The Impact of Federal Housing Policies on Racial Inequality: the case of the Federal Housing Administration

Omer Ali*

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Abstract

The Federal Housing Administration (FHA) began insuring residential mortgages in 1935 in response to the widespread housing and liquidity crisis precipitated by the Great Depression. The agency is credited with expanding home-ownership among American households. There is growing evidence, however, that its programs were implemented in a manner that discriminated against African Americans. This paper estimates the effect of the FHA's mortgage insurance program between 1935 and 1939 on racial disparities in home-ownership and home values. For causal leverage, I use the distance between a county and the FHA local office with jurisdiction over applications from county residents as an instrumental variable. I find that FHA insurance had a negligible effect on the racial gap in home-ownership, but an expansionary effect on the racial gap in home values by 1940. Turning to potential mechanisms, I use linked census data to provide suggestive evidence that white (but not black) households were more likely to leave central cities for suburbs in counties where the FHA was more active. Furthermore, in those same counties, home values of suburban (central city) homes were relatively higher (lower) by 1940; home-ownership rates were higher among white households in the suburbs, and among black households who remained in central cities. Taken together, these findings point to the FHA's role in accelerating white suburbanization.

*Department of Economics, University of Pittsburgh, 4700 Wesley W. Posvar Hall, 230 South Bouquet Street, Pittsburgh, PA 15260 (e-mail: omer.ali@pitt.edu). This material is based upon work supported by the National Science Foundation SBE Postdoctoral Research Fellowship under Grant No. 2105253. For helpful comments, I would like to thank Andrea DiMiceli, Price Fishback, Andreas Gulyas, Matt Johnson, Romain Wacziarg, and audiences at Duke University, the Discrimination and Disparities Online Seminar, the ASSA 2022 annual meeting, the NBER 2023 Summer Institute, the IRP 2023 Summer Research Workshop, the Conference on Race Racism and Structural Inequality, and the 2023 NDIRA Data-Intensive Research Conference. Price Fishback generously shared data on FHA mortgage insurance. Michael Getaneh provided excellent research assistance. Errors are the sole responsibility of the author.

"No agency of the United States government has had a more pervasive and powerful impact on the American people over the past half-century than the Federal Housing Administration."

-Kenneth T. Jackson, Crabgrass Frontier: The Suburbanization of the United States (1985)

1 Introduction

Did federal housing policies expand racial inequality in the United States? This question has attracted renewed interest from researchers, likely in response to a number of recent pieces of popular writing on the subject, including Richard Rothstein's widely-read book, *The Color of Law* (Rothstein, 2017). These accounts implicate federal agencies, including the Home Owners' Loan Corporation (HOLC), the Federal Housing Administration (FHA), and the Veterans' Administration (VA), in racially discriminatory practices that excluded black households from mortgage credit and disfavored black neighborhoods in the distribution of benefits that accrued, instead, to white neighborhoods and suburbs.[1] Discriminatory policies, implemented with the full weight of the federal government - so the argument goes - impacted the racial geography of the United States and the black-white gaps in home-ownership and housing wealth.

This paper investigates the above hypotheses using data on the early years of the Federal Housing Administration's mortgage insurance program. I find that while the FHA had an expansionary effect on the racial gap in home values between 1930 and 1940, it had a negligible effect on the racial gap in home ownership. More specifically, a doubling in the intensity of the FHA program (calculated as the value of FHA insurance per capita) expanded the racial gap in home values by 2.5%-3.7%. Turning to potential mechanisms, I find evidence that construction of new residential units was higher in counties where the FHA was more active, and that these counties became more segregated decades later. Using linked census data, I find suggestive evidence that white (but not black) households were more likely to leave central cities for the suburbs in counties where the FHA was more active. Furthermore, in those same counties, home values of suburban homes were relatively higher by 1940, while the opposite is true for homes in central cities. At the same time, home-ownership rates were higher among white households in the suburbs, and among black households who remained in central cities. This mechanism reconciles the expansionary effect of the FHA program on racial disparities in home values alongside the null effect on home-ownership. Taken together, the findings in this paper are consistent with the view that the FHA accelerated white suburbanization.

I estimate these relationships using data on the cumulative value of FHA-insured mortgages by county between 1935 and 1939. To measure changes in racial inequality, I compare black-white gaps in outcomes after the 1935-1939 window to racial gaps before 1935. The empirical strategy

[1]Similar arguments had been made in the academic literature previously. See, for example, (Jackson, 1980; Jackson, 1987; Katznelson, 2006; Kimble, 2007; Greer, 2014). For a more recent summary, see Woods (2018).

employs a triple-difference specification, where treatment - the value of FHA-insured mortgages - is continuous. The main coefficient of interest compares outcomes of (a) black (vs. white) households, (b) after (vs. before) 1935-1939, in (c) counties with high (vs. low) FHA insurance activity. For causal leverage, I use the distance between each county and the FHA field office where applications for mortgage insurance were adjudicated as an instrumental variable. This strategy seeks to address concerns about potential omitted variables driving any relationship found between the value of FHA insurance and changes in racial disparities. For example, if many FHA-insured mortgages were issued to residents of urban areas, and those areas experienced an increase in racial disparities for reasons unrelated to the agency, we may detect a significant treatment effect, despite its absence in reality.

Of course, the market for residential real estate continues to exhibit racial discrimination by private actors, including agents (Christensen and Timmins, 2022), appraisers (Howell and Korver-Glenn, 2018), and lenders (Ky and Lim, 2022). However, what makes the argument of Rothstein and others distinct is that it ascribes a deliberate role to federal government agencies in discriminatory practices. This, in turn, implies that responsibility for at least some of the racial disparities documented in contemporary outcomes, and associated harms, lies with the federal government. Indeed, calls for reparative compensation have often cited federal housing policies as one of the main justifications for their necessity (Darity Jr and Mullen, 2020; Coates, 2014). As such, understanding the role played by federal housing policies in contributing to racial disparities in socioeconomic outcomes has implications that extend beyond the academic debates summarized here.

Discussions of the federal government's role in the history of housing discrimination usually invoke "redlining," which has come to serve as a catchall term for how black buyers and black neighborhoods were excluded from favorable mortgage terms and access to credit that was funnelled, instead, to white households (Katznelson, 2006). Broadly speaking, redlining is understood as a process through which federal agencies identified neighborhoods where black residents predominated, then proceeded to steer government-insured mortgages away from their residents. Providing support for this narrative is the fact that one of the federal agencies introduced during Roosevelt's New Deal programs, the Home Owners' Loan Corporation, produced color-coded maps of roughly 239 urban areas in the United States between 1936 and 1940, assigning ratings to neighborhoods on a 4-point scale from "Best" (green) to "Hazardous" (red) (Hillier, 2003; Hynsjö and Perdoni, 2022). Neighborhoods with black residents were uniformly assigned the worst rating.[2] Many of these maps have survived to this day and can be easily accessed and browsed online, thanks to the mapping inequality project (Nelson et al., 2022). Despite what appears to be incriminating evidence of the HOLC's complicity in racial discrimination, however, the reality is

[2] Fishback, LaVoice, et al. (2020) investigate the importance of race (relative to socioeconomic conditions) in the rating assigned by the HOLC in a sample of 10 major Northern cities, finding that racial bias can explain less than a fifth of the concentration of black residents in D-rated neighborhoods. In a study of racial composition of redlined neighborhoods in Durham, NC, however, Ali et al. (2022) find that virtually all black neighborhoods were rated "hazardous", and all hazardous neighborhoods had a significant share of black residents.

more nuanced.

The Roosevelt administration's response to an impending housing crisis began with the 1933 Homeowners Refinancing Act, which created the HOLC.[3] Almost as soon as the administration began its first term in the shadow of the Great Depression, the HOLC was tasked with undertaking an emergency program of mortgage refinancing intended to prevent a wave of delinquencies that would have foreclosed on struggling home-owners and left creditors with loans unlikely to be re-payed. The HOLC went on to refinance the mortgages of a million home-owners between 1933 and 1936 (Michney, 2021, p. 4), many of whom were African American (Hillier, 2005; Michney and Winling, 2019). Around the time its emergency refinancing activity ended, the agency's Mortgage Rehabilitation Department began creating "residential security" maps of urban areas, possibly to provide agency employees with some guidance about the prospects of mortgage repayment in those areas where the HOLC was now invested. Crucially, even if the maps produced by the HOLC did assign the lowest ratings to black neighborhoods, they could not have been used to guide its refinancing decisions, since almost all of those decisions had already been made before the first map was completed (Michney, 2021).

Nevertheless, the availability of HOLC residential security maps has allowed researchers to estimate the causal effects of neighborhood ratings using a variety of empirical strategies (Krimmel, 2018; Aaronson, Hartley, et al., 2021; Hynsjö and Perdoni, 2022). Studies often find that lower ratings had a negative effect on neighborhood outcomes such as home-ownership rates and home values. These findings invite speculation about the possibility that while the HOLC may not have used these maps in refinancing decisions, the maps may have been used by private lenders, or perhaps by the FHA, which shared a building with the HOLC Mortgage Rehabilitation Department.[4] Fishback, Rose, et al. (2022), however, urge caution in interpreting the results of analyses using HOLC maps as causal, arguing that HOLC maps were unlikely to have guided the insurance decisions of the FHA since the FHA - a separate agency with a different mandate - constructed its own mortgage security maps. With the exception of the maps for Greensboro, NC and Chicago, IL, however, all the FHA's maps have been lost. A comparison of the FHA and HOLC maps for Chicago finds that the FHA's ratings were more important in explaining housing outcomes (home values, home-ownership and segregation), supporting the view that the FHA played a more important role in discriminatory lending (Xu, 2022). Studies that rely on HOLC maps to understand the impact and legacy of discriminatory housing policies, therefore, remain subject to uncertainty about exactly how the maps were used in practice.

If the HOLC residential security maps were not used to determine where mortgages were refi-

[3] Subsequent legislation included the 1934 National Housing Act, which created the FHA, and the 1937 US Housing Act, which created the United States Housing Authority (USHA). The program continued under the Truman administration, with the 1947 Federal Housing and Rent Act, the American Housing Act of 1949, The Housing and Rent Act (also enacted in 1949), and The Housing Act of 1950.

[4] Michney (2021) notes that the HOLC's Mortgage Rehabilitation Department (MRD), which was responsible for drafting the maps, had offices in the same building as the FHA until until September 1936, and that "a circa 1942 [memorandum on the City Survey operations filed with the finding aid to the FHLBB Records] clearly states that FHA received three copies of the entire set of City Survey maps upon completion" (p. 17).

nanced by the agency, nor where mortgages were insured, how else could "redlining" have taken place? This question leads us to consider the role of the Federal Housing Administration. The FHA was founded in 1934 following the passage of the National Housing Act. Unlike the HOLC, which had an emergency refinancing mandate that limited its activity to existing home-owners, the FHA was tasked with providing insurance for new mortgages and home improvement loans. This was part of the federal government's effort to rescue the Depression economy by stimulating activity in the real estate market and construction industry (Kimble, 2007, p. 402). The loan insurance (or guarantee) served to encourage lenders to make new loans, despite widespread uncertainty about economic prospects. An FHA-insured mortgage effectively shifted repayment risk away from the lender and onto the federal government. The fear of delinquent borrowers, therefore, would no longer prevent lenders from making new loans. However, since the FHA was intended to operate in a revenue-neutral manner, the agency was very much concerned about the repayment likelihood of any loans it guaranteed. At the same time, the FHA-insured loans were designed to be easier for borrowers to bear with long repayment periods, low down payments and below-market interest rates. Indeed, FHA-insured mortgages were popular with home buyers, and the agency's share of the residential mortgage market expanded dramatically in its early years. Of total non-farm housing starts in the US, the FHA accounted for 6% in 1935, 16% in 1936, 26.7% in 1938, and 33.4% in 1940. By 1942, the FHA served 25% of residential mortgages in the US (Freund, 2007, p. 134).

Researchers have long suspected the FHA of implementing its mortgage insurance program in a manner that disfavored black buyers and racially integrated neighborhoods (Jackson, 1987). In a study of the FHA's practices in Detroit, David Freund observes that "[f]ollowing the rules that guided FHA practice nationwide, the Detroit-area office focused almost exclusively on promoting the construction, purchase and repair of privately owned homes by *certain* white people. There is no evidence that blacks qualified for FHA-insured loans before World War II" (Freund, 2007, pp. 134, 135). Rothstein (2017) further argues that the FHA's policies were justified by a theory of how property prices were likely to be affected by the presence of African Americans in a neighborhood: "the FHA justified its racial policies - both its appraisal standards and its restrictive covenant recommendations - by claiming that a purchase by an African American in a white neighborhood, or the presence of African Americans in or near such a neighborhood, would cause the value of white-owned properties to decline," (Rothstein, 2017, p. 93).

Evidence for these claims usually includes portions of the agency's underwriting manual.[5] Among the paragraphs urging insurance officers to consider the structural characteristics of the building under consideration, the following sentence confirms the agency's interest in the racial composition of neighborhoods, in which insured properties would be located.

> *"the Valuator should investigate areas surrounding the location to determine whether or not incompatible racial and social groups are present,"* (Freund (2007) p. 158, quoting from

[5]The manual was a document that FHA leadership drafted and circulated to field offices in a bid to harmonize appraisal practices and bring some uniformity to the insurance approval decisions of individual officers.

section 233 of the 1938 FHA Underwriting Manual).

Kimble (2007) argues that the FHA compiled extensive and detailed information about the racial composition of neighborhoods in order to guide its insurance activity.[6] Moreover, studying the demographic composition of beneficiaries of the FHA's mortgage insurance program reveals that black households were under-served relative to their share of the home-owning population. For example, by 1950, of owner-occupied homes, 5.6% belonged to non-whites, who received 2.1% of mortgages insured by the FHA and VA (Michney and Winling, 2019, pp. 23–24). Whites received 94.4% of mortgages guaranteed by the FHA or VA by 1950.[7] To the extent that black veterans were more successful in obtaining mortgage benefits from the VA than non-veterans were in obtaining mortgage benefits from the FHA, this figure underestimates the extent to which the FHA discriminated against black home buyers.

Aggregate data on the share of insured mortgages accruing to each racial group may not capture the full extent of the FHA's bias. Fishback, Rose, et al. (2022) study a near-complete sample of individual housing deeds of black and white home-owners between 1935 and 1940 for three cities. They find no FHA-insured loans issued to black home-owners in Peoria, IL, exactly 1 In Greensboro, NC, and 25 in Baltimore, MD (out of 556, 238, and 3,540 FHA-insured loans, respectively).

In light of these findings, a natural question to ask is whether the FHA mortgage insurance program had an expansionary effect on racial inequality. Rothstein (2017) argues that federal policies were responsible for the segregation that shaped the experience of African Americans over the course of the 20^{th} century, and actively prevented the rate of black home-ownership from converging to that of white households. Woods (2018) argues that discriminatory housing policies between 1910 and 1960 are largely responsible for the contemporary racial wealth gap. Studies have also linked federal housing policies to higher rates of racial segregation (Faber, 2020; Abramovitz and Smith, 2021). Gordon and Bruch (2019) and Ali et al. (2022) document starkly different experiences of home-ownership among white and black home-owners in St Louis, MO, and Durham, NC, respectively. However, neither study links these racial disparities to federal policies. On the other hand, Kollmann and Fishback (2011) find no evidence for a differential effect of New Deal policies on home-ownership among African Americans and whites.

The findings in this paper are in line with existing work, including Ali (2022), Kollmann and Fishback (2011), and Boustan and Margo (2013). I find that FHA insurance had a negligible effect on the racial gap in home-ownership, while expanding the racial gap in home values. Turning to the potential mechanisms, I explore the effect of FHA mortgage insurance on residential construction and segregation. I find suggestive evidence that counties where per capita FHA mortgage insurance was relatively high witnessed more residential construction over time. In the OLS models, I find that doubling the value of per capita FHA insurance is associated with a 4.5% increase

[6] A few examples of the FHA's detailed maps documenting where African Americans lived in urban areas can be found in Appendix Figures B3, B4, B5, and B6.

[7] In the source data, the race of 9.4% of beneficiaries is not reported. Among non-whites, 94.9% are classified as "Negro" and the remaining are classified as "Other."

in the total number of housing units in 1940, and roughly 23.3-28.5% more residential units constructed between 1940 and 1970. Finally, I find that FHA mortgage insurance had no effect on measures of segregation in 1940, yet was positively associated with segregation in 1980, suggesting that counties where the FHA was relatively more active may have witnessed a rise in racial sorting over time.

Section 2 describes the data I use to arrive at these findings. In Section 3, I outline the estimation framework and empirical strategy. The results are presented in more detail in Section 4, and I conclude with a discussion in Section 6.

2 Data

The main source of data for this study is the US decennial census. Beginning in 1790, the Census Bureau has surveyed the population of residents in the United States every 10 years. I make primary use of individual-level data from the 1930 and 1940 full count censuses. The main independent variable uses the cumulative value of FHA-insured mortgages by county. Finally, I construct a measure of distance from each county to the FHA field office with jurisdiction over applications from county residents and use this measure as an instrumental variable.

2.1 FHA mortgage insurance

The main explanatory variable is the cumulative value of FHA mortgage insurance by county between 1935 and 1939.[8] These data were obtained by researchers from records of the US Office of Government Reports. They include the total value of FHA-insured mortgages by county from March 1933 through June 1939, and are described in detail in Fishback, Kantor, et al. (2003). The original data include the value of grants, loans, and other expenses for a number of New Deal programs and agencies for the period 1934-1939. Here, I make use of the (per-capita) value of FHA-insured mortgages as a measure of FHA program intensity. I also include the value of mortgages refinanced by the HOLC, as well as a variable that summarizes all loans made by New Deal programs by county as control variables.

2.2 Outcome variables

I make use of individual-level full count census data, which I obtained through IPUMS (Ruggles, Fitch, et al., 2021). I use data from the 1930 and 1940 census files for - among other variables - home-ownership status of household heads, and the home value of owner-occupied homes. Throughout the analysis, I restrict attention to household heads in all states other than Hawaii, Alaska, and Puerto Rico.

[8] The FHA insured home improvement loans as well as mortgages. The first of these are sometimes referred to as Title I loans since they are described in Title I of the National Housing Act. Similarly, mortgages insured by the FHA are sometimes referred to as Title II loans.

Home-ownership is reported in all decennial censuses in the twentieth century, with the exception of 1950. Data on home values are available beginning in 1930. Only owner-occupied homes have associated home values, since renters were not asked to report the value of their rented dwellings.

For some of the analysis described below, it will be useful to keep track of how households move within metropolitan areas between 1930 and 1940. To do that, I use linked census data that identifies the same individuals across the 1930 and 1940 censuses with crosswalks provided by the Census Linking Project (Abramitzky et al., 2022).[9] Using these crosswalks, I can identify the census responses of the same individuals across the full count census data for 1930 and 1940. Matching respondents across census years is uncertain, and the resulting correspondence may include false positives - individuals with a positive match, who are in fact two different people. I add an additional restriction to the matched sample to reduce the number of false positives: the reported age of matched respondents must be within a ten year band of one another.[10]

To explore the potential mechanisms through which FHA mortgage insurance may have affected the housing market outcomes we study, I use data on the number of housing units and housing construction between 1939 and 1970. These data were obtained for individual counties from census tables provided by Social Explorer (US Census Bureau, 1940). In addition, I analyze data on measures of segregation to explore whether counties where the FHA was more active became more segregated. This paper is agnostic about the appropriate measure of segregation and instead makes use of all available measures to explore this question.[11] To that end, I use data on the dissimilarity index in 1880 and 1940 from T. D. Logan and Parman (2017). I also use data on the dissimilarity and exposure indices between 1980 and 2000 from (J. R. Logan and Stults, 2021). Results obtained using both of these measures are similar.

2.3 Control variables

In addition to housing outcomes, I use individual census data to control for factors that may affect these outcomes, independently of the effect of the FHA program. In deciding which variables to include in the set of controls, one constraint was data availability. The final set includes age, gender, employment status, and educational status.

I also include a number of county demographic and economic variables for the year 1930 to control for county-specific characteristics. These data are obtained from census tables provided by Social Explorer (US Census Bureau, 1940). A list of control variables is in Appendix Table A1.

[9] I use the match generated by the *abe race nysiis conservative* indicator, which is equal to 1 if the match was established using the conservative version of the ABE algorithm with New York State Identification and Intelligence System (NYSIIS) standardized names and using race as a matching variable. Successful matching requires individuals be unique within a five-year age band.

[10] Formally, suppose there are two matched respondents, i and j, where i is from the 1930 census and j is from the 1940 census. Now suppose that their reported age variables are a_i and a_j, respectively. The match remains if and only if $|a_i - a_j| \leq 5$.

[11] See the following for discussions of the appropriate measurement of racial segregation (T. D. Logan and Parman, 2017; Echenique and Fryer, 2007; Athey et al., 2020).

2.4 Distance to FHA field office

I use the distance between each county and the FHA field office where applications of county residents are adjudicated as an instrumental variable for the exposure of the county to the FHA program. I construct this measure using maps of FHA field office jurisdictions (see Figure B2), and the NBER pairwise county distances database.[12] The measure of distance to FHA field office is calculated as follows: for each county, I use the entry in the pairwise distances database that measures how far it is from the county that contains the field office.

Distances are calculated between *internal points*.[13] For small, regularly shaped counties, there is unlikely to be bias stemming from the method used to calculate this distance measure. However, for large counties, or for counties where the centroid falls outside of the boundaries, a more precise distance measure that is constructed using the location of field offices would be preferable.

The field office jurisdiction maps are part of the contents of the FHA's records at the National Archives and Records Administration in College Park, MD. To the best of my knowledge, this is the first paper to use FHA field office jurisdictions in an empirical study.[14] The assumption underlying this identification strategy is that application likelihood increases with proximity to field office. This may be driven by a variety of factors. For example, the physical presence of an FHA field office in an area may have heightened awareness of the mortgage insurance program among residents and real estate professionals and, in turn, stimulated more applications. Alternatively, applications for mortgage insurance may have been easier to submit to an office that is nearby, compared to one that is further away. Postal costs as well as the time it takes for material to reach an office increase with distance. Moreoever, FHA staff conducted compliance inspections for newly built homes, and these inspections would have been easier to complete in locations that were closer to the field office. My hypothesis is that any one of these reasons would have made FHA-insured mortgages less likely to have been made in counties that are further away from their field office, ceteris paribus. In Section 4, I provide empirical evidence that distance from field office is inversely correlated with the cumulative value of FHA-insured mortgages and that the relationship is strong enough to justify using this measure as an instrument.

The FHA program began insuring residential mortgages in 1935, and the network of field offices grew over the period of data availability: 1935-1939. I use the location of field offices in 1939, in part because the latter part of the decade witnessed the largest share of mortgage insurance activity.

[12] Entries in this database are spherical distances calculated using the Haversine formula (see https://www.nber.org/research/data/county-distance-database).

[13] The Census Bureau defines an internal point as follows: *"[...] for many geographic areas, the internal point is the centroid, the geographic center of the entity. For some irregularly shaped areas (such as those shaped like a crescent), the centroid may be located outside the boundaries of the entity. In such instances, the internal point is identified as a point inside the entity boundaries nearest to the centroid and, if possible, a point that is on land area, not water."* (see https://www.census.gov/programs-surveys/geography/about/glossary.html.

[14] An analogous estimation strategy that uses distance from a local HOLC office to study the effect of HOLC refinancing on housing outcomes is employed in Courtemanche and Snowden, 2011 and Fishback, Flores-Lagunes, et al., 2011.

3 Estimation

In this section, I will outline the estimation strategy and describe the model specifications I use to study the effect of FHA mortgage insurance on racial inequality. To do so, I first describe a basic model that estimates county-level relationships between FHA insurance and racial disparities in home-ownership and home values. Next, I specify a difference-in-differences model to estimate the differential effect of FHA insurance on black and white households using individual-level census data. Finally, I describe the instrumental variables strategy I use in order to obtain coefficient estimates that may be interpreted as causal.

3.1 Basic model

We begin the analysis by examining county-level relationships between the value of FHA-insured mortgages in 1935-1939 and the racial gap in home-ownership and home values. I estimate this simple model using county-level data obtained through IPUMS (Ruggles, Flood, et al., 2022) and Social Explorer (US Census Bureau, 1940).

$$GapY1940_c = \alpha + \beta FHA_c + GapY1930_c + GapY1920_c + \bar{\theta}\bar{X}_c + \bar{F}_c + \epsilon_c \tag{1}$$

The unit of observation is the county, which is indexed by c. The dependent variable $GapY_c$ measures the difference between white and black outcomes by county in year Y. For example, in the model that examines home-ownership rates in 1940, $GapY_c$ is the difference between the white home-ownership rate and the black home-ownership rate in 1940. It is positive when the mean for white heads of households is larger than the mean for black heads of households, and vice versa. The variable $GapY1930_c$ measures the racial gap in the outcome variable in 1930, which is before the FHA began insuring residential mortgages. As such, the model seeks to estimate the effect of the FHA program on racial disparities, taking existing disparities into account. I control for racial gaps in home values in 1930 and gaps in home-ownership in 1920 and 1930.

County-level control variables are grouped in vector $\bar{X}_c$ and include the following demographic variables in logs from the 1930 decennial census: total number of housing units, population density, black and white populations, number of employed and unemployed, urban population, and literate population. I also control for economic variables such as the value of all New Deal loans issued between 1935 and 1939, the value of HOLC mortgage refinancing, the white and black home-ownership rate, median home value and the number of manufacturing workers and establishments. The Vector $\bar{F}_c$ is a sequence of state fixed effects. The coefficients on state fixed effects are omitted from regression tables throughout the paper.

3.2 Difference in differences

The main estimating equation is a triple difference specification with a continuous treatment. The coefficients of interest, grouped in the vector $\bar{\beta}$, measure the difference between the marginal effect

of FHA insurance activity on outcomes of white census respondents and its marginal effect on black respondents for each decennial census year following 1940.

$$
\begin{aligned}
Y_{ict} = \alpha &+ \beta[Log(FHA_c) \times 1940_t \times Black_{ict}] \\
&+ \gamma_1 Log(FHA_c) + \gamma_2 1940_t + \gamma_3 Black_{ict} \\
&+ \gamma_4[Log(FHA_c) \times 1940_t] \\
&+ \gamma_5[Log(FHA_c) \times Black_{ict}] \\
&+ \gamma_6[1940_t \times Black_{ict}] + \bar{\theta}\bar{X}_{ict} + \bar{F}_c + \epsilon_{ict}
\end{aligned} \tag{2}
$$

Variables are indexed by individual (i), county (c), and year (t). The indicator variable 1940_t takes a value of 1 whenever the observation is from the 1940 census. FHA is the per capita value of mortgage insurance between 1935 and 1939. $Black$ is an indicator variable that takes a value of 1 whenever the race of respondents is Black or African American. Individual and county control variables are grouped in the vector $\bar{X}$, and state fixed effects are in $\bar{F}$.

The coefficient of interest is β, which multiplies a triple interaction term. The specification effectively compares (1) black vs. white outcomes, (2) before vs. after treatment, (3) in counties where there was relatively more vs. relatively less FHA activity. A negative estimate for β is evidence that counties where the FHA was relatively more active exhibit an increase in racial disparities, relative to the period before 1930.

3.3 Instrumental variable

Accounting for differences in county characteristics, and including state fixed effects reduces the bias in the estimated treatment effect. However, there may be omitted variables that correlate with both outcome variables as well as the amount of FHA mortgage insurance. This concern motivates the use of the following instrumental variable: the distance between each county and the FHA field office with jurisdiction over applications from county residents. Field office jurisdictions are determined from a collection of maps located in FHA archival records, with an example map in Appendix Figure B2. Most states were the jurisdiction of a single field office, but not always. For example, Texas had four field offices, and so did New York.

The jurisdiction of field offices usually spanned an entire state, but for some large states, there were multiple offices with jurisdictions that bisected its area. Fortunately, each county falls entirely within a single jurisdiction (see Figure B2). The distance to FHA office is used as an instrument for the intensity of FHA lending activity at the county.

This identification strategy rests on two assumptions. The first is that distance to FHA office is a meaningful predictor of the value of FHA mortgage insurance. I confirm this in the first stage regression results reported below, and the F-tests rejecting the null hypothesis of a weak instrument. The second assumption is that distance to FHA office is uncorrelated with factors that affect the change in the racial gap in study outcomes, outside of the channel of FHA insurance.

4 Main results

4.1 Basic model

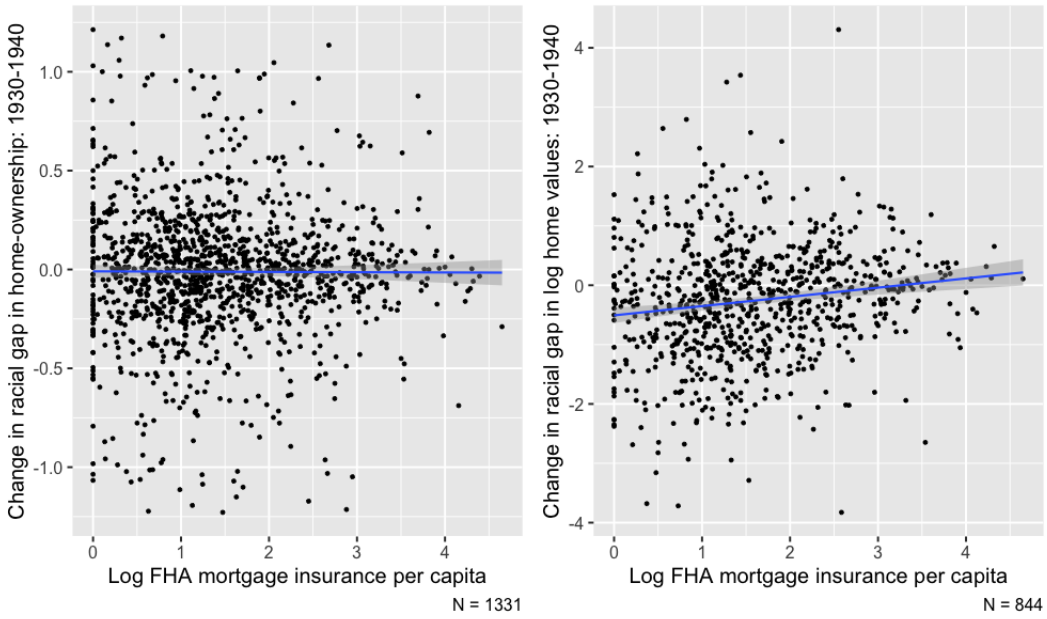

Figure 1

This section reports estimation results from the basic model outlined in Equation 1. Overall, results suggest that FHA mortgage insurance had an expansionary effect on racial disparities in home-ownership by 1940 (see Table 1), although this result is not robust across specifications. Turning to home values, counties with more FHA mortgage insurance do exhibit a rise in the racial gap in home values by 1940 (see Table 1).

These results provide a formal test for the patterns in Figure 1, which show that FHA mortgage insurance appears uncorrelated with the change in the racial gap in home-ownership, yet positively correlated with the change in the gap in home values. The remainder of the Results Section will investigate the robustness of these results and explore potential mechanisms.

4.2 First stage

Figure 2 allows for a visual inspection of the relationship between distance from field office and FHA activity. The size of the points in the scatter plot corresponds to the size of the urban population in each county in 1930. Since the FHA primarily insured mortgages in urban areas, this is a rough correlate of the potential pool of mortgage insurance recipients in each county.[15] It is clear

[15] A significant share of the FHA's insured mortgages reached residents in smaller cities. According to the FHA's Sixth Annual Report, in 1939, 26% of mortgages were in properties outside of metropolitan areas, and 34% were inside metropolitan areas with fewer than 100,000 residents. The remaining mortgages were distributed equally in metropolitan areas with more than 100,000 and less than 500,000 residents, and those with more than 500,000 residents.

Table 1

	Dependent variable:			
	Racial gap in home-ownership (1940)		Log Racial gap in home values (1940)	
	(1)	(2)	(3)	(4)
Log FHA per capita	0.023* (0.012)	−0.006 (0.011)	0.105*** (0.038)	0.115*** (0.036)
Log Racial gap in home values (1930)	0.006 (0.010)	0.005 (0.010)	0.071* (0.037)	0.076** (0.037)
Racial gap in home-ownership (1930)	−0.023 (0.052)	0.165*** (0.046)	−0.075 (0.170)	−0.075 (0.146)
Racial gap in home-ownership (1920)	−0.040 (0.041)	0.067* (0.039)	−0.003 (0.128)	0.014 (0.121)
Log Housing units (1930)	0.149 (0.103)	0.124*** (0.046)	0.160 (0.479)	0.244 (0.171)
Log Population per Sq Mile (1930)	0.011 (0.017)	0.003 (0.017)	−0.066 (0.057)	−0.021 (0.054)
Log Black population (1930)	−0.038** (0.018)	−0.022 (0.017)	0.010 (0.055)	0.039 (0.052)
Log White population (1930)	−0.087** (0.044)	−0.079** (0.031)	−0.303* (0.166)	−0.332*** (0.116)
Log Total employed (1930)	−0.168* (0.092)		0.678* (0.396)	
Log Total unemployed (1930)	0.002 (0.012)		0.011 (0.041)	
Log Urban population (1930)	0.0001 (0.003)		0.006 (0.010)	
Log Value of New Deal loans	−0.003 (0.016)		0.191*** (0.060)	
Log HOLC refinancing	−0.031** (0.013)		−0.100** (0.046)	
Log Literate population (1930)	0.165 (0.133)		−0.760 (0.514)	
Black home-ownership (1930)	−0.882*** (0.113)		0.197 (0.385)	
White home-ownership (1930)	0.813*** (0.129)		−0.407 (0.442)	
Log Median home value (1930)	0.006 (0.026)		0.187* (0.101)	
Log Manufacturing workers (1930)	−0.004 (0.010)		−0.022 (0.037)	
Log Manufacturing est. (1930)	0.018 (0.019)		0.051 (0.078)	
Constant	0.042 (0.261)	0.0002 (0.154)	0.745 (1.067)	1.540** (0.603)
State fixed effects	Yes	Yes	Yes	Yes
Robust SEs	Yes	Yes	Yes	Yes
Observations	827	864	769	802
R^2	0.353	0.246	0.191	0.156
Adjusted R^2	0.307	0.206	0.130	0.108
Residual Std. Error	0.186 (df = 771)	0.202 (df = 819)	0.654 (df = 714)	0.666 (df = 758)
Note:				*p<0.1; **p<0.05; ***p<0.01

to see that the relationship between per capita FHA mortgage insurance and distance from field office is negative. The closer a county lies to the field office with jurisdiction over its residents' applications, the higher is FHA activity in that county.

Qualifying for FHA mortgage insurance involved communication with the local field office, submission of application forms and documents, as well as arranging multiple compliance inspections for newly constructed dwellings. All of these requirements would have been easier to complete successfully when the FHA office was more proximate.

There is some clustering of points on the y-axis, and these correspond to the counties where the field offices where located. For these counties, distance to field office is zero. Appendix Figure B1 recreates this scatter plot with those counties removed. I also conduct a weak instrument test using only the sample of counties without field offices, finding that distance from field office remains a strong predictor for total FHA mortgage insurance (F=18.65526), but not per capita mortgage insurance (F=1.022192). There were 57 field offices in total, with roughly one office per state, although large states such as California, Texas, Florida and New York had multiple offices. Office jurisdictions traced county boundaries, so each county had a unique office where applications were processed. Roughly two thirds of offices were located in the most populous county in the state, and 68% were located in the county with the largest urban population. This raises the possibility that populous counties, or counties with the largest urban areas may be driving the relationship between distance and FHA activity. This would be a concern if these

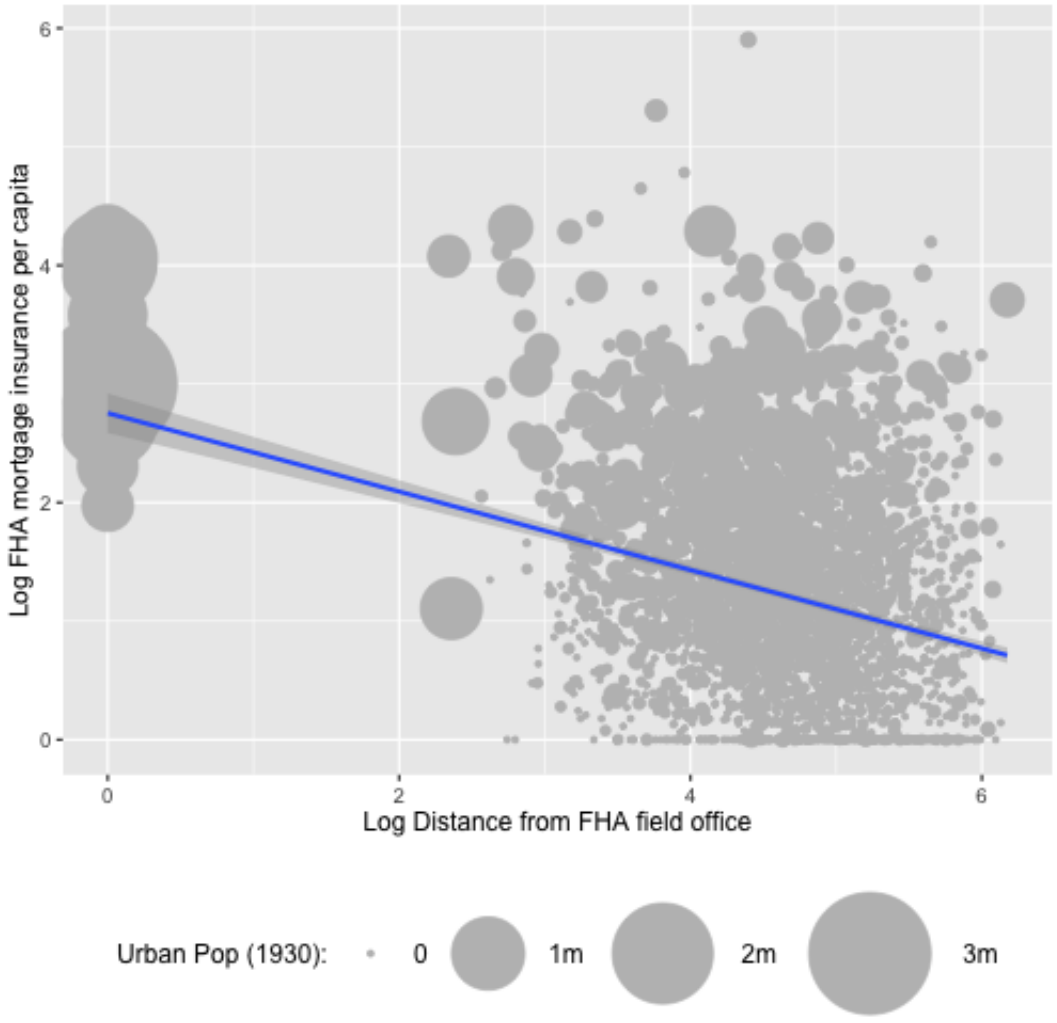

Figure 2: Relationship between FHA mortgage insurance and distance from field office. Size of points corresponds to urban population in 1930. N=2944; data from Fishback, Kantor, et al. (2003) and author's calculations.

counties experienced a different trajectory of racial disparities in housing outcomes, regardless of FHA activity. In other words, the exclusion restriction may be violated.

Instrumental variables are valid if they satisfy two assumptions: relevance and the exclusion restriction. Relevance requires the instrument to be predictive of the endogenous variable and can be verified with a strong first stage relationship. The exclusion restriction requires the instrument to influence the outcome only through its effect on the endogenous variable. This is generally more difficult to verify, and would be violated if urbanicity affected the location of FHA offices as well as the trajectory of racial disparities. For example, if urban areas were more likely to serve as a site for FHA field offices, and were also more likely to be destinations for migrating black households during the great migration, we may detect an increase in racial disparities associated with FHA office location, but not caused by it. One way to investigate whether office location

Table 2: Relationship between instrument and measures of racial disparities before treatment period

	Dependent variable:				
	Log Distance from FHA office				
	(1)	(2)	(3)	(4)	(5)
Racial gap in home-ownership (1920)	−0.003				
	(0.083)				
Racial gap in home-ownership (1930)		−0.003			
		(0.086)			
Change in racial gap in home-ownership (1920-1930)			0.021		
			(0.070)		
Log Racial gap in home values (1930)				−0.0002	
				(0.040)	
Dissimilarity Index (1880)					−0.295***
					(0.113)
State fixed effects	Yes	Yes	Yes	Yes	Yes
County controls	Yes	Yes	Yes	Yes	Yes
Observations	1,307	1,368	1,172	944	1,854
Adjusted R^2	0.368	0.366	0.377	0.404	0.347
Note:					*p<0.1; **p<0.05; ***p<0.01

Table 3: First stage relationship between distance from FHA field office of per capita value of FHA insurance

	Dependent variable:		
	Log FHA per capita		
	(1)	(2)	(3)
Log Distance from FHA office	−0.314*** (0.019)	−0.299*** (0.019)	−0.061*** (0.017)
State fixed effects	No	Yes	Yes
County controls	No	No	Yes
Weak instrument F-test	275.399	262.287	12.787
Observations	2,532	2,532	2,087
Adjusted R^2	0.094	0.216	0.586
Note:			*p<0.1; **p<0.05; ***p<0.01

affects the outcomes under study through other channels than the FHA program is to examine the relationship between distance to office and racial disparities before the start of the FHA program. I report the results of models that estimate the relationship between the distance from office and racial disparities (and their evolution) in housing outcomes in 1920 and 1930 as well as a measure of segregation in Table 2. Segregation as measured by the dissimilarity index before the start of the FHA program is correlated with distance to local field office - relatively more segregated counties were eventually more likely to be located closer to field offices.

To test whether the first stage relationship is robust to the removal of large counties from the sample, Appendix Table A6 reports the results of first stage weak instrument F-tests when 5% of counties are removed. Each column corresponds to a sample without counties that fall in the top 5% for the following variables: total population, urban population, number of housing units, population density in 1930, and area in square miles. Across all of these models, the weak instrument F-statistic remains above the conventional threshold of 10.

The preferred specification uses log of distance from FHA field office as the instrument, and log of per capita FHA insurance as the treatment. The first stage regression using this specification is

in Table 3. It shows that distance from field office reduces the per capita value of FHA insurance in a county. For counties with a similar demographic and economic profile, increasing their distance from the FHA field office twofold results in a 4.1% decline in the per capita value of FHA-insured mortgages in the most saturated model.

4.3 Difference in differences

This section reports the main results of the paper. The coefficient of interest is on the triple interaction terms between the post-treatment year, 1940, the log of per capita FHA insurance by county, and an indicator variable for whether the respondent is African American. A negative coefficient indicates that counties with a relatively higher value of FHA-insured mortgages exhibit an increase in the racial gap in the outcome under study.

Table 4: Main results

	Dependent variable:			
	Log Home value		Home-owner	
	(OLS)	(IV)	(OLS)	(IV)
log(FHA) x BLACK x 1940	-0.036^{***}	-0.054^{*}	-0.012^{***}	-0.006
	(0.012)	(0.029)	(0.002)	(0.006)
State fixed effects	Yes	Yes	Yes	Yes
County controls	Yes	Yes	Yes	Yes
Individual controls	Yes	Yes	Yes	Yes
Observations	18,695,002	18,695,002	42,997,694	42,997,694
Adjusted R^2	0.353	0.351	0.150	0.149
Note:				*p<0.1; **p<0.05; ***p<0.01

Table 4 reports the coefficients of interest for the models where the dependent variable is whether the household head is a home-owner, as well as models where the dependent variable is the log of home values. The complete set of results, including coefficients for control variables are included in Appendix Section A.3. The coefficient on the triple interaction term is the difference between the marginal effect of an increase in the value of FHA-insured mortgages in the post-treatment year for the black subsample, relative to the white subsample. If the FHA program has the same effect on black and white outcomes, this coefficient would be null. A negative coefficient implies that the FHA expands racial disparities. In particular, the estimates obtained suggest that a doubling in per capita FHA mortgage insurance (an increase by 100%) increases the gap between black and white home values by 2.5%-3.7% between 1930 and 1940.

5 Mechanisms

In this Section, I explore potential mechanisms through which the FHA program may have expanded the racial gap in home values, while keeping the gap in home-ownership unchanged. First, I estimate the effect of the program on the movement of households from central cities to

locations outside of those cities but within the same metropolitan areas. I find that the FHA had a positive effect on this measure of suburbanization for white households, and a negative effect for black households. Next, I find that home-ownership rates among white (but not black) households living outside of central cities within metropolitan areas are relatively higher in counties where the FHA was more active. The opposite is true for households that remain in central cities between 1930 and 1940: home-ownership rates are relatively higher among black (but not white) households. Turning to home values, I find that the FHA program had a divergent effect on home values of owner-occupied homes in suburbs vs. those in central cities. In counties where the FHA was more active, homes in suburbs are relatively more valuable, while those in cities are relatively less valuable.

These results provide evidence for the role of the FHA in accelerating white suburbanization. As white households moved to the suburbs, black households became home-owners at a higher rate in central cities. However, racial sorting between these two housing markets expanded the racial gap in home values as the program had a relatively positive effect on home values of suburban homes and a relatively negative effect on home values of homes in central cities. Many of the suburbs where white households moved in the 1930s were newly constructed, and I show that counties where the FHA was more active saw higher rates of residential construction in the decades following the end of the treatment period in 1939. Racial sorting appears to have persisted, as I find suggestive evidence that these counties were relatively more segregated by 1980.

5.1 Residential construction

The FHA's mortgage insurance program facilitated a rise in suburban developments across the United States. These developments were supported by the agency and benefited from the new housing market ecosystem that valued newly built housing in racially homogeneous neighborhoods away from urban areas (Greer, 2014). New suburbs could also incorporate racially restrictive covenants in the original sale documents, which made them less vulnerable to racial transition in the eyes of the FHA. Under a section title "Neighborhood Planning" in the FHA's Sixth Annual Report, the agency expresses the following preferences:

> *The experience of the Federal Housing Administration indicates the most satisfactory residential mortgages are found in neighborhoods that have been properly planned and developed. The creation of such neighborhoods therefore is encouraged. In many cities throughout the United States, over 50 percent of mortgages insured by the Administration are on homes located in neighborhoods for which the plans and protective features have been reviewed by the FHA. It has been clearly demonstrated that protected, planned neighborhoods are more profitable to developers, better security for investors, more desirable to home owners, and therefore a more satisfactory mortgage risk. Before the Administration insures loans in a new undeveloped area, various requirements are set up and must be complied with.* (page 16, Sixth Annual Report of the Federal Housing Administration, 1939)

The report goes on to describe seven features assessed by the FHA prior to insuring residential mortgages in new developments, including location, design, zoning, and utilities. One of these features is protective covenants, for which the FHA expresses a preference for the "[a]pplication of protective covenants to entire neighborhood at the outset rather than to individual lots as sold." (page 16, Sixth Annual Report of the Federal Housing Administration, 1939).

One possible mechanism through which the FHA mortgage insurance program may have expanded the racial gap in home values, while keeping the racial gap in home-ownership unaffected, is by accelerating the rate at which white households left central cities for new suburban developments approved by the agency. If demand for suburban homes drove up their prices relative to dwellings in central cities, FHA-insured mortgages may have allowed white households to move to the suburbs where they report higher home values in the 1940 census form. The movement of white households to the suburbs would have, in turn, decreased demand for homes in central cities, allowing their prices to fall and making them more affordable for African American households who were excluded from the mortgage insurance program. The new African American owners would report lower home values on the census form, but would be counted as owner-occupants. This would raise the black home-ownership rate, potentially allowing it to keep pace with the rising home-ownership rate of white households.

At the same time, however, the period under study witnessed the large-scale movement of African Americans from the South to urban areas in the North, West and Midwest during the Great Migration. To the extent that newly arrived black migrants (who tended to have lower incomes and more likely to live in rented dwellings) reduced black home-ownership rates, the total effect is ex-ante ambiguous. Boustan and Margo (2013) show that as white households left central cities for the suburbs around the middle of the 20th century, the home-ownership rate of black households increased. While the study does not link this result to the role played by the FHA, the rate of suburbanization may have been higher still in housing markets where the FHA was more active.

To test these hypotheses, I use the same measure of FHA program intensity described above: the per capita value of FHA-insured mortgages issued between 1935 and 1939. I start by looking at the effect of the FHA on residential development and the construction of new housing. As a dependent variable, I consider the total number of housing units in 1940, as well as the number of residential units constructed during the decades following 1940.

Figure 3 reports the findings of this exercise. Results suggest that counties where the FHA was more active experienced a rise in residential unit construction in the decades following 1940. The coefficient estimates in this figure come from separate regressions where the dependent variable is the number of housing units in 1940, the number of newly built housing units in 1940-1949 and so on.

Coefficient estimates must be interpreted with caution, however, as they are likely to be less accurate the further away from 1939 we get. Patterns of residential mortgage insurance may have changed in the 1940s, 1950s and 1960s. Nevertheless, these preliminary findings point to the

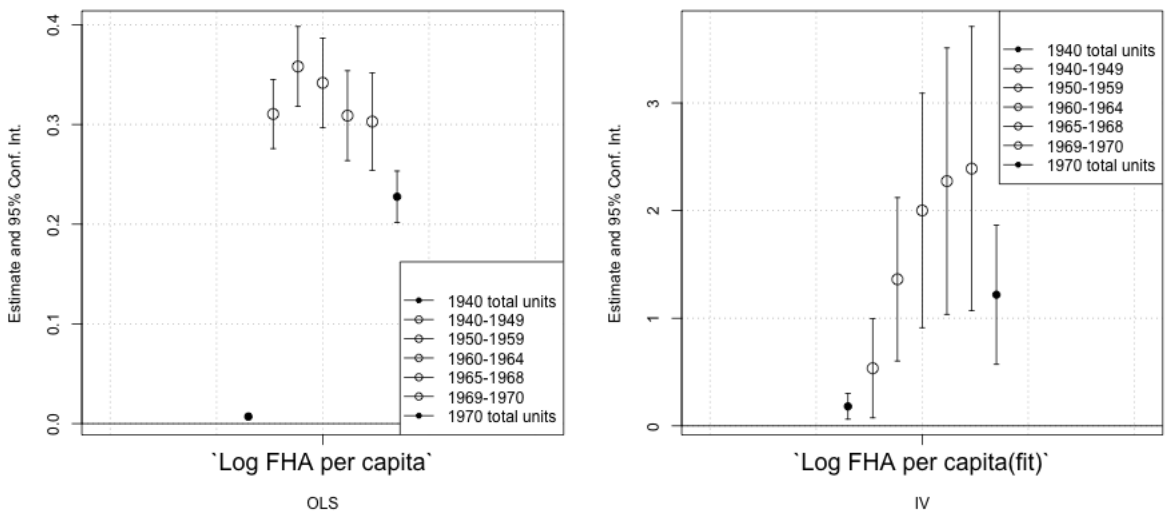

Figure 3: Effect of FHA insurance on total number of residential units (1940, 1970) and units built (1940-1949, 1950-1959, 1960-1964, 1965-1968, 1969-1970).

likelihood that FHA activity was associated with higher rates of residential development.

5.2 Residential sorting

While suggestive, the results so far do not show conclusively that the FHA accelerated the movement of white households to the suburbs. To study this pathway directly, I make use of linked census data that identifies the same individuals across the 1930 and 1940 censuses with crosswalks provided by the Census Linking Project.[16] Using these crosswalks, I can identify the census responses of the same individuals across the full count census data for 1930 and 1940.

Not all individuals are successfully matched, and the linked sample is significantly smaller than the full count data used in earlier sections of the paper. Furthermore, households in the linked sample may not be representative of the population at large. A comparison of sample characteristics of the full count and linked sample suggests that households in the linked sample tend to have higher socioeconomic status.

The analysis is conducted using heads of households. The models I estimate in this section take the following form:

$$Y_{ic,t} = \alpha + \beta Log(FHA_c) + Y_{ic,t-1} + \bar{\theta}\bar{X}_{ic,t-1} + \bar{F}_s + \epsilon_{ic}, \tag{3}$$

where $Y_{ic,t}$ is the outcome under study indexed by individual, county and census year where

[16] I use the match generated by the *abe race nysiis conservative* indicator, which is equal to 1 if the match was established using the conservative version of the ABE algorithm with New York State Identification and Intelligence System (NYSIIS) standardized names and using race as a matching variable. Successful matching requires individuals be unique within a five-year age band.

relevant (1930 or 1940). When studying outcomes such as home-ownership and home values that are reported in both the 1930 and 1940 census data, the 1930 value of Y is included in the right hand side. The coefficient of interest is β, which is on the measure of FHA program intensity, $Log(FHA_c)$. Finally, individual and county-level demographic and economic controls are included in vector $\bar{X}$ and state fixed effects in vector $\bar{F}$.

I define an individual as having moved to the suburbs if: (1) they lived in the same metropolitan area in 1930 and 1940, (2) were in the central/principal city in 1930, and (3) are no longer in the city by 1940 but remain within the metropolitan area.[17] I estimate the effect of FHA mortgage insurance on this binary measure of suburbanization and report the results in Figure 4.

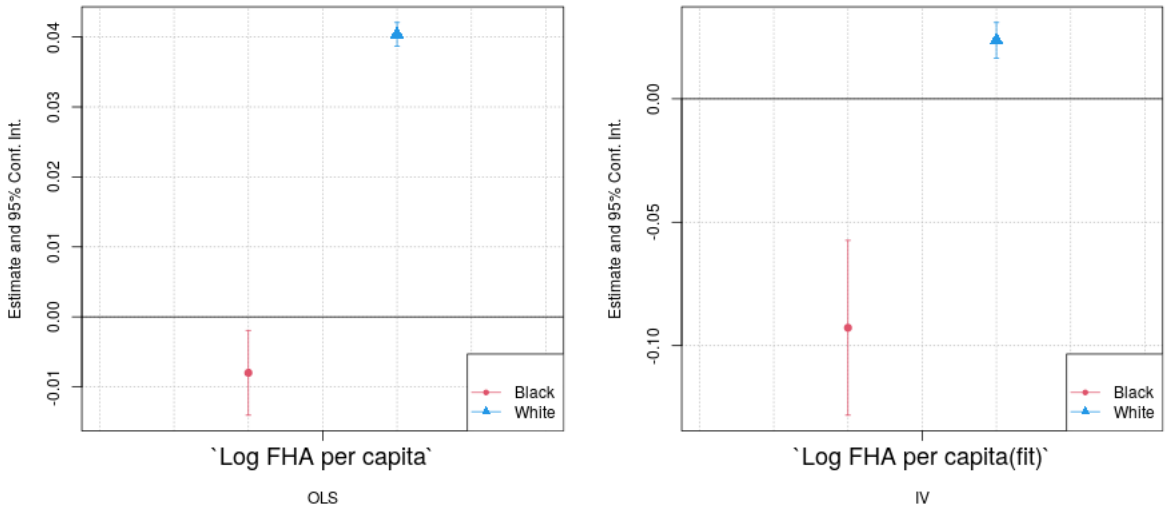

Figure 4: Effect of FHA program on suburbanization rates of white and black households

FHA mortgage insurance had a positive and significant effect on the likelihood that white households move from the city to the suburbs, but no analogous effect on black households. Taking the OLS and IV estimates as bounds for the range of the true coefficient size, an increase in the per capita value of FHA mortgage insurance by 30% is associated with an increase in the likelihood of moving to the suburbs by between 0.6 and 1 percentage points for white households. In the linked sample, 11% of white households and 4% of black households move from the central city to the suburbs of the same metropolitan area between 1930 and 1940.

Next, I study the effect of the FHA program on home-ownership among white and black suburban households. To do so, I restrict the sample to those who are in the suburbs by 1940, regardless of where they were in 1930. The results, which are reported in Figure **??** suggest that white (but not black) suburban households are more likely to become home-owners in counties where

[17]The residential location of census respondents is provided by two variables. The first reports the metropolitan area of residence, and the second reports whether the respondent is in the central/principal city of a metropolitan area, whether they are in a metropolitan area but outside its central/principal city, or whether they are outside of a metropolitan area.

the FHA was more active.

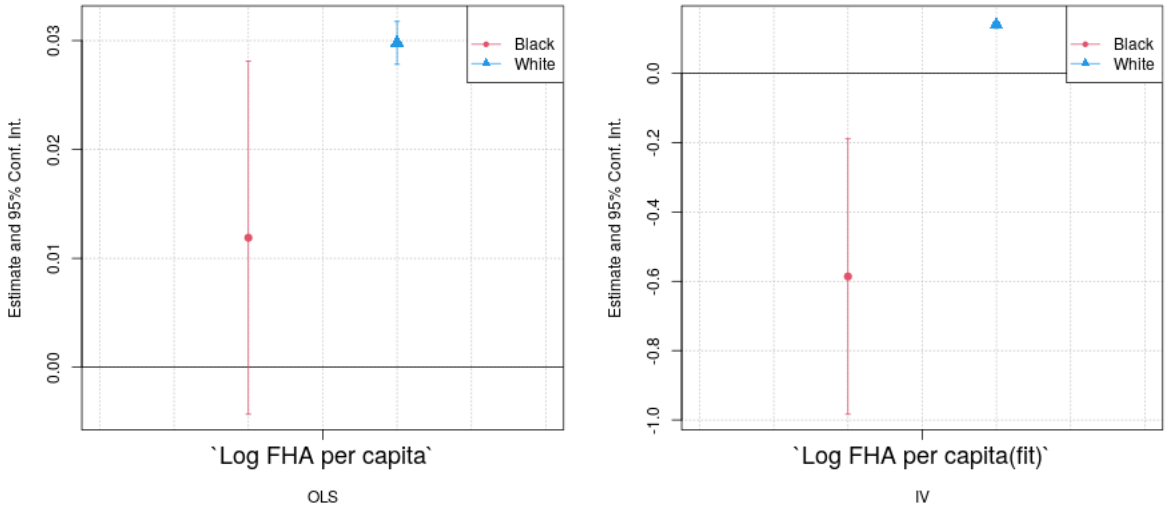

Figure 5: Effect of FHA insurance on home-ownership among suburban households

Notes: Figure depicts point estimates and 95% confidence intervals. Dependent variable is home-ownership status in 1940.

The effect of the FHA program on home-ownership rates among households who remain in the city is rather different. To study these households, I restrict the linked sample to those households who live in central cities of metropolitan areas in 1930 as well as 1940. The results of this exercise are reported in Figure 6. Unlike the case of suburban households, in this sample, black (but not white) households are more likely to be home-owners in 1940 in counties where the FHA was more active. In particular, a 30% increase in the per capita value of FHA insurance raises the black home-ownership rate by 3.7 percentage points. To put the size of this effect in context, the baseline home-ownership rate among black households in the linked census sample is 31%.

This result echoes existing findings in the literature. In particular, Boustan and Margo (2013) find that black home-ownership rates rise as white households leave for the suburbs. Higher home-ownership rates among city-dwelling black households in counties where the FHA was more active may account for the finding that FHA activity had a negligible effect on racial disparities in home-ownership. As white households transition into home-ownership in the suburbs, a stock of housing units in central cities became available to African American prospective buyers. These were almost certainly acquired through conventional mortgages, since their location in central cities and occupancy by black households precluded them from the FHA program. Without the favorable terms of FHA-insured mortgages, black households would have been unable to purchase homes as valuable as those purchased by whites. Nevertheless, prices of properties in central cities likely declined as demand from white households shifted to suburban properties. Section 5.3 investigates the effect of the FHA program on home values in different parts of

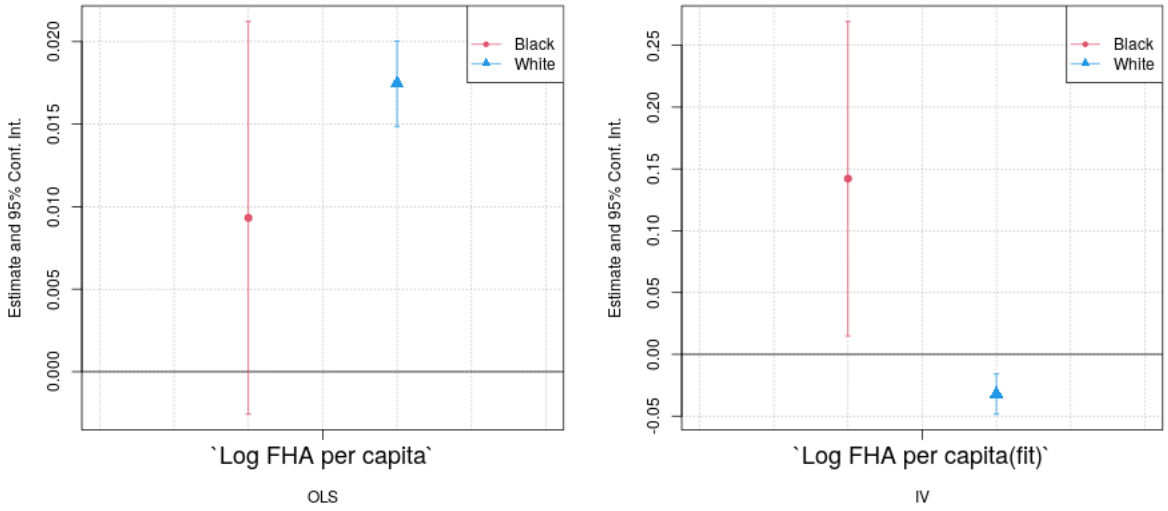

Figure 6: Effect of FHA insurance on new home-ownership among households in central city

Notes: Figure depicts point estimates and 95% confidence intervals. Dependent variable takes a value of 1 whenever household is owner-occupant in 1940. Sample includes households in central/principal city in 1930 and 1940.

metropolitan areas.

The movement of white households from central cities with racially mixed neighborhoods to homogeneous suburbs would have furthered the separation of African Americans from whites. Indeed, the central argument in Rothstein (2017) is that federal housing policies exacerbated racial segregation with explicit policies aimed at keeping neighborhoods composed of racially homogeneous populations. This argument has found some empirical support in a study that links the exercise of HOLC mapping to a rise in segregation (Faber, 2020). In what follows, I examine the effect of FHA insurance on segregation using data on measures of segregation in 1940, 1980, 1990 and 2000.

Overall, I find that FHA activity is associated with higher values of the county-wide index of dissimilarity, and lower values of the exposure index. Both results suggest that counties where the FHA program was more active became more segregated. Since patterns of residential sorting take time to accrete, the 1940 snapshot may be too early to capture the full effect of the FHA's activity in the years immediately preceding it and hence the coefficient size in 1940 is relatively smaller. This remains suggestive, however, as the patterns that do emerge in the OLS regressions are not confirmed in the instrumental variables analysis.

5.3 Home values

In this section, I investigate the effect of the FHA mortgage insurance program on home values among black and white home-owners in central cities and suburbs. I find that FHA mortgage

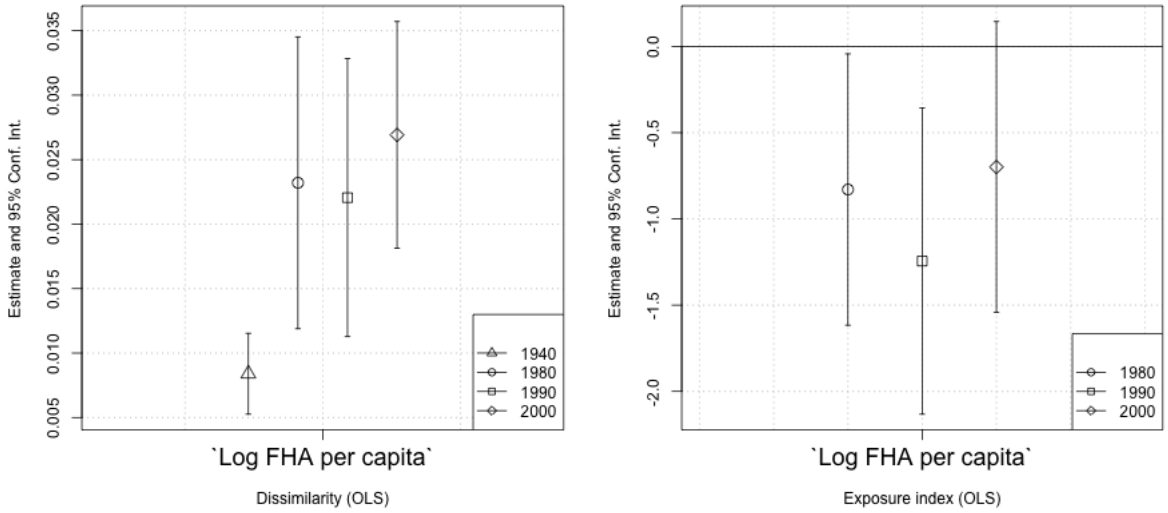

Figure 7: Effect of FHA insurance on segregation, as measured by dissimilarity index and exposure index

insurance had an expansionary effect on the home values of suburban properties, but no such effect on homes located in central cities.

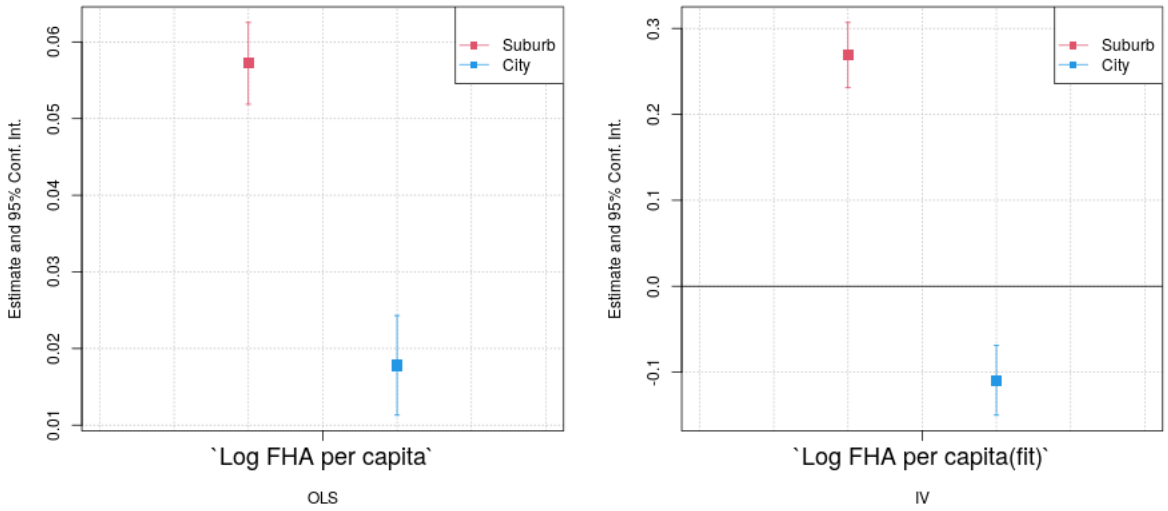

Figure 8: Effect of FHA mortgage insurance on home values in suburbs and central cities

Notes: Figures depict point estimates and 95% confidence intervals. Dependent variable is Log(home value in 1940). City sample consist of households within central city of metropolitan area in 1930 and 1940. Suburb sample consist of households within metropolitan area and outside central city in 1930 and 1940.

Coupled with the previous findings - that white households were more likely to relocate to the

suburbs than black households - this result provides a potential mechanism for the finding that the FHA program expanded racial disparities in home values.

6 Discussion

Findings reported in this paper are in line with existing work on racial inequality in the housing market during the time of the New Deal. In particular, Kollmann and Fishback (2011) study the effect of New Deal programs on racial inequality in home-ownership, also finding no significant effect. However, the results presented in this paper add to that literature by also considering home values, finding that the FHA mortgage insurance program expands racial disparities. Turning to potential mechanisms, this paper finds evidence for the FHA's role in accelerating white suburbanization. The flight of white households from cities to newly constructed suburbs allowed African American households to transition into home-ownership, although the properties they purchased became relatively less valuable. This channel may help explain why home-ownership rates did not diverge between African American households and whites as the FHA program helped whites acquire new homes while effectively excluding black households.

The results also complement empirical work that documents the evolution of home values in black and white neighborhoods around the time of the New Deal (Gordon and Bruch, 2019; Akbar et al., 2019; Ali et al., 2022). While this literature shows that black neighborhoods exhibited declines in home values or lower appreciation rates than white neighborhoods, the role of federal policies in bringing about these patterns is not examined. In this paper, I provide some evidence that federal housing policy may have contributed to the racial gap in home values between black and white neighborhoods.

Furthermore, the analysis in this paper adds racial inequality to the set of outcomes considered in empirical investigations of New Deal programs (Fishback, Kantor, et al., 2003; Fishback, Flores-Lagunes, et al., 2011; Courtemanche and Snowden, 2011; Fetter, 2013). Finally, these findings join a growing literature attempting to understand and characterize the effects of federal "redlining" (Krimmel, 2018; Faber, 2020; Aaronson, Hartley, et al., 2021; Aaronson, Faber, et al., 2021; Hynsjö and Perdoni, 2022; Xu, 2022). Despite the central role that the FHA played in discriminatory lending by favoring racially homogeneous neighborhoods, this literature has hitherto only examined the effects of the Home Owners Loan Corporation maps on housing outcomes. However, the HOLC did not insure residential mortgages, and ceased the vast majority of its mortgage refinancing program before its maps were drafted. Moreover, there is limited evidence that either the FHA or private lenders used its maps in the way imagined: as a way to determine whether or not to approve mortgage applications based on where properties are located. As a result, there is significant uncertainty over whether estimates from this literature can be interpreted as causal, or simply capturing the cumulative effect of factors that were common knowledge among real estate and mortgage professionals at the time.

One reason the HOLC has received more attention than the FHA is likely due to data avail-

ability. The HOLC residential security maps have been well preserved and are now easy to obtain and analyze. The FHA, on the other had, has notoriously bad records. Only two of its residential security maps have survived, and there is virtually no records of its mortgage insurance activity at a dis-aggregated geographical level below the state or metropolitan area. The data used in this paper are the exception, as they were collected by researchers from the archival records of a different government agency.

While the paper makes primary use of county-level data, the FHA's mortgage insurance program applied most directly to urban areas. Data limitations impinge on our ability to analyze the effects of this important program at a more granular level. Future work may require primary data collection to reconstruct mortgage insurance patterns that allow for the further study of the FHA's impact.

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A Appendix tables

Throughout the paper, regression tables are generated using the stargazer package in R (Hlavac, 2022).

A.1 Data

Table A1: List of control variables

Individual	Occupational score Age Male Employed/Unemployed Married/Separated/Single
County	Log Housing units (1930) Log Population per Sq Mile (1930) Log Black population (1930) Log White population (1930) Log Total employed (1930) Log Total unemployed (1930) Log Urban population (1930) Log Value of New Deal loans (1935-1939) Log HOLC refinancing Log Literate population (1930) Black home-ownership (1930) White home-ownership (1930) Log Median home value (1930) Log Manufacturing workers (1930) Log Manufacturing est. (1930) Share of Black pop born in South Share of Black pop migrated from South

A.2 First stage

To ensure that distance from FHA field office is a meaningful instrument for the value of FHA mortgage insurance, I conduct a number of weak instrument tests and summarize the results in Table A2. The full set of results from these regressions is in Appendix Section A.2. Overall, these results show that choices related to how distance from FHA field office and how FHA mortgage insurance are included in the analysis matter. While the raw distance measure does not explain FHA mortgage insurance in the presence of other control variables, the log of the distance does. Furthermore, whether FHA activity is measured in per capita terms or in aggregate also matters. When the instrument is the log of distance from field office, it is more strongly correlated with aggregate FHA mortgage insurance than with the per capita measure (using 1930 county population as the base). However, it is more strongly associated with the log of FHA activity per capita than the log of aggregate FHA activity. Finally, when the instrument is a second order polynomial in the log of distance (relative to just the log of distance), it is more strongly correlated with total FHA mortgage insurance, less strongly correlated with the log of per capita mortgage insurance, and about equally correlated with per capita FHA mortgage insurance.

Table A2: Summary of weak instrument F-statistics

F-statistic	Measure used as IV:			
	Distance	Log(Distance)	Distance +Distance^2	Log(Distance) +Log(Distance)^2
FHA insurance	0.04186808	8.271125	5.304035	11.45351
FHA insurance per capita	0.06905239	16.61958	6.951249	14.80604
Log(FHA insurance)	0.6089702	0.9457099	1.274287	0.789201
Log(FHA insurance per capita)	0.1620147	12.56986	4.624945	9.877679

Note: Table shows statistic of heteroskedasticity-robust Wald test comparing models with and without the IV. All regressions include state fixed effects, and the following control variables collected in 1930 at the county level: black home-ownership rate, white home-ownership rate; the log of total housing units, population per square mile, black population, white population, total employed, total unemployed, urban population, New Deal loans, value of HOLC mortgages, median home value, literate population, manufacturing workers, and manufacturing establishments.

Table A3

	Dependent variable:			
	Log FHA per capita			
	(1)	(2)	(3)	(4)
Log Distance from FHA office	-0.060^{***}	-0.045^{***}	-0.069^{***}	-0.312^{***}
	(0.017)	(0.017)	(0.017)	(0.018)
Log Housing units (1930)	-0.320	-0.493^{**}		
	(0.280)	(0.192)		
Log Population per Sq Mile (1930)	0.068^{*}	0.039	0.068^{*}	
	(0.037)	(0.035)	(0.036)	
Log Black population (1930)	0.037^{***}	0.040^{***}	0.026^{***}	
	(0.013)	(0.011)	(0.010)	
Log White population (1930)	0.099	-0.061	0.075	
	(0.090)	(0.060)	(0.081)	
Log Total employed (1930)	0.874^{***}	0.570^{***}	0.667^{***}	
	(0.194)	(0.168)	(0.168)	
Log Total unemployed (1930)	0.049^{**}	0.119^{***}	0.049^{**}	
	(0.023)	(0.020)	(0.022)	
Log Urban population (1930)	0.027^{***}	0.036^{***}	0.022^{***}	
	(0.005)	(0.005)	(0.005)	
Log Value of New Deal loans	0.106^{***}		0.088^{***}	
	(0.029)		(0.028)	
Log HOLC refinancing	0.166^{***}		0.171^{***}	
	(0.026)		(0.025)	
Log Literate population (1930)	-0.868^{***}		-0.937^{***}	
	(0.333)		(0.231)	
Black home-ownership (1930)	0.109^{*}	0.094		
	(0.066)	(0.060)		
White home-ownership (1930)	0.426^{*}	0.401^{**}		
	(0.231)	(0.203)		
Log Median home value (1930)	0.441^{***}	0.705^{***}	0.439^{***}	
	(0.057)	(0.045)	(0.051)	
Log Manufacturing workers (1930)	0.046^{**}		0.052^{***}	
	(0.018)		(0.017)	
Log Manufacturing est. (1930)	-0.083^{**}		-0.073^{**}	
	(0.041)		(0.037)	
Constant	-4.772^{***}	-6.687^{***}	-4.176^{***}	2.881^{***}
	(0.619)	(0.454)	(0.539)	(0.207)
State fixed effects	Yes	Yes		
Robust SEs	Yes	Yes		
Observations	2,188	2,496	2,420	2,943
R^2	0.598	0.570	0.590	0.238
Adjusted R^2	0.586	0.559	0.580	0.226
Residual Std. Error	0.603 (df = 2125)	0.623 (df = 2438)	0.600 (df = 2360)	0.821 (df = 2895)

Note: *p<0.1; **p<0.05; ***p<0.01

Table A4

	Dependent variable:			
	Log FHA per capita		FHA insurance per capita	
	(1)	(2)	(3)	(4)
Log Distance from FHA office	-0.060^{***}	-0.180^{***}	-1.247^{***}	-4.836^{***}
	(0.017)	(0.052)	(0.310)	(0.914)
I(Log Distance from FHA office^2)		0.018^{**}		0.546^{***}
		(0.008)		(0.113)
Log Housing units (1930)	-0.320	-0.223	-5.032	-2.095
	(0.280)	(0.285)	(3.463)	(3.374)
Log Population per Sq Mile (1930)	0.068^{*}	0.076^{**}	2.335^{***}	2.556^{***}
	(0.037)	(0.037)	(0.865)	(0.851)
Log Black population (1930)	0.037^{***}	0.040^{***}	0.224	0.298^{**}
	(0.013)	(0.013)	(0.144)	(0.141)
Log White population (1930)	0.099	0.101	2.027^{**}	2.088^{**}
	(0.090)	(0.090)	(0.905)	(0.882)
Log Total employed (1930)	0.874^{***}	0.843^{***}	8.453^{***}	7.540^{***}
	(0.194)	(0.195)	(2.316)	(2.283)
Log Total unemployed (1930)	0.049^{**}	0.046^{**}	0.027	-0.057
	(0.023)	(0.023)	(0.293)	(0.290)
Log Urban population (1930)	0.027^{***}	0.028^{***}	-0.026	0.008
	(0.005)	(0.005)	(0.053)	(0.053)
Log Value of New Deal loans	0.106^{***}	0.099^{***}	0.195	-0.017
	(0.029)	(0.029)	(0.578)	(0.566)
Log HOLC refinancing	0.166^{***}	0.164^{***}	1.587^{***}	1.522^{***}
	(0.026)	(0.026)	(0.411)	(0.403)
Log Literate population (1930)	-0.868^{***}	-0.935^{***}	-5.471	-7.462^{**}
	(0.333)	(0.334)	(3.719)	(3.629)
Black home-ownership (1930)	0.109^{*}	0.110^{*}	1.204^{**}	1.218^{**}
	(0.066)	(0.066)	(0.605)	(0.595)
White home-ownership (1930)	0.426^{*}	0.470^{**}	15.674^{***}	17.002^{***}
	(0.231)	(0.231)	(3.972)	(3.911)
Log Median home value (1930)	0.441^{***}	0.456^{***}	3.490^{***}	3.945^{***}
	(0.057)	(0.057)	(1.104)	(1.095)
Log Manufacturing workers (1930)	0.046^{**}	0.049^{***}	0.029	0.129
	(0.018)	(0.019)	(0.249)	(0.247)
Log Manufacturing est. (1930)	-0.083^{**}	-0.096^{**}	-1.092^{*}	-1.497^{**}
	(0.041)	(0.041)	(0.656)	(0.642)
Constant	-4.772^{***}	-4.538^{***}	-63.653^{***}	-56.644^{***}
	(0.619)	(0.630)	(8.917)	(9.356)
State fixed effects	Yes	Yes	Yes	Yes
Robust SEs	Yes	Yes	Yes	Yes
Observations	2,188	2,188	2,188	2,188
R^2	0.598	0.599	0.294	0.300
Adjusted R^2	0.586	0.588	0.273	0.279
Residual Std. Error	0.603 (df = 2125)	0.602 (df = 2124)	11.006 (df = 2125)	10.964 (df = 2124)

Note: *p<0.1; **p<0.05; ***p<0.01

Table A5

	Dependent variable:			
	Log FHA per capita		FHA insurance per capita	
	(1)	(2)	(3)	(4)
Log Distance from FHA office	-0.060^{***}	-0.180^{***}	-1.247^{***}	-4.836^{***}
	(0.017)	(0.052)	(0.310)	(0.914)
I(Log Distance from FHA office^2)		0.018^{**}		0.546^{***}
		(0.008)		(0.113)
Log Housing units (1930)	-0.320	-0.223	-5.032	-2.095
	(0.280)	(0.285)	(3.463)	(3.374)
Log Population per Sq Mile (1930)	0.068^{*}	0.076^{**}	2.335^{***}	2.556^{***}
	(0.037)	(0.037)	(0.865)	(0.851)
Log Black population (1930)	0.037^{***}	0.040^{***}	0.224	0.298^{**}
	(0.013)	(0.013)	(0.144)	(0.141)
Log White population (1930)	0.099	0.101	2.027^{**}	2.088^{**}
	(0.090)	(0.090)	(0.905)	(0.882)
Log Total employed (1930)	0.874^{***}	0.843^{***}	8.453^{***}	7.540^{***}
	(0.194)	(0.195)	(2.316)	(2.283)
Log Total unemployed (1930)	0.049^{**}	0.046^{**}	0.027	-0.057
	(0.023)	(0.023)	(0.293)	(0.290)
Log Urban population (1930)	0.027^{***}	0.028^{***}	-0.026	0.008
	(0.005)	(0.005)	(0.053)	(0.053)
Log Value of New Deal loans	0.106^{***}	0.099^{***}	0.195	-0.017
	(0.029)	(0.029)	(0.578)	(0.566)
Log HOLC refinancing	0.166^{***}	0.164^{***}	1.587^{***}	1.522^{***}
	(0.026)	(0.026)	(0.411)	(0.403)
Log Literate population (1930)	-0.868^{***}	-0.935^{***}	-5.471	-7.462^{**}
	(0.333)	(0.334)	(3.719)	(3.629)
Black home-ownership (1930)	0.109^{*}	0.110^{*}	1.204^{**}	1.218^{**}
	(0.066)	(0.066)	(0.605)	(0.595)
White home-ownership (1930)	0.426^{*}	0.470^{**}	15.674^{***}	17.002^{***}
	(0.231)	(0.231)	(3.972)	(3.911)
Log Median home value (1930)	0.441^{***}	0.456^{***}	3.490^{***}	3.945^{***}
	(0.057)	(0.057)	(1.104)	(1.095)
Log Manufacturing workers (1930)	0.046^{**}	0.049^{***}	0.029	0.129
	(0.018)	(0.019)	(0.249)	(0.247)
Log Manufacturing est. (1930)	-0.083^{**}	-0.096^{**}	-1.092^{*}	-1.497^{**}
	(0.041)	(0.041)	(0.656)	(0.642)
Constant	-4.772^{***}	-4.538^{***}	-63.653^{***}	-56.644^{***}
	(0.619)	(0.630)	(8.917)	(9.356)
State fixed effects	Yes	Yes	Yes	Yes
Robust SEs	Yes	Yes	Yes	Yes
Observations	2,188	2,188	2,188	2,188
R^2	0.598	0.599	0.294	0.300
Adjusted R^2	0.586	0.588	0.273	0.279
Residual Std. Error	0.603 (df = 2125)	0.602 (df = 2124)	11.006 (df = 2125)	10.964 (df = 2124)

Note: *p<0.1; **p<0.05; ***p<0.01

Table A6: Counties in top 5% removed for total pop, urban pop, number of housing units, pop density, and area (1930)

	Dependent variable:				
	Total pop	Urban pop	Log FHA per capita Housing units	Pop density	Area (sq.mi)
	(1)	(2)	(3)	(4)	(5)
Log Distance from FHA office	-0.073^{***} (0.021)	-0.076^{***} (0.021)	-0.070^{***} (0.021)	-0.072^{***} (0.020)	-0.062^{***} (0.018)
State fixed effects	Yes	Yes	Yes	Yes	Yes
County controls	Yes	Yes	Yes	Yes	Yes
Weak instrument F-test	11.786	13.618	11.337	14.46	12.79
Observations	1,974	1,975	1,972	1,993	1,999
Adjusted R^2	0.528	0.530	0.527	0.546	0.584
Note:					*p<0.1; **p<0.05; ***p<0.01

A.3 Difference in differences

Table A7

	Dependent variable:	
	Home-owner	
	OLS	*instrumental variable*
	(1)	(2)
Log FHA per capita	0.017*** (0.001)	0.020** (0.008)
Black	−0.151*** (0.007)	−0.100*** (0.012)
1930	0.032*** (0.003)	−0.005 (0.005)
1940		
Occupational score	0.004*** (0.0001)	0.004*** (0.0001)
Age	0.011*** (0.00005)	0.011*** (0.00005)
Male	0.028*** (0.002)	0.028*** (0.002)
Employed	−0.065*** (0.003)	−0.064*** (0.003)
Unemployed	−0.136*** (0.004)	−0.135*** (0.004)
In school	−0.011 (0.008)	−0.012 (0.008)
Log Housing units (1930)	−0.018** (0.008)	−0.011 (0.010)
Log Population per Sq Mile (1930)	−0.005*** (0.001)	−0.005*** (0.001)
Log Black population (1930)	−0.001 (0.001)	−0.001 (0.001)
Log White population (1930)	0.079*** (0.006)	0.086*** (0.007)
Log Total employed (1930)	0.041*** (0.012)	0.049*** (0.016)
Log Total unemployed (1930)	−0.002 (0.002)	−0.0005 (0.002)
Log Urban population (1930)	−0.0001 (0.0003)	0.0002 (0.0004)
Log Value of New Deal loans	−0.002 (0.002)	−0.001 (0.002)
Log HOLC refinancing	0.003** (0.001)	0.004* (0.002)
Log Literate population (1930)	−0.087*** (0.018)	−0.110*** (0.028)
Black home-ownership (1930)	0.016*** (0.005)	0.019*** (0.005)
White home-ownership (1930)	0.765*** (0.012)	0.775*** (0.016)
Log Median home value (1930)	−0.043*** (0.003)	−0.036*** (0.007)
Log Manufacturing workers (1930)	0.004*** (0.001)	0.004*** (0.001)
Log Manufacturing establishments (1930)	−0.014*** (0.002)	−0.015*** (0.003)
Log FHA per capita:Black	−0.004 (0.003)	−0.027*** (0.005)
Log FHA per capita:1940	−0.009*** (0.001)	−0.025*** (0.002)
Black:1940	0.038*** (0.009)	0.030** (0.015)
Log FHA per capita:Black:1940	−0.007* (0.004)	−0.005 (0.007)
Constant	−0.284*** (0.032)	−0.344*** (0.065)
State fixed effects	Yes	Yes
Observations	520,927	520,927
R^2	0.168	0.167
Adjusted R^2	0.168	0.167
Residual Std. Error (df = 520852)	0.455	0.455
F Statistic	1,420.944*** (df = 74; 520852)	
Note:		*p<0.1; **p<0.05; ***p<0.01

Table A8

	Dependent variable:	
	Log Home value	
	OLS	*instrumental variable*
	(1)	(2)
Log FHA per capita	0.039*** (0.004)	0.135*** (0.025)
Black	−1.047*** (0.035)	−1.273*** (0.062)
1930	0.537*** (0.010)	0.464*** (0.018)
1940		
Occupational score	0.024*** (0.0002)	0.024*** (0.0002)
Age	0.006*** (0.0002)	0.006*** (0.0002)
Male	−0.104*** (0.007)	−0.106*** (0.007)
Employed	−0.412*** (0.008)	−0.413*** (0.008)
Unemployed	−0.699*** (0.011)	−0.699*** (0.011)
In school	0.055** (0.026)	0.057** (0.026)
Log Housing units (1930)	0.011 (0.027)	−0.046 (0.031)
Log Population per Sq Mile (1930)	0.029*** (0.003)	0.022*** (0.004)
Log Black population (1930)	0.008*** (0.002)	0.003 (0.003)
Log White population (1930)	−0.397*** (0.022)	−0.437*** (0.024)
Log Total employed (1930)	0.013 (0.039)	−0.113** (0.055)
Log Total unemployed (1930)	−0.001 (0.005)	−0.002 (0.005)
Log Urban population (1930)	0.004*** (0.001)	0.003*** (0.001)
Log Value of New Deal loans	−0.003 (0.005)	−0.009* (0.005)
Log HOLC refinancing	0.006 (0.004)	−0.013* (0.007)
Log Literate population (1930)	0.326*** (0.060)	0.552*** (0.088)
Black home-ownership (1930)	0.056*** (0.014)	0.045*** (0.014)
White home-ownership (1930)	0.146*** (0.038)	0.033 (0.050)
Log Median home value (1930)	0.785*** (0.010)	0.715*** (0.022)
Log Manufacturing workers (1930)	0.016*** (0.003)	0.011*** (0.004)
Log Manufacturing establishments (1930)	−0.004 (0.007)	0.022** (0.011)
Log FHA per capita:Black	0.136*** (0.014)	0.241*** (0.027)
Log FHA per capita:1940	0.002 (0.004)	−0.030*** (0.007)
Black:1940	0.118*** (0.041)	0.180** (0.073)
Log FHA per capita:Black:1940	−0.072*** (0.018)	−0.095*** (0.034)
Constant	0.937*** (0.101)	1.664*** (0.213)
State fixed effects	Yes	Yes
Observations	213,536	213,536
R^2	0.428	0.426
Adjusted R^2	0.428	0.426
Residual Std. Error (df = 213461)	0.889	0.891
F Statistic	2,160.106*** (df = 74; 213461)	
Note:		*p<0.1; **p<0.05; ***p<0.01

Table A9

	Dependent variable:	
	Home-owner	
	Robust SEs	No office counties
	(1)	(2)
Log FHA per capita	0.017*** (0.001)	0.016*** (0.002)
Black	−0.151*** (0.007)	−0.154*** (0.007)
1930	0.032*** (0.003)	0.029*** (0.003)
1940		
Occupational score	0.004*** (0.0001)	0.004*** (0.0001)
Age	0.011*** (0.00005)	0.012*** (0.0001)
Male	0.028*** (0.002)	0.007*** (0.003)
Employed	−0.065*** (0.003)	−0.052*** (0.003)
Unemployed	−0.136*** (0.004)	−0.122*** (0.004)
In school	−0.011 (0.007)	−0.017* (0.009)
Log Housing units (1930)	−0.018** (0.008)	−0.025** (0.011)
Log Population per Sq Mile (1930)	−0.005*** (0.001)	−0.002 (0.002)
Log Black population (1930)	−0.001 (0.001)	−0.00004 (0.001)
Log White population (1930)	0.079*** (0.006)	0.083*** (0.006)
Log Total employed (1930)	0.041*** (0.012)	0.047*** (0.013)
Log Total unemployed (1930)	−0.002 (0.002)	−0.001 (0.002)
Log Urban population (1930)	−0.0001 (0.0003)	0.0002 (0.0004)
Log Value of New Deal loans	−0.002 (0.002)	−0.001 (0.002)
Log HOLC refinancing	0.003** (0.001)	0.002 (0.001)
Log Literate population (1930)	−0.087*** (0.018)	−0.096*** (0.019)
Black home-ownership (1930)	0.016*** (0.005)	0.013*** (0.005)
White home-ownership (1930)	0.765*** (0.012)	0.776*** (0.013)
Log Median home value (1930)	−0.043*** (0.003)	−0.045*** (0.003)
Log Manufacturing workers (1930)	0.004*** (0.001)	0.003*** (0.001)
Log Manufacturing establishments (1930)	−0.014*** (0.002)	−0.013*** (0.002)
Log FHA per capita:Black	−0.004 (0.003)	−0.0004 (0.004)
Log FHA per capita:1940	−0.009*** (0.001)	−0.009*** (0.002)
Black:1940	0.038*** (0.008)	0.033*** (0.009)
Log FHA per capita:Black:1940	−0.007* (0.004)	−0.004 (0.005)
Constant	−0.284*** (0.032)	−0.240*** (0.035)
State fixed effects	Yes	Yes
Observations	520,927	385,246
R^2	0.168	0.175
Adjusted R^2	0.168	0.175
Residual Std. Error	0.455 (df = 520852)	0.454 (df = 385171)
F Statistic	1,420.944*** (df = 74; 520852)	1,102.305*** (df = 74; 385171)
Note:		*p<0.1; **p<0.05; ***p<0.01

Table A10

	Dependent variable:	
	Log Home value	
	Robust SEs	No office counties
	(1)	(2)
Log FHA per capita	0.039*** (0.004)	0.028*** (0.005)
Black	−1.047*** (0.034)	−1.010*** (0.037)
1930	0.537*** (0.010)	
1940		−0.554*** (0.010)
Occupational score	0.024*** (0.0002)	0.025*** (0.0002)
Age	0.006*** (0.0002)	0.007*** (0.0002)
Male	−0.104*** (0.007)	−0.116*** (0.008)
Employed	−0.412*** (0.009)	−0.407*** (0.010)
Unemployed	−0.699*** (0.012)	−0.709*** (0.014)
In school	0.055** (0.025)	0.091*** (0.033)
Log Housing units (1930)	0.011 (0.027)	−0.014 (0.036)
Log Population per Sq Mile (1930)	0.029*** (0.003)	0.047*** (0.005)
Log Black population (1930)	0.008*** (0.002)	0.012*** (0.003)
Log White population (1930)	−0.397*** (0.027)	−0.385*** (0.028)
Log Total employed (1930)	0.013 (0.045)	0.072 (0.049)
Log Total unemployed (1930)	−0.001 (0.006)	0.003 (0.006)
Log Urban population (1930)	0.004*** (0.001)	0.006*** (0.001)
Log Value of New Deal loans	−0.003 (0.005)	−0.001 (0.006)
Log HOLC refinancing	0.006 (0.005)	0.0005 (0.005)
Log Literate population (1930)	0.326*** (0.068)	0.262*** (0.075)
Black home-ownership (1930)	0.056*** (0.014)	0.051*** (0.015)
White home-ownership (1930)	0.146*** (0.042)	0.190*** (0.047)
Log Median home value (1930)	0.785*** (0.012)	0.771*** (0.012)
Log Manufacturing workers (1930)	0.016*** (0.004)	0.009** (0.004)
Log Manufacturing establishments (1930)	−0.004 (0.007)	0.001 (0.008)
Log FHA per capita:Black	0.136*** (0.014)	0.107*** (0.017)
Log FHA per capita:1940	0.002 (0.004)	0.019*** (0.004)
Black:1940	0.118*** (0.043)	0.120*** (0.046)
Log FHA per capita:Black:1940	−0.072*** (0.018)	−0.075*** (0.022)
Constant	0.937*** (0.114)	1.693*** (0.128)
State fixed effects	Yes	Yes
Observations	213,536	160,306
R^2	0.428	0.412
Adjusted R^2	0.428	0.412
Residual Std. Error	0.889 (df = 213461)	0.922 (df = 160231)
F Statistic	2,160.106*** (df = 74; 213461)	1,517.977*** (df = 74; 160231)
Note:		*p<0.1; **p<0.05; ***p<0.01

Table A11

	Dependent variable:	
	Home-owner No large counties	Log Home value No large counties
	(1)	(2)
Log FHA per capita	0.018*** (0.002)	0.032*** (0.005)
Black	−0.144*** (0.007)	−1.039*** (0.037)
YEAR_1930	0.032*** (0.003)	0.534*** (0.011)
1940		
Occupational score	0.004*** (0.0001)	0.023*** (0.0002)
Age	0.012*** (0.0001)	0.006*** (0.0002)
Male	0.023*** (0.002)	−0.099*** (0.008)
Employed	−0.073*** (0.003)	−0.401*** (0.010)
Unemployed	−0.147*** (0.004)	−0.668*** (0.013)
In school	−0.018** (0.009)	0.028 (0.031)
Log Housing units (1930)	−0.023** (0.011)	−0.108*** (0.036)
Log Population per Sq Mile (1930)	−0.007*** (0.002)	0.003 (0.005)
Log Black population (1930)	−0.001 (0.001)	0.009*** (0.003)
Log White population (1930)	0.090*** (0.007)	−0.414*** (0.030)
Log Total employed (1930)	0.060*** (0.014)	0.194*** (0.055)
Log Total unemployed (1930)	−0.001 (0.002)	0.013** (0.006)
Log Urban population (1930)	0.0002 (0.0004)	0.005*** (0.001)
Log Value of New Deal loans	−0.001 (0.002)	0.016*** (0.006)
Log HOLC refinancing	0.002 (0.001)	0.003 (0.005)
Log Literate population (1930)	−0.110*** (0.021)	0.262*** (0.080)
Black home-ownership (1930)	0.021*** (0.005)	0.075*** (0.017)
White home-ownership (1930)	0.762*** (0.013)	0.196*** (0.048)
Log Median home value (1930)	−0.043*** (0.004)	0.771*** (0.013)
Log Manufacturing workers (1930)	0.005*** (0.001)	0.015*** (0.004)
Log Manufacturing est. (1930)	−0.017*** (0.002)	−0.009 (0.008)
Log FHA per capita:Black	−0.010*** (0.003)	0.131*** (0.015)
Log FHA per capita:1940	−0.011*** (0.001)	0.007* (0.004)
Black:1940	0.036*** (0.009)	0.114** (0.048)
Log FHA per capita:Black:1940	−0.004 (0.004)	−0.070*** (0.020)
Constant	−0.312*** (0.037)	1.006*** (0.130)
State fixed effects	Yes	Yes
Observations	390,733	160,859
R^2	0.176	0.437
Adjusted R^2	0.175	0.437
Residual Std. Error	0.453 (df = 390662)	0.870 (df = 160788)
F Statistic	1,189.009*** (df = 70; 390662)	1,782.344*** (df = 70; 160788)
Note:		*p<0.1; **p<0.05; ***p<0.01

Table A12

	Dependent variable:	
	Home-owner No large counties	Log Home value No large counties
	(1)	(2)
Log FHA per capita	0.018*** (0.002)	0.032*** (0.005)
Black	−0.144*** (0.007)	−1.039*** (0.037)
YEAR_1930	0.032*** (0.003)	0.534*** (0.011)
1940		
Occupational score	0.004*** (0.0001)	0.023*** (0.0002)
Age	0.012*** (0.0001)	0.006*** (0.0002)
Male	0.023*** (0.002)	−0.099*** (0.008)
Employed	−0.073*** (0.003)	−0.401*** (0.010)
Unemployed	−0.147*** (0.004)	−0.668*** (0.013)
In school	−0.018** (0.009)	0.028 (0.031)
Log Housing units (1930)	−0.023** (0.011)	−0.108*** (0.036)
Log Population per Sq Mile (1930)	−0.007*** (0.002)	0.003 (0.005)
Log Black population (1930)	−0.001 (0.001)	0.009*** (0.003)
Log White population (1930)	0.090*** (0.007)	−0.414*** (0.030)
Log Total employed (1930)	0.060*** (0.014)	0.194*** (0.055)
Log Total unemployed (1930)	−0.001 (0.002)	0.013** (0.006)
Log Urban population (1930)	0.0002 (0.0004)	0.005*** (0.001)
Log Value of New Deal loans	−0.001 (0.002)	0.016*** (0.006)
Log HOLC refinancing	0.002 (0.001)	0.003 (0.005)
Log Literate population (1930)	−0.110*** (0.021)	0.262*** (0.080)
Black home-ownership (1930)	0.021*** (0.005)	0.075*** (0.017)
White home-ownership (1930)	0.762*** (0.013)	0.196*** (0.048)
Log Median home value (1930)	−0.043*** (0.004)	0.771*** (0.013)
Log Manufacturing workers (1930)	0.005*** (0.001)	0.015*** (0.004)
Log Manufacturing est. (1930)	−0.017*** (0.002)	−0.009 (0.008)
Log FHA per capita:Black	−0.010*** (0.003)	0.131*** (0.015)
Log FHA per capita:1940	−0.011*** (0.001)	0.007* (0.004)
Black:1940	0.036*** (0.009)	0.114** (0.048)
Log FHA per capita:Black:1940	−0.004 (0.004)	−0.070*** (0.020)
Constant	−0.312*** (0.037)	1.006*** (0.130)
State fixed effects	Yes	Yes
Observations	390,733	160,859
R^2	0.176	0.437
Adjusted R^2	0.175	0.437
Residual Std. Error	0.453 (df = 390662)	0.870 (df = 160788)
F Statistic	1,189.009*** (df = 70; 390662)	1,782.344*** (df = 70; 160788)
Note:		*p<0.1; **p<0.05; ***p<0.01

A.4 Full count

Table A13

	Dependent variable:	
	Log Home value	
	OLS	*instrumental variable*
	(1)	(2)
Log FHA per capita	0.032*** (0.0005)	0.071*** (0.003)
Black	−1.148*** (0.004)	−1.471*** (0.007)
1940	−0.544*** (0.001)	−0.404*** (0.002)
Occupational score	0.020*** (0.00002)	0.020*** (0.00002)
Age	0.006*** (0.00002)	0.006*** (0.00002)
Male	−0.124*** (0.001)	−0.125*** (0.001)
Employed	−0.269*** (0.001)	−0.267*** (0.001)
Unemployed	−0.569*** (0.001)	−0.568*** (0.001)
Log Housing units (1930)	0.045*** (0.003)	0.035*** (0.004)
Log Population per Sq Mile (1930)	0.024*** (0.0004)	0.024*** (0.0005)
Log Black population (1930)	0.007*** (0.0003)	0.007*** (0.0004)
Log White population (1930)	−0.296*** (0.003)	−0.312*** (0.003)
Log Total employed (1930)	0.256*** (0.005)	0.237*** (0.007)
Log Total unemployed (1930)	−0.036*** (0.001)	−0.040*** (0.001)
Log Urban population (1930)	0.006*** (0.0002)	0.005*** (0.0002)
Log Value of New Deal loans	−0.022*** (0.001)	−0.024*** (0.001)
Log HOLC refinancing	0.012*** (0.0005)	0.010*** (0.001)
Log Literate population (1930)	0.005 (0.007)	0.050*** (0.011)
Black home-ownership (1930)	0.069*** (0.002)	0.064*** (0.002)
White home-ownership (1930)	0.150*** (0.005)	0.118*** (0.006)
Log Median home value (1930)	0.883*** (0.001)	0.864*** (0.003)
Log Manufacturing workers (1930)	0.011*** (0.0004)	0.011*** (0.0004)
Log Manufacturing est. (1930)	−0.001 (0.001)	0.003** (0.001)
Share of Black pop born in South	0.059*** (0.002)	0.066*** (0.002)
Share of Black pop migrated from South	−0.144*** (0.004)	−0.190*** (0.004)
Black:Log FHA per capita	0.130*** (0.001)	0.278*** (0.003)
Log FHA per capita:1940	0.002*** (0.0004)	−0.055*** (0.001)
Black:1940	0.041*** (0.005)	0.061*** (0.009)
Black:Log FHA per capita:1940	−0.030*** (0.002)	−0.046*** (0.004)
Constant	0.661*** (0.012)	0.789*** (0.026)
State fixed effects	Yes	Yes
Observations	18,798,169	18,798,169
R^2	0.351	0.349
Adjusted R^2	0.351	0.349
Residual Std. Error (df = 18798092)	0.940	0.941
F Statistic	133,507.000*** (df = 76; 18798092)	
Note:		*p<0.1; **p<0.05; ***p<0.01

Table A14

Among black respondents

	Dependent variable:	
	Log Home value	
	OLS	*instrumental variable*
	(1)	(2)
Log FHA per capita	0.050*** (0.002)	0.357*** (0.023)
1940	−0.446*** (0.005)	−0.324*** (0.009)
Occupational score	0.017*** (0.0001)	0.017*** (0.0001)
Age	0.003*** (0.0001)	0.004*** (0.0001)
Male	−0.080*** (0.003)	−0.082*** (0.003)
Employed	−0.087*** (0.004)	−0.087*** (0.004)
Unemployed	−0.280*** (0.005)	−0.277*** (0.005)
Log Housing units (1930)	−0.378*** (0.016)	−0.241*** (0.020)
Log Population per Sq Mile (1930)	0.106*** (0.002)	0.130*** (0.003)
Log Black population (1930)	−0.084*** (0.003)	−0.115*** (0.004)
Log White population (1930)	−0.161*** (0.008)	−0.228*** (0.010)
Log Total employed (1930)	0.635*** (0.017)	0.150*** (0.044)
Log Total unemployed (1930)	0.019*** (0.002)	0.007*** (0.002)
Log Urban population (1930)	0.003*** (0.001)	−0.001* (0.001)
Log Value of New Deal loans	−0.040*** (0.003)	−0.057*** (0.003)
Log HOLC refinancing	0.053*** (0.002)	−0.019*** (0.006)
Log Literate population (1930)	−0.009 (0.024)	0.438*** (0.044)
Black home-ownership (1930)	0.155*** (0.015)	−0.192*** (0.033)
White home-ownership (1930)	−0.045** (0.021)	−0.350*** (0.033)
Log Median home value (1930)	0.447*** (0.005)	0.305*** (0.013)
Log Manufacturing workers (1930)	0.018*** (0.002)	0.005** (0.002)
Log Manufacturing est. (1930)	−0.026*** (0.004)	0.028*** (0.006)
Share of Black pop born in South	−0.024 (0.020)	−0.173*** (0.024)
Share of Black pop migrated from South	0.245*** (0.018)	−0.163*** (0.038)
1940:Log FHA per capita	−0.035*** (0.002)	−0.093*** (0.004)
Constant	2.301*** (0.053)	4.141*** (0.166)
State fixed effects	Yes	Yes
Observations	841,724	841,724
R^2	0.391	0.377
Adjusted R^2	0.391	0.377
Residual Std. Error (df = 841651)	0.992	1.003
F Statistic	7,520.438*** (df = 72; 841651)	
Note:		*p<0.1; **p<0.05; ***p<0.01

Table A15

Among white respondents

	Dependent variable:	
	Log Home value	
	OLS	*instrumental variable*
	(1)	(2)
Log FHA per capita	0.036*** (0.0005)	0.076*** (0.003)
1940	−0.546*** (0.001)	−0.404*** (0.002)
Occupational score	0.020*** (0.00002)	0.020*** (0.00002)
Age	0.006*** (0.00002)	0.006*** (0.00002)
Male	−0.127*** (0.001)	−0.127*** (0.001)
Employed	−0.274*** (0.001)	−0.272*** (0.001)
Unemployed	−0.579*** (0.001)	−0.579*** (0.001)
Log Housing units (1930)	0.046*** (0.003)	0.039*** (0.004)
Log Population per Sq Mile (1930)	0.017*** (0.0004)	0.016*** (0.0005)
Log Black population (1930)	0.002*** (0.0003)	0.001** (0.0004)
Log White population (1930)	−0.440*** (0.003)	−0.447*** (0.003)
Log Total employed (1930)	0.287*** (0.005)	0.266*** (0.007)
Log Total unemployed (1930)	−0.038*** (0.001)	−0.037*** (0.001)
Log Urban population (1930)	0.006*** (0.0002)	0.007*** (0.0002)
Log Value of New Deal loans	−0.022*** (0.001)	−0.023*** (0.001)
Log HOLC refinancing	0.012*** (0.001)	0.010*** (0.001)
Log Literate population (1930)	0.125*** (0.008)	0.158*** (0.011)
Black home-ownership (1930)	0.060*** (0.002)	0.060*** (0.002)
White home-ownership (1930)	0.132*** (0.005)	0.116*** (0.006)
Log Median home value (1930)	0.897*** (0.001)	0.890*** (0.003)
Log Manufacturing workers (1930)	0.010*** (0.0004)	0.009*** (0.0005)
Log Manufacturing est. (1930)	−0.003*** (0.001)	0.001 (0.001)
Share of Black pop born in South	0.060*** (0.002)	0.054*** (0.002)
Share of Black pop migrated from South	−0.170*** (0.004)	−0.173*** (0.004)
1940:Log FHA per capita	0.002*** (0.0004)	−0.056*** (0.001)
Constant	0.611*** (0.013)	0.604*** (0.027)
State fixed effects	Yes	Yes
Observations	17,929,735	17,929,735
R^2	0.310	0.309
Adjusted R^2	0.310	0.309
Residual Std. Error (df = 17929662)	0.934	0.934
F Statistic	111,626.400*** (df = 72; 17929662)	
Note:		*p<0.1; **p<0.05; ***p<0.01

A.4.1 Segregation

Table A16

	Dependent variable:			
	Dissimilarity Index (1940)		Dissimilarity Index (1980)	
	OLS	*instrumental variable*	*OLS*	*instrumental variable*
	(1)	(2)	(3)	(4)
Log FHA per capita	0.006 (0.008)	−0.195** (0.096)	2.703** (1.126)	−152.971 (665.054)
Dissimilarity Index (1940)			13.043*** (4.320)	37.226 (107.069)
Dissimilarity Index (1880)	0.155*** (0.027)	0.135*** (0.033)	−5.012 (4.422)	−9.116 (33.716)
Log Housing units (1930)	−0.097 (0.079)	−0.155 (0.095)	−7.939 (12.240)	−286.551 (1,192.852)
Log Population per Sq Mile (1930)	−0.013 (0.012)	0.009 (0.018)	1.604 (1.814)	−10.519 (53.118)
Log Black population (1930)	−0.019*** (0.005)	−0.011 (0.007)	1.196 (0.791)	5.548 (19.293)
Log White population (1930)	0.155*** (0.034)	0.165*** (0.040)	−0.106 (5.707)	−7.630 (49.137)
Log Total employed (1930)	0.136* (0.074)	0.288*** (0.111)	12.330 (11.821)	244.021 (992.738)
Log Total unemployed (1930)	0.017** (0.008)	0.025** (0.010)	1.509 (1.397)	9.679 (36.067)
Log Urban population (1930)	0.001 (0.002)	0.007** (0.003)	−1.158** (0.481)	4.960 (26.325)
Log Value of New Deal loans	0.002 (0.010)	0.021 (0.015)	5.002*** (1.758)	23.716 (80.761)
Log HOLC refinancing	0.006 (0.006)	0.040** (0.017)	−1.667* (0.999)	22.038 (101.473)
Log Literate population (1930)	−0.112 (0.117)	−0.252* (0.151)	2.246 (17.360)	13.404 (122.692)
Black home-ownership (1930)	0.083*** (0.025)	0.106*** (0.031)	−5.709 (4.316)	−38.987 (144.907)
White home-ownership (1930)	0.100 (0.076)	0.212** (0.103)	−6.883 (13.417)	26.530 (167.353)
Log Median home value (1930)	−0.003 (0.019)	0.085* (0.047)	0.778 (3.423)	48.641 (205.677)
Log Manufacturing workers (1930)	0.0004 (0.007)	0.010 (0.009)	1.805 (1.198)	5.815 (18.823)
Log Manufacturing establishments (1930)	−0.030** (0.015)	−0.047** (0.019)	−6.647** (2.675)	−8.600 (19.314)
Constant	−0.398* (0.215)	−1.468*** (0.565)	−116.172*** (37.075)	−737.974 (2,667.188)
State fixed effects	Yes	Yes	Yes	Yes
Observations	1,908	1,908	522	522
R^2	0.390	0.185	0.432	−23.103
Adjusted R^2	0.370	0.158	0.359	−26.181
Residual Std. Error	0.206 (df = 1845)	0.238 (df = 1845)	15.047 (df = 462)	97.987 (df = 462)
F Statistic	19.061*** (df = 62; 1845)		5.947*** (df = 59; 462)	
Note:				*p<0.1; **p<0.05; ***p<0.01

Table A17

	Dependent variable:			
	Dissimilarity Index (1990)		Dissimilarity Index (2000)	
	OLS	*instrumental variable*	*OLS*	*instrumental variable*
	(1)	(2)	(3)	(4)
Log FHA per capita	2.300** (0.974)	−67.243 (74.436)	1.026 (0.770)	−12.154 (14.470)
Dissimilarity Index (1940)	8.538** (3.593)	10.505 (12.304)	3.114 (2.836)	4.360 (3.737)
Dissimilarity Index (1880)	0.138 (3.851)	−0.666 (13.020)	0.858 (3.102)	0.253 (3.861)
Log Housing units (1930)	−9.016 (10.515)	−121.929 (125.842)	3.538 (7.998)	−3.324 (12.358)
Log Population per Sq Mile (1930)	2.498 (1.524)	1.309 (5.296)	3.237*** (1.208)	3.534** (1.518)
Log Black population (1930)	1.602** (0.666)	3.569 (3.078)	1.310** (0.542)	1.844** (0.886)
Log White population (1930)	2.356 (4.799)	0.284 (16.343)	7.194* (4.029)	8.163 (5.054)
Log Total employed (1930)	16.594* (10.009)	101.289 (96.656)	22.924*** (8.166)	35.753** (17.257)
Log Total unemployed (1930)	1.836 (1.147)	6.765 (6.538)	0.667 (0.937)	1.775 (1.671)
Log Urban population (1930)	−0.833** (0.389)	1.742 (3.050)	−0.557** (0.282)	−0.150 (0.565)
Log Value of New Deal loans	1.180 (1.473)	7.407 (8.308)	2.081* (1.107)	3.562* (2.116)
Log HOLC refinancing	0.868 (0.859)	10.503 (10.703)	0.720 (0.705)	2.428 (2.061)
Log Literate population (1930)	−10.881 (15.029)	0.915 (52.249)	−34.020*** (12.340)	−43.761** (18.517)
Black home-ownership (1930)	−2.486 (3.643)	−19.311 (21.789)	−4.840* (2.841)	−7.674 (4.667)
White home-ownership (1930)	−14.670 (11.435)	10.267 (46.898)	−12.485 (9.100)	1.031 (18.541)
Log Median home value (1930)	−1.890 (2.918)	23.475 (28.854)	−1.011 (2.325)	6.505 (8.713)
Log Manufacturing workers (1930)	0.360 (0.995)	3.794 (4.976)	0.848 (0.781)	1.880 (1.482)
Log Manufacturing establishments (1930)	−0.136 (2.236)	−3.831 (8.515)	−1.849 (1.748)	−3.961 (3.154)
Constant	−16.534 (31.545)	−308.132 (329.470)	−4.791 (24.803)	−87.407 (95.477)
State fixed effects	Yes	Yes	Yes	Yes
Observations	552	552	644	644
R^2	0.448	−5.284	0.509	0.262
Adjusted R^2	0.380	−6.052	0.458	0.184
Residual Std. Error	13.365 (df = 491)	45.090 (df = 491)	11.796 (df = 582)	14.466 (df = 582)
F Statistic	6.638*** (df = 60; 491)		9.891*** (df = 61; 582)	

Note: *p<0.1; **p<0.05; ***p<0.01

Table A18

	Dependent variable:					
	Exposure Index (1980)		Exposure Index (1990)		Exposure Index (2000)	
	OLS	*instrumental variable*	*OLS*	*instrumental variable*	*OLS*	*instrumental variable*
	(1)	(2)	(3)	(4)	(5)	(6)
Log FHA per capita	−0.857** (0.398)	40.135 (176.767)	−1.267*** (0.449)	6.778 (13.072)	−0.686 (0.425)	−2.541 (6.626)
Dissimilarity Index (1940)	−4.538*** (1.527)	−10.906 (28.458)	−4.351*** (1.655)	−4.578** (2.161)	−3.082** (1.568)	−2.907* (1.711)
Dissimilarity Index (1880)	−1.557 (1.563)	−0.476 (8.961)	−1.978 (1.773)	−1.885 (2.286)	−0.677 (1.714)	−0.762 (1.768)
Log Housing units (1930)	−9.696** (4.326)	63.667 (317.052)	−12.485** (4.842)	0.576 (22.099)	−6.804 (4.420)	−7.769 (5.659)
Log Population per Sq Mile (1930)	0.878 (0.641)	4.070 (14.118)	0.527 (0.702)	0.664 (0.930)	0.466 (0.668)	0.508 (0.695)
Log Black population (1930)	1.603*** (0.280)	0.457 (5.128)	1.480*** (0.307)	1.252** (0.540)	1.697*** (0.300)	1.772*** (0.406)
Log White population (1930)	−17.291*** (2.017)	−15.310 (13.060)	−18.886*** (2.210)	−18.646*** (2.870)	−23.333*** (2.227)	−23.196*** (2.315)
Log Total employed (1930)	−3.627 (4.178)	−64.636 (263.863)	3.513 (4.609)	−6.285 (16.974)	−2.980 (4.513)	−1.175 (7.903)
Log Total unemployed (1930)	−1.150** (0.494)	−3.302 (9.586)	−1.722*** (0.528)	−2.292** (1.148)	−1.086** (0.518)	−0.930 (0.765)
Log Urban population (1930)	0.477*** (0.170)	−1.134 (6.997)	0.247 (0.179)	−0.051 (0.536)	0.414*** (0.156)	0.471* (0.259)
Log Value of New Deal loans	1.205* (0.621)	−3.723 (21.466)	1.040 (0.678)	0.320 (1.459)	1.922*** (0.612)	2.131** (0.969)
Log HOLC refinancing	0.407 (0.353)	−5.835 (26.971)	0.448 (0.395)	−0.666 (1.879)	0.091 (0.390)	0.331 (0.944)
Log Literate population (1930)	28.322*** (6.136)	25.383 (32.611)	29.008*** (6.921)	27.643*** (9.175)	32.731*** (6.820)	31.360*** (8.480)
Black home-ownership (1930)	−1.588 (1.525)	7.174 (38.515)	−1.404 (1.678)	0.542 (3.826)	−2.317 (1.570)	−2.716 (2.137)
White home-ownership (1930)	−0.034 (4.742)	−8.832 (44.481)	1.911 (5.266)	−0.973 (8.236)	1.146 (5.029)	3.048 (8.491)
Log Median home value (1930)	−4.506*** (1.210)	−17.109 (54.668)	−3.726*** (1.344)	−6.660 (5.067)	−4.014*** (1.285)	−2.956 (3.990)
Log Manufacturing workers (1930)	0.696 (0.423)	−0.360 (5.003)	0.317 (0.458)	−0.080 (0.874)	0.626 (0.431)	0.771 (0.678)
Log Manufacturing establishments (1930)	−1.059 (0.945)	−0.545 (5.133)	−2.005* (1.030)	−1.577 (1.495)	−1.865* (0.966)	−2.162 (1.445)
Constant	27.103** (13.103)	190.834 (708.921)	4.665 (14.527)	38.396 (57.858)	8.856 (13.708)	−2.771 (43.723)
State fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
Observations	522	522	552	552	644	644
R^2	0.740	−5.241	0.744	0.577	0.733	0.725
Adjusted R^2	0.707	−6.037	0.713	0.525	0.705	0.696
Residual Std. Error	5.318 (df = 462)	26.044 (df = 462)	6.155 (df = 491)	7.918 (df = 491)	6.519 (df = 582)	6.625 (df = 582)
F Statistic	22.267*** (df = 59; 462)		23.837*** (df = 60; 491)		26.224*** (df = 61; 582)	

Note: *p<0.1; **p<0.05; ***p<0.01

A.4.2 Suburbanization

Table A19

	Dependent variable:			
	Moved to suburbs (same Met)			
	OLS	*instrumental variable*	*OLS*	*instrumental variable*
	White		Black	
	(1)	(2)	(3)	(4)
Log FHA per capita	0.041*** (0.001)	0.035*** (0.005)	−0.005 (0.005)	−0.044* (0.025)
Occupational score	0.0003*** (0.00003)	0.0003*** (0.00003)	0.0003* (0.0001)	0.0003* (0.0001)
Age	−0.003*** (0.00003)	−0.003*** (0.00003)	−0.001*** (0.0001)	−0.001*** (0.0001)
Employed	−0.026*** (0.001)	−0.026*** (0.001)	−0.010* (0.005)	−0.010** (0.005)
Unemployed	−0.032*** (0.002)	−0.032*** (0.002)	−0.011* (0.006)	−0.011* (0.006)
Log Housing units (1930)	−0.011 (0.008)	0.002 (0.012)	−0.106*** (0.032)	−0.078** (0.036)
Log Population per Sq Mile (1930)	0.031*** (0.001)	0.031*** (0.001)	−0.018*** (0.004)	−0.023*** (0.005)
Log Black population (1930)	−0.010*** (0.001)	−0.010*** (0.001)	0.114*** (0.005)	0.124*** (0.009)
Log White population (1930)	0.706*** (0.012)	0.709*** (0.012)	0.728*** (0.042)	0.831*** (0.078)
Log Total employed (1930)	0.661*** (0.016)	0.690*** (0.028)	0.832*** (0.071)	1.045*** (0.154)
Log Total unemployed (1930)	−0.107*** (0.002)	−0.109*** (0.003)	−0.030*** (0.009)	−0.059*** (0.021)
Log Urban population (1930)	−0.066*** (0.001)	−0.066*** (0.001)	−0.056*** (0.004)	−0.057*** (0.004)
Log Value of New Deal loans	−0.076*** (0.001)	−0.076*** (0.001)	−0.024*** (0.006)	−0.022*** (0.006)
Log HOLC refinancing	−0.034*** (0.002)	−0.033*** (0.002)	−0.042*** (0.007)	−0.032*** (0.009)
Log Literate population (1930)	−0.802*** (0.026)	−0.841*** (0.040)	−1.380*** (0.103)	−1.698*** (0.228)
Black home-ownership (1930)	0.768*** (0.008)	0.766*** (0.008)	1.183*** (0.041)	1.213*** (0.045)
White home-ownership (1930)	0.645*** (0.012)	0.646*** (0.012)	0.265*** (0.048)	0.327*** (0.062)
Log Median home value (1930)	0.319*** (0.004)	0.329*** (0.009)	0.415*** (0.018)	0.472*** (0.041)
Log Manufacturing workers (1930)	−0.067*** (0.001)	−0.067*** (0.001)	0.019*** (0.005)	0.013** (0.007)
Log Manufacturing est. (1930)	−0.172*** (0.002)	−0.175*** (0.003)	−0.070*** (0.009)	−0.074*** (0.010)
Share of Black pop born in South	−0.206*** (0.008)	−0.199*** (0.010)	−0.366*** (0.040)	−0.356*** (0.041)
Share of Black pop migrated from South	1.112*** (0.019)	1.110*** (0.019)	−0.042 (0.081)	0.046 (0.099)
Constant	−4.143*** (0.041)	−4.216*** (0.071)	−2.943*** (0.162)	−3.445*** (0.360)
State fixed effects	Yes	Yes	Yes	Yes
Observations	801,605	801,605	24,387	24,387
R^2	0.212	0.212	0.190	0.188
Adjusted R^2	0.212	0.212	0.189	0.186
Residual Std. Error	0.302 (df = 801545)	0.302 (df = 801545)	0.184 (df = 24328)	0.185 (df = 24328)
F Statistic	3,663.331*** (df = 59; 801545)		98.690*** (df = 58; 24328)	
Note:				*p<0.1; **p<0.05; ***p<0.01

A.4.3 Effect of FHA on moving to suburbs from central city

Table A20

	Dependent variable:			
	Moved to suburbs (same Met)			
	OLS	*instrumental variable*	*OLS*	*instrumental variable*
	White		Black	
	(1)	(2)	(3)	(4)
Log FHA per capita	0.041*** (0.001)	0.035*** (0.005)	−0.005 (0.005)	−0.044* (0.025)
Occupational score	0.0003*** (0.00003)	0.0003*** (0.00003)	0.0003* (0.0001)	0.0003* (0.0001)
Age	−0.003*** (0.00003)	−0.003*** (0.00003)	−0.001*** (0.0001)	−0.001*** (0.0001)
Employed	−0.026*** (0.001)	−0.026*** (0.001)	−0.010* (0.005)	−0.010** (0.005)
Unemployed	−0.032*** (0.002)	−0.032*** (0.002)	−0.011* (0.006)	−0.011* (0.006)
Log Housing units (1930)	−0.011 (0.008)	0.002 (0.012)	−0.106*** (0.032)	−0.078** (0.036)
Log Population per Sq Mile (1930)	0.031*** (0.001)	0.031*** (0.001)	−0.018*** (0.004)	−0.023*** (0.005)
Log Black population (1930)	−0.010*** (0.001)	−0.010*** (0.001)	0.114*** (0.005)	0.124*** (0.009)
Log White population (1930)	0.706*** (0.012)	0.709*** (0.012)	0.728*** (0.042)	0.831*** (0.078)
Log Total employed (1930)	0.661*** (0.016)	0.690*** (0.028)	0.832*** (0.071)	1.045*** (0.154)
Log Total unemployed (1930)	−0.107*** (0.002)	−0.109*** (0.003)	−0.030*** (0.009)	−0.059*** (0.021)
Log Urban population (1930)	−0.066*** (0.001)	−0.066*** (0.001)	−0.056*** (0.004)	−0.057*** (0.004)
Log Value of New Deal loans	−0.076*** (0.001)	−0.076*** (0.001)	−0.024*** (0.006)	−0.022*** (0.006)
Log HOLC refinancing	−0.034*** (0.002)	−0.033*** (0.002)	−0.042*** (0.007)	−0.032*** (0.009)
Log Literate population (1930)	−0.802*** (0.026)	−0.841*** (0.040)	−1.380*** (0.103)	−1.698*** (0.228)
Black home-ownership (1930)	0.768*** (0.008)	0.766*** (0.008)	1.183*** (0.041)	1.213*** (0.045)
White home-ownership (1930)	0.645*** (0.012)	0.646*** (0.012)	0.265*** (0.048)	0.327*** (0.062)
Log Median home value (1930)	0.319*** (0.004)	0.329*** (0.009)	0.415*** (0.018)	0.472*** (0.041)
Log Manufacturing workers (1930)	−0.067*** (0.001)	−0.067*** (0.001)	0.019*** (0.005)	0.013** (0.007)
Log Manufacturing est. (1930)	−0.172*** (0.002)	−0.175*** (0.003)	−0.070*** (0.009)	−0.074*** (0.010)
Share of Black pop born in South	−0.206*** (0.008)	−0.199*** (0.010)	−0.366*** (0.040)	−0.356*** (0.041)
Share of Black pop migrated from South	1.112*** (0.019)	1.110*** (0.019)	−0.042 (0.081)	0.046 (0.099)
Constant	−4.143*** (0.041)	−4.216*** (0.071)	−2.943*** (0.162)	−3.445*** (0.360)
State fixed effects	Yes	Yes	Yes	Yes
Observations	801,605	801,605	24,387	24,387
R^2	0.212	0.212	0.190	0.188
Adjusted R^2	0.212	0.212	0.189	0.186
Residual Std. Error	0.302 (df = 801545)	0.302 (df = 801545)	0.184 (df = 24328)	0.185 (df = 24328)
F Statistic	3,663.331*** (df = 59; 801545)		98.690*** (df = 58; 24328)	

Note: *p<0.1; **p<0.05; ***p<0.01

A.4.4 Effect of FHA on home-ownership

Table A21

Among households remaining in central city

	Dependent variable:			
	Home-owner			
	OLS	*instrumental variable*	*OLS*	*instrumental variable*
	White		Black	
	(1)	(2)	(3)	(4)
Log FHA per capita	0.019*** (0.002)	−0.027*** (0.009)	0.012 (0.009)	0.224*** (0.076)
Home-owner in 1930	0.520*** (0.001)	0.520*** (0.001)	0.511*** (0.005)	0.509*** (0.005)
Occupational score	0.003*** (0.00004)	0.003*** (0.00004)	0.004*** (0.0003)	0.004*** (0.0003)
Age AGE	0.002*** (0.00005)	0.002*** (0.00005)	0.004*** (0.0002)	0.004*** (0.0002)
Employed	−0.038*** (0.002)	−0.038*** (0.002)	0.011 (0.009)	0.016* (0.009)
Unemployed	−0.121*** (0.003)	−0.121*** (0.003)	−0.057*** (0.011)	−0.054*** (0.011)
Log Housing units (1930)	0.009 (0.011)	0.097*** (0.020)	−0.106* (0.060)	−0.130** (0.062)
Log Population per Sq Mile (1930)	0.008*** (0.001)	0.009*** (0.001)	0.006 (0.008)	0.034*** (0.013)
Log Black population (1930)	−0.003 (0.002)	0.005** (0.002)	−0.020* (0.011)	−0.092*** (0.028)
Log White population (1930)	−0.007 (0.018)	0.049** (0.021)	−0.054 (0.087)	−0.693*** (0.245)
Log Total employed (1930)	−0.010 (0.025)	0.254*** (0.057)	0.004 (0.145)	−1.303*** (0.489)
Log Total unemployed (1930)	−0.008** (0.004)	−0.031*** (0.006)	0.011 (0.019)	0.180*** (0.063)
Log Urban population (1930)	−0.027*** (0.009)	−0.013 (0.009)	0.007 (0.052)	−0.053 (0.056)
Log Value of New Deal loans	0.005** (0.002)	0.011*** (0.002)	−0.001 (0.012)	−0.017 (0.013)
Log HOLC refinancing	−0.003 (0.002)	−0.003 (0.002)	0.004 (0.013)	−0.048** (0.023)
Log Literate population (1930)	0.080* (0.041)	−0.308*** (0.085)	0.220 (0.213)	2.106*** (0.707)
Black home-ownership (1930)	0.017 (0.012)	0.005 (0.012)	0.570*** (0.087)	0.316** (0.126)
White home-ownership (1930)	0.283*** (0.019)	0.284*** (0.019)	0.119 (0.095)	−0.328* (0.186)
Log Median home value (1930)	−0.043*** (0.007)	0.043** (0.018)	−0.094** (0.040)	−0.419*** (0.123)
Log Manufacturing workers (1930)	0.001 (0.002)	−0.003 (0.002)	−0.007 (0.012)	0.036* (0.019)
Log Manufacturing est. (1930)	−0.038*** (0.003)	−0.059*** (0.005)	−0.044** (0.019)	−0.007 (0.023)
Share of Black pop born in South	−0.047*** (0.012)	−0.009 (0.014)	−0.023 (0.085)	0.061 (0.091)
Share of Black pop migrated from South	0.228*** (0.038)	0.332*** (0.043)	0.384** (0.182)	−0.568 (0.387)
Constant	−0.007 (0.068)	−0.610*** (0.135)	−0.227 (0.357)	2.785** (1.135)
State fixed effects	Yes	Yes	Yes	Yes
Observations	775,642	775,642	27,983	27,983
R^2	0.328	0.328	0.358	0.345
Adjusted R^2	0.328	0.328	0.357	0.344
Residual Std. Error	0.409 (df = 775580)	0.409 (df = 775580)	0.365 (df = 27922)	0.369 (df = 27922)
F Statistic	6,218.050*** (df = 61; 775580)		259.899*** (df = 60; 27922)	

Note: *p<0.1; **p<0.05; ***p<0.01

Table A22

Among households moving from central city to suburbs

	Dependent variable:			
	Home-owner			
	OLS	*instrumental variable*	*OLS*	*instrumental variable*
	White		Black	
	(1)	(2)	(3)	(4)
Log FHA per capita	0.046*** (0.004)	0.168*** (0.016)	0.016 (0.057)	−0.208 (0.760)
Home-owner in 1930	0.210*** (0.003)	0.210*** (0.003)	0.221*** (0.038)	0.227*** (0.043)
Occupational score	0.004*** (0.0001)	0.003*** (0.0001)	0.006*** (0.002)	0.006*** (0.002)
Age AGE	0.001*** (0.0002)	0.001*** (0.0002)	0.001 (0.002)	0.001 (0.002)
Employed	−0.059*** (0.007)	−0.060*** (0.007)	0.004 (0.059)	0.001 (0.060)
Unemployed	−0.140*** (0.009)	−0.136*** (0.009)	−0.006 (0.079)	−0.002 (0.081)
Log Housing units (1930)	−0.043 (0.030)	−0.236*** (0.039)	−0.189 (0.391)	0.288 (1.659)
Log Population per Sq Mile (1930)	−0.026*** (0.004)	−0.037*** (0.004)	−0.191*** (0.054)	−0.146 (0.162)
Log Black population (1930)	−0.011*** (0.003)	−0.012*** (0.003)	0.084 (0.056)	0.074 (0.065)
Log White population (1930)	−0.207*** (0.047)	−0.174*** (0.048)	−0.477 (0.436)	0.094 (1.979)
Log Total employed (1930)	0.155*** (0.059)	−0.257*** (0.079)	0.089 (0.767)	1.495 (4.820)
Log Total unemployed (1930)	−0.003 (0.009)	0.034*** (0.010)	−0.002 (0.123)	−0.156 (0.534)
Log Urban population (1930)	0.011*** (0.002)	0.007*** (0.002)	−0.010 (0.024)	−0.017 (0.033)
Log Value of New Deal loans	−0.009 (0.006)	0.009 (0.006)	−0.014 (0.074)	−0.018 (0.076)
Log HOLC refinancing	0.029*** (0.007)	−0.004 (0.008)	0.035 (0.081)	0.063 (0.124)
Log Literate population (1930)	0.047 (0.088)	0.542*** (0.109)	0.620 (1.201)	−1.599 (7.603)
Black home-ownership (1930)	−0.094*** (0.028)	−0.017 (0.029)	−0.151 (0.340)	0.089 (0.880)
White home-ownership (1930)	0.549*** (0.047)	0.220*** (0.064)	1.800*** (0.606)	1.922*** (0.738)
Log Median home value (1930)	−0.164*** (0.016)	−0.330*** (0.026)	0.098 (0.190)	0.430 (1.139)
Log Manufacturing workers (1930)	−0.003 (0.004)	−0.008** (0.004)	−0.052 (0.049)	−0.095 (0.154)
Log Manufacturing est. (1930)	0.048*** (0.008)	0.099*** (0.010)	0.070 (0.095)	0.040 (0.138)
Share of Black pop born in South	−0.0004 (0.028)	−0.121*** (0.032)	0.132 (0.359)	0.422 (1.047)
Share of Black pop migrated from South	0.168* (0.086)	0.127 (0.087)	−0.204 (0.896)	−0.122 (0.944)
Constant	1.734*** (0.143)	3.273*** (0.245)	−1.941 (1.542)	−4.490 (8.761)
State fixed effects	Yes	Yes	Yes	Yes
Observations	106,718	106,718	1,065	1,065
R^2	0.108	0.099	0.179	0.166
Adjusted R^2	0.107	0.099	0.136	0.123
Residual Std. Error	0.467 (df = 106657)	0.469 (df = 106657)	0.464 (df = 1012)	0.468 (df = 1012)
F Statistic	214.969*** (df = 60; 106657)		4.230*** (df = 52; 1012)	
Note:				*p<0.1; **p<0.05; ***p<0.01

A.4.5 Effect of FHA on home values

Table A23

Among households who remained in suburbs

	Dependent variable:			
	Log Home value			
	Black	*instrumental variable*	White	*instrumental variable*
	(1)	(2)	(3)	(4)
Log FHA per capita	−0.022 (0.056)	−5.087 (9.953)	0.054*** (0.011)	0.243*** (0.024)
Log Home value in 1930	0.530*** (0.033)	0.460*** (0.151)	0.602*** (0.015)	0.600*** (0.002)
Occupational score	0.002 (0.002)	0.005 (0.007)	0.007*** (0.0003)	0.007*** (0.0001)
Age	−0.002 (0.002)	−0.003 (0.005)	−0.003*** (0.0004)	−0.003*** (0.0001)
Employed	0.162** (0.081)	−0.014 (0.390)	−0.056*** (0.007)	−0.058*** (0.005)
Unemployed	−0.105 (0.094)	−0.167 (0.260)	−0.199*** (0.011)	−0.197*** (0.008)
Log Housing units (1930)	−0.766 (0.539)	8.326 (17.898)	−0.293*** (0.085)	−0.605*** (0.048)
Log Population per Sq Mile (1930)	0.071 (0.090)	2.217 (4.219)	0.023 (0.015)	−0.021*** (0.007)
Log Black population (1930)	0.054 (0.090)	1.370 (2.590)	0.017 (0.011)	0.011*** (0.003)
Log White population (1930)	−0.303 (0.690)	15.575 (31.230)	−0.135 (0.176)	−0.038 (0.054)
Log Total employed (1930)	−0.599 (1.059)	21.465 (43.401)	−0.025 (0.203)	−0.545*** (0.085)
Log Total unemployed (1930)	0.001 (0.154)	−4.045 (7.954)	−0.080** (0.032)	−0.018* (0.011)
Log Urban population (1930)	0.060** (0.026)	0.543 (0.952)	0.016** (0.007)	0.003 (0.003)
Log Value of New Deal loans	0.071 (0.090)	−1.319 (2.741)	0.003 (0.020)	0.026*** (0.006)
Log HOLC refinancing	−0.305*** (0.081)	2.063 (4.657)	−0.045* (0.026)	−0.109*** (0.010)
Log Literate population (1930)	1.844 (1.662)	−43.418 (88.998)	0.481 (0.294)	1.131*** (0.125)
Black home-ownership (1930)	−0.089 (0.536)	1.619 (3.489)	0.066 (0.085)	0.037 (0.024)
White home-ownership (1930)	0.875 (0.678)	2.293 (3.345)	0.775*** (0.156)	0.524*** (0.056)
Log Median home value (1930)	0.571** (0.272)	0.184 (0.891)	0.164** (0.078)	0.025 (0.022)
Log Manufacturing workers (1930)	0.159*** (0.060)	0.367 (0.431)	0.013 (0.014)	−0.006 (0.004)
Log Manufacturing est. (1930)	−0.257** (0.108)	−0.773 (1.046)	0.034 (0.028)	0.125*** (0.013)
Share of Black pop born in South	0.036 (0.641)	7.355 (14.422)	−0.017 (0.095)	−0.299*** (0.044)
Share of Black pop migrated from South	1.384 (1.131)	15.128 (27.127)	−0.133 (0.256)	−0.172* (0.089)
Constant	−3.597* (1.903)	2.735 (13.128)	1.069** (0.522)	2.514*** (0.220)
State fixed effects	Yes	Yes	Yes	Yes
Observations	1,937	1,937	238,359	238,359
R^2	0.450	−1.959	0.395	0.386
Adjusted R^2	0.434	−2.044	0.394	0.386
Residual Std. Error	0.877 (df = 1882)	2.033 (df = 1882)	0.668 (df = 238296)	0.673 (df = 238296)
Note:				*p<0.1; **p<0.05; ***p<0.01

Table A24

Among households who remained in central city

	Dependent variable:			
	Log Home value			
	Black	*instrumental variable*	White	*instrumental variable*
	(1)	(2)	(3)	(4)
Log FHA per capita	0.051 (0.058)	1.434 (1.667)	0.009 (0.019)	−0.113*** (0.025)
Log Home value in 1930	0.521*** (0.026)	0.536*** (0.027)	0.575*** (0.019)	0.575*** (0.002)
Occupational score	0.005*** (0.001)	0.004*** (0.001)	0.007*** (0.0003)	0.007*** (0.0001)
Age	−0.002 (0.001)	−0.001 (0.002)	−0.004*** (0.0004)	−0.004*** (0.0001)
Employed	0.021 (0.045)	0.047 (0.056)	−0.076*** (0.006)	−0.076*** (0.004)
Unemployed	−0.088 (0.057)	−0.076 (0.068)	−0.208*** (0.010)	−0.208*** (0.007)
Log Housing units (1930)	0.124 (0.349)	0.152 (0.311)	0.193 (0.120)	0.391*** (0.047)
Log Population per Sq Mile (1930)	0.020 (0.035)	0.187 (0.206)	0.023* (0.013)	0.024*** (0.003)
Log Black population (1930)	0.035 (0.063)	−0.538 (0.693)	0.024 (0.023)	0.042*** (0.005)
Log White population (1930)	0.665 (0.526)	−3.673 (5.250)	−0.493* (0.255)	−0.317*** (0.057)
Log Total employed (1930)	1.386 (0.893)	−7.799 (11.098)	−0.074 (0.393)	0.691*** (0.163)
Log Total unemployed (1930)	−0.119 (0.123)	0.732 (1.030)	−0.101** (0.042)	−0.166*** (0.015)
Log Urban population (1930)	0.149 (0.306)	−0.0002 (0.308)	−0.088 (0.086)	−0.045** (0.022)
Log Value of New Deal loans	0.153*** (0.049)	−0.011 (0.207)	0.042** (0.021)	0.052*** (0.005)
Log HOLC refinancing	−0.224*** (0.059)	−0.514 (0.356)	−0.074*** (0.027)	−0.061*** (0.006)
Log Literate population (1930)	−2.158 (1.472)	10.547 (15.356)	0.526 (0.662)	−0.563** (0.238)
Black home-ownership (1930)	0.914 (0.557)	−0.659 (1.949)	−0.060 (0.135)	−0.039 (0.028)
White home-ownership (1930)	1.008** (0.510)	−1.022 (2.497)	0.005 (0.194)	−0.091* (0.047)
Log Median home value (1930)	0.759*** (0.274)	−1.091 (2.241)	0.205** (0.080)	0.403*** (0.043)
Log Manufacturing workers (1930)	0.031 (0.076)	0.446 (0.504)	0.031 (0.028)	0.016** (0.006)
Log Manufacturing est. (1930)	−0.058 (0.088)	0.435 (0.601)	−0.054* (0.032)	−0.109*** (0.013)
Share of Black pop born in South	0.167 (0.402)	1.178 (1.289)	−0.008 (0.150)	0.087** (0.034)
Share of Black pop migrated from South	−0.261 (0.863)	−6.860 (8.013)	−0.190 (0.364)	0.038 (0.103)
Constant	−3.625* (2.147)	13.277 (20.473)	2.151*** (0.707)	0.827*** (0.306)
State fixed effects	Yes	Yes	Yes	Yes
Observations	4,950	4,950	285,673	285,673
R^2	0.321	0.195	0.314	0.312
Adjusted R^2	0.313	0.186	0.314	0.312
Residual Std. Error	0.773 (df = 4892)	0.842 (df = 4892)	0.595 (df = 285613)	0.596 (df = 285613)

Note: *p<0.1; **p<0.05; ***p<0.01

Table A25

Among households who move from central city to suburbs

	Dependent variable:			
	Log Home value			
	OLS	*instrumental variable*	*OLS*	*instrumental variable*
	White		Black	
	(1)	(2)	(3)	(4)
Log FHA per capita	0.122*** (0.013)	0.123** (0.056)	0.230 (0.288)	2.229 (1.954)
Log Home value in 1930	0.424*** (0.008)	0.424*** (0.008)	0.223** (0.111)	0.229* (0.125)
Occupational score	0.015*** (0.0004)	0.015*** (0.0004)	0.014** (0.006)	0.010 (0.008)
Age	−0.003*** (0.001)	−0.003*** (0.001)	0.001 (0.007)	0.003 (0.009)
Employed	−0.156*** (0.019)	−0.156*** (0.019)	0.128 (0.231)	0.210 (0.272)
Unemployed	−0.477*** (0.027)	−0.477*** (0.027)	−0.482 (0.326)	−0.213 (0.448)
Log Housing units (1930)	−0.135 (0.096)	−0.137 (0.110)	−1.038 (2.087)	−3.787 (3.539)
Log Population per Sq Mile (1930)	0.098*** (0.013)	0.098*** (0.015)	0.173 (0.342)	−0.140 (0.489)
Log Black population (1930)	0.016 (0.010)	0.016 (0.010)	0.028 (0.391)	0.173 (0.461)
Log White population (1930)	−0.283* (0.154)	−0.283* (0.157)	0.426 (2.679)	−2.976 (4.450)
Log Total employed (1930)	−0.352* (0.188)	−0.356 (0.232)	0.324 (5.960)	−10.195 (12.150)
Log Total unemployed (1930)	−0.225*** (0.026)	−0.224*** (0.030)	0.368 (0.714)	2.762 (2.443)
Log Urban population (1930)	0.010 (0.007)	0.010 (0.007)	0.130 (0.151)	0.044 (0.188)
Log Value of New Deal loans	0.009 (0.019)	0.009 (0.019)	0.048 (0.406)	−0.046 (0.464)
Log HOLC refinancing	−0.044** (0.022)	−0.044* (0.024)	0.339 (0.485)	0.808 (0.708)
Log Literate population (1930)	0.792*** (0.287)	0.796** (0.314)	−0.866 (7.843)	11.209 (14.596)
Black home-ownership (1930)	0.302*** (0.089)	0.302*** (0.089)	−3.847** (1.897)	−7.851* (4.409)
White home-ownership (1930)	0.212 (0.147)	0.210 (0.170)	0.439 (3.683)	1.745 (4.324)
Log Median home value (1930)	0.568*** (0.054)	0.566*** (0.094)	−1.998 (1.330)	−4.654 (2.964)
Log Manufacturing workers (1930)	0.049*** (0.012)	0.049*** (0.013)	−0.052 (0.358)	0.077 (0.420)
Log Manufacturing est. (1930)	0.112*** (0.026)	0.113*** (0.041)	−0.042 (0.691)	1.165 (1.398)
Share of Black pop born in South	−0.446*** (0.088)	−0.447*** (0.093)	−1.191 (2.347)	−4.881 (4.427)
Share of Black pop migrated from South	0.575** (0.267)	0.570* (0.310)	5.210 (5.545)	4.260 (6.295)
Constant	−0.979** (0.487)	−0.956 (0.911)	24.793** (12.503)	57.023* (34.093)
State fixed effects	Yes	Yes	Yes	Yes
Observations	29,274	29,274	236	236
R^2	0.269	0.269	0.404	0.248
Adjusted R^2	0.267	0.267	0.239	0.040
Residual Std. Error	0.800 (df = 29212)	0.800 (df = 29212)	0.967 (df = 184)	1.086 (df = 184)
F Statistic	176.117*** (df = 61; 29212)		2.445*** (df = 51; 184)	

Note: *p<0.1; **p<0.05; ***p<0.01

B Appendix figures

B.1 First stage graphs

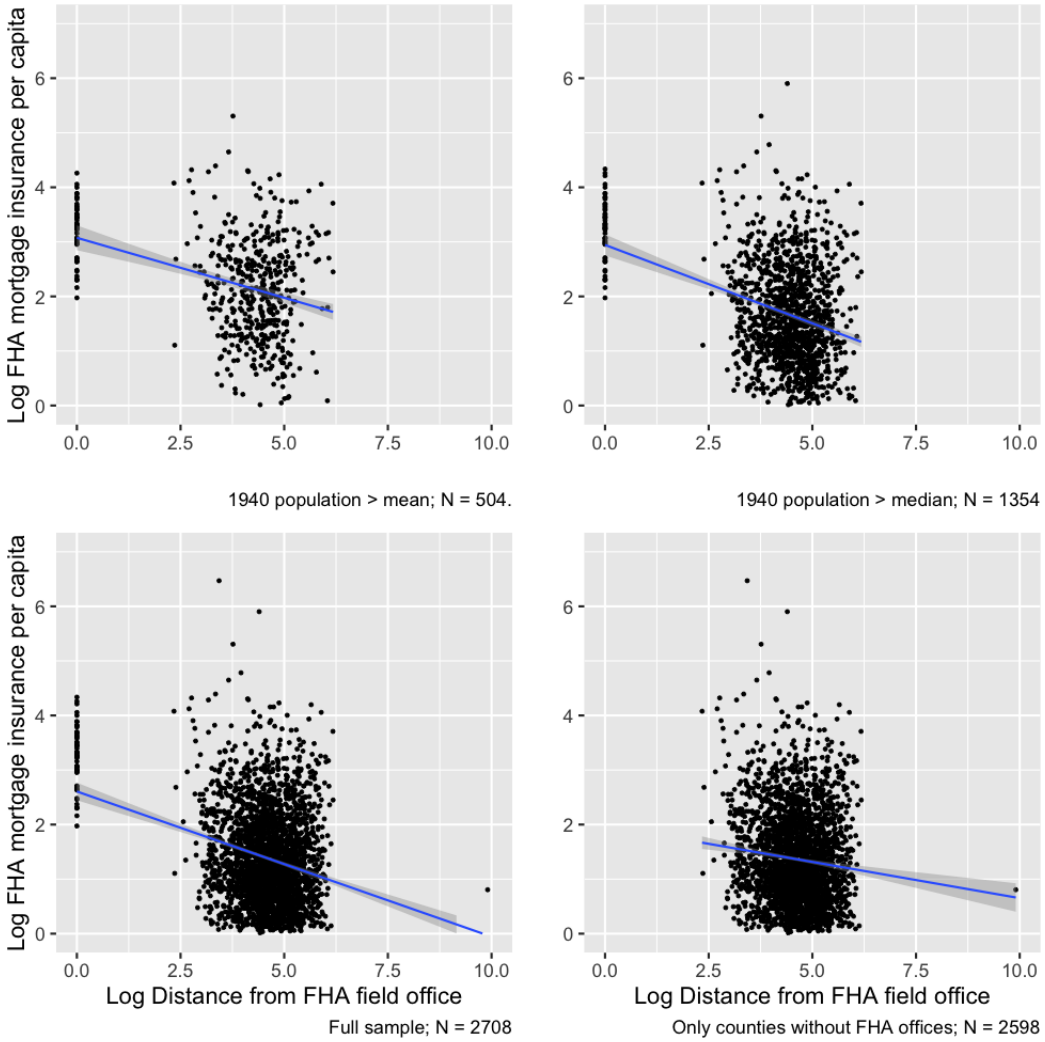

Figure B1: Relationship between FHA mortgage insurance per capita and distance from FHA field office for different county samples.

B.2 Maps

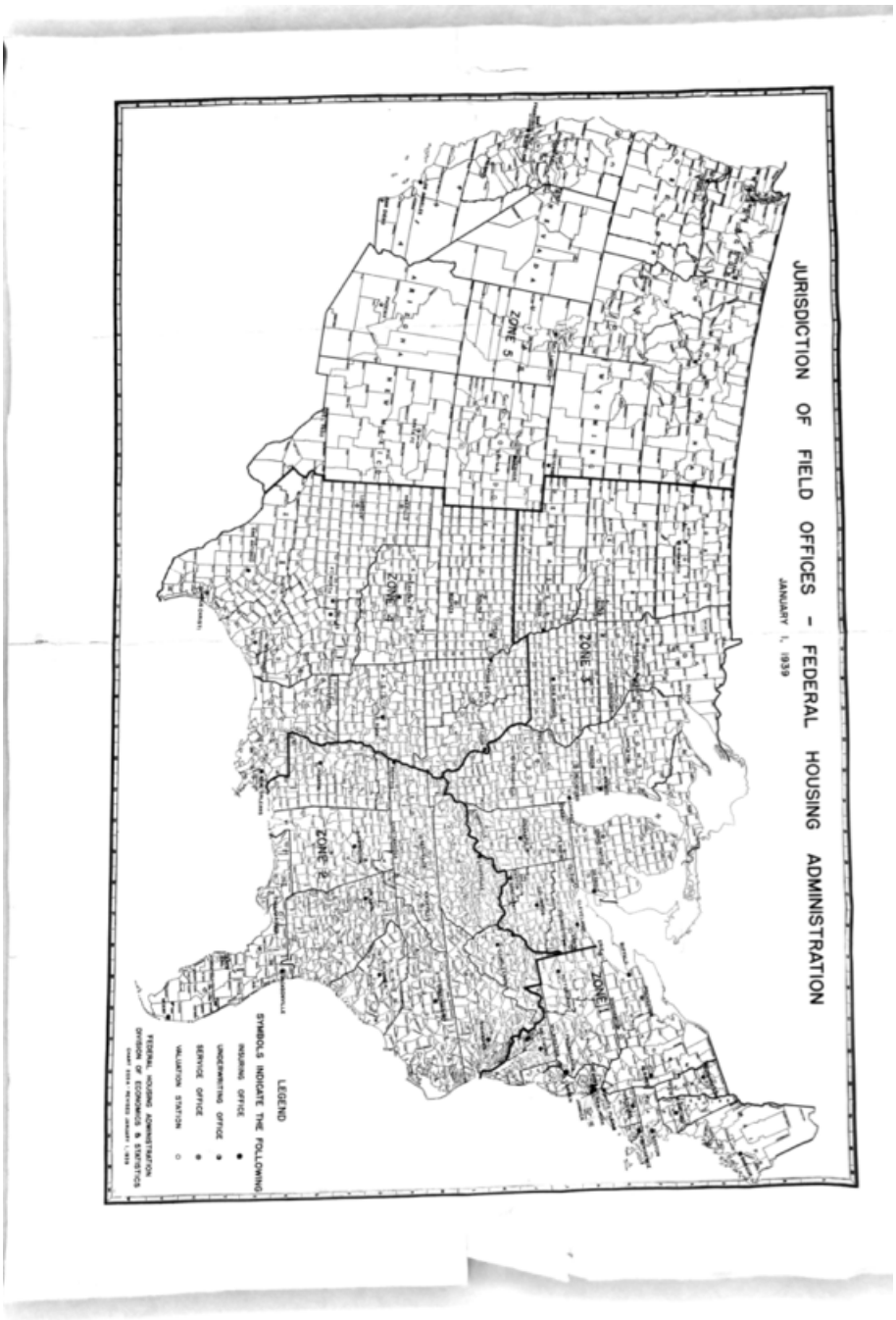

Figure B2: A map of US counties with jurisdictions of FHA field offices in 1939. Source: National Archives Record Group 31 - scanned by author.

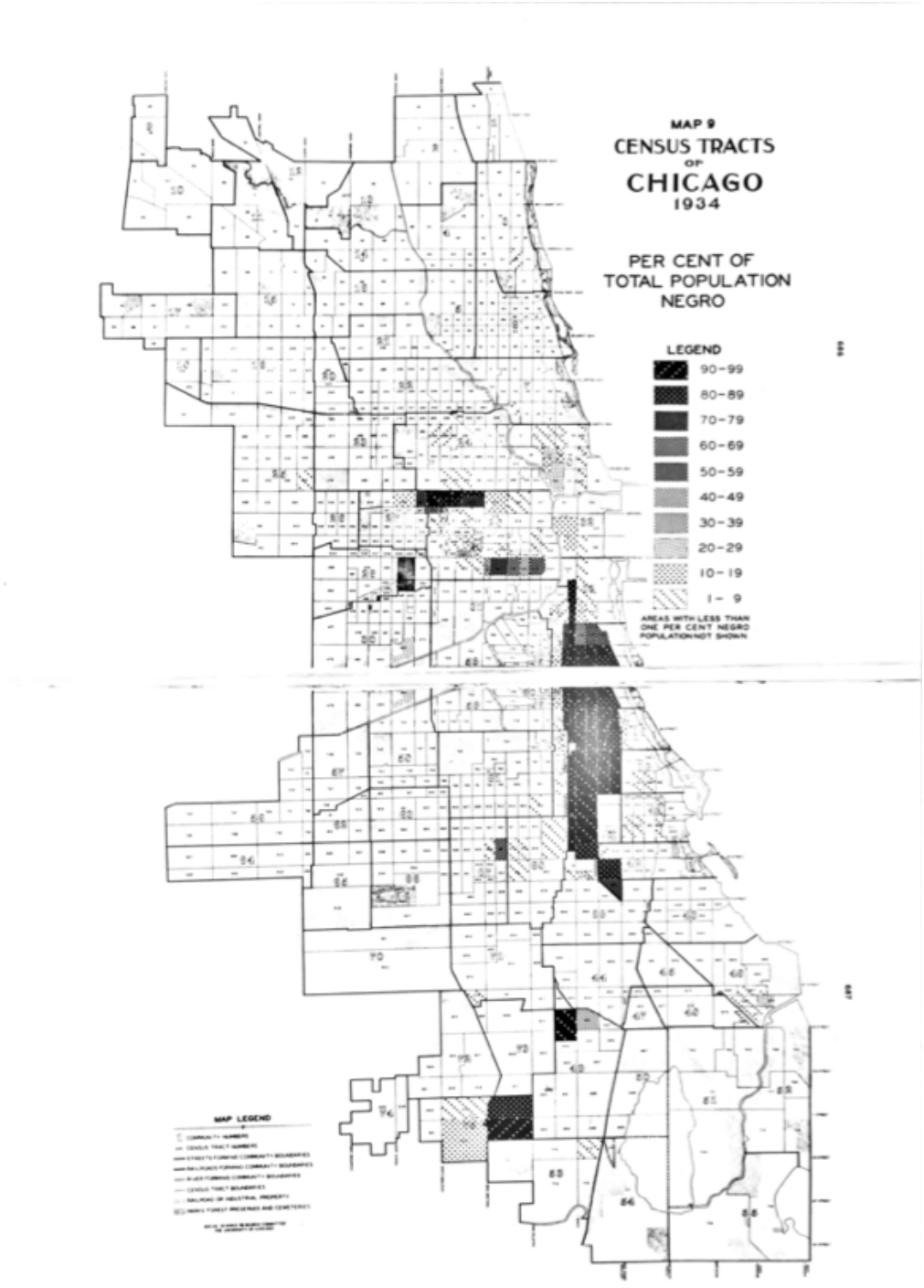

Figure B3: The FHA kept detailed records of where nonwhite residents were concentrated in cities: example map of Chicago (National Archives Record Group 31 - scanned by author)

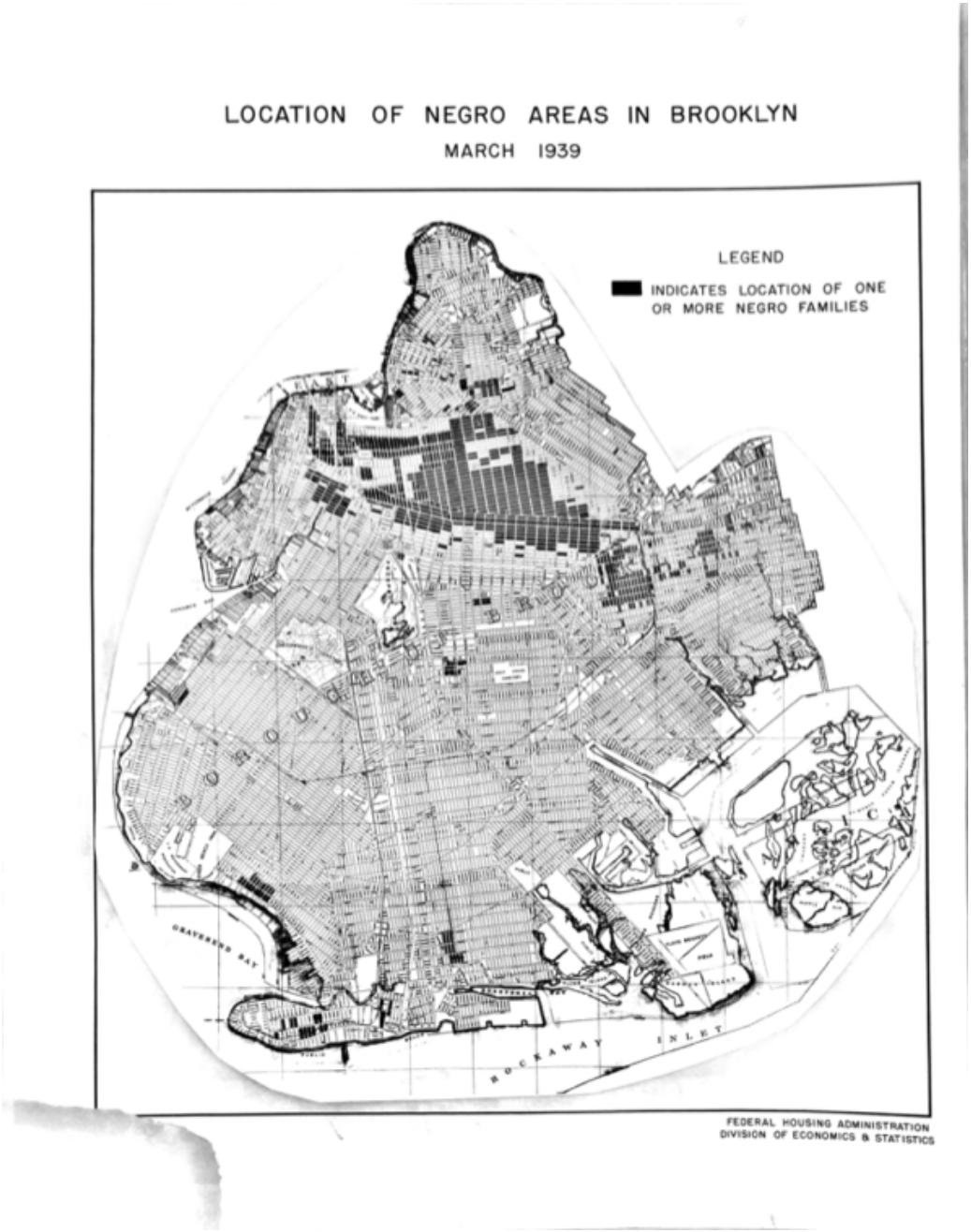

Figure B4: The FHA kept detailed records of where nonwhite residents were concentrated in cities: a map of Brooklyn (National Archives Record Group 31 - scanned by author)

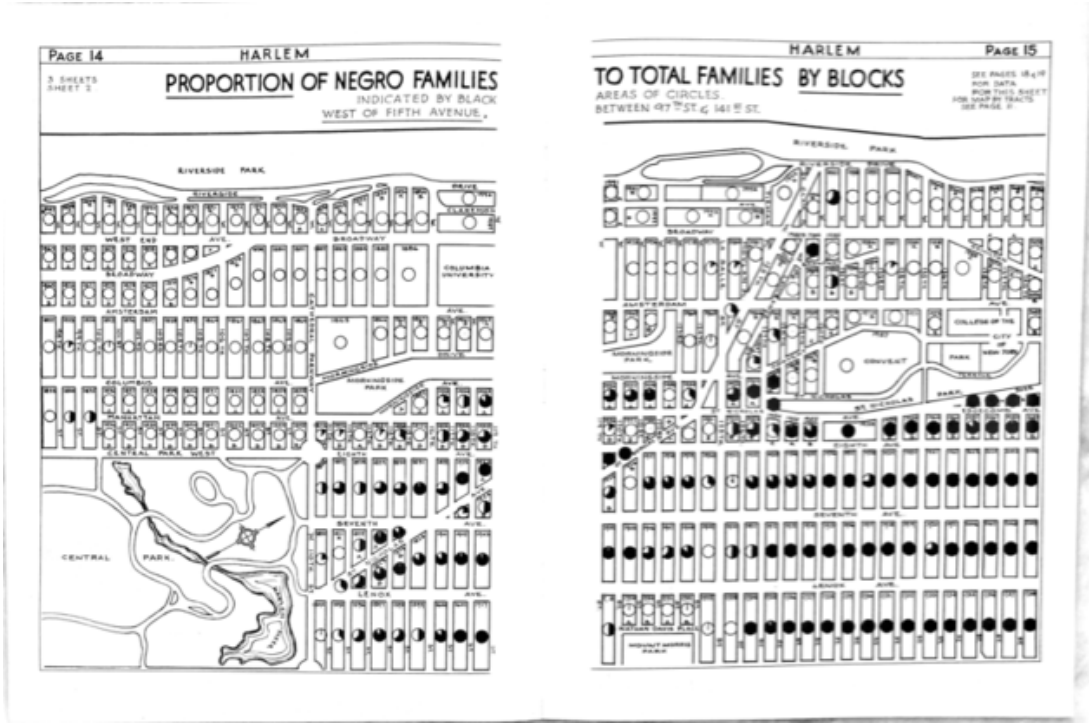

Figure B5: The FHA kept detailed records of where nonwhite residents were concentrated in cities: a map of Harlem (National Archives Record Group 31 - scanned by author)

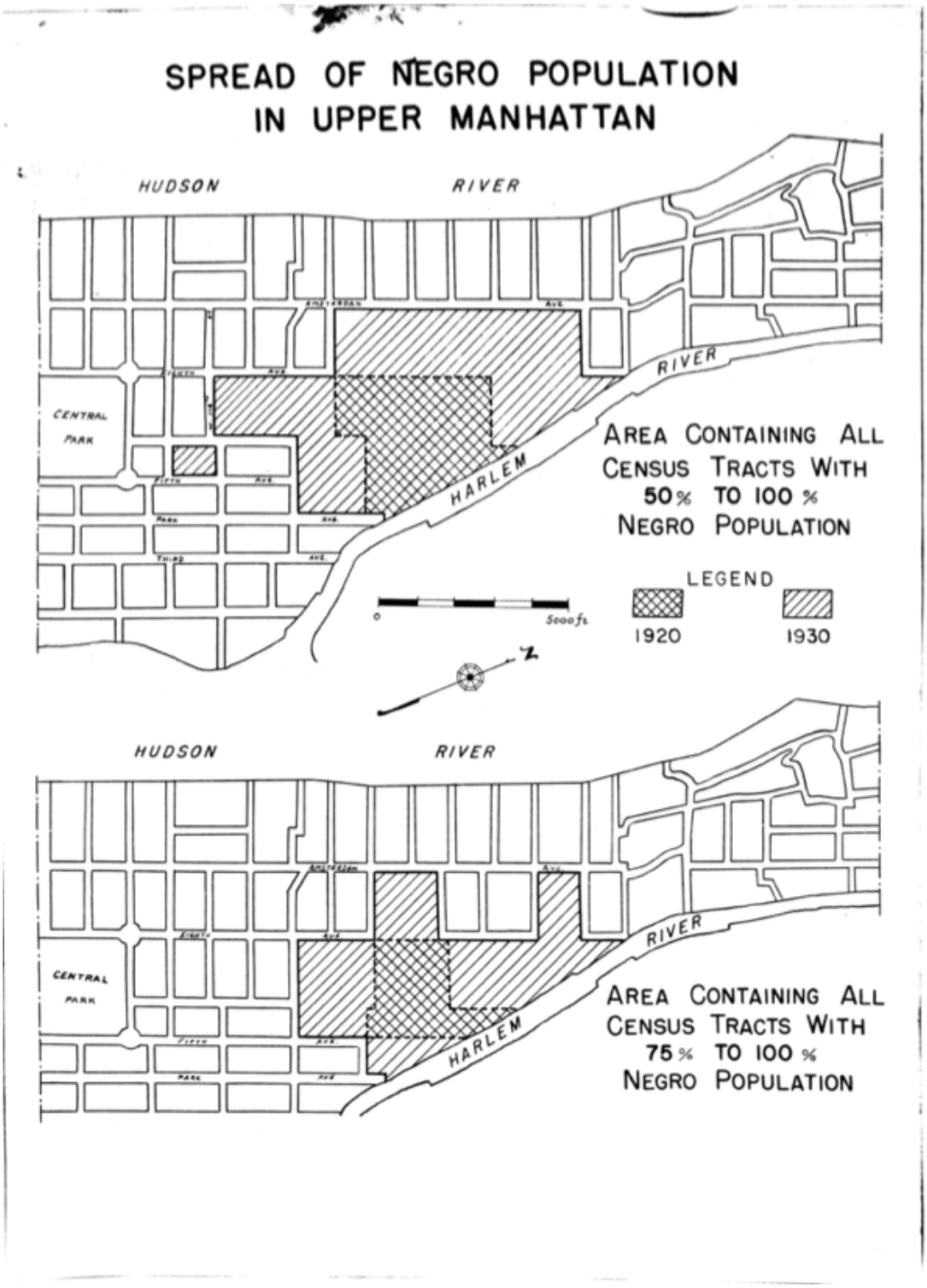

Figure B6: The FHA kept detailed records of where nonwhite residents were concentrated in cities: a map of Manhattan (National Archives Record Group 31 - scanned by author)