This article examines indices of rental housing affordability on a county-by-county basis in California during the years 2009-2012, a period of rising rents and falling incomes across the state and nation as a whole. I report a correlation between increases in gross rent as a percentage of income and increases in food stamp enrollment rates, arguing that this outcome supports existing calls to better integrate government safety net programs. I contend that Californians, finding governmental rental assistance programs inaccessible, are increasingly turning to food stamps to increase their incomes to cope with high housing costs. On the basis of this observation, I offer two suggestions for policy makers: (1) shift away from a national standard (30 percent of income) of housing affordability and towards greater regional sensitivity; and (2) partially integrate the federal food stamp and Section 8 programs.
crease in the number of homeowners. Accordingly, by the fourth quarter of 2011, the national homeownership rate dropped to 66 percent, the lowest since 1998. The corresponding number of renter households grew by one million—the largest annual increase since the early 1980s—and rental prices increased in thirty-eight of sixty-four large U.S. metro areas.

California’s market was no exception. By 2011, the surge in rental demand in California raised the statewide average fair market rent (FMR) for a two-bedroom apartment to $1,353, behind only Hawaii and the District of Columbia. Spurred by growth in the tech sector, Bay Area rental markets led the way: San Francisco and San Jose rental prices rose 11 percent and 8.8 percent, respectively, from fourth quarter 2010 to fourth quarter 2011. In 2011 and 2012, rents for a variety of units, studios to three-bedroom apartments, jumped a staggering 15-20 percent across Santa Clara, Alameda, Contra Costa, and San Mateo Counties.

Though not as dramatic as the Bay Area, Southern California counties also experienced growth. In 2011, rents rose in thirty-nine of the forty sub-markets; Los Angeles County posted the highest average increase of all the South California counties at 6.2 percent and saw net apartment move-ins quadruple from 2010. San Diego County (4.3 percent), San Bernardino and Riverside Counties (3.4 percent), and Orange County (3.2 percent) logged smaller but steady increases as well. Indeed, the rental recovery was widespread and robust during this time.

This combination—rising rents coupled with ongoing unemployment and economic hardship—raises the question of how households across the state coped. When faced with limited and shrinking resources, households must confront trade-offs in consumption, pitting housing costs against spending on other needs. As an extreme and troubling example of this trade-off, some families are forced into homelessness when income is unable to cover housing expenses. Analyzing national census data and shelter bed counts, Quigley, Raphael, and Smolensky demonstrated that rental market variables contribute to homelessness. Specifically, in both California and the United States, the availability and corresponding costs of rental units robustly predict homelessness rates: in metropolitan areas, lower vacancy rates and higher median rental prices are associated with higher rates of homelessness. These findings challenge the notion that individual deficiencies primarily cause homelessness and have important public policy implications; if the economic principles of supply and demand govern who is housed and who is not, then affordable housing policy can effectively decrease homelessness.

Unfortunately, rental assistance through the federal Housing Choice Vouchers (Section 8) is declining. Between 2007 and 2011, the number of low-income, subsidy-eligible renters rose by 3.3 million. However, despite an increase in federal outlays for the Section 8 program during this period, rising rental and utility costs increased existing participants’ per-voucher expenditures and left the number of assisted renters essentially unchanged. Consequently, the share of income-eligible households receiving rental subsidies shrank from 27.4 percent to 23.8 percent. In California, this lack of availability translated into overcrowded waitlists for subsidy programs. The San Francisco Housing Authority’s Section 8 waitlist, for example, has been closed for more than five years. Santa Clara County has a waitlist of 25,000 that has seen little movement since 2006. The average wait for a voucher in San Diego County is 8 to 10 years, and Marin County’s Section 8 voucher program’s waitlist was 8,000 people long in 2013. Moreover, those households who are able to obtain a subsidy are often unable to utilize it because landlords frequently refuse to accept Section 8, and those that do have few available units that fall below the government-mandated maximum permissible rent, or Fair Market Rent. Indeed, more than 50 percent of voucher recipients in some metropolitan areas fail to find a suitable unit before the voucher expires (generally within 60-120 days). Because formal rental assistance is unattainable, households may turn to other government transfer programs.

Figure 1. Correlation Between Changes in Housing Costs and Median Incomes for 40 California Counties, 2009-2012

$r = .35, p = .03$
programs to free up income for unsubsidized housing costs. One alternate program is the Supplemental Nutritional Assistance Program (SNAP).

**Housing Costs and Household Expenditures**

Researchers and government officials alike have long known that government provisions in one domain affect recipients’ economic behaviors in others. Because housing costs are generally a household’s first expenditure, low-income households have little remaining disposable income. To this point, housing subsidy expenditures lead to a 10 to 20 percent rise in non-housing spending, which suggests rental subsidies free up income to purchase other goods. Along these lines, the Section 8 program has been described as a “poorly disguised income support program.” Despite the program’s original goal of improving renters’ housing quality, up to one-fifth of recipients apply the voucher to the units they are currently occupying. This suggests that many program recipients treat the housing voucher as supplemental income to cover their existing expenditures. Simply put, high rent-to-income ratios directly affect consumption of other necessities.

Such observations have motivated academics to call for better integration of federal housing assistance programs with other welfare provisions. If Section 8 vouchers primarily reduce the rent-to-income ratio rather than improve access to higher-quality housing, then the program should be reformed to coordinate efforts with other benefits programs that accomplish the same goal. Under the integrated arrangement, Section 8 would become a government entitlement program similar to those for other basic necessities, such as SNAP, thus providing greater coordination in the safety net for basic material needs.

However, despite the intuitive appeal, little evidence exists to support a link between housing and food stamp participation. For example, Carlson and colleagues, who analyzed Wisconsin data, attribute a small 4 percent increase in likelihood of food stamp enrollment to Section 8 voucher receipt, but their data did not allow for a direct enrollment estimate. Harkness and Newman found no link between increases in food stamp enrollment and overall food spending among housing voucher recipients. They attribute this finding to administrative factors within the SNAP program; when households move into subsidized housing, their allowable shelter cost deductions (part of the income calculation) decrease, translating into smaller SNAP grants.

Importantly, no studies of which I am aware examine a more fundamental, behavioral question (and one that circumvents the administrative confounds suggested by Harkness and Newman): do sudden decreases in housing affordability push households to enroll in food stamps, given the waitlists for federal housing vouchers? I test this relationship and explore its implications for policy reform below.

**Methods**

I employed data from the 2009 and 2012 American Community Survey (ACS). Administered by the U.S. Census Bureau, the ACS is a nationwide survey that collects information on demographic, social, economic, and housing characteristics. The ACS is administered on a yearly basis to local jurisdictions whose populations exceed 65,000; data from those areas whose populations fall below 65,000 are tracked on three- and five-year cycles. I opted to use the yearly estimates because their time sensitivity captures data about local economic phenomena that unfolded more rapidly than would have been measurable with three- or five-year estimates. Accordingly, only forty of California’s fifty-eight counties are represented in this sample. All rental prices tracked by the ACS are for currently occupied units and adjusted for yearly inflation. I analyzed gross median rent prices (as opposed to contract rental prices) because they include the price of utilities in the estimate and therefore more accurately reflect total out-of-pocket cost to consumers. Importantly, overall participation in SNAP increased greatly across the nation during the time period corresponding to this analysis. This can be partly attributed to the American Recov-
Rental Prices and Food Stamp Enrollment in California

ery and Reinvestment Act of 2009 (ARRA), which authorized a large increase in food stamp expenditures nationwide. However, since food stamp eligibility is determined by factors such as income and poverty, I assumed that the bigger driver of program enrollment were the large household economic challenges between 2009 and 2012. Accordingly, I controlled for these factors by including the percent changes in each county’s unemployment rates, poverty rates, and median incomes over this period as covariates in the regression analyses. I performed an arcsine transformation on all percentage data to approximate a normal distribution before submitting them to parametric analysis.

RESULTS

INCREASES IN HOUSING PRICES

In order to examine relative changes in affordability in the California rental housing market, I first examined changes in the total number of renters and in gross median rental prices from 2009 to 2012. As expected, there was a large increase in the total number of renters for each county. Excluding the counties of Marin and Nevada, which lack 2009 survey data, the total number of renters increased from roughly 5.2 million to 12.2 million, a 135 percent increase. Predictably, this increase in rental demand accompanied an increase in median gross rental prices: on average, median rents increased 4.4 percent across all forty counties in the dataset, from an average of $1,069 per month in 2009 to an average of $1,117 per month in 2012. This translates to a $48 per month average increase in statewide median gross rent.

Rising rental prices are not a policy concern if household income keeps pace with rent. Though the years 2009 to 2012 witnessed double-digit rent increases in some Bay Area counties, the surging tech economy also created new jobs and new wealth. Predictably, I found a positive correlation between the percent change in median rental prices from 2009 to 2012 and median household income over the same period (r = .35, p = .03; see Figure 1).

Nevertheless, upon closer inspection, the statewide rental market still showed signs of decreasing affordability overall. From 2009 to 2012, median annual household incomes dropped by an average of $385, or 0.68 percent, which translates into a statewide average decrease of $32 per month. Coupling this loss with the $48 per month average increase in median gross rent, Californians’ monthly disposable income dropped $80 net over this three-year period. Increased rent expenditures accounted for more than half of this change in disposable income. This claim is corroborated by a 0.77 percent increase in gross rent as a percentage of income (GRAPI) across this three-year period: California counties saw a statistically significant increase in GRAPI between 2009 (M = 33.42, SD = 3.09) and 2012 (M = 34.19, SD = 2.50); t(39) = 2.23, p = .03. By 2012, the average household in thirty-seven of the forty counties represented in the survey spent more than 30 percent of its income on housing costs, the federal standard for housing affordability (see Figure 2).

BENEFITS ENROLLMENT RATES

Having determined that housing became less affordable statewide during this period, I examined whether the percentage of individuals with SNAP, Supplemental Security Income (SSI), and general assistance (GA, a county-funded program in California) rose alongside increases in GRAPI. SNAP enrollment rates increased significantly over this 3-year period (t(39) = 11.15, p < 0.001). Similar results were found for increases in SSI rates (t(39) = 10.17, p < 0.001) and GA recipient rates (t(39) = 2.82, p = 0.008).

I next examined the predictive relationship between rising housing costs and increases in SNAP participation. Using a linear regression model that controlled for the percent change in unemployment rates, median incomes, and county poverty rates, I found that a percentage change in GRAPI between

<table>
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<th>S.E.</th>
<th>F</th>
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<td>Interception</td>
<td>0.03*</td>
<td>0.004</td>
<td>3.207 (4, 35)**</td>
</tr>
<tr>
<td>Percent change in unemployment rate</td>
<td>0.27</td>
<td>0.15</td>
<td></td>
</tr>
<tr>
<td>Percent change in median income</td>
<td>0.02</td>
<td>0.05</td>
<td></td>
</tr>
<tr>
<td>Percent change in poverty rates</td>
<td>-0.15</td>
<td>0.17</td>
<td></td>
</tr>
<tr>
<td>Percent change in GRAPI</td>
<td>0.50**</td>
<td>0.15</td>
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Notes: $R^2 = 0.27$, *p < 0.001, **p = 0.002, ***p = 0.02
This suggests that households, whether disabled (SSI) or not significantly predict enrollment increases in these programs.

GA also grew significantly during this period, GRAPI did not rates. Despite the fact that recipient rates for both SSI and even after accounting for income, poverty, and unemployment affordability, correlates with increased enrollment in SNAP, driven by increases in gross rent. GRAPHI, an index of housing costs and food stamp participation rates still emerges (see Figure 3).

I performed similar linear regression analyses of the percent change in SSI rates and GA rates on the percent change in GRAPI. GRAPSIM significantly predicted the change in SSI rates by county, but this effect disappeared after controlling for poverty rates (B = 0.093, t(37) = 1.17, p = 0.245; results are presented in Table 2). Because SSI eligibility is partly determined by extreme poverty and lack of assets, this result is not surprising.

Finally, controlling for poverty rates and unemployment, a linear regression of the percent change in GA enrollment on the percent change in GRAPI found no significant correlations. Results from this analysis are presented in Table 3.

Table 2. Linear Regression Predicting SSI Enrollment Changes with Changes in GRAPI

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<th>VARIABLE</th>
<th>COEFFICIENT</th>
<th>S.E.</th>
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<tbody>
<tr>
<td>Intercept</td>
<td>0.01*</td>
<td>0.002</td>
<td>3.891 (2.37)**</td>
</tr>
<tr>
<td>Percent change in poverty rates</td>
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<td>0.09</td>
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</tr>
<tr>
<td>Percent change in GRAPI</td>
<td>0.09</td>
<td>0.08</td>
<td></td>
</tr>
</tbody>
</table>

Notes: R² = 0.17, *p = 0.0001, **p = 0.03

2009 and 2012 significantly predicted SNAP enrollment increases (see Table 1).

The model explained 27 percent of the variance (F(4,35) = 3.207, p = 0.02). Importantly, the model intercept emerged as statistically significant, revealing that SNAP enrollment increased independent of housing and other economic factors. This is to be expected, given the large increase in SNAP spending under ARRA, which coincided with the beginning of the time period in this analysis. Nonetheless, a positive correlation between housing costs and food stamp participation rates still emerges (see Figure 3).

I performed similar linear regression analyses of the percent change in SSI rates and GA rates on the percent change in GRAPI. GRAPI significantly predicted the change in SSI rates by county, but this effect disappeared after controlling for poverty rates (B = 0.093, t(37) = 1.17, p = 0.245; results are presented in Table 2). Because SSI eligibility is partly determined by extreme poverty and lack of assets, this result is not surprising.

Finally, controlling for poverty rates and unemployment, a linear regression of the percent change in GA enrollment on the percent change in GRAPI found no significant correlations. Results from this analysis are presented in Table 3.

DISCUSSION

The years 2009-2012, while not a technical economic recession, sent shock waves through the California economy. Unemployment remained stubbornly high and household incomes continued to decline. During the same period, newspapers commonly reported soaring rents and record-low vacancy rates in California’s major metropolitan regions. This report sought to quantify household economic hardship across the state by measuring county-level changes in median income, median rent, and gross rent as a percentage of income (GRAPI). As a result of these economic changes, Californians lost $80 per month in net disposable income, a decline largely driven by increases in gross rent. GRAPHI, an index of housing affordability, correlates with increased enrollment in SNAP, even after accounting for income, poverty, and unemployment rates.

Despite the fact that recipient rates for both SSI and GA also grew significantly during this period, GRAPI did not significantly predict enrollment increases in these programs. This suggests that households, whether disabled (SSI) or not (GA), were not merely attempting to supplement or replace monthly incomes with government benefits. Rather, they seem to be responding rationally to economic trade-offs between critical household necessities—i.e., food and shelter.

LIMITATIONS

Before further discussion, it is important to point out a number of shortcomings in this study. First, data on the number of households receiving rental subsidy assistance in each California county would need to be included in the analysis to make sound conclusions about behavioral trade-offs between food and rent. Unfortunately, the ACS does not provide this specific data. This remains an important area for future research.

However, as discussed earlier, the years-long waitlists and relative scarcity of landlords amenable to federal vouchers suggest that a statistically trivial number of households would have been able to apply, qualify for, and begin renting with vouchers over this brief, three-year period. Due to the difficulty of receiving housing assistance, households seem to be turning to other forms of assistance, mainly SNAP, to cope with the economic difficulties of the Great Recession. This effect will need to be replicated with future research to tease apart the effect of increased SNAP funding under ARRA, since SNAP enrollment rates increased independently over this period. Nevertheless, changes in gross rent as a percentage of income still emerge as a significant predictor of the trend.

Second, the data analyzed here do not include rates of homeownership, which represents a very different sector of the housing market. It is unknown, for example, whether GRAPI rose across the state because wealthier income households left the rental market to purchase homes at more affordable prices after the housing bust. This would decrease the overall income distribution in the rental sector, inflating the GRAPI statistic with no change in purchasing power to those still in the market. This cannot be determined from the current data set. Given the 135 percent increase in the number of renters between 2009 and 2012 and the similar increases in number of renters nationwide, it seems unlikely that this would be the case, but further research is needed to delineate trends in purchasing versus renting.

Lastly, these data do not specify household size, an important determinant of housing affordability standards. Smaller households with the same after-tax incomes as larger households can afford to devote more of their income to rent...
because they incur fewer additional expenses. This aspect complicates the nationwide 30 percent-of-income housing affordability standard. Some measure of disposable income would be required to account for this, but the ACS does not allow such a level of sensitivity.

**POLICY IMPLICATIONS**

Nevertheless, these analyses still point to a few significant conclusions regarding housing affordability and social welfare benefits. First, it seems unreasonable to continue adhering to a uniform, nationwide standard that 30 percent or less of one’s household income constitutes an affordable, sustainable rental expense. By 2012, the average renter in thirty-seven of the forty California counties included in this study dedicated more than 30 percent of her income to housing, with a statewide average of 34.2 percent. These data corroborate similar findings nationwide; Quigley and Raphael demonstrated that the proportion of rental units priced at 30 percent or less of median income fell from 0.83 to 0.62 between 1960 and 2000. Either the nation is experiencing a serious (and growing) crisis in housing affordability, or the metrics of defining housing affordability need to be updated. This study supports the “residual income” approach to defining housing affordability, in which housing should be considered affordable only if households have enough income remaining to cover non-housing needs at a minimum level of adequacy. Moving to this standard of determination or creating regional indices of affordability (much as HUD determines the Fair Market Rent index on a county-by-county basis) would provide state and national policy makers with a more accurate measure of need in local jurisdictions. It may also lead to outcome improvements in the Section 8 and Shelter Plus Care programs, both of which use 30 percent income standards nationwide to determine client rental contributions.

Second, and more ambitiously, policy makers and legislators should change their perceptions of housing assistance vis-à-vis the American welfare state. Given a limited amount of monthly income, rational consumers must make tradeoffs regarding their consumptive behavior. While it is reasonable to expect that discretionary or frivolous expenses will be sacrificed, there are necessities that ensure some basic minimum standard of physical and psychological well-being and cannot be cut without dire problems. Of all goods, food and shelter stand out as perhaps the most universal and primary of human needs. Indeed, data from the present study suggest a close link between these two sectors of the economy. Why, then, do federal housing and food assistance programs remain so disjointed, even antagonistic to one another? While food stamps are considered a federal entitlement for eligible households, housing vouchers are not, partly underlying the very low number of applications that are actually granted vouchers—and corresponding years-long waitlists. Moreover, receipt of a housing voucher has a negative effect on SNAP grant amounts, since housing expenditure deductions often drop precipitously once a voucher reduces one’s monthly rental expenses. If the goal of the welfare state is to ensure some minimum standard of material well-being, policy makers are certainly adhering to the “minimum” aspect of this call by ensuring that as soon as one hand giveth, the other taketh away.

I suggest policymakers seriously consider integrating federal housing assistance with other welfare programs. Given the linkage found here, it seems reasonable to explore whether eligibility determinations for SNAP and federal voucher programs, such as Section 8, might be coordinated. One proposal...
would be to alter the eligibility criteria for Section 8, such that renters currently at the margins of program eligibility would be ineligible for formal housing assistance and instead automatically enrolled to receive a SNAP supplement. For these marginal applicants, the supplemental food stamp benefits could be used to free up money for rent, and thus achieve the larger goal of housing maintenance. This humanitarian goal could likely be accomplished with substantial administrative cost-savings as well. The Section 8 program currently incurs large administrative costs because of the requirement that all units be inspected prior to move-in and again during annual reviews. Eliminating this requirement by switching the provision to food subsidies circumvents the administrative cost altogether, creating the potential for achieving greater economies of scale.

It seems important to clarify that this policy proposal does not bill itself as a surrogate solution to the growing problem of housing unaffordability. Studies have shown that high housing costs and low vacancy rates—both supply-side variables—are a significant predictor of homelessness rates, so truly solving the problem requires increasing the supply of affordable, low-income housing. However, housing supply is inelastic in the short-run; increasing it is not a strategy for immediate relief during sudden economic downturns. Instead, the targeted provision of SNAP to individuals on the margins of the housing market offers a short-term and easily implementable tool to prevent homelessness and other deleterious consequences of sudden increases in rents.

Another consideration is the extent to which this proposal would benefit those households in need of housing assistance who already receive SNAP benefits. The marginal utility of additional food grants as a supplement to total income asymptotes as the amount of the grant approaches maximum household food consumption. Therefore, the proposal may achieve its intended purpose of freeing up sufficient income for rent only up to a certain amount, depending on the household’s rent-to-food expenditure ratio. However, research suggests that current SNAP provisions are unable to prevent end-of-the-month food shortages among those who receive the benefit, nor are they able to address food insecurity. Given that SNAP supplements are already insufficient to cover food needs, this concern seems unfounded, especially amongst those on the margins of the housing market for whom relatively small increases in income assistance will make critical differences.

Finally, it is worth noting that the targeted use of a food benefit as a rental-assistance device may appear bizarre to those individuals who would qualify for it. Though the implementation of this proposal is beyond the scope of this article, the administrative and political challenges associated with presenting it to the public are not trivial. Nevertheless, I contend that the benefits it would create would render the effort worthwhile—both for the administrative efficiency and downstream cost savings associated with homelessness prevention.

At present, “housing authority staff has little incentive to encourage continuous enrollment or reenrollment in the Food Stamp Program.” On the basis of this study, and given the unrealistic demand that Housing Authority administrators continue to face throughout California, it may be time to give more than a passing thought to altering this arrangement.

Peter Radu is pursuing concurrent Master of Social Welfare and Master of Public Policy degrees from the University of California, Berkeley. He is interested in homelessness and affordable housing policies, particularly among the seriously mentally ill.

ENDNOTES
[5] Ibid.
[12] Importantly, sub-regions of Los Angeles experienced rental price increases on par with those in the Bay Area; rents rose an average of 11.5 percent in West Los Angeles and 8.1 percent in Hollywood.
Rental Prices and Food Stamp Enrollment in California


[30] Ibid.

[31] Ibid.


[34] Ibid, 805.


