Do Small Dollar Loans Increase Low Income and Minority Homeownership? Evidence from the USDA Section 502 Lending Program

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Abstract

This paper investigates the impact of small dollar mortgage lending on housing affordability and homeownership in the United States. Using data on small dollar mortgage lending at the state level from the USDA Section 502 Lending Program and data on housing affordability and homeownership at the household level from the American Community Survey, I show that an increase in the number of small dollar mortgage loans per-capita at the state level is positively associated with homeownership and housing affordability, particularly for low income households and non-white households. For Black, non-Hispanic households, doubling the number of USDA Section 502 loans per 10,000 persons at the state level increases the probability of homeownership between 1 and 8.7 percentage points and decreases the share of housing costs in monthly income between 1.1 and 3 percentage points. Effect sizes of a similar magnitude are found for Hispanic households and households with less than the median income.

1 Introduction

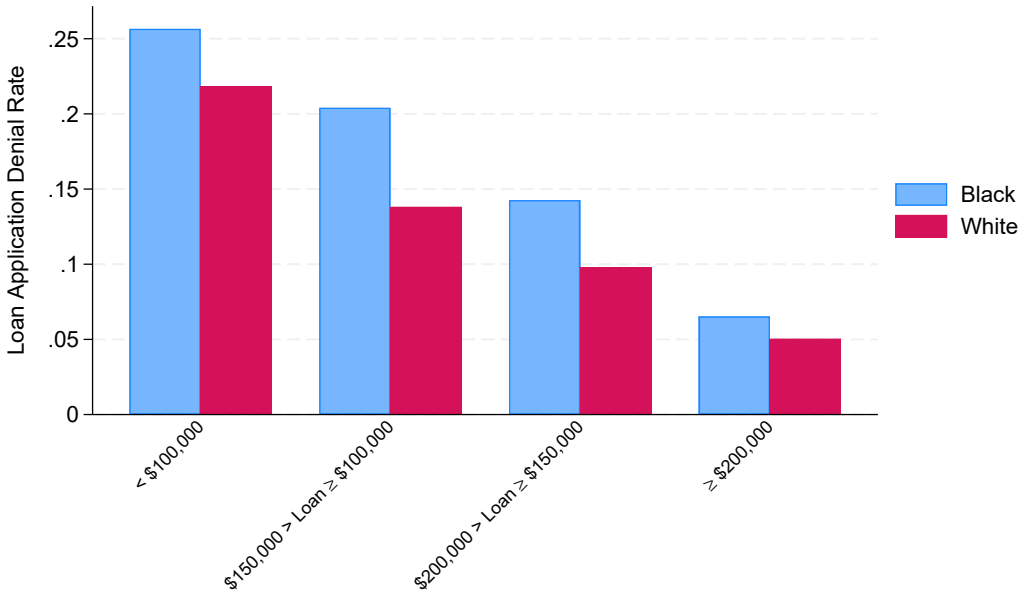
A growing literature in urban and regional economics examines the negative consequences of housing supply restrictions and reductions in the elasticity of housing supply for housing affordability in the United States (Aastveit et al., 2023; Malpezzi, 2022; Molloy, 2020; Hsieh and Moretti, 2019; Ganong and Shoag, 2017). Much of this literature emphasizes rising home prices in high cost of living coastal metropolitan areas such as New York, San Francisco, and Seattle. In contrast, little attention has been paid to affordability constraints facing households at the bottom of the income-house price ladder residing in seemingly low cost-of-living housing markets. Even in markets where the cost of homeownership—e.g., as proxied by median house prices—is low, housing may remain relatively unaffordable if households are unable to access the credit necessary to purchase a home. Affordability issues in such markets will be compounded to the extent that the cost of renting exceeds the cost of homeownership. Figure 1 suggests that both access to credit and relative rental affordability are reduced in "low cost-of-living" regions.

Figure 1a plots mortgage loan application denial rates from the Home Mortgage Disclosure Act (HMDA) Database for loans of varying amounts for the year 2022. Figure 1a indicates that small dollar mortgage loan applications—those in denominations of $100,000 or less—are denied between four and five times more often than loans of $200,000 or more. Additionally—for loan applications of a given amount—denial rates are significantly higher for Black applicants than white applicants. Figure 1b illustrates that—despite the increased difficulty of accessing mortgage credit in such areas—the relative cost of renting is significantly higher in low cost-of-living housing markets. In particular, Figure 1b plots the ratio of monthly rental costs for a two-bedroom home—using monthly rental data from *ApartmentList.com*—to monthly owner costs[1]

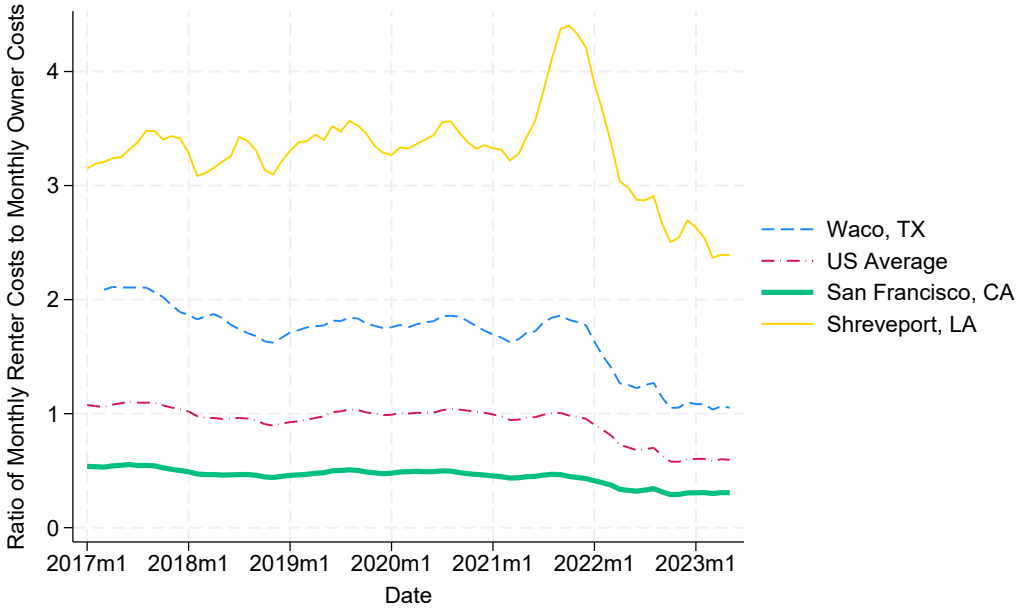
[1]I obtain median house price data from Zillow (in particular, the Zillow Home Value Index (ZHVI) reflects the typical value for a home between the 35th and 65th percentile). I estimate monthly owner costs as the monthly payment on a new 30-year fixed-rate mortgage, using data on the 30-year mortgage rate from the St. Louis Federal Reserve. The estimated monthly

Figure 1: Mortgage Loan Denial Rates and the Relative Cost of Renting

(a) Mortgage Loan Denial Rates by Loan Amount, 2022



(b) Relative Cost of Renting in Three Cities, 2017-2023



Notes: Loan denial rate data from the Home Mortgage Disclosure Act (HMDA). Data on two-bedroom rental prices obtained from *Apartmentlist.com*. Data on two-bedroom house prices obtained from Zillow. Data on 30-year fixed-rate mortgage interest rates obtained from the Federal Reserve. Monthly mortgage payments calculated as Payment = Home Price $\times \frac{r(1+r)^{360}}{(1+r)^{360}-1}$.

for a two-bedroom home in three cities: Shreveport, LA, Waco, TX, and San Francisco, CA (as well as the national average). In Shreveport, LA—which had a median two-bedroom home price in May, 2023 of $50,663—the monthly cost of renting ranges between 2.5 and 4 times the monthly cost of homeownership for the period between 2017 and 2023. In contrast, monthly rental costs in San Francisco— which had a median two-bedroom home price in May, 2023 of $860,930—are significantly less than monthly ownership costs for the entire sample period[2].

Taken together, the facts presented in Figure 1 suggest that—due to the high denial rate on small-dollar mortgage loan applications—households in low cost-of-living housing markets may be forced to pay rents they can't afford on homes for which they could otherwise easily afford to pay the monthly costs of homeownership[3]. To the extent that small dollar loans are more available in some markets than others, the availability of such loans may increase homeownership and housing affordability. Thus, in this paper I investigate the impact of small-dollar mortgage lending on homeownership and housing affordability, particularly for low-income and minority households. To identify regional variation in the availability of small-dollar mortgage loans, I obtain data from the United States Department of Agriculture (USDA) Section 502 Lending Program. The USDA Section 502 Lending Program provides direct and/or guaranteed loans to households with low-to-moderate incomes in eligible rural areas (Scally and Lipsetz, 2017). Between 2012 and 2019, the median Section 502 Direct Loan amount (across counties) was approximately $107,500, with the program providing nearly 1.6 million direct and/or guaranteed loans over the same period, suggesting the USDA Section 502 program acts as an important source of small-dollar mortgage credit in an otherwise thin market.

To estimate the effect of small dollar lending on homeownership and housing affordability, I combine the USDA mortgage lending data with household-level data on homeownership, housing costs, and economic characteristics from the American Community Survey (ACS) Integrated Public Use Microdata Series (IPUMS) (Ruggles et al., 2024). Ordinary least squares (OLS) estimates suggest that an increase in the per-capita availability of USDA loans at the state-level significantly increases the probability of homeownership—particularly for Black and/or Hispanic households—and reduces the share of housing costs in monthly income. Doubling the number of USDA Section 502 loans per-capita increases the probability of homeownership between 0.4 and 6.7 percentage points in the full sample (although this effect is not always statistically significant). The effect of USDA Section 502 lending on homeownership is meaningfully increased for Black and Hispanic households, although it is imprecisely estimated in some specifications. Doubling the number of state-level USDA loans per-capita increases the probability of homeownership for Black households between 1 and 8.7 percentage points and increases the probability of homeownership for Hispanic households between 1.3 and 5.6 percentage points. In contrast to the results for homeownership, USDA lending has a statistically significant impact on housing affordability in almost every regression specification. An increase in per-capita USDA lending reduces the share of housing costs in monthly income, particularly for Black households and households with below median monthly income. For Black, non-Hispanic households, doubling the number of USDA Section 502 loans per 10,000 persons in a state reduces the share of housing costs in monthly income between 1.1 percentage point and 3 percentage points.

The rest of the paper is organized as follows. Section 2 offers background on the USDA Section 502 lending program and discusses the related literature. Section 3 presents the data and discusses the estimation strategy. Section 4 presents the results. Section 5 concludes.

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payment (principal and interest) is given by Payment = Home Price $\times \frac{r(1+r)^{360}}{(1+r)^{360}-1}$. I increase this number by 33% as a (rough) adjustment for insurance and property taxes.

[2]Waco, TX represents an intermediate case. The median two-bedroom home price in Waco in May, 2023 was $139,782, and for most of the period between 2017 and 2023 renting was roughly twice as expensive as owning. The relative price of rentals has been reduced in the wake of the Federal Reserve's interest rate hikes following the Covid-19 pandemic.

[3]In a sample of low-income homeowners obtained from the Community Advantage Panel Survey, Riley et al. (2013) find that between 2003 and 2011 owning was less costly than renting for the median homeowner (across all locations).

2 Background and Related Literature

2.1 The United States Department of Agriculture Section 502 Lending Program

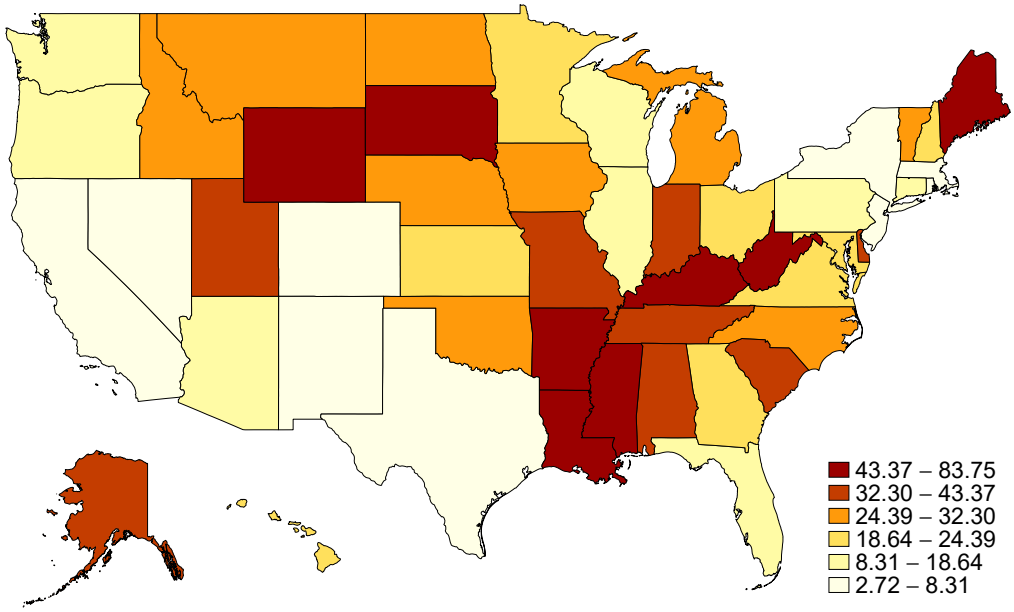
The United States Department of Agriculture was first authorized to provide low-interest, long-term housing loans to farm workers by the Bankhead-Jones Farm Tenant Act of 1937 (Scally and Lipsetz, 2017). The USDA's lending authority was expanded by Title V of the Housing Act of 1949 and amended again in the 1960's to include non-farm lending for both single- and multi-family properties (Scally and Lipsetz, 2017). The USDA's Rural Housing Service (RHS) is responsible for seeing out the directives of the Housing Act of 1949—to provide every American family with safe, decent, sanitary housing—in rural communities (Scally and Lipsetz, 2017). In its present form, the USDA RHS single family lending program is also known as the Section 502 Lending Program. The Section 502 Lending Program provides two types of mortgages: direct loans to homebuyers (Section 502 Direct Loans) and guaranteed loans to homebuyers made through independent financial institutions (Section 502 Guaranteed Loans). Relative to direct loans, the USDA Guaranteed Loan program is a recent initiative: a permanent guaranteed loan program was first established in 1990 by the Cranston-Gonzalez National Affordable Housing Act (Foote, 2010). Section 502 Direct Loans are available primarily to low ($< 80\%$ area median) or very-low ($< 50\%$ area median) income households in eligible rural areas who are otherwise unable to obtain a mortgage (USDA, 2022a). Similarly, Section 502 Guaranteed Loan applicants must have a household income that does not exceed 115 percent of the median household income of the area in which the eligible house is located and must be unable to obtain conventional mortgage financing with no private mortgage insurance (USDA, 2022b). Section 502 Direct Loans have a repayment period of 33 years (38 years for very-low income applicants), and have a fixed-interest rate based on market interest rates at approval or closing (whichever is lower) (USDA, 2022a). Interest payments by Direct Loan recipients are subsidized, such that—e.g., on a 5% interest rate loan—the *effective* rate faced by a Direct Loan recipient may be as low as 1% (Delgadillo et al., 2011; USDA, 2022a). The repayment period for Section 502 Guaranteed Loans is 30 years at a fixed interest rate. Neither Section 502 Direct or Guaranteed Loans require a downpayment.

Figures 2 through 4 map total loan quantity (Total Direct and Guaranteed Loans per-capita), loan volume (Direct and Guaranteed Loan $ per-capita), and average loan amounts across US states for the year 2019. As expected, Figures 2 and 3 suggest that both the total number of loans and total lending volume are concentrated in states with a high rural population share, including Louisiana, Arkansas, West Virginia, Utah, Wyoming, South Dakota, Kentucky, and Maine. Figure 4 indicates that for a number of states in the Midwest and/or Great Plains regions—including Ohio, Indiana, Illinois, Missouri, Oklahoma, Kansas, and Nebraska, among others—the value of the average Section 502 Loan in 2019 was less than $120,000.

2.2 Related Literature

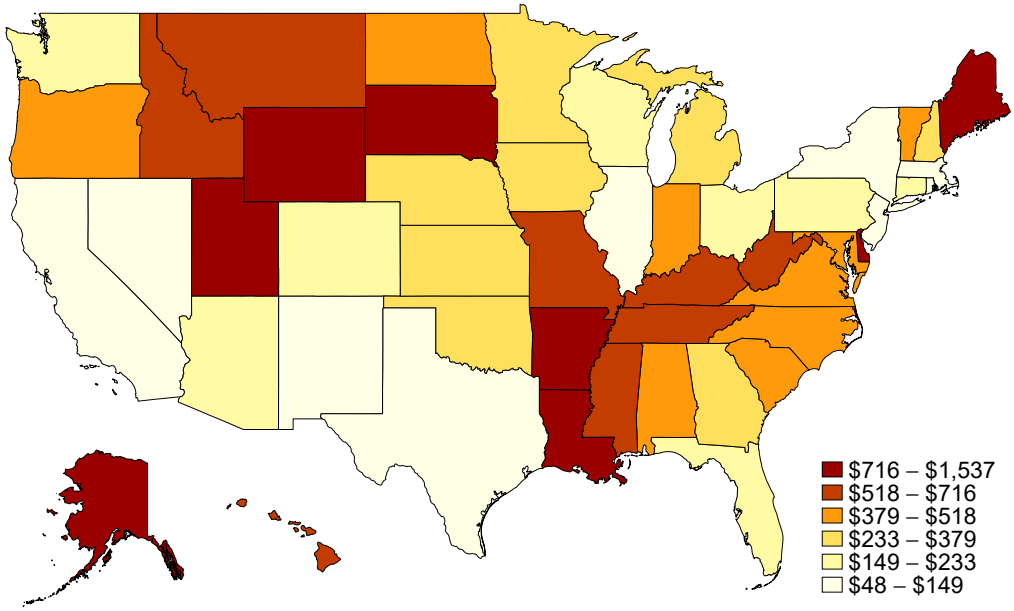
The findings in this paper contribute to the growing literature on the causes and consequences of declining housing affordability in the United States. A large literature examines the role of local land-use regulation (such as zoning regulation, minimum lot size restrictions, etc.) as a key driver of rising home prices (Gyourko et al., 2008; Ganong and Shoag, 2017; Glaeser and Gyourko, 2018; Hsieh and Moretti, 2019), with papers attributing both declining regional income convergence (Ganong and Shoag, 2017) and reduced aggregate income growth (Hsieh and Moretti, 2019) to regulation-driven increases in home prices. Other papers have linked rising home prices and/or housing supply regulation to reductions in regional entrepreneurship (Kacher and Petach, 2021), slower growth in *micropolitan* statistical areas (Davidson and Cortes, 2017), and slower regional business growth (Oluku and Cheng, 2021). In addition to local land-use regulation, a number of studies have identified alternative factors contributing to declining housing affordability, including rising income inequality (Matlack and Vigdor, 2008; Petach, 2022), changes in the demographic composition of homebuyers (Kacher, 2024), and the proliferation of short-term rental housing (Koster et al., 2021). This paper contributes to the literature on the causes and consequences of declining housing affordability by highlighting an important overlooked cause of housing in-affordability: credit market imperfections. Even in locations where home prices are relatively low, if households are unable to obtain mortgage financing they may be forced into expensive rental agreements, thereby reducing the rate of homeownership and increasing

Figure 2: Total Loan Quantity (Loans per 10,000 Persons), USDA Section 502 Direct and Guaranteed Loans, 2019



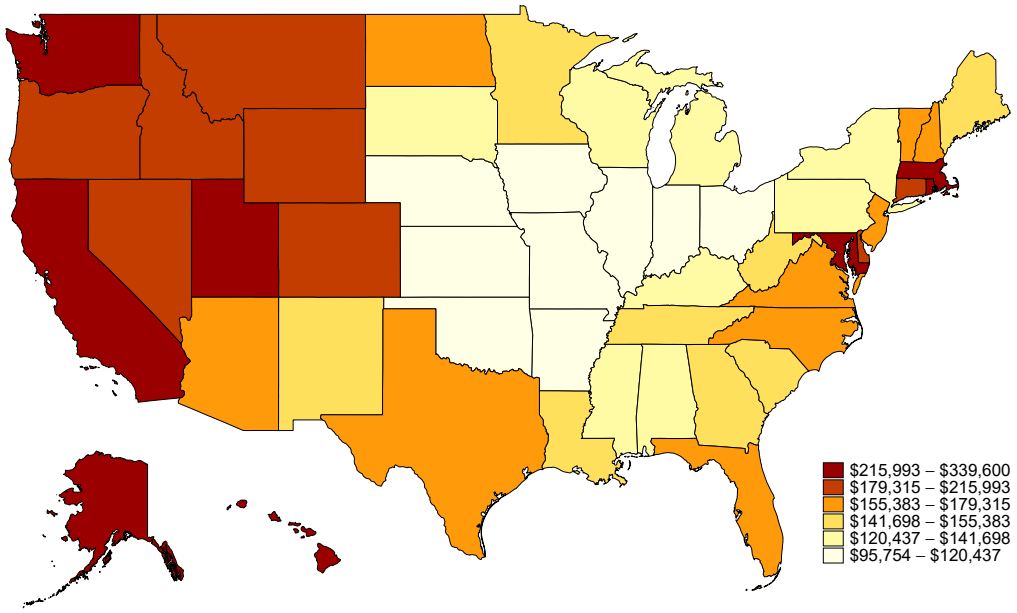
Notes: Figure maps total USDA Section 502 Direct and Guaranteed Loans per 10,000 persons by state in 2019.

Figure 3: Total Per-Capita Lending ($), USDA Section 502 Direct and Guaranteed Loans, 2019



Notes: Figure maps the total volume of USDA Section 502 Direct and Guaranteed Loans per person by state in 2019.

Figure 4: Average Loan Amount ($), USDA Section 502 Direct and Guaranteed Loans, 2019



Notes: Figure maps the average loan amount across all Section 502 Loans (Direct and Guaranteed) by state in 2019.

the share of household income spent on housing. In such cases, expansion of small dollar lending through government programs may increase housing affordability.

The second contribution of this paper is to the literature on regional and rural economic development. Recent work has drawn attention to "place-based" economic development policies (Kline and Moretti, 2013; Austin et al., 2018; Bartik, 2020; Hicks and Faulk, 2024), including Opportunity Zone tax credits, state and local tax incentives, and public infrastructure spending. Beyond the recent spotlight on "place-based" policies, regional scholars have long been interested in understanding the drivers of regional economic development, drawing attention to a wide variety of factors influencing regional growth, including the rate of new establishment births (Bunten et al., 2015), access to broadband and other key infrastructure (Conroy and Low, 2022), and the make-up and functioning of the local financial sector (Conroy et al., 2017; Petach et al., 2021). To the extent that homeownership and housing affordability are positively correlated with other measures of regional economic development, this paper emphasizes federal policies to encourage homeownership (including the USDA Section 502 Lending Program) as a key driver of regional economic development.

Finally, this paper contributes to the literature on racial disparities in the housing market. Compared white households, Black and Hispanic households are both more likely to experience a distressed home sale and to live in neighborhoods where distressed home sales negatively impact home values (Kermani and Wong, 2021), are more likely to be evicted from rental housing (Hepburn et al., 2020), were more likely to experience housing instability during the Covid-19 pandemic (Chun et al., 2023), and face significant discriminatory constraints in the rental housing market (Christensen et al., 2021, 2022). Given the finding in this paper of a positive effect of Section 502 Loans on homeownership and affordability for Black and Hispanic households, the results presented here suggest that expanding policies like the USDA Section 502 Lending Program may provide a viable path forward for policymakers interested in reducing racial disparities in the housing market.

3 Data and Estimation Strategy

3.1 Data

Section 502 Loan Data. Data on USDA Section 502 lending is obtained from the USDA Rural Investments Data Tables (USDA, 2024). I collect data on the total number of loans and total loan volume for all Section 502 Direct and Section 502 Guaranteed loans made by state for the years 2012 to 2019. Figures 2 through 4 map data on loan quantity, loan volume, and average loan amounts across states for the year 2019. To measure access to USDA Section 502 lending across states I focus on the quantity of loans and lending volume per-capita. Sample means for USDA Section 502 lending variables are reported in Table 1.

Table 1: Sample Means, State-level USDA Section 502 Lending Data, 2019-2019

	(1)
Loan Quantity (Loans per 10,000 Persons)	18.54
	(12.50)
Loan Volume (1999 $ per Person)	$191.7
	(139.0)
Average Loan Amount (1999 $)	$106,578.3
	(28,919.3)
N	400

Notes: Table 1 presents sample means for state-level USDA Section 502 Lending data for the years 2012 to 2019. Data includes both Section 502 Direct and Section 502 Guaranteed loans. The sample covers all 50 states (but excludes the District of Columbia). Dollar values converted to constant 1999 dollars.

Household Data. I obtain data on household economic characteristics from the Integrated Public-Use Microdata Series (IPUMS) for the American Community Survey (ACS) for the years 2012 to 2019 (Ruggles et al., 2024). I obtain data on homeownership, income, poverty status, housing costs, race, gender, ethnicity, age, and employment status. To measure housing affordability, I construct an estimate of the share of housing costs in monthly income. For renter households, I measure total monthly housing costs as the sum of rent and utilities payments (electric, gas, water). For owner households, I measure monthly housing costs as the sum of mortgage payments, condominium fees, utilities payments (electric, gas, water), homeowners insurance, and property taxes[4]. I restrict the sample to households reporting a share of housing costs in monthly income less than 100%. Finally, for each respondent, I collect data on the share of the population in a respondent's state of residence that resides in a rural county. Given that USDA Section 502 lending is restricted to households residing in eligible rural areas, failing to control for a state's rural population share may bias the empirical results. To measure the rural population share, I classify all counties with a USDA Rural-Urban Continuum Code (RUCC) of six or greater as rural, then calculate the share of a state's population residing in those counties using county-level population data from the BEA[5]. The final household-level sample is a repeated cross-section of 9,255,366 household-level observations spanning the period between 2012 and 2019. Sample means for household-level variables are reported in Table 2. Column (1) presents sample means for the full sample, Column (2) presents sample means for white, non-Hispanic households, Column (3) presents sample means for Black, non-Hispanic households, Column (4) presents sample means for Hispanic households, Column (5) presents sample means for owner households, and Column (6) presents sample means for renter households.

The summary statistics presented in Table 2 indicate important disparities in housing affordability and income across households by race/ethnicty and ownership status. Black and Hispanic households spend a

[4]The ACS reports annual property tax payments in intervals from "$1-$49" to "$9,000-$9,999", with the final interval top-coded at "$10,000+." For all intervals below the top-code, I impute property tax payments as the median of the interval. For households in the top-coded bracket, I impute property tax payments as 1.5 times the top-coded value.

[5]The relevant RUCC classifications are: "6 - Nonmetro - Urban population of 2,500 to 19,999, adjacent to a metro area," "7 - Nonmetro - Urban population of 2,500 to 19,999, not adjacent to a metro area," "8 - Nonmetro - Completely rural or less than 2,500 urban population, adjacent to a metro area," and "9 - Nonmetro - Completely rural or less than 2,500 urban population, not adjacent to a metro area."

Table 2: Sample Means, IPUMS-ACS Household-level Data, 2012-2019

	(1) All	(2) White	(3) Black	(4) Hispanic	(5) Owner	(6) Renter
Homeowner	0.654	0.728	0.441	0.478	—	—
	(0.476)	(0.445)	(0.497)	(0.499)		
Housing Cost Share	0.261	0.243	0.315	0.308	0.231	0.318
	(0.189)	(0.179)	(0.205)	(0.203)	(0.173)	(0.203)
Age	52.08	54.00	49.99	45.90	55.84	44.97
	(16.99)	(17.19)	(16.15)	(15.11)	(15.63)	(17.19)
Household Income (1999 $)	$58,745.1	$62,794.8	$40,707.4	$46,064.3	$69,237.3	$38,924.1
	(60,832.5)	(64,086.6)	(39,799.9)	(44,042.2)	(67,020.9)	(40,063.5)
College	0.345	0.376	0.240	0.178	0.384	0.269
	(0.475)	(0.484)	(0.427)	(0.382)	(0.486)	(0.444)
Black, non-Hispanic	0.114	—	—	—	0.0767	0.183
	(0.317)				(0.266)	(0.387)
White, non-Hispanic	0.691	—	—	—	0.770	0.543
	(0.462)				(0.421)	(0.498)
Hispanic	0.127	—	—	—	0.0925	0.191
	(0.333)				(0.290)	(0.393)
Below Median Income	0.500	0.464	0.659	0.599	0.400	0.690
	(0.500)	(0.499)	(0.474)	(0.490)	(0.490)	(0.463)
Female	0.487	0.476	0.594	0.477	0.464	0.528
	(0.500)	(0.499)	(0.491)	(0.499)	(0.499)	(0.499)
Poverty	0.0771	0.0552	0.144	0.135	0.0370	0.153
	(0.267)	(0.228)	(0.351)	(0.342)	(0.189)	(0.360)
State Rural Share	0.0893	0.0983	0.0913	0.0529	0.0930	0.0823
	(0.0880)	(0.0925)	(0.0784)	(0.0586)	(0.0891)	(0.0853)
N	9,255,366	6,863,447	836,643	946,737	6,634,131	2,621,235

Notes: Table 2 presents sample means for Household-level ACS variables. Standard deviations in parenthesis. All observations weighted by IPUMS-ACS sample weights. Column (1) presents sample means for the full sample, Column (2) presents sample means for white, non-Hispanic households, Column (3) presents sample means for Black, non-Hispanic households, Column (4) presents sample means for Hispanic households, Column (5) presents sample means for owner households, and Column (6) presents sample means for renter households. Dollar values converted to constant 1999 dollars.

larger share of monthly income on housing than white households, despite having lower average incomes and a larger share of households with incomes below the median. Similarly, renter households spend a larger share of monthly income on housing than owner households, despite significantly lower average incomes. Additionally, Black and Hispanic households are over-represented among renters (relative to their prevalence in the full sample): approximately 18% of renter households are Black, non-Hispanic (compared to 11.4% in the full sample) and approximately 19.1% are Hispanic (compared to 12.7% in the full sample). Alternatively, only 44.1% of Black households and 47.8% of Hispanic households are homeowners. To the extent that current renters are the primary beneficiaries of public policies that successfully increase housing affordability, Black and Hispanic households are thus likely to meaningfully benefit from such policies. Conversely, Black and Hispanic households are likely to disproportionately bear the burden of land-use regulations and credit market imperfections which restrict access to housing and reduce housing affordability.

3.2 Estimation Strategy

To estimate the impact of USDA Section 502 lending on homeownership and housing affordability, I adopt the following regression specification:

$$Y_{ist} = \beta_0 + \beta_1 Ln(Loans_{st}) + \mathbf{X}_{ist}^T \alpha + \gamma_s + \delta_t + \epsilon_{ist} \quad (1)$$

Where Y_{ist} is the outcome of interest—either homeownership or housing affordability—for a household i residing in state s in year t, $Loans_{st}$ is the total number of USDA Section 502 loans (per 10,000 persons)—including both Direct Loans and Guaranteed Loans—made in state s in year t, $\mathbf{X}_{ist}$ is a vector of individual-level characteristics, γ_s is a state-fixed effect, δ_t is a year-fixed effect, and ϵ_{ist} is an idiosyncratic error term. Household-level characteristics include education, age, employment status, household income, race, and sex. I also include controls for two variables capturing the eligibility criterion for USDA Section 502 loans—the rural population share and a respondent's poverty status—variables which are likely to be correlated with homeownership status, and would thereby bias the regression results were they not included. State-fixed

effects capture any time-invariant state-specific heterogeneity that may influence the relationship between Section 502 lending and housing affordability (such as state-specific time-invariant land-use policies) and year-fixed effects capture any year-specific shocks common to all households (such as changes in national housing-market conditions, e.g., as a result of changes in monetary policy). In additional specifications, I also include Census region-by-year fixed-effects which control for changes over time that impact all states within a given region similarly. Thus—although Section 502 lending is not randomly assigned across states and/or individuals—the inclusion of a wide variety of time-varying household-level controls, year-fixed effects, state-fixed effects, and Census region-by-year fixed-effects help to demonstrate that the results are robust to a significant battery of possible confounders. Nonetheless, I am cautious about overemphasizing the causal nature of the estimates obtained from the above specification, emphasizing instead the reduced-form nature of the relationship and the overall correlation pattern suggested by the results. Further, it is possible that—despite the battery of control variables included in the regression—there may nonetheless be unobserved time-varying household- or location-specific characteristics correlated with both lending and homeownership/housing affordability: this is particularly a concern insofar as the characteristics designed to control for program eligibility (the rural population share and poverty) are imperfectly measured, because these characteristics are likely to be positively correlated with USDA lending and negatively correlated with ownership and/or affordability, suggesting the OLS estimates presented below are likely to be biased downward from the true effect of USDA lending. To the extent that a causal interpretation is warranted, the identifying assumption is that—conditional on individual controls and fixed effects—USDA Section 502 lending per-capita is otherwise uncorrelated with the regression error term.

4 Results

Table 3 presents results from estimating Equation 1 with ownership status as the dependent variable. For regressions where homeownership is the dependent variable, I estimate Equation 1 via a simple linear probability model. The standard errors are clustered at the state-level to address the possibility of serial correlation over time within each state, the presence of which would bias the standard errors downward in the absence of clustering. Panel A presents results from the full sample, Panel B presents results for white, non-Hispanic households, Panel C presents results for Black, non-Hispanic households, Panel D presents results for Hispanic households, and Panel E presents results for households with below median income. In each panel, Column (1) includes only household-level controls, Column (2) adds year-fixed effects, Column (3) adds year-fixed effects and state-fixed effects, and Column (4) adds year-fixed effects, state-fixed effects, and Census region-by-year fixed-effects.

The results in Table 3 suggest that USDA Section 502 lending has a positive (if not always statistically significant) effect on homeownership. This effect is enhanced for Black and Hispanic households. In particular, although the inclusion of state-fixed effects renders the impact of USDA Section 502 lending statistically insignificant in the full sample, for white households, and for households with incomes below the sample median, the positive effect of USDA Section 502 lending remains statistically significant when state-fixed effects are included for Hispanic households, and remains statistically significant when both state-fixed effects and Census region-by-year fixed effects are included for Black households. Furthermore, in the most saturated specification (with both state-fixed effects and Census region-by-year fixed-effects), there is a statistically significant (although economically small) positive effect of lending on homeownership for *all* households. For Hispanic households, the effect of USDA Section 502 lending on homeownership is marginally insignificant ($p = 0.19$) when region-by-year fixed-effects are added in Column (4) of Panel D. In terms of magnitude, the results suggest that doubling the number of USDA loans per 10,000 persons would increase the probability of homeownership for Black households between 1 (Column (3)) and 8.7 (Column (2)) percentage points. For Hispanic households, effect sizes range from 1.3 percentage points (Column (4)) to 5.7 percentage points (Column (2)). In contrast, in the full sample the effect of doubling USDA Section 502 loans on homeownership ranges from 0.4 percentage points (Column (4)) to 6.7 percentage points (Column (2)), and is further attenuated for white households. Interestingly, the estimated regression coefficient becomes negative for households with incomes below the sample median once state-fixed effects are added (although the effect is statistically insignificant and close to zero in magnitude).

Table 3: Estimation Results – Homeownership

	(1) Homeowner	(2) Homeowner	(3) Homeowner	(4) Homeowner
Panel A: All Households				
$Ln(Loans_{st})$	0.0606***	0.0668***	0.00246	0.00368*
	(0.00955)	(0.0103)	(0.00257)	(0.00213)
N	9,255,366	9,255,366	9,255,366	9,255,366
Household Controls	Y	Y	Y	Y
Year FE	N	Y	Y	Y
State FE	N	N	Y	Y
Region × Year FE	N	N	N	Y
Panel B: White Households				
$Ln(Loans_{st})$	0.0573***	0.0634***	0.00376	0.00231
	(0.0104)	(0.0111)	(0.00288)	(0.00294)
N	6,863,447	6,863,447	6,863,447	6,863,447
Household Controls	Y	Y	Y	Y
Year FE	N	Y	Y	Y
State FE	N	N	Y	Y
Region × Year FE	N	N	N	Y
Panel C: Black Households				
$Ln(Loans_{st})$	0.0791***	0.0873***	0.0109**	0.0158***
	(0.0160)	(0.0175)	(0.00431)	(0.00474)
N	836,643	836,643	836,643	836,643
Household Controls	Y	Y	Y	Y
Year FE	N	Y	Y	Y
State FE	N	N	Y	Y
Region × Year FE	N	N	N	Y
Panel D: Hispanic Households				
$Ln(Loans_{st})$	0.0502*	0.0565*	0.0158***	0.0126
	(0.0280)	(0.0333)	(0.00536)	(0.00952)
N	946,737	946,737	946,737	946,737
Household Controls	Y	Y	Y	Y
Year FE	N	Y	Y	Y
State FE	N	N	Y	Y
Region × Year FE	N	N	N	Y
Panel E: Below Median Income				
$Ln(Loans_{st})$	0.0637***	0.0706***	-0.00135	-0.00214
	(0.0104)	(0.0111)	(0.00375)	(0.00251)
N	4,555,484	4,555,484	4,555,484	4,555,484
Household Controls	Y	Y	Y	Y
Year FE	N	Y	Y	Y
State FE	N	N	Y	Y
Region × Year FE	N	N	N	Y

Notes: Standard errors in parenthesis, clustered at the state-level. * $p < 0.10$ ** $p < 0.05$ *** $p < 0.01$. Observations weighted by IPUMS-ACS sample weights. The independent variable of interest is the natural log of total USDA Section 502 loans per 10,000 persons. Household-level control variables include respondent educational attainment, age, employment status, and household income. Panel A and Panel E include additional controls for respondent race/ethnicity and sex.

Table 4 presents results from estimating Equation 1 via ordinary least squares (OLS) using the share of housing costs in monthly income as the dependent variable. As before, Panel A presents results from the full sample, Panel B presents results for white, non-Hispanic households, Panel C presents results for Black, non-Hispanic households, Panel D presents results for Hispanic households, and Panel E presents results for households with below median income. In each panel, Column (1) includes only household-level controls, Column (2) adds year-fixed effects, Column (3) adds year-fixed effects and state-fixed effects, and Column (4) adds year-fixed effects, state-fixed effects, and Census region-by-year fixed-effects.

Table 4: Estimation Results – Housing Affordability

	(1) Housing Share	(2) Housing Share	(3) Housing Share	(4) Housing Share
Panel A: All Households				
$Ln(Loans_{st})$	-0.0268***	-0.0302***	-0.0134***	-0.00628**
	(0.00444)	(0.00483)	(0.00240)	(0.00246)
N	9,255,366	9,255,366	9,255,366	9,255,366
Household Controls	Y	Y	Y	Y
Year FE	N	Y	Y	Y
State FE	N	N	Y	Y
Region × Year FE	N	N	N	Y
Panel B: White Households				
$Ln(Loans_{st})$	-0.0287***	-0.0320***	-0.0126***	-0.00471**
	(0.00420)	(0.00461)	(0.00263)	(0.00234)
N	6,863,447	6,863,447	6,863,447	6,863,447
Household Controls	Y	Y	Y	Y
Year FE	N	Y	Y	Y
State FE	N	N	Y	Y
Region × Year FE	N	N	N	Y
Panel C: Black Households				
$Ln(Loans_{st})$	-0.0265***	-0.0298***	-0.0190***	-0.0116**
	(0.00644)	(0.00702)	(0.00378)	(0.00465)
N	836,643	836,643	836,643	836,643
Household Controls	Y	Y	Y	Y
Year FE	N	Y	Y	Y
State FE	N	N	Y	Y
Region × Year FE	N	N	N	Y
Panel D: Hispanic Households				
$Ln(Loans_{st})$	-0.0150	-0.0191*	-0.0174***	-0.0103***
	(0.00896)	(0.0107)	(0.00260)	(0.00336)
N	946,737	946,737	946,737	946,737
Household Controls	Y	Y	Y	Y
Year FE	N	Y	Y	Y
State FE	N	N	Y	Y
Region × Year FE	N	N	N	Y
Panel E: Below Median Income				
$Ln(Loans_{st})$	-0.0304***	-0.0340***	-0.0166***	-0.00827**
	(0.00587)	(0.00636)	(0.00285)	(0.00317)
N	4,555,484	4,555,484	4,555,484	4,555,484
Household Controls	Y	Y	Y	Y
Year FE	N	Y	Y	Y
State FE	N	N	Y	Y
Region × Year FE	N	N	N	Y

Notes: Standard errors in parenthesis, clustered at the state-level. * $p < 0.10$ ** $p < 0.05$ *** $p < 0.01$. Observations weighted by IPUMS-ACS sample weights. The independent variable of interest is the natural log of total USDA Section 502 loans per 10,000 persons. Household-level control variables include respondent educational attainment, age, employment status, and household income. Panel A and Panel E include additional controls for respondent race/ethnicity and sex.

The results in Table 4 suggest that—in nearly every case—increasing the number of USDA Section 502 loans per-capita reduces the share of housing costs in monthly income (increasing housing affordability). The estimated regression coefficient is negative and statistically significant in every specification except Column (1) of Panel D, which is only marginally insignificant ($p = 0.10$). The positive effect of USDA lending on

housing affordability is largest for Black households and households with incomes below the sample median (although USDA lending appears to have a meaningful effect on housing affordability for white households as well). Doubling the number of USDA Section 502 loans per 10,000 persons in a state reduces the share of housing costs in monthly income between 1.1 percentage point and 3 percentage points for Black households, and reduces the share of housing costs in monthly income between 0.8 percentage points and 3.4 percentage points for households with below median income. These results suggest that even in cases where the effect of USDA Section 502 lending on homeownership is statistically insignificant, USDA Section 502 lending may have a meaningful effect on housing affordability.

5 Conclusion

In regions where the cost of homeownership is low, housing may nonetheless remain relatively unaffordable if rents are high and households are unable to access the credit necessary to purchase a home. High denial rates on small dollar mortgage applications (Figure 1a) and the high relative cost of renting in low-house-price regions (Figure 1b) may push households into burdensome rental contracts for housing for which they could otherwise easily afford the costs of ownership. To the extent that the ease of access to small-dollar mortgage credit differs across regions within the United States, such differences may help explain variation in homeownership and affordability. In this paper, I investigate the influence of small-dollar mortgage lending on homeownership and housing affordability using data from the USDA Section 502 Lending Program. The USDA Section 502 Lending Program provides direct and/or guaranteed loans to households with low-to-moderate incomes in eligible rural areas. Between 2012 and 2019, the median Section 502 Direct Loan amount was approximately $107,500. I match state-level data on Section 502 Lending from 2012 to 2019 to household-level data on homeownership, housing affordability, and other household characteristics from the American Community Survey. Results from regression specifications including household controls, year-fixed effects, state-fixed effects, and Census region-by-year fixed effects suggest that an increase in the number of USDA Section 502 loans per 10,000 persons increases homeownership and housing affordability (via a reduction in the share of monthly income spent on housing). The effect of USDA Section 502 lending on homeownership is largest for Black and Hispanic households. The effect size is smaller (and in some cases statistically insignificant) for white households and when estimated for the full sample. In contrast, —although USDA lending positively impacts housing affordability for all groups—the effects on housing affordability are largest for Black households and households with below median incomes.

Although much of the literature has focused on land-use regulations and other supply restrictions as key barriers to housing affordability, the findings in this paper suggest that lack of access to credit—particularly for households attempting to purchase homes at the *bottom* of the house price distribution—may in some cases be an important overlooked obstacle to homeownership and housing affordability. To the extent that credit market imperfections and credit rationing increase the effective cost of housing faced by low-income households or households in low-price markets, expansion of policies designed to overcome such imperfections—such as small-dollar lending through the USDA Section 502 Lending Program—should be considered by policymakers as a potentially important tool for addressing concerns about the high cost of housing, particularly for low-income and minority households. Simple back-of-the-envelope calculations suggest that—if the Section 502 Lending program has modest fixed costs (e.g., similar to traditional bank lending)—then significantly expanding the program may have a large return-on-investment. The estimated regression coefficients imply that—for a state at the mean-level of USDA lending—homeownership among Black, non-Hispanic households was 1.92 to 10.48 percentage points higher than a state with no USDA Section 502 lending over the sample period. Using the most conservative regression coefficient, the estimated results imply that nationally nearly 368,000 additional Black, non-Hispanic households were able to own homes as a result of the direct and indirect effects of the Section 502 lending program. These effects are likely to be concentrated in low-income communities, where traditional access to capital has been historically limited. Moving forward, policymakers interested in increasing homeownership and housing affordability in historically overlooked communities would do well to consider expanding access to small dollar lending through the USDA Section 502 program.[6]

[6] E.g., one obvious possible direction in which the program might be expanded is to *urban* areas meeting certain qualifications

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A Full Regression Results

This section presents tables containing the full regression results for each empirical specification, including all relevant control variables.

Table 5: Full Estimation Results - Homeownership, All Households

	(1) Homeowner	(2) Homeowner	(3) Homeowner	(4) Homeowner
Ln(Loans$_{st}$)	0.0606***	0.0668***	0.00246	0.00368*
	(0.00955)	(0.0103)	(0.00257)	(0.00213)
College	0.00905**	0.00935**	0.00905**	0.00904**
	(0.00378)	(0.00376)	(0.00359)	(0.00359)
Age	0.0276***	0.0275***	0.0274***	0.0274***
	(0.000495)	(0.000498)	(0.000500)	(0.000500)
Age^2	-0.000178***	-0.000177***	-0.000177***	-0.000177***
	(0.00000556)	(0.00000558)	(0.00000550)	(0.00000550)
Employed	-0.0296***	-0.0296***	-0.0297***	-0.0297***
	(0.00403)	(0.00408)	(0.00434)	(0.00434)
Ln(Household Income)	0.169***	0.169***	0.171***	0.171***
	(0.00363)	(0.00364)	(0.00345)	(0.00346)
Black	-0.181***	-0.181***	-0.187***	-0.187***
	(0.00995)	(0.00985)	(0.00865)	(0.00865)
American Indian	-0.0519***	-0.0508***	-0.0470***	-0.0470***
	(0.0131)	(0.0132)	(0.0104)	(0.0104)
Chinese	-0.00419	-0.00133	0.0137	0.0137
	(0.0223)	(0.0226)	(0.0224)	(0.0224)
Japanese	-0.0866**	-0.0867**	-0.0450	-0.0450
	(0.0345)	(0.0351)	(0.0417)	(0.0417)
Other Asian	-0.102***	-0.0999***	-0.0905***	-0.0905***
	(0.0107)	(0.0110)	(0.0126)	(0.0126)
Other Race	-0.0828***	-0.0822***	-0.0684***	-0.0684***
	(0.0191)	(0.0192)	(0.0172)	(0.0172)
Two or More Races	-0.0894***	-0.0886***	-0.0798***	-0.0798***
	(0.00847)	(0.00861)	(0.00893)	(0.00893)
Three or More Races	-0.117***	-0.117***	-0.0930***	-0.0930***
	(0.0122)	(0.0127)	(0.0106)	(0.0107)
Female	-0.00446***	-0.00414***	-0.00328**	-0.00328**
	(0.00137)	(0.00132)	(0.00136)	(0.00136)
Hispanic	-0.0639***	-0.0615***	-0.0714***	-0.0714***
	(0.0227)	(0.0227)	(0.0214)	(0.0214)
Rural Share	0.0333	-0.00759	-0.0570	0.243
	(0.0642)	(0.0700)	(0.223)	(0.254)
Poverty Status	-0.0358***	-0.0352***	-0.0341***	-0.0341***
	(0.00652)	(0.00642)	(0.00645)	(0.00645)
N	9,255,366	9,255,366	9,255,366	9,255,366
Year FE	N	Y	Y	Y
State FE	N	N	Y	Y
Region × Year FE	N	N	N	Y

Notes: Standard errors in parenthesis, clustered at the state-level. * $p < 0.10$ ** $p < 0.05$ *** $p < 0.01$. Observations weighted by IPUMS-ACS sample weights.

Table 6: Full Estimation Results - Homeownership, White Households

	(1)	(2)	(3)	(4)
	Homeowner	Homeowner	Homeowner	Homeowner
Ln(Loans$_{st}$)	0.0573***	0.0634***	0.00376	0.00231
	(0.0104)	(0.0111)	(0.00288)	(0.00294)
College	0.000625	0.001000	0.00208	0.00207
	(0.00500)	(0.00498)	(0.00504)	(0.00504)
Age	0.0297***	0.0296***	0.0295***	0.0295***
	(0.000630)	(0.000633)	(0.000637)	(0.000637)
Age^2	-0.000200***	-0.000200***	-0.000199***	-0.000199***
	(0.00000562)	(0.00000566)	(0.00000569)	(0.00000569)
Employed	-0.0285***	-0.0285***	-0.0293***	-0.0293***
	(0.00389)	(0.00391)	(0.00410)	(0.00410)
Ln(Household Income)	0.154***	0.155***	0.156***	0.156***
	(0.00395)	(0.00398)	(0.00385)	(0.00385)
Rural Share	0.00221	-0.0361	-0.221	0.177
	(0.0522)	(0.0583)	(0.255)	(0.320)
Poverty Status	-0.0631***	-0.0623***	-0.0608***	-0.0608***
	(0.00725)	(0.00720)	(0.00743)	(0.00744)
N	6,863,447	6,863,447	6,863,447	6,863,447
Year FE	N	Y	Y	Y
State FE	N	N	Y	Y
Region × Year FE	N	N	N	Y

Notes: Standard errors in parenthesis, clustered at the state-level. * $p < 0.10$ ** $p < 0.05$ *** $p < 0.01$. Observations weighted by IPUMS-ACS sample weights.

Table 7: Full Estimation Results - Homeownership, Black Households

	(1)	(2)	(3)	(4)
	Homeowner	Homeowner	Homeowner	Homeowner
Ln(Loans$_{st}$)	0.0791***	0.0873***	0.0109**	0.0158***
	(0.0160)	(0.0175)	(0.00431)	(0.00474)
College	0.0744***	0.0753***	0.0753***	0.0754***
	(0.00322)	(0.00328)	(0.00297)	(0.00297)
Age	0.0163***	0.0162***	0.0158***	0.0158***
	(0.000949)	(0.000941)	(0.000909)	(0.000909)
Age^2	-0.0000546***	-0.0000528***	-0.0000494***	-0.0000493***
	(0.00000798)	(0.00000786)	(0.00000765)	(0.00000766)
Employed	-0.0188***	-0.0179***	-0.0194***	-0.0194***
	(0.00447)	(0.00455)	(0.00477)	(0.00477)
Ln(Household Income)	0.213***	0.214***	0.218***	0.218***
	(0.00556)	(0.00548)	(0.00525)	(0.00525)
Rural Share	0.0510	-0.00862	1.994***	1.203*
	(0.181)	(0.196)	(0.447)	(0.707)
Poverty	0.0416***	0.0417***	0.0439***	0.0439***
	(0.00717)	(0.00717)	(0.00725)	(0.00724)
N	836,643	836,643	836,643	836,643
Year FE	N	Y	Y	Y
State FE	N	N	Y	Y
Region × Year FE	N	N	N	Y

Notes: Standard errors in parenthesis, clustered at the state-level. * $p < 0.10$ ** $p < 0.05$ *** $p < 0.01$. Observations weighted by IPUMS-ACS sample weights.

Table 8: Full Estimation Results - Homeownership, Hispanic Households

	(1)	(2)	(3)	(4)
	Homeowner	Homeowner	Homeowner	Homeowner
Ln(Loans$_{st}$)	0.0502*	0.0565*	0.0158***	0.0126
	(0.0280)	(0.0333)	(0.00536)	(0.00952)
College	0.0316***	0.0313***	0.0374***	0.0373***
	(0.00560)	(0.00546)	(0.00592)	(0.00591)
Age	0.0192***	0.0192***	0.0191***	0.0191***
	(0.00209)	(0.00210)	(0.00201)	(0.00201)
Age^2	-0.0000929***	-0.0000926***	-0.0000929***	-0.0000930***
	(0.0000201)	(0.0000202)	(0.0000196)	(0.0000196)
Employed	-0.0383***	-0.0384***	-0.0390***	-0.0391***
	(0.00495)	(0.00486)	(0.00517)	(0.00517)
Ln(Household Income)	0.209***	0.210***	0.214***	0.214***
	(0.00790)	(0.00812)	(0.00604)	(0.00605)
Rural Share	0.556	0.501	-0.536	-0.315
	(0.346)	(0.378)	(0.636)	(1.229)
Poverty	0.0159**	0.0161**	0.0201**	0.0201**
	(0.00790)	(0.00787)	(0.00797)	(0.00797)
N	946,737	946,737	946,737	946,737
Year FE	N	Y	Y	Y
State FE	N	N	Y	Y
Region × Year FE	N	N	N	Y

Notes: Standard errors in parenthesis, clustered at the state-level. * $p < 0.10$ ** $p < 0.05$ *** $p < 0.01$. Observations weighted by IPUMS-ACS sample weights.

Table 9: Full Estimation Results - Homeownership, Below Median Income Households

	(1) Homeowner	(2) Homeowner	(3) Homeowner	(4) Homeowner
Ln(Loans$_{st}$)	0.0637***	0.0706***	-0.00135	-0.00214
	(0.0104)	(0.0111)	(0.00375)	(0.00251)
College	0.00857***	0.00902***	0.00884***	0.00882***
	(0.00317)	(0.00314)	(0.00305)	(0.00305)
Age	0.0245***	0.0245***	0.0244***	0.0244***
	(0.000963)	(0.000962)	(0.000942)	(0.000942)
Age^2	-0.000140***	-0.000139***	-0.000138***	-0.000138***
	(0.00000861)	(0.00000858)	(0.00000837)	(0.00000837)
Employed	-0.0419***	-0.0418***	-0.0417***	-0.0417***
	(0.00460)	(0.00466)	(0.00510)	(0.00510)
Ln(Household Income)	0.188***	0.188***	0.189***	0.189***
	(0.00580)	(0.00581)	(0.00554)	(0.00554)
Female	-0.0178***	-0.0176***	-0.0168***	-0.0168***
	(0.00181)	(0.00179)	(0.00185)	(0.00185)
Black	-0.187***	-0.187***	-0.201***	-0.201***
	(0.0110)	(0.0110)	(0.00881)	(0.00881)
American Indian	-0.0382**	-0.0372**	-0.0353***	-0.0353***
	(0.0171)	(0.0172)	(0.0116)	(0.0116)
Chinese	-0.0372*	-0.0337	-0.0165	-0.0166
	(0.0213)	(0.0213)	(0.0216)	(0.0216)
Japanese	-0.0484	-0.0484	-0.00802	-0.00799
	(0.0290)	(0.0301)	(0.0302)	(0.0302)
Other Asian	-0.115***	-0.113***	-0.104***	-0.104***
	(0.0108)	(0.0106)	(0.0124)	(0.0124)
Other Race	-0.0800***	-0.0795***	-0.0601***	-0.0601***
	(0.0198)	(0.0199)	(0.0169)	(0.0169)
Two or More Races	-0.0974***	-0.0968***	-0.0884***	-0.0884***
	(0.00764)	(0.00775)	(0.00749)	(0.00750)
Three or More Races	-0.134***	-0.133***	-0.113***	-0.113***
	(0.0114)	(0.0119)	(0.00875)	(0.00875)
Hispanic	-0.0648**	-0.0622**	-0.0812***	-0.0812***
	(0.0265)	(0.0265)	(0.0239)	(0.0239)
Rural Share	0.0216	-0.0210	0.833***	0.401
	(0.0896)	(0.0952)	(0.275)	(0.339)
Poverty	0.00745	0.00766	0.00791	0.00791
	(0.00533)	(0.00525)	(0.00497)	(0.00497)
N	4,555,484	4,555,484	4,555,484	4,555,484
Year FE	N	Y	Y	Y
State FE	N	N	Y	Y
Region × Year FE	N	N	N	Y

Notes: Standard errors in parenthesis, clustered at the state-level. * $p < 0.10$ ** $p < 0.05$ *** $p < 0.01$. Observations weighted by IPUMS-ACS sample weights.

Table 10: Full Estimation Results - Housing Affordability, All Households

	(1) Housing Share	(2) Housing Share	(3) Housing Share	(4) Housing Share
Ln(Loans$_{st}$)	-0.0268***	-0.0302***	-0.0134***	-0.00628**
	(0.00444)	(0.00483)	(0.00240)	(0.00246)
College	0.0318***	0.0318***	0.0313***	0.0313***
	(0.00153)	(0.00153)	(0.00147)	(0.00147)
Age	0.00239***	0.00239***	0.00243***	0.00243***
	(0.000288)	(0.000289)	(0.000280)	(0.000281)
Age^2	-0.0000345***	-0.0000344***	-0.0000351***	-0.0000351***
	(0.00000309)	(0.00000309)	(0.00000299)	(0.00000299)
Employed	0.00811***	0.00818***	0.00776***	0.00777***
	(0.000945)	(0.000938)	(0.000818)	(0.000819)
Ln(Household Income)	-0.123***	-0.123***	-0.125***	-0.125***
	(0.00180)	(0.00183)	(0.00174)	(0.00175)
Black	0.0114***	0.0117***	0.0134***	0.0134***
	(0.00253)	(0.00252)	(0.00178)	(0.00178)
American Indian	-0.0434***	-0.0436***	-0.0422***	-0.0422***
	(0.0113)	(0.0113)	(0.00872)	(0.00871)
Chinese	0.0107***	0.00951**	0.00457	0.00453
	(0.00391)	(0.00419)	(0.00357)	(0.00359)
Japanese	0.0124	0.0122	-0.00435	-0.00429
	(0.00821)	(0.00900)	(0.00686)	(0.00685)
Other Asian	0.0221***	0.0215***	0.0162***	0.0162***
	(0.00393)	(0.00424)	(0.00390)	(0.00389)
Other Race	0.00833*	0.00810	0.00208	0.00205
	(0.00489)	(0.00501)	(0.00371)	(0.00371)
Two or More Races	0.00753***	0.00759***	0.00438***	0.00437***
	(0.00229)	(0.00236)	(0.00147)	(0.00147)
Three or More Races	0.0186***	0.0191***	0.00881***	0.00875***
	(0.00542)	(0.00576)	(0.00246)	(0.00247)
Female	0.00716***	0.00727***	0.00664***	0.00664***
	(0.000568)	(0.000563)	(0.000488)	(0.000489)
Hispanic	-0.00161	-0.00248	0.00271	0.00271
	(0.00898)	(0.00904)	(0.00689)	(0.00690)
Rural Share	-0.119***	-0.0976**	-0.802***	-0.443**
	(0.0379)	(0.0393)	(0.217)	(0.191)
Poverty	0.0667***	0.0665***	0.0660***	0.0660***
	(0.00557)	(0.00560)	(0.00555)	(0.00555)
N	9,255,366	9,255,366	9,255,366	9,255,366
Year FE	N	Y	Y	Y
State FE	N	N	Y	Y
Region × Year FE	N	N	N	Y

Notes: Standard errors in parenthesis, clustered at the state-level. * $p < 0.10$ ** $p < 0.05$ *** $p < 0.01$. Observations weighted by IPUMS-ACS sample weights.

Table 11: Full Estimation Results - Housing Affordability, White Households

	(1)	(2)	(3)	(4)
	Housing Share	Housing Share	Housing Share	Housing Share
Ln(Loans$_{st}$)	-0.0287***	-0.0320***	-0.0126***	-0.00471**
	(0.00420)	(0.00461)	(0.00263)	(0.00234)
College	0.0328***	0.0327***	0.0318***	0.0318***
	(0.00143)	(0.00144)	(0.00138)	(0.00138)
Age	0.00154***	0.00155***	0.00160***	0.00160***
	(0.000208)	(0.000209)	(0.000201)	(0.000201)
Age^2	-0.0000265***	-0.0000265***	-0.0000272***	-0.0000272***
	(0.00000218)	(0.00000219)	(0.00000213)	(0.00000213)
Employed	0.00758***	0.00759***	0.00699***	0.00699***
	(0.00113)	(0.00112)	(0.000987)	(0.000988)
Ln(Household Income)	-0.118***	-0.118***	-0.120***	-0.120***
	(0.00142)	(0.00144)	(0.00149)	(0.00150)
Rural Share	-0.0890**	-0.0688*	-0.831***	-0.384*
	(0.0345)	(0.0360)	(0.207)	(0.192)
Poverty	0.0720***	0.0719***	0.0713***	0.0713***
	(0.00560)	(0.00563)	(0.00559)	(0.00560)
N	6,863,447	6,863,447	6,863,447	6,863,447
Year FE	N	Y	Y	Y
State FE	N	N	Y	Y
Region × Year FE	N	N	N	Y

Notes: Standard errors in parenthesis, clustered at the state-level. * $p < 0.10$ ** $p < 0.05$ *** $p < 0.01$. Observations weighted by IPUMS-ACS sample weights.

Table 12: Full Estimation Results - Housing Affordability, Black Households

	(1)	(2)	(3)	(4)
	Housing Share	Housing Share	Housing Share	Housing Share
Ln(Loans$_{st}$)	-0.0265***	-0.0298***	-0.0190***	-0.0116**
	(0.00644)	(0.00702)	(0.00378)	(0.00465)
College	0.0267***	0.0268***	0.0263***	0.0262***
	(0.00153)	(0.00153)	(0.00157)	(0.00158)
Age	0.00370***	0.00369***	0.00375***	0.00375***
	(0.000277)	(0.000276)	(0.000253)	(0.000253)
Age^2	-0.0000441***	-0.0000440***	-0.0000446***	-0.0000446***
	(0.00000285)	(0.00000284)	(0.00000278)	(0.00000278)
Employed	0.00775***	0.00789***	0.00808***	0.00810***
	(0.00145)	(0.00144)	(0.00137)	(0.00137)
Ln(Household Income)	-0.142***	-0.143***	-0.146***	-0.146***
	(0.00221)	(0.00223)	(0.00201)	(0.00201)
Rural Share	-0.168***	-0.146**	-0.663*	-0.410
	(0.0571)	(0.0614)	(0.331)	(0.324)
Poverty	0.0461***	0.0459***	0.0449***	0.0449***
	(0.00621)	(0.00621)	(0.00625)	(0.00626)
N	836,643	836,643	836,643	836,643
Year FE	N	Y	Y	Y
State FE	N	N	Y	Y
Region × Year FE	N	N	N	Y

Notes: Standard errors in parenthesis, clustered at the state-level. * $p < 0.10$ ** $p < 0.05$ *** $p < 0.01$. Observations weighted by IPUMS-ACS sample weights.

Table 13: Full Estimation Results - Housing Affordability, Hispanic Households

	(1)	(2)	(3)	(4)
	Housing Share	Housing Share	Housing Share	Housing Share
Ln(Loans$_{st}$)	-0.0150	-0.0191*	-0.0174***	-0.0103***
	(0.00896)	(0.0107)	(0.00260)	(0.00336)
College	0.0356***	0.0359***	0.0344***	0.0344***
	(0.00427)	(0.00416)	(0.00394)	(0.00393)
Age	0.00477***	0.00476***	0.00474***	0.00475***
	(0.000665)	(0.000666)	(0.000647)	(0.000647)
Age2	-0.0000617***	-0.0000616***	-0.0000614***	-0.0000614***
	(0.00000605)	(0.00000604)	(0.00000591)	(0.00000591)
Employed	0.00742***	0.00761***	0.00729***	0.00730***
	(0.00191)	(0.00185)	(0.00189)	(0.00188)
Ln(Household Income)	-0.142***	-0.142***	-0.145***	-0.145***
	(0.00406)	(0.00414)	(0.00365)	(0.00366)
Rural Share	-0.381***	-0.346**	-0.949***	-1.251***
	(0.129)	(0.138)	(0.331)	(0.457)
Poverty	0.0553***	0.0550***	0.0551***	0.0551***
	(0.00634)	(0.00641)	(0.00635)	(0.00634)
N	946,737	946,737	946,737	946,737
Year FE	N	Y	Y	Y
State FE	N	N	Y	Y
Region × Year FE	N	N	N	Y

Notes: Standard errors in parenthesis, clustered at the state-level. * $p < 0.10$ ** $p < 0.05$ *** $p < 0.01$. Observations weighted by IPUMS-ACS sample weights.

Table 14: Full Estimation Results - Housing Affordability, Hispanic Households

	(1) Housing Share	(2) Housing Share	(3) Housing Share	(4) Housing Share
Ln(Loans$_{st}$)	-0.0304***	-0.0340***	-0.0166***	-0.00827**
	(0.00587)	(0.00636)	(0.00285)	(0.00317)
College	0.0377***	0.0377***	0.0370***	0.0370***
	(0.00163)	(0.00164)	(0.00167)	(0.00167)
Age	0.00124***	0.00124***	0.00131***	0.00131***
	(0.000252)	(0.000253)	(0.000244)	(0.000244)
Age^2	-0.0000264***	-0.0000264***	-0.0000273***	-0.0000273***
	(0.00000283)	(0.00000284)	(0.00000271)	(0.00000271)
Employed	0.0132***	0.0133***	0.0131***	0.0131***
	(0.00108)	(0.00107)	(0.00100)	(0.00101)
Ln(Household Income)	-0.151***	-0.151***	-0.152***	-0.152***
	(0.00241)	(0.00240)	(0.00228)	(0.00228)
Female	0.0119***	0.0119***	0.0115***	0.0115***
	(0.000668)	(0.000669)	(0.000607)	(0.000608)
Black	0.0172***	0.0174***	0.0209***	0.0209***
	(0.00299)	(0.00299)	(0.00239)	(0.00239)
American Indian	-0.0517***	-0.0520***	-0.0507***	-0.0508***
	(0.0138)	(0.0138)	(0.0108)	(0.0108)
Chinese	0.0132**	0.0118**	0.00615	0.00606
	(0.00540)	(0.00572)	(0.00575)	(0.00578)
Japanese	0.0196*	0.0195*	0.000530	0.000576
	(0.00983)	(0.0105)	(0.0110)	(0.0110)
Other Asian	0.0430***	0.0422***	0.0358***	0.0358***
	(0.00540)	(0.00573)	(0.00589)	(0.00589)
Other Race	0.0127**	0.0125*	0.00504	0.00499
	(0.00631)	(0.00646)	(0.00451)	(0.00451)
Two or More Races	0.00951***	0.00949***	0.00622***	0.00621***
	(0.00282)	(0.00287)	(0.00207)	(0.00207)
Three or More Races	0.0235***	0.0238***	0.0143***	0.0142***
	(0.00665)	(0.00685)	(0.00333)	(0.00333)
Hispanic	0.00359	0.00251	0.00938	0.00938
	(0.0113)	(0.0113)	(0.00819)	(0.00819)
Rural Share	-0.137***	-0.115**	-0.544**	-0.211
	(0.0429)	(0.0450)	(0.252)	(0.256)
Poverty	0.0354***	0.0352***	0.0354***	0.0354***
	(0.00329)	(0.00331)	(0.00333)	(0.00332)
N	4,555,484	4,555,484	4,555,484	4,555,484
Year FE	N	Y	Y	Y
State FE	N	N	Y	Y
Region × Year FE	N	N	N	Y

Notes: Standard errors in parenthesis, clustered at the state-level. * $p < 0.10$ ** $p < 0.05$ *** $p < 0.01$. Observations weighted by IPUMS-ACS sample weights.