

Sustainable Pathways: Connecting Affordable Housing with Inclusive Transportation Infrastructure

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University of Nevada, Las Vegas



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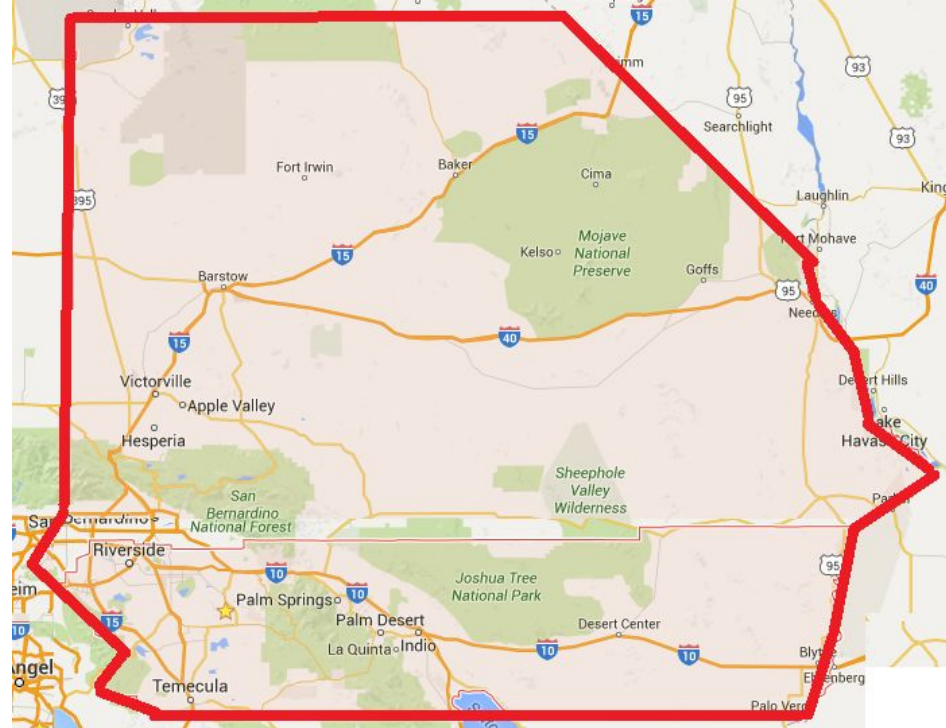


Background and Motivation

The Inland Empire (IE) is a region in Southern California consisting of Riverside and San Bernardino counties.

- Population- 4.7 million people as of December 2023. The projected growth of 1.2 million residents by 2040 according to SCAG.
- Economy- growth in logistics, warehousing, healthcare, manufacturing, and agriculture, serving as a crucial transportation and distribution hub.
- Diversity-recognized for its diverse communities and mixed landscape.

As residents of the Inland Empire, our team is motivated to engage more on this topic:
Personal experience, desire for change, community connection, and future planning.



Research Objective

- To provide a better understanding of how housing affordability and transportation accessibility intersect in the evolving landscape of the Inland Empire.
- By examining demographic factors, housing burden and affordability, transportation accessibility, and the interplay with disadvantaged communities. The study seeks to identify challenges and propose solutions to foster equitable and sustainable communities.



- Underserved 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 average (PRC Section 75005 (g)). 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 (FEMA, 2023).
- 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 (California Department of Housing and Community Development, 2021).
- 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 (Federal Highway Administration's, environmental justice, 2019).



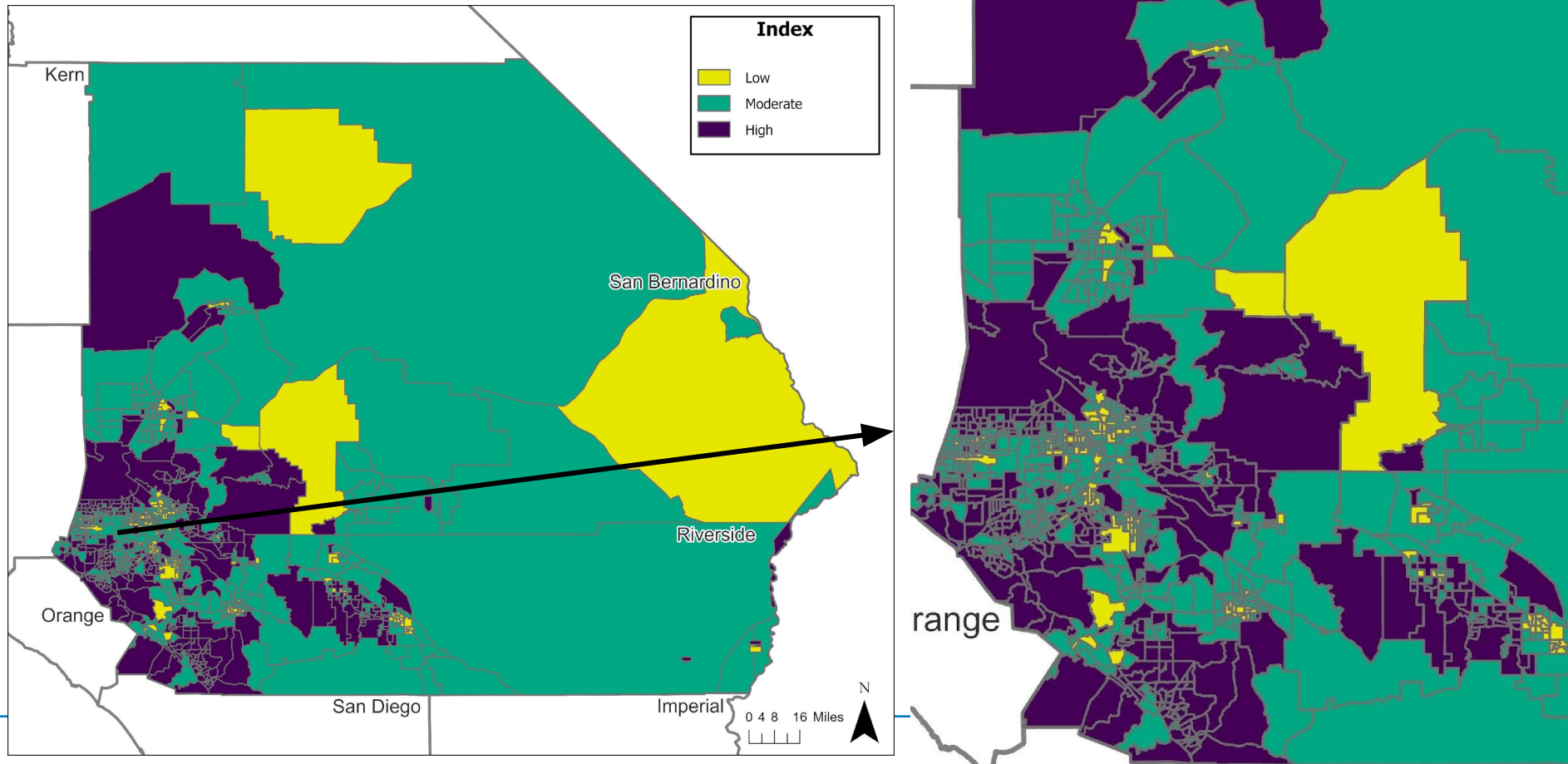
- Data Sources:
 - Disadvantaged Index - American Community Survey (ACS) data
 - Median household income, percentage of the population identified as white, education levels and linguistic isolation.
 - Housing Burden Index - CalEnviroScreen 4.0 data
 - Transportation Accessibility Index - Caltrans EQI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

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



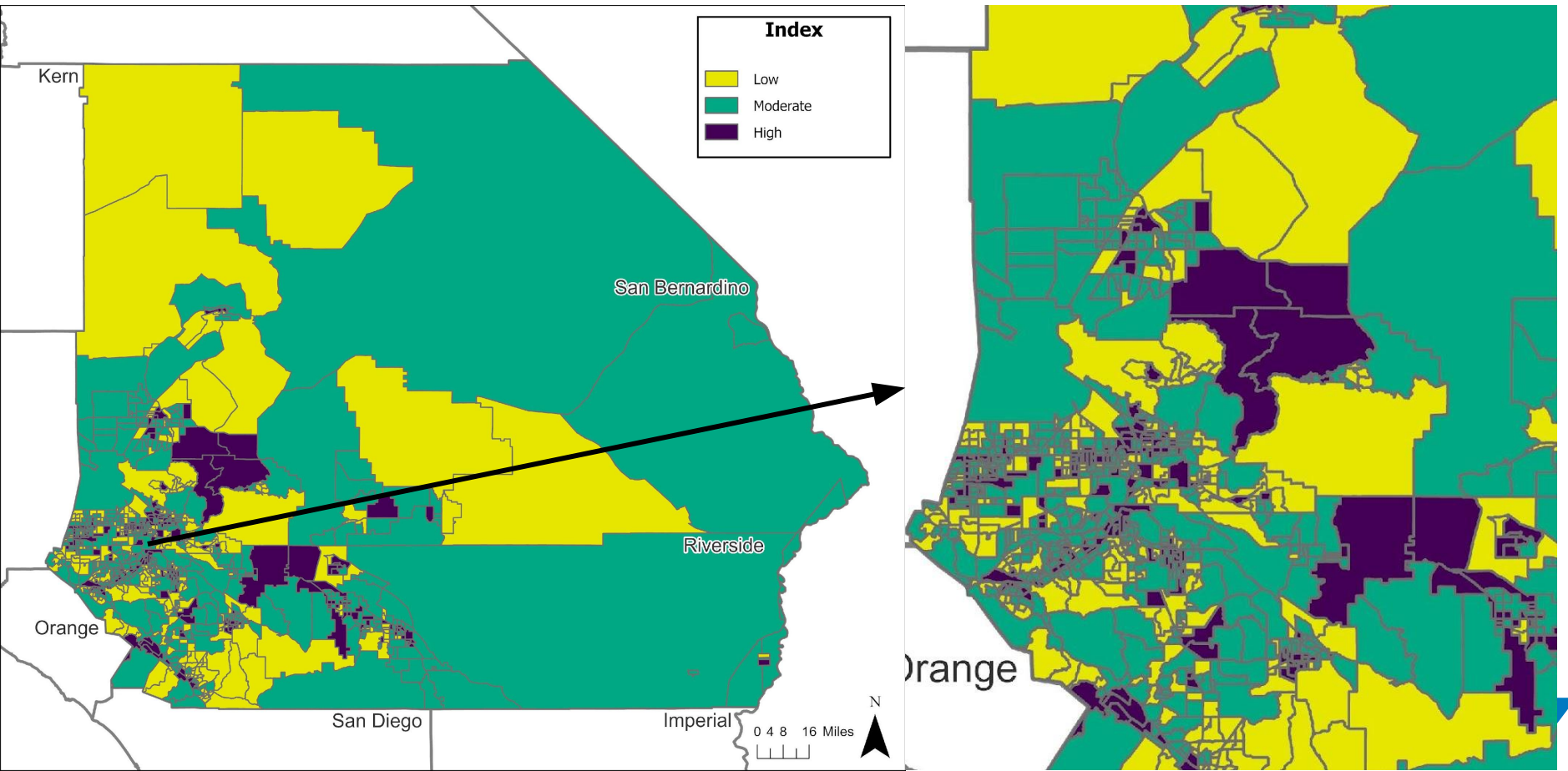
Results and Analysis

Socioeconomic Disparities in I.E.: Disadvantage



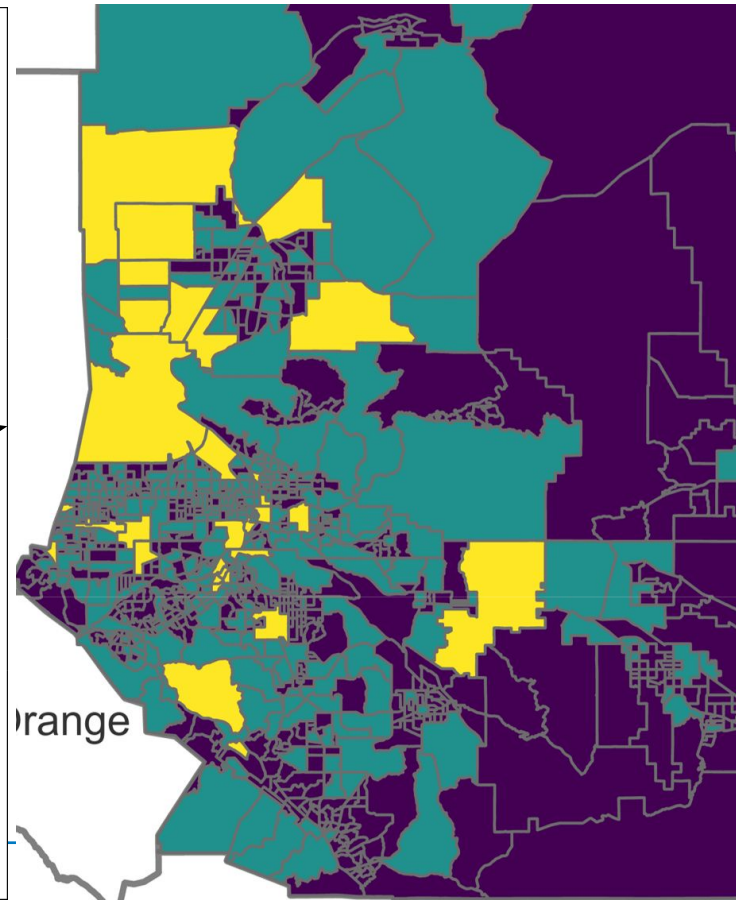
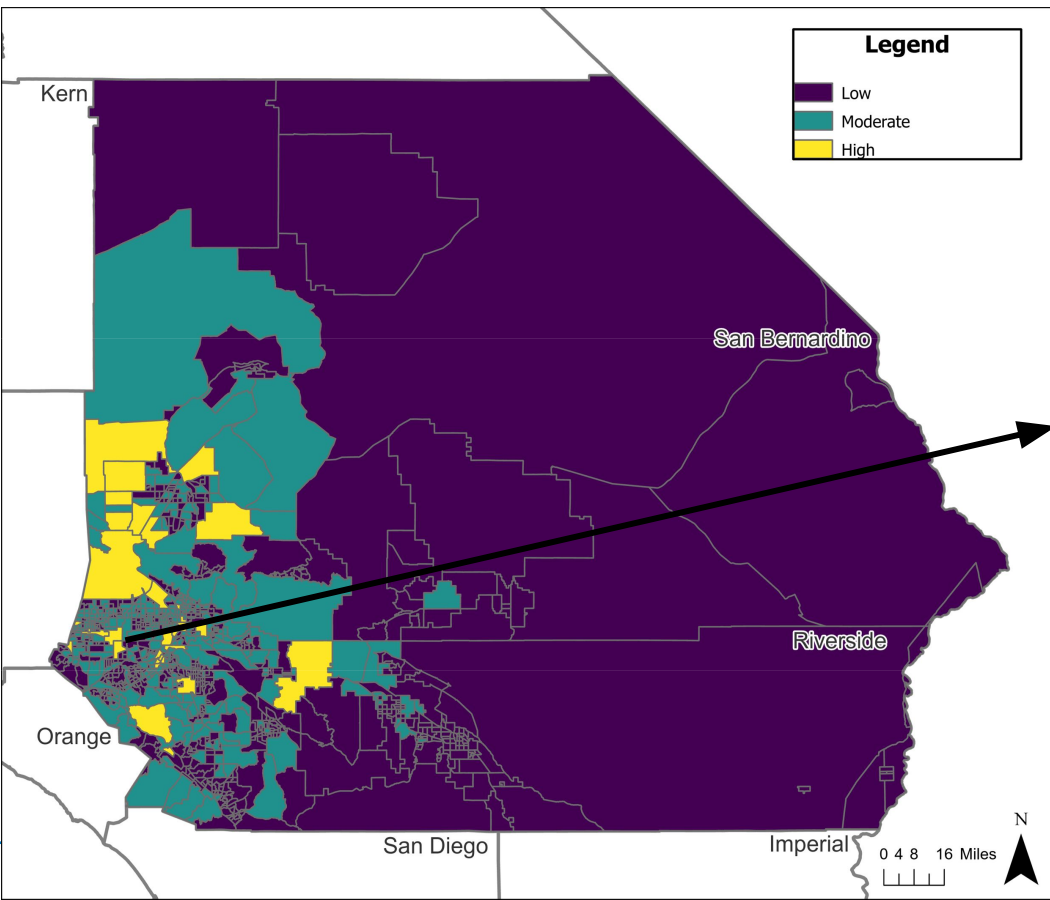
Results and Analysis

Housing Burden Index Visualization



Results and Analysis

Transportation Accessibility Scores



Disadvantaged, Housing Burden, and Transportation Accessibility Indices Statistics

Statistics	Index 1 (Disadvantaged)	Index 2 (Housing Burden)	Index 3 (Transportation Accessibility)
Count	984	984	984
Standard Deviation	2.679	1.001	0.327
Tolerance	—	0.994	0.994

Regression Model Fits Statistics

Model Fit	R²	Adjusted R²	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

Equation

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



Results and Analysis

- **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.



Conclusion

- 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.



- Next step is to conduct a survey research analysis. Our survey prioritizes the examination of housing affordability, transportation accessibility, and quality of life
- Community engagement and policy implications



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Thank You!

