Short Title: Jobs to housing ratio
Full Title: Jobs to housing ratio

1. **Healthy Community Framework:** Meets basic needs of all

2. **What is our aspirational goal:** Affordable, high-quality, socially integrated, an location-efficient housing

3. **Why is this important to health?**

Description of significance and health connection

A job to housing ratio is a quantitative measure used to evaluate the balance between where people work and where people live. A balance closer to parity suggests that most people work close to where they live, which could result in reduced traffic congestion, vehicle miles traveled (VMT), and air pollution emissions. Additionally, individuals could experience lower commuting time and costs, and a higher quality of life. Communities with jobs-housing imbalances can burden other communities that provide affordable housing for low-wage workers but do not receive the fiscal benefits of the industries that employ them. An inadequate supply of housing in relation to jobs can also result in higher housing prices. In 2009, when U.S. workers lived and worked in the same metropolitan area, 10.6% used public transportation and 4.4% walked to work, compared to 3.9% and 2.6% respectively, among workers that lived and worked in different areas.

California has four of the ten most traffic congested metropolitan areas in the United States. These areas have added more jobs than housing units in the last decade. In California, 10.1% of workers commute 60 or more minutes (one-way), compared to 8.4% at the national level (ACS 2009-2013). The jobs/housing imbalance can have a disparate impact on low-wage workers who spend a higher proportion of their income commuting.

Summary of evidence

Evidence is mixed about the relationship between VMT and jobs-housing balance measures. One study from the San Francisco Bay Area found that a 1 percent increase in jobs-housing balance was associated with a VMT reduction between 0.29 and 0.35 percent. Cross-sectional surveys of workers have shown adverse effects of commuting on health. Workers in Atlanta experienced a 12% increase in the likelihood of obesity for every additional hour spent in a car. Spending an additional 60 minutes of daily commuting above average is associated with a 6% decrease in health-promoting behaviors (exercising, cooking and eating meals at home) among U.S. workers. A survey conducted in the United Kingdom showed that long commute times had worst effects on the psychological health of women than men.

Key References

- California Planning Roundtable. Deconstructing housing to jobs balance. 2008. Accessed Dec. 8th, 2014
- Boarnet MG, Hsu HP, Handy S. Impact of Jobs-Housing Balance on Passenger Vehicle Use and Greenhouse Gas Emissions. Accessed Dec. 8th 2014.
- Benner C, Karner A. Measuring jobs housing fit: low-wage jobs and proximity to affordable housing in the San Francisco Bay Area. *J Am Plan Assoc* 2014; submitted for publication.
- McKenzie B, Rapino M. 2011. Commuting in the United States: 2009. American Community Survey Reports. Accessed Dec. 8th, 2009
- Frank LD, Andresen MA, Schmid TL. Obesity relationships with community design, physical activity, and time spent in cars. *Am J Prev Med* 2004; 27(2): 87-96.
- Christian T. Trade-offs between commuting time and health-related activities. *J Urban Health* 2012;89(5): 746-757.

- Roberts J, Hodgson R, Dolan P. "It's driving her mad": Gender differences in the effects of commuting on psychological health. *J Health Econ* 2011; 30(5): 1064-1076.

4. What is the indicator?

Detailed Definition:

$$Jobs\ to\ Housing\ Ratio = \frac{Number\ of\ jobs}{Number\ of\ housing\ units}$$

Stratification: Type of ratio: (1) total jobs/total housing units, (2) low-wage jobs/affordable housing units. Race/ethnicity not available.

Data Description

- Data sources: Longitudinal Employer-Household Dynamics (LEHD), Origin Destination Employment Statistics (LODES), Workplace Area (WAC) Characteristic data, http://lehd.ces.census.gov/data/#qwi. U.S. Census Bureau, American Community Survey (ACS), 5-year estimates (http://factfinder2.census.gov/faces/nav/jsf/pages/index.xhtml).
- Years available: 2011 (2007-2011 for the ACS)
- Updated: annually
- Geographies available: cities/towns, core based statistical areas (metropolitan and micropolitan statistical areas), counties.

This indicator follows the definition by Benner and Karner (2014). Counts of the total and low-wage workers (monthly earnings of $1,250 or less) in a Census block were obtained from LODES. Housing unit estimates were obtained from the ACS: total housing units (B25001), vacant-for-rent and rented, not occupied housing units by amount of rent asked (B25061), and renter-occupied housing units by contract rent (B25056). The number of affordable rental units per jurisdiction was calculated as the sum the number of units for which the rent (contract or asked) was $750/month or less, plus those units with no cash rent. Standard error of the sum was obtained using the approximate method. Two ratios were calculated: total jobs to total housing units, and low-wage jobs to affordable housing units. The standard error of the ratios was calculated as $\mathrm{SE} = \frac{\sqrt{\mathrm{SE(Jobs)}^2 + \mathrm{Ratio}^2 \times \mathrm{SE(Housing)}^2}}{\text{Number of housing units}}$, where $SE(Jobs) = 0$. Confidence intervals, relative standard error, place deciles, and relative risk with respect to the core based statistical area were calculated. A low wage job to affordable housing ratio between 1 and 2.5 is considered a relatively good fit. According to the U.S. Census Bureau the Core Based Statistical Areas (CBSAs) consist of the county or counties associated with at least one core (urbanized area or urban cluster) of at least 10,000 population, plus adjacent counties having a high degree of social and economic integration with the core as measured through commuting ties with the counties associated with the core.

5. Limitations

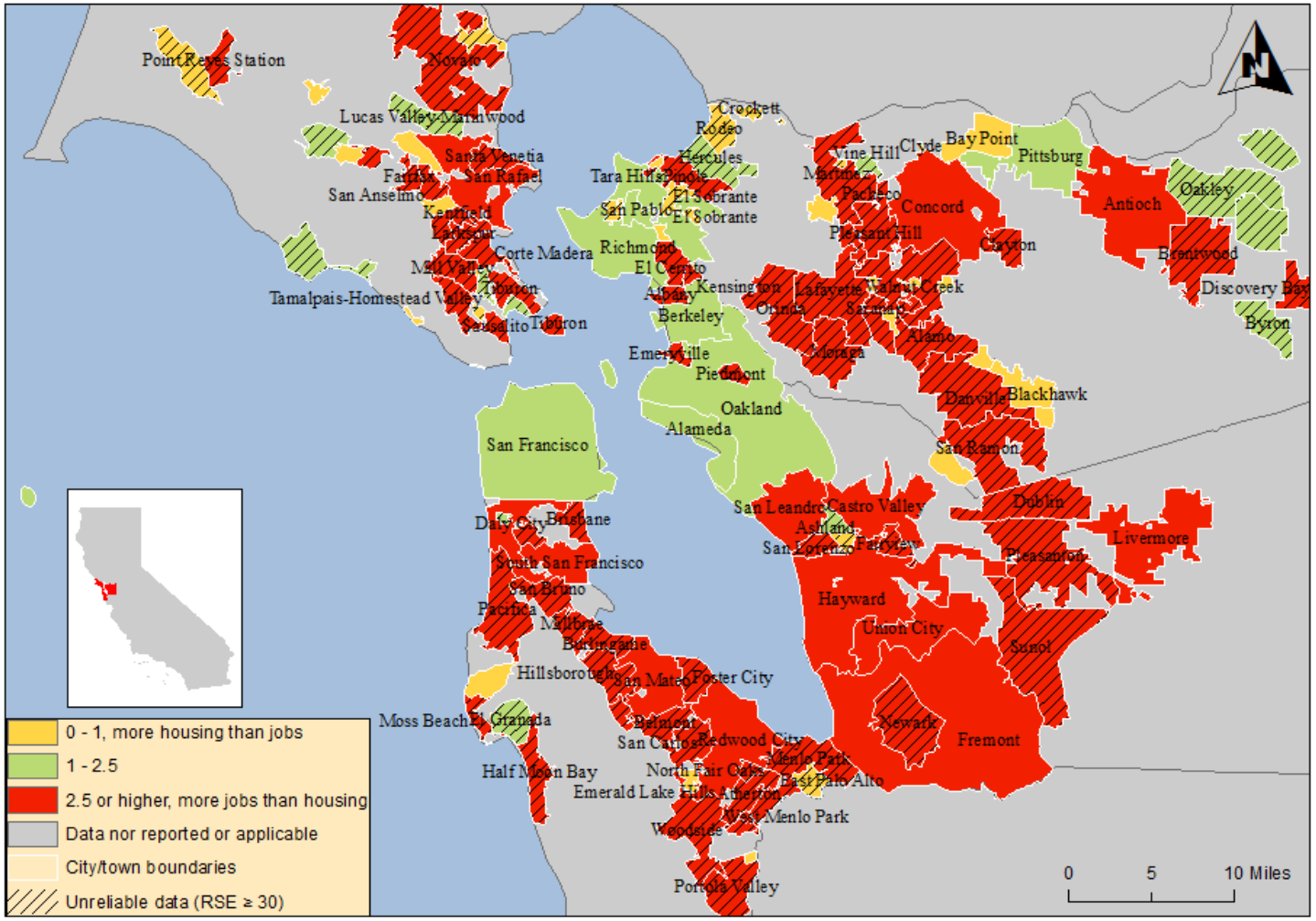
A job to housing ratio close to parity assumes that all workers can find housing in their jurisdictions. However, a fraction of the population likely chooses not to live where they work. The ratio does not consider the match between types of jobs and workers skills or housing prices. Therefore, even areas with good fit can experience heavy in- and out- flow of workers. The low-wage to affordable housing ratio focuses on a fraction of the worker population providing a better estimate of the jobs-housing fit for vulnerable communities in a jurisdiction.

6. Projects using similar indicators

- University of California, Davis, Center for Regional Change. Regional opportunity index. http://interact.regionalchange.ucdavis.edu/roi/ Accessed Dec. 9th, 2014.

7. Examples of Maps, Figures, and Tables

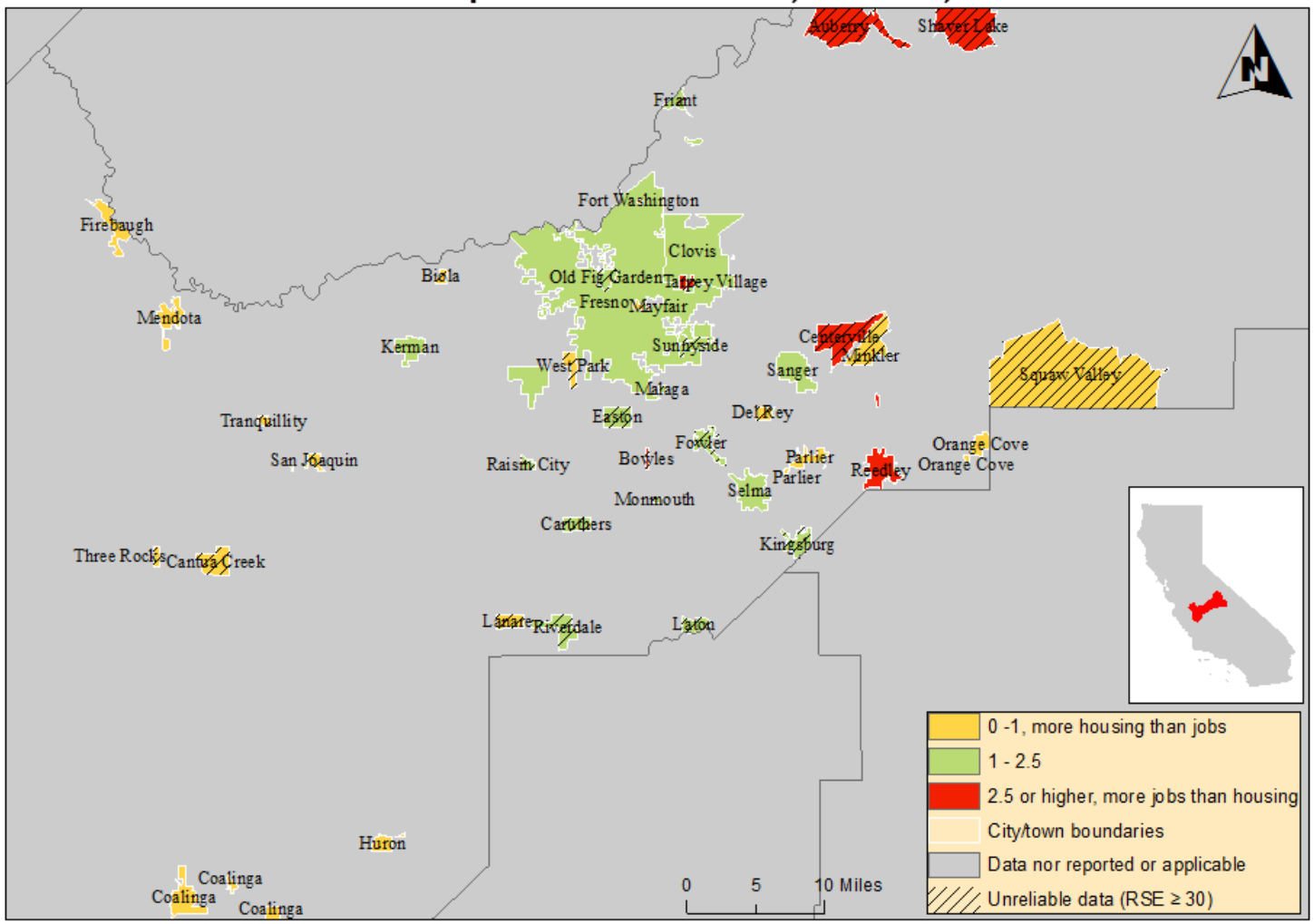
Map 1: Low Wage Jobs to Affordable Housing Ratio, Cities/Towns in the San Francisco-Oakland-Fremont Metropolitan Statistical Area, California, 2011



Source: Longitudinal Employer-Household Dynamics (LEHD), Origin Destination Employment Statistics (LODES). U.S. Census Bureau, American Community Survey.

Analysis by CDPH

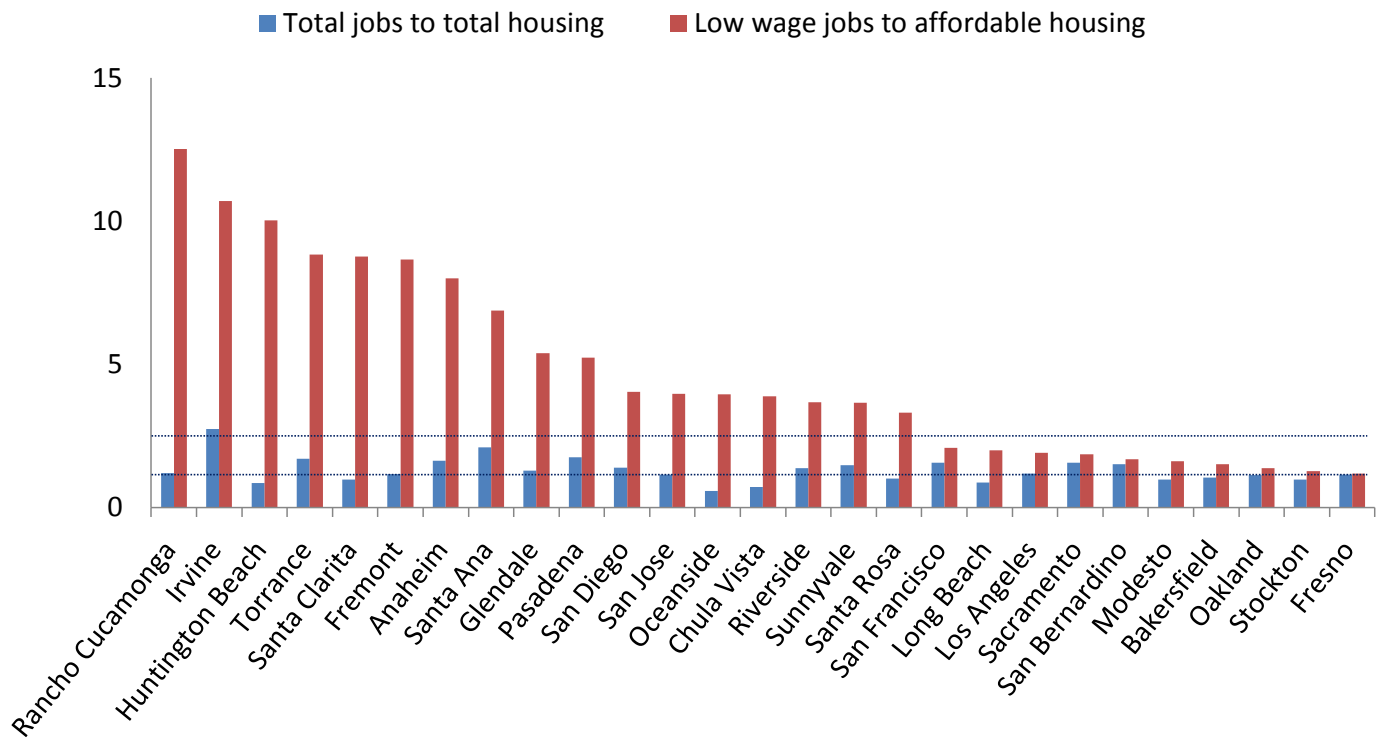
Map 2: Low Wage Jobs to Affordable Housing Ratio, Cities/Towns in the Fresno Metropolitan Statistical Area, California, 2011



Source: Longitudinal Employer-Household Dynamics (LEHD), Origin Destination Employment Statistics (LODES). U.S. Census Bureau, American Community Survey.

Analysis by CDPH

Jobs to Housing Ratio by Type of Ratio, Cities with 55,000 Housing Units or Higher, California, 2011



Low wage jobs to affordable housing ratio values between 1 and 2.5 (dotted lines) are considered a good fit. Source: Longitudinal Employer-Household Dynamics (LEHD), Origin Destination Employment Statistics (LODES). U.S. Census Bureau, American Community Survey (ACS), 5-year estimates

Table 1. Low Wage Jobs to Affordable Housing Ratio, Metropolitan and Micropolitan Areas, California, 2011

Metro or Micropolitan Statistical Area	Affordable Housing Units (a)	Low Wage Jobs (b)	Ratio (b/a)
Susanville	2,615	1,833	0.70
Red Bluff	6,035	4,301	0.71
Clearlake	5,541	4,467	0.81
Merced	22,180	18,108	0.82
Hanford-Corcoran	11,157	9,327	0.84
Yuba City	13,666	12,060	0.88
Crescent City	2,219	2,196	0.99
Bakersfield-Delano	62,179	68,742	1.11
Bishop	1,892	2,101	1.11
Eureka-Arcata-Fortuna	13,124	14,753	1.12
Phoenix Lake-Cedar Ridge	3,656	4,178	1.14
Redding	14,884	17,516	1.18
Visalia-Porterville	36,532	44,240	1.21
Chico	18,284	22,846	1.25
Fresno	77,511	97,235	1.25
Madera-Chowchilla	9,346	12,171	1.30
Ukiah	6,485	8,839	1.36
El Centro	17,462	24,104	1.38
Stockton	35,601	52,474	1.47
Modesto	29,903	44,221	1.48
Sacramento--Arden-Arcade--Roseville	97,941	200,907	2.05
Riverside-San Bernardino-Ontario	129,861	333,205	2.57
Truckee-Grass Valley	3,432	9,129	2.66
Santa Cruz-Watsonville	8,689	24,252	2.79
San Luis Obispo-Paso Robles	10,192	29,180	2.86
San Francisco-Oakland-Fremont	137,872	398,570	2.89
Salinas	13,413	39,637	2.96
Santa Rosa-Petaluma	14,444	44,076	3.05
Santa Barbara-Santa Maria-Goleta	13,899	42,718	3.07
Vallejo-Fairfield	9,771	30,514	3.12
Los Angeles-Long Beach-Santa Ana	426,103	1,431,610	3.36
Napa	4,099	13,858	3.38
San Diego-Carlsbad-San Marcos	75,611	297,559	3.94
Oxnard-Thousand Oaks-Ventura	16,391	69,601	4.25
San Jose-Sunnyvale-Santa Clara	34,319	155,279	4.52

Good Fit

Sources: Longitudinal Employer-Household Dynamics (LEHD), Origin Destination Employment Statistics (LODES). U.S. Census Bureau, American Community Survey (ACS), 5-year estimates.