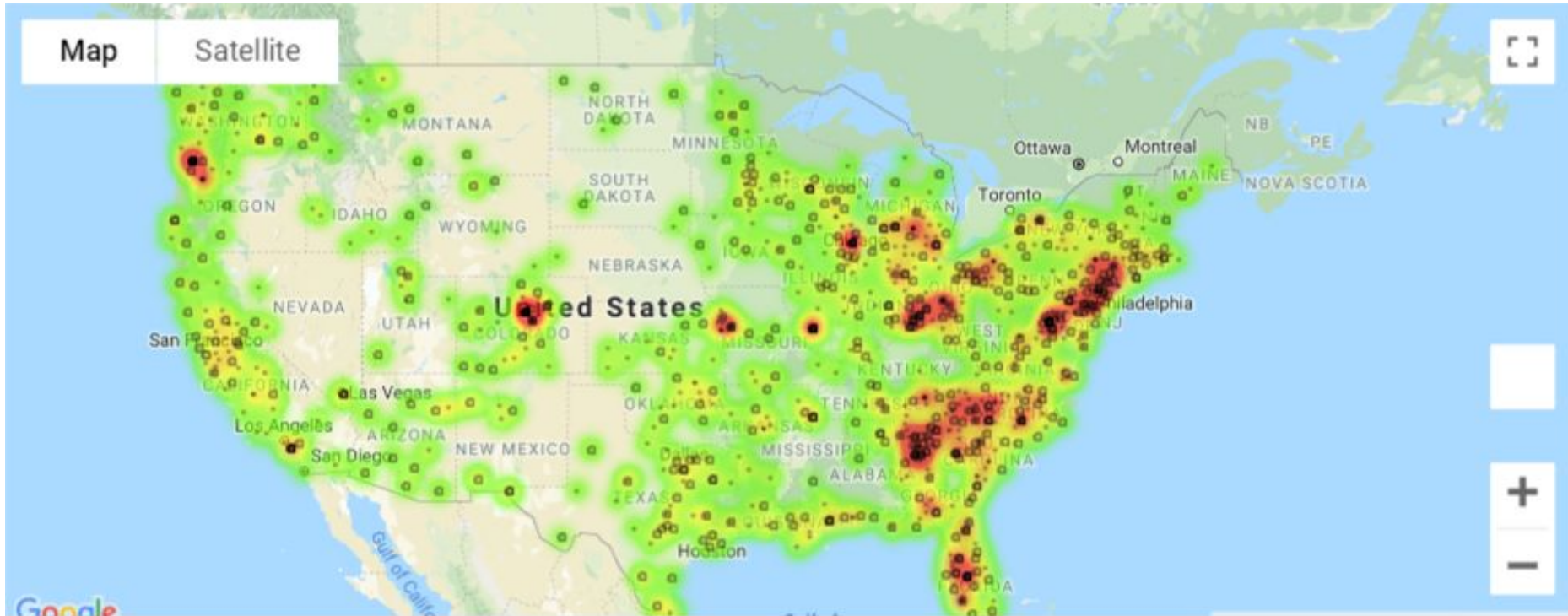
$H_0: r = 0$

$H_a: r \neq 0$

Pearson correlation coefficient: 0.03; Probability of not equalling zero: 0.76

Conclusion: There is no evidence of a linear relationship between homelessness and temperature

Temperature and Homeless Rates



Top 10 Counties by Homelessness			Homelessness Rate	Temperature (F)	Rank in Temperature
1)	Hillsborough County	Florida	4.049209139	84.2	#66
2)	Los Angeles County	California	2.188669477	62.01	#1131
3)	Essex County	New Jersey	1.344073377	48.2	#1678
4)	Union County	New Jersey	1.334378265	51.01	#1476
5)	Onondaga County	New York	1.215970962	39.99	#2414
6)	Broward County	Florida	1.213891951	82	#162
7)	Davidson County	Tennessee	0.969826562	46.99	#1833
8)	King County	Washington	0.804088709	48	#1751
9)	Burlington County	New Jersey	0.782407407	50	#1567
10)	Summit County	Ohio	0.757834758	48.99	#1634

Conclusion

- After our analysis, real-estate pricing had the highest correlation to homelessness nationwide.
- The geographic plotting shows that the east coast has the highest amount of counties with high homelessness.

Poverty/Homeless Rates



Temperature and Homeless Rates

