Segregation and Homeownership in the Early Twentieth Century

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Abstract

Racial gaps in homeownership over the past century in the United States have profound implications for black-white gaps in wealth, health, education, and public goods. Closely related to these gaps are patterns of residential sorting on the basis of race. We use new county-level segregation estimates for the period of 1880 to 1940 combined with homeownership data from the federal census to document a general rise in residential segregation in both urban and rural counties occurring alongside rising homeownership rates. However, we find a negative relationship between segregation and homeownership rates in the cross section for both white and black households. To further explore this relationship, we follow Fetter (2013) and use eligibility for GI Bill benefits as an exogenous source of variation in the ability to obtain a mortgage. We find that living in a more segregated county substantially reduced the impact of GI Bill benefits on white homeownership rates, suggesting that segregated locations potentially hindered both white and black homeownership.

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1 Introduction

The evolution of white and black homeownership rates over the past century has received considerable attention. General patterns in homeownership rates are well-documented by Collins & Margo (2001, 2011), who use federal census data to trace trends in homeownership from 1870 through 2000. After a decline from the late 1800s through the first decades of the twentieth century, driven in part by migration to urban areas, white homeownership increased dramatically from 1940 to 1980. Black households actually saw a significant increase in homeownership from 1870 through the early 1900s. Black homeownership rates, while always lying well below those of whites, also rose substantially in the decades after World War II. Any discussion of these changes in black and white homeownership rates inevitably touches on issues of residential sorting. Explanations of rising white homeownership often focus on white flight from urban centers following the Great Migration.Boustan (2010) estimates that each black arrival to a city led to 2.7 white departures. This white

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flight manifested itself in white residents creating suburban communities, leaving an increasingly isolated black population renting in the central city. Recent work by Boustan & Margo (2013) suggests this residential segregation actually contributed to increases in both white and black homeownership: migration of white households to the suburbs reduced urban housing prices contributing to rising black homeownership in central cities.

However, there are important ways in which residential segregation may have hindered homeownership. One needs only to look at the history of the Home Owner's Loan Corporation's (HOLC) use of racial characteristics in rating neighborhood desirability for appraising mortgages in the 1930s. Areas with high black population shares received lower ratings relative to areas with high white population shares. Financial institutions using these ratings were more likely to lend to those in white neighborhoods than those in black neighborhoods. In this way, residential sorting could contribute to widening black-white homeownership and housing quality gaps. A variety of institutional features of private mortgage markets, the Federal Housing Administration, and the tax code reinforced residential segregation, contributing to persistence of the black-white homeownership gap (Oliver & Shapiro, 1995).

This paper presents new empirical evidence on the relationship between residential segregation and homeownership rates. We utilize a new panel of county-level segregation estimates from Logan & Parman (2016) that have substantially greater geographic coverage than prior segregation estimates. Logan & Parman create a neighbor-based segregation index that focuses on the share of households with next-door neighbors of a different race in an area. This allows for estimating segregation for any geographic unit, producing estimates for all counties in the United States; prior studies of historical segregation have been limited to only 59 cities in the decades before 1940. We create a panel combining these segregation estimates for the entire United States with homeownership data by race for 1880 through 1940.

With these data we document that neighbor-based segregation was rising over time along with homeownership rates in both urban and rural areas. However, when looking across space in any given census year, higher levels of segregation were related to *lower*

levels of homeownership. This is true for both white and black households. As a test of how segregation levels impact homeownership, we exploit the approach developed by Fetter (2013) to estimate the impacts of the GI Bill home loan benefits on homeownership rates. As Fetter documents, the GI Bill provided a large, positive shock to veterans' ability to purchase a house. However, we find that the marginal effect of the GI Bill on homeownership is substantially reduced when a veteran lives in a more segregated county. A one standard deviation increase in segregation lowers the marginal effect by 30 percent for white veterans. These results suggest that residential segregation was a potentially large hindrance to home ownership, regardless of race.

2 Measuring Segregation

Prior studies on historical segregation patterns relied on traditional segregation measures such as dissimilarity and isolation (see, for example, Cutler et al. (1999)). These measures compare minority population shares in wards to the racial proportions of a city as a whole. Rural counties lack comparable units and data on population shares by ward are difficult to obtain for smaller cities or outlying suburban areas. Consequently, traditional segregation measures fail to capture the experience of a large share of locations and households in the early twentieth century. Furthermore, reliance on ward boundaries obscures substantial heterogeneity within wards and leaves segregation estimates highly sensitive to the ways boundaries are drawn.[3]

Logan & Parman (2016) introduce a measure of neighbor-based segregation better suited to estimating historical relationships between segregation and homeownership. It exploits the availability of 100 percent samples of the federal census and the fact that door-to-door enumeration occurred up until 1960. Consequently, household position on the census manuscript page corresponds to household position along the street allowing the races of next-door neighbors to be identified. The Logan-Parman measure of segregation compares the actual number of black households with white next-door neighbors to the number

[3]Consider the HOLC maps and the practice of 'redlining'. HOLC grades could vary within wards, variation critical to explaining home ownership patterns but obscured by traditional segregation measures.

expected under complete segregation and complete integration given the racial proportions of the area. It equals zero in the case of complete integration, increases as the number of black households with white neighbors declines, and equals one in the case of complete segregation. This measure can be estimated for any geographic unit of interest, making it applicable to the rural areas containing the majority of the United States population in 1900, and it avoids any sensitivity to ward boundaries.

Logan & Parman estimate their segregation measure for every county in the United States using the 1880 federal census, the first with reliable enumeration, and the 1940 federal census, that last publicly available census. Here we add calculations of the segregation measure for the intervening census years of 1900, 1910, 1920 and 1930.[4] We merge this panel of county-level segregation estimates with individual-level data for household heads include race, age, and dwelling characteristics from the Integrated Public Use Microdata Series samples of the federal censuses (Ruggles et al., 2015). We calculate homeownership rates for each county in each census year as the percentage of household heads stating that they own their house. This includes individuals with a mortgage.

3 Segregation and Homeownership Over Time and Across Space

Figure 1 shows the aggregate trends in segregation and homeownership by race over the first half of the twentieth century. Both panels reveal a similar story: modest gains in homeownership from 1900 to 1940 occurred against a backdrop of sharp increases in segregation levels. Of particular note are the far higher levels of segregation and lower levels of homeownership for black household heads relative to white household heads.

While it would be tempting to conclude from Figure 1 that increasing segregation drove gains in homeownership, a phenomenon documented for later decades by Boustan (2010) and Boustan & Margo (2013), the cross-sectional variation in the data tells a very different story. Figure 2 presents binned scatterplots showing the relationship between segregation and homeownership across apace. For both white and black households, there is a distinct negative relationship between segregation and homeownership, particularly at lower levels

[4]The 1890 federal census manuscripts were destroyed.

of segregation. This negative relationship is quite general. Regressions of an indicator for homeownership on county-level segregation produce large, significant negative coefficients for white households in both urban and rural areas. The coefficient remains negative and statistically significant even after including year and state fixed effects. Regressions for black households produce a small and statistically insignificant coefficient in rural areas but a large and highly significant negative coefficient in urban areas.

4 The GI Bill, Segregation and Homeownership

While the negative relationship between segregation and homeownership in the cross section, for both races and in both urban and rural areas, is quite robust, it does not tell us whether segregation is directly inhibiting homeownership. In this section, we turn to the impacts of the GI Bill on homeownership to assess how segregation impacts the effectiveness of home lending benefits. Fetter (2013) finds that the home lending benefits of the GI Bill substantially increased homeownership rates among eligible veterans. In Table 2, we replicate Fetter's approach of instrumenting for veteran status using date of birth cutoffs for eligibility to serve in World War II or the Korean War using the 1960 IPUMS federal census sample. We include an interaction of veteran status with 1940 county-level segregation to assess whether segregation impacted the marginal effects of GI Bill benefits.

Panel A of Table 2 presents results for white males. Consistent with Fetter's results, the impact of being a veteran on homeownership is consistently large and positive, and in the case of the Korean War, highly statistically significant. As in the previous section, segregation is negatively related to homeownership. The interaction of segregation with veteran status has a large, negative coefficient for Korean War veterans.[5] A one standard deviation increase in segregation leads to a 30 percent reduction in the marginal effect of the GI Bill home loan benefits on homeownership. These effects are not driven by more segregated counties having larger black population share.[6] Controlling for black population

[5]Note that in general, we find significant effects for Korean veterans but not World War II veterans. This is consistent with Fetter's results that showed the impacts of home loan benefits were far larger for younger veterans, helping them buy a house at an earlier age than they would otherwise.

[6]See Logan & Parman (2016) for the relationship between segregation and population shares.

share leaves the segregation coefficients for white households largely unchanged. Results for black households, provided in Panel B, are far less precise.

These findings suggest that segregation hindered the ability of white individuals to purchase a home. While identifying the mechanisms through which segregation hindered homeownership is beyond the scope of this paper, some insight can be gained by looking at how individual characteristics and housing characteristics differ by race and level of segregation. Table 3 provides means of key characteristics by race and correlations of those characteristics with county-level segregation. For white individuals, housing quality is positively related to segregation. House values are higher in segregated counties and the housing stock is newer and in better condition. These correlations raise the possibility that homeownership may be more desirable in segregated counties but more difficult to afford. The correlations for black individuals run in the opposite direction. House values are lower in more segregated counties and those houses are likely to be older, lack complete plumbing and hot water, and be in poor condition. While increasing segregation may open up affordable housing stock for black households, the quality of that housing is lower than in integrated counties.

These new segregation data suggest a complicated history of racial gaps in homeownership extending back to the late nineteenth century. While segregation levels and homeownership rates have both risen over time, segregation is negatively correlated with homeownership across space. This holds for white and black households in both urban and rural counties and is reinforced by the GI Bill results. Our findings suggest that segregation had opposite effects for white and black households in terms of housing quality but negatively impacted both groups in terms of homeownership.

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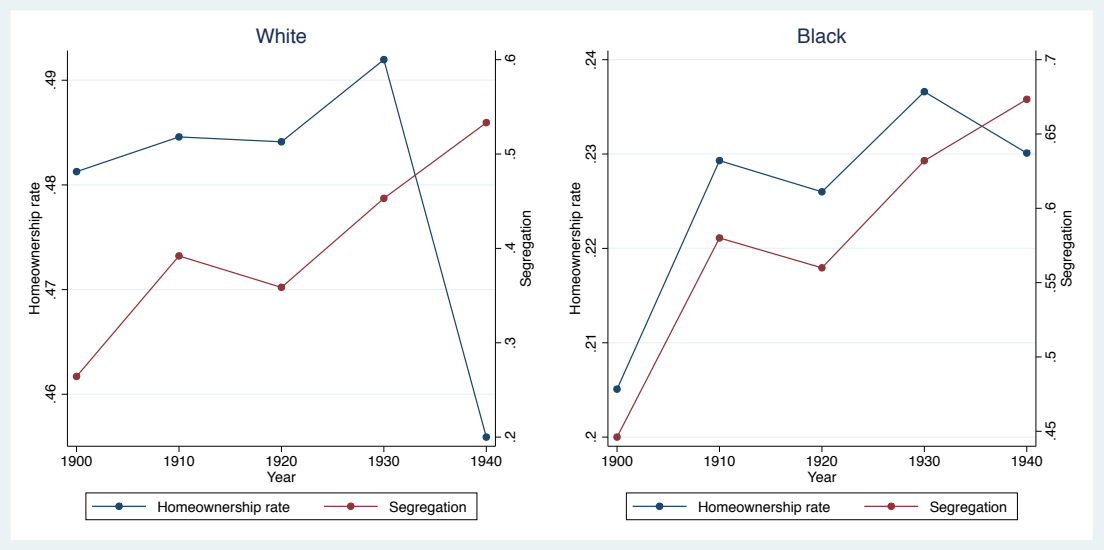

Figure 1: Neighbor-based segregation and homeownership rates over time by race. Homeownership rates are based on household heads over the age of 19 in the 1900, 1910, 1920 and 1930 IPUMS federal census samples. Neighbor-based segregation index values are county-level estimates taken from Logan and Parman (2016).

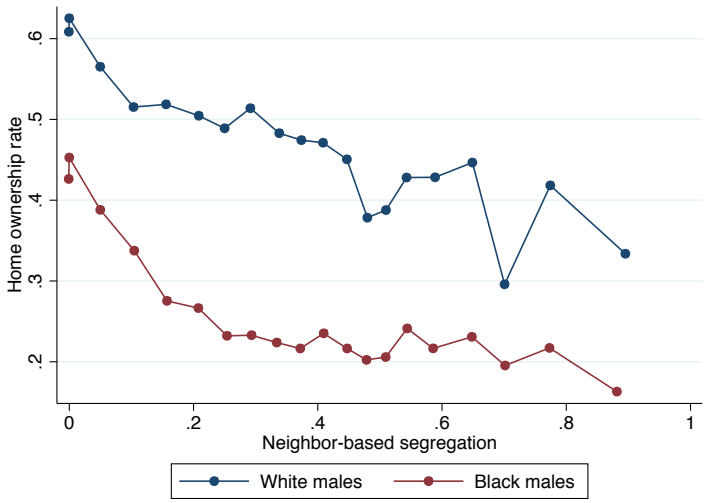

Figure 2: Binned scatterplots of neighbor-based segregation and homeownership rates by race. Homeownership rates are based on household heads over the age of 19 in the 1900, 1910, 1920 and 1930 IPUMS federal census samples. Neighbor-based segregation index values are county-level estimates taken from Logan and Parman (2016).

Table 1: Summary statistics for GI Bill regression samples

	World War II break		Korean War break	
	White	Black	White	Black
Veteran of World War II or Korean War	0.683	0.494	0.475	0.338
Homeowner	0.628	0.342	0.495	0.289
Lives in an urban area	0.708	0.791	0.711	0.781
Black population share	0.067	0.134	0.070	0.137
	(0.094)	(0.128)	(0.097)	(0.132)
Segregation index	0.589	0.748	0.590	0.742
	(0.248)	(0.169)	(0.250)	(0.174)
Age	31.8	31.8	26.8	26.8
	(1.8)	(1.8)	(1.8)	(1.81)
Income (in 1960 $)	5516.2	2860.9	4405.1	2514.1
	(3331.3)	(2017.8)	(2633.5)	(1847.8)
Observations	183,452	21,982	166,336	20,961

Notes: Standard deviations for non-binary variables given in parentheses. Sample is restricted to males in the 1960 federal census born in the three years on either side of the cutoff for enlistment. Income is topcoded at $25,000. Homeownership pertains only to owner-occupied single-family houses or condos. Segregation is based on the 1940 county level estimates from Logan and Parman (2016).

Table 2: IV estimates of GI Bill impacts on homeownership rates by race, homeownership as dependent variable

			Panel A: White males			
		World War II			Korean War	
Veteran	0.0528	0.07890	0.0676	0.0213	0.1202***	0.1352***
	(0.0360)	(0.0550)	(0.0545)	(0.0266)	(0.0429)	(0.0440)
Segregation		-0.1864***	-0.2813***		-0.1149***	-0.1372***
		(0.0420)	(0.0492)		(0.0173)	(0.0200)
Percent black			0.5733***			0.1994***
			(0.1230)			(0.0554)
Veteran x Segregation		0.0085	0.0653		-0.1041***	-0.1623***
		(0.0557)	(0.0655)		(0.0339)	(0.0396)
Veteran x Percent black			-0.2767*			0.3206***
			(0.1674)			(0.1139)
Observations	276,178	159,637	159,637	237,387	136,251	136,251
			Panel B: Black males			
		World War II			Korean War	
Veteran	--	-0.2300	-0.2448	0.1379	0.1492	0.0294
	--	(0.3627)	(0.3544)	(0.1682)	(0.2400)	(0.0333)
Segregation		-0.3834*	-0.4353*		-0.1381*	-0.1760***
		(0.2310)	(0.2585)		(0.0812)	(0.0294)
Percent black			0.1660			0.2219***
			(0.3170)			(0.0369)
Veteran x Segregation			0.2118			-0.0284
			(0.4633)			(0.0416)
Veteran x Percent black			-0.2054			-0.0383
			(0.5974)			(0.0519)
Observations		18,277	18,277	26,685	16,770	17,205

Notes: Robust standard errors given in parentheses. Regression sample is restricted to males born within three years of the enlistment cutoff. Segregation and percent black are both county-level estimates based on the 1940 census (see Logan and Parman (2016)). Veteran status is instrumented for using an indicator for being born before the state-specific quarter of birth cutoffs estimated in Fetter (2013). * significant at 10%, ** significant at 5%, *** significant at 1%.

Table 3: Means of individual and housing characteristics and their correlations with segregation by race

	White adult males		Black adult males	
	Mean	Correlation with segregation index	Mean	Correlation with segregation index
Segregation index	0.592	1.000	0.750	1.000
	(0.249)		(0.168)	
Age	44.519	-0.003	42.491	0.023
	(15.256)		(15.874)	
Income	4805.13	0.050	2389.79	-0.051
	(4027.08)		(2036.49)	
House value (in 1960 $)	12725.59	0.066	7420.40	-0.047
	(7918.38)		(5452.62)	
Never attended high school (1=never attended)	0.365	-0.013	0.598	0.030
High school graduate (1=graduate)	0.442	0.004	0.206	-0.026
Deteriotating or delapidated house (1=yes)	0.148	-0.060	0.453	-0.037
Lacks complete plumbing (1=yes)	0.103	-0.055	0.378	0.001
Lacks hot water (1=no hot water)	0.087	-0.045	0.357	0.005
Old house (1=house over 30 years old)	0.452	-0.038	0.563	0.066
Observations	1,396,551		147,357	

Notes: Standard deviations for non-binary variables are given in parentheses.Individual and housing characteristics are from the IPUMS sample of the 1960 federal census. Segregation index is 1940 county-level data from Logan and Parman (2016). House value is top coded at $35,000 and is only provided for owner-occupied single family houses or condos. Complete plumbing is defined as having running hot and cold water, a flush toilet and a bathtub or shower.