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Monthly condensed analyses of crucial real estate and economic issues offered by the UCLA Anderson Forecast and UCLA Ziman Center for Real Estate. Here, Jerry Nickelsburg, Senior Economist of UCLA Anderson Forecast and Adjunct Professor of Economics, explores the relationship between housing prices and California's natural amenities.

Pricing the Natural Environment: How Amenities Put a Premium on California Housing

By Jerry Nickelsburg, Senior Economist, UCLA Anderson Forecast; and Adjunct Professor of Economics, UCLA Anderson School of Management

*California is a Garden of Eden, a paradise to live in or see,
But believe it or not, you won't find it so hot
If you ain't got the do re mi"*

--Woody Guthrie, Dust Bowl Ballads, 1940

Even back in the 40s, California was a magnet due to its salubrious climate and stunning geography. Today, the do re mi requires much more do than ever before. As a result, out-migration of Californians to more affordable states is occurring. But, home prices are a function of both demand and supply. Since supply is not shrinking, increases in prices at rates faster than the US is evidence of increased, not decreased demand. In this essay we explore one of the key reasons for the lack of affordable housing in California, The Garden of Eden. The implication is that unaffordable housing is with us to stay and affordable housing policy should explicitly recognize that fact.

“Because California’s natural amenities and the protection of them through regulation are not going anywhere soon, affordable housing is liable to remain scarce. Affordable housing policy should be targeted towards favored groups, and not allocated randomly.”

Urban economists characterize the attractiveness of a location as land with embodied amenities. These can be broadly divided into natural and cultural amenities.¹ Natural amenities are those that come with the geography and include mountains, water bodies, and climate. These can be positive (think California) or negative (think Kansas). It is usually assumed that all other things equal, households would prefer living in an area with an abundance of positive amenities. This is not to slam the Sunflower State, but one has to like the beauty of the high plains, and the meandering Kansas and Missouri Rivers quite a bit to pay the price of severe winters and very hot summers.

Cultural amenities are those that come from the individuals living in the city. Examples of these are quality restaurants, theater, civic engagement opportunities, man-made parks and a creative music scene. A city with an abundance of cultural amenities is, all other things equal, more attractive and therefore generates a higher demand for housing than one without. There is some disagreement among economists as to the causal relationship between cultural amenities and the demand for housing.² In this essay we are going to focus only on the natural amenities that were in place before the city to ascertain what role they might play in the lack of affordability in California.

To get at the concept of natural amenities the USDA index of amenities is employed. This is an index that incorporates the degree to which the land mass differs from a plain, the amount of water surrounding and within the city, winter temperature, winter sun, summer temperature, and summer humidity.³ The index is calculated for each county in the lower 48 states. When an MSA incorporates more than one county, the index for the county that includes the core city was used as the index for the city.

The National Association of Realtors (NAR) calculates the housing affordability index employed herein.⁴ This index uses the median home price and the median household income to compute affordability. Assuming a 20% down payment and the current national average interest rate on a 30-year mortgage, the ratio of mortgage payment to income is calculated. An index of 100 is assigned to the ratio for which the mortgage payment represents 25% of household income. Lower index number indicate less affordable and higher more affordable cities.

The relationship explored here is that between these two indexes for MSAs in the US. The affordability index for four of the larger California MSAs were not calculated by NAR but were generated by The Anderson Forecast. Most, but not all of the 100 largest MSAs in the US were in the index. Those non-California cities not included in NAR's calculations were not included in the analysis presented here.

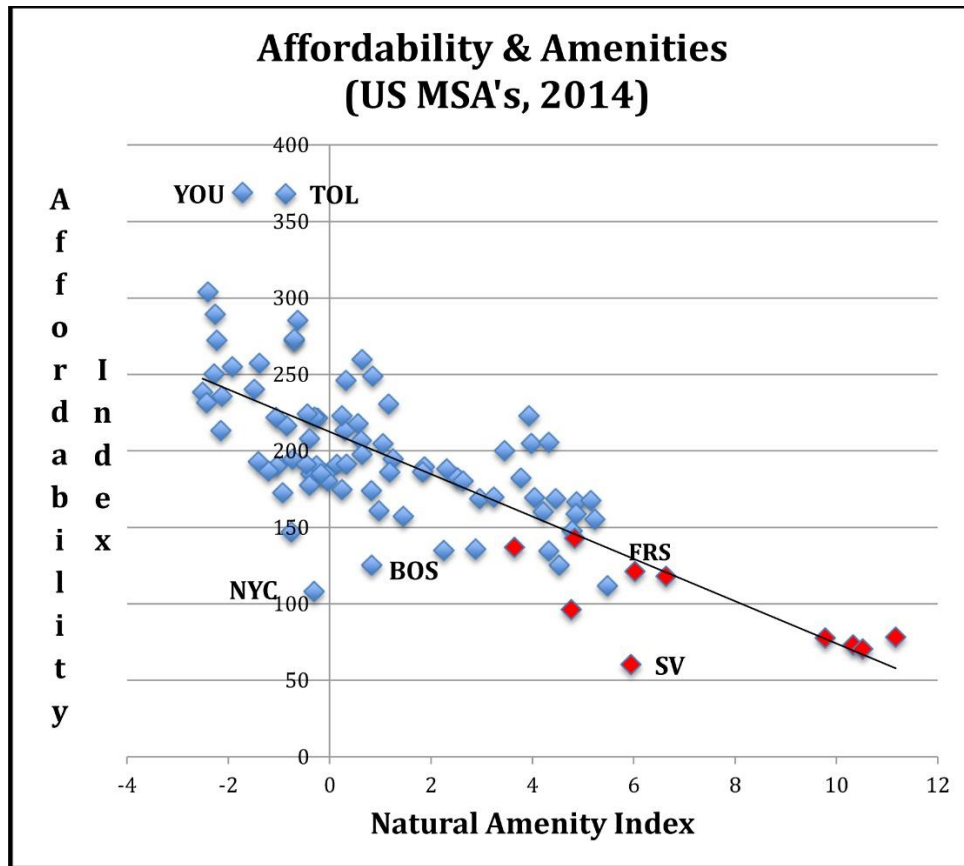
¹ Edward Glaeser “The Triumph of the City: How our greatest invention makes us richer, smarter, greener, healthier, and happier,” Macmillan, 2011.

² Richard Florida writes in “The Rise of The Creative Class, Revisited” Basic Books, New York, 2011, that these cultural amenities are the key to turning around declining cities. Enrico Moretti in his “The New Geography of Jobs,” Houghton, Mifflin Harcourt, Boston 2012, argues that these cultural amenities are derivative of agglomeration of knowledge communities and that initial endowments of these are important.

³ <http://www.ers.usda.gov/data-products/natural-amenities-scale.aspx>

⁴ <http://www.realtor.org/topics/housing-affordability-index/methodology>

From the graph below it can be seen that the level of natural amenities predicts much of the affordability of housing. The more amenity-rich a city is, the less affordable it is. Notable in the graph is the fact that the California cities are not anomalies but lie close to the correlation line. One has to be a bit careful with the interpretation because the natural amenities index incorporates more than one force acting on housing demand and housing supply. The three most important ones are limited land for building, the value of consuming the amenities and the fact that the amenities can at times be diminished by development.



YOU=Youngstown, OH, TOL=Toledo, OH, NYC=New York City, NY, BOS=Boston, MA SV=Silicon Valley, FRS=Fresno, CA. Red diamonds are California Cities

First, the topography matters. It is more difficult to expand the housing stock in a city constrained by water (e.g. San Francisco and Seattle) than one with ample room to expand (e.g. Dallas and Columbus). This natural restriction in supply will lead to higher prices for housing.

Second, natural amenities are valuable. People like to live in physically beautiful areas and in areas with mild weather and an abundance of outdoor activities. Consequently the amenity index should predict a higher level of demand due to this household preference and consequently a higher price for housing.

Third, amenities can be perishable. As more people move in congestion, and pollution tend to diminish the quality of the amenity. Development may also diminish the visual value of the amenity or the physical characteristic of it. Thus local citizens enact building restrictions to prevent overcrowding in amenity rich areas. One is reminded of the slogan "Don't Californicate Colorado" used in the 1972 referendum campaign to limit the expected population sprawl induced by the Winter Olympic Games and the lyrics from John Denver in the same year "Why they try to tear the mountains down to bring in a couple more, more people, more scars upon the land."⁵ The meaning is

⁵ For a discussion of the tension between slow growth and development advocates in the amenity rich west see Earl Pomeroy, "The American Far West In The 20th Century," Yale University, 2008. John Denver, "Rocky Mountain High," RCA, 1972.

clearly anti-growth. To some this is xenophobic and elitist and to others it is environmental and amenity protection. But in either case, building restrictions have been put in place to protect amenities and these restrictions limited the expansion of the stock of housing. Such limitations make the amenities relatively more scarce and therefore increase their value as reflected in the price of housing.

The implications of the strong role played by natural amenities in the price of California housing are twofold. First, because California's natural amenities and the protection of them through regulation and zoning are not going anywhere soon, it will be difficult if not impossible for the relative affordability of the Golden State to retreat to levels experienced when the population was 20 million. Second, because affordable housing is scarce and liable to remain so, affordable housing policy should be targeted towards favored groups (inner city school teachers?) and not allocated randomly. Scarce resources that are allocated randomly are best left to the price system. Those allocated through government policy are best done by targeting those society wants to reward or benefit the most.