CALIFORNIA HOMEOWNERSHIP *and* SOCIOLOGICAL FACTORS

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The Relationship Between Homeownership and Sociological Factors in California: A County-Level Study

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Executive Summary:

In this study, we assess the relationship between homeownership and sociological factors in California with a focus on San Bernardino County. We use the value of social justice to help focus our study on specific sociological factors: children's health, median income and educational attainment (especially among minorities), inequality, crime, and poverty. These factors best summarize the idea that homeownership can improve educational and economic opportunities for all, regardless of socioeconomic status.

Major empirical findings (based on a regression model in which other determinants of the above sociological factors are accounted for):

- While San Bernardino County sits at around the state's median in terms of homeownership rates, it has one of the state's worst overcrowding rates (defined as the percentage of households with more than one occupant per room) and has not been building new units as fast as other Southern California counties, after adjusting for differences in population.
- Thus, reducing overcrowding rates in San Bernardino County will have significant impacts on educational attainment, income inequality, and poverty. A 1 percentage point reduction in the overcrowding rate is associated with an increase in the high school graduation rate by 1.23%, even higher (1.39%) for Hispanic/Latino students; while a 1 percentage point reduction in the overcrowding rate is also associated with a 0.66% reduction in the poverty rate and a 1.18–point reduction in inequality.
- While not as severe relative to other parts of California, San Bernardino County's homeownership rate is lower than neighboring states and may be a factor in recent out-migration from the area. Wage growth has also been slow in the County, reducing housing affordability rates.

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- Thus, conditional on the economy and the state of the labor market, increasing homeownership rates will have a substantial impact on educational attainment, especially among minorities – San Bernardino County has the 5th-highest proportion of African Americans and the 10th-highest proportion of Hispanics/Latinos: increasing the homeownership rate by 1% is associated with an increase in overall high school graduation rates of 0.32%, an increase of 0.44% in Hispanic/Latino graduation rates, and an increase of 0.61% in African-American graduation rates.
- Increasing homeownership rates are associated with substantial reductions in crime (the same 1% increase in homeownership rates would reduce property and violent crime rates per 1,000 people by 0.35 and 0.1 respectively). Reductions in crime will likely be a further economic boon as reduced crime frees up economic resources to be devoted toward more productive uses.
- Higher homeownership rates are associated with lower poverty rates: a 1% increase in the homeownership rate is associated with a 0.16% decrease in poverty. San Bernardino County has the 14th-highest poverty rate in the state, according to the official measure.

Policy Assessment:

- San Bernardino County ranks low statewide in the percentage of its housing stock built since 2010, as well as the average number of permits approved for new units in recent years. Addressing the region's chronic shortage of housing by the increasing supply of residential units – both housing and rental – is needed.
- Supply can be increased through regulatory reform: at the federal level, increase access to loans for low-income prospective home buyers; at the state level, reduce barriers to competition that discourage developers from investing in the state's housing stock; at the local level, consider zoning policies, high-density development, and fee deferment to attract development.
- We estimate that a 1-2% increase in homeownership in San Bernardino County (to make it competitive with neighboring counties and states) would require an increase of about 14,500 permits for new single-family units, but that the resulting impact on social justice of this measure would be significant. Also, that number of new units is high only relative to recent trends in which annual approvals for new single-family units have hovered around 2,000.
- Increasing access to housing can be accomplished both by increasing supply (which will help dampen price growth and thus increase affordability) and increasing access to capital (i.e., increased lending) especially for low-income and minority households, which are two groups most positively affected by increased homeownership.

Our major objective when producing this study has been to assess in the clearest and most rigorous way possible the implications that higher homeownership has for social justice, through improved economic and educational opportunity, in San Bernardino County and California more broadly.

1. Introduction and Literature Review

The purpose of this study is to quantitatively evaluate the relationship between homeownership and sociological factors in California, with a focus on San Bernardino County. We will first provide an overview of the academic literature on the effects of homeownership. This overview will highlight the common methodologies and frameworks used to understand the linkages between homeownership and various sociological outcomes such as education, health, crime, and economic success. We will then analyze the recent trends in homeownership and sociological outcomes in San Bernardino between 2000 and 2015. Then, we conduct a statistical analysis of the relationship between homeownership and sociological factors in California at the county level, using linear regression analysis. Finally, we discuss how our results can be applied to San Bernardino County and we explore the policy implications of our findings.

Looking ahead, the major takeaway points from a review of the academic literature are that while homeownership might not have a causal impact at the individual level it does have an impact at the neighborhood or community level; homeownership raises community involvement and security; overcrowded housing units negatively affect children's performance at school and health. Table 1 at the end of this section further summarizes this literature review by outlining the channels through which homeownership can affect families.

Two main dimensions of homeownership have been examined in the literature: homeownership rates/status ("homeownership rate" is defined as the percentage of occupied housing units in an area that are owned rather than rented) and overcrowding rates (traditionally defined as the percentage of occupied housing units with more than one person per room, which is a measure of housing shortage and has been linked to negative effects on children's outcomes). The empirical research on the effects of homeownership (both homeownership rates and overcrowding) has mainly focused on children's outcomes such as education and health. Early research found positive effects of homeownership on children's outcomes (Green and White 1997; Haurin, Parcel, and Haurin 2002). More recently, Coulson and Li (2013) and Kulkarni and Malmendier (2015) have also found positive effects of homeownership rates on broader economic outcomes, though the latter found that the positive effects on economic mobility depend on an area's degree of (income, racial, or housing) segregation and population density.

Aaronson (2000) and Barker and Miller (2009) both criticized the earlier findings of Green and White (1997) and Haurin, Parcel, and Haurin (2002) by arguing that these studies did not account for self-selection of more stable and higher-income families into homeownership. In other words, homeownership did not lead to an improvement in children's outcomes; rather, more stable families and higher-income parents were more likely to become homeowners in the first place, and these families' children did just as well if they stayed in rental units. Barker (2013) summarizes this perspective in a short literature review and claims that it is the current consensus in the literature on homeownership; Shlay (2006) is also critical of the positive potential of homeownership from ideological and policy perspectives: Shlay argues that the implied bias in the pro-homeownership side against urban environments and against affordable rental options is overemphasized. Shlay proposes a more cautionary policy, which ensures that homeownership "is a viable investment and is in a quality location" (pg. 524).

More recently, Holupka and Newman (2012) have provided additional weight to the self-selection argument (i.e., they argue that homeownership has no causal effect on children's outcomes) by using data from the Panel Study of Income Dynamics (Child Development Supplement) and the National Longitudinal Survey of Youth. Holupka and Newman argue further that there is no evidence to support the argument that homeownership affects children's outcomes through improvements in residential stability or parental practices, which are seen as two mediators through which homeownership improves children's outcomes.[2] Their argument is based on the following methodology. First, they set up a model to estimate the effect of homeownership on an outcome such as children's education. Second, they set up another model in which the effect of both homeownership and a specific mediator (like residential stability or parenting practices) is estimated on the outcome. Third, they compare how the estimated effect of homeownership changed from the first to the second model. Holupka and Newman found that for residential stability and parenting practices, after including each in the model, the estimated effect of homeownership either rose or remained unchanged. This is the opposite of what one would expect if these mediators really were effective, because if homeownership partly affected children's outcomes through one of the mediators, then including the mediator in the regression analysis would have "captured" some of the effect of homeownership, causing the estimated effect of homeownership to *fall* in magnitude, not rise (nor remain unchanged). Thus, since there is no evidence that the effect of homeownership is channeled through one of these mediators, the authors conclude that it must be the result of self-selection and therefore is not a causal effect.

It is important to note that Holupka and Newman do indeed find that when a proxy for a third potential mediator, *neighborhood effects* (the percentage of the area's residents who own their homes), is added to the regression, the homeownership coefficient falls in magnitude (by about 25%) and remains significant at the 90% confidence level (Table 5, Part B). The drop in significance from a 99% to 90% confidence level from the first to the second model is a cause for some concern. However, the results are still significant and they suggest that while neither residential stability nor parental practices are improved through homeownership, there may be a neighborhood effect whereby the presence of other homeowners in the individual's community benefits the individual. The logic behind neighborhood effects is straightforward: they could happen through increasing the stability of relationships with neighbors, increased security and community involvement of fellow homeowners, as well as more financial stability through rising home values.[3] Other research at the microeconomic level has found some weak evidence for neighborhood effects (Harkness and Newman 2003), though with some caveats.[4]

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[2] "Residential stability" refers to how often the family moves (stability is believed to be lower for renters than for homeowners); "parenting practices" refer to "the parent or caregiver's assessment of the educational and cultural environment within the home" (Holupka and Newman 2012), such as the presence of musical instruments or books – again, this is assumed to be greater in the case of homeowners because of the psychology and financial security of parents as homeowners.

[3] As Harkness and Newman (2003) note, the existence of neighborhood effects may complicate the policy implications, especially if there are no other micro-level mediator effects. The reason is because policies that encourage homeownership among low-income families but in neighborhoods or communities with low homeownership rates may be doing more harm than good to those families, who would be much better off owning homes in high-homeownership rate communities. We will leave discussion of this issue to Section 5, "Discussion and Conclusion", after having presented our empirical results.

[4] See Harkness and Newman 2003, Table 3 and surrounding discussion: "[a]lthough the statistical evidence… is modest, the underlying theory is consistent with the data here", pg. 96). Harkness and Newman (2003) appear at times to misinterpret their results. In Section 3.2 of their paper, they describe their approach and note that "If

Note that neighborhood effects (unlike both residential stability and parental practices) are a macro-level rather than a micro-level mediator – i.e., they affect outcomes not necessarily at the household level but at a neighborhood or community level. Thus, when considering the few county-level studies on homeownership, it is noteworthy that the positive effects of homeownership have been supported: for example, Ni and Decker (2009) found that homeownership rates reduce crime rates, with a stronger effect on property crime than on violent crime. Ni and Decker implicitly note that their results are consistent with neighborhood effects by linking homeownership with safer neighborhoods: "[s]everal research studies suggest that homeowners are more attached to their communities and more active in community affairs" (Ni and Decker 2009, pg. 18).[5] Thus, it is possible that county-level studies are useful because they implicitly incorporate the neighborhood effects of homeownership.

In a recent survey of the literature, Rohe and Lindbled (2013) conclude that "[e]ven after taking self-selection and other confounding factors into account there is considerable evidence that positive homeownership experiences result in greater participation in social and political activities, improved psychological health, positive assessments of neighborhood, and high-school and post-secondary school completion" (45). This conclusion is consistent with the comparative literature summarized in Zavisca and Gerber (2016) and it motivates the present study. The other set of research that motivates the current study is the work on overcrowding. Defined as housing units with more than one person per room, overcrowding has received attention in the literature as well as from policymakers, particularly due to the strong effects that overcrowded spaces can have on children's health (for examples in the academic literature, see Goux and Maurin 2005; Solari and Mare 2012).

In summary, the research that is most skeptical of the positive effects of homeownership focuses on the micro-level effect of homeownership on individual outcomes and argues that too much of the effect may be driven by self-selection of stable families into homeownership – thus, there exists no causal link from a family owning their home to increases in that family's children's chances of success. Macro-level research at the county level, however, supports the positive effects of homeownership.

We argue that these two perspectives can be reconciled: while the research consensus on the effects of homeownership is mixed, most would agree that when policymakers promote homeownership in a way that is consistent with the added neighborhood effects of homeownership identified in the micro-level research (say, by increasing the total supply of housing so that an entire community can benefit), homeownership can have a positive impact on a variety of socioeconomic indicators and children's well-being. Even targeting individuals can

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neighborhood differences [such as the neighborhood home ownership rate] between homeowners and renters account for a substantial portion of the beneficial effects of homeownership, the homeownership effect estimates produced by these models should be much smaller than those produced by the direct effect models" (pg. 91). But upon analysis of those results in Table 2 (bottom panel), the effects of homeownership (the main coefficient) do in fact decline substantially between the direct and indirect models for some outcome variables (for example, in "Years of Schooling" the coefficient declines from 0.417 to 0.039 but remains statistically significant). Thus, these results appear to confirm the existence of neighborhood effects like the neighborhood homeownership rate for a few outcomes (namely, Idleness, Years of Schooling, and Wage Rate).

[5] Another county-level study finds that higher inequality reduces homeownership rates (Du et al., 2015).

be beneficial if these individuals are low-income and if the community in which they own a home already has average or higher-than-average homeownership rates – which, as we shall see, is the case in San Bernardino County.

Table 1: The Mediating Effects of Homeownership on Individual Outcomes

Increased Homeownership Leads to…	**Explanation**	**Quantitative Measure**
Increased residential stability	Homeownership reduces the likelihood the household will need to move	Percentage of times the child has moved before he/she turns 18
Increased financial security	Homeownership provides a vehicle for savings and can be a reliable long-term investment	Wealth, household income statistics
Improved parental practices	Homeownership raises parents' self esteem and can improve the home environment	Presence of educational materials in the home
Neighborhood effects	The presence of other homeowners in one's community increases security and stability	Percentage of households in a town or community that are homeowners
Sources: see discussion in Section 1.		

Table 1 above summarizes the major themes in the literature discussed in this section. Thus, through the rest of this study we argue that it is primarily through the *neighborhood effect* that homeownership can improve sociological outcomes at the county level. In the next section, we outline our specific research hypotheses and discuss the sources of data we will use to test these hypotheses.

2. Research Hypotheses and Data Sources

Our main hypothesis is that, after accounting for other factors, homeownership rates improve our sociological outcomes of interest. To isolate the effect of homeownership on these sociological outcomes, linear regression analysis is employed. In this section we first explain the data used in the study, and then we describe the models used to test our hypotheses.

Consistent with the assumption that the neighborhood effect is the primary mediator through which homeownership affects sociological outcomes, the unit of observation of our study is the county and we confine our analysis to all counties in California (58 counties total). Our main explanatory variable is the homeownership rate, defined as the number of occupied housing units

that are reported as owned (instead of rented) divided by the total number of occupied housing units. These statistics are reported in the American Community Survey (hereafter "ACS"), an ongoing survey conducted by the U.S. Census Bureau whose total yearly observations number about 3 million people. We use the 2014 ACS 5-year (an average of the years 2009-2013) estimates, which provide the most accurate statistics at the county level, particularly for smaller counties. The homeownership rate is then calculated from data that are reported in ACS Table S2501, "Occupancy Characteristics".[6]

We use two other variables from the 2009-2013 5-year ACS tables (found in "Selected Housing Characteristics", Table DP04) that are related to different aspects of homeownership and housing supply: the percentage of occupied housing units in which there is, on average, more than one occupant per room (hereafter referred to as "overcrowding"), and the percentage of occupied housing units that were built in the year 2010 or later. The information on average occupants per room provides an alternative measure of housing availability. The information on build year could be useful as another measure of housing supply by showing the extent of recent building activity, particularly since the Great Recession – though since we only know the percentage of *occupied* housing units instead of the percentage of *all* housing units built since 2010, it is not the most accurate measure of housing supply and may not produce the most clear results.

Given the above caveat, an alternative approach to measuring housing supply is to use data on building permits. The U.S. Census collects data at the county level on total permits by number of buildings and units (by imputation and report). We use the data on reported permits by total units constructed per county population between 2010 and 2013 as a measure of housing supply. We average the permits between these years and then divide by the county's estimated population in 2012 to derive an estimate of average permits by units constructed per 1,000 people. Summary statistics for these variables are reported in the table below.

Table 2: Housing Statistics for California, 2009-2013

	California			San Bernardino County
	Mean	Median	Standard deviation	
Homeownership rate (%)	61.6	60.4	8.12	61.9
Occupants per room greater than 1 (%)	5.6	5	2.96	8.9
Housing units built since 2010 (%)	0.59	0.5	0.34	0.6
Avg. permits per 1,000 people	1.29	1.27	0.67	1.09

Sources: Homeownership rate, overcrowding, and housing units built since 2010 all based on county-level statistics from the 2014 American Community Survey, 5-year estimates (2009-2013). Average permits per 1,000 population based on the U.S. Census' Building Permits Survey (2010-2013) and authors' calculations.

[6] Data were downloaded via the U.S. Census Bureau's FactFinder website, found here: http://factfinder.census.gov.

As can be seen from Table 2, San Bernardino County is located around the middle of the distributions of both homeownership rates and the percentage of all occupied houses built after 2010 in California. However, it has a very high overcrowding rate, with only 8 other counties having higher rates (Santa Barbara, Orange, Imperial, Fresno, Tulare, Madera, Los Angeles, and Monterey, in increasing order). San Bernardino County is also lower than the median for average new building permits (based on units constructed) per 1,000 people – the value reported is 1.09, while the median for all counties is 1.27. Since 2010, San Bernardino has averaged about 2,000 single-family units per year. In 2015, San Bernardino had one of the lowest rates of permits for new single-family houses in Southern California after adjusting for population. For more information on permits in Southern California between 2011 and 2015, see Table A1 in the Appendix.

Table 3 below compares homeownership and overcrowding rates in San Bernardino with other Southern California Counties, and Figures 1 and 2 map homeownership and overcrowding rates in California by county. San Bernardino is doing well relative to other Southern California counties in its homeownership rate (only two counties have higher rates), while only 4 out of 10 counties have higher overcrowding rates.

Table 3: Homeownership statistics for Southern California, 2009-2013

	Homeownership rate (%)	Overcrowding rate (%)
San Luis Obispo	58.4	3.7
Kern	58.0	8.8
Santa Barbara	52.6	9.2
Ventura	64.9	6.9
Los Angeles	46.9	12.1
San Bernardino	61.9	8.9
Orange	58.7	9.3
Riverside	66.5	7.4
San Diego	53.8	5.9
Imperial	56.4	9.4

Sources: 2014 American Community Survey, 5-year estimates (2009-2013).

Table 4 below compares the homeownership statistics in San Bernardino County to select Western-region states. As can be seen, San Bernardino County fares worse than California's neighboring states across the various estimates of homeownership. Overcrowding rates are much higher, the percentage of housing units built since 2010 is lower, and average permits per 1,000 people are lower. Homeownership rates are similar, with Washington and Arizona scoring slightly higher and Oregon and Nevada scoring lower.

Table 4: Comparative Housing Statistics, 2009-2013					
	San Bernardino County	Washington	Oregon	Nevada	Arizona
Homeownership rate (%)	61.9	62.7	61.5	55.7	63.4
Occupants per room greater than 1	8.9	3.0	3.0	4.3	4.5
Housing units built since 2010	0.6	1.4	0.9	1.2	0.9
Avg. Permits per population (1,000)	1.09	4.1	3.1	3.6	3.1
Sources: Homeownership rate, overcrowding, and housing units built since 2010 all based on county-level statistics from the 2014 American Community Survey, 5-year estimates (2009-2013). Average permits per 1,000 population based on the U.S. Census' Building Permits Survey (2010-2013) and authors' calculations.					

Having discussed the main measures of homeownership used in this study, we now turn to our main outcome variables of interest. Our main outcomes of interest are educational attainment, health, inequality, crime rates, poverty rate, and median household income. For each of these variables, with one exception, we collected data for them either for 2013 or for the year or two after the year for which we have our homeownership variables (i.e., a year or two after the 2009-2013 period), in order to be consistent with the hypothesis that homeownership *leads to* changes in various sociological outcomes.

We define educational attainment by the county's overall high school graduate rate as well as the Hispanic/Latino and African American graduation rates (2013-2014 cohort). Health is defined as adult physical inactivity[7] and obesity rates in 2013 as well as child fitness and overweight statistics in 2014. Inequality is measured as the ratio of the average income of top 1% of population to the average income of bottom 99% of population in 2013. We also measure inequality by referring to the median income of the Hispanic/Latino population for 2009-2013 (using the ACS 5-year estimates), based on the idea that inequality can be measured as widening racial and ethnic disparities in income. Crime rates are measured as violent and property-based crimes per 1,000 people in 2014. Poverty rates use the standard definition of poverty and are measured for 2014, and finally, median household income is measured for 2009-2013 (ACS 5-year estimates).

We also use an alternative poverty rate called the "California Poverty Measure", published by researchers at the Stanford Center on Poverty and Inequality (only available for 2011).[8] This

[7] Leisure-time physical inactivity rates were defined as the percentage of "no" responses to the survey question, "During the past month, other than your regular job, did you participate in any physical activities or exercise, such as running, calisthenics, golf, gardening, or walking for exercise?"

[8] A link to the report can be found here: http://inequality.stanford.edu/sites/default/files/california_poverty_measure.pdf.

measure more thoroughly accounts for the cost of living by including a range of consumer expenditures, most importantly housing, as well as other non-discretionary expenditures related to childcare and work. Since the standard poverty rate only uses food costs to calculate the poverty line, the California Poverty Measure is thought to be a richer measure of poverty that reflects the growing problems of housing affordability among California's residents.

Educational attainment data are taken from the California Department of Education (2013-2014 cohort)[9]; health data are downloaded from the website for the Center for Disease Control (2013) as well as the California "kidsdata.org" website (2014)[10]; inequality data are taken from a recent report by the Economic Policy Institute (2013), the results of which can be found online[11]; crime data are found at the Office of the Attorney General (State of California Department of Justice, 2014).[12] The poverty and median income data (including median income by race) come from the 2014 American Community Survey 5-year estimates (2009-2013, located in Tables S1903 "Median Income in the Last 12 Months" and B09010 "Receipt of Social Security Income, … [etc.] in the Past 12 Months"). Summary statistics for these variables are reported in the table below.

A common theme underlying several of these variables is the concept of social justice. While the term has many definitions and features, at its core is the value of equal opportunity across race, ethnicity, sex, and class that is necessary for the maximum potential success of every citizen in a community. The need for equal opportunity is especially visible in the economic sphere, where poverty, health problems, or labor market discrimination can lead to social exclusion and prevent individual success. Thus, any policy associated with reductions in poverty, improvements in health, or that establishes steps toward equal educational opportunities for all, though especially children, can be said to have improved social justice. In our study, these themes are captured in the following outcome variables: high school graduation rates (especially for minorities: African American and Hispanic/Latino), children's health, inequality, and the poverty rate.[13]

As can be seen from Table 5, San Bernardino County's obesity and physical inactivity rates, children's fitness and obesity rates, median income, property crime rate, high school graduation rate, and poverty rate are all slightly worse than the median. The county does slightly better than the state in its median household income, high school graduation rates for Latinos/Hispanics, and inequality.

[9] http://www.cde.ca.gov/ds/.
[10] http://www.cdc.gov/diabetes/data/countydata/countydataindicators.html.
[11] Estelle Sommeiller, Mark Price, and Ellis Wazeter, "Income inequality in the U.S. by state, metropolitan area, and county", June 2016, http://www.epi.org/publication/income-inequality-in-the-us/ (accessed last on December 16, 2016).
[12] https://oag.ca.gov/crime/cjsc/criminal-justice-profiles.
[13] This study is influenced by the Social Justice Index in terms of weighting poverty and educational access factors highly: http://www.social-inclusion-monitor.eu/social-justice-index/.

Table 5: Main Outcome Variables Used in the Study				
	California			San Bernardino County
	Mean	Median	Standard deviation	Value
HS Graduation Rate, %	81	83.9	12.75	78.7
HS Graduation Rate (Hispanic/Latino), %	77	79.95	14.59	77.2
HS Graduation Rate (African American), %	71.2	73.7	17.95	72.3
Physical Inactivity, %	17.8	17.6	2.74	19.1
Obesity, %	24.1	23.8	3.51	27.9
Child fitness, %	37.47	36.6	7.33	35.2
Child overweight, %	35.13	35.4	6.56	38.5
Inequality	17.9	15.7	7.59	12.3
Median Household Income	56,034.36	53,302	14,428.47	54,100
Median Household Income (Hispanic/Latino)	44,432.64	45,168	9,957.05	49,907
Violent Crime Rate	4.45	3.9	3.62	4
Property Crime, Rate	23.5	21.9	7.98	26.4
Poverty Rate	11.79	11.23	4.63	15.27
Poverty Rate (Alternative)	18.86	18.95	3.34	19.5
Notes: See discussion in text for definitions and sources.				

Aside from the homeownership rate, other explanatory variables are used in the analysis to account for the effects of these variables on our outcomes of interest. Depending on the particular outcome we are analyzing, we include as additional explanatory variables the unemployment rate (as a measure of relative local labor market conditions), percentage of the population aged greater than 25 with only a high school degree, percentage of the population between the ages of 25 and 44 (as a measure of the density of the prime working age population), percentage of the population that is Latino/Hispanic or African American, proportion of families with only the mother present, population density, percentage of households that received some form of welfare assistance (SSI, cash assistance, or food stamps/SNAP) in the last year, percentage of households without a vehicle, and median house price. Aside from the unemployment rate, most of these are found in the ACS and the 5-year 2009-2013 estimates (published in 2014) are used. Summary statistics for these variables are reported in the Appendix at the end of this report (Table A2).

To estimate the relationship between our outcomes of interest and the homeownership variables, we estimate a separate model for each outcome variable. Our hypothesis is that after accounting for other factors, increasing homeownership rates will improve our outcome variables, either by increasing them (in the case of high school graduation rates, median household incomes, and

children's fitness) or decreasing them (in the case of inequality, crime rates, physical inactivity/obesity/children's obesity, and poverty rates).

Linear regression analysis is a method of modeling and estimating the statistical association between two or more variables by accounting for or "controlling for" the effects of other variables. For example, we might be interested in the effects of homeownership rates on crime. We could simply calculate the correlation between as an initial estimate. However, aside from homeownership, we know that other factors affect crime – population density, median income, and poverty, just to name a few. Linear regression analysis allows the researcher to identify the specific association between homeownership rates and crime, after accounting for the effects that population density, median income, poverty, and other variables have on crime.

Thus, each model to be estimated takes the following general form:

[Equation 1] $$Y_i = \beta_0 + \beta_1 * H_i + \lambda * X_i + \varepsilon_i$$

Where Y_i is the outcome of interest *Y* in county *i*, H_i is our main independent variable of interest (either the homeownership rate, overcrowding rate, the percentage of houses built after 2010, or average permits based on units constructed as a proportion of total population), and X_i is an array of covariates that includes the other explanatory variables listed above, depending on the particular outcome variable being analyzed. The sign of β_1 indicates the direction of the relationship (i.e., negative or positive) between the homeownership measure and the outcome variables. The hypothesized sign of β_1 for each of our models is provided in Table 6 below.

Table 6: Hypothesized Effects of Homeownership Variables on Outcomes of Interest

Homeownership Indicator:	Hypothesized effect of increasing the homeownership indicator on…					
	Educational Attainment	**Health**	**Inequality**	**Median Income**	**Crime**	**Poverty**
Homeownership rate	Increase	Increase	Decrease	Increase	Decrease	Decrease
Overcrowding rate	Decrease	Decrease	Increase	Decrease	Increase	Increase
Percent of houses built since 2010	Increase	Increase	Decrease	Increase	Decrease	Decrease
Avg. permits per 1,000 population	Increase	Increase	Decrease	Increase	Decrease	Decrease

Notes: Hypotheses indicate results of estimates of Equation 1 based on the findings presented in the literature review (Section 1).

In summary, we analyze the relationship between homeownership and sociological outcomes in counties in California. Analyzing the relationship at the county level is consistent with the neighborhood effects of homeownership that have been identified in the literature – i.e., having

more homeowners in a community raises children's well-being by providing additional security, stability, and quality of relationships with the local community. We use data from the ACS as well as other governmental sources and employ linear regression analysis to isolate the relationship between homeownership and our sociological outcomes of interest.

In the next section we explore the relationship between the trends in our homeownership and sociological variables in San Bernardino County between 2000 and 2015. Then, in Section 4, we employ the regression model specified above to estimate the relationship between homeownership and sociological factors across counties in California.

3. Trends in San Bernardino County

Figures 1 and 2 below provide a visualization of homeownership and overcrowding rates by county across California. Figure 1 shows that based on homeownership rates, San Bernardino does relatively well compared to the rest of Southern California and the Southern Central Valley, though Riverside County does have slightly higher rates of homeownership. Homeownership rates are higher in the northern part of the Central Valley and highest near the Nevada border. In Figure 2, we see that overcrowding rates are high across Southern California and the Southern Central Valley, in almost a mirroring of the patterns found in Figure 1 for homeownership rates. Indeed, the correlation rate between homeownership and overcrowding rates in our dataset is -0.6853 (significant at the 99% confidence level).

Figure 1: Homeownership Rates by County

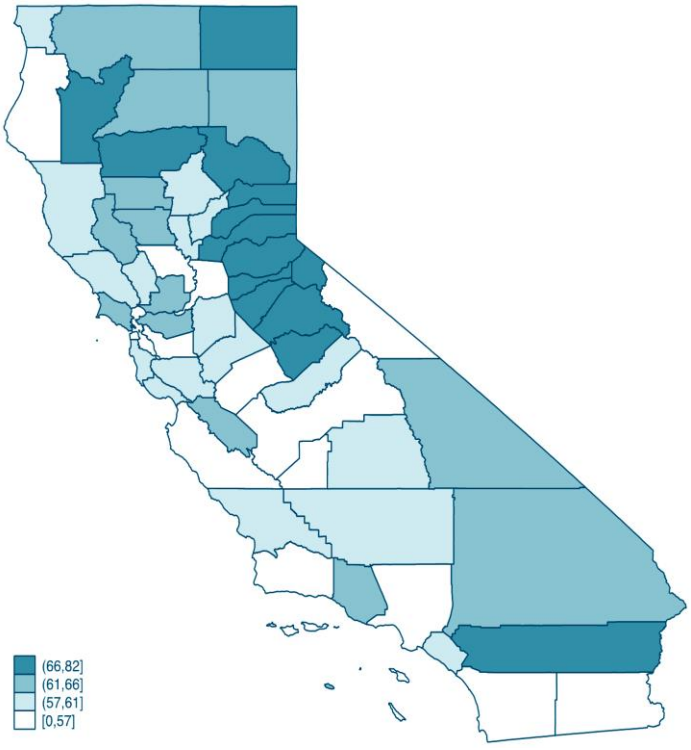
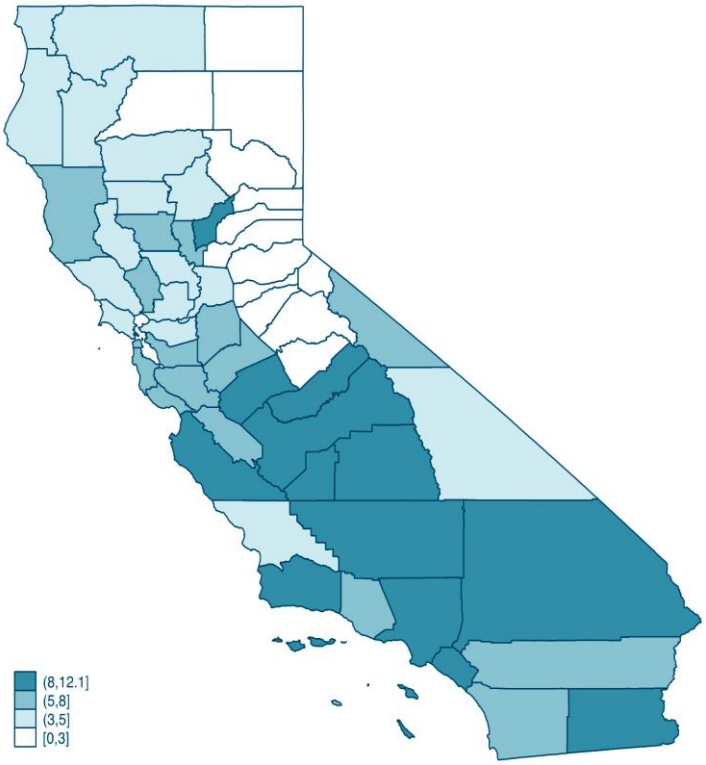


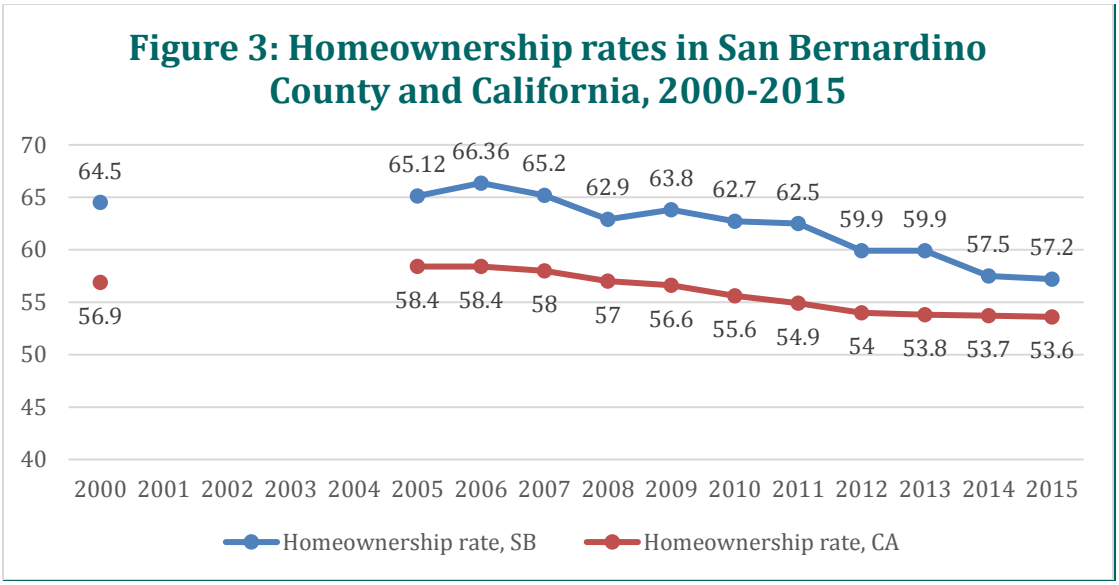
Figure 2: Overcrowding rates by County



Figures 3 and 4 below show the trends in homeownership and overcrowding rates in California and San Bernardino between 2000 and 2015 based on a combination of U.S. Census (for 2000) and ACS (for 2005-2015) 1-year estimates. While San Bernardino County has had higher homeownership rates compared to the state as a whole, both have suffered a precipitous decline beginning in 2007, around the time that the housing bubble burst. Recently, San Bernardino County has begun to outstrip the state as a whole in terms of its overcrowding rates.

Both of these trends – the decline in homeownership and the ever-increasing rates of overcrowding – point to severe problems in the local housing market, implying that both supply and affordability issues need to be addressed if the county is going to return to pre-Recession rates of homeownership and to tackle its overcrowding problem.

Note also that the decline in homeownership rates and overcrowding is happening at the same time that the economy is improving. A possible explanation for this finding is that the creation of new jobs in the region since the recovery from the Great Recession has not led to significant wage growth (a fact documented by Bureau of Labor Statistics wage data for the Inland Empire), so that housing continues to be out of reach for a substantial portion of the County's population.



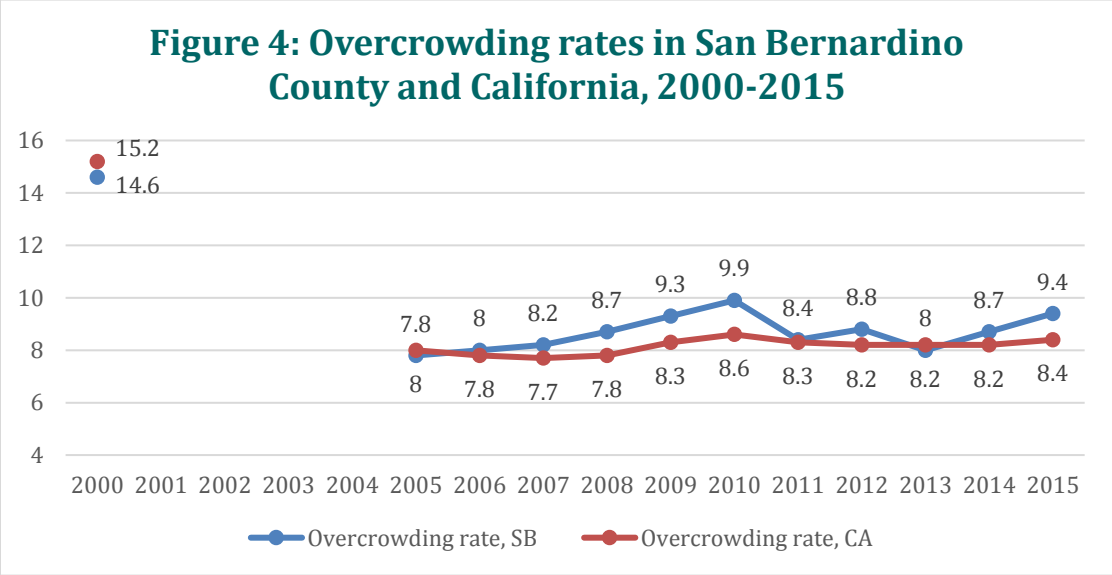
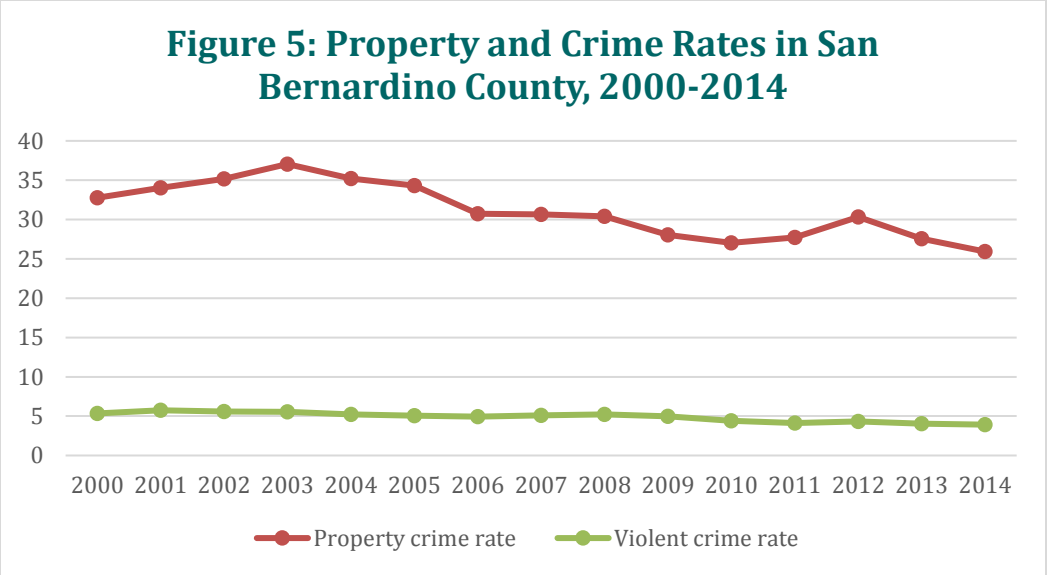
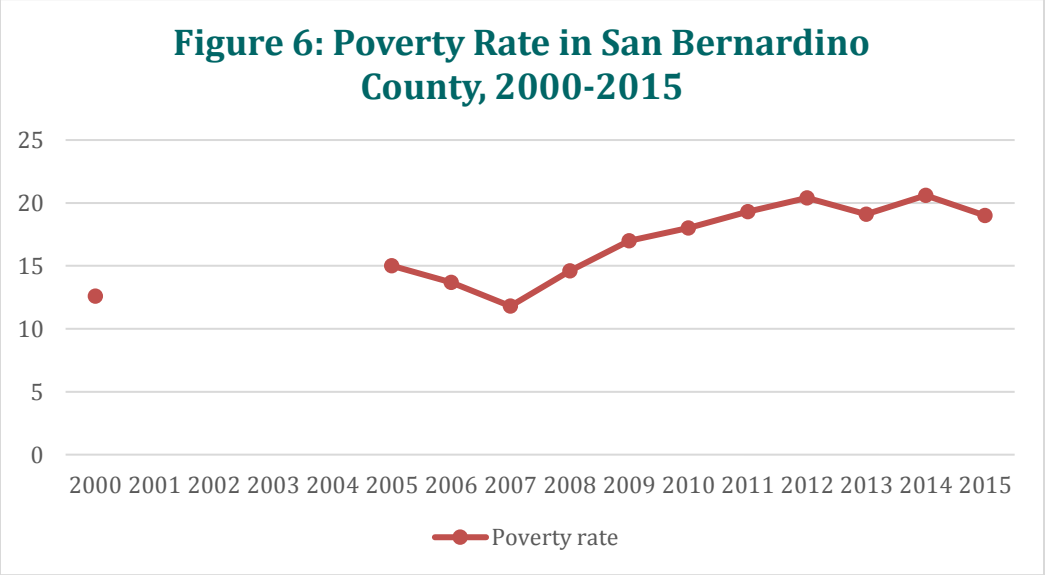


Figure 5 presents data on property and violent crime rates in San Bernardino County from the State of California's Department of Justice. Both property and violent crime have been trending downward since 2000, though property crime increased initially from 2000 to 2003 and also in 2011 and 2012. The latter increase appears to correspond slightly with the increase in overcrowding rates from 2011 antod 2012. Violent crime also increased during the Great Recession and from 2011 to 2012, though the change was very small – violent crime rates have mostly remained flat over this time period.



Finally, poverty rates from the 2000 Census and the ACS 1-year estimates between 2005 and 2015 are presented in Figure 6 below. Poverty rates increased during the early 2000s, but then dipped between 2005 and 2007. Since 2007, they have increased with only two brief exceptions. These trends closely track the trends shown in Figures 3 and 4 for the homeownership and overcrowding rates.



In summary, some sociological indicators in San Bernardino County appear to be correlated with the homeownership rate, while other indicators have improved even as the homeownership rate has deteriorated over the last 8 years. For example, median income has climbed in recent years. Property and violent crime rates are down. On the other hand, poverty rates have increased. These statistics point to an economy that has recovered unevenly from the Great Recession.

While there is clearly much work to be done from a policy perspective, these basic correlations suggest that addressing homeownership and overcrowding could help alleviate poverty – aside from any necessary improvements in the economy, especially wage growth. However, since we have only analyzed a single county, our conclusions are limited from a statistical perspective. To gain a better understanding of the general relationship between homeownership and sociological outcomes, we turn now to an analysis of all counties in California.

4. Analysis

We estimated the model presented in Equation 1 of Section 2 using standard Ordinary Least Squares methods, with standard errors adjusted for arbitrary forms of heteroscedasticity.[14] The results for each outcome variable are listed in Table 7 below. We report the coefficients, standard errors, and statistical significance (according to three criteria – confidence levels of 90%, 95%, and 99%) for each of the four homeownership variables. In order to focus on the main results (the relationship between homeownership and our sociological outcomes), in this table we omit the estimates of the coefficients of the other independent variables included in each regression; we instead report these in the Appendix at the end of this report (Table A3).

The findings that are statistically significant are highlighted for the sake of clarity. In Column 1, there is a positive and statistically significant association between child fitness and average permits per 1,000 people, suggesting that increasing the supply of housing since 2010 did have a positive impact on children's health. The results for child obesity, however, in Column 2, are not significant. Overall, the results for our children's health outcomes are not very strong, though they do point to the need to address shortages in housing supply.

Columns 3 through 5 show a positive and statistically significant relationship between homeownership rates and educational attainment – first among the overall population and then specifically among Hispanic/Latinos and African Americans. The coefficients for each of these three groups are 0.32, 0.44, and 0.61 respectively, suggesting that the effect of homeownership on educational attainment is larger for minority groups than for the population as a whole. Note that in each of these regressions, we omitted some outlier counties that had particularly low rates of educational attainment among the particular groups. For the overall group, we omitted Alpine, Inyo, Mono, and Nevada (high school graduation rates less than 60%); for the Hispanic/Latino regressions we omitted Alpine, Inyo, and Nevada (less than 40%); for the African American regression we omitted Inyo, Mendocino, and Mono (less than 45%). These are all relatively small counties (Nevada being the largest at around 100,000 people) and thus we are not concerned with any possible biases introduced by omitting these outliers.

Columns 3 and 4 also show a statistically significant negative relationship between overcrowding and high school graduation rates – with the effect again increasing for the Hispanic/Latino minority group with a coefficient of -1.39 (compared to -1.23 overall). These are also rather large coefficients, suggesting that reducing overcrowding rates can substantially impact social justice in California.

[14] The analysis was completed using Stata 13.1. All code and data used to generate the results in this Section are available from the authors, via email, upon request.

In Column 6, there is a positive and statistically significant relationship between overcrowding and inequality: a 1-percentage increase in the overcrowding rate is associated with a 1.18-point increase in the ratio of top 1% to bottom 99% average incomes. This is also a particularly large increase: since the average inequality ratio is 17.9, the results imply a greater than 5% reduction in inequality associated with a 1-percent decrease in the overcrowding rate. This finding is also particularly important since San Bernardino has such high rates of overcrowding – while it also has low rates of inequality, this result suggests that San Bernardino County could further reduce inequality by addressing its high rate of overcrowding.

A measure of socioeconomic inequality is the persistent income gap between white and minority households. While relatively low in San Bernardino County, this measure is nevertheless another important indicator of social justice – i.e., the opportunity for all socioeconomic groups to succeed. Column 7 shows that increases in homeownership rates are associated with increases in Latino/Hispanic household income. Thus, homeownership helps to reduce the gap between incomes of different socioeconomic groups. The results in Column 8 suggest that homeownership rates are also significantly associated with increases in median income of all households.

In columns 9 and 10, the effects of homeownership on property and violent crime are shown, in which homeownership is associated with larger reductions in property crime more than in violent crime. In particular, given San Bernardino's high rate of property crime, the results showing that homeownership has a stronger effect, in magnitude, on property crime, is noteworthy.

Finally, Columns 11 and 12 focus on the two measures of poverty rates – the traditional poverty rate and the "California Poverty Measure" based on the Stanford University study discussed above. In the traditional poverty rate regression (Column 11), the homeownership rate is negatively associated with the poverty rate (the coefficient is equal to -0.13, implying that a 1% increase in the homeownership rate is associated with a reduction in the poverty rate by 0.13%) while the overcrowding rate is positively associated with the poverty rate (0.66). In Column 12, the association between homeownership and the California Poverty Measure is stronger at -0.16. Also, there is a statistically significant positive association between the percentage of houses built since 2010 and the California Poverty Measure (2.88, implying that a 1% increase in the percentage of housed built since 2010 will reduce the alternative measure of poverty by 2.88%), suggesting that increasing housing supply does indeed reduce the poverty rate, especially when the poverty rate more accurately reflects individuals' consumption patterns, particularly with regard to housing.

In summary, our results provide substantial evidence that increasing homeownership improves various sociological indicators, including children's health, education, inequality, income, crime, and poverty. Furthermore, these indicators are improved across a variety of dimensions of homeownership – while the major results are driven by the statistical significance of the homeownership rate in each regression, the overcrowding rate was also found to be statistically significant for some of our outcome variables. Permits for new buildings and the percentage of houses built since 2010 were found to be less important, but they also are significant in certain cases. The only major negative finding is that our main homeownership variables do not seem to

be very significantly related to children's health. In the next section, we consider the implications of our results for housing policy.

Table 7: Relationship Between Homeownership and Sociological Factors in California							
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
	Child Fitness Rate	Child Obesity Rate	Educational Attainment (Overall)	Educational Attainment (Hispanic/Latino)	Educational Attainment (African American)	Inequality	Median Household Income (Hispanic/Latino)
Homeownership	0.29	-0.27	0.32***	0.44***	0.61*	-0.20	0.567**
	(0.27)	(0.18)	(0.493)	(0.13)	(0.30)	(0.13)	(0.22)
Overcrowding	0.001	-0.1	-1.23***	-1.39**	-0.11	1.18*	-0.02
	(0.57)	(0.34)	(0.41)	(0.55)	(1.58)	(0.661)	(0.75)
Houses Built Since 2010, %	2.11	0.55	-0.79	1.63	-6.57	-2.02	-2.45
	(1.87)	(1.65)	(1.96)	(2.43)	(5.71)	(2.16)	(2.19)
Avg. Permits per 1,000 population	2.31**	-0.55	-0.89	-1.3	-1.39	0.22	1.25
	(1.02)	(0.74)	(0.91)	(1.41)	(2.76)	(1.45)	(1.12)
Observations	58	58	54	54	54	58	58
Notes and Sources: See Table 7 (continued), next page.							

Table 7 (continued): Relationship Between Homeownership and Sociological Factors in California					
	(8)	(9)	(10)	(11)	(12)
	Median Household Income	Property Crime	Violent Crime	Poverty Rate	Alternative Poverty Rate
Homeownership rate	0.750***	-0.35*	-0.1***	-0.13**	-0.16*
	(0.22)	(0.19)	(0.03)	(0.06)	(0.08)
Overcrowding rate	-1.05	0.26	-0.05	0.66***	0.01
	(0.65)	(0.49)	(0.12)	(0.23)	(0.36)
Houses Built Since 2010	-2.74	1.86	-0.59	0.72	-2.88***
	(1.89)	(2.31)	(0.36)	(0.91)	(0.91)
Avg. Permits per 1,000 Population	-0.48	0.45	-0.32	0.30	-0.76
	(1.3)	(1.32)	(0.22)	(0.59)	(0.52)
Observations	58	58	58	58	58

Notes: *, **, and *** indicate significance at 90%, 95%, and 99% confidence levels respectively. Huber-White heteroscedasticity-robust standard errors in parentheses.

Sources: See notes in Tables 2 and 5.

5. Discussion and Conclusion

Table 8: Summary of Results

Homeownership Indicator:	Estimated effect of increasing the homeownership indicator on…					
	Educational Attainment	**Health**	**Inequality**	**Median Income**	**Crime**	**Poverty**
Homeownership rate	Increase	No effect	No effect	Increase	Decrease	Decrease
Overcrowding rate	Decrease	No effect	Increase	No effect	No effect	Increase
Percent of houses built since 2010	No effect	No effect	No effect	No effect	No effect	Decrease
Avg. permits per 1,000 population	No effect	Increase	No effect	No effect	No effect	No effect

Notes: This table relates the results in Table 7 back to the hypothesized effects discussed in Table 6.

With the results in the previous section (also refer to Table 8 above for a summary), we have seen the various dimensions along which homeownership can impact sociological indicators and social justice in California. In this (final) section, we provide some concrete examples of how these results can be realized in San Bernardino given what we know about the region's economy and housing market from the model estimates.

There is no doubt that the homeownership rate itself plays a star role in our findings. Thus, increasing homeownership rates should be a key part of any housing policy. This means targeting neighborhoods, communities, and counties that have low or moderate homeownership rates. Given the fact that homeownership has been found to be especially effective at improving outcomes in low-income areas (Aaronson 2000; Harkness and Newman 2003), promoting it through increasing the supply of housing and making home loans more accessible in San Bernardino are both high-impact strategies.

At the federal level, maintaining popular policies that help homeowners, like the mortgage interest deduction, will help to continue making homeownership attractive and affordable for working- and middle-class families. For low-income families, there are programs like the Federal Housing Administration's (FHA) loan program that has recently suffered setbacks which policymakers should consider addressing. The FHA loan limits for low-income buyers were reduced in 2013 as part of a phase-out of the Economic Stimulus Act of 2008, which had raised loan limits, particularly affecting minorities who benefit disproportionately from FHA's single-family insurance program (Goodman et al., 2014). According to our data, San Bernardino is tied 5th out of all 58 California counties in its percentage of population that is African American and 10th in its

percentage of population that is Hispanic/Latino. Thus, the impact of raising loan limits on San Bernardino County's homeownership rate would be larger than in the state overall.

At the state level, one important issue is the California Environmental Quality Act (CEQA), which has been used to target housing projects, especially in urban areas (Holland and Knight, 2015). Because the housing market is highly competitive, such strict regulations deter developers from starting new projects due to red tape and can move them to nearby states. Litigation abuse of the CEQA has gained significant attention recently and seems to represent a significant barrier to expanding housing supply and thus increasing the homeownership rate. It is important to note that CEQA reform was also identified as a key area in a recent statewide report published by California's Department of Housing and Community Development (December 2016, Appendix B: pgs. 2-7).

At the local level, cities in the Inland Empire and San Bernardino County in particular can follow the lead of successful development projects in larger cities. These projects have focused on high-density housing and delaying developer impact fees (which are fees to supply public services to the new development project) to ensure the project moves out of the red before these fees are assessed.

With these policies in mind, our findings imply substantial effects on sociological outcomes like social justice when homeownership rates increase. For example, according to our educational attainment regressions (Columns 3, 4, and 5), increasing the homeownership rate in San Bernardino by 5% which represents a change of less than 1 standard deviation in the homeownership rate (see Table 2) will lead to a 1.6, 2.2, and 3.05 percentage point increase in overall, Hispanic/Latino, and African American high school graduation rates respectively. While these may not appear to be particularly large increases, note that this is the predicted effect of increasing homeownership *assuming everything else is held constant* – i.e., this prediction does not factor in the boom to the local economy in terms of more jobs and spending and the resulting lower unemployment rates and increased incomes that will likely occur when the production of new housing increases. These effects, of course, will provide further improvements to our sociological outcomes of interest.

According to our findings, a 5% increase in the homeownership rate will also increase median incomes by between $2,800 and $3,700 (roughly 5%-7% of their mean values), reduce property and violent crime by 1.65 and 0.5 percentage points respectively (around 6% and 12% of their mean values, respectively), and reduce poverty rates by around 0.7 percentage points (about 5% of the mean). Again, these estimates are holding all else constant and thus do not account for the likely multiplicative effects that increased homeownership rates would have on other determinants of income, crime, and poverty, such as through more job growth and income spent in the economy. For example, in their study of the effects of homeownership rates on crime, Ni and Decker (2009) note "some estimates put the total cost of criminal activity at over five percent of U.S. GDP". Considering California has the world's 6th-largest economy in terms of its GDP at over

$2.3 trillion in 2016 (according to the most recent statistics reported by the Bureau of Economic Analysis), reducing crime rates by even a few percentage points can lead to hundreds of millions of dollars in economic resources shifted toward more productive uses.

Increasing the homeownership rate by 5% is certainly within reach over a prolonged period. In 2015, according to the ACS (1-year estimates), the homeownership rate in San Bernardino County was 57.2%. There were 628,798 occupied housing units and 711,795 total units (with a homeowner vacancy rate of 2.1%, or about 15,000 housing units). Holding the vacancy rate constant at 2.1%, increasing homeownership rates by 5% implies adding about 83,000 houses to the current stock, assuming all of these units are single-family and owned. While this is improbable over the short term, it is feasible over a longer term such as 5-10 years and with increases in permits to levels seen 10 years ago: in 2015, only around 2,000 new single-family units were approved, but in 2005, that number was around 15,000. Aside from the multiplicative effects on the economy cited above, another reason why the required number of new houses will likely be much less than 83,000 is because increasing housing supply will likely reduce the homeowner vacancy rate by reducing prices, freeing up more of the existing housing stock and making it more accessible to San Bernardino County residents.

Even a smaller increase in the homeownership rate would be helpful in stemming the tide of out-migration that has plagued Southern California in recent years, an effect that has led to a draining of the region of high-skilled labor.[15] The neighboring states of Washington and Arizona have homeownership rates of only 1-2 percentage points higher than San Bernardino and much lower overcrowding rates. At the same time, these areas also have much higher per capita growth in approved permits. Expanding homeownership and building more units in general in will certainly go a long way in attracting the kinds of workers San Bernardino County needs to boost its economy.

Recall that reduced overcrowding was another key dimension of homeownership that was found to improve educational attainment (overall and Hispanic/Latino high school graduation rates) and reduce inequality and poverty (see Table 7). Overcrowding is especially important in San Bernardino County, which ranks 9th on this measure out of all counties in California. In addition to increasing homeownership rates, overcrowding rates can be reduced by increasing the total number of both housing *and* rental units. Thus, any policy that increases the building of new residential units and increases accessibility will help to reduce overcrowding and improve social justice.

Finally, in one of our regressions the percentage of houses built since 2010 was significant (in its association with the California Poverty Measure), and in another, the average number permits per 1,000 people was significant (in its association with children's fitness). Both of these have more to do specifically with the permit process. A slowdown in approved permits leads to chronic undersupply: it could take over 30 years

[15] "How Housing Prices are Driving Low, Middle-Income Families Out of California", by Kevin Smith, *Inland Empire Daily Bulletin*, last accessed January 3, 2017, from http://www.dailybulletin.com/article/20160302/NEWS/160309853.

to address the County's housing shortage at the current annual pace of new permits. With an average of 2,000 permits for single-family homes per year, even an undersupply/shortage of 20,000 homes would take 10 years to address. And since housing regulations can represent up to 20-40% of the cost of housing, leading to hundreds of thousands of households locked out of homeownership due to affordability issues, the need to streamline the permit approval process is clearly needed.

In summary, our research implies substantial impacts of homeownership on sociological outcomes like educational attainment, inequality, crime, and poverty. A variety of reforms at the federal, state, and local level can help to expand supply, reduce prices, and thus make homeownership a reality for many more California families. Most of these have to do with reducing regulatory burdens for businesses and expanding access to capital for low-income groups. San Bernardino County has a serious overcrowding crisis that, according to our findings, is placing major barriers to economic opportunity.

In conclusion of our report, the impact of homeownership on sociological outcomes of interest, particularly in the realm of social justice, is clear. Homeownership strengthens communities and provides financial security for families and improves overall welfare, especially for children. Housing policy can help improve two of the major dimensions of homeownership through increasing affordability (through increased construction and reduced regulations on building) and ownership (also through increased construction as well as lending). The fact that homeownership has such a strong effect on our outcomes of interest, independent of any additional economic impact, is testament to the crucial role it plays in improving communities.

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Appendix

Table A1: New Permits in Southern California: Total Units, Reported Only

County	2011		2012		2013	
	Permits	Per 1,000 People	Permits	Per 1,000	Permits	Per 1,000
San Luis Obispo	294	1.08	355	1.29	605	2.19
Kern	969	1.14	1,586	1.85	1,138	1.32
Santa Barbara	184	0.43	458	1.06	401	0.92
Ventura	354	0.43	264	0.32	624	0.74
Los Angeles	9,633	0.97	11,101	1.11	14,113	1.41
San Bernardino	1,424	0.69	1,837	0.88	3,336	1.60
Orange	4,292	1.4	6,044	1.96	10,346	3.32
Riverside	3,239	1.45	4,042	1.78	5,815	2.54
San Diego	5,367	1.71	5,666	1.78	8,264	2.57
Imperial	256	1.45	287	1.62	247	1.4

Sources: U.S. Census, Building Permits Survey, 2011-2015 (single and multi-family units combined); American Community Survey, 1-year population estimates, 2011-2015

Table A1 (continued): New Permits in Southern California: Total Units, Reported Only

County	2014		2015	
	Permits	Per 1,000	Permits	Per 1,000
San Luis Obispo	983	3.52	821	2.92
Kern	817	0.93	1,741	1.97
Santa Barbara	746	1.69	1,079	2.43
Ventura	1,036	1.22	758	0.89
Los Angeles	17,206	1.70	22,927	2.25
San Bernardino	3,216	1.52	3,565	1.68
Orange	9,162	2.91	10,544	3.33
Riverside	6,309	2.71	5,585	2.37
San Diego	6,874	2.11	9,772	2.96
Imperial	246	1.37	242	1.34

Sources: U.S. Census, Building Permits Survey, 2011-2015 (single and multi-family units combined); American Community Survey, 1-year population estimates, 2011-2015

Table A2: Summary Statistics for the Remaining Independent Variables				
	California			San Bernardino County
	Mean	Median	Standard Deviation	Value
Unemployment Rate	10.4	10.3	3.37	9.8
Percent of population (greater than 25) with only HS degree	23.5	24.25	4.72	26.3
Percent of population between 25-44	24.74	25.12	3.7	26.68
Percent of population Hispanic/Latino	28	24.1	17.12	48.6
Percent of population African American	3.32	2.05	3.2	8.7
Proportion of families only mother present	11.89	11.5	2.98	16.4
Population Density	680	105.9	2,381.7	103.6
Percent of households receiving welfare assistance	26.70	26.87	9.1	33.84
Percent of households without a vehicle	6.45	6	3.69	5.8
Median house price ($)	309,355.2	247,200	159,249.3	225,400
Notes and Sources: See Section 2 for variable definitions and data sources.				

Table A3: Coefficients for the Remaining Independent Variables in Each Estimate of Effect of Homeownership Rate on Sociological Outcome, by Table 7 Column Number

	Independent Variable Included in Regression:					
Table 7 Regression #:	Unemp-loyment	Only HS Degree	Ages 25-44 %	Hisp/Lat. Proportion	Afr. Amer. %	Single Mother %
1	0.18	-1.06**		-0.14*	-0.35	
2	-0.27	0.78**		0.24***	-0.06	
3	-0.02	-0.10		-0.04	-0.31***	
4	-0.02	-0.12		0.05	-0.12	
5	0.62	-1.34		0.09	0.49	
6	-0.52**	-0.87***		-0.1	-0.48**	
7	-1.2***	-0.3	0.62**	0.14	0.11	0.54
8	-1.62***	-1.78***	1.07***	0.02	0.18	0.54
9	0.38	-0.06		-0.13	0.42	
10	-0.02	0.13**		-0.02	0.08	
11	0.26	0.13		-0.03	-0.24**	0.93***
12	-0.27	0.13		0.10**	-0.13	-0.03
Continued:						
	Pop Density	Percent receive welfare	Percent HH no vehicle	Median House Price	Median HH Income	
1			-0.233		-0.04	
2			0.08		-0.02	
3					0.07	
4					-0.1	
5					-0.16	
6						
7						
8						
9	0.0001***	0.29*			0.2	
10	0.0002***	0.05			0	
11			0.12	-0.008		
12			0.03	0.004		

Notes: *, **, *** indicate significance at the 90%, 95%, and 99% confidence levels respectively.