

Residency Program Final Presentations, Project End Homelessness

March 23rd, 2021



About the Project

A big thank you to the Sacramento Urban Technology Lab for sponsoring this program.

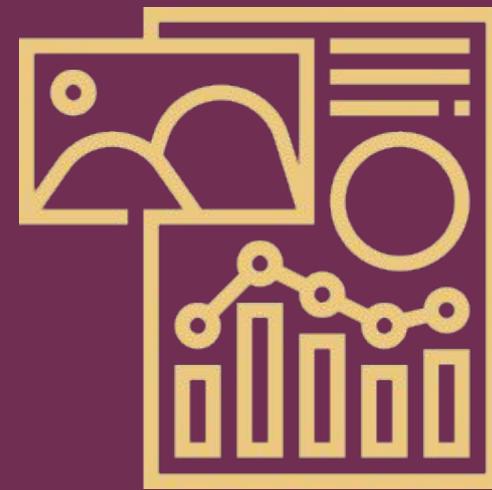


This project was sponsored by the Sacramento Urban Technology Lab (SUTL) Innovation Grants and was one of three residency programs ran.

1. Covid - 19 Impact
2. Racial Disparities
3. Homelessness

WiD's Pillars & Programs

The Residency program is a key program within our three pillars of awareness, education advancement.



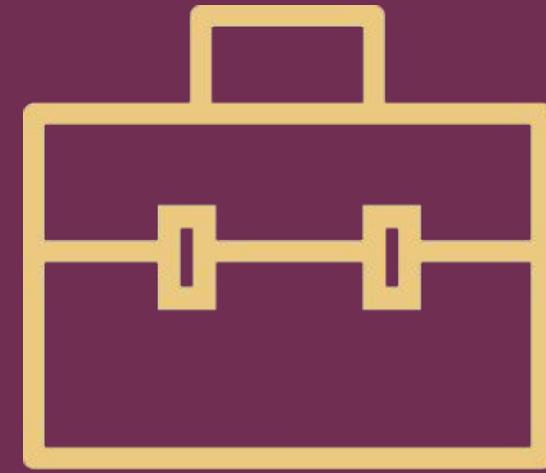
AWARENESS

- Global Webinars
- Regional Events
- Local Networking Events



EDUCATION

- Residency Program
- Study Group
- Career Tracks*



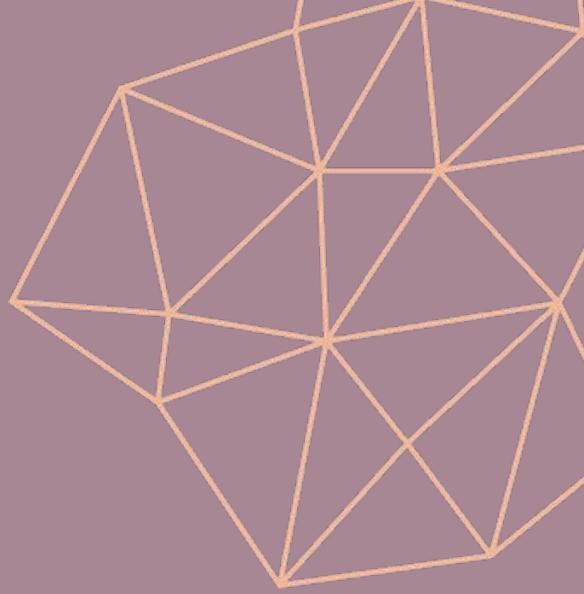
ADVANCEMENT

- Mentorship
- Life Coaching
- Job Placement
- Leadership Training

*In development for 2021

Program Curriculum

The residents worked through the 8 week program to answer the following question.



How can we use open source data to better understand the causes of homelessness and provide insights for solutions to put an end to homelessness.





Angelica Sanchez

- Sacramento native
- Graduated class 2020 from CSUS Business Administration, MIS
- Specialize in Web, Digital, and Product Analytics
- Joined Women in Data to find a mentor and be exposed to Data Science by meeting others

Fun fact: I found my first data job through TikTok

<https://www.linkedin.com/in/angelicabbamis/>

feel free to connect!

01

QUESTION

02

METHODOLOGY

03

WHERE

AGENDA

04

WHY

05

GOOD, BAD, & FINAL

**In 2019,
13,706 people
experienced
homelessness**

5,570 persons experience homelessness
on a given night

01

Where are the encampments?

Why are they where they are?

**How accessible are they to
existing resources?**

METHODOLOGY

SAMPLE SIZE

Of 8,870 homeless encampment reports a random sample of 900 was used for analysis

RESOURCES

Zip codes used are only those that have intersect percentages of 1%+ with the Sacramento city border

DATA SOURCES

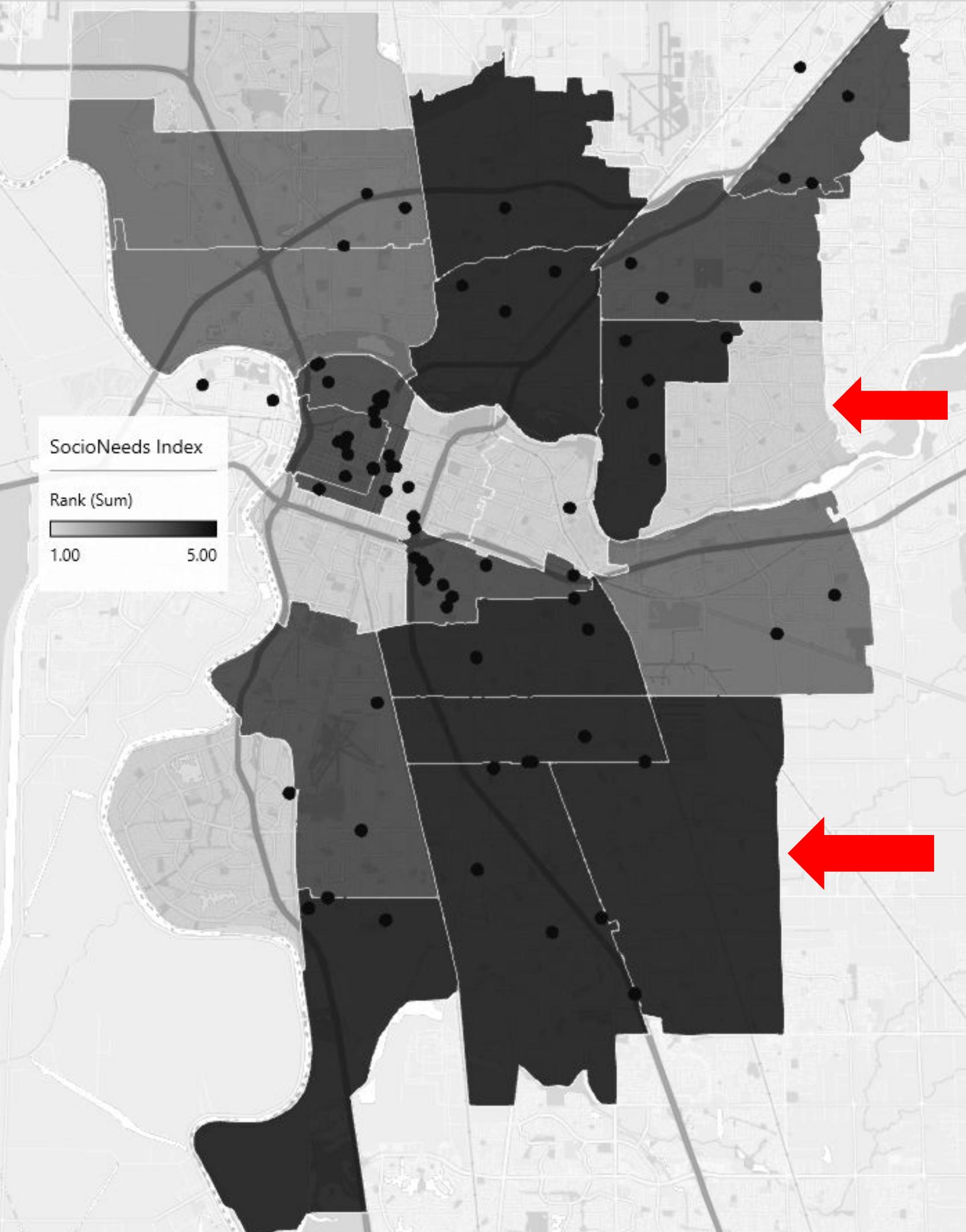
City of Sacramento 311 database, Be Healthy Sacramento, and 211 Sacramento Homeless Resource Database

DATE RANGE

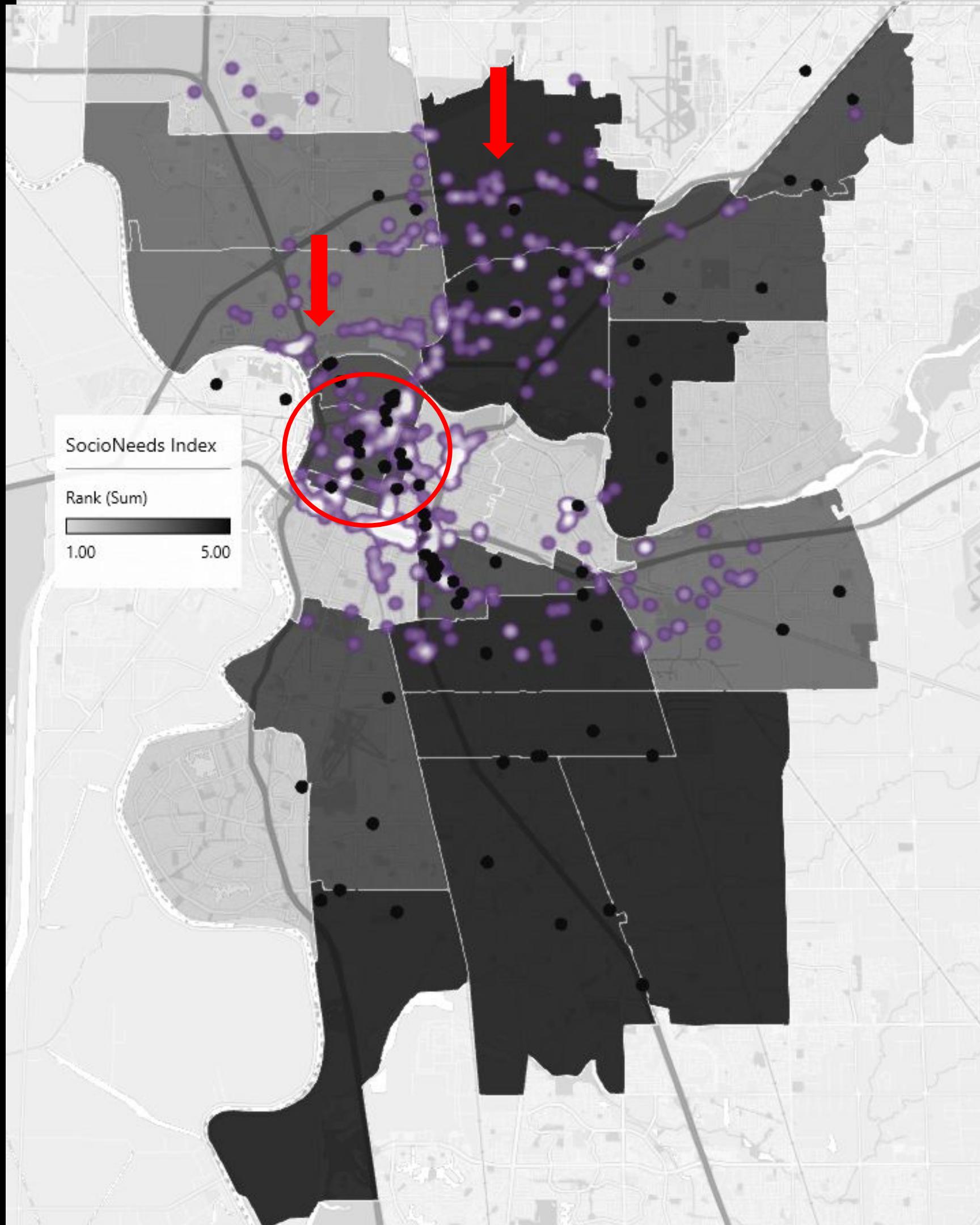
1/1/2019 to 4/1/2020

The higher an area is ranked on the SocioNeeds Index the more likely homelessness resources are available

SocioNeeds Index is a measure of socioeconomic need that is correlated with poor health outcomes. The areas of highest need in our community are ranked 5 for high need.



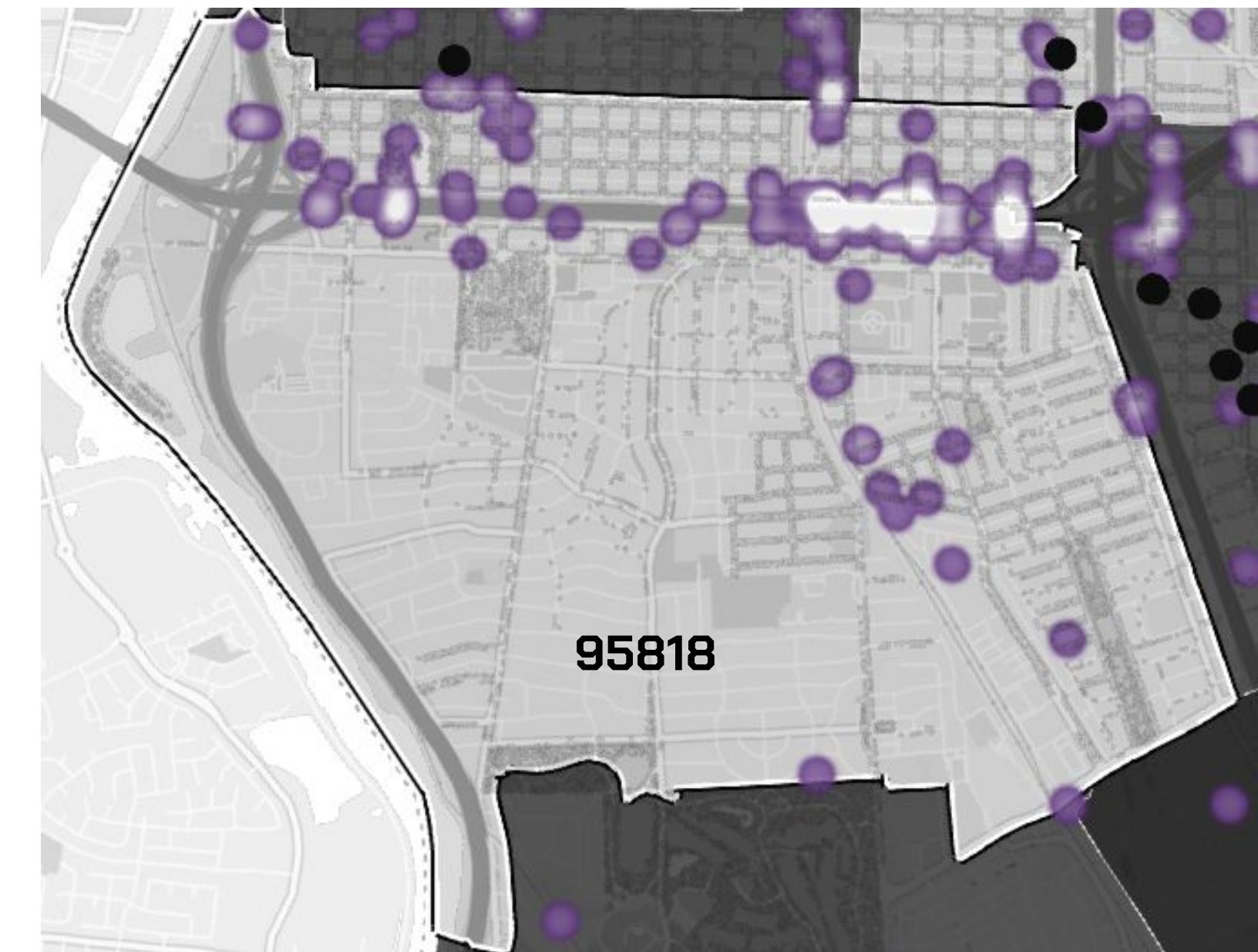
Knowing where the homeless are concentrating is important but also recognizing the differences among the homeless in the inner city are different than the ones near the river or suburban areas. Needs of each will be different.



29% of the sample are found in this area along the freeway & light rail tracks.

No resources are found in this area.

05



95815 could make use of consistent resources like clothing and food banks.

The only resource in the area is an outreach program.

95838 could make use of shelters and temporary housing.

The only resources in the area are food banks.



The Sacramento City Council is in the process of a six-month planning phase, during which they will welcome community feedback and review locations for homeless shelters and services throughout the city.

Jan 2021



Trang Vu

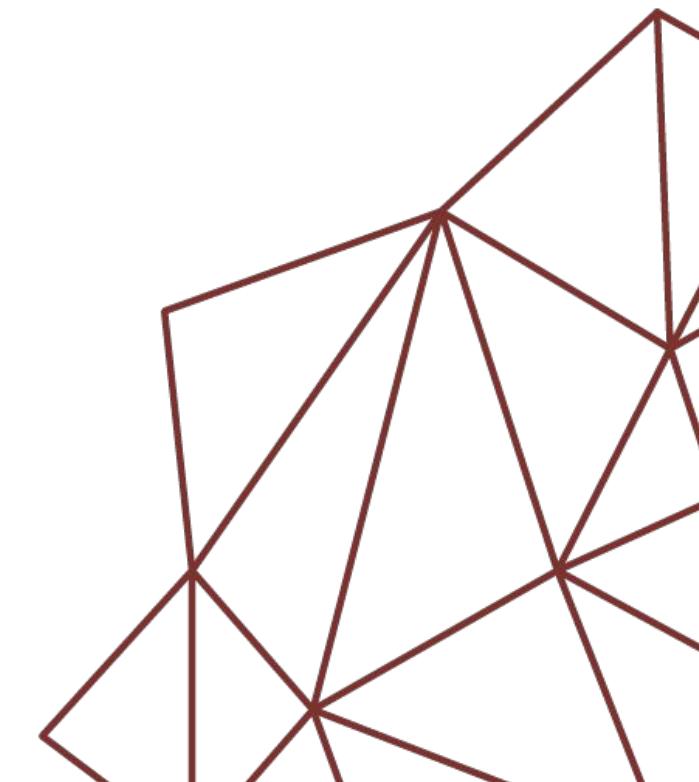
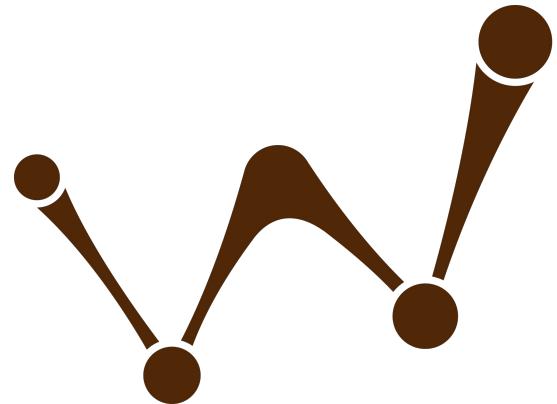


- Master of Science in Data Science Candidate 2021
- Working experiences in Information Technology Sector in State Department.
- Data driven mindset
- Proficient in collecting, analyzing, interpreting large datasets, developing new predictive models as well as applying machine learning, deep learning algorithm

Find me on LinkedIn



<https://www.linkedin.com/in/trang-vu-b742ab140/>



Homelessness in Greater Sacramento versus mental health issues and other factors

Problem statement

Whether **chronical homeless numbers** along with **alcohol and other drug abuse, unemployment** and **renting** could affect significantly homelessness situation.

Data used

Hud Exchange: Point in Time Estimates of Homelessness

Source: <https://www.hudexchange.info/>

Sacramento County Homeless Death Reports

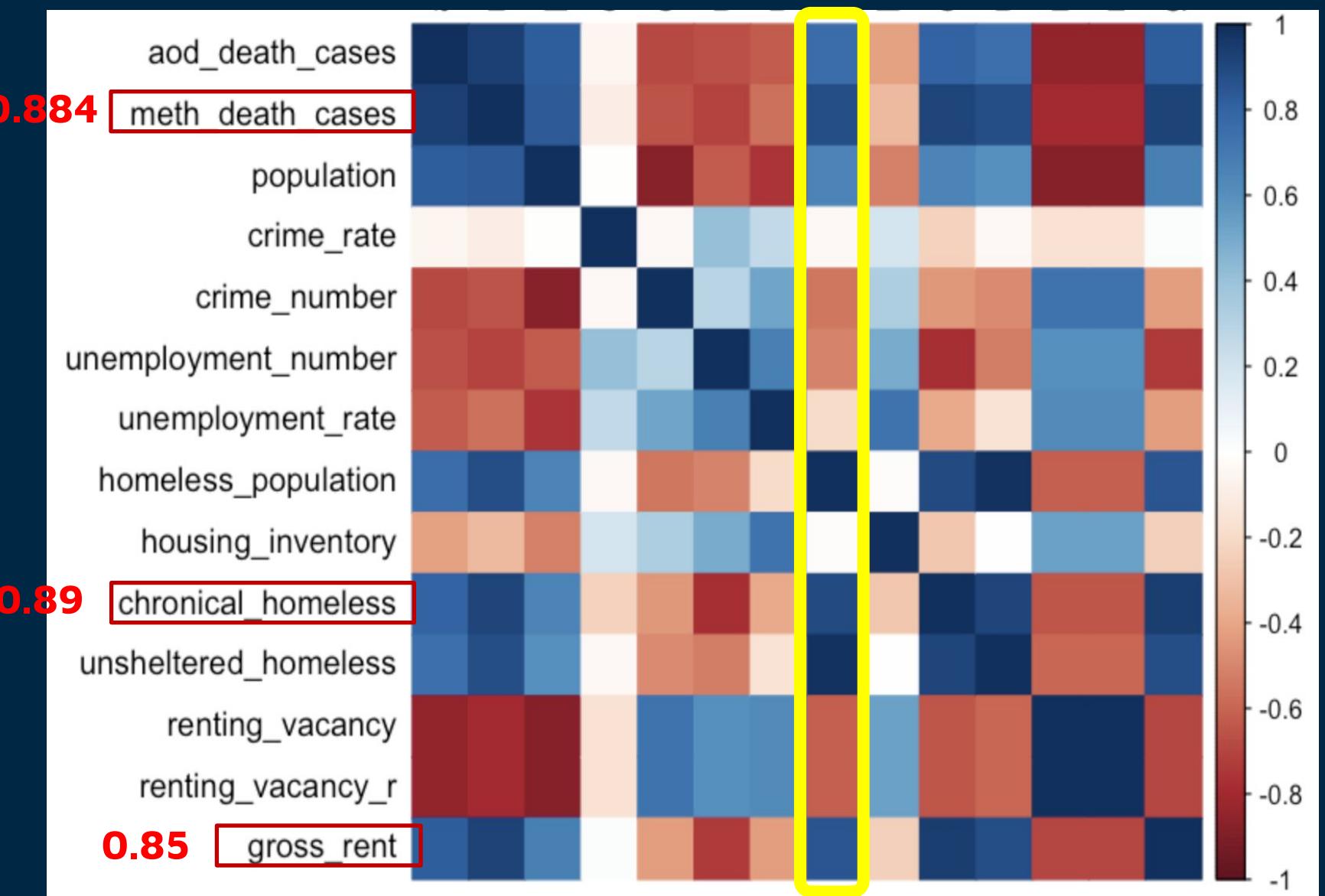
Source: <https://htv-prod-media.s3.amazonaws.com/>

Department of Number: Sacramento Rental Statistic

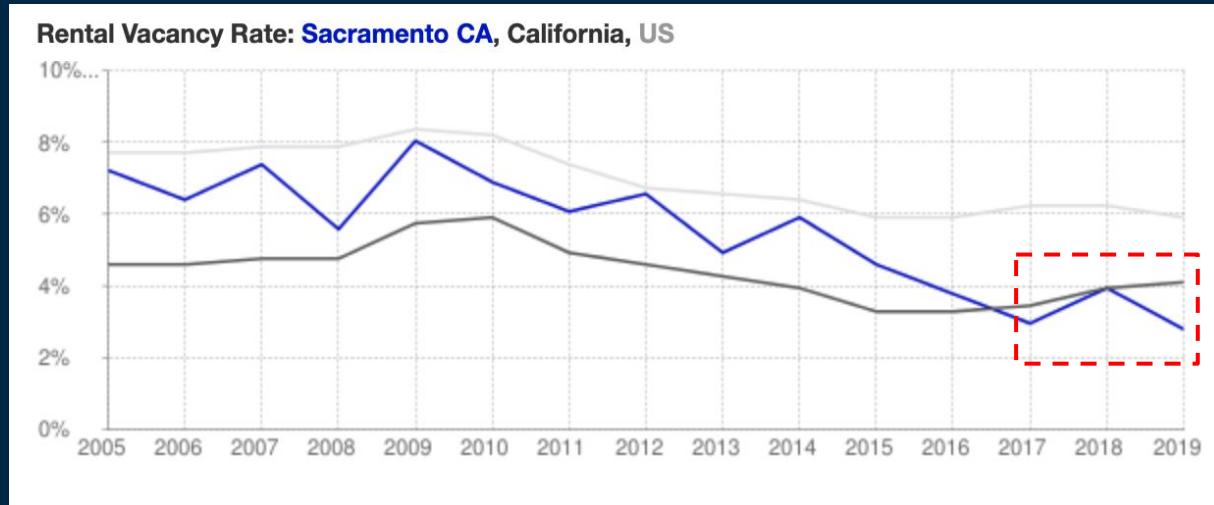
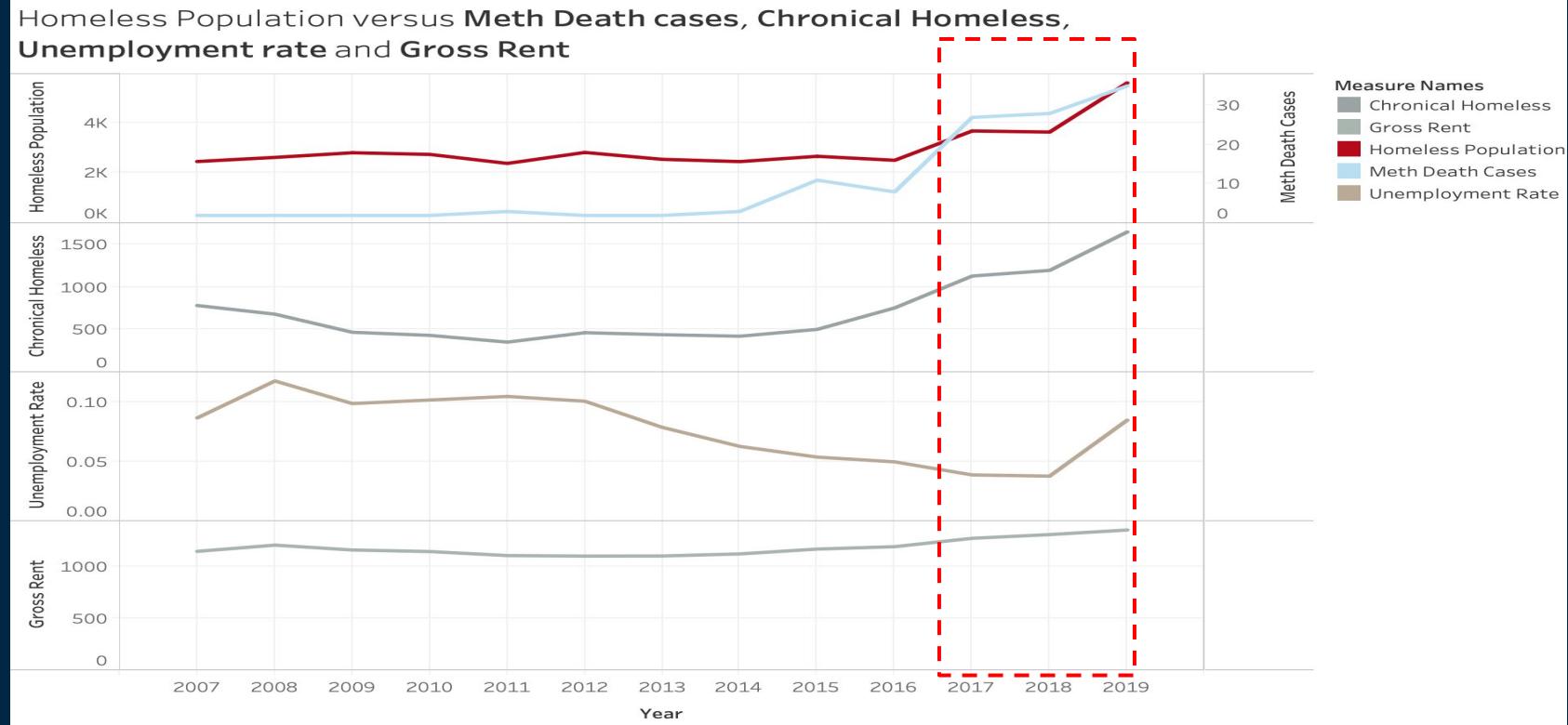
Source: <https://www.deptofnumbers.com/>



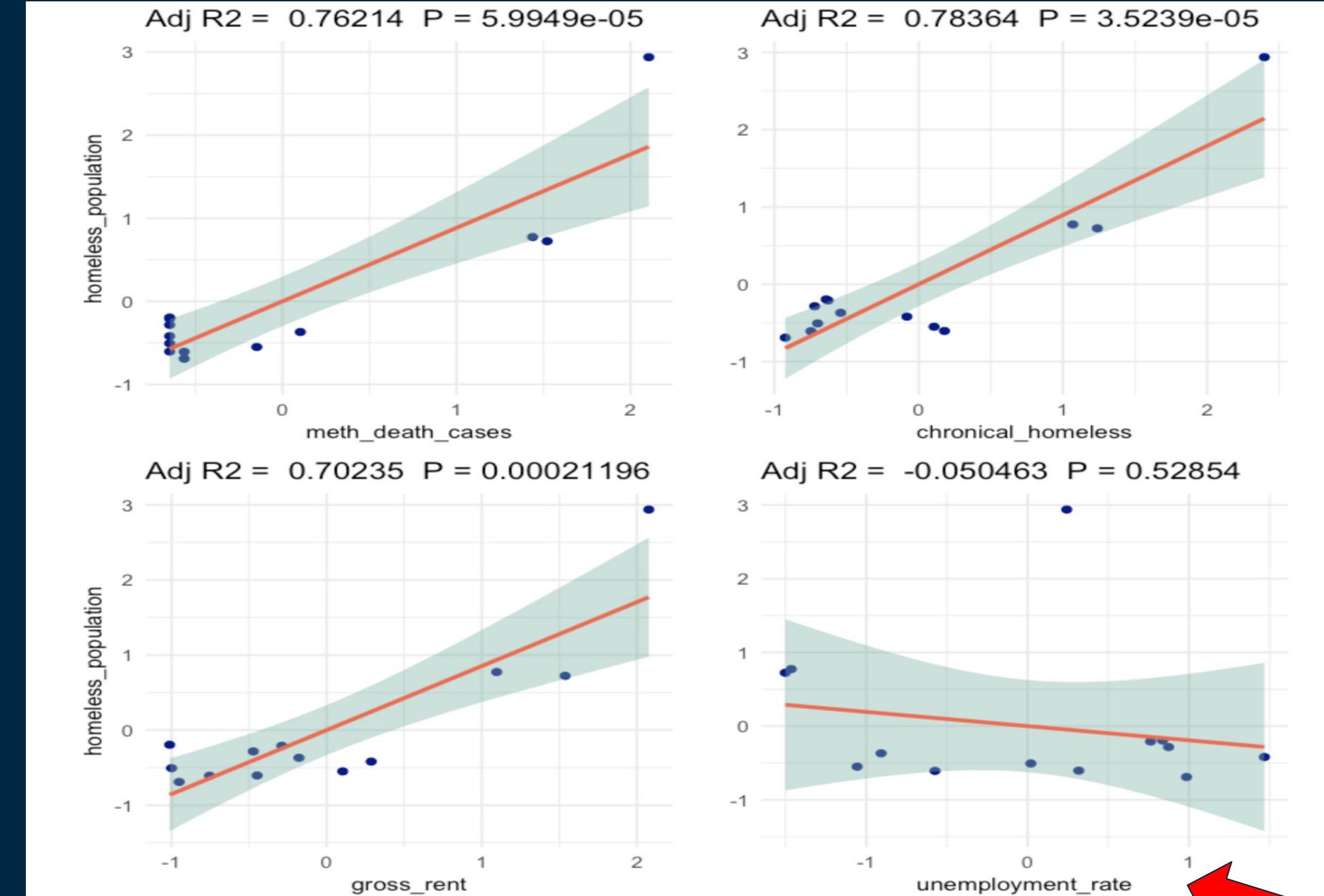
Analysis: Pearson Correlation Coefficient



Finding

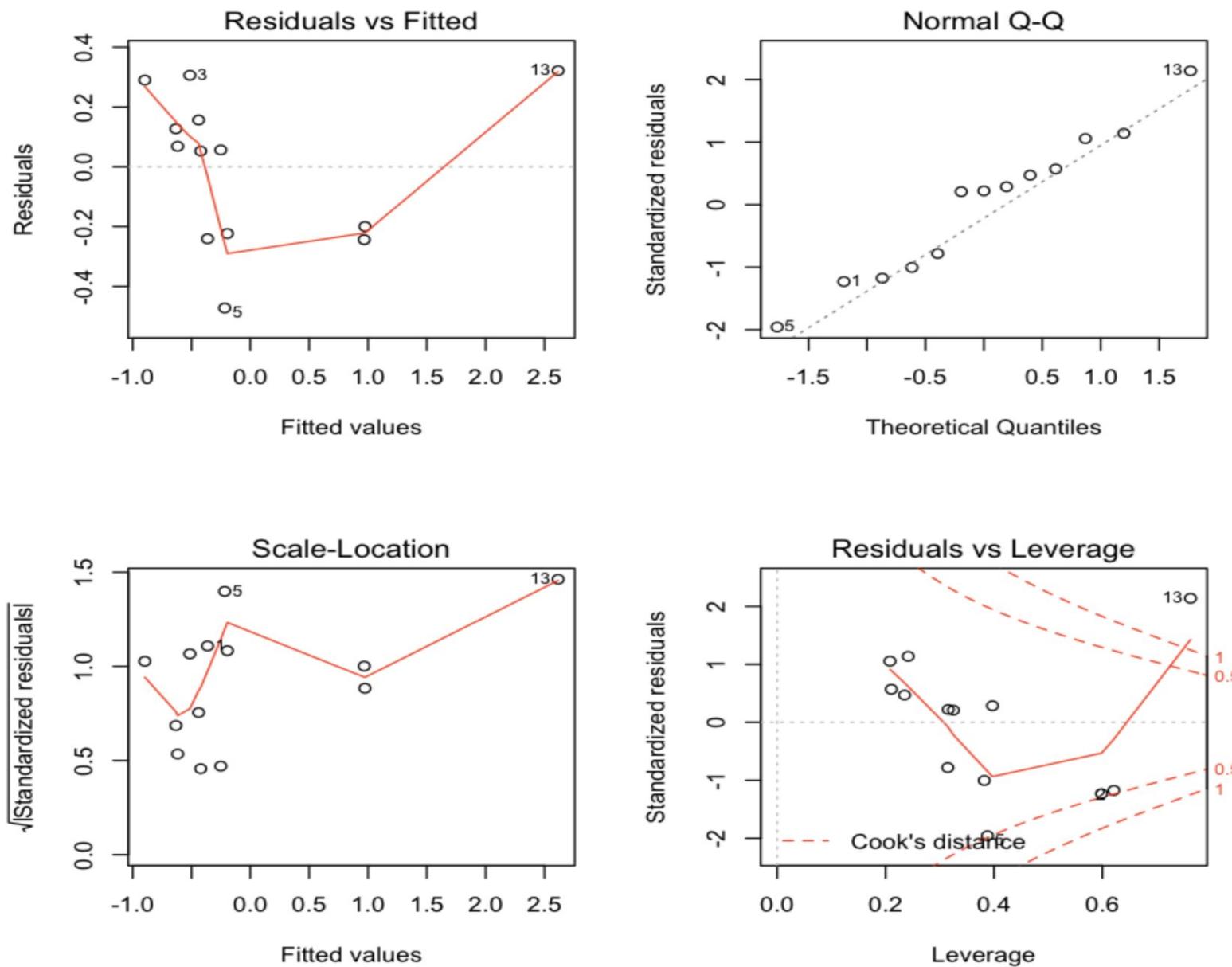


Strong relationship
Rapid Increase in meth death case and chronicle
Homeless (37%)
Gross Rent versus rental vacancy



Dependent variable: Number of Homeless people (2007 – 2019)
Significant value: 7.732e-05
Adjusted R-squared: 0.9047

Finding



```

Call:
lm(formula = homeless_population ~ meth_death_cases + chronical_homeless +
    gross_rent + unemployment_rate, data = norm2)

Residuals:
    Min      1Q  Median      3Q     Max 
-0.47229 -0.22316  0.05646  0.15635  0.32173 

Coefficients:
            Estimate Std. Error t value Pr(>|t|)    
(Intercept) 2.817e-16 8.562e-02  0.000 1.00000  
meth_death_cases 1.100e+00 3.039e-01  3.619 0.00679 ** 
chronical_homeless 3.636e-01 3.079e-01  1.181 0.27150  
gross_rent      -3.257e-01 3.122e-01 -1.043 0.32733  
unemployment_rate 4.363e-01 1.192e-01  3.661 0.00639 ** 
---
Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1

Residual standard error: 0.3087 on 8 degrees of freedom
Multiple R-squared:  0.9365,    Adjusted R-squared:  0.9047 
F-statistic: 29.48 on 4 and 8 DF,  p-value: 7.732e-05

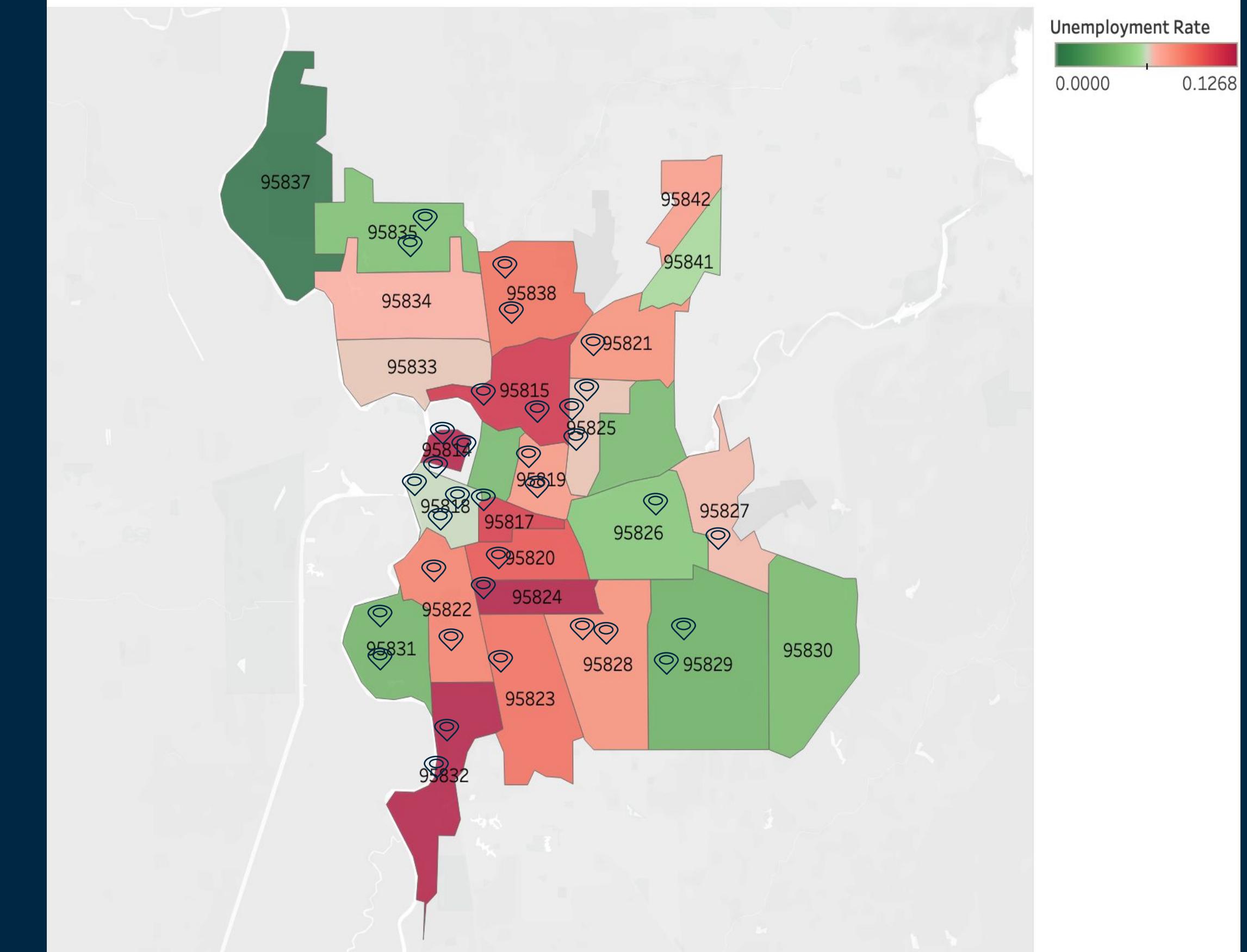
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Recommendation

- Further in-depth analysis
- Campaign and consulting programs
- Training workshops in local community churches
- Fund Allocation: Department of Housing, Rental assistance program,..



Unemployment Rate in Greater Sacramento Area





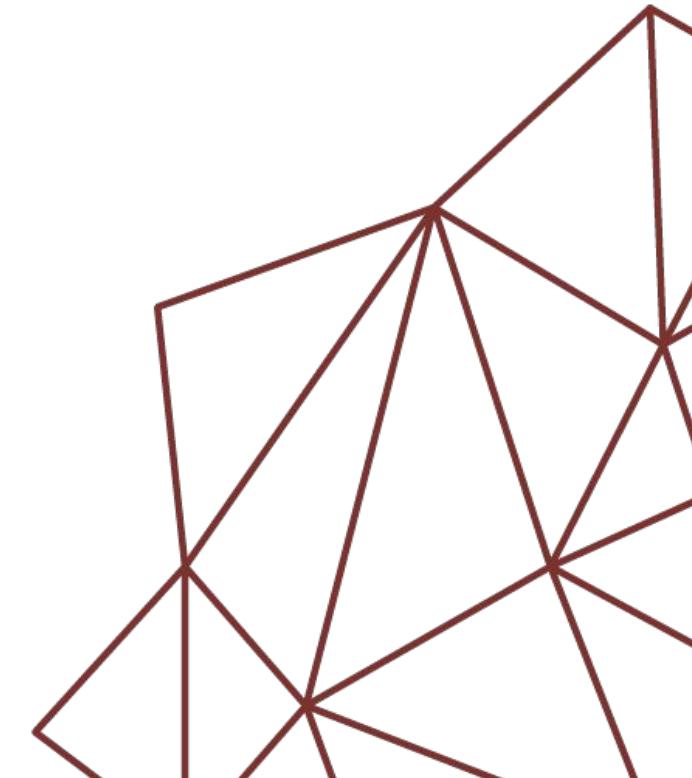
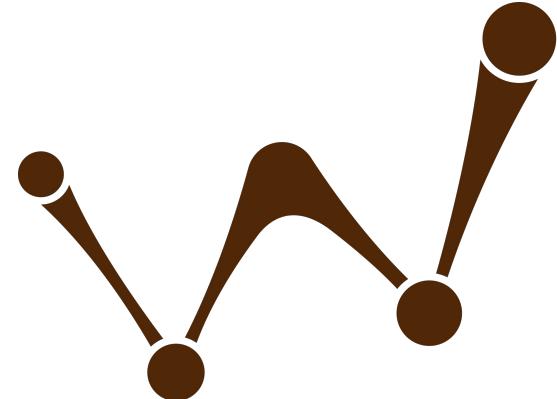
Molly Williams

- Master of Environmental Science and Management (2019), environmental data science focus
- Former California State Sea Grant Fellow
- Environmental Scientist @ State Water Resources Control Board
- Passionate about using data for conservation and environmental/social justice!

Find me on LinkedIn



<https://bit.ly/3d4phEC>

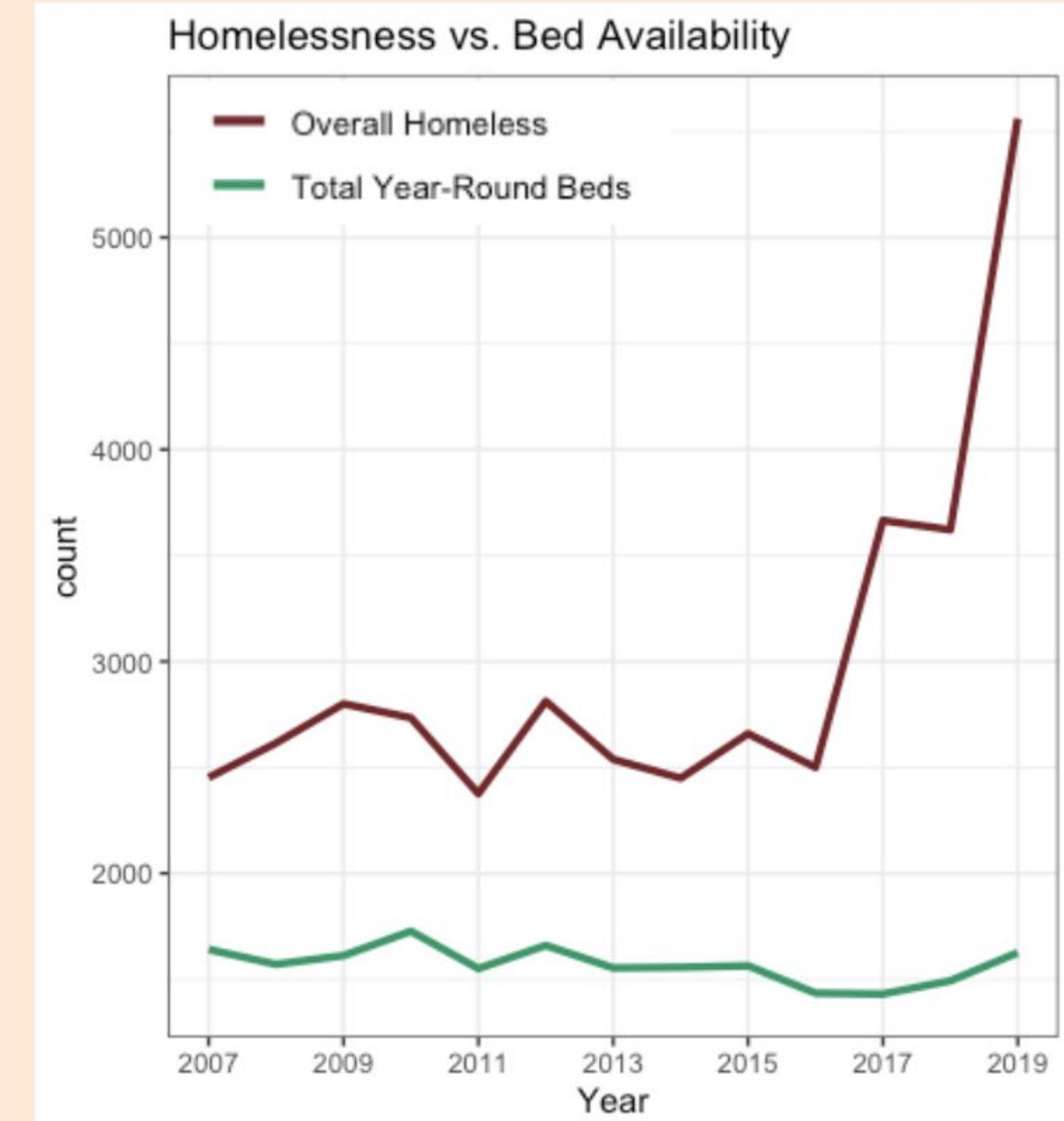


Sacramento County is experiencing a homelessness crisis. Why?

*Exploring relationships between potential contributing factors will support **targeted investments**.*

Data analyzed (2007-2019):

- Point in Time annual counts of people experiencing homelessness (Sacramento County)
- Unemployment data (Bureau of Labor Statistics)
- Housing affordability index (% of households that can afford the median home price)
- Median gross rent, rental vacancy rate (2009-2019, census.gov)

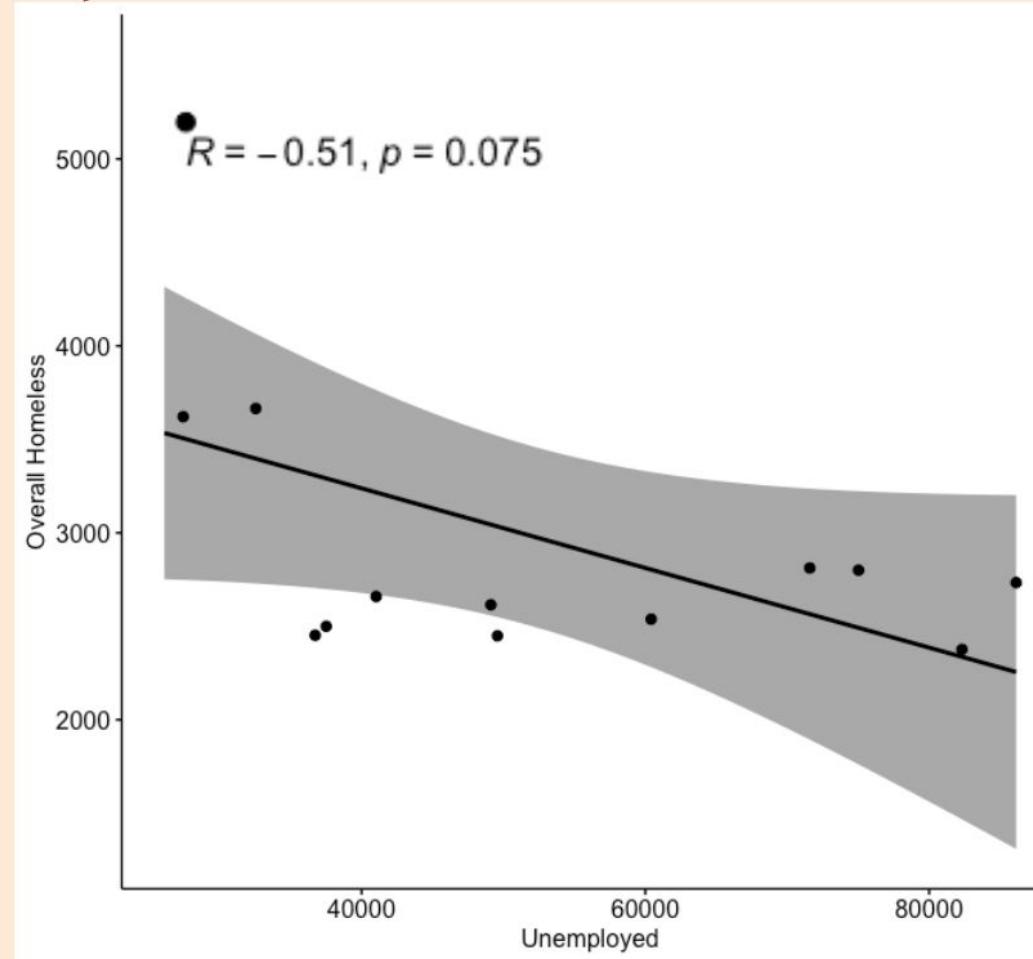


Insights

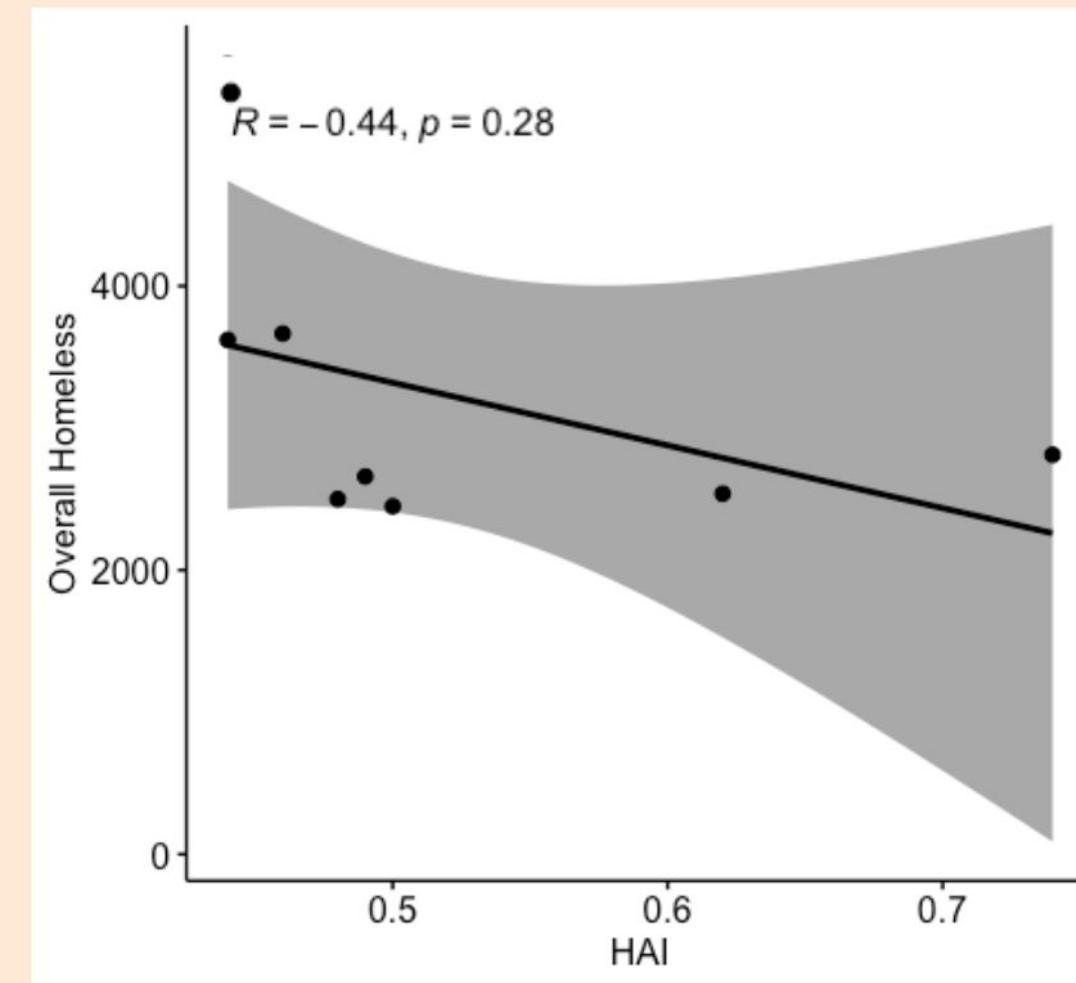
Correlation test results: are any of the relationships significant? ($p < 0.05$)

R = 1: strong positive, R = -1: strong negative

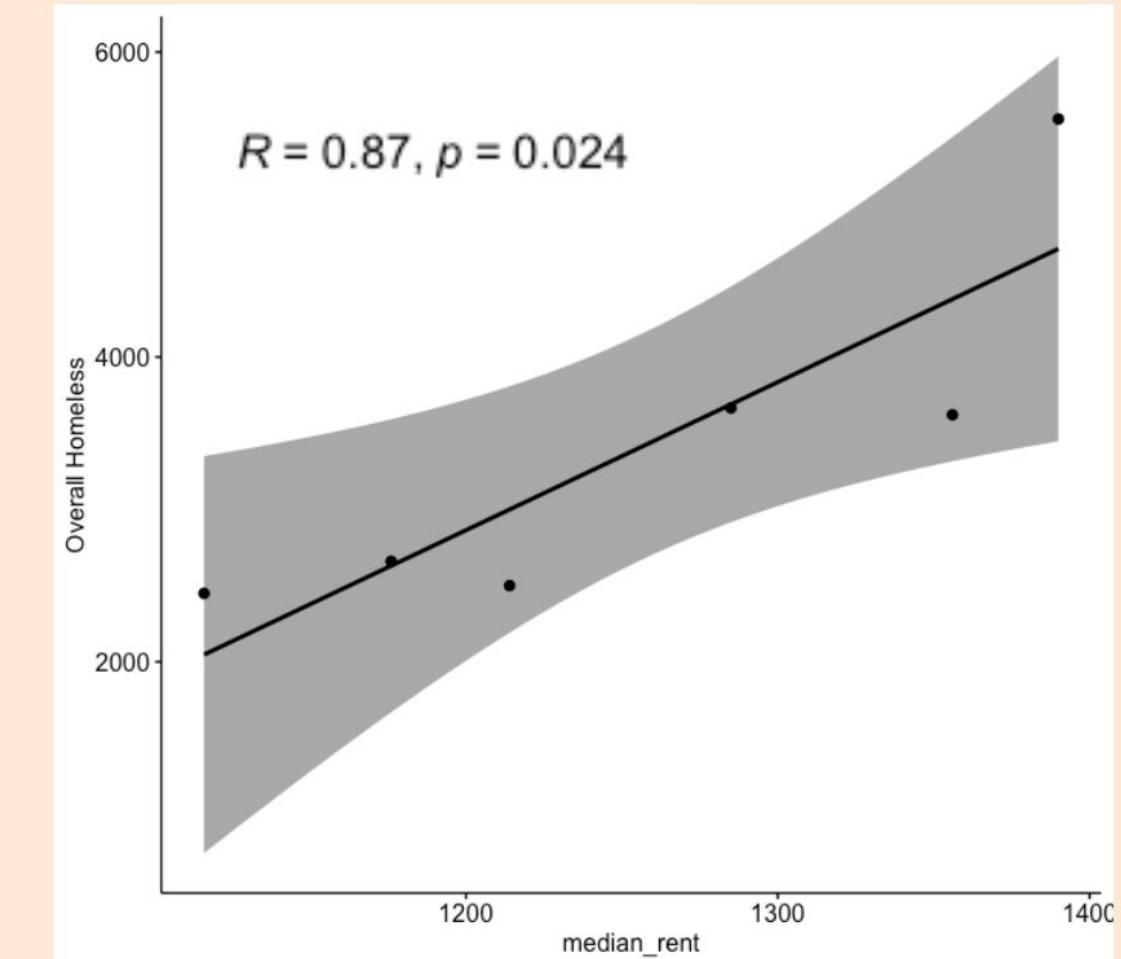
✗ UNEMPLOYMENT



✗ HOME AFFORDABILITY



✓ MEDIAN RENT



Fail to reject null; there may be a negative correlation, but it is weak and statistically insignificant ($p > 0.05$)

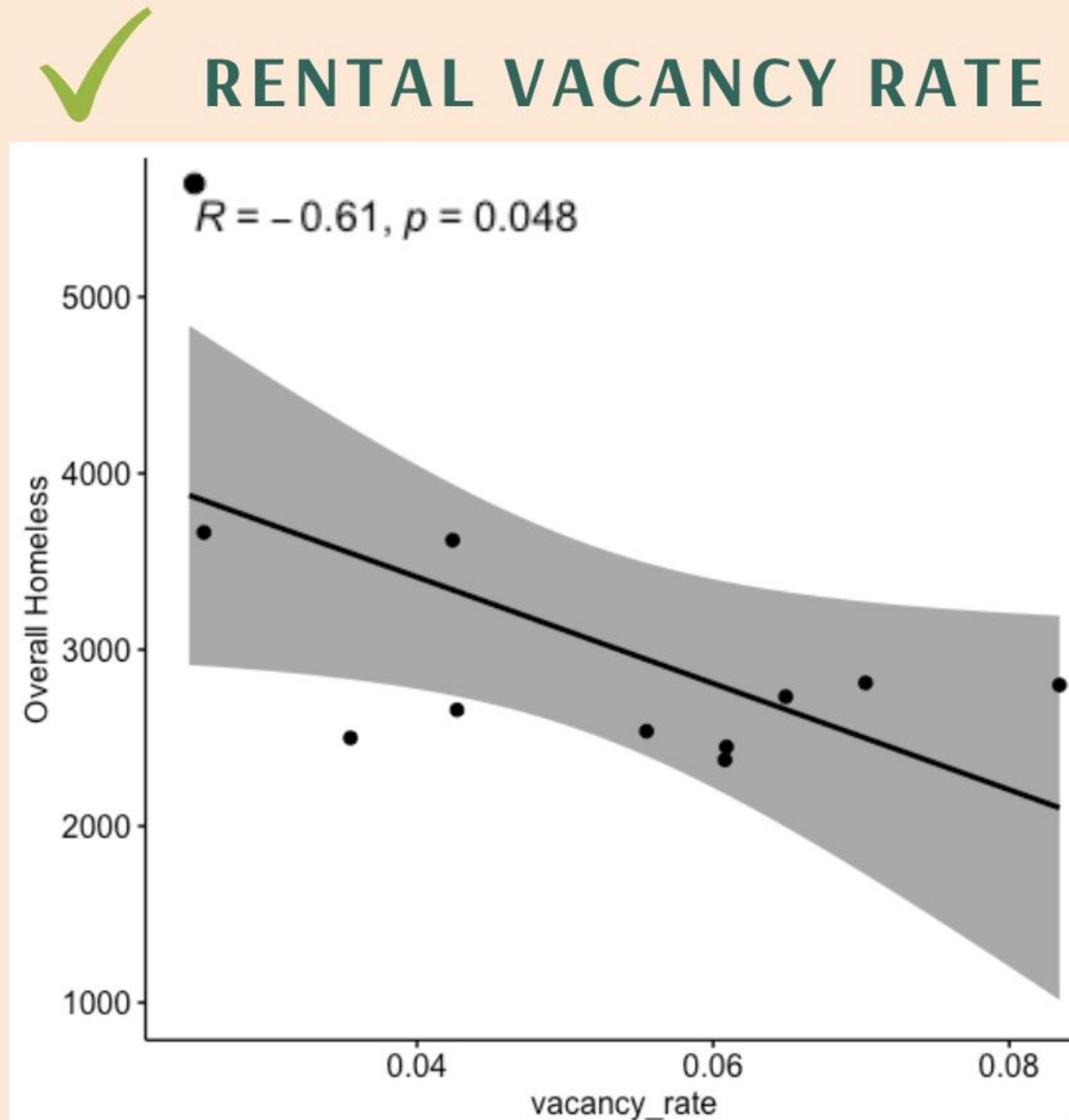
Fail to reject null; there may be a negative correlation, but it is weak and statistically insignificant ($p > 0.05$)

Reject null; conclude that there is a significant, positive correlation between rent price and homelessness ($p < 0.05$)

Recommendations

**Housing is a key solution to addressing
an epidemic of unhoused neighbors.**

1. Increase affordable rental housing.
2. Provide rental assistance to prevent eviction.
3. Increase emergency, transitional and permanent housing options.



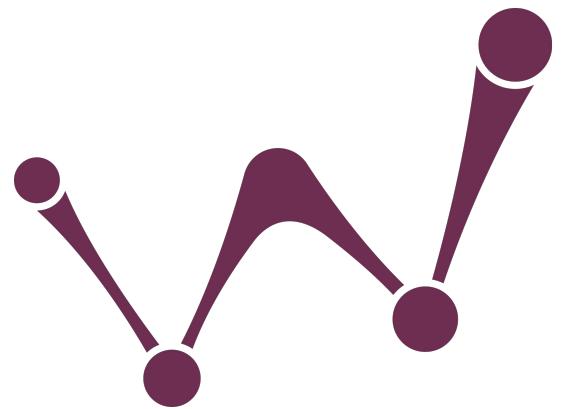


Daryna Kondratiuk

- Aspiring Data Scientist
- Master's candidate in Data Science of 2021, University of the Pacific
- Experience in Digital Marketing and Healthcare analytics



linkedin.com/in/daryna-kondratiuk-b21a77122



Homelessness in Sacramento

Business question:



**What factors affect the
number of homeless people
in Sacramento area?**

Available data sources:



- Organization for Economic Co-operation and Development (housing conditions)
- United States Census Bureau
- US Department of Housing and Urban Development



Data Insights

Greater Sacramento Homelessness Dashboard

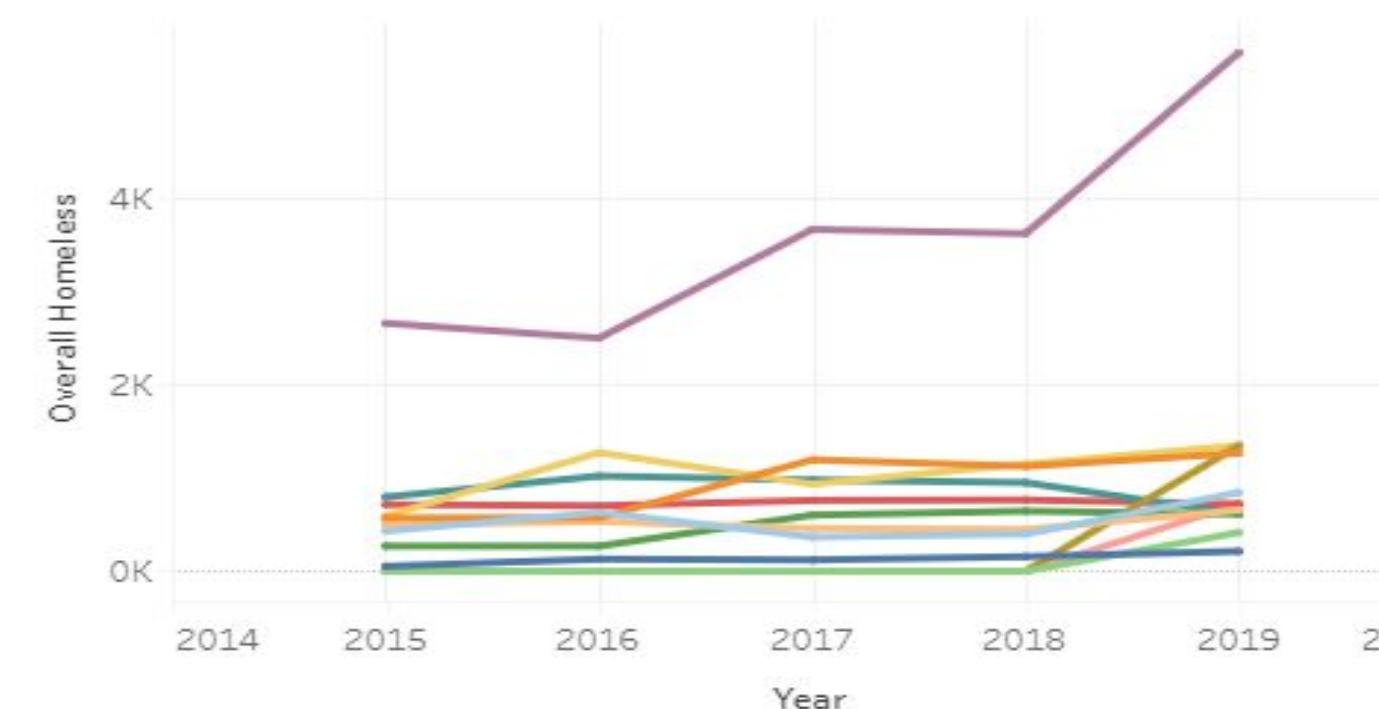
Overall Homeless, 2019



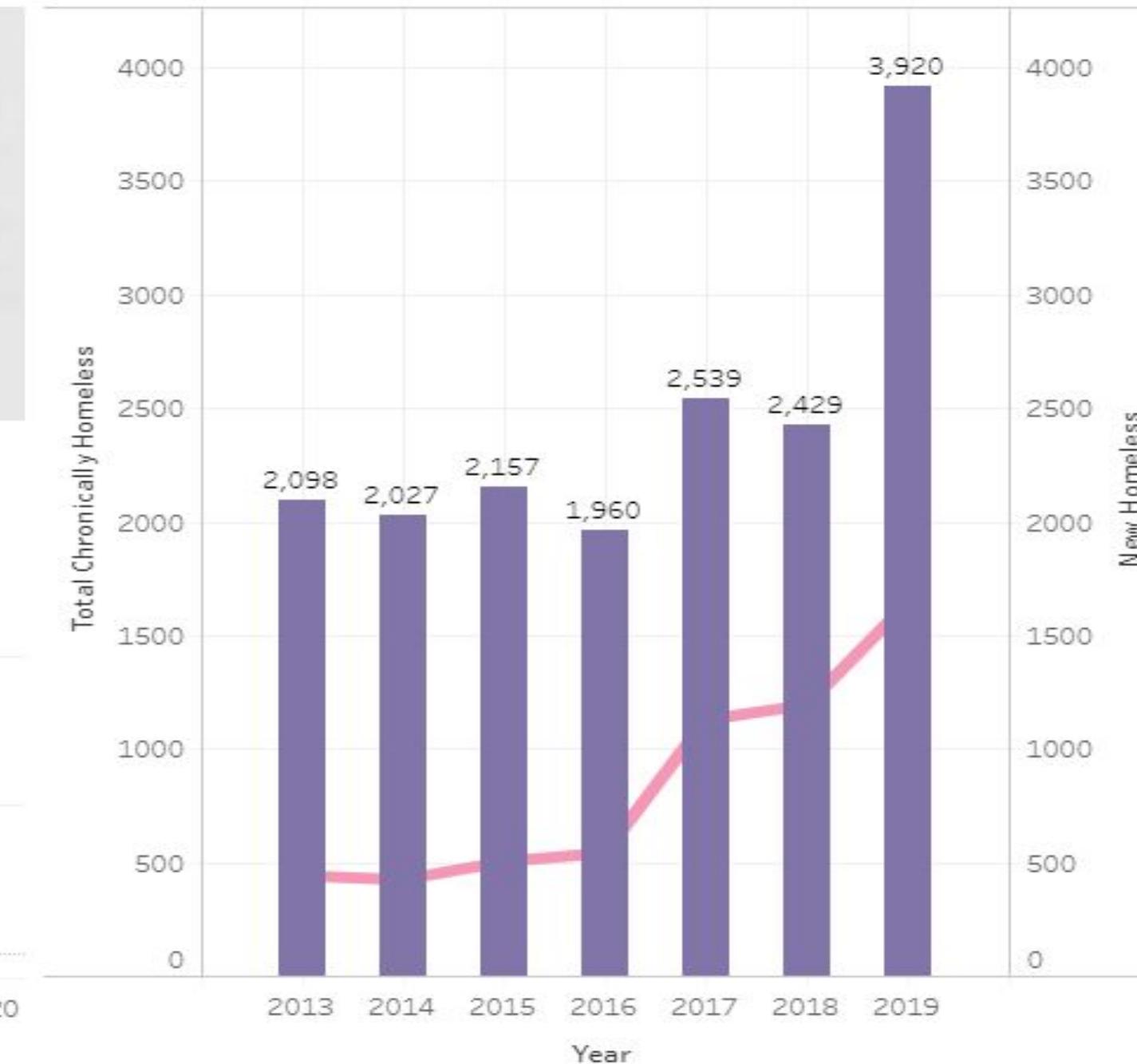
Heat Map of the Homeless, 2019



Homelessness by County



Chronically & New homeless



Data Analysis

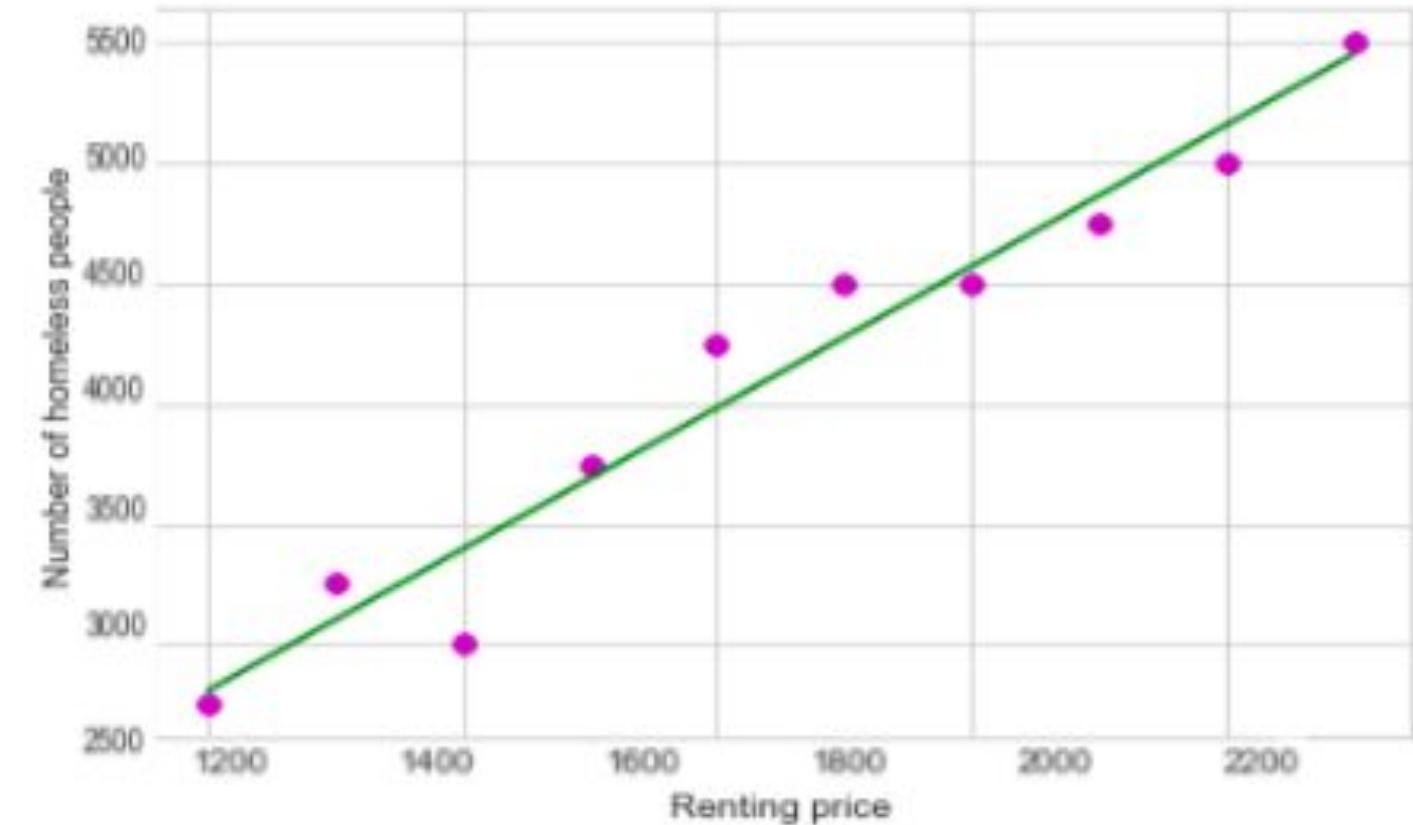
Linear Regression:

- **Dependent variable:**
number of homeless people over
2014-2019
- **Independent variable:**
renting prices for the same time range

$$R^2 = 61\%$$

$$Y = 1.24 + 1.7 * X$$

Estimated coefficients:
 $b_0 = 1.2363636363636363$
 $b_1 = 1.1696969696969697$



Recommendations

Prevention strategies:

1. Eviction counseling and defence
2. Emergency rental assistance
3. Rapid rehousing programs





Q&A



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