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The Great Recession and Housing Affordability

Cynthia A. Kroll

Abstract

The decline in home prices in the Great Recession and the lack of recovery in prices in the early years of recovery have created a significant improvement in some types of housing affordability measures. Yet incomes also dropped, and rent levels often moved in the opposite direction to home prices, showing that improvements in affordability were far from universal. This paper uses aggregate statistics available from a variety of public and private sources to illustrate different types of affordability indicators, examines how these changed for the US, California, and California regions, during the recession and recovery, and discusses implications for housing policy as the economy recovers. The analysis shows that the experience in the Great Recession and following was very different for homeowners and renters, as well as between homeowners with a mortgage and those without a mortgage. Furthermore, comparisons among different geographic locations, income groups and affordability measures show the importance of context in defining affordability as a problem and in creating policies in response.

Key words: housing policy, affordability, Great Recession

The Great Recession and Housing Affordability

The “Great Recession” was accompanied by a precipitous drop in housing prices and a significant improvement in some types of affordability measures. Yet the story of US housing markets and access to housing during the boom, bust, recession and recovery must take into account a much more complex mix of changes in income, unemployment, sales prices and rents. Furthermore, closer scrutiny of the data shows that “affordability” improvements depend very much on the indicator of affordability as well as on characteristics of housing tenure, occupants and local markets. This paper compares statistics available from a variety of public and private sources to illustrate different types of affordability indicators, examines how these changed for the US, California, and California’s largest metropolitan areas, during the recession and recovery, and discusses implications for housing policy as the economy recovers.

Housing Affordability Measures

Housing affordability is a normative term, and is defined quite differently depending on the context. In this overview, we look at three general types of measures, including measures of ability to purchase a home, share of income spent on housing, and income remaining after housing costs are met.¹

1) Ability to Purchase a Home

Affordability indices provided by realtor associations are frequently cited in the press. These are based on the price of homes sold in the most recent month, interest rates available on mortgages, and current income levels. The National Association of Realtors uses these statistics to create an indicator based on the adequacy of the median

¹ More detailed discussion of this measure can be found in Kroll and Wyant 2009.

household's income to qualify for a mortgage on the median priced home (based on common lending standards).² The California Association of Realtors creates two indices, one based on the share of households that could afford to buy the median priced home, and a second based on the share of households that can afford to buy an entry level home (85 percent of the median price), using slightly relaxed standards for a first-time homebuyer.³

2) Share of Income Spent on Housing

The share of income spent on a housing is of concern both to government and to private lenders and investors. Government agencies use these statistics to identify households (or, using aggregate statistics, communities) eligible for assistance, while lenders use the concept to determine who qualifies for a loan. Investors and securitizers use the income characteristics of a loan as one factor in determining whether to invest in the loan and at what price. The standards applied to this measure have changed over time, emphasizing the importance of social norms, political dialogue, and administrative functions in defining “affordability” at any point in time. For many decades, households spending more than 25% of their income on housing costs were considered to have an affordability problem, or to be ineligible for a standard mortgage. Over the past two decades, reflecting both rising prices and rising incomes, this standard has risen to 30 or 35 percent, depending on the context, and in some cases, as applied to relief programs since 2007, the standard has been even higher.⁴

² See <http://www.realtor.org/topics/housing-affordability-index/methodology> ; 100: median household income exactly qualifies for a mortgage on the median priced home. 120: median household has 20% higher income than needed to qualify. 80: median household has only 80% of the income needed.

³ See <http://www.car.org/marketdata/data/haimethodology/> and <http://www.car.org/tools/smart/archive/housingaffordability/>

⁴ See Schwartz and Wilson ND for a review of the evolving standard for the housing cost burden.

3) Income Residual

The income residual is the difference between the amount spent on housing and the income remaining. It can be used to help distinguish high income, high cost areas, where competition for housing raises prices, but families still have substantial discretionary income remaining despite spending a high share of income on housing, from low income areas where the share of income spent on housing may be the same or lower than in the high income area, but the remaining income after paying for housing is much lower. This type of measure has historically been used by academics and advocacy groups.⁵

Affordability Measures and Tenure

Approximately two thirds of households in the United States are classified as homeowners, while the remaining households are renters. Within the ownership category there is an important distinction between owners who have no debt on the home and those who carry a mortgage (68 percent of the homeowners nationwide, and 76 percent in California). The first category of measures described above (ability to purchase a home) applies only to a small subset of households—those contemplating a new home purchase using a mortgage. A measure of “ability to pay for the next unit,” similar to that used by realtor associations for home buyers, could be developed for renters, but such measures have been published only rarely, and for a more restricted income group.⁶ The other

⁵ Stone 2006 argued for using this approach.

⁶ The California Budget Project developed a measure for minimum wage workers based on fair market rent in 2004 and published an update in 2008. The measure differed from both the NAR and CAR indices by calculating how many hours per week a household would have to work to “afford” the fair market rent, based on an affordability standard of 30 percent of income spent on housing. Kroll, Singe and Wyant 2009 used a modified version of this measure.

measures—share of income spent on housing or residual income—can be distinguished by tenure type.

Affordability in Broader Context—What Indicators Do Not Show

All three of these categories of indicators consider housing cost (whether purchase price or monthly payments for shelter) in the context of income levels and some financing costs. Other factors affecting welfare, such as capital gains, lending standards, and foreclosure activities, are not directly accounted for in these measures but can have important implications for the way that housing costs affect household welfare.

Capital gains on homes, for example, fluctuated widely between 2005 and 2010, with home sellers reaping high profits in “bubbling” markets through 2006 or 2007, and those who sold later experiencing much lower gains or even capital losses. This could be particularly significant for retirees who had planned to use capital gains on the home to finance their retirement.

The effect of interest rates are significant not only for determining recurring housing costs for homebuyers with a mortgage but also for existing homeowner with a mortgage who have the option to refinance. Yet the option to refinance is not simply a matter of interest rate levels and loan-to-value ratio. The requirements used to determine who was qualified for a new loan were eased in the mid 2000’s, allowing more households to buy a home but often leading marginal buyers into situations that quickly became unaffordable (by percent of income or residual standards). Lending standards tightened during the recession in terms of credit scores, leverage, loan size, and other factors which are not measured by the affordability measures.

The wide expansion of foreclosure activity also affected affordability in a number of ways that are not addressed in the measures discussed here. During periods when foreclosure and short sales were a large proportion of a small pool of homes on the market, median home price was skewed by these statistics—the high levels of affordability for the “next home sold” types of measures may lead to artificially high indicators of affordability, especially if the number of homes on the market were small. Foreclosures can lead to a household shift from homeowner to renter status, discussed later on. There are also costs and gains to foreclosure that are not incorporated in any of the measures—from moving costs and lost equity to lowered monthly payments for households in default but not yet evicted. The following sections note the implications of some of these factors, but largely proceeds in a narrower sphere.

A Note on Data

This paper relies on readily available aggregate data from public sources such as the US Bureau of the Census (housing prices, rents and income), the US Bureau of Labor Statistics (price indices), the Federal Housing Finance Agency (housing price indices), as well as private sources including the California Association of Realtors (affordability measures) and Real Facts (rental data). These data sources and their relation to the indicators described above are shown in Table 1. Except where otherwise noted, the paper uses indicators as provided by the authoring organization or agency. Some indicators, such as the FHFA index and the rental CPI component, are designed specifically for comparison over time. Other indicators, such as the Census share of income measure, should be interpreted with caution when used to examine trends over time. For example, changes calculated from annual Census measures have wide margins

of error. To minimize the degree of sampling error, we looked at large geographic areas as much as possible (the US, California, metropolitan regions or, if necessary, counties), rather than by city or smaller area.

Table 1: Data Summary and Sources		
Indicator or Affordability Measure	Variables incorporated in measure	Data Sources
FHFA Housing Price Index	<ul style="list-style-type: none"> • Same home sales by metropolitan area, state and nationally • Limited to transactions with conforming, conventional mortgages 	<ul style="list-style-type: none"> • Federal Housing Finance Agency
Rental CPI	<ul style="list-style-type: none"> • Stratified cluster sample of rental units, updated with new construction 	<ul style="list-style-type: none"> • Bureau of Labor Statistics
Time series income data	<ul style="list-style-type: none"> • Census Household median income 2000 to 2011, US and California • Per capita income, US, California and metro areas 	<ul style="list-style-type: none"> • U.S. Census Bureau, Current Population Survey, Annual Social and Economic Supplements. • US Bureau of Economic Analysis
California Association of Realtors (CAR) home purchase affordability index	<ul style="list-style-type: none"> • Median income • Median home price • Loan-to-value • Interest rate • Insurance • Property tax rate 	<ul style="list-style-type: none"> • Claritas • CAR sales records • Assume 0.8 • Average fixed/variable, FHFB • Assume 0.38% of sales price • Assume 1% of sales price
Costs as share of income	Measure incorporating: Mortgage plus fuel, taxes, insurance, and fees OR <ul style="list-style-type: none"> • Gross rent AND <ul style="list-style-type: none"> • Monthly Household Income 	Decennial Census or American Community Survey (composite number reported by the census)
Residual income indicator	Measure incorporating: <ul style="list-style-type: none"> • Ownership costs (reported in aggregate), including Mortgage plus fuel, taxes, insurance, and fees OR <ul style="list-style-type: none"> • Gross rent AND <ul style="list-style-type: none"> • 1/12 of Annual Household Income 	Decennial Census or American Community Survey (indicator calculated by author)
Sources for data are listed following references at the end of the paper.		

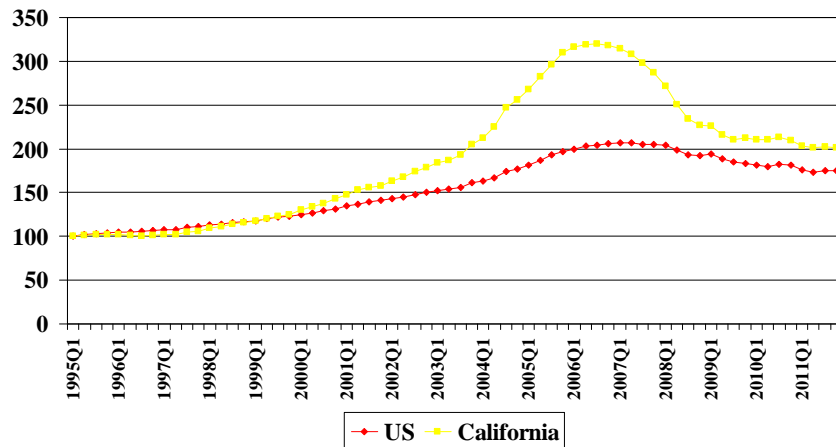
Underlying Elements of Affordability

Before examining affordability measures we present indicators of trends in some of the factors contributing to these measures for the US, California, and several California metropolitan areas. Indices of housing prices and rents over time show the primary cost factors in affordability, while income levels and interest rates are indicators of the resources available to pay for housing.

Housing Trends

Figures 1 and 2 show housing price indices produced by the Federal Housing Finance Agency. Home prices rose in the US and California from 1995 to 2007, slowing but not declining even during the 2001 recession. The housing price “bubble” was much higher for California than for the US as a whole. While US home prices doubled between 1995 and 2007, in California, prices more than tripled. California metropolitan areas had distinctly different versions of the bubble, but in places as widely varied as San Francisco, San Diego, Los Angeles and Sacramento, prices came close to tripling or more by the peak in 2006 or 2007.

Figure 1
FHFA Housing Price Index, US and California

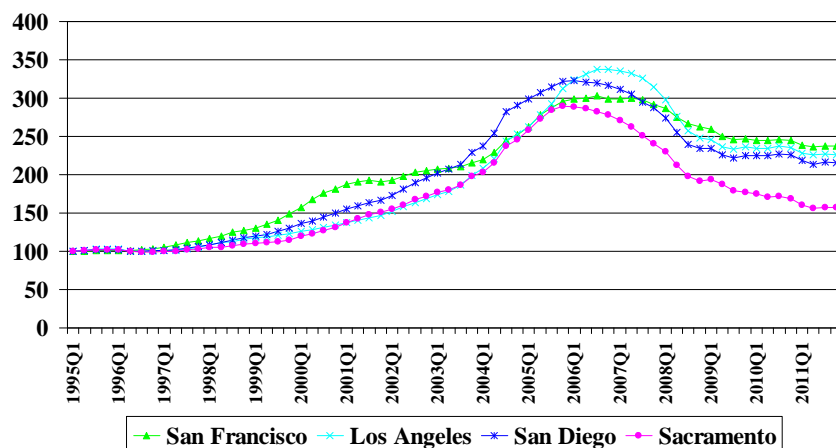


Source: Fisher Center from Federal Housing Finance Agency data .

While the rise was higher, the downturn also was sharper in California and its metropolitan areas than in the US. Nationwide, price levels as measured by the FHFA index declined by 15.5 percent between the peak in second quarter 2007 and fourth quarter 2011; California experienced decline from peak (3rd quarter 2006) of 37.1 percent. Of the four metro areas shown in Figure 2, San Francisco experienced the smallest decline from peak to trough, at 21.8 percent, while Sacramento, although prices had risen less from the 1995 level, experienced the greatest relative decline, of 45.9 percent.

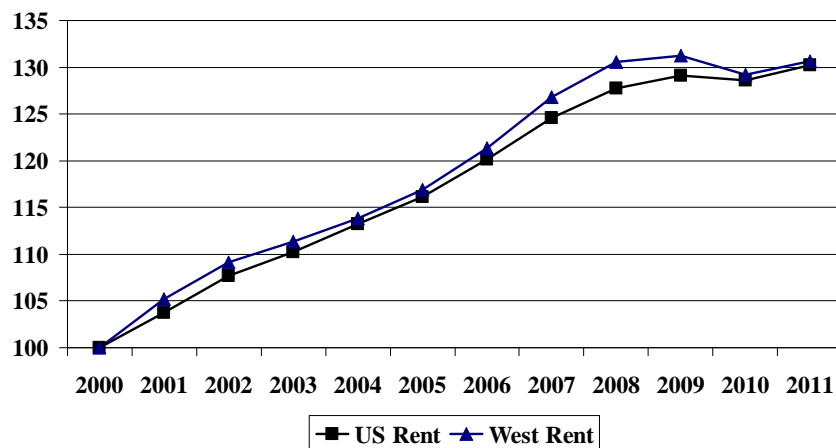
Nationwide, statewide, and among most metropolitan areas, price levels at the end of 2011 were anywhere from 10 to 80 percent higher than in 2000. Most coastal California places saw appreciation over the decade at a higher level than the nationwide gain of 40 percent, while many Central Valley places, including Sacramento, saw substantially lower rates of appreciation for the decade.

Figure 2
FHFA Housing Price Index, California Regions



Source: Fisher Center from Federal Housing Finance Agency data .

Figure 3
US and West Rental CPI

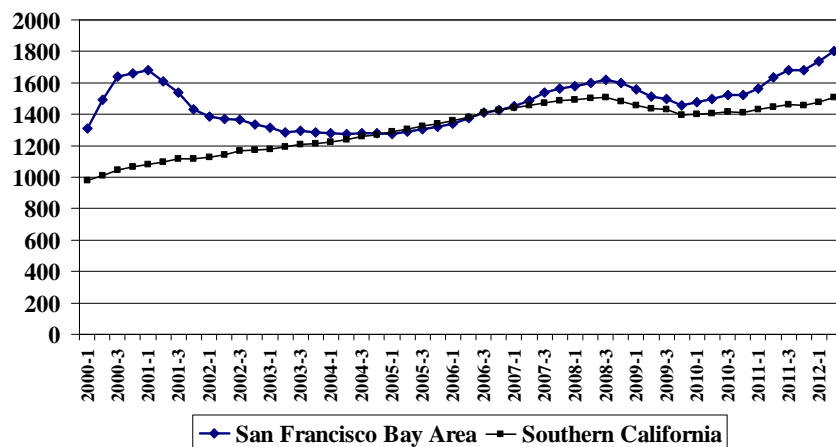


Source: Author from US Bureau of Labor Statistics Consumer Price Index series.

Rents show a somewhat different picture from the housing price data. (See Figure 3). For the US and the Western US, the CPI based on Shelter-Rent costs continued to rise

through 2009, dipped slightly in 2010, and began to rise again in 2011. Movement of rent levels, tracked by RealFacts, varied widely in California metropolitan areas, as illustrated in Figure 4. With the dot-com boom, rents in the San Francisco Bay Area had diverged sharply from those in Southern California. By 2007, the rent differential had disappeared, yet first quarter 2007 rents in the San Francisco Bay Area were 14 percent below their first quarter 2001 level, while in Southern California rents had risen 30 percent over the same period. Rents dropped in both areas during the height of the Great Recession, but by 2012 San Francisco Bay Area rents were above the 2001 peak, and Southern California rents had matched their 2008 peak.

Figure 4
San Francisco Bay Area and Southern California
Rental Trends



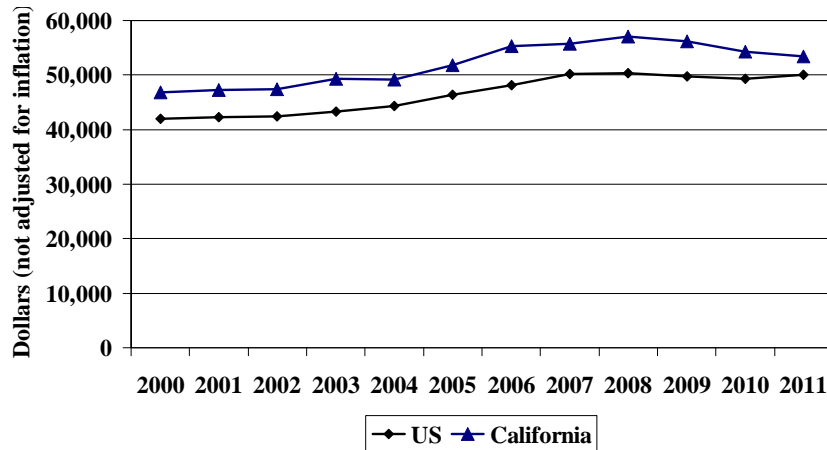
Source: RealFacts, as reported in Northern California and Southern California Real Estate Research Council publications.

Trends in Income

Figures 5a and 5b show trends in median household income for California and the US. Figure 5a reports income in current dollars, while income in Figure 5b is adjusted for

inflation, and shown in 2011 dollars. In current dollars (the better comparison with the housing price index), median household income in the US dipped slightly in the recession and then flattened by 2011. In California, the median household income rose through 2008 but then dropped, so that by 2011, the gap between US and California incomes had narrowed from that found in the previous decade.

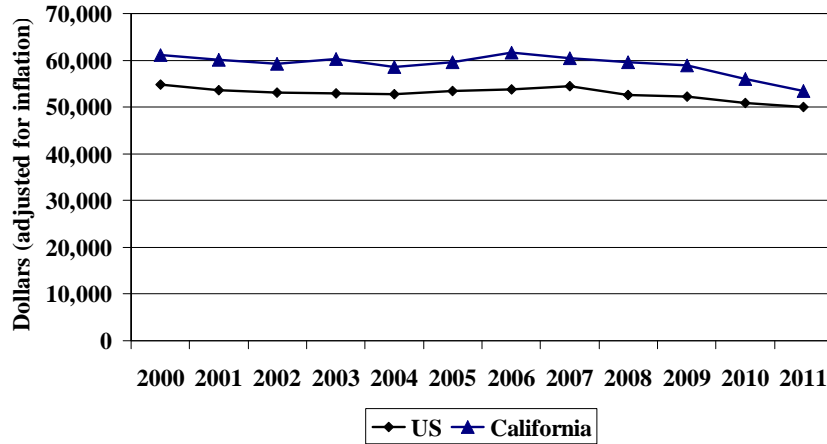
Figure 5a
 US and California Median Household Income
 2000-2011, Current Dollars



Source: Author from U.S. Census Bureau, Current Population Survey, Annual Social and Economic Supplements.

Adjusting for inflation, household median income showed very little gain between 2000 and the end of the boom. Inflation-adjusted median incomes dropped in both the US and California between 2007 (in the case of California) or 2008 (for the US) and 2011, leaving real median incomes at their lowest level in a decade.

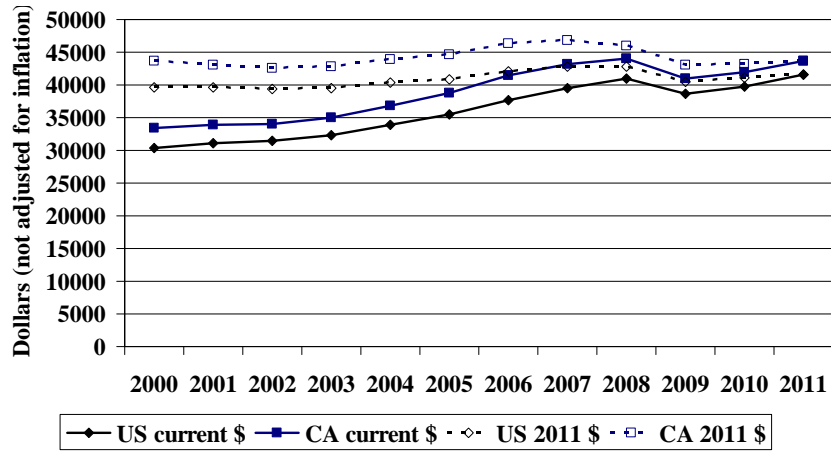
Figure 5b
 US and California Median Household Income
 2000-2011, Inflation Adjusted 2011 Dollars



Source: Author from U.S. Census Bureau, Current Population Survey, Annual Social and Economic Supplements.

Ten-year time series on median household income are not available for metropolitan areas (although household data is used for the affordability calculations over the smaller time period calculated later in the paper). Instead, we use per capita income levels to show income trends at the metropolitan area level. For comparison, Figure 6a first shows US and California trends in per capita income for both current and inflation adjusted dollars. Per capita incomes show stronger gains in the boom compared to the median household income, as well as a less severe drop relative to previous levels during the downturn. In real terms, California's per capita income had returned to the 2000 level by 2011. This difference between household and per capita income trends likely persists for the metropolitan areas as well. We compare the longer period of per capita income trends to illustrate the range of geographic differences among metropolitan areas over time.

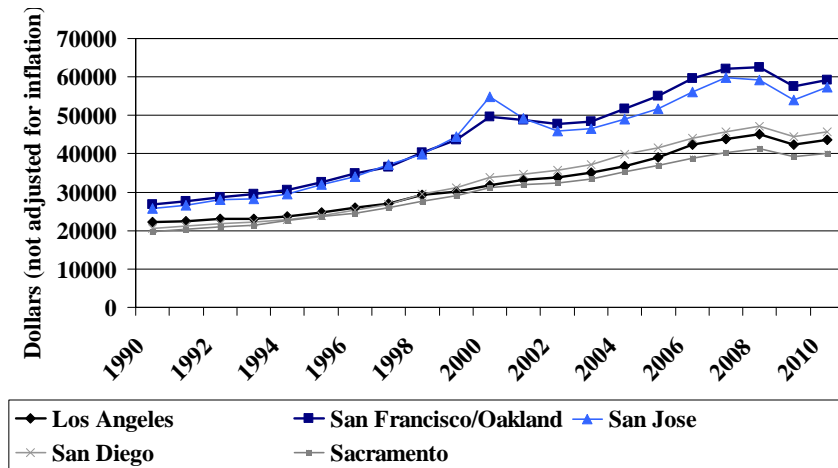
Figure 6a
 US and California Per Capita Personal Income
 2000-2011, Current Dollars



Source: Author from US Bureau of Economic Analysis.

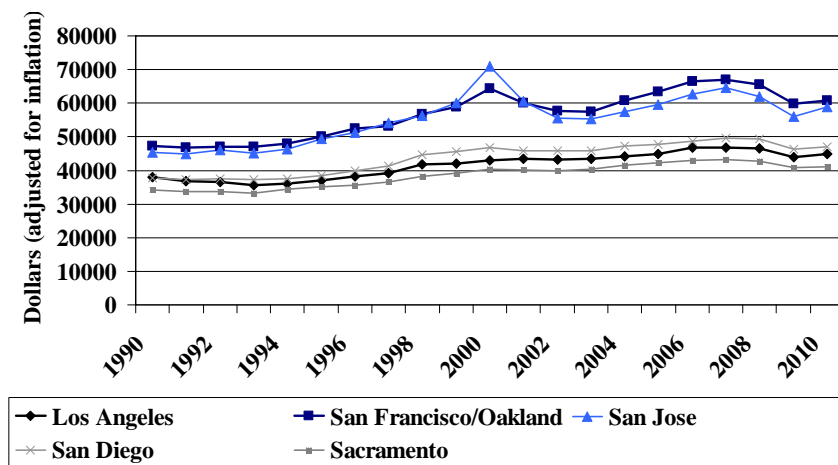
Per capita income trends show the significantly different cyclical experiences of California metropolitan areas not only in the most recent decade but in the preceding one., as shown in Figures 6b and 6c. In the 2000 to 2010 period, San Francisco and San Jose metro areas showed larger losses, gains, and again losses over time, while Southern California places and the Sacramento region showed more moderate gains in the boom and less extreme downturns following the bust. Although the San Francisco/Oakland and San Jose metro areas continue to have higher per capita incomes relative to other parts of the state, these areas saw inflation-adjusted incomes drop to levels below 2000 following the Great Recession. This apparently weaker performance compared to the state or to Los Angeles, San Diego and Sacramento should be seen in the context of the previous boom as well—2000 level incomes in the Bay Area and Silicon Valley had been inflated by the previous boom of the dot-com era.

Figure 6b
California MSA Per Capita Personal Income
1990-2010, Current Dollars



Source: Author from US Bureau of Economic Analysis.

Figure 6c
California MSA Per Capita Personal Income
1990-2010, Inflation Adjusted 2011 Dollars



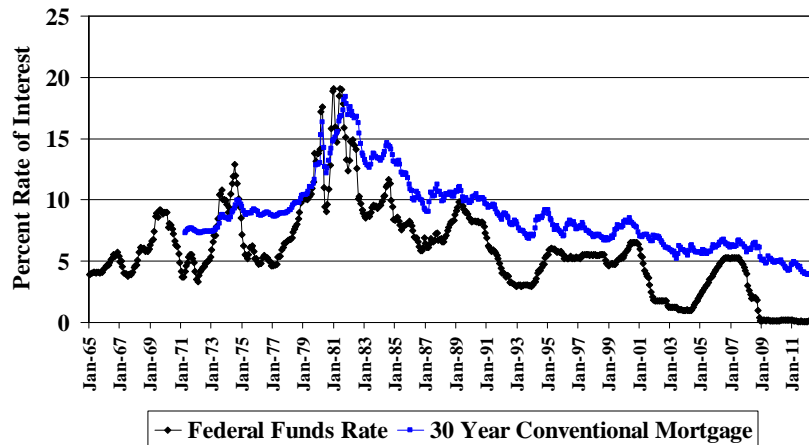
Source: Author from US Bureau of Economic Analysis.

Interest Rates

Financing costs are a significant element in housing cost variations over time for homeowners with a mortgage. Among the policy responses to the Great Recession was

monetary policy that held interest rates at extremely low levels. As shown in Figure 7, interest rates on mortgages had dropped to the lowest level ever in the historically tracked series from Freddie Mac. This would be expected to lower the costs of homeownership for new homeowners as well as those holding a mortgage that could be refinanced.

Figure 7
Federal Funds and 30 Year Mortgage Interest Rates



Source: Federal Reserve Bank of St. Louis FRED data system, from Board of Governors of the Federal Reserve System and Primary Mortgage Market Survey data provided by Freddie Mac.

Trends in Affordability Measures

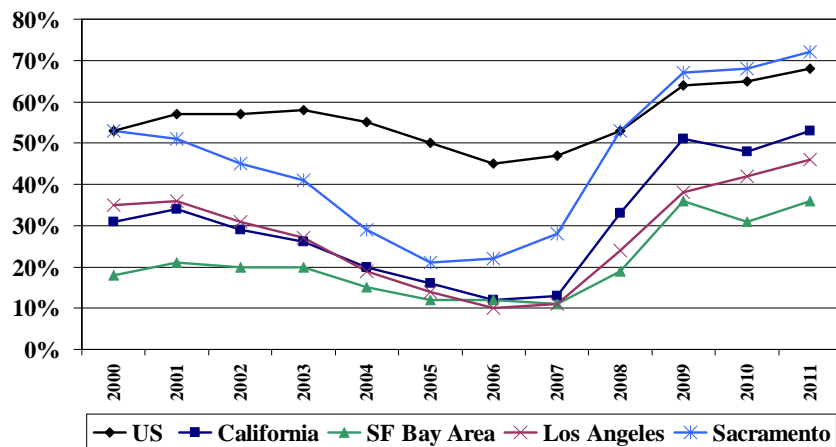
We look at trends before, during and after the Great Recession in the three different types of affordability measures described earlier. As in the previous section, we compare US, California and metropolitan area experiences, as well as differences among income groups in limited cases.

Ability to Purchase a Home

The California Association of Realtors (CAR) measure addresses only affordability for home-buyers. This measure is reliant on actual sales price data.

With home prices and interest rates both depressed, even with some decline in income levels, the purchase of a home became much more “affordable,” during the Great Recession, using the ability to pay statistics measured by realtor associations. With the CAR measure, a higher percentage indicates that a greater number of households would qualify for a loan on a median priced home. This percentage ranged from a previous high of 34 percent in 2001, to a low of 12 percent in 2006, recovering to 53 percent in 2011 (see Figure 8). There has been wide variation within the state. The San Francisco Bay Area has historically had the lowest levels of affordability (21 percent in 2001, 11 percent in 2007, but reaching 36 percent in 2011). The Sacramento area went from affordability at a level equivalent in to the US in 2000 (53 percent) to a widening gap below the US, most extreme in 2005 with the US at 50 percent and the metro area at 21 percent, jumping up to 72 percent by 2011 following the bursting of the housing bubble, at 4 percentage points above the US.

Figure 8
CAR Housing Affordability Index



Source: Authors from California Association of Realtors Web Site.

While these trends all show unambiguous improvement in affordability for the recession and recovery period, there is an important caveat to this result. The CAR measure is based on the median price of actual sales activity. The level is very much dependent on the mix of homes sold at the point in time. In Sacramento or the San Francisco Bay Area, for example, relatively high shares of foreclosed homes at the lower end of the market sold in the recovery period would depress the median value, suggesting that the median could rise and “affordability” drop again once the market returned to a more normal mix of housing types.

Measures Based on Census Data

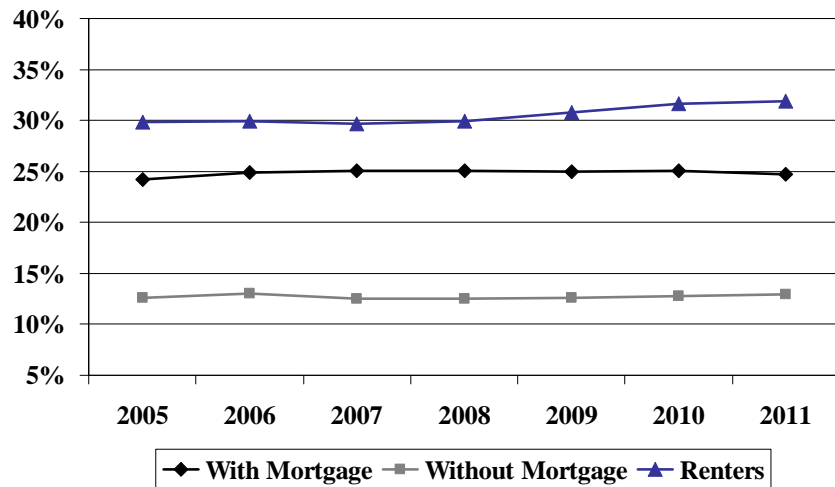
The next two measures are constructed from Census data, drawing on the 2000 Census and the American Community Survey for 2005 through 2011. The Census measures address affordability in aggregate for all households (or for the median household), and rely not on sales price but on monthly costs related to housing, whether for a renter, a homeowner with a mortgage, or a homeowner without a mortgage. Both approaches are relatively simplistic compared to the choices facing someone making a purchase at the point in time, as neither looks directly at down-payment costs, apart from monthly payments. Nevertheless, each gives a sense of the effects of changing economic conditions, including income levels, housing costs and financing, on affordability.

Share of Income Spent on Housing

The charts in this section examine both the share of income spent on housing and the percent of population with housing costs greater than 30 percent of income. We look first at the US and California and then at variations within California.

Figure 9a shows trends for the US in the share of income spent on housing costs.⁷ At the nationwide level, home owners carrying mortgages experienced a rise in income share spent on housing from 2005 to 2006; since then the share has averaged close to 25 percent. Share of income spent on housing for owners without a mortgage has fluctuated very little and has stayed well below 15 percent. Renters, in contrast, saw a steeper rise in gross rents as a percent of income during the recession and recovery.

Figure 9a
Percent of Income Spent on Housing, US



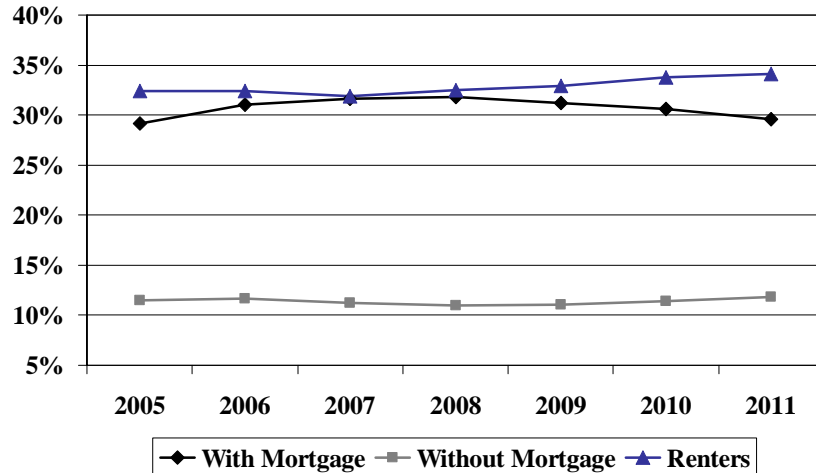
Source: Fisher Center from US Bureau of the Census, American Community Survey

The California experience for renters compared to homeowners is quite different, as shown in Figure 9b. Homeowners with a mortgage spent an increasingly higher share of income on housing through 2008, after which the level dropped each year. The median share of income spent on housing costs for homeowners, although just below 30 percent, remains above the 2005 level, and substantially above the 2000 level of 25.3 percent, as reported by the US Census. By 2008, California homeowners with a mortgage were

⁷ See Table 1, earlier, for details on what is comprised in housing costs and on how income is measured.

spending a share of income equal with that of renters, but this parity was short lived (in contrast to US mortgage paying homeowners, whose share of costs have remained below that of renters).

Figure 9b
Percent of Income Spent on Housing, California



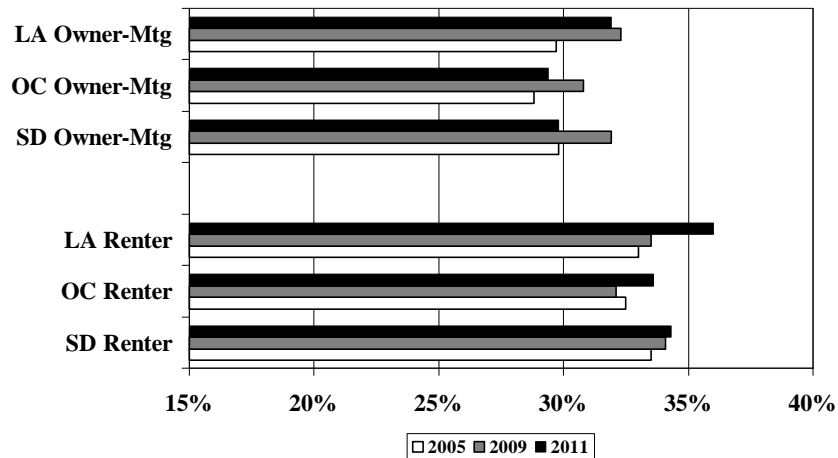
Source: Fisher Center from US Bureau of the Census, American Community Survey

Costs for homeowners without a mortgage, in contrast, dropped as a share of income from 2006 through 2008, but rose as the recession continued, exceeding the previous peak in 2006. Nonetheless, homeowners without a mortgage in California spend far less of their income on housing costs than do either those with a mortgage or do renters. Furthermore, California homeowners without a mortgage spend a lower share of income on housing than do US homeowners without a mortgage.

Renters in California, like those nationwide, saw a sharp rise in the share of income spent on rent beginning in 2008. By 2011, the median renter household in California spent 34 percent of income on rent.

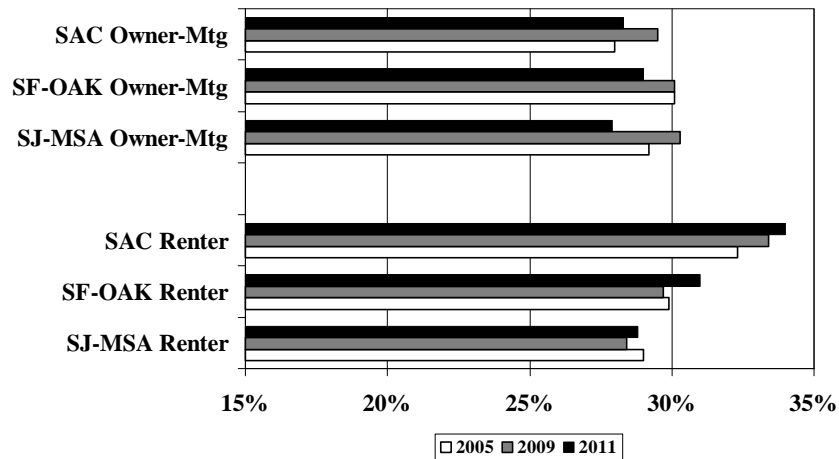
Although metropolitan areas tended to follow the same broad patterns as the state, there were noticeable differences among places, as shown in Figures 10a and 10b. In all of the large metro areas charted except San Jose, renters two years into the recovery were spending a higher share of income on housing than they did either at the peak of the housing market or the depths of the recession. Overall, renters in Los Angeles were spending the highest share of income on housing--over 35 percent, followed by those in the San Diego and Sacramento markets, Homeowners with a mortgage in the depths of the recession were paying a higher share of income on housing than at the peak of the housing market. Share of income spent on housing dropped in all six of the markets shown between 2009 and 2011, but only in the San Francisco and San Jose metro areas did the share drop to below 2005 levels.

Figure 10a
Southern California Comparative Renter and Mortgage-Paying Homeowner
Costs as Share of Household Income



Source: Author from US Bureau of the Census, ACS 2005-2011, Tables B25092 and 25071

Figure 10b
Northern and Central California Comparative Renter and Mortgage-Paying
Homeowner Costs as Share of Household Income



Source: Author from US Bureau of the Census, ACS 2005-2011, Tables B25092 and 25071

Residual Income after Paying Housing Costs

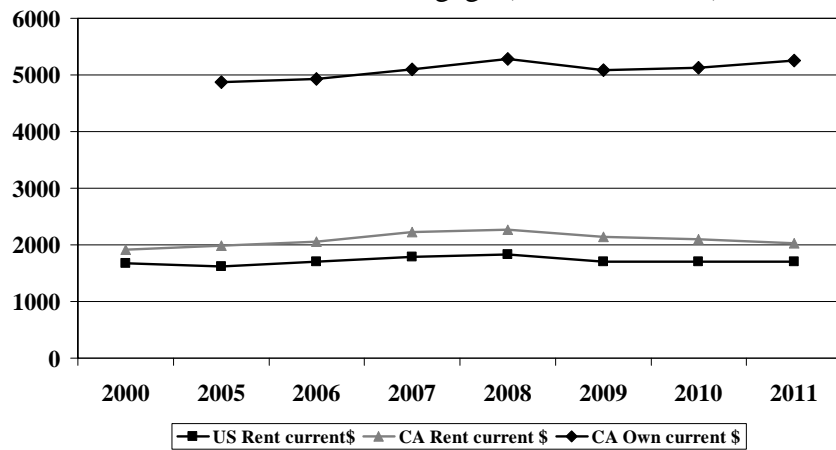
The “residual” measure reported here is the difference between the median household income for the tenure category of household (estimated as one twelfth of the annual median income reported in the ACS and Census) and the median housing cost (homeowner or renter, depending on the household tenure), indicating the monthly income available after housing expenses are covered. As such, it cannot address some of the other factors mentioned earlier, such as capital gains applied to future income.

The data for these calculations are available at the US and state levels, but not at the metropolitan area level. Instead, we use the county level to look at changes within California regions.

Before adjusting for inflation, US and California after-housing-cost income “residuals” rose between 2005 and 2008, the upswing of the housing boom, despite higher housing prices, as shown in Figure 11a. The increase occurred most strongly for

homeowners but also for renters. The nominal residual dropped and then rebounded for California homeowners and dropped modestly without rebound for both California and US renters. The US renter nominal residual level was below even the 2000 value by 2011, while California's was above the 2000 level but below the 2005 level by 2011.⁸

Figure 11a
Residual Income Indicator, US and California Renters, California Homeowners with Mortgage (Current Dolalrs)

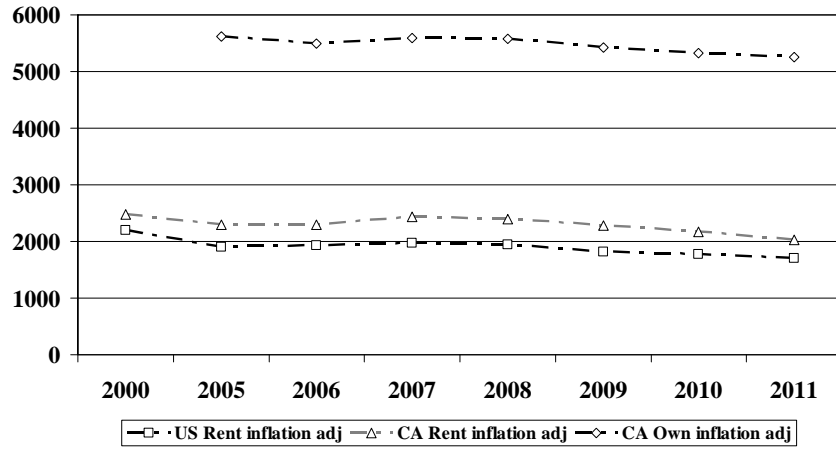


Source: Author from US Bureau of the Census, Census 2000, ACS 2005-2011, Tables H063 and S2503.
Note: Inflation adjusted with BLS CPI, all items except housing; weight adjusted from 3 city CPI's for California. $Residual = (Annual Household Income)/12 - (Housing Cost)$

With inflation adjustment, residual income in 2011 is below all earlier periods in the charts, for both US and California homeowners and renters, as shown in Figure 11b.

⁸ Owner occupied numbers were not available in equivalent categories for the 2000 census as compared to the data presented in the American Community Survey in more current years.

Figure 11b
Residual Income Indicator, US and California Renters, California Homeowners with Mortgage (Inflation Adjusted)

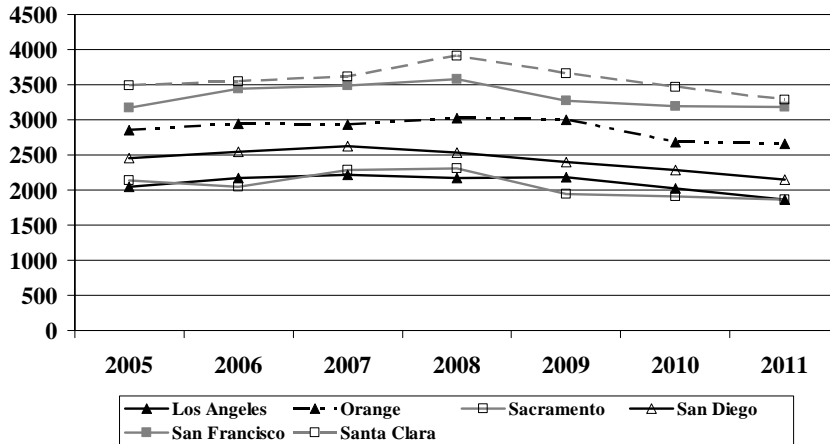


Source: Author from US Bureau of the Census, Census 2000, ACS 2005-2011, Tables H063 and S2503.
Note: Inflation adjusted with BLS CPI, all items except housing; weight adjusted from 3 city CPI's for California. Adjusted to 2011 prices. $Residual = (Annual Household Income)/12 - (Housing Cost)$

The experience of renters and homeowners with mortgages varied widely among California counties, as measured by the change in the inflation-adjusted residual measure between 2005 and 2011. Renters in Santa Clara and San Francisco counties saw significant gains in residual income during the housing boom, but those in the other counties illustrated saw little gain in the boom, and five of the six counties had lower

residual incomes in 2011 than in 2005. (See Figure 12).

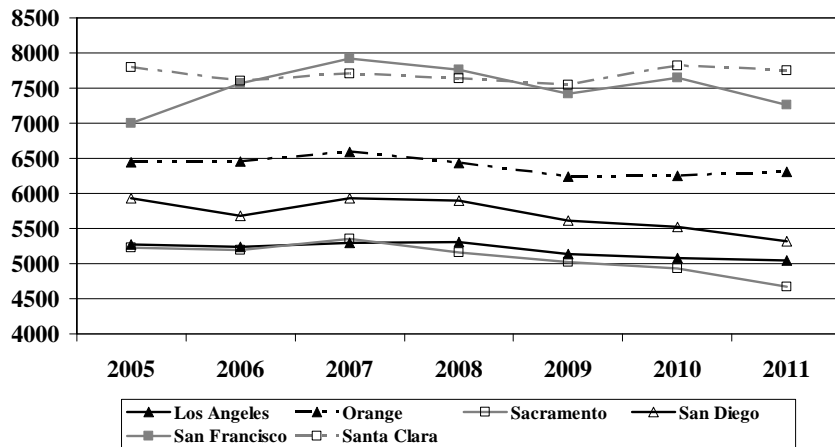
Figure 12
Residual Income Indicator, California Counties, Renters



Source: Author from US Bureau of the Census, Census 2000, ACS 2005-2011, Tables H063 and S2503.
Note: Inflation adjusted with BLS CPI, all items except housing; weight adjusted from 3 city CPIs for Sacramento. Adjusted to 2011 prices. Data available for counties, not metro areas.

The residual for homeowners with a mortgage is substantially higher than for renters in all California metropolitan areas. As shown in Figure 13, among the six counties shown here, the lowest residual measure for homeowners with a mortgage, \$4670 in Sacramento County in 2011, is above the highest residual measured for renters in Figure 12. The highest residual among these counties for homeowners with a mortgage is almost \$8000. This difference alone suggests that those who can afford to buy a home using a mortgage in the wealthier markets have much more discretion on the proportion of income to spend on housing and the type of housing tenure to pursue.

Figure 13
Residual Income Indicator, California Counties, Homeowners
with Mortgage



Source: Author from US Bureau of the Census, Census 2000, ACS 2005-2011, Tables H063 and S2503.
Note: Inflation adjusted with BLS CPI, all items except housing; weight adjusted from 3 city CPIs for Sacramento. Adjusted to 2011 prices. Data available for counties, not metro areas.

Even with this choice, in several places homeowners with mortgages saw their residual income drop during the Great Recession, despite record low mortgage rates. Regional variation was apparent in the degree and direction of impact. After adjusting for inflation, the residual for homeowner households in San Francisco County stayed above the 2005 level although dropping below the 2007 peak. The homeowner residual in Santa Clara County showed only modest fluctuations throughout both the boom and the economic crisis. The other four counties on the chart—Los Angeles, Orange, Sacramento and San Diego—experienced declining residual values during the economic crisis and recovery, with the impact most severe for Sacramento County, also the location with the lowest residual for homeowners with a mortgage.

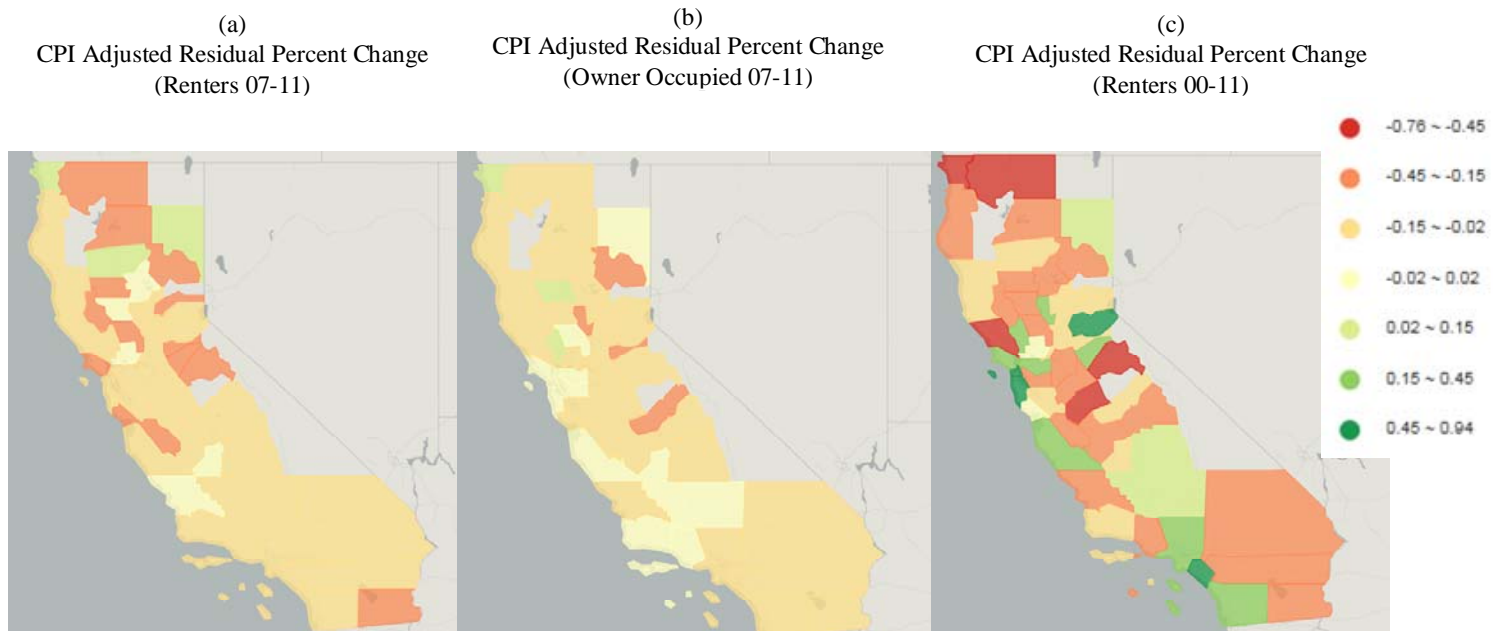
Figure 14 extends the data on the residual indicator to most California counties (no data was available for several rural counties shown in grey). The residual change for renters from 2007 to 2011 (shown in part a of Figure 14) ranged from a countywide loss

of 45 percent in Glenn County to a gain of almost 10 percent in Tehama County. The range of change between 2007 and 2011 was smaller for owner occupied dwellings (part b of Figure 14), with the largest decrease in the residual measure found in Plumas County (21.5 percent) and the largest gain in Napa County, at 5.6 percent. While all of the counties with homeowner residual declines over 10 percent were in rural or micro-metropolitan areas, four of the ten counties where the residual for homeowners rose were urban counties in the San Francisco Bay Area.

Part c of Figure 14 shows the residual remaining in 2011 compared to 2000, adjusted for inflation. Of the 51 counties for which data is available, 35 had a median residual indicator for renters lower in 2011 than in 2000. The 16 with higher residuals included the three large coastal metro areas in Southern California (Los Angeles, Orange and San Diego counties), five of the nine San Francisco Bay Area counties, as well as a small number of Central Valley and foothill counties and two coastal counties bordering the San Francisco Bay Area.

Figure 14

Residual Monthly Income After Owner Costs Adjusted by CPI



Source: Author calculations from US Census and American Community Survey data.

Differential Effects Among Income Cohorts

The results for metropolitan areas and counties may appear to suggest the surprising results that households overall may be better off in some of the places with the highest rents and housing prices. This could well be true on average because these places also have higher incomes. Yet disaggregating housing burden measures by income group could tell a different story. How are low income households affected in these higher income places?

Table 2 shows the percent of households paying over 30 percent of income on housing costs, for the peak housing boom period (2005 to 2007) and the recession recovery period (2009 to 2011). The share of households spending 30 percent or more of income on housing is not significantly higher in San Francisco and San Jose, compared to California's other large metropolitan areas for any of the income categories shown. Nor was the growth in "burdened" households between the boom and the current period worse in the Bay Area metro areas compared to other parts of the state. Instead, comparing trends among income groups, what is most striking is the large jump in the percent of burdened renter households in the low income (as compared to very low income) households. Whether because of job losses, cuts in benefits, or competition for rental housing with households moving out of homeownership, this income category saw jumps of close to 10 percentage points in burdened households between the 2005 to 2007 and the 2009 to 2011 period.

Table 2: Percent of Households Paying 30% or More of Income on Housing Costs						
Owners	Income Cohorts					
	<\$20,000		\$35-49,999		>\$75,000	
	2009-11	2005-07	2009-11	2005-07	2009-11	2005-07
United States	73.0%	70.3%	39.7%	37.3%	12.4%	12.1%
California	77.5%	75.6%	58.1%	56.9%	27.0%	27.5%
Los Angeles County	80.1%	78.1%	65.4%	63.5%	29.7%	27.2%
Orange County	80.3%	77.5%	59.8%	58.8%	29.4%	29.0%
Sacramento--Arden-Arcade--Roseville	78.2%	75.3%	57.1%	58.3%	22.3%	23.6%
San Diego-Carlsbad-San Marcos	78.4%	75.2%	60.3%	55.5%	28.8%	30.0%
San Francisco-Oakland-Fremont	81.6%	79.3%	57.0%	56.5%	29.8%	32.2%
San Jose-Sunnyvale-Santa Clara	78.5%	82.4%	56.3%	55.6%	30.5%	31.2%
Renters	<\$20,000		\$35-49,999		>\$75,000	
	2009-11	2005-07	2009-11	2005-07	2009-11	2005-07
United States	88.6%	86.6%	38.5%	29.3%	5.2%	3.9%
California	91.5%	91.4%	63.7%	52.8%	8.5%	6.3%
Los Angeles County	92.2%	92.6%	63.7%	48.3%	8.7%	6.2%
Orange County	92.3%	92.2%	82.3%	77.1%	11.2%	7.3%
Sacramento--Arden-Arcade--Roseville	91.5%	89.8%	55.2%	46.3%	4.4%	2.8%
San Diego-Carlsbad-San Marcos	93.3%	93.2%	68.2%	59.0%	10.5%	8.4%
San Francisco-Oakland-Fremont	87.5%	88.3%	70.1%	61.0%	8.7%	6.7%
San Jose-Sunnyvale-Santa Clara	88.6%	89.3%	76.7%	65.9%	7.2%	5.6%
Source and Notes: Author from US Bureau of the Census data, using American Community Survey 3 year averages for the 2005 to 2007 period and the 2009 to 2011 period						

Limitations with the Methodology

These findings should be seen as suggestive, raising questions to be explored further with disaggregate data. Because the data is in aggregate, it ignores several important elements.

Household size: The difference in the residual affordability measure is affected by household size. Table 3 shows average household size for homeowner and renter households for the 2011 3-year sample (distinction between with and without a mortgage

among homeowners was not available at the aggregate level). The difference in renter household size, for example, were per capita effects considered, would increase the differential between San Francisco and Sacramento renter residuals, while the household size difference would shrink the differential in residual level between owner and renter households within the city of San Francisco.

Place	All households	Owner-Occupied Households	Renter Household	Owner Occupied/Renter Ratio
United States	2.62	2.69	2.49	1.080321
California	2.94	2.98	2.88	1.034722
Alameda County	2.76	2.91	2.59	1.123552
Los Angeles County	3.01	3.19	2.85	1.119298
Orange County	3.02	2.99	3.05	0.980328
Sacramento County	2.72	2.74	2.7	1.014815
San Diego County	2.83	2.86	2.79	1.02509
San Francisco County	2.32	2.72	2.1	1.295238
Santa Clara County	2.92	3	2.81	1.067616

Source: US Bureau of the Census, American Community Survey, 2009-2011.

Tenure Change: During the Great Recession, tenure of households changed as the most troubled owner households experienced foreclosure and return to renter status. This could lead to an improvement in the aggregate status of homeowners with a mortgage without improving the status of any individual homeowner. The addition of these troubled households to the renter group could either raise or lower aggregate measures for renters, depending on the income and rent status of these tenure-shifting households.

Sample Size and Margin of Error: The greatest volatility seems to show up for rural counties in California, where the sample size on an annual basis is relatively small. The fact that rural and small counties are at the extremes shown in Figure 14 may be an

artifact of poor coverage rather than significant differences in income, employment, housing supply, building activity, financing, or other factors. The estimates presented in the preceding figures use the Census estimates only and do not make adjustments for margin of error or statistical significance.

Aggregate versus individual experience: While these measures are useful for a broad overview of trends over time, many of the details of causality may be missed by looking only at aggregate statistics. Analysis of individual household experience would be necessary to identify the factors determining which households were likely to improve or worsen their housing affordability circumstances during periods of economic change.

Housing costs—and gains—beyond monthly expenses and income: The individual gains and losses associated with the sale of a home, whether by choice or forced by financial or personal circumstances, are beyond the scope of this analysis. Yet these factors may either mitigate or exacerbate the “affordability” circumstances.

Summary

Table 4 summarizes the trends over time for the different indicators of affordability reviewed here. The big picture suggests that the experience has been very different for homeowners and for renters. Homeowners faced more stressful changes in affordability during the boom, but by some measures benefitted during the recession and the recovery (with the caveat that those undergoing foreclosure are lost in the aggregate statistics). Renters had the opposite experience, with affordability improving during the boom, possibly because income increases were greater than rent increases, but becoming

worse during the recession and recovery. However, there are important variations in the big picture when measures are compared in more detail.

	CAR	Percent of Income spent on Housing		Residual Indicator (inflation adjusted)	
Geographic Areas	Owner*	Owner*	Renter	Owner*	Renter
Boom Period					
United States	Less	Less	Flat		Flat
California	Less	Less	More	Flat	More
Los Angeles	Less	Less	Flat	Flat	Flat
Orange County	Less	Less	Flat	Flat	Flat
San Diego	Less	Less	Flat	Flat	Flat
Sacramento County/MSA	Less	Less	More	More	More
San Francisco County/MSA	Less	Less	Flat	More	More
Santa Clara/San Jose MSA	Less	Less	Flat	Flat	More
Recession and Recovery					
United States	More	Flat	Less		Less
California	More	More	Less	Less	Less
Los Angeles	More	More	Less	Less	Less
Orange County	More	More	Less	Less	Less
San Diego	More	More	Less	Less	Less
Sacramento County/MSA	More	More	Less	Less	Less
San Francisco County/MSA	More	More	Less	Less	Less
Santa Clara/San Jose MSA	More	More	Flat	More	Less

* Homeowners with a mortgage only.

First, the homeowner experience is not consistent among measures. Although homeowners were better able to purchase homes and the median household spent a lower share of income on housing during recovery than at the peak of the boom, the residual income measure indicates that households had less income left over to pay for other living expenses by 2011 than at the peak of the boom, with the exception of those in Santa Clara County.

Second, homeowners without a mortgage (not shown in the chart) were less vulnerable to rising housing prices in the boom but were more vulnerable to declining incomes (from both wages and retirement savings) in the recession and recovery. For the retired population within that group, overall income levels could be quite low, leaving the household vulnerable to impacts on the residual amount remaining for living expenses beyond housing.

Conclusions

Stepping back from the details of different affordability measures, the experience in the Great Recession and recovery period offers several lessons. First, falling housing prices do not necessarily mean improved affordability for all households. As we saw in the past half-decade, housing prices and rents do not always coincide in movements, and the experience of homeowners may be the opposite of that of renters. Furthermore, wages, unemployment rates, stock movements, dividend payments and interest rates all contribute to the overall ability to pay for housing, well beyond the effects on housing prices as the result of market movements.

Second, the usefulness of a definition of affordability is closely tied to the goals to which the concept of affordability applies. Goals may be general, based on financial wellbeing of the population, comparative as in the case of competitiveness for businesses relative to other locations, or social, as with home ownership. Based on the CAR definition, affordability improved for several years for homeownership, but only for a narrower group of borrowers who were able to qualify for a first mortgage or a refinanced home equity loan.

Third, whether or not the goals are met is also dependent on normative standards. Based on a “financial wellbeing” standard, although affordability worsened statewide for renters and homeowners without a mortgage alike, the latter were still well within the norms of acceptable affordability, while in many parts of the state, more than half of renter households were not within those norms.

Fourth, a full picture of housing market conditions requires an understanding of income levels, prices, financing costs and rents and how these interact. The norms themselves are not a complete measure of welfare. For example, the element of choice is not well covered by affordability measures. High income households may have both high shares of income spent on housing, yet high total residuals, having more discretion on how their income is spent than do lower income households who have no choice but to spend high shares of income (albeit much lower absolute levels) on housing. Affordability indicators are most useful when set in context, with interpretation taking into account overall income and costs as well as relative payments.

Finally, geographic variations in experience are dramatic. Policies that are appropriate for less affluent households in urban areas with expanding economies and inflated housing markets may be very different from those that work best in stagnant rural areas where housing quality may be as important an issue as cost relative to income, and housing price a smaller element relative to overall income levels.

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