ENVIRONMENTAL JUSTICE & EQUITY

SPATIOTEMPORAL ANALYSIS OF JOBS-HOUSING FIT IN SOUTHERN CALIFORNIA (ID: P21-20281)

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INTRODUCTION

Jobs-housing balance has become a major issue in urban and transportation planning and public policy. Among planners and policy makers, the imbalance of jobs and housing is considered as one of key contributors to traffic congestion and air pollution, and an impediment to environmental justice. On the other hand, a proper balance of housing and jobs can help people to live close to their workplace, thus reducing overall congestion, vehicle miles traveled (VMT), and greenhouse gas (GHG) emissions.

In addition to the traditional measure of jobs-housing balance, it is important to examine the Jobs-Housing Fit (JHFIT) between available housing types and the income level of residents. From an equity perspective, it is important to ensure low-wage jobs-housing fit because of ongoing difficulties with affordable housing provision. In addition to regional equity, ensuring a low-wage jobs-housing fit can contribute to environmental benefits and GHG emission reduction, given low income households on average drive older and less fuel-efficient cars.

As a part of the jobs-housing imbalance/mismatch analysis for Connect SoCal, 2020 Regional Transportation Plan/Sustainable Communities Strategy (RTP/SCS), SCAG conducted the analyses of jobs-housing ratio and low-wage jobs-housing fit for Southern California region at two scales—jurisdiction and the census tract (roughly equivalent to a neighborhood), based on the JHFIT methodology developed by UC Davis Center for Regional Change. While it is important to examine jobs-housing fit at the jurisdiction-level, this study examine it at the neighborhood-level given it is also important to understand patterns and variations in jobs-housing fit at relatively smaller geographic unit.

METHODOLOGY

For the JHFIT analysis, this study examines a ratio between the total number of low-wage jobs and the total number of affordable rental units. In contrast to overall jobs-housing balance, the low-wage fit analysis is helpful to highlight those jurisdictions and neighborhoods where there is a substantial shortage of affordable housing in relation to the number of low-wage jobs. To conduct the JHFIT analysis for cities and census tracts, SCAG employed publicly available data on job numbers from the LODES and housing numbers from the ACS. Job data was obtained from the LODES Workplace Area Characteristics (WAC) Primary Jobs data files for the years 2010 and 2016. Housing data was obtained from Census Bureau's 2008-2012 ACS 5-Year Estimates and 2013-2017 ACS 5-Year Estimates. In this study, SCAG used the counts of rental units with both contract rent (renter-occupied units) and rent asked (vacant-for-rent units) for affordable rental unit estimates. To estimate affordable rentals, SCAG used the regional median household income—the midpoint of an income distribution in the SCAG region—as Area Median Income (AMI) limit and assumed that a housing unit is affordable if a household whose income is at or below 80% of the AMI can live there without spending more than 30% of their income on rental units. SCAG assumed that spending 30% of total household income on housing costs is reasonable as the 30% threshold is widely accepted among affordable housing developers and advocates and it the threshold above which the US Department of Housing and Urban Development considers a household to be cost-burdened. For the neighborhood-level analysis, SCAG used a 2.5-mile buffer—the approximate average of walk- and bike-commute distances—from the centroids of the census tracts and counted jobs and workers within the buffer distance.

Additionally, this project also performed analysis on inter- and intra-county analysis, and median commuting distance. For the inter- and intra-county analysis, SCAG examines the median wages for inter-county and intra-county commuters using the 2013-2017 American Community Survey (ACS) 5-year Public Use Microdata Samples (PUMS). For the median commuting distance, SCAG examined the historical trend in median commute distance by wage, using the Census Bureau's Longitudinal Employer-Household Dynamics (LEHD) Origin-Destination Employment Statistics (LODES). SCAG used the LODES 7.4 Origin-Destination data file for the years 2002-2016. SCAG staff aggregated LODES' block-level statistics to the census tract level in order to estimate the median commute distance between origin and destination tracts by wage in each county the SCAG region. The distance measured is the Euclidean distance, straight-line distance, or distance measured "as the crow flies" between the centroid of an origin tract and the centroid of a destination tract, and is therefore shorter than the actual commute distance incurred by travelers.

FINDINGS & DISCUSSION

These statistics indicate that, given that commuting is expensive, higher wage workers can afford it and will commute longer for higher pay. On the other hand, lower wage workers tend to live closer to jobs. Overall, commute distance grew from 2002 to2016 for all wage levels, while it slightly decreased from 2012 to 2016. The median commute distance for low-wage workers and high-wage workers were 8.6 miles and 11.0 miles in 2002, respectively, while they increased to 9.0 miles and 11.1 miles in 2016. Although the commute distance grew in all six counties between 2002 and 2016, it is observed that the commuting distance of workers in inland counties grew more rapidly than workers in coastal counties, especially for low-wage workers in inland counties. The growing commute distance can influence a range of economic, social, transportation and environmental outcomes, particularly to low-income and minority workers given the constraints they face, such as declines in job proximity and limited transportation options. Additionally, comparing the median commute distance and overall job-to-worker ratio between coastal counties and inland counties, counties with lower job-to-worker ratio generate more long-distance commuters. This indicates the need for more job growth in inland counties, while coastal counties need more housing growth.

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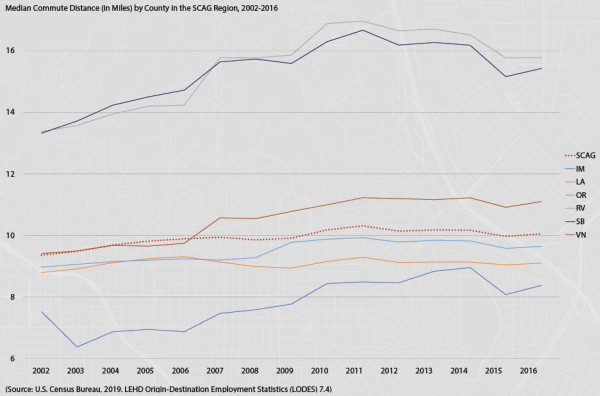
Median Commute Distance (in Miles) by County in the SCAG Region, 2002-2016



(Source: U.S. Census Bureau, 2019. LEHD Origin-Destination Employment Statistics (LODES) 7.4)

Median Commute Distance (in Miles) by Wage in the SCAG Region, 2012-2016

2016					
Origin	Destination	All Jobs	Low Wage	Med. Wage	High Wage
SCAG	SCAG	10.0	9.0	9.5	11.1
Imperial	SCAG	8.4	6.7	8.4	10.0
Los Angeles	SCAG	9.1	8.2	8.7	10.0
Orange	SCAG	9.6	8.8	8.8	10.5
Riverside	SCAG	15.8	14.0	14.0	18.3
San Bernardino	SCAG	15.4	14.0	14.2	17.4
Ventura	SCAG	11.1	11.6	10.0	11.8

2012					
Origin	Destination	All Jobs	Low Wage	Med. Wage	High Wage
SCAG	SCAG	10.1	9.0	9.7	11.3
Imperial	SCAG	8.5	6.3	9.1	9.6
Los Angeles	SCAG	9.1	8.1	8.9	10.1
Orange	SCAG	9.8	8.9	8.9	10.8
Riverside	SCAG	16.6	14.8	14.9	19.3
San Bernardino	SCAG	16.2	14.7	15.1	18.2
Ventura	SCAG	11.2	11.7	10.0	12.0

(Note: 'Low Wage' = J obs with earnings $1250/month or less ; 'Med. Wage' = J obs with earnings $1251/month to $3333/month; 'High Wage' = J obs with earnings greater than $3333/month)
Source: U.S. Census Bureau, 2019. LEHD Origin-Destination Employment Statistics (LODES) 7.4

Median Wage for Workers by Place of Residence and Place of Work, 2017 Dollars

Place of Residence	Place of Work					
	Imperial	Los Angeles	Orange	Riverside	San Bernardino	Ventura	San Diego
Imperial	25,834	-	-	26,936	-	-	25,731
Los Angeles	36,403	30,336	36,582	33,446	30,878	39,368	42,479
Orange	-	56,284	32,936	45,504	47,789	51,799	60,621
Riverside	41,808	52,260	43,898	25,487	37,169	35,224	53,099
San Bernardino	-	42,479	42,479	34,987	26,130	15,168	45,504
Ventura	-	60,671	92,633	58,531	53,099	29,008	82,879
San Diego	55,580	51,571	63,757	41,808	56,979	62,159	34,583

(Note: CPI adjusted to $ in 2017; '-' indicates sample size is too small for the analysis.)
Sources: 2013-2017 American Community Survey (ACS) 5-year Public Use Microdata Samples (PUMS)

Jobs-to-Worker Ratio by Wage in the SCAG Region, 2015

County	All Jobs	Low Wage	Med. Wage	High Wage
Imperial	0.87	0.87	0.83	0.91
Los Angeles	1.05	1.03	1.01	1.09
Orange	1.12	1.14	1.20	1.06
Riverside	0.76	0.83	0.82	0.68
San Bernardino	0.88	0.92	0.89	0.84
Ventura	0.81	0.86	0.90	0.74

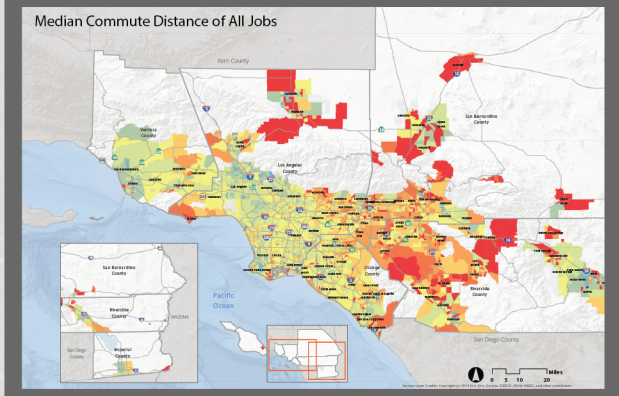
(Note: 'Low Wage' = J obs with earnings $1250/month or less ; 'Med. Wage' = J obs with earnings $1251/month to $3333/month; 'High Wage' = J obs with earnings greater than $3333/month)
Source: U.S. Census Bureau, 2019. LEHD Origin-Destination Employment Statistics (LODES) 7.3

Jobs-Housing Ratio and Low-Wage Jobs-Housing Fit in the SCAG Region, 2010-2015

	2010 LODES & 2008-2012 ACS 5-Year Estimates			2015 LODES and 2013-2017 ACS 5-Year Estimates		
County	Jobs-Housing Ratio	Low-Wage Jobs-Housing Fit	Difference	Jobs-Housing Ratio	Low-Wage Jobs-Housing Fit	Difference
Imperial	1.13	0.84	0.29	1.16	0.86	0.30
Los Angeles	1.15	0.79	0.35	1.19	0.80	0.39
Orange	1.33	2.10	a	1.41	2.26	-0.85
Riverside	0.77	0.90	-0.14	0.83	0.83	0.00
San Bernardino	0.95	0.84	0.11	1.01	0.77	0.25
Ventura	0.98	1.59	-0.60	1.02	1.73	-0.71
SCAG	1.10	0.94	0.17	1.16	0.94	0.22

Sources:
1. J obs and housing projections for years 2020 and 2030 are based on SCAG growth forecast projections for the Connect SoCal, the 2020 RTP/SCS
2. Historical jobs estimates are based on U.S. Census Bureau's LEHD Origin-Destination Employment Statistics Data (LODES version 7.3) Workplace Area
3. Historical housing unit estimates are based on U.S. Census Bureau's 2008-2012 American Community Survey 5-Year Estimates and 2013-2017 American

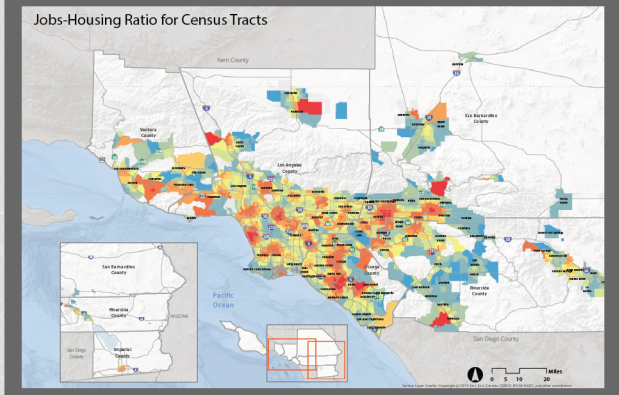
Median Commute Distance of All Jobs



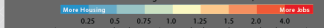
Median Commute Distance of All Jobs (in Miles) for Census Tracts, 2016

(Note: 'Low Wage' = Jobs with earnings $1250/month or less ; 'Med. Wage' = Jobs with earnings $1251/month to $3333/month; 'High Wage' = Jobs with earnings greater than $3333/month)
Source: U.S. Census Bureau, 2019. LEHD Origin-Destination Employment Statistics (LODES) 7.4) Origin-Destination (OD) data file for year 2016

Jobs-Housing Ratio for Census Tracts



Ratio of Jobs to Housing Units for Census Tracts, 2016



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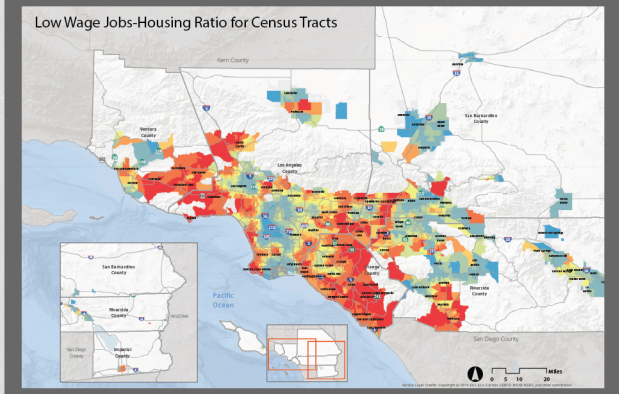
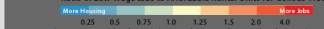
Source: Job data was obtained from U.S. Census Bureau, LEHD Origin-Destination Employment Statistics (LODES) 7.4) Workplace Area Characteristics (WAC) Primary Jobs data file for year 2016 and housing data was obtained from U.S. Census Bureau, 2013-2017 American Community Survey 5-Year Estimates.

Low Wage Jobs-Housing Ratio for Census Tracts



Ratio of Low-Wage Jobs to Affordable Rental Units for Census Tracts, 2016



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