Mortgage Policies, Racial Sorting, and Upward Mobility

Nirupama Kulkarni Ulrike Malmendier *

ABSTRACT

For decades, US housing policies have aimed to increase homeownership and reduce racial disparities, but their success has been limited. We argue that the endogenous sorting of residents in response to place-based policies and deteriorating place-based factors help explain the lack of positive outcomes. In the context of the 1992 GSE Act, we show that, after the introduction of targeted support for mortgage financing in specific neighborhoods, Black homeownership mildly increased in those census tracts, but white homeownership strongly decreased. The sorting effect is most prevalent in tracts where, during the same time period, mortgage financing became more accessible in nearby census tracts. Children from low-income families who remain in the targeted areas display significantly lower upward mobility. We identify declining house prices, reduced education spending, and lower school quality as plausible channels.

JEL Codes: D14, R21, R23, R31

Keywords: Upward mobility, homeownership, segregation, sorting

*Kulkarni: CAFRAL, nirupama.kulkarni@cafral.org.in. Malmendier: Department of Economics and Haas School of Business, University of California, Berkeley, ulrike@berkeley.edu. We thank Nancy Wallace and Paulo Issler and the Real Estate and Financial Markets Lab at the Fisher Center for Real Estate and Urban Economics (Haas School of Business, University of California, Berkeley) for support. We also thank seminar participants at the NBER-RFS conference on "Inequality, Discrimination, and the Financial System" as well as David Card, Camelia Kuhnen, Rebecca Diamond, Bhash Mazumder, and Pat Kline for helpful comments.

1 Introduction

For over a century, increasing homeownership has been a major policy goal in the US. Starting from the Homestead Act of 1862 and the establishment of the Federal Housing Administration (FHA) in 1934, numerous legislative acts have promoted homeownership as the stepping stone towards upward mobility. The notion is that homeownership allows families to build wealth, attain financial security, and thus achieve the American Dream (Goodman and Mayer, 2018).[1]

In recent decades, homeownership policies have emphasized the dual goal of both increasing aggregate homeownership rates and narrowing the socio-economic and racial gap in homeownership (Gabriel and Rosenthal, 2008). Examples include the Community Reinvestment Act (CRA) of 1977 and the Federal Housing Enterprise Safety and Soundness Act, also known as the 1992 Government Sponsored Enterprises (GSE) Act. The dual objective has enjoyed strong political support across the aisle. For example, both the Clinton administration in the 1990s[2] and the Bush administration in the early 2000s[3] set the explicit goal to overcome the homeownership gap among minority and low-income families. Policymakers and economists alike have argued that reducing the racial disparity in homeowning will help address the racial disparity in economic outcomes (Collins and Margo, 2011).

Yet, the effects of these dual-goal policies have often been disappointing. Gabriel and Rosenthal (2008) estimate the impact on the 1977 CRA Act and the 1992 GSE Act on homeownership to be limited or non-existent, which is, as they note, "striking given the extensive level of government intervention directed through these programs." In particular, the racial disparities in homeownership have remained. For example, while Black ownership increased by 46 percentage points from 1870–2007, relative to an increase of 20 pp in white ownership in the same period (Collins and Margo, 2011), it turns out that 25 pp of this 26 pp reduction in the racial homeownership gap occurred between 1870 to 1910. For more than one century, the racial gap has barely changed.

[1] Cf. also Dietz and Haurin (2003); Sodini et al. (2023). Others link homeownership to higher educational attainment and fewer teenage pregnancies among their children (Green and White, 1997), as well as positive externalities for the surrounding neighborhood (DiPasquale and Glaeser, 1999). While some researchers attribute the positive effects to selection into who becomes a homeowner (Barker and Miller, 2009; Holupka and Newman, 2012), more recent work provides causal evidence from quasi-random experimental variation in homeownership (Sodini et al., 2023).

[2] See www.huduser.gov/publications/txt/hdbrf2.txt.

[3] See www.whitehouse.gov/news/releases/2002/06/20020618-1.html.

In this paper, we identify two key determinants of these developments: the endogenous sorting of households and deteriorating place-based factors. We argue that both are linked to place-based homeownership policies. Our empirical analysis utilizes census-tract level variation in 1990s housing policies that aimed at increasing homeownership and reducing the gap in minority homeownership. We show that, while Black homeownership increased slightly in geographically targeted neighborhoods, the same areas witnessed a significant outflow of white homeowners. The outflow was particularly pronounced if, simultaneously, access to mortgage financing improved in the surrounding tracts. We also show that the upward mobility of children from low-income families growing up in targeted tracts is significantly lower than in other tracts, and that this is the case for all families, both Black and white, who remained in the targeted area. Taken together these findings associate place-based homeownership policies with sharply different outcomes than documented for individual-level homeownership policies. While eased access to mortgage financing can be beneficial on the individual household level, targeting a whole census tract with similar incentives might produce adverse effects on household mobility.

Our analysis focuses on the 1992 GSE Act, which targets low homeownership rates in historically disadvantaged neighborhoods. The Act formalizes the responsibility of the Government Sponsored Enterprises (GSEs), Fannie Mae and Freddie Mac, to assist low- and moderate-income families as well as underserved neighborhoods. Specifically, the "Underserved Areas Goal" (UAG) targets census tracts with a tract-to-MSA median-income ratio of 0.9 or less[4] and tracts with a minority share of 0.3 or more (and a tract-to-MSA median-income ratio of 1.2 or less).[5] Our main analyses compare changes in housing outcomes from before to after the implementation of the GSE Act, 1990–2000, in target tracts versus other tracts within the same city (commuting zone, or CZ).

The analyses also account for simultaneous variation in mortgage financing in *other* tracts (within the same CZ) due to changes in the conforming loan limit (CLL). The CLL limits the

[4] MSA stands for Metropolitan Statistical Area. The 0.9 ratio applies to all metropolitan areas. For non-metropolitan areas, the ratio threshold is 0.95.

[5] Previously, in 1978, the Department for Housing and Urban Development (HUD) established Affordable Housing Goals for Fannie Mae that targeted borrowers based on the price of the house they were purchasing and whether they lived anywhere in a central city. These measures were largely ineffective (Moulton, 2014; Wallison, 2001).

origination balance of loans eligible to be purchased by the GSEs. Since conforming mortgages are easier to obtain for borrowers, CLL improves access to mortgage financing. For each tract, we calculate the fraction of houses in the remaining tracts (within the same CZ) that become eligible to be financed by GSE-conforming loans due to the nationwide changes in CLL between 1990–2000. The interaction of this tract-level measure with tract-level targeting sheds light on the economic incentives underlying the sorting out of GSE-targeted tracts.

We start by showing the differential homeownership patterns among Black and white families from the time before to the time after the GSE Act. First, we document that, contrary to the intended policy goal of increasing homeownership, targeted tracts saw a 16.054 pp decline in overall homeownership between 1990 and 2000, controlling for changes in homeownership in the CZ. We show that the decline is driven by an outflow of white homeowner (–16.475 pp), whereas the number of Black homeowners increased slightly in the targeted tracts (+0.376 pp). Second, the outflow of white homeowners from targeted census tracts was strongest when, at the same time, CLL changes eased the access to mortgage financing in the remaining census tracts of the same CZ. For every 1 SD increase in the access to mortgage financing in the other census tracts, we observe an additional 3.93 pp decline in white homeowners in the targeted census tract. Among Black homeowners, however, easier access to mortgage financing in surrounding census tracts did not affect homeownership in the targeted tracts.

We replicate the analysis for two prior decades, 1970–1980 and 1980–1990. The earlier decade, 1970–1980, provides for a mere placebo test. We find a null result or the reverse effect, i. e., an increase in white homeownership. The latter decade, 1980–1990, captures the effect of the 1977 Community Reinvestment Act (CRA), which had goals similar to the GSE Act. Here, we observe an increase in Black homeownership and decline in white homeownership in tracts targeted by the CRA, but not the CLL-induced sorting pattern into neighboring tracts. We argue that the more restricted targeting of the CRA (poorer areas) might explain the muted sorting as very poor households are not able to move to better neighborhoods, though the well-known ineffectiveness of the CRA (Bhutta, 2008; Gabriel and Rosenthal, 2008) might also be at play.

The net outflow of homeowners from targeted tracts raises the question of what happened

with the corresponding housing units. The data reveals that some of these units were rented out while others remained vacant. As for the former, we show that, while the number of homeowners who moved into a targeted tract in 1990–2000 was significantly lower than in other tracts (in the same CZ), the number of new renters was larger by an about equal-sized difference. Moreover, within-CZ sorting is detectable here as well: the result is strongest when there is eased access to financing in surrounding tracts. We also observe a significant increase in Black renters (and decrease in white renters) in targeted tracks.

As for the latter, the number of occupied housing units decreased significantly (-14.213 pp), and the decline is stronger when the remaining tracts in the CZ saw an increase in the ease of mortgage financing. Correspondingly, the number of vacant units increased in targeted relative to non-targeted tracts. The increase is concentrated in vacant-for-sale units, not vacant-for-rent units. At the same time, the number of housing units built in targeted tracts in 1990-2000 is 11.472 pp lower, pointing to a reduction in housing stock relative to other tracts.

Overall, our findings imply that tracts targeted by the 1990s housing policy experienced a significant decline in homeownership and, due to the sorting response of white households, an increase in racial segregation.

Next, we show that tracts targeted by the 1990s mortgage policies are characterized by significantly lower upward mobility, both among low-income Black families and among those low-income white families who remain in targeted tracts. We use the upward mobility data from Chetty et al. (2020) and measure upward mobility as the income percentile rank of children born in 1978–1983 relative to that of their parents. We estimate upward mobility is lower by 0.458 SD for Black children and 0.629 SD for white children in targeted tracts, which corresponds to a 8% and 12% lower income than the respective counterfactuals. As with the homeownership changes, the negative differential in upward mobility in the targeted tracts is larger when surrounding tracts in the CZ benefit from CLL-induced increases in access to mortgage financing. In supplementary analyses, we show that the decline among low-income children is not offset by a corresponding increase in the upward mobility of high-income children.

The finding of adverse mobility outcomes among *both* Black and white children in targeted

tracts and the magnitude of the mobility estimates point to a possible role for place-based factors. That is, while the composition of white households residing in targeted tracts changed because of their sorting response to the 1990s mortgage policies, family-based factors are unlikely to (fully) explain the decline in upward mobility. We conduct a simple bounding exercise, which reveals that the size of the estimated relation between UAG targeting and upward mobility is an order of magnitude larger than that implied by the observed changes in the composition of the population residing in targeted tracts. These changes in population composition, including race, education, type of housing, age, and poverty, amount to only 17% of the estimated targeting coefficient for white families and 16% for Black families. With the caveat that the data does not allow us to instrument for changes in demographics (independently of the housing policies) and to estimate the true causal effect of compositional changes, the estimated magnitude suggest that selection effects alone cannot account for the lower upward mobility in targeted tracts.

Motivated by the suggestive results of the bounding exercise, we assess several channels for possible place-based factors related to housing policies. We first document that housing values are significantly lower in targeted tracts, controlling for average CZ valuations. Moreover, house prices in targeted tracts suffer an additional discount when mortgage financing in surrounding tracts improves due to CLL changes. Lower house prices, in turn, can affect school funding from local sources, either directly through lower property values (e. g., lower property-tax revenues) or indirectly through the local economy (e. g., lower sales and other local taxes; cf. Mian and Sufi (2014)). We show that school funding from local sources is significantly lower in targeted tracts, especially when the remaining tracts in the CZ see an increase in the ease of mortgage financing. We also show that the lower education spending is accompanied by poorer quality schools, as measured by a higher student-per-teacher ratio in targeted tracts.

Overall, our results point to the importance of considering endogenous sorting responses when implementing housing policies, and anticipating adverse effects on place-based determinants of upward mobility. A policy intervention that eases access to mortgage financing might be beneficial on the individual level, but could have less positive or even adverse effects on household mobility when applied to a broader geographic area such as a whole census tract. This ob-

servation mirrors the contrast between small-scale versus large-scale differences in the literature on the "movement to opportunities." On the one hand, Chetty et al. (2016) document that children's outcomes improved when families in high-poverty housing projects were randomly moved to lower-poverty neighborhoods in the Moving to Opportunity (MTO) experiment. On the other hand, Derenoncourt (2022) shows that large-scale movement to opportunity in the context of the 1940-1970 Great Migration did not produce similar effects. Instead, it radically changed the racial composition of Northern cities and altered place-based effects, turning opportunity locations into opportunity deserts. Our analysis links larger-scale targeting of disadvantaged populations and minorities based on geographic areas (census tracts) to endogenous sorting—in our case sorting of the non-minorities out of those targeted areas— and to adverse place-based determinants of upward mobility.

Related literature. Our paper straddles several strands of literature. First, prior research has examined the impact of homeownership on economic outcomes, particularly on children's outcomes. An earlier literature links homeownership to higher educational attainment as well as fewer teenage pregnancies (Green and White, 1997). While policymakers cite these findings as a rationale for increasing homeownership, later literature attributes the positive outcomes to selection in who becomes a homeowner (Barker and Miller, 2009; Holupka and Newman, 2012). Newer work and instrumental-variable approaches show, however, that homeownership causes households to move up the housing ladder (i. e, from owning more affordable houses to more expensive houses), work harder, and save more (Sodini et al., 2023). The literature has also hypothesized positive externalities of homeowners as they are more likely to invest in the surrounding neighborhood (DiPasquale and Glaeser, 1999; Glaeser and Shapiro, 2003). Our paper uses the homeownership policies of the 1990s to identify variation in access to mortgage financing. Differently from prior literature, we identify negative externalities that arise from targeting specific neighborhoods and residential sorting.

Second, prior literature has studied the Affordable Housing Goals of the GSE Act, and specifically the Underserved Areas Goal, on homeownership and mortgage access. Ambrose and Thibodeau (2004) find a small positive increase in mortgage credit. Moulton (2014) relates the Af-

fordable Housing Goals to foreclosures, vacancies, and other housing outcomes in the 2000s and finds no discernible effect. An et al. (2007) examine the pass-through of GSE activity on mortgage supply, and find that while vacancies decline and home values increase, homeownership rates do not change. However, using a regression-discontinuity design, Bhutta (2009) finds that bank mortgage origination volume is almost 4% higher in targeted UAG tracts in 1994–1996. We, too, find an impact on homeownership, but distinct from previous literature, we also document strong sorting within CZs.

Other work has tested whether the homeownership policies since the 1990s have decreased the overall racial gap in homeownership, and found limited effects (Gabriel and Rosenthal, 2008; Bostic and Gabriel, 2006). We show that, in targeted neighborhoods, the gap increases as only Black homeownership increases slightly while white homeowners are leaving the census tract.

Our paper is also related to literature that examines racial differences in economic outcomes. Prior literature has found that racial disparities in the US are persistent (Myrdal, 1996; Duncan, 1968; Margo, 2016) and perpetuate across generations (Chetty et al., 2019). Possible mechanisms include residential segregation (Wilson, 2012; Massey and Denton, 1993), discrimination (Bertrand and Mullainathan, 2004), and differences in family structure (McAdoo, 2002; Autor et al., 2019). Cutler et al. (1999) differentiate between segregation resulting from "collective action" pre-1970, whether through policy instruments such as explicit racial zoning or through illegal means such as threatening violence, and a more "decentralized racism" post-1970s, as white households paid more to live in predominantly white areas. We focus on the homeownership policies of the 1990s and argue that they inadvertently increased residential sorting by targeting disadvantaged neighborhoods. Relatedly, Ouazad and Rancière (2016) have documented an outflow of white households from Black and racially mixed neighborhoods after the 2000–2006 credit boom. We document similar effects resulting from housing policies in the 1990s that were aimed at the opposite outcome, and link the residential sorting to declines in children's upward mobility.

Finally, our paper is relevant to prior literature on GSE activity in the secondary mortgage market and its influence on housing markets. Adelino et al. (2023) relate CLL changes to increasing house prices. DeFusco and Paciorek (2017) examine the interest-rate elasticity of mortgage

demand using the CLL threshold, whereas Kaufman (2014) examines the impact on mortgage cost and contract structure. Loutskina and Strahan (2015) interact the CLL with regional constraints to document effects on house prices and on local economic activity. Grundl and Kim (2021) exploit the increased geographic variation in CLL post-2008 across border-counties and establish a substantial effect on house prices, house sales, and construction activity, though no effect on homeownership. In contrast to the focus on overall homeownership patterns in these prior papers, we show significant within-CZ sorting of homeowners and differential effects on Black and white homeowners.

Our paper is organized as follows. Section 2 provides institutional background of residential mortgage markets and homeownership policies. Section 3 describes the data as well as the construction of the homeownership, upward mobility, and other measures. The Section also introduces our main empirical strategy. We analyze the effect of housing policies on homeownership between 1990–2000 in Section 4, and document differences in children's upward mobility in Section 5. Section 6 explores possible mechanisms. Section 7 concludes.

2 Institutional Details

We briefly discuss the institutional details of the residential mortgage market and the homeownership policies of the GSEs in the 1990s.

Two milestones in US homeownership policy were the creation of the Government Sponsored Enterprises (GSEs) Fannie Mae in 1938 and Freddie Mac in 1970, which became the two largest sources of housing finance in the secondary mortgage market. While their charters prohibit them from directly lending to borrowers, they support the secondary mortgage market in two ways: (i) They act as a conduit and issue mortgage-backed securities that can in turn be sold to investors in the capital markets; and (ii) they hold these mortgages and mortgage-backed securities in their on-balance-sheet retained mortgage portfolios (Jaffee and Quigley, 2007). Their policies largely determine who gets access to credit in the residential mortgage market and eventually becomes a homeowner. For example, the Federal National Mortgage Association Charter Act, which established Fannie Mae as a GSE in 1968, states that Fannie Mae's primary mission is to provide

secondary market facilities and ongoing assistance for residential mortgages, especially for low- and moderate-income families and in underserved areas.[6] The charter also authorizes the Secretary of the Department of Housing and Urban Development (HUD) to set goals to ensure that a portion of Fannie Mae's purchases of home mortgages satisfy its mission.

To fulfill their mission, GSEs are obligated to purchase residential mortgages from primary originators, such as mortgage bankers and depository institutions, if they pass the standards of a "conforming loan." One important criterion for a mortgage to be conforming is loan size: it is required to be lower than the conforming loan limit (CLL). The CLL is designed to ensure that the GSEs satisfy their mission of promoting access to mortgage credit for low- and middle-income households. It is updated every year, based on a survey of major lenders by the Federal Housing Finance Board, and reflects the national average change in single-family house prices during the prior year, assuming the standard loan-to-value ratio of 80%. While the CLL for single-family homes was only $33,000 in the early 1970s, it increased to $417,000 in 2006-2008.

In 1992, Congress enacted the "Federal Housing Enterprise Safety and Soundness Act," also referred to as the 1992 GSE Act. The goal of the GSE Act was to better implement the GSEs' mission of promoting access to mortgage financing for lower-income households and address discrimination against minority borrowers. Historically, discrimination had been explicitly sanctioned by the government. For example, the government-sponsored Home Owners' Loan Corporation (HOLC, established in 1933 to refinance home mortgages in default) introduced a practice known as redlining. It divided all metropolitan areas into four categories, ranging from 'best' to 'hazardous.' Hazardous neighborhoods, or 'red zones,' were those with 'detrimental influences' and 'undesirable populations,' namely, Black, brown or Jewish households. Similar practices of the Federal Housing Administration (FHA, established in 1934 to provide insurance on mortgages made by private lenders) essentially allowed only white households to become homeowners. Explicit racial FHA policies included appraisers giving higher ratings to mortgage applications in racially homogeneous neighborhoods and stymieing homeownership growth among Black communities (Rothstein, 2017). Until the 1960s, the FHA denied mortgage insurance in certain high-

[6] See SEC. 301, www.sec.gov/Archives/edgar/data/310522/000031052215000179/fanniemaecharteractexhibit.htm.

minority or predominantly Black neighborhoods. The Fair Housing Act under Title VIII of the Civil Rights Act of 1968 put an end to legal discrimination in the sale, rental, and financing of homes (Shertzer et al., 2016, 2018; Been, 2018; Elmendorf, 2019; Fischel, 2004), but discriminatory practices against minority borrowers continued well into the 1970s and 1980s.[7] The 'Underserved Area Goals' of the 1992 GSE Act were designed to overcome these long-lasting reverberations of past discriminatory practices and address the geographic disparity in homeowning (Jaffee and Quigley, 2007).

The GSE Act specifies three goals for the mandates of the GSEs[8]: (1) The low- and moderate-income goal states that a HUD-determined proportion of mortgages purchased by the GSEs should finance properties that are either owned or rented by households with incomes less than or equal to the median income of the area in which the property is located. (2) The geographically targeted or underserved areas goal asks that a HUD-determined proportion of mortgages purchased by the GSEs should finance properties located in (a) low-income areas, defined as metropolitan-area census tracts with a median family income less than or equal to 90% of the area median, or (b) high-minority neighborhoods, defined as metropolitan-area census tracts with minority population of at least 30% and with a median income less than or equal to 120% of the area median.[9] (3) The special affordable goals require mortgages with household income less than or equal to 60% of the area median or less than or equal to 80% of the area median and located in low-income areas, defined as in (2) above. A single loan can count towards multiple goal categories.

The GSE Act authorized HUD to monitor whether the GSEs are meeting these policy goals. After a two-year transition period, HUD could establish annual Affordable Housing Goals. In 1996, the numerical goals for the proportion of mortgages purchased by the GSEs were (1) 40% for low- and moderate-income households; (2) 21% for "underserved areas;"and (3) 12% for the "special affordable" goals (Gabriel and Rosenthal, 2005).

[7] In the 1980s, these discriminatory policies received significant press attention when the Atlanta Constitution published a four part series, "The Color of Money," and the Detroit Free Press published a similar series in July 1988 (Gabriel and Rosenthal, 2008).

[8] See Subpart B and Sec. 1331, Sec. 1332, Sec. 1333, and Sec. 1334 in the original 1992 GSE Act in https://www.govtrack.us/congress/bills/102/hr5334/text

[9] The criterion for non-metropolitan areas varies slightly, with eligible counties required to have median family income less than 95% of the greater of the state or national non-metropolitan area median income.

We note that the classification of tracts as targeted overlaps with an earlier mandate under the 1977 Community Reinvestment Act (CRA), which instructs federal banking regulators to encourage federally-insured banking institutions to meet the credit needs of their local communities, including low- and moderate-income neighborhoods. Under the CRA, a lower-income neighborhood is defined as a census tract with median family income below 0.8 of the median family income for both the MSA and the non-metropolitan areas of the state. Since this threshold is lower than the 0.9 threshold of the GSE Act (0.95 for non-metropolitan areas), all tracts targeted by the GSE Act are also targeted by the CRA. However, the implementation of the CRA is known to have been weak and ineffective (Agarwal et al., 2012). The mandates became binding only after the passage of the Financial Institutions Reform, Recovery, and Enforcement Act (FIRREA) of 1989 (Moulton, 2014; Jaffee and Quigley, 2007), which asked HUD to set Affordable Housing Goals for GSEs. And before HUD completed promulgating the goals, the 1992 GSE Act formalized the GSE responsibility for assisting low- and moderate-income families and underserved geographic regions. Thus, despite predating the 1992 GSE Act, the effective implementation of the CRA Act falls in the 1990s, the period of our analysis. We can thus interpret estimates of the effect of targeting under the GSE Act as the joint effect of both the CRA and the GSE Acts in the 1990s.

3 Data and Empirical Strategy

3.1 Homeownership, house prices, and access to mortgage financing

Homeowners and renters. Our first source of data are the 1980, 1990, and 2000 Census waves. We extract tract-level and county-level data on tenure (homeowners and renters), both in total and by race, for all occupied housing units. Our goal is to identify changes in the fraction of homeowners in a geographic area (typically a census tract ct), both due to existing residents buying or selling a house, and due to residents moving into the area and purchasing a home or moving out of the area and selling their home. Correspondingly, we define the change in homeownership in area a during the 1990s as:

$$\text{Change in homeownership}_{a,1990-2000} = \frac{\text{Homeowners}_{a,2000} - \text{Homeowners}_{a,1990}}{\text{Homeowners}_{a,1990} + \text{Renters}_{a,1990}} \tag{1}$$

We calculate this variable for all residents as well as separately by race (Black and white households). In the latter case, we replace the numerator with the change in Black (white) homeowners, while the denominator remains the same. Note that, by holding the denominator fixed at 1990 levels, we capture the net inflow or outflow of homeowners, with the denominator merely normalizing this count. An alternative measure using time-varying denominators, such as the difference in homeownership *rates*, $\frac{\text{Homeowners}_{a,2000}}{\text{Homeowners}_{a,2000}+\text{Renters}_{a,2000}} - \frac{\text{Homeowners}_{a,1990}}{\text{Homeowners}_{a,1990}+\text{Renters}_{a,1990}}$, cannot account for changes in the population and thus confounds changes in homeownership and selection effects. For example, if a targeted tract sees an outflow of Black renters and no change in Black homeowners, the difference in rates would indicate an increase in Black homeownership. The change in homeownership rates is thus less well-suited to capture the economic outcome of interest, namely, the impact of tract-specific housing policies on households' ability to become homeowners and the differential sorting into homeownership within and across neighborhoods. Nevertheless, in Section 5, we will re-estimate our results using changes in homeownership rates as it is a commonly used measure and helps illustrate our point. We will also calculate the corresponding measure for the change in renters as a point of comparison.

House values. A second set of variables from the Census is data on house values for specified owner-occupied housing units. The Census provides the number of houses in different house-price ranges in each census tract based on the Census respondents' estimates of how much their property would sell for, if it were for sale.[10] We use this information to calculate changes in the ease of mortgage financing in surrounding tracts in the same commuting zone (*CZ*).

Access to mortgage financing. Our main source of variation relies on the classification of census tracts as "targeted" or underserved in the 1992 GSE Act. Our emphasis on goal (2) of the GSE Act is motivated by prior research, which documents that the effects of the underserved areas goal were the strongest compared to other mandates of the GSEs (though overall muted) (Bhutta, 2009, 2008). However, since these goals rely on low-income classifications, we also capture households

[10] Specifically, the house price ranges are: less than $15,000, $15,000 to $19,999, $20,000 to $24,999, $25,000 to $29,999, $30,000 to $34,999, $35,000 to $39,999, $40,000 to $44,999, $45,000 to $49,999, $50,000 to $59,999, $60,000 to $74,999, $75,000 to $99,999, $100,000 to $124,999, $125,000 to $149,999, $150,000 to $174,999, $175,000 to $199,999, $200,000 to $249,999, $250,000 to $299,999, $300,000 to $399,999, $400,000 to $499,999, and greater than $500,000.

targeted by goals (1) and (3).

Residents of targeted tracts have easier access to mortgage financing since lenders can sell loans from targeted neighborhoods to the GSEs and are therefore more likely to approve loan applications. Empirically, the proportion of loan purchases by the GSEs from targeted populations did in fact increase after the enactment of the 1992 GSE Act (Bunce and Randall, 1996; Bunce, 2002; Manchester et al., 1998).[11] To facilitate their purchases from targeted communities, the GSEs increased their product offerings in the secondary mortgage markets, which in turn allowed for riskier underwriting standards in the primary market (Listokin and Wyly, 2000; Temkin et al., 2000). The increased GSE purchases from underrepresented areas also helped reduce adverse informational externalities. High-minority and low-income communities often have low transaction volumes. The GSE presence allowed lenders to generate information, making future transactions in these otherwise thin markets less risky for prospective lenders. As a result, primary market acceptance rates in these historically underserved neighborhoods increased (Harrison et al., 2002).

We obtain the information on whether a given tract is targeted from HUD. The classification is at the tract-level for 99.78% of the data, and varies within-tract for 130 tracts (0.22%), which straddle one or more metropolitan or non-metropolitan areas. In such cases, we classify the entire tract as targeted if any of the sub-tract regions is targeted. We use data as of 1996 (earliest available on the website).

A second source of variation in the access to mortgage financing are changes in the conforming loan limit (CLL). As discussed in Section 2, the CLL is the regulatory cutoff in the size of loans, above which the GSEs cannot purchase or guarantee loans. The CLL affects both the availability and the cost of mortgage financing. Originators, such as banks, can more easily securitize loans below the CLL, either by selling them to the GSEs or by purchasing credit protection from the GSEs. In contrast, mortgages above the CLL (jumbo mortgages) are either held by the original lender or sold to private securitizers.[12] Since the Federal charters of the GSEs confer significant benefits on them, such as lower funding costs due to their agency status, GSE-conforming loans

[11] Comparing the distribution of GSE purchases to the distribution of , toriginations, Case et al. (2002) find, however, that the GSEs are less likely to purchase loans to borrowers in lower-income neighborhoods.

[12] Even if securitized, the required capital for jumbo loans is much larger than the capital required for non-jumbo loans (Loutskina and Strahan, 2009).

enjoy lower interest rates than jumbo loans (Adelino et al., 2015).

Between 1990 and 2000, the CLL for single-family homes changed from \$187,450 to \$252,700.[13] Assuming a loan-to-value ratio of 80%,[14] this change corresponds to house price values between \$234,312 and \$315,872. We use the 1990 Census data on house values and specifically the closest bucket of \$200,0000–\$400,000 to calculate a proxy for the fraction of houses that became eligible for GSE-conforming mortgages between 1990 and 2000. (We use 1990 house prices to avoid confounds from possible house price increases due to higher credit supply arising from CLL increases.)

One difficulty with any CLL-based proxy is that it depends on the general house price level in an area. Areas with very low prices or very high prices are less likely to experience large changes as the cost of most houses either was already, or never will be, in the range of conforming loans, regardless of the CLL increases. Hence, a tract-level CLL-based proxy might capture unobservable correlates of homeownership or upward mobility. We can, however, use changes in the fraction of all *other* tracts within a given CZ to capture variation in the attractiveness and feasibility of moving. That is, given our interest in sorting into and out of a targeted tract, we measure whether properties in nearby tracts became easier to finance fully through GSE-eligible loans due to CLL changes. The resulting proxy, ΔEase in mortgage financing$_{-ct,1990-2000}$, captures changes in the ease of mortgage financing in the remaining tracts ($-ct$) of a given CZ induced by CLL changes. We percentile-transform these changes since the distribution is highly right-skewed.[15] In our sorting analyses, we exploit the interaction between this proxy and our tract-level classification as targeted under the UAG, controlling for CZ fixed effects.

Figure 1 illustrates the variation in both the raw and the percentile-transformed variable. Panel (A) directly plots the raw against the percentile-transformed measure. As illustrated with the colored dots, tracts in New York experience a high percent change and have a high percentile rank, reflecting the high house prices in New York. Properties in Cedar Rapids are cheaper and have lower changes in mortgage accessibility; and Seattle falls in the middle. The figure thus il-

[13] For four-family homes, the cutoff changed from \$360,150 to \$485,800 in 1990–2000. We focus on single-family homes as they are closely tied to homeownership and consider multi-family homes in robustness checks.

[14] Mortgages above 80% loan-to-value require private mortgage insurance to qualify as GSE-eligible.

[15] See Derenoncourt (2022) and Sequeira et al. (2020) for a similar scaling of right-skewed variables. To aggregate the data to the CZ-level, we use the county-to-CZ crosswalk from Chetty et al. (2015).

lustrates the importance of controlling for CZ fixed effects for both measures. It also shows that the percentile transformation affects the relative position of cities. In terms of percent change, the tracts in Seattle experience increases in accessible mortgages around 15%, which are somewhat closer to those in Cedar Rapids (less than 5%) than those in New York (above 35%). However, in terms of percentile rank, the changes in Seattle are large, around the 80th percentile, and thus close to New York (around the 90th percentile), but not to Cedar Rapids (around the 20th percentile). More generally, the steep increase of the plot around low percent changes and subsequent flattening above 10% indicates that very few cities experienced two-digit changes in the percent of houses for which mortgage financing becomes accessible. As a result, even a medium change in terms of percent implies a high rank in terms of percentile.

Our empirical strategy compares tracts within-CZs, i. e., after controlling for CZ fixed effects. Panels (B) illustrate the resulting ranges of the percentile-transformed measure. For example, we observe a tighter range of about 1 percentile for Seattle (-.66 to .34) compared to about 4 percentile points for New York (ranging from -1.51 to 2.49) and 5 percentile points for Cedar Rapids (-4.53 to 0.425).

For additional analyses, we also define ΔEase in mortgage financing$_{-ct,1980-1990}$ and ΔEase in mortgage financing$_{-ct,1970-1990}$ using the data from 1970–1980 and 1980–1990, respectively.

Moving, construction, and vacancies. Moreover, we use the following variables from the Census data to establish sorting patterns: We calculate the number of owners (and, separately, the number of renters) who moved into their current residences between 1990–2000 relative to the total number of households in 1990. We also construct the percentage of units built between 1990–2000 relative to the total households in 1990. Finally, we calculate the change in the percentage of occupied and vacant housing units between 1990 and 2000.

We also use the total number of housing units in each CZ from the Census 1990 for weighting the data in our analyses.

3.2 Upward mobility measures

We use the tract-level upward mobility measures from Chetty et al. (2020). The measures are constructed from federal income-tax returns, which are linked to de-identified data from the 2000 and 2010 decennial Censuses and the 2005–2015 American Community Surveys to obtain information on income, race, parental characteristics, and other variables. The children belong to the 1978–1983 birth cohorts and are either born in the US or authorized immigrants who came to the US in childhood. A child's parent is defined as the person who first claims the child as a dependent (between 1994-2015). The sample includes 20.5 million children, approximately 96.2% of children in the 1978–1983 birth cohorts.

Upward mobility is defined as the difference between children's and parents' income in terms of their respective percentile ranks. A child i's income percentile rank in the national distribution of income is defined relative to all others in the child's cohort when the child is adult (between ages 31-37 in the baseline sample, as measured in 2014-2015). Similarly, the parents' percentile rank is based on their position in the national distribution of parental income for child i's birth cohort as of years 1994–2000, when the children are between the ages of 11 to 22 years. The definition of the ranks is held fixed based on the positions in the national income distribution, even for the race-specific estimates.

To construct tract-level estimates of children's incomes in adulthood and relate it to parents' household income level, Chetty et al. (2020) assign children to tracts in proportion to the childhood time spent growing in a specific tract. For each tract-by-gender-by-race cell, they estimate the conditional expectation of children's outcomes given their parents' household income using a univariate regression. The publicly available tract-level data suppresses estimates if a tract-race-gender cell has fewer than 20 children to protect privacy. Especially for non-white households, upward mobility by race is suppressed in a significant number tracts to maintain confidentiality, while data for white households is available for the largest number of tracts. Hence, we focus our analysis on Black and white households and exclude Native American, Asian, and Hispanic households in our analysis. Chetty et al. (2020) also add a noise component to the estimates that is inversely proportional to sample size to protect privacy.

In our analysis, we focus on the the upward mobility of children with parents at the 25th percentile, though we also discuss the upward mobility for children at the 75th percentile. Note that Chetty et al. (2015) estimate the rank-rank relationship between children's income (when adult) and parental income to be almost linear, so that the 25th percentile corresponds to the average upward mobility of all children with below-median income in the national distribution.[16] Within this subset, we consider separately the upward mobility measures for Black and white children. We use the percentage of the population below the poverty line, the percentage above age 50, and the percentage of single-family detached homes in a tract, as well as values of all variables in 2000 when we look at compositional changes.

3.3 Measures of school funding and school quality

Our analyses of the underlying mechanism use several additional sources of data.

To analyze the sources of educational spending, we utilize data on school spending and revenues from the National Center for Education Statistics' (NCES) Common Core of Data for public schools. We calculate the school funding that comes from local sources per 1000 students from the school-district data for the 1996–1997 fiscal year (as representative of the sample period of 1990–2000). We map from the school-district level to the tract level by weighting in proportion to the land area covered by a given school district in a tract.

The NCES Common Core of Data also provides information about the student-to-teacher ratio as a proxy for school quality. We use the standardized student-to-teacher ratio, provided at the school level. We drop the top 0.1% of schools that have student-to-teacher ratios exceeding 100, and the bottom 10% of schools that report ratios of 0. We map schools' zip codes to census tracts to obtain the average student-to-teacher ratio at the tract level, weighted with the proportion of land area covered by a given zip code in a tract.

3.4 Summary statistics

We merge all of the above data sources. The main sample limitation is imposed by the availability of the upward mobility measures for Black and white children from low-income families. The

[16] By race, the functional form for the rank-rank relationship is close to linear for white households, but non-linear for Black households (see Figure Ia in Chetty et al. (2020)).

overall sample consists of 36,334 census tracts, out of which 18,482 have data for Black children's upward mobility available. We winsorize all variables except the upward mobility measures at the 1% level to account for the influence of outliers.

Table 1 shows the corresponding tract-level statistics of the main variables used in our analyses. The change in homeownership between 1990–2000 is on average 37.16%, with a much larger proportion attributable to the change in white homeownership (34.42%) than the change in Black homeownership (2.48%). Note that, for tracts at the 25$^{\text{th}}$ percentile of the distribution, we see a negative change in homeownership of -0.75% overall and -0.91% among white households, but no decline in Black homeownership. In contrast, the changes in renters are much smaller, on average 11.55%, and again with a much larger portion attributable to white households (8.99%) than to Black households (2.14%). Here, too, tracts at the 25$^{\text{th}}$ percentile display a reduction overall, but no change among Black households. We also calculate the percent of owners and the percent of renters who moved over the ten-year horizon. In the median tract, the percentages of owners who moved is 41.95%, higher than the percentage of renters who moved, 32.90%.

Turning to the statistics on housing units, the median tract had 1,424 housing units in 1990, had 36.11% additional housing units built and correspondingly saw an increase in occupied housing units of 63.17% over the 1990–2000 horizon. The mean change in vacant housing units was 9.81%.

In terms of our first source of variation—the classification of tracts as targeted under the UAG—, nearly 51% of tracts are targeted under the 1992 GSE Act. The percentage of targeted tracts is similar when we consider all tracts (as opposed to the tracts in the 551 CZs used in our analysis), where 48.45% of the tracts are classified as targeted.

Our second source of variation is the share of properties in the remaining tracts of the CZ that become eligible to be fully financed by GSE-conforming loans due to CLL changes between 1990–2000, $\Delta\text{Ease of mortgage financing}_{-ct,1990-2000}$. Its average value is 9.90%, and its percentile-transformation amounts to an average change of 46.49 (with a standard deviation of 30.45).

Several statistics describe the upward mobility of children in our sample. Average upward mobility of children from low-income families has at percentile rank 42.36, while the percentile

is 56.59 for children with high-income parents. Hence, on average across tracts, the children of low-income parents have (when adult) an income rank 14.23 percentiles below the income rank of children from high-income parents (56.59-42.36).

The summary statistics also reveal strong racial differences in upward mobility. As discussed in Section 3.2, we focus on the subgroups of Black and white households in our analysis since tract-level data is not available for the majority of tracts for Native American, Asian, and Hispanic households in the data from Chetty et al. (2020). Upward mobility for the children of low-income Black families has a 33.41 percentile income rank when adult, while their counterparts from low-income white families are at a 45.71 percentile rank, implying a 12.3 percentile race gap. At the 75th percentile of parents' income distribution, Black children have a higher 43.72 percentile income rank when adult, and the corresponding income rank for white children is again higher, 58.98, corresponding to a higher race gap of 15.26. For the main sample, we retain the tracts for which the upward mobility of measures are available. However, for the upward mobility by race, data is suppressed in some tracts to maintain confidentiality. The tract-level upward mobility for low-income Black households is available for 18,482 tracts, and that for low-income white households is available for 34,718 tracts.

Finally, the summary statistics include three variables that will speak to underlying mechanism of place-based deterioration. Log of the median value of house prices in 2000 has an average value of 11.55 at the tract level. To measure school quality we use the student-to-teacher ratio. The tract-level average was 18.35, with a standard deviation of 3.23. School funding from local sources per 1000 students was 2.81 (SD=1.87).

3.5 Empirical specifications

Our main analyses assess the relationship between the housing policies of the 1990s and homeownership decisions as well as upward mobility outcomes.

Homeownership. Our baseline model estimates

$$\Delta \text{ Homeownership}_{ct,1990-2000} = \alpha_{CZ} + \eta \text{Targeted tract}_{ct} + \epsilon_{ct}, \tag{2}$$

where ct indicates a census tract, and α_{CZ} is the CZ-level fixed effect. The dependent variable is the change in homeownership (overall and, separately, for Black and white families) between 1990–2000. This regression allows us to examine how homeownership patterns changed in targeted versus other tracts within CZs between 1990–2000.

We then estimate how homeownership patterns in targeted tracts vary depending on variation in the access to mortgage financing in the *remaining* tracts of the same CZ. We examine the within-CZ sorting of homeowners across census tract data using the specification

$$\begin{aligned}\Delta \text{ Homeownership}_{ct,1990-2000} = \ & \alpha_{CZ} + \eta \text{Targeted tract}_{ct} \\ & + \gamma \text{Targeted tract}_{ct} \times \ \Delta \text{Ease of mortgage financing}_{-ct,1990-2000} + \epsilon_{ct}.\end{aligned} \tag{3}$$

The coefficient γ measures how much the relationship between targeting and homeownership changes varies with a 1 percentile increase in the access to mortgage financing in the rest of the CZ. Note that we do not include the level effect of ΔEase of mortgage financing$_{-ct,1990-2000}$ in the estimation as the effect of the leave-one-out mean is not independently identified.[17]

A challenge in attributing the sorting due to the classification of tracts as targeted under the 1992 GSE, is that it could reflect general trends in preferences of white households to move away from disadvantaged neighborhoods in the 1990s. We will estimate a placebo model using an earlier horizon to show that our findings do not reflect a general trend.

Upward mobility. In the next step, we examine the impact of the change in homeownership between 1990–2000 on children's upward mobility.

Average upward mobility is the expected mean household income rank for individuals with

[17] To illustrate the confound, we denote the variable of interest, ΔEase of mortgage financing$_{-ct,1990-2000}$, for census tracts ct in commuting zone CZ as $x_{-ct,CZ}$. We consider this variable before its percentile-transformation, expressed as the ratio of the change in the number of houses that can be financed with conforming loans in all tracts of CZ other than ct, divided by the total number of houses in all tracts of CZ. We can write this leave-one-out mean as $x_{-ct,CZ} = \sum_{ct' \in CZ \setminus ct} x_{ct',CZ}$, where $x_{ct',CZ}$ is the ratio of the change in the number of houses that can be financed with conforming loans in tract ct' as the numerator, divided by the total number of houses in the CZ as the denominator. This can be re-written as $x_{-ct,CZ} = \sum_{ct' \in CZ \setminus ct} x_{ct',CZ} + x_{ct,CZ} - x_{ct,CZ}$. We further rewrite $x_{-ct,CZ} = \bar{x}_{CZ} - x_{ct,CZ}$, where $\bar{x}_{CZ}$ is the change in CLL-loans in the CZ as a fraction of total houses in the CZ. The first term, $\bar{x}_{CZ}$ is common across all tracts in the CZ and hence drops out when we include CZ fixed effects. Thus, all identifying variation comes from the second term, $-x_{ct,CZ}$, which is the negative CLL changes in the tract in question, relative to all houses in the CZ. In other words, if the level effect ΔEase of mortgage financing$_{-ct,1990-2000}$ were included in the empirical model, the coefficient would be identified out of changes in the tract in question rather than the other tracts. Hence, we do not include the uninteracted term for ΔEase of mortgage financing$_{-ct,1990-2000}$ in the baseline regressions.

parents at the 25$^{\text{th}}$ of the parent income distribution. The tract-level data is from Chetty et al. (2020). We also use separate measures of upward mobility for the children of Black and white households at the 25^{th} percentile of the income distribution, which is also provided by Chetty et al. (2020). For ease of interpretation we standardize (z-score) the upward mobility measures, which allows comparisons of Black and white children.

The tract-level analysis of upward mobility effects is analogous to the tract-level analysis of homeownership in equations (2)–(3), with the dependent variable replaced by the upward mobility of the children of the families with income distribution at the 25^{th} percentile:

$$\text{Y}_{ct} = \alpha_{CZ} + \eta \text{Targeted tract}_{ct} + \epsilon_{ct}, \tag{4}$$

$$\begin{aligned}\text{Y}_{ct} = \ & \alpha_{CZ} + \eta \text{Targeted tract}_{ct} \\ & + \gamma \text{Targeted tract}_{ct} \times \Delta \text{Ease of mortgage financing}_{-ct,1990-2000} + \epsilon_{ct}.\end{aligned} \tag{5}$$

We use both overall average upward mobility and upward mobility by race, separately for children from low-income Black and low-income white families, as provided by Chetty et al. (2020) and again standardized (z-scored). The coefficient η measures the average of the dependent variable in the targeted census tracts when the remaining tracts do not experience an increase in the access to mortgage financing. And the coefficient γ measures the impact of a 1 percentile higher ease of mortgage financing in the rest of the CZ, relative to a targeted census tract in the CZ, on the dependent variable. These regressions allow us to examine how overall, and specifically for Black versus white families, upward mobility changed within CZs in targeted census tracts when the remaining tracts in the CZ witness improvements in the ease of mortgage financing between 1990–2000.

4 Homeownership

We first analyze the relationship between tract-level changes in mortgage accessibility due the 1990s homeownership policies and changes in homeownership. We highlight the distinct patterns in Black and white homeownership changes and the within-CZ sorting during the period.

4.1 Tract-level homeownership changes

Table 2, Panel A, shows the estimated changes in overall homeownership between 1990–2000 in columns 1–2, in Black homeownership in columns 3–4, and in white homeownership in columns 5–6. In column 1, the coefficient of Targeted tract$_{ct}$ indicates a 16.054 pp decline in homeownership in targeted tracts. That is, contrary to the intended effect of the UAG, the number of homeowners (relative to the number of homeowners and renters in 1990) decreased when a tract was targeted. This estimate is broadly consistent with prior literature (Bostic and Gabriel, 2006), which finds at best a limited and typically a null or negative impact of the UAG on homeownership. Yet, it is counter to the UAG of reducing the geographic disparity in homeownership.

We continue to estimate a negative effect of targeting when we turn to model (3) and include the interaction of Targeted$_{ct}$ and changes in the access to mortgage financing in the surrounding tracts in the same CZ, ΔEase of mortgage financing$_{-ct,1990-2000}$, in column 2. In addition, the estimates in column 2 show that this effect is particularly pronounced if homeownership in the remaining tracts becomes more accessible. A 1 percentile increase in the ease of mortgage access in the other census tracts in a CZ predicts an additional 0.140 pp decline in homeownership in the targeted tracts.

The estimates in the remaining columns reveal striking race-specific differences. In column 3, we estimate a marginally significant 0.376 pp *increase* in Black homeownership in targeted tracts. The positive estimate becomes even larger (0.834 pp) and highly significant, when we also account for sorting effects (in column 4). At the same time, the increase in the ease of mortgage availability in remaining tracts has no predictive power for Black homeownership in targeted tracts, though we do estimate an insignificantly negative coefficient. Thus, consistent with the UAG, Black homeownership did increase when historically disadvantaged neighborhoods were targeted. The contrast between the marginally significant coefficient of 0.376 on Targeted tract under model (2) and the highly significant coefficient of 0.834 under model (3) indicates that the changes in targeted tracts were largest when sorting incentives were smallest.

The estimates in columns 5 and 6 show that the overall decline in homeowners in targeted tracts in column 1 and the sorting pattern in column 2 are driven by white households. White

homeownership declined significantly, by 16.475 pp under model (2). Accounting for sorting under model (3), we can decompose the negative effect into a 9.50 pp reduction that occurs even when the access to mortgage financing in other tracts did not improve, and an additional 0.129 pp decline in white homeowners when the ease of mortgage financing increases by 1 percentile rank. In other words, white homeowners are particularly likely to move out of targeted neighborhoods when greater ease of mortgage financing in the surrounding neighborhoods allows them to do so.

4.2 Comparing patterns in previous decades

We replicate the analysis for two prior decades: 1970–1980 as a placebo and 1980–1990, when the 1977 Community Reinvestment Act (CRA) was in effect. The goal of these robustness checks is twofold. As discussed in Section 2, the CRA resembled the GSE in targeting low-income areas, but was poorly implemented (Bhutta, 2008; Gabriel and Rosenthal, 2008). Here, the goal is to identify whether similar patterns of "unintended" (adverse) homeownership effects are detectable already in the prior decade, 1980–1990. In contrast, no such policies were in effect in the decade prior to that, 1970–1980. Here, the analysis serves as a mere placebo test and ensures that we are not picking up longlasting underlying trends in tracts that will become targeted.

We re-estimate models (2) and (3) with the respective Census data. For the 1970–1980 decade, we use the same GSE classification of "targeted" tracts as before (now as a placebo). For 1980–1990, we use the CRA classification of tracts with median family income below 80% of the Metropolitan Statistical Area (MSA) median, which is similar to (albeit more restrictive) than the classification under the GSE Act.

Panel B of Table 2 shows the results for for 1980–1990. In column 1, the coefficient of Targeted tract$_{ct}$ indicates a 15.899 pp decline in homeownership, similar to the effect during 1990-2000. The race-specific differences are also similar: a 4.587 pp *increase* in Black homeownership (column 3), accompanied by a highly significant 10.631 pp decline in homeownership of white households in targeted tracts (column 5).

Turning to the sorting pattern estimated under model (3), however, we observe differences. As in model (2), column 2 shows that homeownership declined significantly in targeted tracts (-11.021 pp) but we observe no negative sorting out of targeted tracts when homeownership in

the remaining tracts becomes more accessible. The same holds for white households in columns 5 and 6. That is, the overall decline in homeowners in CRA-targeted tracts in column 2 is driven by a significant decline in white homeownership, by 13.156 pp, regardless of access to mortgage financing in the remaining tracts. The pattern for Black homeownership in columns 3–4 points to an overall increase, but is noisier using the more saturated model (3).

The estimation results provide two insights. First, the CRA also targeted disadvantaged neighborhoods, and yet we see a decline in overall and white homeowners in exactly those neighborhoods. This part of the analysis confirms the adverse effects of place-specific targeting. Second, we do *not* replicate the adverse sorting effects due to CLL changes. One possible explanation for the latter (non-)result is that the CRA targeted poorer neighborhoods than the GSE Act (80% rather than 90% median-income threshold relative to the MSA) for whom CLL-based increases in the ease of mortgage financing in surrounding tracts are less relevant. By construction, these increases affect tracts with a higher proportion of properties "at the cusp" of jumbo and non-jumbo loans, and hence with more expensive properties than those in the targeted tracts. CLL-based sorting is thus more relevant in the GSE-targeted tracts, where some richer families can afford to buy these properties as they become accessible, than in the poorer CRA-targeted tracts. This interpretation is also consistent with the stark differences in sorting between Black and white households that we found in Table 2. Given the racial wealth gap, white households are more likely to be able to afford the more expensive houses. For example, 2.5% of white households owned houses valued between \$200K and \$400K in 1990 compared to 0.5% of Black households.[18] (In light of this possible interpretation, we will further investigate moving patterns in the next section.)

Finally, in Panel C, we examine targeted tracts between 1970–1980 as a placebo test, that is, before either the CRA or the GSE Act was in effect. The results in columns 1–6 confirm that none of the results replicate. If anything, these tracts were seeing an increase in homeownership between 1970–1980, which is almost entirely driven by the increase among white households. This result helps assuage concerns that we are merely picking up long-standing trends in homeownership in targeted tracts. Tracts that would ultimately be targeted by the CRA and GSE Act saw *positive* de-

[18] Based on data from US Census Bureau's 1991 American Housing Survey metropolitan and national samples.

velopments in homeownership, particularly among white households, before the homeownership policies started taking effect. Once the place-based targeting took effect, these trends reversed.

4.3 Sorting patterns

The observed adverse effects of place-based housing policies imply that a significant fraction of homeowners choose to leave (or avoid) targeted tracts. To probe this interpretation, we perform two additional analyses. First, we examine patterns in the flow of households who moved into their current residences during the relevant time period in 1990–2000. Second, we investigate what happened with the corresponding housing units and analyze changes in the occupancy, vacancy and construction of housing units in a tract.

Movers. To analyze how the rate of homeowners moving into their current housing units compares between targeted and other tracts (within in the same CZ), we utilize data from the 2000 Census, which elicits whether households moved into their current residences during the last census period. In columns 1 and 2 of Table 3, we re-estimate models (2) and (3) replacing the dependent variable with the number of owner-occupied units that households moved into during the 1990–2000 census period, relative to the total number of households in 1990. In column 1, the number of owners who moved into their current residence is estimated to be 19.799 pp lower in targeted tracts than other tracts in the same CZ. In addition, the lower percentage of homeowners moving in depends significantly on the ease of financing in the surrounding tracts in the same CZ: The estimates in column 2 show that the number of owners who moved in was 0.181 pp lower when the remaining tracts in the CZ saw a 1 percentile increase in ease of mortgage financing.

These estimates confirm the net outflow of homeowners and proposed sorting mechanism due to targeting and CLL changes. The estimates speak to the hypothesized moving pattern as they mirror the flow in homeownership from Table 2.

The observed pattern also raises the question of what happened with the corresponding housing units. A first insight comes from considering the analogous mover data for renters. Column 3 of Table 3 shows that the number of renters who moved into their current residence in 1990–2000 (normalized by the number of households in 1990) was significantly higher in targeted tracts than

in other tracts in the same CZ, with the absolute magnitude of the difference between targeted and non-targeted tracts (20.206 pp) being similar to that of the reduction in owners moving to the tract in column 1. This is consistent with homeowners leaving a targeted tract and renting out their housing units.[19] In addition, we also find that the higher percentage of renters moving in covaries with the ease in mortgage financing in the surrounding tracts: the number of renters who moved in was 0.475 pp higher when the remaining tracts in the CZ saw a 1 percentile increase in ease of mortgage financing, as shown in column 4. When surrounding tracts do not experience any increase in access to mortgage financing, there is no excess in renters moving in (and in fact a lower number compared to the overall CZ).

Note though that, despite the higher number of renters moving in, compared to other tracts, targeted tracts are still losing households—not only owners but also renters—compared to other tracts in the same CZ. As shown in Appendix-Table A.1, the total number of renters in targeted census tracts goes down by 2.641 pp, and the effect is strongest when surrounding tracts experience a CLL-induced increase in access to mortgage financing (see columns 1 and 2). Moreover, the race-specific analyses in columns 3–6 of Appendix-Table A.1 mirror the pattern of the homeownership analyses in Table 2, albeit with much smaller magnitudes: we estimate a reduction in white homeowners (16.475 pp in column 5 of Table 2) that is almost five times as high as the reduction in white renters (3.353 pp in column 5 of Appendix-Table A.1). This could be due to homeowners' pecuniary incentive to sell their homes and avoid losses in the house price values (possibly triggered by the household sorting), whereas renters bear no such asset risk (Dorn, 2010). At the same time, racial or classist preferences imply that the effect of sorting on white renters is non-zero. (We will further explore the changes in renters and implications for the homeownership rate in the next subsection.)

Finally, we can link the observed moving patterns of owners and renters back to the racial sorting pattern we also documented in Table 2. Although the data on owner- and renter-occupied units is not available by race, the census does provide information on the sum of all occupied

[19] The increase in renters who moved in is also consistent with prior research that has found that, with age, homes transition from owner-occupied to rental properties (Rosenthal, 2014). Filtering — the process by which homes built for higher-income families slowly deteriorate and filter down to lower-income households — appears to be the primary mechanism determining supply of low-income housing.

housing units by race and year the household moved into the unit. As shown in Appendix-Table A.2, targeted tracts witnessed a net inflow of Black households and a net outflow of white households, an both effects are strengthened when mortgage financing is eased in surrounding tracts.

Housing Units. To further address the question of what happens with the housing units as homeowners are leaving (or avoiding) targeted tracts, we analyze changes in the occupancy, vacancy and construction of housing units in targeted tracts.

Table 4 documents that the number of occupied units in targeted tracts (normalized by the number of households in 1990) declined by 14.213 pp, relative to other tracts in the same CZ (column 1). We estimate a baseline effect of -9.119 pp, and a further decrease by -0.094 pp per percentile increase in the ease of mortgage financing in the remaining tracts (column 2). Correspondingly, the number of vacant units increased in targeted tracts (column 3), and this baseline effect is driven by units that are for sale (column 5), not by units that are for rent (column 7). In terms of the sorting component, better access to financing in other tracts appears to actually reduce the number of vacant units, but not because owners are able to sell them (positive interaction estimate in column 6).

A last component in explaining the pattern of homeownership changes is housing construction. As shown in columns (9) and (10), the number of housing units built in 1990–2000 was 11.472 pp lower in targeted tracts, though we see no differential effect when the ease of mortgage financing in the remaining tracts in the CZ declines.

Homeownership Rate. The simultaneous sorting of homeowners and renters and the changes in housing units also explain why it was important to use "changes in homeownership" as the dependent variable rather than "changes in homeownership rates." The homeownership rate is a metric that policy has often focused on. In our context, changes in homeownership rates amount to the difference between homeowners in 1990 relative to homeowners and renters in 1990, and homeowners in 2000 relative to homeowners and renters in 2000, rather than the difference in homeowners between 1990 and 2000 relative to homeowners and renters in 1990. This alternative measure obscures the effect of sorting out of targeted tracts because a diminished denominator in

the 2000 homeownership rate acts the same way as an increased numerator, and we learned from the analysis of renters from Appendix-Table A.1 that the denominator did indeed shrink.

In Appendix-Table A.3, we see that the baseline targeting result replicates, with homeownership rates in targeted tracts declining by 0.314 pp (column 1) and driven by a 0.422 pp decline for white households (column 5). However, we find no statistically significant decline in homeownership rate when the surrounding tracts in the CZ witness an increase in ease of mortgage financing. This is not surprising given the decline in both homeowners (Table 2) and renters (Table A.1) in targeted tracts due to the ease of mortgage financing, which biases us against finding an effect in homeownership rate, even if there was a flight out of certain tracts.

5 Upward Mobility

As these changes in homeownership patterns occur during the 1990s (and to a limited extent in the 1980s), how do families in targeted tracts fare in terms of upward mobility? In this section, we compare the upward mobility of children from low-income families growing up in targeted versus other census tracts within an CZ, both overall and separately for Black and white families.

Table 5 shows the results from estimating models (4) and (5). We provide the tract-level analysis of children's upward mobility from all low-income households in columns 1–2, and separately for children from Black and white households in columns 3–4 and 5–6.

Under the specification of model (4), we estimate that children from low-income families have a 0.804 SD lower upward mobility in targeted tracts. That is, rather than improving relative to their parents, children are declining in income rank, or at least improving significantly less than children from low-income families in other tracts. This is striking considering that the UAG was meant to address the geographic disparity in homeowning and, through this channel, ameliorate economic disparities across neighborhoods. Column 2 adds the second source of variation, the CLL-induced increase in the ease of mortgage financing in the remaining tracts of a CZ, into the estimation, as specified in model (5). The estimates suggest the same within-CZ sorting pattern across tracts that we detected in the analysis of homeownership changes. While targeted tracts in areas with no sorting opportunities into surrounding tracts already experience 0.356 SD lower

upward mobility, the coefficient estimate of the interacted term indicates that a 1 percentile increase in the ease of mortgage financing in surrounding tracts is associated with an additional 0.008 SD reduction in upward mobility of low-income children in targeted tracts.[20] That means that, for example, the interquartile range of CLL-induced changes in other tracts corresponds to an additional reduction in upward mobility of children from low-income families in targeted tracts by 0.448 [=-0.008*(75-19)] SD. To interpret the magnitude of these effects, note that a 1 percentile increase in income translates, on average, to an additional $818 at age 26 (Chetty and Hendren, 2018a,b). Given a mean income of $26,091 among children with below-median income parents, a 0.448 SD lower upward mobility (where, 1 SD = 6.34 from Table 1) thus corresponds to a 9% [= $818*0.448*6.34/$26,091] lower annual income.

Both patterns are consistent with the trends in Table 2 where we see significant sorting of homeowners away from targeted tract. These same tracts also witness a decline (or below average increase) in income rank among children relative to their parents.

Given the racial disparities in the homeownership effects in Table 2, as well as the historical context of the 1992 GSE Act and its dual focus on increasing homeownership and decreasing the racial disparity in homeowning, we now examine race-specific upward mobility among Black and white children from low-income families. The estimates in column 3 reveal that the upward mobility of Black children is 0.458 SD lower in targeted tracts, corresponding to 8% lower income when adult. Column 4 establishes the sorting pattern. Upward mobility of Black children is 0.314 SD lower in targeted tracts when surrounding tracts do not offer increased access to mortgage financing. And when the ease of mortgage financing increases by 1 percentile in the remaining CZ, Black children in targeted tracts suffer an additional 0.003 SD reduction in upward mobility.

The pattern is similar when we look at the upward mobility of children from low-income white families. In columns 5 and 6, we estimate upward mobility to be on average 0.629 SD lower,[21] which is composed of a baseline reduction of -0.324 SD and an additional reduction

[20] The estimation in Table 5 uses the z-scored upward mobility measures for ease of interpretation. In Appendix-Table A.4, we confirm that the estimation results are robust to using the raw upward mobility measures.

[21] Note that the decline in targeted tracts for all, Black and white households is 0.804 SD, 0.458 SD, and 0.629 SD, which correspond to 5.097, 2.620, and 3.894 percentile declines respectively. Since we do not include Native American, Asian, and Hispanic households in our analysis due to data constraints, the effect on the full group is not a weighted average of the Black and white households.

of -0.006 SD per 1 percentile increase in the ease of mortgage financing in the remaining CZ. Here, the interquartile range in CLL-induced changes in surrounding tracts corresponds a 0.336 [= 0.006*(75-19)] SD lower upward mobility of children in targeted tracts, which translates to 7% [= \$818*0.336*6.19/\$26,091] lower income when adult.[22]

The similar effects on the upward mobility of Black and white children in targeted tracts stands in sharp contrast to the homeownership results we estimated in Table 2. Here, the adverse effects were entirely driven by white households reducing their homeownership in targeted tracts, while we saw a (mild) increase in homeownership for Black households. The combined results imply an important insight: While white households are sorting differentially out of targeted tracts, those who remain experience the same adverse upward mobility outcomes, which points to the possibility of deteriorating place-based factors.

While our analysis focuses on low-income households, we repeat the analysis for high-income households, that is, for children with parents in the 75th percentile of the income distribution. As shown in Appendix-Table A.5, the patterns are consistent with those for low-income children. We estimate a baseline negative association between upward mobility and residing in a targeted tract for both white and Black families. Moreover, a 1 percentile increase in the ease of mortgage financing in other tracts is associated with a 0.010 SD (column 2) reduction in upward mobility of high-income children in targeted tracts, very similar to reduction of 0.008 SD for low-income children in Table 5. Moreover, both high-income Black and white children witness a reduction in upward mobility.

There are two plausible sources of the observed adverse mobility outcomes. First, the lower income rank of children relative to their parents could be related to changes in the characteristics of the neighborhoods. In other words, place-based homeownership policies might lead to a deterioration of place-based determinants of upward mobility, induced by the sorting response of (white) households. Second, the results could reflect changes in the characteristics of the average family that resides in these neighborhoods after homeownership policies induced differential

[22] All results are similar when we use the raw upward mobility measures instead of standardized (z-scored) upward mobility as shown in Table A.4. Here, the estimates indicate a 5.102 percentile decline in upward mobility in targeted tracts, with a 2.621 decline for Black households and 3.899 decline for white households.

sorting.

In the bounding exercise below, we assess the possible magnitude of the latter mechanism.

Bounding exercise. The sorting of households in response to housing policies alters the composition of people living in targeted census tracts. As shown in Appendix-Table A.6, targeted tracts experienced not only a decline in the number of white households but also declines in the less than high-school educated and older people (age $>$ 50 years), while the share of the poor increased. The decline in the fraction with less than high-school education (while small in magnitude) is surprising, and indicates that not all demographics changed in a direction consistent with lower upward mobility. Nonetheless, the question remains whether the lower upward mobility in targeted tracts, relative to surrounding tracts, is fully explained by the change in demographic characteristics, or whether it represents a change over and above such compositional effects.

To assess compositional effects, we carry out a bounding exercise, shown in Table 6. We relate the changes in housing and demographic characteristics to upward mobility, for all low-income households in Panel A and separately for Black and white low-income households in Panels B and C. In each panel, we show the correlations with upward mobility one-by-one in columns (1) to (5) and jointly in column (6), and we always control for CZ fixed effects. We then predict the estimated effect of the change in demographic and housing characteristics (using the estimates from Table A.6) on upward mobility.

Across all three panels, increases in the percentage of poor are significantly negatively related to upward mobility, while increases in percentage of older households are positively related. The percentage change in white households is positively related to both overall and white upward mobility, but is negatively related to Black upward mobility. The same holds when we include all five compositional-change variables jointly. However, increases in the percentages of households with less than high school education switch sign and are now significantly positively related to overall upward mobility and upward mobility of white households, and not significantly related to the upward mobility of Black households. Increases in single-family detached homes are negatively related to overall and white upward mobility, but unrelated to Black upward mobility. The negative relationship with single-family detached homes, usually correlated with homeown-

ership (Glaeser and Sacerdote, 2000), is surprising but may similarly reflect the negative impact of targeted homeownership policies.

Using the estimates from the more robust specification in column 6 that accounts for contemporaneous compositional changes in demographic characteristics, we predict a 0.131 SD lower upward mobility across all households in targeted tracts that can be attributed to compositional changes, as opposed to the estimated effect of -0.804 (Table 5). (The predicted effect is also smaller than the estimated effect if we add up the individual estimates in columns 1–5, amounting to -0.152 SD.) We also recalculate the compositional effects using the 95% confidence intervals of the estimates from column 6, and obtain a range between -0.163 and -0.100.

Similarly, repeating the bounding exercise for the upward mobility of Black children yields an effect of -0.069 (range between -0.088 and -0.050) as opposed to the -0.458 lower upward mobility documented in Table 5. For white children, the bounding exercise yields an estimate of -0.110 (range between -0.125 and -0.091) as compared to the -0.629 in Table 5.

Overall, the effects of changes in demographic and housing characteristics make up only a fraction of the estimated effect sizes, suggesting that demographic characteristics do not explain most of the lower upward mobility in targeted tracts.

6 Mechanisms: House Prices, Local Funding, and School Quality

Our findings so far point to changes in place-based factors playing a significant role in the observed lower upward mobility of children in targeted neighborhoods. To explore the underlying mechanisms we consider three dimensions of place-based characteristics. We start by examining house prices, as they influence local public finance through property taxes and, indirectly, through local consumption spending (sales taxes) and employment (Mian and Sufi, 2014; Mian et al., 2020). We then turn to measuring the funding of schools through local revenue sources, and finally to measures of school quality.

In this part of the analysis, we compare the absolute level of local resources, school funding, and school quality in targeted tracts with those in other tracts within the same CZ. We also account for CLL-induced changes in the access to mortgage financing in surrounding tracts. That

is, we re-estimate equations (4)-(5) with these three alternative outcome variables aimed at identifying mechanisms. Where possible we also include the comparison of changes in targeted versus changes in non-targeted tract, akin to estimating equations (2)–(3).

House prices. In columns 1–2 in Table 7, we re-estimate specifications (4)-(5), using the log of median house prices in 2000 as the dependent variable. The estimates in column 1 shows that targeted tracts have 42% lower median house price values (after CZ fixed effects) in 2000. In column 2, we see that the coefficient of Targeted tracts becomes -0.303, implying that targeted tracts have 30.3% lower house prices even when there is no increase in the ease of mortgage financing in surrounding tracts. Further, the interaction term indicates that house prices in targeted census tracts are an additional 0.2% lower when the ease of mortgage financing in the surrounding tracts in the CZ increases by 1 percentile.

The results are similar when we use the tract-level changes in log house prices between 1990 to 2000 as the dependent variable. For example, we estimate a 0.1 pp decline in house prices in targeted tracts that see a 1 percentile increase in the ease of mortgage financing in remaining tracts in the CZ, though the estimate is insignificant.

Note that the negative correlation with CLL changes in other tracts is to be expected as, in many CZs, a high impact of CLL changes reflects relatively high house prices, and thus a possibly higher CZ mean. However, the estimate still implies that house prices in targeted tracts do not follow the same high-price path of other tracts in the CZ in those cases. That is, the tract-level analysis reveals significant within-CZ differences in house prices, with targeted tracts featuring significantly lower property values than other tracts in the same CZ. These price differentials are consistent with the decline in homeownership in targeted tracts, especially when the ease of mortgage financing in other tracts in the same CZ increased, as we have documented in Table 2.

School funding from local sources. We now investigate the link to lower local funding for public schools. The low house prices in targeted tracts imply low public financing sources, both through the direct impact of lower house prices on property taxes and through an indirect impact on the local economy (Mian and Sufi, 2014) that affects sales and other local tax revenue. Prior literature has shown that the effect of declining house prices on housing net worth can reduce consumer

demand because of wealth effects (Mian et al., 2013) or because of tighter borrowing constraints (due to the fall in property values that are usually used as collateral), which in turn affect the local economy and employment.

As detailed in Section 3.3, we use NCES Common Core of Data information on public-school funding from local sources.[23] We map this data from the school-district to the tract level and construct average school funding from local sources per 1000 students (z-scored) as the dependent variable in columns 3–4 of Table 7. Column 3 shows that targeted tracts have 0.313 SD lower local school funding per student. Column 4 suggests that this average effect is driven by 0.005 SD lower school funding from local sources per 1000 students for each 1 percentile increase in the ease of mortgage financing between 1990–2000 in remaining tracts in the CZ.

School quality. Does the lower school funding from local sources in targeted tracts translate into lower school quality? We now examine differences in school quality between targeted and other tracts, re-estimating equations (4)-(5) with the dependent variable replaced by our measure of school quality, the standardized student-to-teacher ratio, averaged at the tract level.

We use the NCES data on mean class sizes mapped to census tracts to construct the tract-level average student-to-teacher ratio as a measure of low school quality (see Section 3.3). In columns 5–6 in Table 7, we use the standardized (z-scored) measure of the student-to-teacher ratio so that the estimates can be interpreted in standard deviations. While we find no relationship between being targeted and school quality on average (in column 5), the interaction with CLL-based changes in surrounding tracts reveals significant heterogeneity. The estimates in column 6 show that the student-teacher ratio is actually lower in targeted tracts than the CZ average when there are no changes in the accessibility of mortgage financing in remaining tracts in the CZ. However, a 1 percentile increase in the ease of mortgage financing in the surrounding tracts in a CZ is associated with a 0.004 SD increase in the student-to-teacher ratio (poorer quality schools).

To sum, we find evidence of lower house prices in tracts that become targeted compared to other tracts in the CZ, as well as evidence of lower school funding from local sources and poorer

[23] Specifically, the school local funding include property taxes, general sales taxes, public utility taxes, individual and corporate income taxes, other taxes, revenue from other school systems, cities and counties, tuition fees from pupils and parents, school lunch, textbook sales and rentals, student activity receipts, student fees, other sales services, interest earnings, and miscellaneous.

quality schools in those tracts whenever homeownership becomes more accessible in surrounding tracts due to CLL changes. These tract-level trends mirror the within-CZ differences in homeownership changes and the sorting of homeowners. As such they suggest that adverse place-level characteristics play a role in explaining the lower upward mobility of children in targeted tracts.

7 Conclusion

For decades, housing policies have aimed at increasing homeownership in low-income areas and at reducing the racial homeownership gap. Yet, the benefits of these policies have been difficult to determine. In this paper, we focus on the housing policies of the 1990s and analyze the evolution of homeownership as well as the upward mobility of children in those census tracts that where targeted by the 1992 GSE Act. These census tracts are characterized by a high share of low-income and minority households, and the GSE Act provided residents with easier access to mortgage financing.

We show that homeownership decreased, rather than increased in targeted neighborhoods, and that the adverse effect was especially strong when CLL changes simultaneously improved the access to mortgage financing in the remaining tracts of the same CZ. These changes are entirely driven by white households leaving (or avoiding) targeted tracts. Black homeownership increased, instead, albeit to a much smaller extent. Mirroring these homeownership changes, we document significantly lower upward mobility among children in targeted tracts, especially when the remaining tracts in the CZ saw an increase in mortgage availability. Here the effect is detectable both among children from Black families and among children from those white families that remain in targeted tracts. In a simple bounding exercise, we affirm that the adverse mobility outcomes are significantly larger than implied by compositional changes due to the sorting mechanism we have identified, which points to the possibility of deteriorating place-based factors. We identify a potential channel operating through lower house prices, lower school funding from local sources (which include property taxes and other taxes) and poorer school quality in targeted tracts. Our paper highlights how geographically targeted homeownership policies can inadvertently increase geographic disparity in homeownership within CZs, worsening children's upward

mobility.

The results in this paper challenge the presumed effectiveness of geographically targeted homeownership promotion in low-income census tracts. Our findings show that sorting effects and deteriorating place-based factors can defeat the positive effects from mild increases in minority homeownership. Note, though, that our findings do *not* challenge housing policies that target homeownership among Black or other minority households. Instead, our results suggest that such policies ought to be either individual-specific rather than area-specific or, if area-specific, be coupled with investment in infrastructure and sufficient public finance sources, particularly for investment in education. Indeed, preliminary evidence from the creation of "Opportunity Zones" in the "Tax Cuts and Jobs Act of 2017" that created tax advantages for investing in business or real estate and targeted low-income census tracts have shown promising results on employment (Arefeva et al., 2020). Such concurrent investment in underserved neighborhoods could diminish the adverse mobility outcomes that we observe in areas targeted by geographically focused homeownership policies. Alternatively, policies that encourage investment in human capital and encourage historically disadvantaged minorities to "move out" to better neighborhoods may have higher marginal value. It is an important question for future research to determine which approach is most effective in allowing low-income and minority groups to achieve the "American Dream" of unlocking opportunities for their children, their education, and their careers.

References

ADELINO, M., A. SCHOAR, AND F. SEVERINO (2015): "House Prices, Collateral, and Self-employment," *Journal of Financial Economics*, 117, 288–306.

——— (2023): "Credit Supply and House Prices: Evidence from Mortgage Market Segmentation," *Journal of Financial Economics (Forthcoming)*.

AGARWAL, S., E. BENMELECH, N. BERGMAN, AND A. SERU (2012): "Did the Community Reinvestment Act (CRA) Lead to Risky Lending?" *SSRN Working Paper*.

AMBROSE, B. W. AND T. G. THIBODEAU (2004): "Have the GSE Affordable Housing Goals Increased the Supply of Mortgage Credit?" *Regional Science and Urban Economics*, 34, 263–273.

AN, X., R. W. BOSTIC, Y. DENG, S. A. GABRIEL, R. K. GREEN, AND J. TRACY (2007): "GSE Loan Purchases, the FHA, and Housing Outcomes in Targeted, Low-income Neighborhoods," *Brookings-Wharton Papers on Urban Affairs*, 205–256.

AREFEVA, A., M. A. DAVIS, A. C. GHENT, AND M. PARK (2020): "Job Growth from Opportunity Zones," *SSRN Working Paper*.

AUTOR, D., D. FIGLIO, K. KARBOWNIK, J. ROTH, AND M. WASSERMAN (2019): "Family Disadvantage and the Gender Gap in Behavioral and Educational Outcomes," *American Economic Journal: Applied Economics*, 11, 338–381.

BARKER, D. AND E. MILLER (2009): "Homeownership and Child Welfare," *Real Estate Economics*, 37, 279–303.

BEEN, V. (2018): "City NIMBYs," *Journal of Land Use & Environmental Law*, 33.2, 217–250.

BERTRAND, M. AND S. MULLAINATHAN (2004): "Are Emily and Greg more Employable than Lakisha and Jamal? A Field Experiment on Labor Market Discrimination," *American Economic Review*, 94, 991–1013.

BHUTTA, N. (2008): "Giving Credit where Credit is Due? The Community Reinvestment Act and Mortgage Lending in Lower-income Neighborhoods," *Finance and Economics Discussion Series*.

——— (2009): "Regression Discontinuity Estimates of the Effects of the GSE Act of 1992," *Finance and Economics Discussion Series*.

BOSTIC, R. W. AND S. A. GABRIEL (2006): "Do the GSEs matter to Low-Income Housing Markets? An Assessment of the effects of the GSE Loan Purchase Goals on California Housing Outcomes," *Journal of Urban Economics*, 59, 458–475.

BUNCE, H. L. (2002): "The GSE's Funding of Affordable Loans: A 2000 Update," *Working Paper No. HF-001*.

BUNCE, H. L. AND S. RANDALL (1996): "The GSEs' Funding of Affordable Loans," *Working Paper No. HF-001*.

CASE, B., K. GILLEN, AND S. M. WACHTER (2002): "Spatial Variation in GSE Mortgage Purchase Activity," *Cityscape*, 9–84.

CHETTY, R., J. N. FRIEDMAN, N. HENDREN, M. R. JONES, AND S. R. PORTER (2020): "The Opportunity Atlas: Mapping the Childhood Roots of Social Mobility," *Harvard Working Paper*.

CHETTY, R. AND N. HENDREN (2018a): "The Impacts of Neighborhoods on Intergenerational Mobility I: Childhood Exposure Effects," *The Quarterly Journal of Economics*, 133, 1107–1162.

——— (2018b): "The Impacts of Neighborhoods on Intergenerational Mobility II: County-level Estimates," *The Quarterly Journal of Economics*, 133, 1163–1228.

CHETTY, R., N. HENDREN, M. R. JONES, AND S. R. PORTER (2019): "Race and Economic Opportunity in the United States: An Intergenerational Perspective," *The Quarterly Journal of Economics*, 135, 711–783.

CHETTY, R., N. HENDREN, AND L. KATZ (2016): "The Effects of Exposure to Better Neighborhoods on Children: New Evidence from the Moving to Opportunity Experiment," *American Economic Review*, 106, 855–902.

CHETTY, R., N. HENDREN, P. KLINE, AND E. SAEZ (2015): "Where is the Land of Opportunity? The Geography of Intergenerational Mobility in the United States," *The Quarterly Journal of Economics*, 129, 1553–1623.

COLLINS, W. J. AND R. A. MARGO (2011): "Race and Home Ownership from the End of the Civil War to the Present," *American Economic Review*, 101, 355–359.

CUTLER, D. M., E. L. GLAESER, AND J. L. VIGDOR (1999): "The Rise and Decline of the American Ghetto," *Journal of Political Economy*, 107, 455–506.

DEFUSCO, A. A. AND A. PACIOREK (2017): "The Interest Rate Elasticity of Mortgage Demand: Evidence from Bunching at the Conforming Loan Limit," *American Economic Journal: Economic Policy*, 9, 210–240.

DERENONCOURT, E. (2022): "Can you Move to Opportunity? Evidence from the Great Migration," *American Economic Review*, 11, 369–408.

DIETZ, R. D. AND D. R. HAURIN (2003): "The Social and Private Micro-level Consequences of Homeownership," *Journal of Urban Economics*, 54, 401–450.

DIPASQUALE, D. AND E. L. GLAESER (1999): "Incentives and Social Capital: Are Homeowners Better Citizens?" *Journal of Urban Economics*, 45, 354–384.

DORN, D. (2010): "Price and Prejudice: The Interaction between Preferences and Incentives in the Dynamics of Racial Segregation," *Working Paper*.

DUNCAN, O. D. (1968): *On Understanding Poverty*, Basic Books New York, chap. Inheritance of Poverty or Inheritance of Race?

ELMENDORF, C. S. (2019): "Beyond the Double Veto: Housing Plans as Preemptive Intergovernmental Compacts," *Hastings Law Journal*, 71, 79–150.

FISCHEL, W. A. (2004): "An Economic History of Zoning and a Cure for its Exclusionary Effects," *Urban Studies*, 41.2, 317–340.

GABRIEL, S. A. AND S. ROSENTHAL (2008): "The GSEs, CRA, and Homeownership in Targeted Underserved Neighborhoods," in *Conference on Built Environment: Access, Finance, and Policy*, 202–229.

GABRIEL, S. A. AND S. S. ROSENTHAL (2005): "Homeownership in the 1980s and 1990s: Aggregate Trends and Racial Gaps," *Journal of Urban Economics*, 57, 101–127.

GLAESER, E. L. AND B. SACERDOTE (2000): "The Social Consequences of Housing," *Journal of Housing Economics*, 9, 1–23.

GLAESER, E. L. AND J. M. SHAPIRO (2003): "The Benefits of the Home Mortgage Interest Deduction," *Tax Policy and the Economy*, 17, 37–82.

GOODMAN, L. S. AND C. MAYER (2018): "Homeownership and the American Dream," *The Journal of Economic Perspectives*, 32, 31–58.

GREEN, R. K. AND M. WHITE (1997): "Measuring the Benefits of Homeowning: Effects on Children," *Journal of Urban Economics*, 41, 441–461.

GRUNDL, S. AND Y. S. KIM (2021): "The Marginal Effect of Government Mortgage Guarantees on Homeownership," *Journal of Monetary Economics*, 119, 75–89.

HARRISON, D. M., W. R. ARCHER, D. C. LING, AND M. T. SMITH (2002): "Mitigating Information Externalities in Mortgage Markets: The Role of Government-Sponsored Enterprises," *Cityscape*, 115–143.

HOLUPKA, S. AND S. J. NEWMAN (2012): "The Effects of Homeownership on Children's Outcomes: Real Effects of Self Selection?" *Real Estate Economics*, 40, 566–602.

JAFFEE, D. M. AND J. M. QUIGLEY (2007): "Housing Subsidies and Homeowners: What Role for Government-Sponsored Enterprises?" *Brookings-Wharton Papers on Urban Affairs*, 103–149.

KAUFMAN, A. (2014): "The Influence of Fannie and Freddie on Mortgage Loan Terms," *Real Estate Economics*, 42, 472–496.

LISTOKIN, D. AND E. K. WYLY (2000): "Making New Mortgage Markets: Case Studies of Institutions, Home Buyers, and Communities," *Housing Policy Debate*, 11, 575–644.

LOUTSKINA, E. AND P. E. STRAHAN (2009): "Securitization and the Declining Impact of Bank Finance on Loan Supply: Evidence from Mortgage Originations," *The Journal of Finance*, 64, 861–889.

——— (2015): "Financial Integration, Housing and Economic Volatility," *Journal of Financial Economics*, 115, 25–41.

MANCHESTER, P. B., S. G. NEAL, AND H. L. BUNCE (1998): "Characteristics of Mortgages Purchased by Fannie Mae and Freddie Mac, 1993-95," *Housing Finance Working Paper*, 1–54.

MARGO, R. A. (2016): "Obama, Katrina, and the Persistence of Racial Inequality," *The Journal of Economic History*, 76, 301–341.

MASSEY, D. AND N. A. DENTON (1993): *American Apartheid: Segregation and the Making of the Underclass*, Harvard University Press.

MCADOO, H. P. (2002): "African American Parenting," *Handbook of Parenting*, 4, 47–58.

MIAN, A., K. RAO, AND A. SUFI (2013): "Household Balance Sheets, Consumption, and the Economic Slump," *The Quarterly Journal of Economics*, 128, 1687–1726.

MIAN, A. AND A. SUFI (2014): "What Explains the 2007–2009 Drop in Employment?" *Econometrica*, 82, 2197–2223.

MIAN, A., A. SUFI, AND E. VERNER (2020): "How does Credit Supply Expansion affect the Real Economy? The Productive Capacity and Household Demand Channels," *The Journal of Finance*, 75, 949–994.

MOULTON, S. (2014): "Did affordable housing mandates cause the subprime mortgage crisis?" *Journal of Housing Economics*, 24, 21–38.

MYRDAL, G. (1996): *An American Dilemma, Volume 2: The Negro Problem and Modern Democracy*, Transaction Publishers.

OUAZAD, A. AND R. RANCIÈRE (2016): "Credit Standards and Segregation," *Review of Economics and Statistics*, 98, 880–896.

ROSENTHAL, S. S. (2014): "Are Private Markets and Filtering a Viable Source of Low-Income Housing? Estimates from a "Repeat Income" Model," *American Economic Review*, 104, 687–706.

ROTHSTEIN, R. (2017): *The Color of Law: A Forgotten History of How Our Government Segregated America*, Liveright Publishing.

SEQUEIRA, S., N. NUNN, AND N. QIAN (2020): "Immigrants and the Making of America," *The Review of Economic Studies*, 87, 382–419.

SHERTZER, A., T. TWINAM, AND R. P. WALSH (2016): "Race, Ethnicity, and Discriminatory Zoning," *American Economic Journal: Applied Economics*, 8, 217–246.

——— (2018): "Zoning and the Economic Geography of Cities," *Journal of Urban Economics*, 105, 20–39.

SODINI, P., S. V. NIEUWERBURGH, R. VESTMAN, AND U. V. LILIENFELD-TOAL (2023): "Identifying the Benefits from Home Ownership: A Swedish Experiment," *American Economic Review*,

113, 3173–3212.

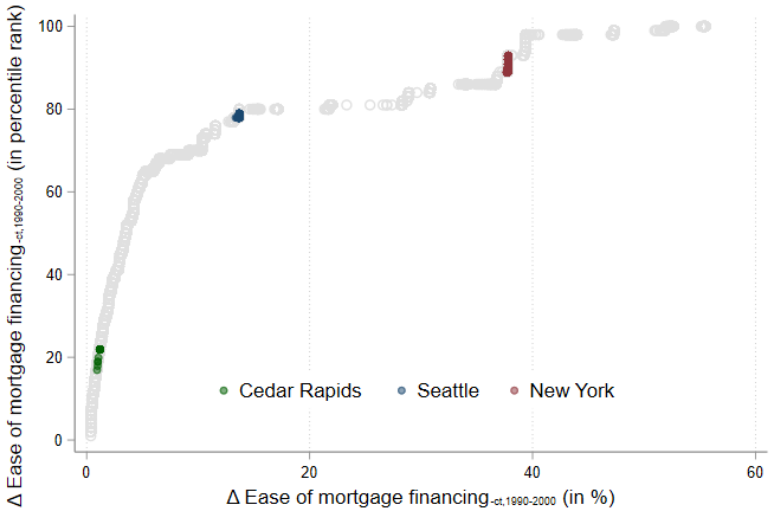
TEMKIN, K., R. G. QUERCIA, AND G. C. GALSTER (2000): "The impact of secondary mortgage market guidelines on affordable and fair lending: A reconnaissance from the front lines," *The Review of Black Political Economy*, 28, 29–52.

WALLISON, P. J. (2001): *Serving Two Masters, Yet Out of Control: Fannie Mae and Freddie Mac*, AEI Press.

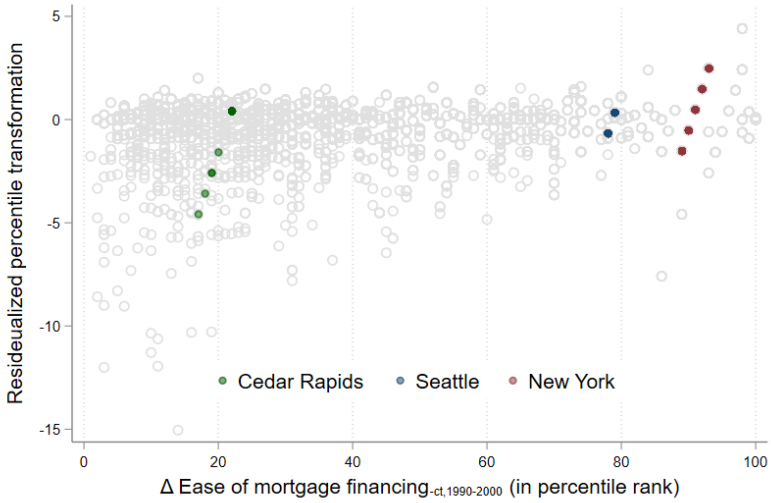
WILSON, W. J. (2012): *The Truly Disadvantaged: The Inner City, the Underclass, and Public Policy*, University of Chicago Press.

Figure 1
Within-CZ variation in ease of mortgage financing in surrounding tracts

ΔEase of mortgage financing$_{-ct,1990-2000}$ is calculated as the fraction of houses that become eligible to be financed by GSE-conforming loans due to the 1990–2000 change in CLL in the remaining tracts in a CZ, excluding the census tract being measured. Panel (A) plots the raw measure (in %) on the horizontal axis against its quantile function (in percentiles) on the vertical axis. Panel (B) shows the percentile-transformed measure on the x-axis and the residual from regressing the percentile rank of ΔEase of mortgage financing$_{-ct,1990-2000}$ on CZ-level fixed effects on the vertical axis. Data is based on Census 1990.



(A) Tract-level percentile transformation



(B) Within-CZ tract-level variation (in percentile rank)

Table 1
Descriptive Statistics

All summary statistics are on the census-tract level. $\Delta\text{Homeownership}_{ct,1990-2000}$ is the change in the number of homeowners in tract *ct* from 1990–2000, relative to the total number of renters and homeowners in 1990, shown in %. ΔBlack (white) $\text{homeownership}_{ct,1990-2000}$ is the percentage change in the number of Black (white) homeowners from 1990–2000 relative to the total number of renters and homeowners in 1990. $\Delta\text{Renters}_{ct,1990-2000}$ is analogously defined. The percentage of owners (renters) who moved between 1990 and 2000 is defined relative to the total number of renters and homeowners in 1990. The percentage of total units built between 1990 and 2000 is defined relative to the total number of units in 1990. $\Delta\text{Ease of mortgage financing}_{-ct,1990-2000}$ is the fraction of houses in the remaining tracts in a CZ, excluding the census tract being measured, that become eligible to be financed by GSE-conforming loans due to the 1990–2000 CLL changes (shown both as % and as percentile rank). Targeted tract under the "Underserved Areas Goal" is an indicator based on Housing and Urban (HUD) classification in 1996. Average upward mobility at the 25th and the 75th percentile is the expected mean household income rank for individuals with parents at the 25th and the 75th percentile of the parents' income distribution, respectively, as provided by Chetty et al. (2020). The change in percentage of white population, percentage of population with less than high school education, percentage of single-family detached homes, percentage poor households, percentage of population above 50 years of age is calculated between 1990 and 2000 using Census data. Log of the median house price value is for all owner-occupied houses in the 2000 Census. The school funding from local sources per 1000 students and the student-to-teacher ratio are calculated using NCES Common Core of Data for the fiscal year 1996–97. Housing units is from the 1990 Census. The remaining data are from the 1990 and 2000 Census. All data, excluding the upward mobility measures, are winsorized at the 1% level.

	N	Mean	SD	p25	p50	p75
$\Delta\text{Homeownership}_{ct,1990-2000}$ (in %)	36,334	37.16	96.49	-0.75	7.50	31.82
$\Delta\text{Black homeownership}_{ct,1990-2000}$ (in %)	36,334	2.48	8.39	0.00	0.23	1.31
$\Delta\text{White homeownership}_{ct,1990-2000}$ (in %)	36,334	34.42	91.72	-0.91	6.38	28.60
$\Delta\text{Renters}_{ct,1990-2000}$ (in %)	36,334	11.55	40.34	-2.05	1.28	9.18
$\Delta\text{Black Renters}_{ct,1990-2000}$ (in %)	36,334	2.14	8.96	0.00	0.18	1.34
$\Delta\text{White Renters}_{ct,1990-2000}$ (in %)	36,334	8.99	32.28	-2.21	0.78	7.50
% Owners who moved 1990-2000	36,334	61.52	84.14	28.92	41.95	63.38
% Renters who moved 1990-2000	36,334	50.49	66.16	19.25	32.90	57.14
Housing units in 1990	36,334	1,538	846	1,008	1,424	1,932
% Units built 1990-2000	36,334	36.11	73.04	5.35	16.29	36.41
$\Delta\text{Occupied housing units}_{ct,1990-2000}$	36,334	63.17	174.13	2.35	13.21	51.84
$\Delta\text{Vacant housing units}_{ct,1990-2000}$	36,334	9.81	43.74	-1.18	1.31	5.63
$\Delta\text{Vacant housing units for sale}_{ct,1990-2000}$	36,054	0.78	3.13	-0.35	0.23	1.04
$\Delta\text{Vacant housing units for rent}_{ct,1990-2000}$	36,054	1.15	6.66	-0.78	0.20	1.58

Descriptive Statistics (contd.)

	N	Mean	SD	p25	p50	p75
Targeted tract$_{ct}$ (indicator)	36,338	0.51	0.50	0	1	1
ΔEase of mortgage financing$_{-ct,1990-2000}$ (in %)	36,334	9.90	14.29	1.00	2.87	11.54
ΔEase of mortgage financing$_{-ct,1990-2000}$ (in %ile rank)	36,334	46.49	30.45	19	42	75
Average Upward mobility (25th percentile)	36,334	42.36	6.34	38.21	42.21	46.32
Average Upward mobility (75th percentile)	36,334	56.59	6.41	53.61	57.34	60.67
Black Upward mobility (25th percentile)	18,482	33.41	5.72	29.85	32.69	36.10
Black Upward mobility (75th percentile)	18,484	43.72	9.74	38.21	43.34	48.75
White Upward mobility (25th percentile)	34,718	45.71	6.19	41.54	45.23	49.42
White Upward mobility (75th percentile)	34,718	58.98	5.74	56.12	59.30	62.31
ΔWhite$_{ct,1990-2000}$ (in %)	36,334	-4.95	7.23	-7.51	-2.81	-0.93
ΔNo high-school$_{ct,1990-2000}$ (in %)	36,260	-5.53	6.27	-9.41	-5.47	-1.64
ΔSF detached housing$_{ct,1990-2000}$ (in %)	36,308	0.10	5.49	-2.40	0.23	2.69
ΔPoor$_{ct,1990-2000}$ (in %)	36,224	0.91	5.11	-1.78	0.70	3.43
ΔAbove age 50$_{ct,1990-2000}$ (in %)	36,334	0.12	3.95	-2.10	0.28	2.52
Log (Median house price$_{2000}$)	36,204	11.55	0.63	11.14	11.47	11.91
Student-teacher ratio	33,284	18.35	3.23	16.09	17.85	20.18
School funding from local sources per 1000 students	35,042	2.81	1.87	1.60	2.39	3.30

Table 2
Change in Homeownership

This table shows the tract-level analysis of changes in homeownership in response to housing policies between 1970–2000. The dependent variable in columns 1–2 is the percentage change in the number of homeowners from 1990 to 2000 in Panel A (1980 to 1990 in Panel B, and 1970 to 1980 in Panel C) relative to the total number of renters and homeowners in 1990 (in 1980 in Panel B, and 1970 in Panel C). In columns 2–3 (4–5), the dependent variable is the percentage change in homeownership of Black (white) households relative to the total number of renters and homeowners. Targeted tract$_{ct}$ in Panels A and C is an indicator equal to 1 if the tract is targeted under the "Underserved Areas Goal" based on the Housing and Urban (HUD) classification in 1996, and Targeted tract$_{CRA,ct}$ in Panel B is equal to 1 if the tract is classified as targeted under the Community Reinvestment Act of 1977. ΔEase of mortgage financing$_{-ct,1990-2000}$ is the tract-level percentile of the fraction of houses that become eligible to be financed by GSE-conforming loans due to the change in the conforming loan limit (CLL) between 1990–2000 in the remaining tracts in a CZ, excluding the census tract being measured. ΔEase of mortgage financing$_{-ct,1980-1990}$ and ΔEase of mortgage financing$_{-ct,1970-1980}$ are defined analogously. All columns include CZ-fixed effects. Observations are weighted by the total number of housing units as of 1990. The dependent variables are winsorized at the 1% level. Standard errors are clustered at the CZ level.

Panel A: Between 1990–2000

	Change in Homeownership 1990–2000					
	Total		Black		White	
	(1)	(2)	(3)	(4)	(5)	(6)
Targeted tract$_{ct}$	-16.054***	-8.490***	0.376*	0.834***	-16.475***	-9.500***
	(0.932)	(1.529)	(0.197)	(0.302)	(0.832)	(1.529)
Δ Ease in mortg. fin.$_{1990-2000,-ct}$ $\times$ Targeted tract$_{ct}$		-0.140***		-0.008		-0.129***
		(0.023)		(0.007)		(0.025)
CZ FE	Y	Y	Y	Y	Y	Y
R^2	0.108	0.109	0.159	0.160	0.117	0.118
N	36,334	36,334	36,334	36,334	36,334	36,334

Standard errors in parentheses; * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Panel B: Between 1980-1990

	Change in Homeownership 1980–1990					
	Total		Black		White	
	(1)	(2)	(3)	(4)	(5)	(6)
Targeted tract$_{CRA,ct}$	-15.899***	-11.021***	4.587***	1.832	-10.631***	-13.156***
	(5.166)	(8.969)	(1.700)	(2.830)	(4.469)	(7.983)
Δ Ease in mortgage financing$_{1980-1990,-ct}$		0.083		0.045		0.041
× Targeted tract$_{CRA,ct}$		(0.151)		(0.072)		(0.123)
CZ FE	Y	Y	Y	Y	Y	Y
R^2	0.007	0.007	0.038	0.038	0.007	0.007
N	22,115	22,115	22,115	22,115	22,115	22,115

Panel C: Between 1970-1980

	Change in Homeownership 1970–1980					
	Total		Black		White	
	(1)	(2)	(3)	(4)	(5)	(6)
Targeted tract$_{ct}$	6.110***	2.520	0.158	-0.259	6.067***	3.051
	(1.761)	(2.004)	(0.171)	(0.227)	(1.564)	(1.974)
Δ Ease in mortgage financing$_{1970-1980,-ct}$		0.058		0.007*		0.049
× Targeted tract$_{ct}$		(0.041)		(0.004)		(0.037)
CZ FE	Y	Y	Y	Y	Y	Y
R^2	0.131	0.132	0.108	0.108	0.129	0.130
N	20,666	20,666	20,666	20,666	20,666	20,666

Standard errors in parentheses; * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table 3
Moving

This table shows the tract-level analysis of owners and renters who moved into their residences between 1990–2000 in relation to housing policies. The dependent variable in columns 1 and 2 (3 and 4) is the number of owner-occupied (renter-occupied) units where the household moved into their current residences in 1990–2000 relative to the total number of households in 1990, in percentage. Targeted tract is 1 if the tract is targeted under the "Underserved Areas Goal" based on Housing and Urban (HUD) classification in 1996. ΔEase of mortgage financing$_{-ct,1990-2000}$ is the tract-level percentile of the fraction of houses that become eligible to be financed by GSE-conforming loans due to the change in the conforming loan limit (CLL) between 1990–2000 in the remaining tracts in a CZ, excluding the census tract being measured. All columns include CZ-fixed effects. Observations are weighted by the total number of housing units as of 1990. The dependent variables are winsorized at the 1% level. Standard errors are clustered at the CZ-level.

	Owners Who Moved In		Renters Who Moved In	
	(1)	(2)	(3)	(4)
Targeted tract$_{ct}$	-19.799***	-10.012***	20.206***	-5.453***
	(1.193)	(1.540)	(2.822)	(1.782)
Δ Ease in mortgage financing$_{1990-2000,-ct}$ $\times$ Targeted tract$_{ct}$		-0.181***		0.475***
		(0.029)		(0.041)
CZ FE	Y	Y	Y	Y
R^2	0.182	0.184	0.229	0.252
N	36,334	36,334	36,334	36,334

Standard errors in parentheses; * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table 4
Occupied, Vacant, and Newly Built Units

This table shows the tract-level analysis of changes in housing units that are occupied, vacant, and built in targeted tracts between 1990–2000. The dependent variable in columns 1 and 2 is the percentage change in the number of occupied units from 1990 to 2000 relative to the total number of households in 1990. The dependent variable in columns 3 and 4 is the percentage change in the number of vacant units from 1990 to 2000; in columns 5 and 6 ,it is the percentage change in the number of vacant-for-sale units, and in columns 7 and 8 in the number of vacant-for-rent units, relative to the total number of households in 1990. The dependent variable in columns 9 and 10 is the percentage change in the number of newly built units from 1990 to 2000 relative to the total number of households in 1990. Targeted tract is an indicator equal to 1 if the tract is targeted under the "Underserved Areas Goal" based on the Housing and Urban (HUD) classification in 1996. $\Delta\text{Ease}_{-ct,1990-2000}$ is the tract-level percentile of the fraction of houses that become eligible to be financed by GSE-conforming loans due to the change in the conforming loan limit (CLL) between 1990–2000 in the remaining tracts in a CZ, excluding the census tract being measured. All columns include CZ-fixed effects. Observations are weighted by the total number of housing units as of 1990. The dependent variables are winsorized at the 1% level. Standard errors are clustered at the CZ-level.

	Change in Units 1990–2000									
	Occupied		Vacant						Built	
			All		For Sale		For Rent			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Targeted tract$_{ct}$	-14.213***	-9.119***	0.761**	1.861***	0.202***	-0.235***	-0.210	-0.016	-11.472***	-11.032***
	(1.440)	(2.064)	(0.336)	(0.560)	(0.072)	(0.073)	(0.143)	(0.187)	(1.123)	(1.573)
Δ Ease$_{1990-2000,-ct}$		-0.094***		-0.020**		0.008***		-0.004		-0.008
$\times$ Targeted tract$_{ct}$		(0.035)		(0.010)		(0.002)		(0.005)		(0.032)
CZ FE	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
R^2	0.125	0.125	0.166	0.166	0.150	0.153	0.146	0.146	0.198	0.198
N	36,334	36,334	36,334	36,334	36,334	36,334	36,334	36,334	36,334	36,334

Standard errors in parentheses; * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table 5
Upward Mobility of Low-Income Households

This table shows the tract-level analysis of upward mobility among low-income household. Upward mobility is the expected mean household income rank for individuals with parents at the 25th percentile of the parents' income distribution. Cohort earnings are measured using mean incomes in 2014-2015, and parents' income is measured using mean income over five years: 1994, 1995, and 1998–2000. The dependent variable is average upward mobility among all low-income households in column 1 and 2, and among Black (white) households incolumns 3 and 4 (5 and 6). Targeted tract is an indicator equal to 1 if the tract is targeted under the "Underserved Areas Goal" based on the Housing and Urban (HUD) classification in 1996. ΔEase of mortgage financing$_{-ct,1990-2000}$ is the census-tract percentile of the fraction of houses that become eligible to be financed by GSE-conforming loans due to the change in the conforming loan limit (CLL) between 1990–2000 in the remaining tracts in a CZ, excluding the census tract being measured. Dependent variables have been standardized (z-scored). CZ-level fixed effects are included. Observations are weighted by the total number of housing units in 1990. Standard errors are clustered at the CZ level.

	Low-Income Upward Mobility					
	Total		Black		White	
	(1)	(2)	(3)	(4)	(5)	(6)
Targeted tract$_{ct}$	-0.804***	-0.356***	-0.458***	-0.314***	-0.629***	-0.324***
	(0.065)	(0.078)	(0.030)	(0.057)	(0.035)	(0.047)
Δ Ease in mortgage financing$_{1990-2000,-ct}$		-0.008***		-0.003***		-0.006***
$\times$ Targeted tract$_{ct}$		(0.002)		(0.001)		(0.001)
CZ FE	Y	Y	Y	Y	Y	Y
R^2	0.474	0.488	0.197	0.198	0.437	0.444
N	36,334	36,334	18,482	18,482	34,718	34,718

Standard errors in parentheses; * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table 6
Bounding Exercise

This table presents the correlation between the average upward mobility among low-income households and various tract-level changes in demographic and housing characteristics. Upward mobility among all, Black, and white low-income households in Panels A, B, and C, respectively, are as defined in Table 5. Dependent variables have been standardized (z-scored). The demographic and housing characteristics are the percentage change between 1990–2000 of white households, percentage with a high-school education, percentage of single-family detached homes, percentage below the poverty line, and percentage with household head greater than 50 years. CZ-level fixed effects are included. Observations are weighted by the total number of housing units in 1990. Standard errors are clustered at the CZ level.

Panel A

	Upward Mobility: All Low-Income Households					
Change in:	(1)	(2)	(3)	(4)	(5)	(6)
% White	0.011**					0.001
	(0.005)					(0.006)
%<High school		0.003				0.011**
		(0.005)				(0.005)
% SF detached			-0.003			-0.006**
			(0.003)			(0.002)
% Poor				-0.037***		-0.036***
				(0.005)		(0.005)
%> 50 years					0.052***	0.046***
					(0.004)	(0.005)
CZ FE	Y	Y	Y	Y	Y	Y
R^2	0.334	0.328	0.328	0.354	0.367	0.389
N	36,334	36,260	36,308	36,224	36,334	36,214

Panel B

	Upward Mobility: Black Low-Income Households					
Change in:	(1)	(2)	(3)	(4)	(5)	(6)
% White	-0.004*					-0.011***
	(0.002)					(0.002)
%<high-school		0.006				0.005
		(0.004)				(0.003)
% SF detached			0.002			-0.000
			(0.003)			(0.003)
% Poor				-0.018***		-0.021***
				(0.003)		(0.003)
% >50 years					0.030***	0.032***
					(0.004)	(0.004)
CZ FE	Y	Y	Y	Y	Y	Y
R^2	0.155	0.154	0.154	0.160	0.166	0.177
N	18,482	18,434	18,464	18,421	18,482	18,416

Panel C

	Upward Mobility: White Low-Income Households					
Change in:	(1)	(2)	(3)	(4)	(5)	(6)
% White	0.019***					0.011***
	(0.002)					(0.002)
%<high-school		-0.001				0.008**
		(0.004)				(0.003)
% SF detached			-0.002			-0.003**
			(0.002)			(0.002)
% Poor				-0.028***		-0.022***
				(0.004)		(0.004)
%> 50 years					0.044***	0.035***
					(0.004)	(0.004)
CZ FE	Y	Y	Y	Y	Y	Y
R^2	0.366	0.351	0.351	0.364	0.378	0.391
N	34,718	34,646	34,694	34,612	34,718	34,603

Table 7
Channels: House Prices, School Funding, and School Quality

This table presents the tract-level estimates of the relationship between the change in homeownership policies between 1990–2000 and house prices, school funding, and school quality. House prices are the log of the median house price value among all owner-occupied houses in the 2000 Census. School funding is funding from local sources per 1000 students. (Low) school quality is captured by the student-teacher ratio. School funding and school quality are calculated using National Center for Education Statistics' Common Core of Data for the fiscal year 1996–97. The dependent variables in columns 3–6 are standardized (z-scored). Observations are weighted by the total number of housing units in 1990. Standard errors are clustered at the CZ level.

	House Prices		School Funding		Student-Teacher Ratio	
	(1)	(2)	(3)	(4)	(5)	(6)
Targeted tract$_{ct}$	-0.424***	-0.303***	-0.313***	-0.033	-0.010	-0.236***
	(0.017)	(0.021)	(0.067)	(0.082)	(0.037)	(0.038)
Δ Ease in mortgage financing$_{1990-2000,-ct}$ $\times$ Targeted tract$_{ct}$		-0.002***		-0.005**		0.004***
		(0.000)		(0.003)		(0.001)
CZ FE	Y	Y	Y	Y	Y	Y
R^2	0.698	0.700	0.668	0.673	0.779	0.782
N	36,005	36,005	34,811	34,811	33,104	33,104

Standard errors in parentheses; * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Mortgage Policies and their Effects on Racial Sorting and Upward Mobility

Online Appendix

Table A.1
Change in Renters

This table shows the tract-level analysis of changes in renters in response to housing policies between 1990–2000. The dependent variable in columns 1–2 is the change in the number of renters from 1990 to 2000 relative to the total number of renters and homeowners in 1990 (in percent). In columns 2–3 (4–5) the dependent variable is the percentage change in renters among Black (white) households relative to the total number of renters and homeowners. Targeted tract is an indicator equal to 1 if the tract is targeted under the "Underserved Areas Goal" based on Housing and Urban (HUD) classification in 1996. ΔEase of mortgage financing$_{-ct,1990-2000}$ is the tract-level percentile of the fraction of houses that become eligible to be financed by GSE-conforming loans due to the change in the conforming loan limit (CLL) between 1990–2000 in the remaining tracts in a CZ, excluding the census tract being measured. All columns include CZ-fixed effects. Observations are weighted by the total number of housing units as of 1990. The dependent variables are winsorized at the 1% level. Standard errors are clustered at the CZ level.

	Change in Renters 1990–2000					
	Total		Black		White	
	(1)	(2)	(3)	(4)	(5)	(6)
Targeted tract$_{ct}$	-2.641***	-0.210	0.677***	0.859***	-3.353***	-1.155**
	(0.626)	(0.789)	(0.222)	(0.331)	(0.448)	(0.547)
Δ Ease in mortg. fin.$_{1990-2000,-ct}$ $\times$ Targeted tract$_{ct}$		-0.045**		-0.003		-0.041***
		(0.019)		(0.008)		(0.011)
CZ FE	Y	Y	Y	Y	Y	Y
R^2	0.080	0.081	0.083	0.083	0.099	0.099
N	36,334	36,334	36,334	36,334	36,334	36,334

Standard errors in parentheses; * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table A.2
Moving by Race

This table shows the tract-level analysis of households (sum of owners and renters) who moved into their residences between 1990–2000 in relation to housing policies. The dependent variable in columns 1 and 2 (3 and 4) is the number of housing units where Black (white) household moved into their current residences in 1990–2000 relative to the total number of households in 1990, in percentage. Targeted tract is 1 if the tract is targeted under the "Underserved Areas Goal" based on Housing and Urban (HUD) classification in 1996. ΔEase of mortgage financing$_{-ct,1990-2000}$ is the tract-level percentile of the fraction of houses that become eligible to be financed by GSE-conforming loans due to the change in the conforming loan limit (CLL) between 1990–2000 in the remaining tracts in a CZ, excluding the census tract being measured. All columns include CZ-fixed effects. Observations are weighted by the total number of housing units as of 1990. The dependent variables are winsorized at the 1% level. Standard errors are clustered at the CZ-level.

	Owners/Renters Who Moved In			
	Black		White	
	(1)	(2)	(3)	(4)
Targeted tract$_{ct}$	0.096***	0.038***	-0.208***	-0.137***
	(0.011)	(0.014)	(0.013)	(0.018)
Δ Ease in mortgage financing$_{1990-2000,-ct}$ $\times$ Targeted tract$_{ct}$		0.001***		-0.001***
		(0.000)		(0.000)
R^2	0.339	0.347	0.186	0.187
CZ FE	Y	Y	Y	Y
N	36,334	36,334	36,334	36,334

Standard errors in parentheses; * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table A.3
Change in Homeownership Rate

This table shows the tract-level analysis of changes in homeownership rates in response to housing policies between 1990–2000. The dependent variable in columns 1–2 is the percentage change in the homeownership rate from 1990 to 2000. In columns 3–4 (5–6) the dependent variable is the percentage change in Black (white) homeownership rates from 1990 to 2000. Targeted tract is an indicator equal to 1 if the tract is targeted under the "Underserved Areas Goal" based on the Housing and Urban (HUD) classification in 1996. ΔEase of mortgage financing$_{-ct,1990-2000}$ is the tract-level percentile of the fraction of houses that become eligible to be financed by GSE-conforming loans due to the change in the conforming loan limit (CLL) between 1990–2000 in the remaining tracts in a CZ, excluding the census tract being measured. All columns include CZ-fixed effects. Observations are weighted by the total number of housing units as of 1990. The dependent variables are winsorized at the 1% level. Standard errors are clustered at the CZ-level.

	Change in Homeownership Rate 1990–2000					
	Total		Black		White	
	(1)	(2)	(3)	(4)	(5)	(6)
Targeted tract$_{ct}$	-0.314***	-0.138	0.735*	1.436**	-0.422***	-0.106
	(0.111)	(0.162)	(0.415)	(0.720)	(0.121)	(0.171)
Δ Ease in mortgage financing$_{1990-2000,-ct}$		-0.003		-0.013		-0.006
$\times$ Targeted tract$_{ct}$		(0.004)		(0.014)		(0.004)
CZ FE	Y	Y	Y	Y	Y	Y
R^2	0.073	0.073	0.048	0.049	0.054	0.054
N	36,323	36,323	31,804	31,804	36,255	36,255

Standard errors in parentheses; * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table A.4
Upward Mobility of Low-Income Households

This table shows the tract-level analysis of upward mobility among low-income households. Upward mobility is the expected mean household income rank for individuals with parents at the 25th percentile of the parents' income distribution. Cohort earnings are measured using mean incomes in 2014-2015, and parents' income is measured using mean income over five years: 1994, 1995, and 1998–2000. The dependent variable is average upward mobility among all low-income households in column 1 and 2, and among Black (white) households in columns 3 and 4 (5 and 6). Targeted tract is an indicator equal to 1 if the tract is targeted under the "Underserved Areas Goal" based on the Housing and Urban (HUD) classification in 1996. ΔEase of mortgage financing$_{-ct,1990-2000}$ is the census-tract percentile of the fraction of houses that become eligible to be financed by GSE-conforming loans due to the change in the conforming loan limit (CLL) between 1990–2000 in the remaining tracts in a CZ, excluding the census tract being measured. CZ-level fixed effects are included. Observations are weighted by the total number of housing units in 1990. Standard errors are clustered at the CZ level.

	Low-Income Upward mobility					
	Total		Black		White	
	(1)	(2)	(3)	(4)	(5)	(6)
Targeted tract$_{ct}$	-5.102***	-2.256***	-2.621***	-1.793***	-3.899***	-2.006***
	(0.411)	(0.496)	(0.173)	(0.324)	(0.219)	(0.292)
Δ Ease in mortgage financing$_{1990-2000,-ct}$		-0.053***		-0.015***		-0.036***
$\times$ Targeted tract$_t$		(0.014)		(0.005)		(0.006)
R^2	0.474	0.488	0.197	0.198	0.437	0.444
CZ FE	Y	Y	Y	Y	Y	Y
Controls	Y	Y	Y	Y	Y	Y
N	36,334	36,334	18,482	18,482	34,718	34,718

Standard errors in parentheses; * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table A.5
Upward Mobility of High-Income Households

This table shows the tract-level analysis of upward mobility among high-income household. Upward mobility is the expected mean household income rank for individuals with parents at the 75th percentile of the parents' income distribution. Cohort earnings are measured using mean incomes in 2014-2015, and parents' income is measured using mean income over five years: 1994, 1995, and 1998–2000. The dependent variable is average upward mobility among all high-income households in column 1 and 2, and among Black (white) households in columns 3 and 4 (5 and 6). Targeted tract is an indicator equal to 1 if the tract is targeted under the "Underserved Areas Goal" based on the Housing and Urban (HUD) classification in 1996. ΔEase of mortgage financing$_{-ct,1990-2000}$ is the census-tract percentile of the fraction of houses that become eligible to be financed by GSE-conforming loans due to the change in the conforming loan limit (CLL) between 1990–2000 in the remaining tracts in a CZ, excluding the census tract being measured. Dependent variables have been standardized (z-scored). CZ-level fixed effects are included. Observations are weighted by the total number of housing units in 1990. Standard errors are clustered at the CZ level.

	High-Income Upward mobility					
	Total		Black		White	
	(1)	(2)	(3)	(4)	(5)	(6)
Targeted tract$_{ct}$	-0.733***	-0.191**	-0.285***	-0.212***	-0.518***	-0.139***
	(0.081)	(0.088)	(0.024)	(0.050)	(0.042)	(0.041)
Δ Ease in mortgage financing$_{1990-2000,-ct}$		-0.010***		-0.001*		-0.007***
$\times$ Targeted tract$_t$		(0.003)		(0.001)		(0.001)
R^2	0.397	0.419	0.118	0.118	0.340	0.350
CZ FE	Y	Y	Y	Y	Y	Y
Controls	Y	Y	Y	Y	Y	Y
N	36,334	36,334	18,482	18,482	34,718	34,718

Standard errors in parentheses; * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table A.6
Changes in demographic characteristics in targeted tracts between 1990–2000

This table shows the regression estimates predicting the change in demographic and housing characteristics (the percentages white, with less than high school education, single-family detached homes, below poverty line, and population with age above 50 years) between 1990 to 2000 in targeted tracts. Targeted tract under the "Underserved Areas Goal" are based on the Housing and Urban (HUD) classification in 1996. The remaining data are from the 1990 and 2000 Census.

	Change in				
	% White	% < High school	% SF detached	% Poor	% > 50 years
Targeted tract$_{ct}$	-1.221***	-0.676**	-0.084	0.906***	-1.983***
	(0.245)	(0.333)	(0.157)	(0.299)	(0.109)
CZ FE	Y	Y	Y	Y	Y
R^2	0.182	0.287	0.104	0.163	0.150
N	36,334	36,260	36,308	36,224	36,334