# The New Deal, Race, and Home Ownership in the 1920s and 1930s

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Abstract

This paper examines the relationship between various state and federal programs in the 1930s and home ownership among black and white farm and nonfarm households. The impact of the programs is tested with individual household data from 1920, 1930, and 1940 in the one percent census samples of the Integrated Public-Use Microdata Series (IPUMS). The household data are matched with information on government programs and market-level characteristics for 460 State Economic Areas. Probit analysis that includes SEA and state-level information on economic activity in the analysis to reduce problems with endogeneity finds positive effects of FHA mortgage insurance on the probability of home ownership among nonfarm households. The building of public housing projects contributed to lower home ownership rates for nonfarm households. State mortgage moratoria contributed to higher home ownership rates for farm households. The AAA farm programs and farm mortgage programs had negative effects on home ownership among white farm households but positive effects for black farm households. One caveat, the results for white households described above were statistically significant while those for black households were not.

The sentiment for home ownership is so embedded in the American heart that millions of people who dwell in tenements, apartments, and rental rows of solid brick have the aspiration for wider opportunity in ownership of their own home. - President Herbert Hoover (1931)

Throughout American history home ownership has been a goal of many American households, although home ownership rates for blacks have always been much lower than for whites. Federal policies promoting ownership include federal tax deductions for mortgage interest and state and local real estate taxes, subsidies to the poor, mortgage guarantees by the Federal Housing Administration (FHA) and Veterans' Administration (VA), and a variety of indirect subsidies through Fannie Mae, Freddie Mac, and subsidized deposit insurance for Savings and Loans. These programs have contributed to a rise in the home ownership rate from 45.6 percent in the 1920s to over 60 percent in the 1960 (Snowden 2006). Yet, most of the benefits seem to have gone to households in the upper two-thirds of the income distribution. In fact, there have been widespread claims that the FHA discriminated against minorities in the distribution of their loan guarantees because they guaranteed few loans in low-income and minority neighborhoods (Stuart 2003). In response to these claims, the Clinton and Bush administrations both pushed for more federal support for low down-payment loans to the poor, and the home ownership rate reached an all-time high near 70 percent in the mid-2000s. Unfortunately, that federal support for higher risk loans was one of several significant contributors to the housing market declines and financial meltdown in the second half of the decade.

In response to the housing problems of the Great Depression, more than half of the states passed mortgage moratorium laws that temporarily prevented foreclosures on households that had fallen behind on mortgage payments. Several federal programs got their start during the New Deal, which kicked off its efforts to aid home owners when the temporary Home Owners' Loan Corporation (HOLC) bought and refinanced over 1 million troubled mortgages on nonfarm homes between 1933 and 1936. In the farm sector, the New Deal dramatically expanded on the federal farm mortgage programs that had begun in 1917 when it reorganized and expanded farm lending under the Farm Credit Administration (FCA) and the Farm Security Administrations. The Public Works Administration built several major public housing

projects in major cities. Public works and relief programs provided work opportunities for the unemployed, which included a disproportionate number of blacks. Meanwhile, the Agricultural Adjustment Administration (AAA) paid farmers to take land out of production in an attempt to raise prices and farm incomes.

Most New Deal legislation included statements of goals to avoid discrimination against minorities. Such statements helped, but the actual implementation of policy often turned out to aid whites more than blacks. Many policies were administered by state and local officials who indulged the discriminatory attitudes in those locations. The Social Security Act old-age pension program covered a smaller share of the black population because domestic servants, farmers, and farm workers were not covered. Cases in which AAA payments to take land out of production were diverted to landlords are found in many narrative sources. Taking land out of production also likely reduced the demand for farm workers and croppers, so that the AAA may have aided farm owners at the expense of tenants, croppers, and farm workers.[1] The HOLC was said to be discriminatory because the agency used surveys to grade neighborhoods in color-coded security maps in the 1930s. Neighborhoods with large "infiltrations" of blacks, Hispanics, and Asians typically were colored in red, which was the lowest designation. Many have claimed were used by the FHA and others in choosing to insure only a small proportion of loans in these "red-lined" neighborhoods. However, Amy Hillier (2003) finds that the HOLC did not appear to discriminate in distributing loans to blacks in Philadelphia and made quite a few loans in the red-lined districts between 1933 and 1936.

[1] See Lieberman (1998) and Sterner (1943) on narrative studies of race and the operation of various federal programs. These agencies, including the Home Owner's Loan Corporation, Federal Housing Administration, and Agricultural Adjustment Administration, have long been criticized by historians for accelerating the rush to suburbanization and share tenant displacement at the expense of minorities and the institutionalization of redlining (see Abrams, 1955; Jackson, 1985; Whatley, 1983).

As part of larger projects related to the economic impact of the New Deal and the housing boom and bust in the 1920s and 1930s, we have developed a new pseudo panel that matches information on individual households from the IPUMS census samples of 1920, 1930, and 1940 with various measures of New Deal program activity and general economic activity in 460 state economic areas (SEAs). We then use probit models to estimate the relationship between New Deal program activity and home ownership rates for blacks and whites during the period.

**Programs and Their Anticipated Effects**

States addressed problems with housing foreclosures in both the farm and nonfarm sector by passing mortgage moratoria in 1933 and 1934 (Skilton, 1943). The laws prevented lenders from foreclosing on homes where borrowers were delinquent in making loan payments but at least had a slim chance of repaying the existing mortgage when the economic conditions improved (Wheelock, 2008). The laws had the immediate effect of allowing families that owned homes to stay in their homes, although Alston and Rucker (1987) show that interest rates went up and loan terms tightened later in the decade in states that had passed the mortgage moratoria. The net long term effect on overall home ownership rates would have been determined by which of these contrasting effects was more powerful. There might have been differential effects for black and white households based on the extent to which the tightening in loan standards hit one group harder than the other.

There were a series of New Deal programs that likely influenced home ownership. The Home Owners' Loan Corporation (HOLC) and the Federal Housing Administration (FHA) focused directly on nonfarm housing. Between 1933 and 1936, the HOLC purchased 1 million troubled nonfarm mortgages from lenders and then refinanced the mortgages for the homeowners at advantageous rates. The program simultaneously propped up home ownership and replaced the toxic assets on housing lenders books. Courtemanche and Snowden (forthcoming) and Fishback, et. al. (forthcoming) both find that the HOLC contributed to increasing the total number of home owners and the value of homes.

The question we address here is the separate impacts of the various programs on black and white home ownership. During the 1930s in both the North and South black and white housing was greatly segregated. Despite the separate nature of black and white neighborhoods, there were spillover effects between black and white neighborhoods. Both groups competed for loans, although blacks were typically at a disadvantage in the competition because they were in lower quality neighborhoods. As the populations expanded and contracted, white neighborhoods sometimes encroached on black neighborhoods and vice versa.

Since race-specific information on the distribution of New Deal funds is not available, the coefficient on the per capita New Deal variable to be estimated in the black regression captures the relationship between the total funds distributed per home owner in the SEA and the home ownership rate for black households; and similarly for the white regression. Thus, the coefficient for a program like the Home Owners' Loan Corporation is a reduced form function of three relationships.

$$\beta_b = (\text{Receipt, Impact Given Receipt, Spillover}) \qquad 1)$$

Receipt represents the extent to which blacks within the SEA received the New Deal funds. Impact Given Receipt is the effect on home ownership for those blacks who received refinancing, which was likely positive. Spillover is the spillover effect on home ownership that arose because the HOLC funds influenced both black and white housing markets. Even if all of the HOLC money went to whites, the replacement of toxic assets held by private lenders freed up funds for lending. If a share of the freed up funds was lent to blacks for mortgages, we would still expect to see a rise in black home ownership. On the other hand, the spillover effect might have been negative if the additional lending to white borrowers raised the demand for white homes and potentially raised the relative return of lending to whites more than to blacks. In that case, the HOLC might have been associated with less credit to blacks and even to an expansion of building of white homes in traditional black neighborhoods that would have harmed black home ownership.

The FHA provided government guarantees to lenders for repayment of nonfarm home repair loans beginning in 1934 and for nonfarm home mortgages beginning in 1935. As with the HOLC, the expectation is that the impact given receipt was to raise home ownership rates for blacks, and the spillover effect could be positive or negative.

In the farm sector the federal government began providing low interest rate amortized mortgages to farmers who were working on their own farms in 1917. By the end of the 1920s, roughly 19 percent of farm mortgages had been provided by Federal Land Banks. Meanwhile, Congress had provided a series of emergency crop and feed loans through a series of emergency appropriation in the 1920s. Under the New Deal the farm loan programs were reorganized under the Farm Credit Administration (FCA) and the Farm Safety Administration (FSA). The mortgage program was expanded within the Federal Land Banks and through additional loans under the Federal Land Bank Commissioner, while the production loans, drought relief loans, and emergency crop and field loans were regularized. All of these programs offered lower interest rates and were supposed to be targeted at farmers having trouble getting private loans. To the extent that low risk farm borrowers obtained access to the loans, however, the programs might have had the perverse effect of reducing access to farm credit and lowering farm home ownership. This would have happened if the low risk borrowers crowded the high risk borrowers out of the federal programs in ways that left private lenders lending to a pool of high risk borrowers, leading to higher interest rates and tighter loan restrictions. To the extent that federal farm nonmortgage loan programs freed up made it easier to borrow for mortgages, we would see similar effects.

Home ownership was also likely to have been stimulated by most of the public works and relief programs. The one exception was the Public Works Administrations Public Housing (PWAPH) grants, which built public housing projects that rented out apartments to low income people. For the remaining programs a series of New Deal studies suggest that public works and relief programs had positive effects on the economy by stimulating income, retail sales, in-migration, and by reducing crime and mortality

rates. Even after controlling for the direct stimulus to average income, the public works and relief programs likely had positive effects on home ownership by providing more funds to low income groups.

In the farm sector the Agricultural Adjustment Administration's program to pay farm owners to take farm land out of production and raise prices potentially had mixed effects on home ownership among the black farm population. Narratives from the period suggest that farm owners managed to obtain a disproportionate share of the payments. When the farm owners took land out of production, their demand for labor likely fell, leading to declining opportunities for share croppers, farm workers, and tenants on the low end of the income spectrum. A series of New Deal studies find that the AAA program was associated with either no growth or negative effects on income and retail sales. Given that whites were more likely to start the decade of the 1930s as farm and thus home owners and blacks dominated the ranks of the farm workers, croppers, and tenants, it is possible that the AAA was associated with a rise in white home ownership rates by staving off the loss of farms and a fall in black home ownership rates.

**Data and Estimation**

The panel data set matches individual data from the IPUMS samples of census households for the years 1920, 1930, and 1940 with information on overall demographic and economic activity characteristics in 460 State Economic Areas (SEAs) in which the households were located. The IPUMS does not report counties for 1940, so we had to rely on Bogue's and Beale's (1953) SEA groupings of counties that are similar with respect to their economic activities. Data on the demographic characteristics of the SEAs are available by aggregating county data from the Haines 2896 ICPSR data set. Information on New Deal grants and loans was aggregated into SEAs using county level data from the Office of Government Reports. Information on average state income per capita in 1967 dollars for the years between census years is based on data for 1919 through 1938 developed by Martin (1939) and data for 1929 through 1940 from the Bureau of Economic Analysis website. Crop income per capita in 1967

dollars was calculated from the National Agricultural Statistics Service annual state data on prices and output for 18 crops. Information on the different types of farm loans comes from the annual reports of the Federal Farm Loan Board from 1917 through 1932 and from the reports of the Farm Credit Administration from 1933 to 1939.

Since the home ownership dependent variable takes only the value of zero or one, we use a probit analysis to estimate the basic equation for a panel of individual households *i* in SEA *j* in years 1920, 1930, and 1940 :

$$H_{ijt} = f(ND_{jt}, X_{jt}, Y_{ijt}, SEA, YEAR, \varepsilon_{ijt}), \qquad 2)$$

where $H_{ijt}$ is the housing measure for individual *i* in SEA *j* in year *t* as a function of a series of vectors. $ND_{jt}$, is a vector of per capita New Deal funds per relevant person and other programs in SEA j for the period since the last Census year.[2] By including a vector of SEA fixed effects, the coefficient of the per capita spending on a New Deal program captures the relationship between changes between the 1920s and the 1930s in the New Deal per capita measure and changes in average home ownership within the SEA between 1920, 1930, and 1940. The inclusion of a set of individual household characteristics in SEA j in year t controls for the relationship between individual household home ownership decisions and the household head's age, gender, marital status, literacy, labor force status, and occupation (12 categories), as well as the family size, number of children, number of employees, and spouse's labor force participation in the household, and whether the household was located in a metropolitan area. The inclusion of YEAR fixed effects for 1930 and 1940 controls for nationwide shocks that hit all areas. $\varepsilon_{ijt}$ is a stochastic error term.

[2]For example the years 1911 to 1919 are used for t=1920, 1921-1929 for t=1930, 1931-1939 for t=1940. The Census is taken early in the year so the concurrent year information is left out.

When the SEA effects are included in the model, identification of the New Deal relationships in the coefficients in the model comes from the difference within each SEA in New Deal spending per capita between the 1920s and the 1930s and the difference within each SEA between the change in average home ownership from 1920 to 1930 and the change between 1930 and 1940, while controlling for the impact of individual characteristics, the national shocks in each year, and other features of the SEA that changed over time. For all of the programs except the farm loans, there was no New Deal spending in the 1920s; therefore, the difference within each SEA in New Deal spending per capita between the 1920s and the 1930s is equal to the level of New Deal spending per capita in the 1930s. For example, for HOLC lending, we are essentially measuring whether more per capita HOLC funding in the 1930s relaxed constraints on lending in such a way that they promoted an increase in home ownership between 1930 and 1940 relative to the change in home ownership between 1920 and 1930.

Studies of the geographic distribution of New Deal funds suggest that the Roosevelt administration distributed more funds to areas where the local economy was in more trouble, which might lead to a negative correlation between New Deal spending and local economic activity. This could lead to a negative omitted variable or endogeneity bias in the New Deal coefficient.[3] As one way to eliminate the negative omitted variable bias, the analysis includes a series of economic activity variables: the average level of per capita state income in 1967 dollars and the average level of income from 18 crops in the period between census years, and the percentages of blacks, foreign born, and illiterates in the area in year *t*.[4] The inclusion of the SEA and state level economic activity variables soak up most of the correlation

[3] Holding other factors in the analysis constant, the omitted variable bias is a multiplicative function of the negative correlation between New Deal funds and economic activity and the correlation between economic activity and home ownership, which was likely to be positive. The combination leads to a negative omitted variable bias.

[4] For 1940 observations the average income and crop income was for the period 1931 to 1939, which coincided with the information on SEA level New Deal programs. For 1930 households, it was the average for 1921 to 1929 for both. For 1920 households the crop income was the average for 1911 to 1919. State income measures were not available before 1919, so we used the 1919 value multiplied by

between the error term and the drops in income that would have driven more public works, relief, public housing, and AAA spending.

**Results from Probit Analysis**

To show the separate effects by race and by farm/nonfarm status, separate equations are estimated for black farm, black nonfarm, white farm, and white nonfarm households. Table 1 reports the marginals derived from probit estimates for the policy variables and the change in the probability of home ownership associated with the change in the average amount of funding in the policy between the 1920s and the 1930s. An asterisk marks relationships where the probit coefficient was statistically different from zero in a 10-percent test. To put the changes described below in context, the probability of home ownership among white farm households fell 1.6 percent from 59.4 to 57.8 in 1940, while black farm home ownership rates actually rose by 0.7 percent from 19.7 in 1930 to 20.4 in 1940. The white nonfarm ownership rate fell by 5 percent from 47.7 to 42.7 percent in 1940, while black nonfarm ownership rates 3.2 percent to 24.1 in 1940.

In the nonfarm housing sector, the programs with statistically significant and strong effects for white households were the FHA mortgage insurance and the (PWAPH) programs. The increase in FHA insurance of loans from 0 in the 1920s to roughly $800 in loans insured per nonfarm home owner in 1930 served as a countervailing force against the decline in nonfarm home ownership rates for both blacks and whites. The rise in insurance was associated with a 1.83 percent rise in the probability of white home ownership and a 1.17 percent increase in the probability of black home ownership, although the black relationship is not statistically significant. The FHA program for insuring mortgages has long been considered an elite program that has primarily benefited white families in middle and upper class neighborhoods. The difference in size of the coefficients for the whites and blacks is consistent with this

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.928, which was the ratio of the average from 1911 to 1919 to the 1919 figure for national estimates of GDP per capita.

story. At the very least the FHA program in the initial stages did not harm black home ownership through negative spillover effects, and may have enhanced it.

The PWAPH projects provided affordable low income rental housing. When they were new in the 1930s, the project apartments were considered to be of higher quality than the typical apartment in low-income neighborhoods. By providing better quality rental housing, the rise in PWAPH spending from 0 to 5.6 dollars per nonfarm person lowered the probability of home ownership by 0.36 percent for whites and 0.25 percent for blacks.

The HOLC's refinancing of nonfarm home loans and replacement of toxic assets on the books of lenders had statistically insignificant relationships with the probability of home ownership for both blacks and whites. When the HOLC loans per nonfarm homeowner in the SEA rose from zero in the 1920s to an average of $876 in the 1930s, it would have lowered the probability of white home ownership rates by 0.32 percentage points, while the black home ownership probability fell by 1.1 percentage points. The weak negative impact on white and black home ownership rates appear to contradict the positive impact on white home ownership found by Courtemanche and Snowden (forthcoming) and by Fishback, et. al. (forthcoming) in county level studies. There are potentially two reasons for this difference. The positive effects in the county studies were restricted to counties with fewer than 50,000 people where housing markets were not as well formed, and the analysis in this paper naturally weights the effect of the HOLC by the number of households in the SEA, while the county level studies were unweighted.

In the farm housing sector, the state mortgage foreclosure moratoria in the early 1930s had the most positive relationship with home ownership. In states that had invoked a moratorium, the probability of white farm households owning their home was a statistically significant 1.36 percent higher, and the probability for black farm households was a statistically insignificant 0.863 percent higher. Alston and Rucker (1987) found that the passage of mortgage moratoria had contributed to higher farm mortgage interest rates and a tightening of terms on mortgages after the moratoria were removed. The results here

suggest that the reduction in foreclosures associated with the moratoria in the early 1930s outweighed the higher costs of obtaining the mortgages in determining the extent of home ownership at the end of the decade. The mortgage moratoria had much weaker and statistically insignificant effects in the nonfarm housing sector, raising the probability of white home ownership by only 0.23 percent and lowering it for blacks by 0.48 percent.

The AAA program had statistically significant and negative effects on home ownership among white farm households and a statistically insignificant positive effect on home ownership for black farm households who were still on farms in 1940. The rise in AAA spending per capita from 0 in the 1920s to $160 per member of the farm population in the 1930s lowered the probability of home ownership for white farm households by 0.6 percentage points and raised it by 0.80 percentage points for blacks. The white result is consistent with the findings of recent studies of the impact of the AAA, which show that the AAA contributed to out-migration and had negative, although statistically insignificant, impact on per capita retail sales and per capita income (Fishback, Horrace, and Kantor 2005 and 2006 and Fishback and Kachanovskaya 2010). These results and contemporary narratives suggest that farm owners benefitted from the AAA but the associated drop in labor demand harmed farm workers, croppers, and some tenants. The odd result is the positive effect of the AAA on home ownership among black farm households, although this result is statistically insignificant.

Proponents of the farm credit programs for farm mortgages and production loans would have been unpleasantly surprised by the negative effects of the farm real estate loans and farm production loans on home ownership among white farm households. The increase in average farm mortgage loans per farm population from $9 in the 1920s to $25 in the 1930s contributed to a statistically significant 0.86 percent reduction in the probability of owning a home. The impact on black home ownership was positive but statistically insignificant. The mortgage program was designed to provide mortgage loans at lower interest rates to farmers who farmed their own land and were having problems obtaining mortgages.

It is possible, however, that low-risk borrowers found ways to obtain the loans, which led to an increase in the share of high-risk borrowers in the pool of borrowers seeking loans outside the federal program. The adverse selection problems would therefore have led to higher interest rates and worse loan terms that made it even more difficult to borrow for that group.

**Conclusions**

During the 1930s there were several programs that were likely to have influenced home ownership rates for blacks and whites in the farm and nonfarm sectors. Probit analysis that includes SEA and state-level information on economic activity in the analysis to reduce problems with endogeneity finds positive effects of FHA mortgage insurance on the probability of home ownership among nonfarm households. The building of public housing projects contributed to lower home ownership rates for nonfarm households. State mortgage moratoria contributed to higher home ownership rates for farm households. The AAA farm programs and farm mortgage programs had negative effects on home ownership among white farm households but positive effects for black farm households. One caveat, the results for white households described above were statistically significant while those for black households were not.

Table 1: Results from Probit Analysis

| | Percentage Change in Probability of Home Ownership Associated with Change in Mean of Variable Between 1920s and 1930s | | | | Marginal Effects | | | |
|---|---|---|---|---|---|---|---|---|
| | NonFarm Households | | Farm Households | | NonFarm Households | | Farm Households | |
| Policy Variable | White | Black | White | Black | White | Black | White | Black |
| Federal Housing Administration Loan Value Insured 1934-1939 per Nonfarm Home Owner in 1930 | 1.83 * | 1.17 | 0.75 | 1.08 | 0.023 * | 0.015 | 0.018 | 0.026 |
| Home Owners Loan Corporation Loans 1933-1936 per Nonfarm Home Owner in 1930 | -0.32 | -1.10 | -0.07 | -2.84 * | -0.004 | -0.013 | -0.002 | -0.062 * |
| Public Works Administration Public Housing Grants 1933-1939 per Nonfarm Population 1930 | -0.36 * | -0.25 | -0.05 | 0.18 | -0.650 * | -0.443 | -0.321 | 1.150 |
| Public Works Grants 1933-1939 per Person 1930 | 0.00 | -0.27 | 0.35 | -0.12 | 0.000 | -0.027 | 0.032 | -0.010 |
| Relief Grants 1933-1939 per Person in 1930 | -0.24 | 0.94 | -1.07 | 0.13 | -0.010 | 0.040 | -0.068 | 0.008 |
| Agricultural Adjustment Act Grants 1933-1937 per farmer in 1930 | 0.00 | 0.88 | -0.62 * | 0.80 | 0.000 | 0.088 | -0.039 * | 0.050 |
| Federal Farm Mortgage Loans per Farm Population in Prior Census | -0.72 * | 0.47 | -0.86 * | 1.39 | -0.375 * | 0.246 | -0.545 * | 0.888 |
| Federal Farm Non-Mortgage Loans per Farm Person in Prior Census | 0.95 * | -1.00 | -0.33 | -1.10 | 0.473 * | -0.499 | -0.191 | -0.641 |
| Federal Nonfarm NonHousing Loans, 1932-1939 per Person in 1930 | -0.11 | 0.08 | -0.11 | -1.01 | -0.007 | 0.005 | -0.010 | -0.092 |
| State Mortgage Moratorium Law, 1933-1934 | 0.23 | -0.48 | 1.36 * | 0.86 | 0.002 | -0.005 | 0.021 * | 0.013 |

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Average State Income since last Census per Person in Prior Census | -1.03 | * | -0.55 | | -0.64 | * | 0.40 | 0.100 | * | 0.054 | 0.099 | * | -0.063 |
| Average State Crop Income since last Census Per Farm Population in Last Census | -0.93 | * | -1.53 | * | -0.24 | | -0.14 | 0.144 | * | 0.237 | * | 0.029 | 0.018 |

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# Appendix

## Useful Material that Was Not Included in the Short Version of the Paper

### Additional Results from the Probit Analysis.

In Table 1 in the text we did not discuss the impact of average state income. In the nonfarm sector the drop in average real state income per capita in 1967$ from 1,359 in the 1930s to 1,256 in the 1920s would have contributed to a 1.03 percent reduction in the probability of home ownership for nonfarm whites and an 0.55 percent reduction for nonfarm black households. After holding constant overall state income per capita, it turns out that a decline in real crop income per farm person from $209 to $145 also contributed sizeable reductions in the probability of nonfarm home ownership, including a drop of 0.93 percent for whites and -1.53 percent for blacks.

The full set of probit results are reported in Appendix Table 4. Since the focus in the paper was on the policy variables at the SEA level, we did not discuss the effects of individual household characteristics. They were pretty standard. Among both black and white nonfarm households, home ownership was positively related to literacy, marriage, age, family size, and the presence of household help. It was negatively related to the presence of working spouses, the number of children (holding family size constant), and living in a large metropolitan area. Among nonfarm households, black male household heads were less likely to own home, while native born white household heads were less likely to own homes. Nonfarm whites with management or clerical jobs were more likely to own their own homes, while craftsmen, manufacturing operatives, household servants, service workers, and laborers were less likely to own homes. Nonfarm blacks with sales jobs were more likely to own homes, while professionals, servants, laborers and other occupations were less likely to own their own homes.

**The Impact of Race on the Geographic Distribution of New Deal Programs**

Courtemanche and Snowden (2010) found that the HOLC distributed more HOLC funds to areas with a higher black share of the population after controlling for a broad range of socioeconomic, demographic, political, and state fixed effects, including prior levels of home ownership and the location of HOLC offices. A one-standard deviation increase in the percent black raised the HOLC loan rate by 0.1 standard deviations and the acceptance rate by 0.06 standard deviations. Without the housing controls, Fishback and Kantor found a slightly negative but statistically insignificant elasticity of -0.02 of the HOLC

Fishback, Kantor, and Wallis (2003) performed a similar study for a broad range of New Deal program, but did not include the housing measures. They found the following elasticities for New Deal programs with respect to changes in the percent black: 0.10 for public works grants, -0.027 for relief grants, -0.021 for USHA loans and 0.026 for FHA loans.

**Exploration of Instrumental Variable Analysis**

In the text the analysis focused on controlling for endogeneity by adding measures of economic activity. We also explored using instrumental variables for the HOLC and FHA housing programs. However, the tests for instrument strength suggested that the instruments were not strong when we tried to instrument for both programs simultaneously. Nor was the instrument strong when we tried to instrument for the HOLC only. Here was the logic behind the instruments tried.

One focus for nonfarm households is on the HOLC and FHA housing programs. In creating the programs the Roosevelt administration saw propping up home ownership in troubled housing markets as one of several goals. To control for the potential negative endogeneity bias that might arise, we developed instruments for the HOLC and FHA spending that were correlated strongly with each program but not with the error term in equation 1. One way to approach this is through the administrative side.

The HOLC established 244 offices across the country with at least one in each state. Given the paperwork associated with the loans and the inspections of property required, it seems likely that it was more costly for borrowers who were in SEAs with no HOLC offices to refinance their loans through the HOLC. It would be more costly to seek the mortgage refinancing and more costly for HOLC workers to evaluate the value of the property and administer loan information related to it. Thus, the value of HOLC loans per capita was likely correlated with whether there was an HOLC office in the SEA. Courtemanche and Snowden (2010) have used a similar strategy to examine the impact of the HOLC on overall home ownership rates.

Fishback, Flores Lagunes, Horrace, Kantor and Treber (forthcoming) worried that the location of offices might be endogenous to the extent that the HOLC chose the office locations on the basis of the number of troubled mortgages in the area. To avoid potential endogeneity in the choice of HOLC office locations, we follow their lead and use an alternative strategy for picking offices as an instrument. A federal agency seeking to simultaneously hold down administrative costs while reaching the largest number of people likely would have put an office in the state capital and in the largest cities in the state. In this alternative formulation, then we developed an artificial administrative version of the HOLC that placed HOLC offices in all state capitals and in the four largest cities in each state. The HOLC instrument is therefore the number of artificial HOLC offices in the state.

A similar process was followed for the FHA. Since the FHA only had 75 offices, the artificial distribution includes locations only in the state capital and in the largest city in the state. The artificial geographic distribution of HOLC offices matches the actual distribution to a reasonable degree. The actual HOLC offices were dispersed across 192 SEAs and the fake offices across 149 SEAs. There were 117 SEAs with both an actual and artificial office, 32 with an artificial office and no actual office and 75 with an actual office but no artificial office. On the FHA side there were 47 SEAs with artificial offices

and 59 with actual offices. There were 36 SEAs with both an actual and artificial office, 11 with an artificial office and no actual office and 23 with an actual office but no artificial office.

**More Detail on Government Programs**

At the end of World War I, the housing market was in the doldrums. The recession proceeding the war resulted in little construction despite little growth in the housing stock during the War. As the economy recovered, so did the residential construction industry. By 1926 over 930,000 dwellings were built. Over the next few years, construction quickly declined. By the time the Great Depression hit it's lowest point in 1933, housing starts had fallen 90 percent. At a conference on home financing and homeownership in 1930, President Hoover still insisted in 1930 that homeownership was an individual's responsibility, not the federal government despite the marked decline in the construction industry and increasing foreclosures (Hoagland and Stone, 1965, p. 465).

A result of the conference was the creation of the Federal Home Loan Bank Board (FHLBB) in 1932. Similar to the Federal Reserve, the Federal Home Loan Bank system had 12 branches spread across the United States. The federal government believed that the decline in housing values in this period was largely due to the lack of credit, thus the board was responsible for increasing the increasing liquidity on the mortgage market. While there was a provision within the Federal Home Loan Bank Act to assist individual homeowners, the requirements for qualification were too high for most households (Bradford, 1979; Hoagland and Stone, 1965, p. 468).

At least 27 states, unwilling to wait for a response from the federal government to respond to a national decline in the housing market, enacted foreclosure moratoria between 1933 and 1934 (Skilton, 1943). Most laws prevented foreclosure only in cases where the borrowers had at least a slim chance of repaying the existing mortgage when the economic conditions improved (Wheelock, 2008). While several moratorium laws were ruled unconstitutional, the presence of such laws suggested that the downturn in the housing market hurt more than just the riskiest homeowners.

As part of the New Deal, several programs geared to revitalizing the housing industry were pushed through the legislature. The first was Home Owners' Loan Corporation Act of 1933. The act created the HOLC and placed it under the supervision of the FHLBB and was responsible for refinancing the mortgages in danger of foreclosure on non-farm, owner-occupied dwellings (Harriss, 1951, pp. 29--30). To accomplish its directives, the HOLC hired appraiser who were familiar with local economic conditions as well as meet qualifications set by the American Institute of Real Estate Appraisers. The appraisers were instructed to equally weight three factors for appraisals: market value at the time of appraisal, the cost of a similar lot plus the cost of the building less depreciation, and the value of the premises by capitalizing the monthly reasonable rental value of the premises over the previous ten years (Harriss, 1951, pp.41--44).

After the completion of its refinancing program in 1935, the HOLC, at the behest of the FHLBB, ran a City Survey program for 239 cities across the United States (Hillier, 2005). This survey incorporated neighborhood characteristics into the assessment of a property as well as forecasting the risk for mortgage defaults in a particular neighborhood. This program was controversial in particular due to the inclusion of ethnic group characteristics as factors influencing the risk for mortgage defaults. Abrams (1955) was one of the first to discover the rating system used in the survey, although he erroneously connected these ratings for the HOLC's refinancing program. Yet, Jackson (1985) was the first to publish findings suggesting that African Americans in St. Louis and New Jersey never resided in neighborhoods with favorable "grades."

The Federal Housing Administration, created via the National Housing Act in 1934, provided several tools for the federal government to rebuild the housing industry during the Great Depression. There were two major objectives of the FHA: shifting the risk of construction away from private industry towards the federal government and to establish a secondary market for mortgages (Hoagland and Stone, 1965, pp. 504--505).

The first objective of the FHA was accomplished by providing lending institutions insurance against the loss on loans to both finance renovations on existing structures (Title I) as well as provide insurance for new one-to-four family dwellings (Title II) (Hoagland and Stone, 1965, p. 506). The ability for institutions to insure mortgages under Title II shifted how many of the institutions lent to borrowers. They were increasingly willing to lend at higher loan to value ratios and for longer periods. The success of Title II was indicated by the fact that 20 to 25 percent of mortgages were insured by the FHA between 1934 and 1945. The standard requirements for each FHA mortgage helped create a national housing market for the mortgages because the uniform structure allowed easy comparisons of the mortgages. The appeal of a secondary market for mortgages became more apparent as local markets became increasingly homogenous. A secondary market could provide additional capital to financial institutions which would otherwise have large chunks of their portfolios tied to illiquid assets. In 1938 Fannie Mae was created to purchase mortgages and helped create the secondary market.

Critics often argued that the underwriting standards of the FHA institutionalized the practice of redlining. Homer Hoyt (1939), an economist working for the FHA, indicated that mixing ethnic groups within a neighborhood would inevitably lead to a decline in housing values in that neighborhood (Kollmann, 2010). Further, the FHA's underwriting manuals during the 1930s and 1940s cited certain ethnic groups such as African Americans and Jews as undesirable. Further, it promoted the use of restrictive deed covenants in order for mortgage loans to receive insurance (Abrams, 1955, pp. 229--232).

**Econometric Literature on Home Ownership.**

Works such as Forbidden Neighbors by Charles Abrams (1955) began to raise awareness of how institutions could influence homeownership. While not the first, researchers in the past two decades have been trying to examine the relationship between homeownership and race from several angles. Early work such as Horton (1992) began to examine the homeownership gap by using logit models to estimate how sociological and demographic characteristics affect homeownership rates across race from the 0.1% 1980

Public Use Microdata Sample provided by the U.S. Census. Horton grouped households into several groups by age and race. Using odds-ratios created from the logit regressions, Horton finds that compared to white households, black households are less likely to own homes across the defined age cohorts with the exception of elderly blacks.

The demographics of the United States changed substantially after 1960 despite little change in homeownership. Using U.S. Census data from 1960 through 1990, Gyourko and Linneman (1996) find evidence that the shifting demographics influenced patterns in homeownership. Specifically, the importance of marital status and children declined as a predictor of homeownership, while education increasingly became a factor over time. Of particular note, they find that the negative correlation between homeownership and race declined between 1960 and 1970, although it subsequently rose above the 1960 level over the next two decades.

The reduced form approaches of the previous two papers however do not illuminate the differentials in homeownership across races. Difference may be partially attributed to discriminatory factors, but the gap in homeownership may also be due to differences in wealth accumulation that could affect African American household's ability to purchase homes. Gyourko et al. (1999) use repeated cross-sectional data from several surveys administered by the Federal Reserve in 1962, 1977, and 1983 to construct a measure of net worth to evidence of household "wealth constraints." They find that in 1983, minorities represented 18% of the sample yet encompassed 25% of the wealth constrained households. Using a multinomial logit model, they find that minorities who were not wealth constrained were as likely to own as white households, though they predominately resided in central cities as opposed to suburbs by their white counterparts.

However, the role of other characteristics, discrimination and different preferences should not be ignored when examining the gap between homeownership as well as differences in housing values between white and black families. Collins and Margo (2001) explored homeownership between 1900 and 1990 and found that while black and white families experienced growth in homeownership rates

throughout the century, the homeownership gap fluctuated around 20%. Using a linear probability model comprising of repeated cross-sectional data provided by IPUMS, they begin by using a decomposition similar to the one constructed in Juhn et al. (1993). This decomposition methodology allows Collins and Margo (2001) to examine the extent to which the change in the homeownership gap was influenced by changes in characteristics, changes in coefficients, and changes in the residual gap over time. They find that the gap in homeownership increased five percent between 1940 and 1960. The decomposition results suggested that approximately 63% of the gap was due to the changes in characteristics between black and white households over time while another 31% of the gap was due to the changes in the coefficients that relate to the likelihood of owning a home.

In a follow up paper, Collins and Margo (2003) revisit their earlier paper with an additional focus on race and housing values. Using data again acquired from the IPUMS, they find that the gap in average housing values declined between 1940 and 1990 was primarily being driven by the convergence of household characteristics that are highly correlated with housing values in the sample. For example, the strong presence of African American households in the South accounted 30.5% of the gap in housing values from the 1940 sample, although this demographic group declined to only 21% of the sample by 1990.

**More Detail on Farm Loan Variables**

For the New Deal programs at the SEA level we typically had information aggregated for the period from July 1, 1933 through June 30, 1939 with no individual year data. This was also true for the Farm Credit Administration and the Farm Security Administration. However, the Farm Credit Administration information did not have full information on the federal mortgage loans made between 1917 and 1933. Therefore, we switched to using state level information, where we could split it out annually and also take into account the amounts loaned before the New Deal. The Federal Land Banks began loaning mortgage funds to farmers in 1917. We have annual information by state through 1939 for their loans and the loans from the Federal Land Bank Commissioner after 1933. Congress voted

appropriations for emergency crop and seed loans between 1920 and 1932. We have information annually for 1931 and 1932 and for the period 1921 through 1929. When the Farm Credit Administration was formed in 1933. it formalized the emergency crop and feed loan program, added production credit associations and provided drought relief loans in 1934 and 1935. Since the farm loans were the only ones provided outside the 1933-1939 period, we have adjusted them for inflation to the 1933-1939 average. This was done by adjusting the CPI for 1967 to the average for the 1933-1939 period. For land bank commissioner loans we made the adjustments annually before adding them up. For the emergency crop and feed loans, production loans, and drought relief loans after 1930 we adjusted on annual basis. For the emergency crop and feed loans in the period 1921-1929, we took the total and divided by the average cpi adjustment for the decade from 1921 to 1929. Between 1921 and 1929 the average CPI in 1967 dollars was 51.8 with a high of 53.6 in 1921 and a low of 50.22 in 1922.

Appendix Table 1
States Adopting Mortgage Moratoria

| | | |
|---|---|---|
| Arizona | Arkansas | California |
| Delaware | Idaho | Illinois |
| Iowa | Kansas | Louisiana |
| Michigan | Minnesota | Mississippi |
| Montana | Nebraska | New Hampshire |
| New York | North Carolina | North Dakota |
| Ohio | Oklahoma | Oregon |
| Pennsylvania | South Carolina | South Dakota |
| Texas | Vermont | Wisconsin |

**Source:** Skilton (1943).

Appendix Table 2
Means for Black and White Non-Farm Households in Sample

| | White Households | | | Black Households | | |
|---|---|---|---|---|---|---|
| Variable | 1920 | 1930 | 1940 | 1920 | 1930 | 1940 |
| Household Owns Residence | 0.4257 | 0.4770 | 0.4266 | 0.2259 | 0.2731 | 0.2411 |
| Household Family Size | 3.8418 | 3.6846 | 3.4297 | 3.2858 | 3.3919 | 3.4055 |
| HH - Labor Force[a] | 0.8506 | 0.8468 | 0.8123 | 0.9190 | 0.9058 | 0.8204 |
| HH – Literate | 0.9493 | 0.9668 | 0.8736 | 0.7312 | 0.8337 | 0.8040 |
| HH – Male | 0.8659 | 0.8645 | 0.8444 | 0.7695 | 0.7555 | 0.7317 |
| HH – Age | 44.945 | 45.484 | 46.684 | 41.489 | 41.636 | 43.822 |
| HH – Married | 0.7880 | 0.7912 | 0.7624 | 0.6576 | 0.6551 | 0.6098 |
| HH - Native Born | 0.7015 | 0.7440 | 0.7986 | 0.9802 | 0.9761 | 0.9781 |
| Number of Children Present | 1.7588 | 1.6109 | 1.4015 | 1.2642 | 1.2898 | 1.3287 |
| Number of Household Employees | 0.0348 | 0.0299 | 0.1207 | 0.0120 | 0.0068 | 0.2871 |
| Spouse - Labor Force | 0.0438 | 0.0698 | 0.1016 | 0.1913 | 0.2116 | 0.1870 |
| Metropolitan Area | 0.5788 | 0.6360 | 0.6489 | 0.4439 | 0.5604 | 0.5872 |
| SEA - Percent Black | 5.9492 | 6.2498 | 6.7647 | 26.990 | 23.464 | 22.678 |
| SEA - Percent Foreign Born | 16.410 | 13.596 | 10.841 | 6.5619 | 6.6958 | 5.7502 |
| SEA - Percent Illiterate | 4.7336 | 3.4984 | 4.5938 | 10.2783 | 6.9680 | 7.1706 |
| Per Capita Real State Income ($000s) | 1.2272 | 1.3591 | 1.2556 | 0.9519 | 0.9805 | 0.9377 |
| Per Capita Relief Grants ($000s) | 0 | 0 | 0.2366 | 0 | 0 | 0.2282 |
| Per Nonfarm Pop PWA Public Housing Grants ($000s) | 0 | 0 | 0.0057 | 0 | 0 | 0.0169 |
| Per Capita Public Works Grants ($000s) | 0 | 0 | 0.1022 | 0 | 0 | 0.1034 |
| Per Nonfarm Pop FHA Loan Value Insured ($000s) | 0 | 0 | 0.8040 | 0 | 0 | 1.2216 |
| Per Capita Non-farm, Non-Housing Loans ($000s) | 0 | 0 | 0.1547 | 0 | 0 | 0.1953 |
| Per Nonfarm Pop HOLC Loans ($000s) | 0 | 0 | 0.8767 | 0 | 0 | 1.1746 |
| Per Farmer Agricultural Adjustment Act Grants ($000s) | 0 | 0 | 0.1002 | 0 | 0 | 0.0878 |

| | | | | | | |
|---|---|---|---|---|---|---|
| Per Farmer Federal Farm Mortgage Loans in Prior Census ($000s) | 0.0064 | 0.0086 | 0.0276 | 0.0041 | 0.0064 | 0.0145 |
| Per Farmer Federal Farm Nonmortgage Loans in Prior Census ($000s) | 0 | 0.0004 | 0.0205 | 0 | 0.0013 | 0.0127 |
| Per Farmer Crop Income in Prior Census ($000s) | 0.2464 | 0.2095 | 0.1451 | 0.1700 | 0.1560 | 0.1084 |
| State Mortgage Moratorium Law | 0 | 0 | 0.6878 | 0 | 0 | 0.5769 |
| Observations: | 157345 | 200545 | 252278 | 13462 | 16769 | 21486 |

Note: a – Head of Household (HH). All per capita figures given using 1930 population figures. Monetary figures adjusted for 1967 dollars.

Appendix Table 3
Means for White and Black Farm Households in the Sample

| | White Households | | | Black Households | | |
|---|---|---|---|---|---|---|
| Variable | 1920 | 1930 | 1940 | 1920 | 1930 | 1940 |
| Household Owns Residence | 0.6468 | 0.5941 | 0.5781 | 0.2283 | 0.1966 | 0.2045 |
| Household Family Size | 4.5553 | 4.4052 | 4.1960 | 4.7791 | 4.6561 | 4.8396 |
| HH - Labor Force[a] | 0.9681 | 0.9619 | 0.8837 | 0.9856 | 0.9815 | 0.9181 |
| HH – Literate | 0.9390 | 0.9489 | 0.9184 | 0.5847 | 0.6726 | 0.6571 |
| HH – Male | 0.9529 | 0.9501 | 0.9310 | 0.8965 | 0.8945 | 0.8856 |
| HH – Age | 45.372 | 46.704 | 48.138 | 42.809 | 43.135 | 44.658 |
| HH - Married | 0.8515 | 0.8484 | 0.8324 | 0.8121 | 0.7950 | 0.7816 |
| HH - Native Born | 0.8829 | 0.8991 | 0.9186 | 0.9991 | 0.9991 | 0.9939 |
| Number of Children Present | 2.3974 | 2.2371 | 2.0334 | 2.5222 | 2.3205 | 2.3657 |
| Number of Household Employees | 0.0545 | 0.0389 | 0.1069 | 0.0170 | 0.0105 | 0.0788 |
| Spouse - Labor Force | 0.0220 | 0.0205 | 0.0333 | 0.2197 | 0.1639 | 0.1275 |
| Metroplitan Area | 0.0791 | 0.0986 | 0.1287 | 0.0255 | 0.0439 | 0.0654 |
| SEA - Percent Black | 10.129 | 9.7102 | 9.4612 | 46.398 | 43.195 | 41.955 |
| SEA - Percent Foreign Born | 7.1183 | 5.0194 | 3.9915 | 0.9470 | 0.5539 | 0.6068 |
| SEA - Percent Illiterate | 6.1459 | 4.8286 | 5.2880 | 17.2407 | 12.648 | 11.3198 |
| Per Capita Real State Income ($000s) | 1.0283 | 1.0160 | 0.9519 | 0.8002 | 0.6507 | 0.6256 |
| Per Capita Relief Grants ($000s) | 0 | 0 | 0.1573 | 0 | 0 | 0.0930 |
| Per Nonfarm Pop PWA Public Housing Grants ($000s) | 0 | 0 | 0.0015 | 0 | 0 | 0.0016 |
| Per Capita Public Works Grants ($000s) | 0 | 0 | 0.1115 | 0 | 0 | 0.0824 |
| Per Nonfarm Pop FHA Loan Value Insured ($000s) | 0 | 0 | 0.4217 | 0 | 0 | 0.5468 |
| Per Capita Non-farm, Non-Housing Loans ($000s) | 0 | 0 | 0.1096 | 0 | 0 | 0.1185 |
| Per Nonfarm Pop HOLC Loans ($000s) | 0 | 0 | 0.4566 | 0 | 0 | 0.5350 |
| Per Farmer Agricultural Adjustment Act Grants ($000s) | 0 | 0 | 0.1597 | 0 | 0 | 0.1128 |

| | | | | | | |
|---|---|---|---|---|---|---|
| Per Farmer Federal Farm Mortgage Loans in Prior Census ($000s) | 0.0073 | 0.0092 | 0.0249 | 0.0039 | 0.0064 | 0.0078 |
| Per Farmer Federal Farm Nonmortgage Loans in Prior Census ($000s) | 0 | 0.0009 | 0.0181 | 0 | 0.0016 | 0.0114 |
| Per Farmer Crop Income in Prior Census ($000s) | 0.2416 | 0.2208 | 0.1392 | 0.1424 | 0.1387 | 0.0921 |
| State Mortgage Moratorium Law | 0 | 0 | 0.6497 | 0 | 0 | 0.6415 |
| Observations: | 57192 | 55663 | 61785 | 10431 | 9691 | 10051 |

Note: a - Head of Household (HH). All per capita figures given using 1930 population figures. Monetary figures adjusted for 1967 dollars.

Appendix Table 4

Probit Coefficient Estimates for Black and White Farm and Non-farm Households for 460 SEAs in the years 1920, 1930, and 1940

| | Non-Farm Households | | Farm Households | |
|---|---|---|---|---|
| | White | Black | White | Black |
| HH – Male | -0.0129 | -0.179*** | -0.360*** | -0.198*** |
| HH - Married | 0.175*** | 0.260*** | -0.0716*** | -0.0271 |
| HH - Native Born | -0.0754* | -0.0531 | -0.118*** | -0.174 |
| HH – Age | 0.0299*** | 0.0319*** | 0.0360*** | 0.0313*** |
| Household Family Size | 0.114*** | 0.0725*** | 0.0374*** | 0.0103 |
| Number of Children Present | -0.0815*** | -0.0531*** | -0.0583*** | -0.0168* |
| Number of Household Employees | 0.133*** | -0.0159 | 0.0311** | 0.0226 |
| HH - Labor Force[a] | -0.0102 | -0.0210 | 0.202* | -0.127 |
| HH - Literate | 0.101*** | 0.286*** | 0.414*** | 0.407*** |
| Spouse - Labor Force | -0.142*** | -0.0452* | 0.0464* | -0.118*** |
| Metropolitan Area | -0.162*** | -0.380*** | 0.0704* | -0.128 |
| SEA - Percent Black | 0.0108* | -0.0154* | 0.00513 | -0.00775 |
| SEA - Percent Foreign Born | 0.00373 | -0.00558 | 0.0102*** | 0.0162 |
| SEA - Percent Illiterate | -0.0181** | 0.00240 | -0.00613 | -0.00315 |
| Per Capita Real State Income ($000s) | 0.293*** | 0.206 | 0.328*** | -0.290 |
| Per Capita Relief Grants ($000s) | -0.0302 | 0.153 | -0.224 | 0.0378 |
| Per Nonfarm Pop PWA Public Housing Grants ($000s) | -1.905** | -1.706 | -1.060 | 5.330 |
| Per Capita Public Works Grants ($000s) | 0.000704 | -0.103 | 0.105 | -0.0484 |
| Per Farmer Agricultural Adjustment Act Grants ($000s) | 0.000318 | 0.340 | -0.129* | 0.233 |
| Per Farmer Federal Farm Mortgage Loans in Prior Census ($000s) | -1.100** | 0.946 | -1.803** | 4.113 |
| Per Farmer Federal Farm Nonmortgage Loans in Prior Census ($000s) | 1.385*** | -1.922 | -0.631 | -2.968 |
| Per Nonfarm Pop FHA Loan Value Insured ($000s) | 0.0666*** | 0.0559 | 0.0587 | 0.118 |
| Per Capita Non-farm, Non-Housing Loans ($000s) | -0.0212 | 0.0198 | -0.0330 | -0.426 |

| | | | | |
|---|---|---|---|---|
| Per Nonfarm Pop HOLC Loans ($000s) | -0.0108 | -0.0482 | -0.00538 | -0.288* |
| Per Farmer Crop Income in Prior Census ($000s) | 0.421** | 0.913* | 0.0959 | 0.0813 |
| State Mortgage Moratorium Law | 0.00674 | -0.0184 | 0.0693** | 0.0615 |
| Year Effects | Included | Included | Included | Included |
| Occupation Group Effects | Included | Included | Included | Included |
| SEA Fixed Effects | Included | Included | Included | Included |
| Constant | -2.331*** | -3.167*** | -1.622*** | -1.183* |
| N | 610168 | 51604 | 174640 | 29989 |
| Pseudo- $R^2$ | 0.1268 | 0.171 | 0.2055 | 0.2438 |

Note: a - Head of Household (HH). Dollars are adjusted to 1967 $. Standard Errors are clustered by SEA.

If indicated, coefficient estimates are statistically significant at the *** - 1%, ** - 5*, or * - 10% level.