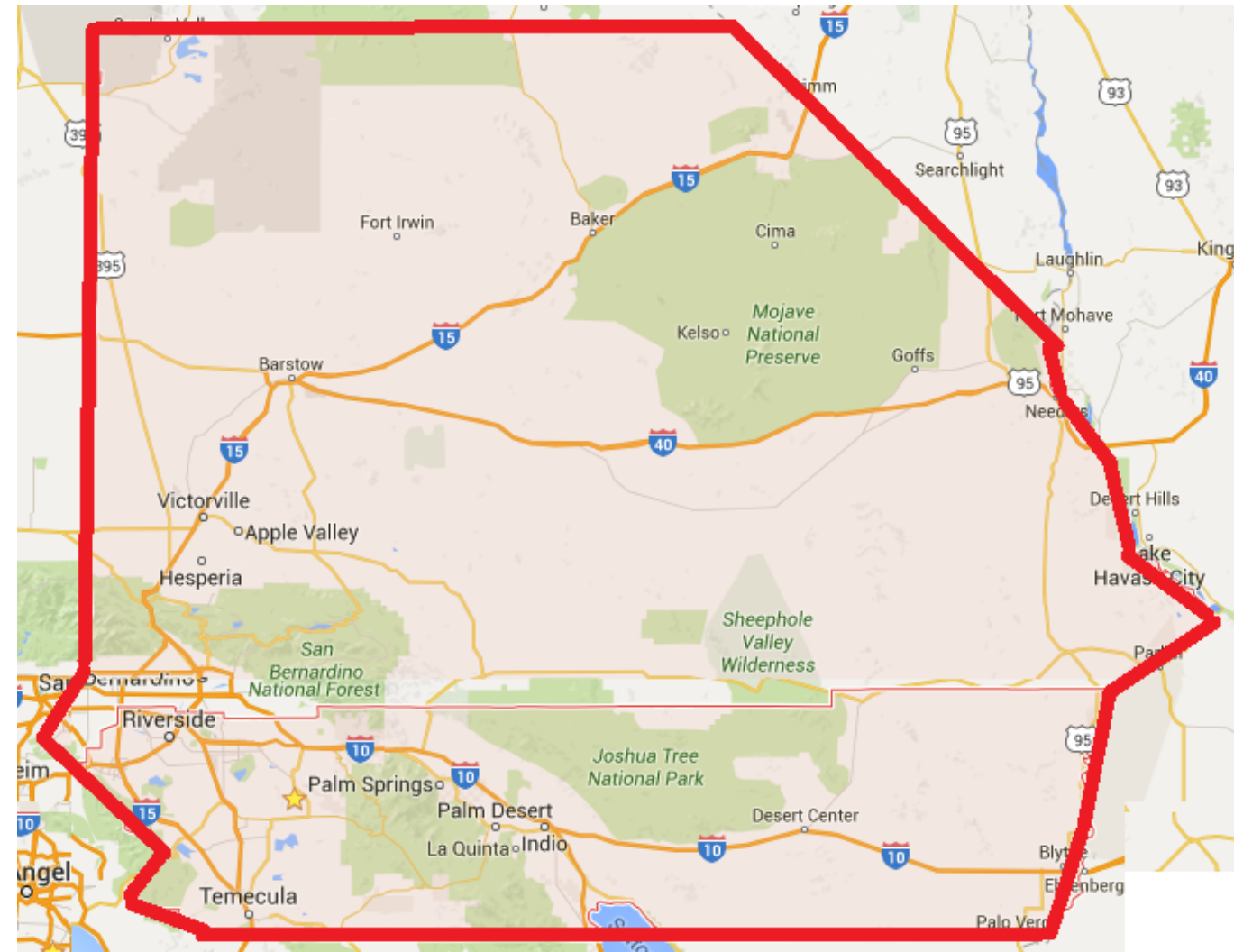




Abstract

This research provides an overview of the Inland Empire's housing affordability and transportation challenges, focusing on underserved communities. Low-income households in Southern California, particularly in Riverside and San Bernardino counties, face significant financial strain due to high housing and transportation costs. The study reveals geographical disparities exacerbating housing and transportation obstacles, limiting access to essential opportunities, and perpetuating cycles of poverty. Addressing these disparities is crucial for creating equitable housing and transportation solutions for all residents, emphasizing the need for decisive action.

Inland Empire (I.E)



Introduction

The Inland Empire (I.E.) is a region in Southern California consisting of Riverside and San Bernardino counties. It is located 60 miles from Los Angeles and Long Beach ports.

- As of December 2023, it currently has a population of 4.7 million residents and it is projected to grow by 1.2 million by 2040.
- It ranks as the 13th most populous metropolitan area in the U.S. & the 3rd largest in CA.
- The region is experiencing significant growth in logistics, and warehousing, serving as a crucial transportation and distribution hub.
- It is also recognized for its diverse communities and mixed landscape attracting residents seeking affordable housing compared to the coast, offering diverse living environments from urban to suburban and rural settings.

Literature Study

- Disadvantaged communities refer to an area where the median household income is less than 80% of the statewide annual income; severely disadvantaged communities with a median household income less than 60% of the statewide and face challenges related to limited job opportunities, low educational attainment, and long commutes, increasing income disparities. In addition, groups with limited or no access to resources; may include socioeconomically disadvantaged people, people of color, ethnic and national origin minorities, people with limited English proficiency, and others.
- Housing affordability entails suitable housing options priced so that low to moderate-income households can meet other essential living expenses, often defined as not exceeding 30% of gross household income in California. In the Inland Empire, housing is relatively more affordable compared to expensive coastal areas like Los Angeles, Orange, and San Diego; it still creates a significant challenge for many residents.

•Transportation accessibility seeks to meet the needs of all community members; and to facilitate social and economic opportunities by providing equal levels of access to affordable and reliable options based on the needs of the population being served, particularly underserved communities. The I.E. aims to make transportation accessible for everyone, supporting social and economic growth. However, many residents in the I.E. spend approximately 26% of their income on transportation, far above the recommended guideline that transportation costs should not exceed 15% of their household income.

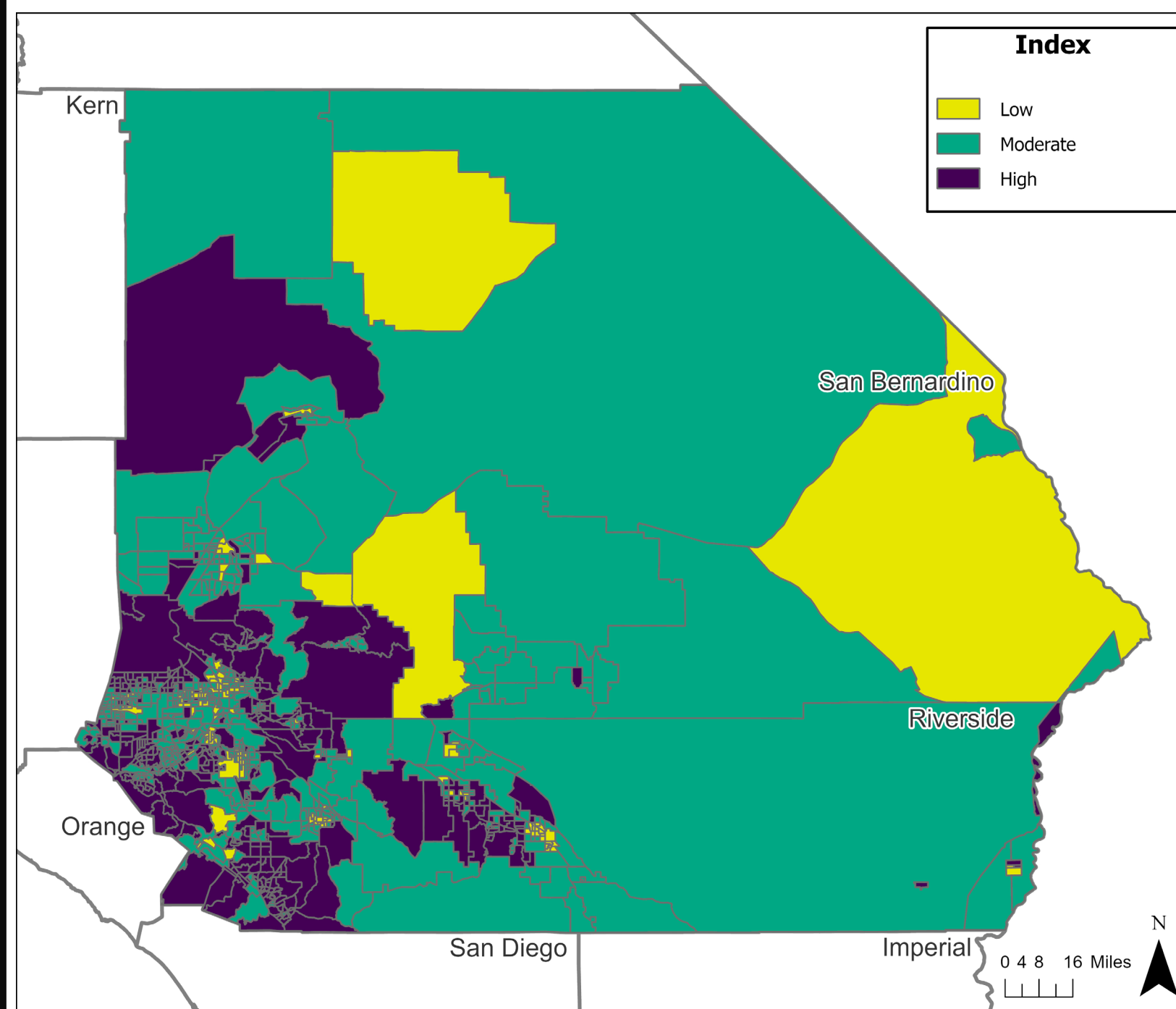
Methodology

- Data Sources:
 - Disadvantaged Index - American Community Survey (ACS) data
 - Median household income, percentage of the population identified as white, education levels, and linguistic isolation.
 - Housing Burden Index - CalEnviroScreen 4.0 data
 - Transportation Accessibility Index - Caltrans EQI data
- Multiple Linear Regression Analysis

$$\text{Disadvantaged Index} = B_0 + B_1 X \text{Housing Burden Index} + B_2 X \text{Transportation Accessibility Index}$$

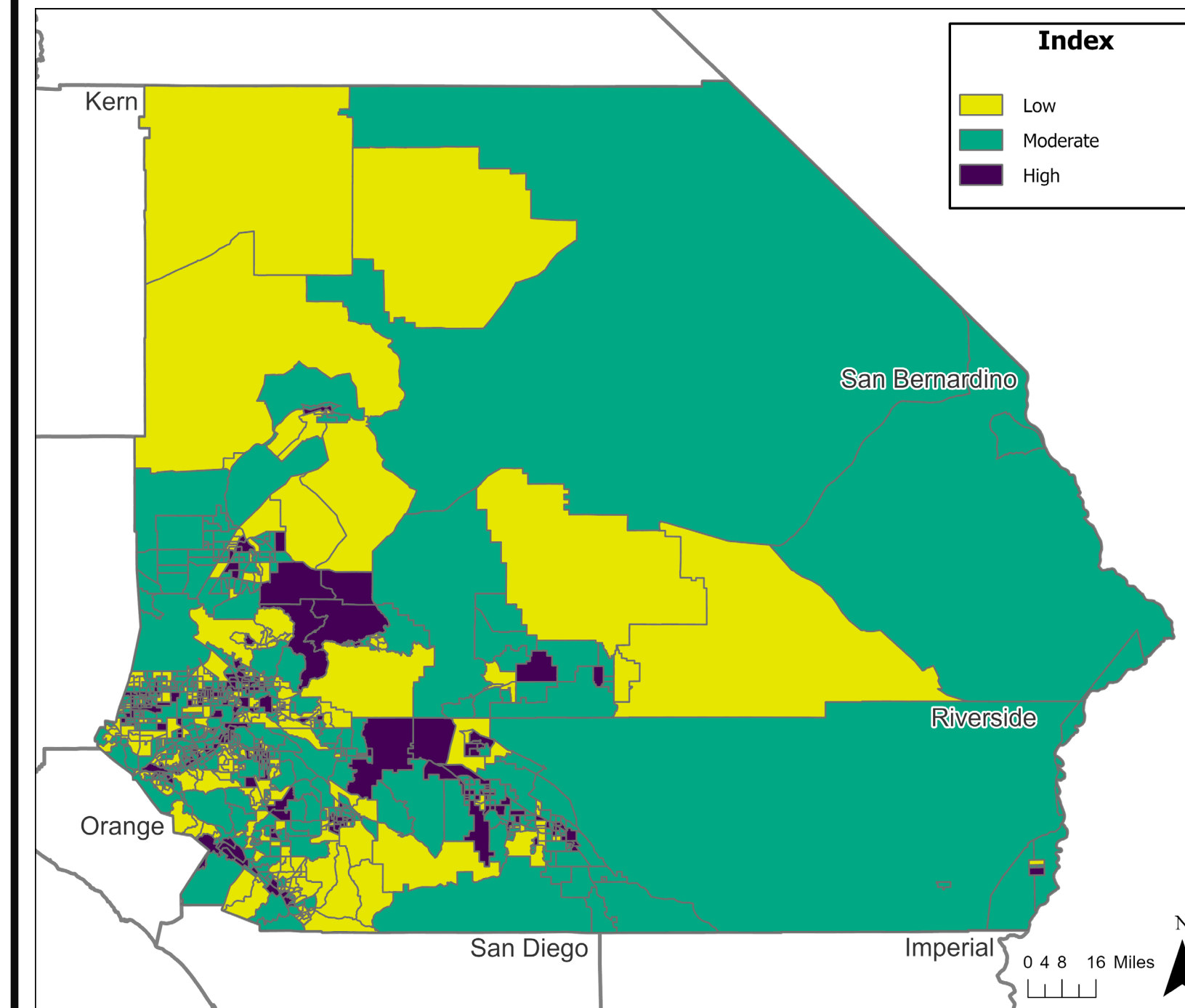
Results and Analysis

Socioeconomic Disparities in I.E.: Disadvantage Index Figure



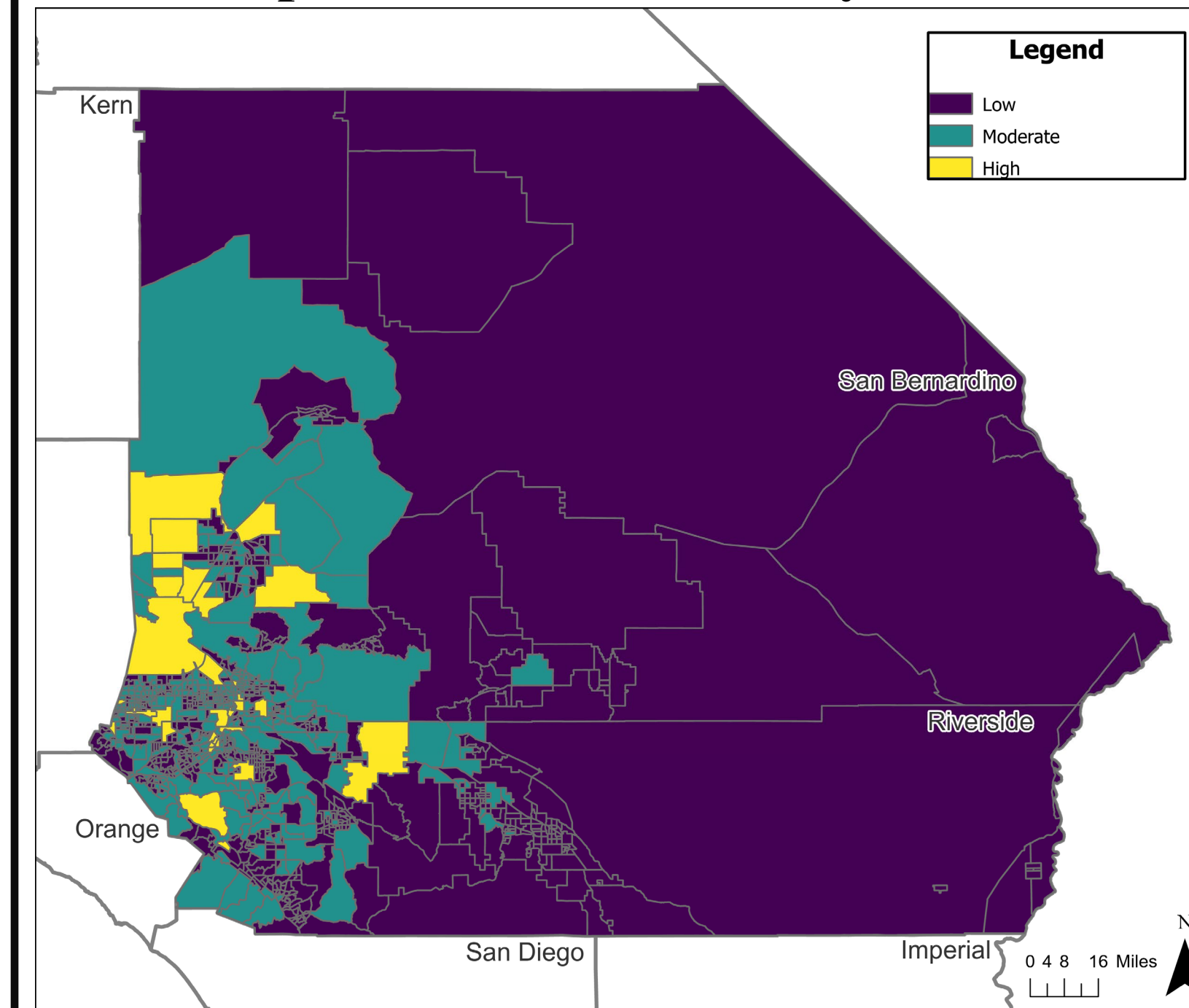
This map represents the I.E. It shows us the distribution of underserved populations. Each square is based on census tract and there are 984 squares, each one representing approximately 4,000 residents. We use 3 colors to represent different levels of disadvantage. Purple areas indicate higher concentrations of disadvantaged communities, while green areas show moderate and yellow areas the lowest level of disadvantage.

Housing Burden Index Visualization



Similar to our previous map, it is based on the same color coding. We see this concentration which shows a higher burden in the purple areas, Green areas represent a moderate burden and yellow areas indicate the least burden. This map helps us see where the housing burden is highest in the region.

Transportation Accessibility Scores



In this map, we flipped the colors. Purple shows the negative impact. The yellow high serves more roads, providing more access to transportation compared to purple areas where there are a lot of mountains and desert areas. Green areas indicate moderate. Transportation accessibility scores. These are not highly populated areas, in general, the I.E. is not accessible.

Equation

$$\text{DAI} = -0.159 + 1.551 \text{HBI} - 0.351 \text{TAI}$$

Disadvantaged, Housing Burden, and Transportation Accessibility Indices Statistics

Statistics	Index 1 (Disadvantaged)	Index 2 (Housing Burden)	Index 3 (Transportation Accessibility)
Count	984	984	984
Mean	2.31×10^{-16}	1.30×10^{-16}	-0.454
Standard Deviation	2.679	1.001	0.327
Minimum	-13.802	-1.782	-0.007
25%	-1.419	-0.688	0.242
50% (Median)	0.142	0.000	0.380
75%	1.785	0.653	0.583
Maximum	6.943	3.677	3.427
Tolerance	—	0.994	0.994

Regression Model Fits Statistics

Model Fit	R ²	Adjusted R ²	F-Statistic	p-value	Residual Standard Error	df	N
Regression	0.734	0.732	245.67	<0.001	2.189	2	984

Regression Coefficients

Predictors	Estimates	std. Error	Standardized Beta	std. standardized Beta	CI Lower Bound	CI Upper Bound	T-Statistic	p-value
(Intercept)	-0.159	0.120	NaN	0.120	-0.394	0.076	-11.332	<0.001
HBI	1.551	0.070	0.579	0.070	-1.689	-1.414	22.166	<0.001
TAI	-0.351	0.014	-0.043	0.214	-0.069	0.772	-11.639	<0.001

Conclusion

High transportation costs and limited access exacerbate the challenges faced by disadvantaged residents in the Inland Empire. The regression analysis provides a quantitative foundation for policy-making, emphasizing the need for integrated solutions that address both housing and transportation. Policies that reduce the housing burden and improve transportation accessibility can directly impact and potentially lessen the degree of disadvantage in affected communities. Disadvantaged communities face increased financial strain, limiting their access to essential opportunities and contributing to persistent poverty cycles in the Inland Empire. Investments in public transportation, promote mixed-use development, and support affordable housing close to employment hubs will reduce economic and social isolation in the IE. The Inland Empire faces significant disparities in housing and transportation, exacerbating challenges for underserved populations. To address these issues, policymakers can adopt a nuanced approach that prioritizes affordable housing, integrates transportation development, involves communities in decision-making, and safeguards against gentrification.

Future Work

The next step is to conduct a survey research analysis. Our survey prioritizes the examination of housing affordability, transportation accessibility, and quality of life. Representing CSUSB & UCR students with a total of 1,204 respondents. Furthermore, exploring community engagement alongside policy implications.