Dear Colloquium Participants,

I am circulating the drafts of two chapters of my book manuscript, entitled *Competition in the Promised Land: Black Migrants in Northern Cities and Labor Markets*. The book addresses the effects of black migration from the rural South on receiving areas in the industrial North in the mid-twentieth century. Both chapters deal with the effect of the migration on urban space, residential segregation and white flight. As an economic historian, I very much look forward to hearing your thoughts about the methods and arguments in these two chapters from your own disciplinary perspective.

best,
Leah Boustan

Chapter 4: Competition in northern housing markets and neighborhoods

I. Introduction

The first act of Bruce Norris's 2011 Pulitzer Prize-winning play *Clybourne Park* is set in 1959 in a white neighborhood of Chicago. The characters Russ and Bev are packing up to move to the suburbs. Russ boasts that, after the move, the commute from their new driveway to his suburban office will take only six and a half minutes. Drama enters this domestic scene in the form of their neighbor, Karl. Karl is upset because Russ and Bev's house has been sold to a black family. In his vision of the future, "first one family with leave, then another and another, and each time they do, the values of these properties will decline… and *some* of us, you see, those who *don't* have the opportunity to simply pick up and move at the drop of a hat, then *those* folks are left holding the bag, and it's a fairly *worthless* bag, at that point" (Norris, 2011, p. 80).

Flight is not an option for Karl and so he decides to "fight" for the racial character of his neighborhood instead. Yet Karl's pleas for Russ and Bev to stay in the neighborhood do not succeed. Neither does his offer to buy back the house from the prospective black neighbors on behalf of the Clybourne Park Improvement Association.[1] By the second act of *Clybourne Park*, set fifty years later, the neighborhood has been through a full cycle of decline and revival, starting with the arrival of one black family, followed by white departures, heightened crime and poverty, and finally a wave of gentrification.

Decades of suburban moves by white couples like Russ and Bev contributed to the extreme segregation that took root in northern cities by 1970. In 1940, half of white metropolitan residents still lived in the central city. Northern black communities were small and majority-

[1] As it happens, these new neighbors are the Youngers, whose struggles were chronicled fifty years earlier by Lorraine Hansberry's classic play *A Raisin in the Sun*.

black neighborhoods were few in number, such that the average black resident lived in a neighborhood that was "only" 58 percent black. By 1970, the black population share in northern cities had quadrupled, due both to the arrival of new black migrants from the South and to the departure of white households for the suburbs. The share of white metropolitan residents remaining in the central city dwindled to 29 percent and the typical black resident lived in a neighborhood that was 75 percent black.

White suburbanization was primarily motivated by forces independent of the black migration, including rising incomes and new highway construction in the decades after World War II. Yet, as this chapter will argue, white departures from the city were also, in part, a reaction to black in-migration. I present new causal evidence on the relationship between black arrivals to a city and white departures, a trend that I refer to as "white flight."[2] The simultaneity of black in-migration from the South and white relocation to the suburbs, both of which peaked in the 1940s and 1950s, certainly suggests that the two population flows may be related. Moving beyond this national time series, I use variation in the timing of black in-migration to 70 cities in the North and West to distinguish white flight from other causes of suburbanization.

To address the fact that black in-migration to a city may have been attracted by the same underlying economic conditions that encouraged white suburbanization, I use an instrumental variable for changes in black population in a northern city developed by Boustan (2010). This instrument assigns the predicted out-flows of black migration from southern areas to northern cities according to established patterns of chain migration. My estimates imply that each black

[2] Unlike the colloquial usage of the term, which is often broadly applied to any form of white suburbanization, I use "white flight" to refer only to white departures from the central city in response to a changing racial composition.

arrival encouraged more than one white departure from the central city, leading to net population decline.

Existing whites residents may have left the central city as black migrants arrived for many reasons. First, any new migration to a city can raise housing prices and rents, prompting some residents to seek more affordable housing options elsewhere (the *housing market channel*). In addition, as history makes clear, white households who lived near historic black enclaves left the city to avoid interactions with black neighbors (the *social interactions channel*). Finally, as the next chapter will show, the typical white household lived quite far from a black neighborhood (over three miles away) in sections of the city that were at little risk of racial turnover. These distant households may have relocated to the suburbs as aspects of local city policy, including the property tax rate and spending priorities, changed to accommodate the growing black population (the *civic interactions channel*).

The departure of white residents from central cities increased racial residential segregation in northern metropolitan areas, contributing to the rise of majority-black neighborhoods. I end the chapter with new evidence on the consequences of living in a majority-black neighborhood in 1970, a turning-point for black neighborhoods. Existing work suggests that residential segregation had little effect on black economic outcomes before 1970, perhaps because black neighborhoods housed both poor and middle-class residents. Indeed, as-yet unexploited data from the 1970 Census reveals little effect of a neighborhood's racial composition on local adults in either earnings or unemployment. Furthermore, white departures from neighboring areas lowered housing prices, making it affordable for some black households to enter into homeownership. However, children in majority-black neighborhoods were already less likely to graduate from high school and more likely to be raised in a female-headed

household in 1970, suggesting that the negative consequences of residential isolation for the next generation had begun.

II. Patterns of residential segregation in northern cities, 1940-1970

In 1940, the black population in northern cities, although small, was already relatively concentrated in a few neighborhoods. As black migration to cities picked up, the number of majority-black neighborhoods expanded as did black isolation from white residents. Yet, quite remarkably, despite the arrival of over four million black migrants in the North over this period, white residents of northern metropolitan areas experienced no change in exposure to black neighbors from 1940 to 1970. Whites preserved their isolation from blacks by moving from all-white neighborhoods in central cities to all-white neighborhoods in suburbs.

Table 1 presents a series of facts about neighborhood racial composition and residential segregation in northern metropolitan areas at three points in the twentieth century: in 1940, as the largest decade of black migration got underway; in 1970, after thirty years of sustained migration to the North; and in the year 2000 for a contemporary comparison.

The first panel of the table divides city neighborhoods (Census tracts) into three categories: predominately white (0-1 percent black); integrated (1-50 percent black), and majority black.[3] In 1940, the vast majority of city neighborhoods were predominately white (67 percent) and only five percent of city neighborhoods were majority black. These majority black areas housed nearly 60 percent of northern blacks. The remaining 40 percent of blacks lived in

[3] It is not possible to create a neighborhood breakdown for the entire metropolitan area because no tract information is available for the suburban ring in 1940. In that year, 28 percent of city neighborhoods were integrated. If one assumes that all suburban blacks lived in a majority-black (integrated) neighborhood, then 23 percent (37 percent) of neighborhoods in the metropolitan area as a whole would have been integrated.

an integrated neighborhood. Although I refer to these neighborhoods as "integrated," many of them were actually undergoing a transition from majority white to majority black. Ellen (2000) demonstrates the fragility of residentially mixed areas using data from the Neighborhood Change Database for a slightly later period. Only 56 percent of neighborhoods that were integrated in 1970 remained so twenty years later; for comparison, over 80 percent of predominately white and majority black neighborhoods retained their racial character over this period.

The second and third panels of Table 1 report the resulting isolation index for black and white residents of northern metropolitan areas, as well as the corresponding values for residents of cities and suburbs. The "isolation index" is a summary measure of residential segregation that indicates the black (white) population share in the typical black (white) resident's neighborhood.[4] The higher the isolation index, the lower the probability that a black resident encounters a white neighbor in daily life and vice versa. Isolation can increase either because the population in question grows or because it becomes more residentially concentrated.

The black isolation index in northern cities was 58 percent in 1940.[5] After three decades of heavy black in-migration, the racial composition of city neighborhoods changed dramatically. The share of city neighborhoods that were predominately white declined from 67 to 42 percent,

[4] The isolation index is simply a weighted average of neighborhood-level black population share across all black residents. For example, if 80 percent of blacks live in a majority-black areas and 20 percent of blacks live in majority-white areas, the first group would contribute a black share of, say, 75 percent to the weighted average while the second group would contribute perhaps a 5 percent black share. In this case, the overall isolation index would be 61 percent (= [80 *x* 0.8] + [5 *x* 0.2]). For an overview of different measures of segregation, see Massey and Denton (1993).

[5] Although there is no Census tract information for suburban areas in 1940, a black isolation index of around 60 percent is also a reasonable guess for the metropolitan area as a whole. Suburban areas were, on average, three percent black in 1940. If all suburban blacks were perfectly integrated, living in neighborhoods that were three percent black, then the black isolation index at the metropolitan level would have been only 43 percent. In contrast, if suburban blacks were totally isolated, the metropolitan isolation index would have been 73 percent. The reality probably lies somewhere in between.

mirrored by a large increase in majority-black neighborhoods (from 5 to 20 percent) and a smaller rise in integrated neighborhoods (from 28 to 38 percent). As a result, black isolation in the central city increased from 58 percent in 1940 to 74 percent in 1970. Black isolation rose both because the typical black resident was more likely to live in a majority black neighborhood in 1970 and because majority black neighborhoods were themselves more likely to be "uniformly" black.[6] The intensification of black isolation over this period is consistent with trends in other common measures of residential segregation, including the dissimilarity index.[7]

It is not surprising that black isolation would rise as black migration accelerated; after all, the black population share of northern cities increased from 6 to 22 percent. More remarkable is the fact that the white isolation in northern metropolitan areas did not change *at all* over this period. In 1940, the typical white resident lived in a neighborhood that was 97 percent white. Yet, even as the black share of the urban population nearly quadrupled, white isolation remained at 96 percent in 1970. Mechanically, whites achieved this notable stability by shifting their residence from predominately white neighborhoods in the city to predominately white neighborhoods in the suburbs. Although predominately white neighborhoods declined as a share of the *city* total, the growth of the suburbs ensured that nearly 60 percent of *metropolitan* neighborhoods remained predominately white in 1970.

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[6] The share of metropolitan blacks living in a majority-black neighborhood increased from 59 to 69 percent over this period, while the black population share in majority-black neighborhoods increased from 79 to 84 percent.

[7] Cutler, Glaeser, and Vigdor (1999) track the dissimilarity index for sixty large cities from 1890 to 1990. From 1890 to 1940, as blacks first began moving to cities in large numbers, the dissimilarity index increased from 0.46 to 0.72. With the expansion of black ghettos during and after World War II, dissimilarity rose again, peaking at 0.79 in metropolitan areas in 1970. The dissimilarity index summarizes the degree to which geographic subunits, such as neighborhoods, mirror the demographic balance of a larger entity like a city or a metropolitan area.

By 2000, thirty years after black migration to the North had tapered off, black isolation in the region had fallen considerably and even white isolation began to decline. At 54 percent, black isolation in metropolitan areas was at levels last seen in 1940. Declines in black isolation occurred both in cities (a drop from 74 to 67 percent) and in suburbs (from 48 to 38 percent).[8] Despite falling levels of isolation, blacks remain the most residentially segregated group in US metropolitan areas in 2000.[9]

III. Economic underpinnings of postwar white suburbanization

Black migrants arrived in northern cities just as existing white residents were departing for the suburban ring. In large part, white suburbanization was motivated by factors unrelated to racial diversity, including rising incomes during the post-War expansion and construction of a new highway network that facilitated living and working further from the city center.[10] As Alma and Karl Taeuber noted already in the 1960s, "to attribute the processes of racial transition [in central cities] primarily to… whites fleeing incoming Negro population is an exaggeration… given the prevalent tendency of high-status whites to seek newer housing on the periphery of the urbanized area" (1965, p. 7).[11] Yet, as I argue later in the chapter, the phenomenon of "white

[8] Fischer, et al. (2004) show that the decline in segregation since 1970 is due almost entirely to reductions in residential segregation within jurisdictions (that is, across neighborhoods in the city or the suburbs), while segregation between central cities and suburbs has declined little.

[9] According to Iceland and Scopilliti (2008), black−non-black dissimilarity was 0.67 in 2000, compared with lower index values for Hispanic−non-Hispanic (0.52) and the foreign-born−natve-born dissimilarity (0.44).

[10] For the contemporary economic and demographic literature on white suburbanization, see Bradford and Kelejian (1973), Guterbock (1976), Frey (1979) and Marshall (1979). This work is summarized in Mieszkowski and Mills (1993).

[11] In his history of white departures from Oakland, CA, Robert Self (1999) agrees, writing that "white suburbanites did not 'flee' [the city. Rather,] they were drawn to suburban communities by… the assurance that a new home, spacious yard, and garage signaled their full assimilation into American life" (p. 16).

flight," whereby white households moved to the suburbs in response to the changing racial composition of central cities, accelerated this process.

Residential moves to suburban areas occurred steadily throughout the first two-thirds of the twentieth century. In 1900, 71 percent of metropolitan residents lived in a central city. This figure fell to 58 percent by 1940, before declining to 39 percent by 1970. The growth of pre-war suburbs first occurred along streetcar lines, and was later enhanced by the diffusion of the automobile in the 1910s and 1920s (Warner, 1978; LeRoy and Sonstelie, 1983). New housing starts were limited in the 1930s and early 1940s due to poor economic conditions during the Depression and then to the absorption of available capital by the war effort (Jackson, 1985; Hill, 2013). The return to normal supply conditions coincided with an explosion in demand for new housing units after World War II, particularly for the detached single-family units characteristic of the suburban ring.

Returning veterans accounted for a portion of the heightened demand for housing. Veterans on the G.I. Bill were provided with housing benefits that encouraged homeownership and relocation to the suburbs (Fetter 2013; Boustan and Shertzer, 2013). The G.I. Bill included a mortgage program that allowed veterans to purchase a home with little or no down payment. Through this program, the Veterans' Administration assisted 2.1 million veterans in purchasing homes between 1946 and 1950 alone, the majority of which were located in suburban areas (Bennett 1996, p. 24). The civilian market for credit also expanded as the Federal Housing Administration began insuring mortgages initiated by private lenders in the 1930s. As a result, mortgage rates fell from around seven percent in the 1920s to under three percent in the 1940s (Jackson 1985, p. 205).

Alongside this growing access to credit, post-War suburbanization was hastened both by rising household incomes and by federal and state road building programs. The monocentric city model, a standard economic model of residential location, predicts that suburbanization will occur when: (1) transportation improvements reduce the time cost of commuting, and (2) incomes rise, increasing the demand for housing services, which are less expensive (per square foot) outside of the city.[12] Although outside the scope of the simple framework, it is likely that rising income also increases demand for other goods that were readily available in the suburbs, including better schools and more open space.

The twin roles of rising incomes and falling commuting costs in explaining the growth of the suburbs in the mid-twentieth century is borne out in the quantitative historical record. Margo (1992) examines the association between household income and suburban residence in Census micro-data and demonstrates that rising income can explain around 40 percent of suburbanization from 1950 to 1980. Baum-Snow (2007) concludes that another one-third of the change in city population can be explained by the construction of new highways as part of the federal Interstate Highway System.[13] Not only did highways facilitate commuting from bedroom

[12] The monocentric city model, which has been jointly attributed to the work of Alonso (1964), Muth (1969) and Mills (1972), starts from the simplification that all employment is concentrated in a central business district (CBD); households then decide whether to locate close to or far from work, trading off a shorter commute for the higher rents of parcels closer to the CBD. The association between income and suburban residence will hold as long as the demand for land rises faster with income than do commuting costs, which depend, in part, on wages (a measure of time cost). Glaeser, Kahn and Rappaport (2008) show that, empirically, the income elasticity of demand for land is not large enough to explain much of the association between income and suburban residence. Instead, they argue that public transportation connections are more plentiful in the central city, encouraging the poor to locate centrally.

[13] The relationship between suburbanization and highway construction persists even after Baum-Snow uses the number of highways assigned to each metropolitan area in the original 1947 federal highway plan as an instrumental variable for the actual number of highways built. The 1947 plan was primarily designed for defense and long-distance trade, rather than to encourage suburban growth.

communities to centrally-located firms, but they also encouraged firms to relocate to the suburban ring (Baum-Snow, 2010). In 1960, as the federal highway program got underway, 59 percent of metropolitan residents worked in the central city. By 2000, the share of metropolitan employment located in the city declined to 42 percent.[14]

IV. Barriers to black suburbanization in the mid-twentieth century

Black migrants arrived in northern cities just as white households began leaving in large numbers for the suburban ring. Why didn't the black migrants of the 1940s and 1950s bypass waning central cities and settle directly in the suburbs, as their white southern counterparts often chose to do?[15] Black suburbanization did not begin in earnest until the decade of the 1970s and, even by 2000, metropolitan blacks lagged behind their white counterparts in suburban share by 27 percentage points.[16]

I will argue that the concentration of black residents in the central city cannot be attributed to racial differences in income or to the preferences of black migrants to live near other black households in centrally-located black enclaves. Instead, following most of the historical and sociological literature, I conclude that black urban residence is the product of formal and

[14] Boustan and Margo (2009) demonstrate that place of work has a causal effect on residential location. Therefore, the relocation of firms to the suburban ring is likely one mechanism by which highways encouraged the suburbanization of the population.

[15] See Berry (2000) and Gregory (2005) on the location decisions of white southern migrants in the North.

[16] Wiese (2005) narrates the often-forgotten history of the 20 percent of metropolitan black residents who lived in the suburbs in the years before 1970. Black suburbanites lived in neighborhoods on the outskirts of southern cities, as well as working-class and middle-class enclaves in northern and western metropolitan areas.

informal barriers to black entry into white neighborhoods, particularly those located in separate suburban jurisdictions.[17]

Income differences between blacks and whites cannot explain the concentration of southern black migrants in the central city. White households exhibited a strong relationship between income and residence in the suburbs at mid-century, but black households did not share this association. For example, in 1960, a 10 percent increase in income (or, around $4,000 in 2010 dollars) among metropolitan whites was associated with a 1.2 percentage point increase in the likelihood of living in the suburbs. In contrast, a 10 percent increase in income for metropolitan blacks raised the likelihood of living in the suburbs by less than 0.1 percentage points, a vanishingly small amount that cannot be statistically distinguished from zero. Furthermore, even if the relationship between income and suburbanization for whites had held for black households, the racial income gap would have only explained a third of the racial difference in suburbanization.

Furthermore, black concentration in the central city is not simply the product of migrants' preferences to cluster near friends and family from their home state who lived in historic black enclaves in downtown areas.[18] Thernstrom and Thernstrom (1997) use responses to hypothetical neighborhood choices in the Multi-City Study on Urban Inequality to argue that blacks prefer plurality- or majority-black neighborhoods, two neighborhood types that are extremely uncommon in suburban areas. Yet, when asked open-ended questions about *why* they prefered

[17] These explanations for black concentration in the central city map on to the sociological theories of *spatial assimilation*, which emphasizes racial differences in income or wealth, and *place stratification*, which would instead focus on institutionalized racism. See Charles (2003) for a review of the sociological literature.

[18] Of course, this explanation begs the question: why were historic black enclaves located in the central city? Black migrants to northern cities in the 1910s and 1920s settled near available factory work, which, at the time, was located in the downtown core.

majority-black areas, many black respondents emphasize their concerns about being ignored, harassed, or patronized by their neighbors, rather than their preference for living near other black households. In other words, there is a high cost to being a black pioneer in an all-white neighborhood, one that few families are willing to bear.[19] As Orin, a black eight-year old who was interviewed by Robert Coles in *Children of Crisis* (1971), explained, "my mother says that she'd like to get us out of here, into a better street….The white people don't like us moving out to where they live, though; so we may be here for a long time." (p. 87).

White exclusion is a more likely explanation for the lack of substantial black suburbanization before the 1970s. White residents used various tactics to exclude blacks from their neighborhoods. Historically, these forms of "collective action" included racially restrictive covenants on property, explicit violence against black neighbors, and coordinated efforts by local real estate agents. Blacks also faced barriers to the mortgage finance often necessary to purchase single-family homes in white suburban areas.

Until the late 1940s, property owners could enter contracts, known as racially restrictive covenants, which obliged them not to sell or rent their property to members of various racial or religious groups. The Supreme Court declared such covenants legally unenforceable in the 1948 *Shelley v. Kramer* decision. The centrality of racial covenants in creating and maintaining segregation depends on how common these contracts were in the northern housing stock; how effective they were at enforcing the color line; and whether good substitutes were available after covenants were disallowed.

[19] For this alternative interpretation of the data in the Multi-City Study on Urban Inequality, see, for example, Farley, Steeh, Krysan, Jackson and Reeves (1994) and Ihlanfeldt and Scafidi (2002).

The historical prevalence of racial covenants is, in theory, knowable because their presence is recorded in property deeds. However, the lack of a central repository for property records, which are filed with county authorities, has prevented an accurate assessment of the frequency of racial covenants at the national level. Historians have compiled selected samples of covenants in particular cities. Plotkin (1999), for example, reports that 25 percent of neighborhoods in central-city Chicago made extensive use of these provisions, whereas Gotham (2000) documents that 70 percent of new subdivisions in the Kansas City metropolitan area were covered by racial covenants. Most covenants required near unanimity among property owners in the area in order to go into effect (Philpott, p. 193-4). Therefore, covenants may have been particularly difficult to apply retroactively to the existing urban housing stock most proximate to central black enclaves and were likely more common in new suburban developments.

Even if covenants were widespread in the suburbs, the lack of appreciable black suburbanization after the 1948 *Shelley* decision suggests either that covenants were never terribly effective at barring black entry to the suburbs in the first place or that equally powerful substitutes replaced the role of residential covenants in holding the color line.[20] Enforcement of racial covenants required that neighbors take each other to court for violating the ban against selling property to a black family. Yet, as Thomas Sugrue explains, parties to the agreement were often unwilling "to go through the costly procedure of suing property owners suspected of breaching covenants." Given how rarely such cases were filed, he concludes that "white

[20] Kucheva and Sander (2010) argue that blacks did gain access to formerly-covenanted neighborhoods after the *Shelley* decision in central city Chicago and St. Louis. Using data on one-year migration patterns from the 1950 Census, they show that black movers are more likely to move into formerly-covenanted neighborhoods as early as 1949. However, white neighborhoods close to black enclaves likely had the strongest incentives to sign residential covenants in the first place. Therefore, these moves may have been part of a longer-term trend toward racial transition and neighborhood change.

residents frequently disregarded covenants when 'racial transition' seemed inevitable" (p. 45). Furthermore, even without the legal constraint of a racial covenant in place, the motivations of individual sellers were likely enough to enforce a high degree of segregation. In many states, individual owners could legally refuse to sell or rent their property to blacks until the passage of the federal Fair Housing Act in 1968.[21] For sellers planning to stay in the same town, attend the same church and send their children to the same school, the disapproval of neighbors may have effectively prevented sales to black families, even without a formal mechanism to sue in court.

Even more so than individual sellers, real estate agents in white neighborhoods had a strong motivation to maintain an area's existing racial character in order to preserve their reputation with the local community. As a result, realtors only represented black families interested in buying or renting in a white area if the expected commission from the particular transaction outweighed the potential future loss of business from angry white neighbors.[22] This decision calculus led real estate agents to play two divergent roles in preserving the racial patchwork of urban neighborhoods: both protector of the existing racial balance in stable, predominately-white neighborhoods and facilitator of racial transition in areas already undergoing racial change. In most suburban areas, real estate agents often found it in their best interest to work toward maintaining the area's racial character by preventing sales to pioneering black families.[23] However, in city neighborhoods close to black enclaves, expectations of

[21] 22 states passed fair housing provisions before the 1968 federal law. However, Collins (2004) finds no evidence that states with strong fair housing laws experienced faster growth in black homeownership or in the quality of the black-owned or black-rented housing stock, perhaps because these laws suffered from weak enforcement.

[22] See Ouazad (2012) for a model of the economic incentives of realtors.

[23] For example, realtors in Grosse Point, MI, a suburb of Detroit, used a "'point system' that ranked perspective home buyers by race, nationality, occupation and 'degree of swarthiness.' [By this system,] blacks and Asians were excluded from Grosse Point altogether." (Sugrue, 1996, p. 193). Up until 1950, the National Association of Real Estate Boards' Code of Ethics

"inevitable" racial transition lessened concerns about future reputation among white clients and prompted real estate agents to broker sales for black families. At the extreme, agents would hasten the process of racial transition using a tactic known as "block busting," whereby agents would sell one unit to a black family and then using the entry of the first black family to encourage other white owners to sell.[24]

Limited access to mortgage finance created another institutional impediment that limited blacks entry into the suburbs, where the majority of the housing stock was owner-occupied.[25] Black households had particular difficulty securing loans to purchase homes in white areas. John Field, who worked for the Detroit Commission on Community Relations in the 1960s, noted that the Federal Housing Administration "regularly refused loans to black homebuilders while underwriting the construction of homes by whites of a similar economic status a few blocks away" (in Sugrue, 1996, p. 44). Hirsch (p. 31) cites a survey of 241 Savings and Loans associations conducted in the 1960s; only one institution included in the survey reports having offered a mortgage to a black family buying a home in a white neighborhood.[26]

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required signatories to pledge "never [to] be instrumental in introducing into a neighborhood… members of any race or nationality… whose presence will be clearly detrimental to real estate values." Heller (2012) profiles the history of Board's Code of Ethics. Specific reference to race and religion was stripped from the Code in 1950 but the remaining language in this section was retained until 1974.

[24] Sugrue (1996) documents the practice of block busting in Detroit. Agents would sell "a house in an all-white block or neighborhood to a black family… [and then] inundate[e] residents with leaflets and phone calls, informing them that 'Negros are 'taking over' this block or area' and that they 'had best sell now while there is still a chance of obtaining a good price'" (p. 195).

[25] In 1960, for example, over three-quarters of housing units in suburban areas were single-family detached structures, 85 percent of which were owner-occupied.

[26] Racial disparities in mortgage approval rates were likely due, in part, to statistical discrimination – that is, mortgage brokers may have been using race as a proxy for default risk. In contemporary data, blacks mortgage holders are almost twice as likely as their white counterparts to default on their loan even after controlling for a full set of financial characteristics (Berkovec et al., 1996).

V. Documenting white flight

The black migrants who arrived in the North at mid-century settled in cities in the process of being abandoned by the existing white residents. Many black migrants were too poor to join the exodus to the suburbs. Yet, even black households with the financial resources and the interest in living in the suburban ring were often blocked by local realtors and mortgage brokers. These dual population flows of black migration and white suburbanization gave rise to the well-known pattern of "chocolate cities" and "vanilla suburbs."[27] Whites who sought to avoid interactions with black newcomers were thus able to do so by relocating from the city to the suburbs.

I document that, above and beyond other causes of suburbanization, white departures for the suburbs were higher in cities experiencing large inflows of black migration. I refer to this phenomenon as "white flight." The section begins by developing a simple model of a metropolitan area housing market that generates predictions about how many white residents can be expected to relocate to the suburbs in response to a given number of black arrivals. The model does not consider the alternative to moving out of the city, exercised by some white residents, to defend their neighborhoods against black "infiltration." Yet, despite this available alternative, I find that every black arrival to the typical city is associated with more than two white departures.

The goal of this section is simply to document that black migrants had a causal effect on white departures from central cities. The next chapter will try to further disentangle the motivations of white households who left central cities as blacks arrived. Some households sought to avoid daily social contact with black neighbors, while others were concerned about higher rents associated with the housing demand of new migrants or about changes in municipal

[27] The term "chocolate city" used to refer to cities with a large black population was first used by the funk band Parliament in their 1975 album of the same name.

policy, including property tax rates or spending priorities, influenced by shifts in the urban electorate.

A. Conceptual framework

This subsection describes a simple economic model of the choice between locating in the central city and the suburbs. I begin with a baseline case in which all of the city residents are white. I then consider an influx of white migrants into the central city, followed by scenario in which the city receives an inflow of new black migrants.

Suppose that, initially, all residents of the metropolitan area are white and must decide whether to live in the city or the suburbs. Residents are differentiated only by their income level. Each household considers two factors in making a location decision: the relative price of housing in the city versus the suburbs and the available bundle of local amenities in each place. Local amenities can have many attributes, including distance to work, the quality of local public goods (especially schools), proximity to shopping and restaurants and so on. For simplicity, I assume that housing prices and amenities are uniform within the city and the suburb to emphasize the choice between the two locations.

Each household's goal is to minimize the cost of housing for a given amenity level. Assume that the housing stock in the city is constrained because the city has both a fixed land area and restrictive building regulations. Therefore, when the city population increases, housing prices in the city will rise. In contrast, suburban construction is imagined to be relatively elastic or responsive to demand conditions; when the suburban population increases, temporarily raising housing prices, the construction sector responds by building new units. In the simplest case, new construction will continue until suburban housing prices are equal to construction costs.

With free mobility between the city and the suburbs, no households in the city should prefer to live in the suburbs, given the price, and vice versa. If, instead, some households living in the city could improve their welfare by moving to the suburbs, they would do so. As the first of these disgruntled households left the city, the price of city housing would fall. A lower city housing price would compensate the remaining city dwellers who had preferred the suburbs but would now be indifferent between the two. Eventually, after a sufficient decline in the price, the metropolitan system would reach an equilibrium in which all households would (weakly) prefer to stay in their current location.

Now imagine that a number of white migrants move into the central city of this metropolitan area. These new arrivals would increase the price of urban housing, prompting some existing residents to move to the suburbs. Despite this new demand for suburban residence, housing construction on the urban periphery would ensure that the price of suburban units remain constant (or, at least, do not rise as much as the corresponding increase in city prices). The outflow to the suburbs would continue until the relative price of city and suburban housing units returns to its previous level, at which all residents either strictly preferred or were indifferent between their location and the alternative. If suburban prices return fully to construction costs, equilibrium will be restored when each in-migrant to the city is matched by exactly one new departure from the city; if, instead, suburban prices increase somewhat, the outflow from the city can be less than one-for one.

This example illustrates that *any* migrant to a city, regardless of his race or social position, encourages some suburbanization due to his effect on urban housing prices (or what I call the *housing market channel*). Saiz (2007), for example, shows that foreign-born in-migration to a city increases housing prices and prompts existing residents to leave the area.

Now, imagine that there is an inflow of black southern migrants and, again, these migrants settle only in the central city. These new arrivals will have two effects on the city; not only will they raise housing prices by increasing housing demand but they will also increase the level of racial diversity in the city. If racial diversity is considered a disamenity, this change in the bundle of urban characteristics will prompt additional white out-migration to the suburbs beyond the previous case (the *racial diversity channel*). Absent a distaste for diversity, black migrants will encourage white departures only insofar as their arrival increases the relative price of city housing. In this case, as in the earlier example, each black arrival will prompt exactly one white departure (or less).[28] If, however, whites exhibit some distaste for diversity, we would expect the number of whites leaving the city with every black arrival to be higher – perhaps more than one-for-one.[29]

B. White responses to black arrivals: Fight versus flight

In the model above, white households concerned about mounting racial diversity in the city can move out the suburbs. In fact, white households could choose between leaving for the suburbs ("white flight") or defending the racial character of their existing urban neighborhood

[28] Boustan (2010) provides formal proof of this proposition. The intuition, though, is straightforward. Depending on the responsiveness of a city's construction sector (elasticity of housing supply), each black arrival will increase housing price by some amount *x*. If one white resident leaves the city, urban prices will decline by precisely the same *x*. Relocation to the suburbs will not increase suburban housing prices under the assumption that the suburban construction sector immediately responds to changes in demand. Therefore, a one-for-one departure rate will restore equilibrium to the metropolitan system.

[29] In the short run, black in-migration will increase urban housing prices. These higher prices, coupled with white distaste for racial diversity, encourages more than one white resident to leave the city for every black arrival, leading to an eventual reduction in the total urban population. As a result, the model predicts that the urban housing price will fall in the long-run with black in-migration to the city.

("white fight").[30] Residents of some white neighborhoods used grassroots tactics, including violence and intimidation, to limit black entry.

Much of the historical literature on black migrants in the North focuses on these kinds of "white fight."[31] This emphasis likely arises from the fact that collective actions to defend a neighborhood, such as protests and fire-bombings, leave a stronger imprint in the historical record. In contrast, individual household decision to leave the city leave little trace, save on aggregate population statistics. White flight is an inherently private activity; as Amanda Seligman describes the process, "many quietly watched the transformations around them, discussed their dismay with family members at the kitchen table, and left without consulting anyone else" (p. 6-7).

The bulk of documentary evidence on "white fight" is drawn from the histories of Chicago and Detroit. Between 1940 and 1965, white Detroiters started numerous neighborhood associations designed to protect local property values by advocating for better public services (such as new stop signs or street lighting) and, in many cases, by policing the color line.[32] Neighborhood associations regularly coordinated or tacitly supported intimidation against prospective black neighbors; Sugrue documents "over two hundred incidents [in Detroit] against blacks moving into formerly all-white neighborhoods, including harassment, mass

[30] Amanda Seligman describes "fight" and "flight" not as alternatives but as sequential and often complementary activities. Of Chicago's West Side, she writes that "white West Siders did not immediately flee. Instead, their initial response to black in-migration was to defend their community's racial homogeneity… white West Siders' ultimate 'flight' to the suburbs was in fact only the capstone to a series of responses to transformations in Chicago's physical and social landscape" (p. 4-5).

[31] A typical example is Josh Sides' account of black Los Angeles, in which he dedicates 12 pages to episodes of neighborhood violence after first granting that "many white homeowners in South Central Los Angeles reacted to the influx of black residents by quietly selling their homes and moving elsewhere" (p. 101).

[32] See Seligman on similar forms of community organizing in Chicago (p. 170-181).

demonstrations, picketing, effigy burning, window breaking, arson, vandalism, and physical attacks" (p. 233).

Similar levels of violence rocked Chicago over this period. Philpott recounts that, in the 1920s, "bombs were going off at the rate of two per month" (p. 170). By the 1940s, Hirsch describes Chicago as beset by "chronic urban guerrilla warfare," during which "one racially motivated bombing or arson occurred every twenty days" – a rate of 1.5 conflagrations per month (p. 41). From 1945 to 1950, the Chicago Commission on Human Relations received 360 reports of racial "incidents" related to housing or residential property, a rate of six incidents per month, suggesting that more extreme events like bombing and arson were only the tip of the iceberg (Hirsch, p. 52).

Limited evidence from other cities indicates that the violent crescendo reached in Chicago and Detroit was an outlier. Los Angeles, for example, experienced six bombings and four arsons over the 1950s (Sides, p. 103; see also Meyer, p. 117-132).[33] Certainly residents of some neighborhoods stayed in place – at least for a while – to defend their turf, especially in the largest cities with the heaviest black influx. Yet leaving for the suburbs appears to have been the much more commonly-used strategy to contend with neighborhood change. The next section will present new evidence on white flight in a large sample of northern and western cities.

[33] In theory, a national index of racially-motivated housing violence could be compiled in these years from digital indices of local newspapers.

C. Empirical evidence of white flight

i. Correlations

Figure 1 illustrates that cities receiving a larger inflow of black migrants in the 1950s also lost a greater number of white residents over this period.[34] This relationship, which is based on the 70 largest cities outside the South, holds in every decade between 1940 and 1970.[35] The slope of the relationship suggests that each black arrival was associated with more than two white departures.

The average city absorbed 51,000 black migrants from 1940 to 1970. According to this estimate, the city would have lost 139,000 white residents to white flight on a base of around half a million residents in 1940, resulting in a 16 percent net decline in the urban population. The simple model presented above suggests that if whites were only motivated by the relationship between new migrant arrivals and rising housing prices, we would expect to find at most one white departure for each black arrival. Instead, we find a more than two-for-one departure rate, which implies that some of this white flight was motivated by additional concerns about racial diversity.

This correlation alone does not confirm that the relationship between these two population flows is driven by white responses to new black arrivals in the central city. Alternatively, black migrants may have been attracted, either directly or indirectly, to cities that were undergoing a process of suburbanization. First, as whites relocated to the suburbs, they left

[34] Some changes in black population in the central city are due to natural increase (that is, higher fertility than mortality) and some white departures leave the metropolitan area altogether, rather than settling in the suburbs. In the simple correlation, these changes are included in black inflows and white outflows.

[35] Each point in the scatter diagram represents the residual change to a city's black and white population over the 1950s, controlling for region fixed effects and metropolitan area growth over the decade.

behind inhabitable urban housing. Falling demand for this existing housing stock would lower housing prices in the city, thereby potentially drawing in new migrants.[36] Secondly, rates of white suburbanization were higher in metropolitan areas with a strong local economy and rising incomes, factors that may have attracted new black job-seekers to the area. The next section will tease out the causal direction of the relationship between black in-migration and white departures for the suburbs.

ii. Causality

Cities that received more black migrants also lost a greater number of white residents. This relationship may be driven by unobserved characteristics of a city that both attract black in-migrants and prompt existing white residents to relocate to the suburbs. To address this possibility, I designed an instrumental variable that is correlated with black in-migration to a metropolitan area but was not otherwise associated with white departures for the suburbs. This instrument relies on variation in the southern economic conditions that encouraged black out-migration from the region, coupled with connections between southern sending areas and particular northern cities.

For illustration, consider the case of Chicago. Some black migrants were attracted to Chicago by the plentiful factory jobs available in the city, while others were motivated by low or erratic wages in Mississippi, a state that traditionally sent many of its black out-migrants to Chicago. Of concern is the fact that a strong manufacturing sector in Chicago likely boosted white income in Chicago as well, thereby encouraging departures for the suburbs. Yet wages in

[36] Gerald Gamm (1999), for example, argues that black migrants were attracted to the Dorchester and Roxbury neighborhoods of Boston by the decline in housing prices following a wave of Jewish suburbanization.

Mississippi should not otherwise influence the choice of where to live in the Chicago metropolitan area *except* through their connection to black migration decisions.

I extend this logic to the rest of the country using data on local economic conditions in the South and historical migration flows between southern states and northern cities. The details of this procedure are presented in Boustan (2010); I highlight the key steps in this method here.

Firstly, I determine the historical patterns of black migration from southern sending states to northern cities using the "where did you live 5 years ago?" question from the 1940 Census. I calculate the share of black migrants from every southern sending state (*s*) that settled in each northern destination (*n*) between 1935 and 1940.

Secondly, I predict how many blacks could be expected to leave each southern state by decade from 1940 to 1970 solely in response to local economic conditions. For this, I rely on the analysis reported in Chapter 1 that relates estimated outflows of black migrants by county to factors like the share of land planted in cotton. I use the results from this analysis to predict black out-migration from southern counties and then aggregate these totals to the state level.

Finally, I combine the share of black migrants from each southern state that settled in a given northern city with the predicted black migrant out-flows from southern states to "assign" black inflows to northern destinations. These simulated changes in black in-migration serve as an "instrumental variable" for actual changes in the black population by central city.[37]

The idiosyncrasies of the early settlement decisions of black migrants, alongside the subsequent strength of the migration chain, ensure that there is enough variation to separately identify black arrivals into northern cities. Take, for example, the case of Alabama and

[37] This approach is motivated by an extensive literature in economics, beginning with Altonji and Card (1991), which instruments for the presence of foreign-born workers in a metropolitan area using aspects of chain migration. Card (2001) is closest in spirit to the method outlined here.

Mississippi, two neighboring, cotton-producing states in the traditional "black belt." Northward migrants from Mississippi overwhelmingly settled in Chicago and St. Louis, which together accounted for 62 percent of black departures in the late 1930s. In contrast, Detroit was the top destination for black migrants leaving Alabama. Together, Detroit and Chicago accounted for only 47 percent of northward migration from Alabama.

The distinct migration pattern of departures from these neighboring states is consistent with differences in their railroad connections to the North. The black population in Mississippi was clustered along the Mississippi river, a region served by only one inter-state railroad (the Illinois Central), whose main hubs were St. Louis and Chicago. In contrast, the large cities in Alabama, Mobile and Birmingham, were each served by two major railroads – the Gulf, Mobile, and Ohio railroad, which connected to the Illinois Central network in St. Louis, and the Alabama Great Southern Railroad, which brought riders east to Cleveland (the third largest destination for blacks leaving Alabama) and then on to Detroit.[38]

The strength of chain migration cemented in place these original differences in destination choice. As journalist Isabel Wilkerson (2010) observed, "a map of the crosscurrents of migration would link otherwise completely unrelated southern counties and towns with seemingly random northern cities that, other than the train lines and sometimes in spite of them, made little practical sense but nonetheless made sister cities of the unlikeliest of pairings. Palestine, Texas, and Syracuse, New York; Norfolk, Virginia, and Roxbury in Boston; Brookhaven, Mississippi, and Bloomington, Illinois" (p. 243).

[38] Grossman (1989, p. 99) writes that "the first [migrant from Mississippi] to leave for Chicago probably chose the city because of its position at the head of the Illinois Central." See Grossman (1989, p. 66-119) and Gottlieb (1987, p. 39-62) for a broader discussion of the role of train routes and information networks in black migration. New work by Black, et al. (2011) uses proximity of a black southerners' birthplace to a train line to predict out-migration.

Not surprisingly, then, the relationship between predicted migrant inflow into a city and actual changes in black population is strong (see Figure 2).[39] Cities like Baltimore, MD that lie above the regression line experienced more black population growth than would be expected by outflows from their typical sending states, perhaps due to positive economic shocks that attracted arrivals from new source areas. The reverse is true of cities like St. Louis, MO that fall below the regression line. Yet, on average, there is a strong association between actual changes in black population and changes due to predicted black in-migration to the city.

A two-stage least squares analysis reported in Boustan (2010) demonstrates that each black migrant is associated with around 2.5 white departures. White departures remain strongly and negatively related to predicted black inflows to a city. From this, I conclude that the correlation depicted in Figure 1 was primarily driven by white response to black arrivals, rather than by the location decisions of black migrants. I continue to find a more than one-for-one departure rate, which suggests that white flight was motivated in part by a distaste for racial diversity. I will explore the reasons behind white departures in more detail in the next chapter.

VI. Residential isolation and black outcomes

As black migrants settled in northern cities and white households left for the suburbs, residential segregation in northern metropolitan areas increased. In this section, I ask whether heightened residential segregation, and particularly the rising prevalence of majority-black neighborhoods in central cities, had negative consequences for black well-being. I consider a

[39] As for Figure 1, each point on the scatter plot here represents the residual change to a city's actual and predicted black population in the 1950s controlling for region fixed effects and overall metropolitan area growth over the decade. The relationship is equally robust in other decades.

wide array of outcomes, including earnings, unemployment rates, high school completion, female-headed households, and homeownership.[40]

A. New evidence on the effect of living in a majority-black neighborhood

In the mid-twentieth century, majority-black areas housed both the black poor and the black middle class. Thomas Sugrue describes the mixed residential pattern in Detroit of the 1940s and 1950s, noting that "virtually all of Detroit's blacks – regardless of class and education, occupation, age, or place of birth – shared the experience of discrimination in the city's housing market" (Sugrue, p. 183).[41] At the time, segregation may have benefitted poor blacks by encouraging cross-class interaction within the black community, while, at the same time, limiting the economic opportunities of the black middle class (Cutler and Glaeser, 1997).[42] After 1970, some middle-class blacks were able to move to integrated neighborhoods, leaving poor blacks behind in majority-black neighborhoods that were becoming increasingly isolated and impoverished (Wilson, 1987; Jargowsky, 1997).

Studies for the modern period (after 1970) confirm that, on balance, residential segregation is associated with poor black outcomes today, including lower high school

[40] White departures for the suburbs may have had consequences not only for neighborhood composition but also for city-wide fiscal health. On the one hand, with the loss of white population, the assessed value of the urban residential tax base may have declined, straining city budgets. Yet, at the same time, as the urban population fell, the city's commercial tax base would be spread over a smaller number of recipients.

[41] The presence of blacks from many social classes in majority-black neighborhoods does not imply that these neighborhoods were fully integrated by class. According to historian Joe William Trotter, Jr., "black business and professional people, joined by a few better-paid and skilled workers, occupied the better housing within and on the edges of the black district" in Milwaukee (p. 180). Black neighborhoods in Chicago exhibited the same pattern (Grossman, p. 128-129).

[42] Bayer, Fang and McMillan (2005) point out that, as the black middle class has expanded in some cities, high-income blacks have formed their own middle class black enclaves. In this case, residential segregation need not harm the black middle class.

graduation rates and earnings and a higher probability of single parenthood (Cutler and Glaeser, 1997; Ananat, 2011).[43] Yet, the opposite appears to be the case in the 1940s and 1950s (Collins and Margo, 2000). Wilson (1987) argues that the presence of the black middle class "provided stability to inner-city neighborhoods and reinforced and perpetuated mainstream patterns of norms and behavior" at mid-century (p. 7). Reflects nostalgically about his neighborhood in an oral history project about black Chicago, Morris Ellis concurs. "It was a real community," he remembers. "A community where everybody knew everybody else…Every adult on the block knew me and knew my family… If any of the adults in the whole community saw Morris Ellis doing something wrong, they had the right to chastise him – mentally, physically, whatever. And they would tell my folks!" (Black, p. 177).

From this history, 1970 emerges as a turning point from the relative class integration of the 1940s and 1950s to the concentrated poverty of the 1980s and 1990s. This section provides new evidence on the consequences of living in a majority-black neighborhood in 1970. I use a unique extract of the 1970 Census that matches individual records to Census tract (neighborhood) characteristics, the only large historical dataset of its kind, and ask whether black

[43] Early empirical work on the consequences of residential segregation compared outcomes of black residents living in more or less isolated neighborhoods within the same city (Ellwood, 1986; Ihlanfeldt and Sjoquist, 1990). However, given that residents can choose where to live, any association between neighborhood isolation and poor outcomes could be driven by the fact that households that are already weakly attached to the labor market may be the most likely to settle in areas far from job prospects. Cutler and Glaeser (1997) address this selection problem by comparing black outcomes across metropolitan areas with different levels of residential segregation. Selection may be less severe in this context because it is harder to move across metropolitan areas than it is to move between neighborhoods within a metropolitan area. Ananat (2011) further instruments for segregation with a measure of the extent to which historical railroad crossings subdivided city land into separate neighborhoods.

and white residents of majority-black neighborhoods fared differently than did households in racially integrated or predominately-white areas.[44]

Comparing residents across neighborhood types suffers from standard concerns about residential self-selection. Households who chose to settle (or remain in) majority-black neighborhoods may have had different attributes than those who chose to move elsewhere. Therefore, any observed disparity in outcomes between residents of these two neighborhood types could be due to initial selection rather than to the real consequences of living in a particular area. Although I cannot fully correct for selection, I seek to mitigate this source of bias in three ways. First, I adjust for a series of individual characteristics, such as gender, age, migration status, and years of education. Secondly, I control for other attributes of the neighborhood itself, principally the median income and poverty rate of its residents. Third, I compare blacks and whites living in the same neighborhood types to determine whether blacks face an additional penalty for living in a majority-black area.

Figure 3 presents the association between neighborhood racial composition and individual socio-economic outcomes. The black bars report results from regressions that include the black population share as the only neighborhood-level attribute, while the gray bars also include the median family income and poverty rate in the area. For illustration, I report the effect of living in a majority-black neighborhood relative to living in a predominately-white area (0-5 percent black); the underlying regression also includes indicators for intermediate neighborhood

[44] Much contemporary work on neighborhood effects is based on the Panel Study of Income Dynamics which follows a small random sample of the US population over time and matches households to data on their Census tract. Although lacking a longitudinal component, this 1970 extract is much larger, allowing me to analyze black residents in predominately-white neighborhoods, and vice versa.

types (5-15 percent black; 15-25 percent black; 25-50 percent black) and the relationships appear to be monotonic in percent black.

Without controlling for other aspects of the neighborhood, it appears that white residents of majority-black neighborhoods earned 15 percent less than their counterparts in predominately-white areas, although no relationship between neighborhood racial composition and individual earnings is present for black residents. Once socio-economic characteristics of the neighborhood are added, the integration "penalty" becomes, if anything, an earnings premium for residents of both races. I find a similar pattern for unemployment status (not shown).

The fact that the negative association between black population share and (especially white) outcomes disappears after controlling for income levels suggests that the raw relationship is driven by selection. Whites who "choose" to live in (or find themselves unable to leave) neighborhoods going through racial transition are those with attributes typically associated with low earnings and high unemployment. When narrowing the comparison to neighborhoods whose residents have similar income levels, the black population share of a neighborhood is no longer relevant for earnings capacity. This selection appears to have been particularly severe among white households who had a wider array of choices in the housing market of 1970.

I turn next to two characteristics that are associated with poor youth outcomes: the high school dropout rate and the share of households that are female-headed. Neighborhood racial composition again has a stronger effect on these variables for whites than for blacks. Controlling for the socio-economic characteristics of the neighborhood cuts in half – but does not eliminate – the association between racial composition and both the high school dropout rate and female household headship.

Summarizing this set of relationships, it appears that the decline in the white population of central cities and the corresponding rise in majority-black neighborhoods had little effect on the earnings and unemployment rate of black residents in the short run but had moderately-sized negative effects on the next generation of children growing up in these areas.[45] My best estimates suggest that black youth living in majority-black neighborhoods were one to two percentage points less likely to graduate from high school and more likely to start (or be raised in) single-family households.

B. Rising black homeownership as a silver lining to white flight

Existing work on the consequences of white flight focuses on the residential segregation. However, as I argue earlier in this chapter, white departures also affected urban housing market by reducing the price of city housing. Lower housing prices in city neighborhoods encouraged some black households on the margin between renting and homeownership to purchase a home. The resulting rise in black homeownership had positive effects on black neighborhoods in the urban core.

In the mid-twentieth century, much of the urban housing stock was made up of multi-family dwellings that were not conducive to owner-occupancy.[46] Yet, in 1960, 49 percent of units in the central city were detached single-family dwellings and 53 percent of city units were owner-occupied in that year. As whites left for the suburbs, particularly from neighborhoods near

[45] Sharkey (2013) argues that living in poor neighborhood is "inherited," especially for blacks, in the sense that children whose parents lived in poor area are themselves very likely to live in a poor area. 67 percent of black children whose parents grew up in poor neighborhood themselves live in poor neighborhood (p. 38). In this way, the effects of living in a majority-black neighborhood on young residents are likely to compound into the future.

[46] The condominium form, which facilitated owner-occupancy in multi-family buildings, did not become widespread until the 1970s.

expanding black enclaves, black households that had previously found the cost of homeownership to be prohibitive were suddenly able to buy a home.[47] The rate of black homeownership in central cities rose from 15 percent in 1940 to 42 percent in 1980 (Boustan and Margo, 2013, p. 72).

Historians have documented the relationship between white departures and the rise of black homeownership in detail for the case of Chicago. Arnold Hirsch explains that "as vacancies began to appear around established black communities in the late 1940s and 1950s, black 'pioneers,' eager to escape ghetto conditions and both willing and able to compete economically for the inner-city housing becoming available, moved into previously all-white neighborhoods" (p. 28). Middle class blacks moved into "striking greystone townhouses… along either side of the three-line South Parkway, where only a decade earlier wealthy whites had [lived]" (Rutkoff and Scott, p. 210). Local officials in Chicago estimated that the final outcome of this process was for "15 [owner-occupied] dwelling units [to change] from white to black occupancy for every 100 units built in the suburbs" (cited in Hirsch, p. 28; see also Berry, 1976).

In recent work with Robert Margo, I extended this analysis to the entire country, generating estimates of how many black homeowners emerged in the central city as a direct result of white suburbanization (Boustan and Margo, 2012). We compiled data on the number of black homeowners and number of white departures from the central cities of nearly 100 metropolitan areas over five Census decades (1940 to 1980). We then estimate the relationship between the number of white departures from a central city and the number of new black homeowners in the city decade by decade. As it turns out, our estimates are quite similar to those

[47] Many black households had difficulty securing credit through standard financial institutions. As a result, black homeownership was often financed by contract purchases or "rent-to-own" arrangements (Philpott, p. 152 Hirsch, p. 32).

produced by the Chicago officials. For every 100 white household departures from the central city, nine black households transition into homeownership.[48] The departure of white homeowners has a stronger effect on black transitions to homeownership than the departure of white renters; as 100 white *homeowners* leave the central city, 14 black households enter owner-occupancy.

Homeownership had positive effects on the black community. First, buying a home was often a good investment, contributing to the accumulation of black wealth (Blau and Graham, 1990; Charles and Hurst, 2002; Turner and Luea, 2009) . The value of black owner-occupied housing in central cities appreciated at a rate equal to the general metropolitan housing stock from 1940 to 1980 (2.6 percent average annual). Secondly, homeowners have a salutary effect on neighborhood environment; they are less mobile, more likely to invest in their own property and in the community; and more likely to foster local social capital (Green and White, 1997; DiPasquale and Glaeser, 1999; Dietz and Haurin, 2003). Yet, to purchase a home vacated by a departing white family required black households to remain in majority-black neighborhoods in the urban core. Charles (2003) notes that, in contemporary data, "black homeowners [still] reside in neighborhoods that are more segregated and less affluent than their renting counterparts" (p. 179). White departures created opportunities for black homeownership but also contributed to the isolation of majority-black areas.

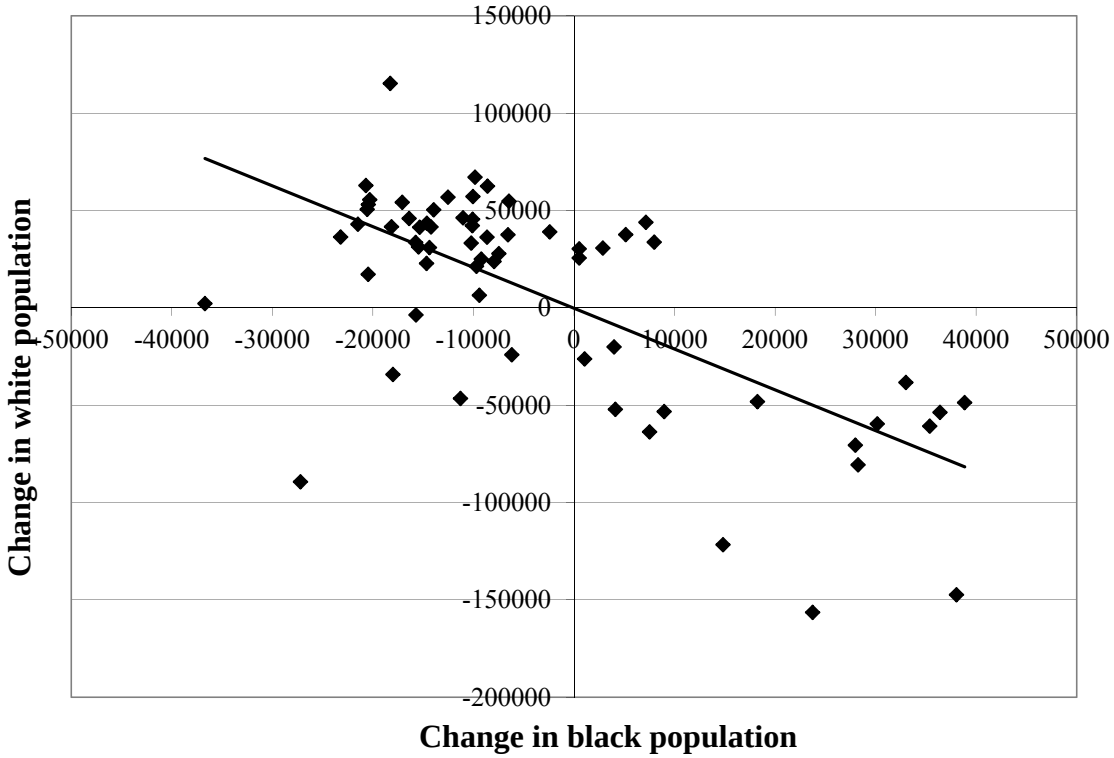
[48] The OLS estimates assume that white departures facilitates black homeownership through a filtering of the housing stock. Alternatively, a rising demand for black homeownership could encourage whites to leave for the suburbs if prospective black homeowners seek to move into white neighborhoods, generating white flight. Yet the relationship survives after instrumenting for white departures with the construction of new interstate highways; in this case, 100 white departures leads to 11 new black homeowners in the city.

VII. Conclusion

From 1940 to 1970, the black population share in northern cities quadrupled due to new in-migration from the South and white departures for the suburban ring. White suburbanization was part of a larger secular trend toward residential and economic activity on the urban periphery, driven by rising income and new road construction. Yet a portion of white suburbanization can be traced to a response to black arrivals ("white flight"). The best causal estimates find more than a two-for-one departure rate. The next chapter explores the motivation of white households who moved to the suburbs in more detail.

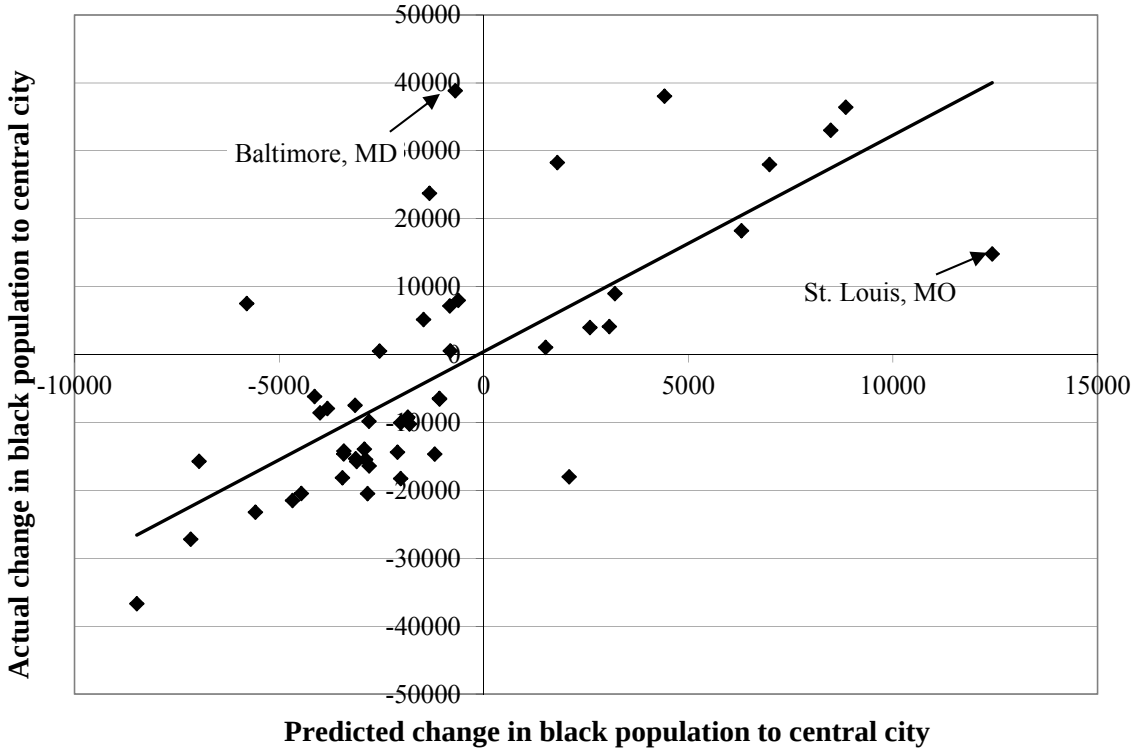
Although many black newcomers were too poor to settle in the suburbs, even those who could afford the move had limited access to suburban residence. Black residential isolation increased as whites left the city; by 1970, the average black resident of a northern city lived in a neighborhood that was 75 percent black. The consequences of white departures were mixed for urban black households. New evidence shows that residents of majority-black neighborhoods in 1970 had lower high school graduation rates and higher share of female-headed households. Yet white departures also facilitated black homeownership by lowering the price of housing near black enclaves.

Figure 1: Change in black and white population in central city, 1950-60



Notes: Each point in the scatter diagram represents the residual change in a city's black and white population after controlling for region fixed effects and changes in the metropolitan area's population over the decade. The slope of a regression line through these points is -2.010 (s.e. = 0.291). The four largest cities – Chicago, IL; Detroit, MI; Los Angeles, CA; and New York City, NY – are omitted for reasons of scale, they fall close to the regression line. With these cities included, the slope is -2.465 (s.e. = 0.132).

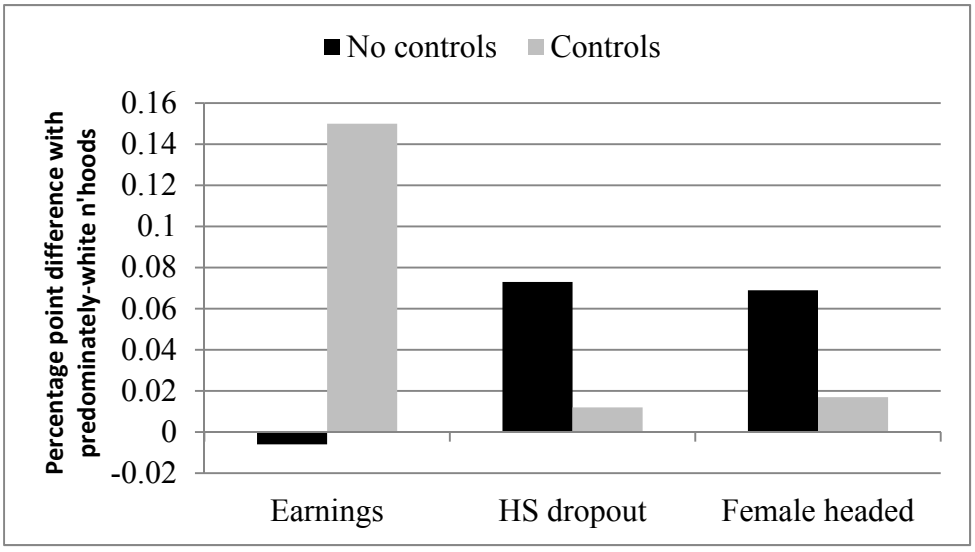
Figure 2: First stage, Predicted versus actual change in black population, 1950-60



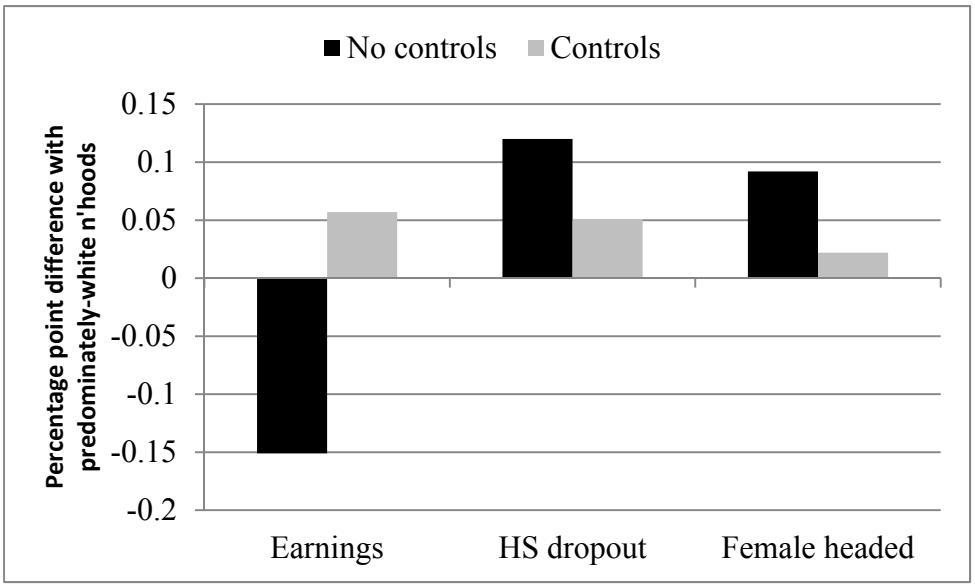
Notes: The sample includes the 53 SMSAs with available mobility counts by race in 1940. The predicted change in black population is calculated by assigning predicted migration flows from southern states to northern cities using 1935-40 settlement patterns. See Section V.B. for a detailed description of the instrument's construction. The slope of a regression line through these points is 3.187 (s.e. = 0.419). Adding the four largest cities increases the slope somewhat (coeff. = 4.278; s.e. = 0.228).

Figure 3: Living in majority-black neighborhood and socio-economic outcomes in 1970, With and without controlling for neighborhood income and poverty rate

A. Black residents



B. White residents



Notes: Each bar reports the coefficient from a regression of the outcome variable – earnings, high school dropout, or female-headed household – on an indicator for living in a majority-black neighborhood (50-100 percent black). Values are relative to the omitted neighborhood category (0-5 percent black). Regressions reported in black include racial composition as the only

neighborhood-level attribute. Regressions reported in gray also include the median income and poverty rate in the neighborhood. All regressions contain indicators for the intermediate neighborhood categories (5-15 percent black; 15-25 percent black; 25-50 percent black) and a series of individual-level controls.

**Table 1: Neighborhood racial characteristics,
Northern and western cities and metropolitan areas, 1940-2000**

	1940	1970	2000
Neighborhood type, central city			
0-1 percent black	67.2	42.0	9.7
1-50 percent black	28.1	38.0	63.8
50+ percent black	4.7	20.0	26.5
Black isolation index			
City	0.58	0.74	0.67
Suburb	---	0.48	0.38
Metropolitan area	---	0.67	0.54
White isolation index			
City	0.97	0.92	0.87
Suburb	---	0.98	0.95
Metropolitan area	---	0.96	0.93

Notes: The black (white) 'isolation index' is a weighted average of the black (white) population share in the Census tracts of black (white) residents. Suburban areas were not divided into Census tracts in 1940 and so the isolation index cannot be calculated for the metropolitan area as a whole in that year.

Chapter 5: Motivations for "white flight": The role of civic interactions

I. Introduction

The mid-twentieth century was a period of rapid suburbanization in US metropolitan areas. A portion of this mobility can be attributed to the response of existing white urban residents to the arrival of black southern migrants ("white flight"). This chapter asks *why* white households chose to leave their homes and neighborhoods in central cities as blacks settled nearby. The existing literature on white flight focuses on white households' fear that black families may move onto their block or change the character of their neighborhood. Yet, even in 1970, after decades of black in-migration to cities, over half of white residents lived in a neighborhood that was entirely white (99 percent or more). Furthermore, the average white household lived over three miles away from a majority-black enclave and thus had little reason to expect that black newcomers would move into their neighborhood.

This chapter argues that the white departures that accompanied black in-migration were too numerous to be explained entirely by the decisions of white households that lived close to expanding black enclaves. I propose that, instead, some white households living at some distance from black neighborhoods moved to the suburbs to avoid *civic interactions* with black arrivals living across town. Black migrants shifted the racial and socio-economic composition of the city electorate, which in turn influenced cities' spending priorities, property tax rates and public schools. Moving to the suburbs allowed white households to isolate themselves from the changing bundle of urban public goods and fiscal obligations.

In 1940, 40 percent of white residents in central cities lived close to historic black enclaves (within two miles) and the remainder lived further away. Over the next thirty years, the

racial composition of neighborhoods close to black enclaves changed dramatically, while more distant neighborhoods preserved their racial character. Many whites living near black areas left for the suburbs due to concerns about new black neighbors, whether due to direct racial antipathy or to apprehension about the effect of black arrivals on property values. Yet considering the number of white households who lived in these transition areas and the best estimates from the literature about the responsiveness of white residents to black neighbors, these local concerns can explain around one third of suburbanization due to white flight. Another third of observed white flight can be attributed to housing market competition, leaving the final third of white flight unexplained.

I argue here that the white flight of households far from black enclaves was due to broader "civic" concerns about the racial composition of the city as a whole. To document this claim, I compare the trajectory of housing prices in adjacent neighborhoods with similar attributes, one of which was located in the central city and the other in the suburbs as the city became increasingly black. As residents left the city side of the border, housing prices fell, resulting in a premium for suburban units. I show that the suburban price premium increased as the black population share in the city rose, even though the racial composition of the neighborhoods under consideration did not change.

This method rests on two assumptions: first, that one can use housing prices to study the demand for residence in a particular area, and, second, that it is possible to find comparison neighborhoods that are almost indistinguishable except for the jurisdiction in which they are located (city or suburb). Following the literature in economics on hedonic prices, I argue that housing prices provide useful information about the value of location-specific goods that are implicitly traded through the housing market rather than being sold directly to consumers; one

such location-specific good may be the composition of the local electorate and associated differences in local public goods. By this logic, attributes that command higher (lower) housing prices are those that the typical homeowner prefers (seeks to avoid). I use block-level Census data to zero in on neighborhoods on either side of 102 city-suburban borders in 1970 and 1980; half of the sample can be extended back to 1960.

The housing price gap between cities and suburbs increased as black migrants arrived in the central city. However, this response was driven by the income level, rather than the racial composition, of in-migrants. The demand to leave poor cities appears to have stemmed from three concerns: high property tax rates, high expenditures on public safety, and low school quality. Race itself began to matter more in the 1970s when some cities in the sample fell under court-order to desegregate their public schools. Before mandated desegregation, residential patterns ensured that the typical white student in the central city attended a predominately white school; after these plans were put in place, the exposure of white students in the city to black peers increased.

II. The racial geography of the central city

Table 1 cuts northern cities into concentric circles around historic black enclaves. I define a historic black enclave as any neighborhood that was majority-black in 1940 or the neighborhood with the highest black population share in that year. The first panel of the table reports the share of white city residents living within given bands around the historic black enclave. In 1940, only nine percent of white households lived within half a mile of a majority-black neighborhood. 58 percent of white city residents lived at least two miles from a black

enclave and 27 percent lived at least four miles away. The average white resident lived over three miles from a majority-black neighborhood.

The second panel of Table 1 reports the black population share in concentric circles around the historic black enclave. In 1940, few neighborhoods outside of the historic enclave had any black residents at all. Nine percent of residents in tracts within half a mile of the black enclave were black; the black population share fell to two percent in neighborhoods two or more miles away. Outlying city neighborhoods shared a racial composition with neighboring suburbs.

As black migrants settled in northern cities, the boundaries of historic black enclaves expanded outward. The number of black residents in northern cities more than doubled from 1940 to 1970 and, as Phipott observed for the case of Chicago, "there was no way, of course, to cram twice as many people into the old ghetto limits." Instead, "the Black Belt and its existing satellites… expand[ed] into contiguous territory" previously settled by whites (p. 185). This process can readily be seen in the larger sample. The black population share of neighborhoods within half a mile of a historic black enclave increased to 59 percent by 1970, while that of neighborhoods in the next half mile band increased to 45 percent.

Even as proximate areas were going through racial transition, city neighborhoods that were at some distance from the historic black core experienced little racial change. Neighborhoods more than four miles from a historic black enclave shifted from two percent black in 1940 to eight percent black in 1970, a pace of change hardly different from the neighboring suburbs.[49] Changes in racial composition were much larger in neighborhoods two to four miles from a historic black enclave. These areas shifted from two percent black in 1940 to

[49] Although the typical inner-ring suburbs were only five percent black in 1970, their population had reached 10 percent black by 1980. These statistics are taken from the "border" sample described in more detail in Section IV.B. In contrast, only five percent of residents in the full suburban rings of northern and western cities were black in 1980.

17 percent black by 1970, perhaps enough to trigger a reasonable amount of white out-migration due to local social interactions. These figures suggest that at least a quarter of white city residents lived in areas that were shielded from racial change. This share is likely higher, given that some neighborhoods in the two-to-four mile band were also likely quite racially stable.

Of course, it is hard to gauge what the psychology of white households living at some distance from majority-black neighborhoods might have been as they noticed black enclaves expanding across town. Even if, empirically, the black share of these isolated city neighborhoods only reached eight percent in 1970, residents' expectations may have been quite different. However, it does seem reasonable to assume that these white households kept a close eye on black population growth and could detect the strong geographic pattern of black expansion, whereby neighborhoods near the historic black core quickly became majority black while other, more distant areas retained their racial character. In this case, residents might have been able to accurately predict that their neighborhoods were "safe" from racial transition.

III. Why did whites flee from racially segregated cities?

The bulk of this chapter will consider why white households that were already living far from majority-black areas would chose to leave the central city as black migrants arrived. However, before doing so, this section will briefly review the more-standard explanation for white flight – namely, concerns about local interactions with black neighbors – and will assess whether the number of white households subject to these concerns was large enough to quantitatively account for the extent of white flight documented in the previous chapter.

The neighborhood concerns commonly associated with white flight are well-expressed by white urban residents interviewed by Robert Coles in his *Children of Crisis* series (1971). One

woman worried that her neighborhood was at risk of racial transition. Black families "are going to try to move in here. They'll hop, skip and jump their way towards us, inch by inch they will….I tell my husband: we should sell the house while we can get a good price, and then rent someplace." Moving to the suburbs, she believed, would be an effective strategy to avoid neighborhood interactions. "If we had more money," she griped, "and could afford to live way out there in one of those plush suburbs, we'd be all right. No colored person can afford to live with the rich" (p. 293).

Another white respondent claimed that he would greet one black entrant, however warily, as a neighbor but that a large number of black arrivals would likely trigger panic. "If one Negro came in here," he asserts, "I'd say: let's see what he's like; and if he's an OK guy, and he hasn't got any crazy, way-out ideas in his head, then fine, let him stay. Now, if they started trying to mass on us, you know, and drive us out… then we'd have to get together and decide what we're going to do. Do we stick together and fight them? Do we go our separate ways and all lose out in the end? It's like a war, when you come to think about it" (Coles, p. 298).

Quantitative evidence confirms that white households leave neighborhoods as the black population share increases. Mid-century patterns can be studied with tract-level population counts.[50] In the contemporary period, longitudinal surveys can be used to trace household mobility over time. For example, Ellen (2000) matches individual-level data on mobility from the American Housing Survey to characteristics of census tracts in 1980 and 1990. She finds that a 10 percentage point increase in the black population share in a neighborhood is associated with

[50] This literature began with Taeuber and Taeuber (1965). Alba and Logan (1993) use these aggregate statistics to create pseudo-individual data.

a three percentage point increase in the likelihood that a white household leaves the area.[51] Emerson, Chai and Yancey (2001) try to disentangle concerns about racial composition from rising crime and falling school quality. They show that the black population share of (hypothetical) neighborhoods matters even when the crime rate in an area is low and the school quality is high.

Small changes in black population share may have little effect on predominately white neighborhoods, while a black in-flow of the same magnitude may precipitate a mass exodus from a more racially mixed area. Such "tipping points" can arise because white departures feed back onto the neighborhood's racial balance (Schelling, 1971).[52] Card, Mas and Rothstein (2008) provide empirical support for the presence of tipping points, demonstrating that outflows of white population jump up after a neighborhood reaches a certain threshold of black population share. The empirical tipping point changes over time; in 1970, the relevant threshold was between nine and 12 percent black.

Although strong, these local neighborhood dynamics were not powerful enough to fully account for the extensive white flight documented in the previous chapter. Neither was the number of white households living near black enclaves large enough, nor was the estimated responsiveness of white residents to neighborhood racial change high enough for local factors to be the whole story.

To illustrate this point, consider that, in the 1950s, the typical northern city gained 21,400 black residents. According to the estimate presented in Chapter 4, this city would have lost

[51] See South and Crowder (1997, 1998) for similar analyses using longitudinal data from the Panel Study of Income Dynamics.

[52] In theory, perfect segregation can arise in a Schelling model even if few residents have extreme preferences for segregation. Using a computational approach, Bruch and Mare (2006) demonstrate that extreme segregation is unlikely to occur over a wide range of preferences.

57,900 white residents due to white flight (= 21,400 *x* 2.7), a portion of which – up to a one-for-one displacement rate – would be due to rising housing prices and rents. Can neighborhood change account for the remaining 36,500 white departures? An answer to this question requires having some estimate of how many white residents are expected to leave the city for every black arrival into their neighborhood.

I start with a simple estimate of this neighborhood relationship from 1970 Census tract data. In particular, I regress the number of non-black residents in a tract on the number of black residents living there. The OLS coefficient is negative and large (coeff. = -0.622, s.e. = 0.015), implying that 622 white residents leave a neighborhood for every 1,000 black arrivals.[53] If we take these (admittedly imperfect) estimates seriously, they imply that the 21,400 black arrivals over the 1950s would have prompted 13,300 whites to leave due to local social interactions (= 21,400 *x* 0.622).

Moving beyond these linear estimates, it is also likely that some neighborhoods experienced a larger white outflow after reaching a "tipping point" in black population share. Card, Mas and Rothstein (2008) estimate that, over the 1970s, neighborhoods directly above the tipping point lost up to an additional 16 percent of their white population. Even considering a broad tipping range (five to 12 percent black), only six percent of city neighborhoods in 1950

[53] This estimate is almost surely biased, although the direction of this bias is unclear. Mechanically, some neighborhoods are denser than others and therefore have more residents of *any* race, which would bias the estimate away from finding white flight. On the other hand, black arrivals may have settled in neighborhoods that were already losing white residents for other reasons, in which case the coefficient would be biased toward finding white flight. Saiz and Wachter (2011) conduct a study that is similar in spirit, estimating the contemporary response of non-Hispanic whites to the arrival of foreign-born residents at the tract level. They generate an instrument for foreign-born entry by allowing the immigrant population to spread throughout a city from an original epicenter in a predictable way. Their estimate of the native departure rate is remarkably similar to mine; 675 native whites leave a neighborhood for every 1,000 foreign-born arrivals. In their case, the mechanical bias against "native flight" outweighs the bias from unobserved neighborhood quality.

would have been at risk of tipping. If all neighborhoods in this range lost an additional 16 percent of their white population, this would translate into the departure of an additional 6,800 white residents.

Taken together, 20,100 white residents are estimated to leave central cities following black in-migration due to local neighborhood interactions. These departures can explain another 35 percent of white flight, leaving 28 percent unexplained (= 57,900 – 21,400 – 21,300). White households that left the city as blacks arrived but were not driven by housing market or local neighborhood considerations are possible candidates for the politically-motivated white flight discussed in the rest of the chapter.

IV. Civic interactions as a cause of white flight

A quarter of white residents of central cities in 1940 lived over four miles from a black enclave in 1940. These distant city neighborhoods remained resoundingly white over the next thirty years. Furthermore, the best estimates of white responsiveness to increasing housing prices and local neighborhood change can explain around 70 percent of white departures from the city. I argue here that the remainder of white flight can be explained by the desire to avoid "civic interactions" with distant black residents in the central city.

Civic interactions occur via municipal elections and the public school system. As the city became more racially diverse (and, as a result, more impoverished), local spending priorities may have shifted, clashing with the preferences of the city's middle class (Alesina, Baqir and Easterly, 1999). At the same time, the cost of providing services to urban residents may have rose, leading to increases in the property tax rate. Furthermore, with the rise of court-ordered

school desegregation, predominately-white neighborhood schools were replaced with plans that reassigned students to racially-mixed schools.

The heart of this chapter provides quantitative, nationally-representative evidence that white suburbanization was, in part, motivated by concerns over civic interactions with black newcomers. The main outcome of interest is housing prices, rather than direct measures of household mobility. This section starts with a conceptual discussion of how to use housing prices to infer demand for suburban residence. I then explain the construction of a dataset of housing prices collected along either side of city-suburban borders. Finally, I examine differences in housing prices across these city borders and consider a set of local public goods that may explain the price premium associated with suburban living.

A. Conceptual approach

My goal in this section is to measure changes in residential demand for living in the central city as the racial diversity of the city as a whole increased with black in-migration. I use housing prices and rents as a proxy for demand. This measure differs from the previous chapter, which used out-migration from the central city as an indicator of demand for city residence, and therefore requires some comment.

Inferring demand for a location by observing patterns of in- and out-migration is the preferred method in much of the literature on white flight. Using out-migration as a measure of demand is implicitly based on the idea of "revealed preference." If we assume that households are free to settle anywhere in the metropolitan area and we observe a household leaving place A (the city) to move to place B (the suburbs), we can conclude that the household must prefer B to A by virtue of their "revealed" choice.

In using housing prices to trace out demand, I follow a long literature in economics, going back to Rosen (1974), on "hedonic" pricing. This approach exploits housing prices to elicit preferences for – or, as it is often called, "willingness to pay" for – attributes that are implicitly traded through the housing market rather than directly exchanged in separate marketplaces: such goods include amenities like ocean views or local public goods like high quality public schools.[54] For this application, I assume that housing supply is fixed (at least in the short-term) in border neighborhoods, a reasonable assumption given that the housing stock in most border neighborhoods was already in place by the 1960s. In this case, any changes in housing prices must reflect a change in *demand* for a given number of available housing units.

As households leave location A (the city), demand for housing units in that area will fall and housing prices will correspondingly decline.[55] Conceptually, one can think about the change in housing prices from the perspective of residents on either city or suburban residents. On the one hand, when the price of living in the city falls, remaining city residents are "compensated" for living in this less-preferred location in the form of lower rents. On the other hand, the fact that the relative price of living in the suburbs increases implies that households are willing to pay a higher premium to gain entry to suburban towns.

It is important to keep in mind, then, that a housing price-based measure does not recover the average preferences of city residents but, rather, allows us to infer the preferences of the *marginal* resident – the resident who is on the fence between staying in the central city or

[54] Recent work using housing values to estimate household preferences for neighborhood and community attributes include Black (1999); Kane, Staiger and Samms (2003); Barrow and Rouse (2004); Figlio and Lucas (2004); Chay and Greenstone (2005); Reback (2005); Greenstone and Gallagher (2008); Gibbons, Machin and Silva (2009) and Machin and Salvanes (2010).

[55] This argument applies to renters and to new homebuyers but is less accurate in describing the behavior of existing homeowners who may be concerned that falling housing prices will lower the value of their asset. Most of the theoretical literature on hedonic prices imagines that all units are renter-occupied.

moving to the suburbs and, therefore, whose decision can most be swayed by monetary payments. Imagine that there are three kinds of residents – diversity-averse residents, diversity-conscious residents and diversity-blind residents – each of which has a different willingness to pay to avoid living in a racially diverse city. When black migrants arrive in the city, say that all diversity-averse residents strictly prefer the suburbs and move out. As they do so, the price of housing units in the city falls. At this lower rental price, diversity-blind residents are better off because they are unaffected by the change in racial composition and benefit from the lower rental price. This price decline may be sufficient to compensate the diversity-conscious residents for any growing concerns about city living and so they decide to stay in place and, thus, it is the preferences of this group that are elicited by the housing price measure.

Summarizing the conceptual approach outlined here, I expect that if the marginal homebuyer or renter prefers to live in a predominately-white suburb for civic reasons, housing prices will be higher in these suburban than in neighboring cities. Furthermore, the housing price gap between city and suburb will increase as the city becomes more racially diverse with black in-migration. Yet a comparison of average housing prices in the city and suburbs would be confounded by many differences in the quality of the housing stock, including the age of the housing units, the lot size, and so on.

Ideally, one could find two otherwise similar neighborhoods, both of which had a low black population share and little threat of black in-migration, but one of which was located in an increasingly diverse city and the other in a still predominately-white suburb. An approximation of this experiment can be achieved by zeroing in on neighborhoods directly adjacent to city-suburban border. Inspection of these borders, even today, often reveals little difference in either housing stock or neighborhood quality on either side of the municipal border. Robert Self

describes the uniformity of one such border area in detail: "driving south from Oakland into the adjacent suburban community of San Leandro, an observer in 1948 would have found it impossible to know when he or she had crossed from one city into the other. The tree-lined streets and 1920s-era bungalows common to both would have offered no clue. Even the industrial landscape would have struck the casual observer rolling past small machine shops and warehouses as a single piece" (p. 96). Before presenting the research design behind the neighborhood comparison in more detail, the next section briefly introduces the data sources used in the analysis.

B. Constructing a block-level dataset

The empirical strategy used in this chapter combines data from two main sources: block-level data on housing prices and rents from the Census of Housing and municipality-level information on racial composition and median income from the Census of Population. Later in the chapter, I also incorporate information on local public goods from the Census of Governments.[56]

The Census Bureau first subdivided central cities into standardized geographic units called Census tracts in 1940.[57] Census tracts are designed to reflect the scale of a neighborhood and are further partitioned into Census blocks, each of which contains around 50 housing units.

[56] Detailed data on local government expenditures and property tax rates are only available for jurisdictions with 10,000 residents or more. Therefore, I focus on this subsample of larger suburbs throughout the chapter.

[57] Before 1940, the Census experimented with the idea of tracts in seven large cities in 1910. This experiment, in turn, was motivated by the creation of "sanitary districts" within city wards in a special vital statistics report for the 1890 Census. For further details on the history of small geographic units in the Census, see: http://www.census.gov/history/www/programs/geography/tracts_and_block_numbering_areas.html.

By 1960, a large enough set of suburban towns were thus divided and so I begin my analysis with 56 borders in this year; a further set of borders enter the sample in 1970, together making up the final sample of 102 borders. I use Census maps to identify city-suburban borders for which block-level data is reported on both sides in these years, excluding borders that are entirely obstructed by features like a railroad track, a body of water or a large tract of industrial land.[58] Appendix Table 1 lists the metropolitan areas that contribute borders to the sample; details of the sample construction are available in Boustan (2012, 2013).

Along each sample border, I collect block-level data for the first six blocks away from the border in each direction. The available block-level variables include mean housing values for owner-occupied units (PRICE), mean rents for rental units (RENT), and a limited set of housing quality measures, such as the number of units on the block, the average number of rooms by tenure status, the share of units that are in single family structures and the share of residents on the block who are black.

Finally, I match Census blocks to the socio-economic characteristics of the jurisdiction in which they are located, either a central city or a suburb, including the black population share and the town-level median income.[59] I also compile data on property tax rates and municipal expenditures by category from the Census of Governments, including spending on police, fire protection, road maintenance and so on. Systematic data on effective property tax rates, drawn

[58] Ruling out obstructed areas improves the comparability of housing units on either side of the border. However, it also raises the question of endogenous border formation. Municipalities can erect bulwarks against unwanted populations by zoning for industrial use along their borders or constructing large roadways with limited ability for pedestrian crossing. Cicero, IL is (in)famous for its ethnic and racial exclusivity (Keating, 1988). It may be no coincidence, then, that the Chicago/Cicero border is obstructed by industrial land. As a result, border selection will favor jurisdictions that are the *least* hostile to the city population, thus working against finding a housing price effect at the border.

[59] Boustan (2013) also considers the relationship between housing prices and a jurisdiction's poverty rate and its estimated property tax base per resident.

from a special Census of Governments survey of recent home sales, were only collected in 1970. Because standardized test scores are unavailable in this period, I proxy for school quality with the share of residents in the jurisdiction holding a college degree.

Appendix Tables 2 and 3 present means and standard deviations of the jurisdiction-level and block-level variables in this border area, respectively. In 1970, the typical border separated a city from a suburb with a black population share that was 15 percentage points lower. In addition to demographics and income, local policy also varied substantially across borders. Crossing the typical border into the central city was associated with a 0.7 percentage point increase in the property tax rate and a $500 increase in local government expenditures per capita for non-educational purposes.

Although the jurisdictions on either side of the border differed quite significantly, neighborhoods along the border were quite similar to each other. Housing units in the border sample had attributes typically associated with the suburban housing stock. In 1970, for example, 80 percent of the units on the average block were detached, single family dwellings. Furthermore, border neighborhoods were almost entirely white. Seven percent of residents on the average block were black; excluding the 25 borders in the sample that were going through racial transition brings the black population share down to under one percent.

C. Housing prices at city-suburban borders

This section uses housing prices along city-suburban borders to investigate how changes in the racial composition of central cities with the arrival of black migrants increased the attraction of living in the suburbs for "civic" reasons, particularly the ability to avoid shared decisions over local taxes and spending priorities with black residents who lived across town.

Figure 1 begins by contrasting average housing prices on the city and suburban side of municipal borders for up to six blocks away from the border on either side. I designate blocks on the racially diverse (city) side of the border with positive numbers, while blocks on the racially homogenous (suburban) side are represented with negative numbers. Price levels are presented relative to the first block on the city side (in percentage terms).[60] If civic concerns matter to households' location decisions, we would expect to find a discontinuous decline in housing prices between the last block in the white suburb and the first block in the racially diverse city because residents on these blocks face different sets of local public goods and property tax rates. Indeed, housing prices just across the border on the suburban side (block 1) are five percent higher from their cross-border neighbor (block -1; this difference is statistically significant.

In contrast, comparing housing prices on two adjacent blocks in the suburbs or in the city does not yield a statistically significant difference (compare, for example, block -1 to blocks -2 or -3 or block 1 to blocks 2 and 3). That moving one block *within* a jurisdiction has a negligible effect on housing prices suggests that the cross-border gap is not simply picking up changes in housing quality on neighboring blocks. However, Figure 1 makes clear that, beyond the third city block, housing prices quickly fall with distance from the suburban border. Within six blocks, housing prices are more than five percent lower than city units more proximate to the suburbs. This price decay likely reflects declining housing or neighborhood quality at larger distances and emphasizes the importance of designating a very tight band around the border for analysis.

The differences in racial composition between cities and suburbs can be quite various. For example, in 1970, when the city of Chicago was 33 percent black, one neighboring suburb,

[60] In particular, I graph coefficients from a versions of equation 1 that replaces jurisdiction-level black population share with dummy variables for block tiers coded by jurisdiction type (e.g., diverse/homogeneous) and distance from the municipal border.

Evanston, was 16 percent black, while another, Oak Park, was less than one percent black. Rather than dividing each jurisdiction pair into two categories (more/less diverse), Figure 2 relates the *actual* difference in black population share between jurisdictions to the gap in housing prices at the municipal border. If civic interactions matter, jurisdictions separated by a greater racial divide should also have a larger housing price gap at the border. Figure 2 reports the implied effect of a 15 percentage point difference in the black population share (the sample mean) on local housing prices. Details of the underlying estimation can be found in equation 1 of the Appendix.

Results in the first column of Figure 2 include blocks up to six blocks away from the border on either side. In this wider sample, it appears that the value of owner-occupied housing units located in the average diverse city was five percent lower than those of neighboring units in homogenous suburbs. Narrowing the comparison to blocks along the border diminishes the effect of the city's racial composition on housing prices; city prices now appear to be three percent lower than their cross-border counterparts. Controlling for available block-level characteristics in the third column reduces the coefficient even further, resulting in only a two percent price premium.[61] Patterns are similar when using rents, rather than housing values, as a dependent variable.[62]

[61] One remaining concern with this research design is that these borders have been in place for a long time, in some cases for over 100 years. Even if the housing stock on either side was initially identical, the housing quality may have evolved over time, in part due to local variation in zoning policy, to exhibit some differences over time. To address this concern, Boustan (2013) relates *changes* in the jurisdiction-level gap in median income over a Census decade to *changes* in the cross-border housing price premium. If anything, the relationship between median income and housing prices strengthens, suggesting that differences in housing quality are unlikely to be driving the relationship of interest.

[62] The sensitivity of the price estimates to available block controls is due to cross-border differences in the average size of housing units. The typical municipal gap in racial composition is associated with a 0.1 reduction in the average number of rooms per unit in the block sample,

Thus far, I have demonstrated that adjacent housing units command different prices simply because of the racial composition of their municipality, even though the neighborhoods in which they are located are quite similar. Yet cities with a high black population share also tend to have residents with lower incomes and a higher poverty rate. Was the marginal homebuyer and renter seeking to avoid living in a racially diverse city or were they more concerned about the income distribution of their fellow residents? Particularly when the relevant "civic interactions" involved decision making about property tax rates and spending priorities, poor whites may have been as unwelcome as poor blacks.

I assess this possibility in the fourth column of Figure 2 by adding the median income of a jurisdiction's residents as an additional control. Interestingly, I find that there is no effect of jurisdiction-level racial composition after controlling for median income. In contrast, median income survives this "horse race," with the estimated coefficient suggesting that a 20 percent increase in town-level median income (the sample average) was associated with a five percent increase in housing values and a four percent increase in rents at the border. In other words, the entirety of the observed "willingness to pay" to escape a racially diverse jurisdiction can be explained by the negative correlation between a town's black population share and its median income. However, we should not interpret the disappearing relationship between black population share and housing prices as evidence that white residents did not care about the burgeoning black population across town. Instead, this pattern demonstrates that, in terms of

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suggesting that one out of every 10 houses (or 5 houses per block) on the city side of the border had one fewer room. It is notable that jurisdiction-level racial composition is not correlated with black population share at the block level in this border sample; the black population share on the diverse side of the border is only one percentage point higher than, but not statistically different from, the share on the homogeneous side. For a full discussion of this point, see Boustan (2012).

"civic interactions," the most salient feature of black arrivals was their low income levels, rather than their race *per se*, while the opposite may very well have been true at the neighborhood level.

Given the empirical importance of income in driving the "civic" component of suburbanization, the remainder of this section will explore this relationship in more detail. I will return to the issue of race later in the chapter when I evaluate the response to desegregation policies of the 1970s.

D. Local public goods and the demand for suburban residence

The previous section argued that the marginal homebuyer or renter is willing to pay more for an identical unit located in a racially homogenous suburb, even when holding neighborhood composition fixed because such predominately-white towns also tend to have higher-income residents. This section considers a series of local policies that may account for this observed demand.

Historians have noted the role of local public goods in motivating moves to the suburbs. Of Oakland, CA, Robert O. Self has written that "the greater proportion of social problems, and financial responsibility for them, remained in the central city," prompting many white residents to move to suburbs in the East Bay (p. 130). Likewise, in Detroit, white residents were attracted to the fact that "each suburb had its own school district, recreation programs, libraries and public services, paid for by local taxes" (Sugrue, 1996, p. 246). Claude Fischer and his co-authors agree, arguing that local political institutions, including "tax authorities, zoning districts, school precincts and the like [both make] town lines attractive to moves and [become] barriers to integration" (p. 53).

In order for variation in local public goods to explain the demand for living in a high-income town, it must be that: (1) high-income towns offer a different bundle of tax rates and public services than their neighboring cities and (2) this bundle is attractive to the marginal resident. Data on local taxes and expenditures are available for 61 sample borders in 1970. I consider differences between poor cities and their better-off suburbs in the effective property tax rate; instructional spending in schools; the share of residents with a college degree (a proxy for the quality of peers in school); and current expenditures on police services, fire protection, sewers and local roads.[63]

In this sample, I find that high-income towns differ from poorer cities in three ways: first, they set lower property tax rates. An additional $10,000 of town-level median income (the sample mean) is associated with a 0.5 percentage point reduction in the effective property tax rate, which is equivalent to $500 a year of tax relief (in 2000 dollars) for the average house in the sample. Secondly, wealthy towns spend less than poor cities on non-educational functions, particularly on public safety, perhaps because they face fewer social problems. However, wealthy towns do not allocate more funds to educational expenditures per pupil overall; nor do they spend more on fire protection, parks, road maintenance or sanitation. Finally, a larger share of residents in high-income towns holds a college degree, a potential proxy for higher peer quality in local public schools.[64]

All three attributes of high-income towns – lower property tax rates, lower police expenditures and a larger share of college-educated residents – are associated with higher housing prices in this sample. Although residents may prefer a higher police presence in their

[63] The effective property tax rate was measured in a special supplement to the 1972 Census of Governments by comparing the sale price of a sample of housing units on the market to the annual property tax bill.

[64] The results on which this paragraph is based are presented in Boustan (2013), Tables 6 and 7.

own neighborhood, the extra expenditures on public safety are likely directed to neighborhoods far from the border and so residents prefer not to pay to police "someone else's" neighborhood.

Figure 4 explores whether these local policies can explain the higher home values found in wealthier suburbs. I start by reproducing the main result using only data from 1970, the year in which the full set of public goods measures are available. When the local property tax is added as an additional regressor in column 2, the estimated effect of median income on housing prices declines by 30 percent. Further adding the share of the population with a college degree in column 3 generates an additional 30 percent decline in the coefficient, which is no longer statistically different from zero. Column 4 adds police expenditures and the coefficient is little changed. It appears that two factors – lower property tax rates and higher quality peers in public schools – can explain all or most of the willingness to pay to live in a town with wealthy co-residents.

E. Converting housing prices into estimates of "white flight"

This section provides a framework to convert estimated declines in housing prices into likely number of departures from the city in order to compare the magnitude of these housing price estimates with mobility-based measures of demand, such as the extent of white departures from central cities in Chapter 4.

In northern metropolitan areas, there was a negligible gap in black population share between central cities and suburbs in 1940, which grew to a 12 percentage point divide by 1970. By the best estimate of the effect of racial composition on housing prices, a change of this magnitude would lead to a 1.5 percent decline in housing prices *due to the civic concerns associated with black arrivals alone* (see Figure 2, column 3).

Falling housing prices in the central city is a sign of falling housing demand, which was likely due to departures of white residents from the urban core. To assess how much mobility is implied by a price effect of this magnitude, we need to know how responsive housing prices are to changes in population.[65] Estimates of this price elasticity from the literature range from 0.65 to 0.9 (Potepan, 1994; Saiz, 2003; Saiz, 2007) – that is, a one percent decline in population is associated with a 0.65 to 0.9 percent decline in housing prices.[66]

At these parameter values, a 1.5 percent decline in urban housing prices would be the result of a 1.2 to 1.7 percent decline in city population. For the average city, which had 525,000 residents in 1950, a population decline of this size would be the equivalent of around 8,000 departures. Recall that, according to my estimate of white flight, the typical city lost 57,900 white residents over the 1950s in response to black in-migration, 21,400 of whom were assumed to leave as a reaction to higher housing prices. Of the remaining 36,500 departures, roughly 20 percent were motivated by civic concerns and 55 percent were motivated by local social interactions (=8,000/36,500 and 20,100/36,500). The small remainder of estimated departures is unexplained.[67]

V. Court-ordered desegregation and white flight in the 1970s

[65] In the short run, we can assume that housing supply does not respond to shifts in population and so housing price movements reflect changes in demand for a fixed housing supply. A decline in the city's housing supply will occur gradually due to the natural depreciation of the housing stock, a process that can take 20 to 50 years.

[66] Population change can be due either to natural increase or to migration. Because natural increase does not exhibit much variation across places, estimates of this elasticity are typically based on the housing price response to migrant arrivals. Potepan (1994) focuses on internal migrants, while Saiz (2003, 2007) considers international migrants. Understanding how housing prices respond to population change is complicated by the fact that migrants can be attracted by low housing prices. Saiz (2007) represents the most convincing attempt to address this reverse causality.

[6767] It may be too simplistic to divide every move into a single cause, attributing departures either to local or to civic interactions. Residents living close to a black enclave may have been worried both about changes to their local neighborhood environment and shifts in municipal policy.

Thus far, I have shown that the marginal urban resident was willing to pay to buy or rent an identical housing unit in order to live in a racially homogeneous suburb. However, this "civic" demand for suburban residence was driven not by changes in the city's racial composition race *per se* but by the lower income levels of new black arrivals and associated changes in local property taxes and public goods.

I argue here that the primacy of civic over local concerns shifted in the 1970s for those cities in the sample that underwent court-ordered desegregation of their public school systems. In these metropolitan areas, civic concerns – namely, the degree of cross-race interaction in the schools – became much more important than before. I find that the marginal resident is willing to pay six percent more for a housing unit located in a district unaffected by desegregation policy. This housing price response is four times larger than the effect of black in-migration on other civic concerns, such as property tax rates and spending decisions, in the average city in 1970.

In the 1950s and 1960s, northern districts were exempted from requirements to desegregate. Early desegregation litigation focused on the legal (*de jure*) separation of schools by race, which pertained only to southern states.[68] In the 1973 *Keyes v. Denver* decision, the Supreme Court ruled that school districts outside of the South could also be required to desegregate if their school assignment procedures had contributed to *de facto* segregation (Clotfelter, 2004).

Many northern and western school districts engaged in such intentional activities to maintain racial separation; Chicago is one prime example. Neighborhood schools in Chicago's

[68] Landmark decisions include *Brown v. Board of Education* (1954), which declared racially separate school systems to be unconstitutional, and *Green v. County School Board* (1968), which required accelerated compliance with the initial spirit of *Brown*. 50 percent of large southern districts that desegregated through the courts received their court order in or before 1970, compared to only 18 percent of northern and western districts (Guryan, 2004).

historic Black Belt became severely overcrowded with the arrival of southern migrants. Yet, rather than re-assign some black students to historically "white" schools, the district responded first by holding classes in any available space in the school buildings in black neighborhoods, including the gymnasium and the cafeteria; then by cutting down school hours in order to use classrooms on double shifts; and finally by adding portable classrooms, nicknamed "Willis wagons" after the superintendent Benjamin Willis (Seligman, p. 129-30).[69] District practices like those used in Chicago used to separate children by race were widespread in the North; Stanley Lieberson (1980) deemed these strategies to be "hardly different" from those found in the South, "except for the crucial fact that they were [not] enforced by law" (p. 116).

Perhaps even more effective than the policies of urban school districts in fostering a system in which separate schools by race was the norm was the mobility of white households to predominately-white suburbs. Yet, despite the vast residential segregation between cities and suburbs, the 1974 *Miliken v. Bradley* decision established stringent conditions for extending desegregation remedies across district lines (Orfield and Eaton, 1996, p. xxii). Under *Miliken*, suburban districts would only be included in a desegregation plan if it could be shown either that the suburban district itself engaged in a policy of segregation or that an inter-district plan was required to correct segregation caused by state-level education policy. The courts rarely ruled that a suburban district had engaged in intentional school segregation because a district was only considered segregated if the racial composition of individual schools was out of balance with that of the district as a whole. By definition, then, all-white suburbs would never be considered

[69] These often flagrant tactics notwithstanding, Chicago did not face a mandate to desegregate until a 1980 consent decree following a threatened law suit by the US Department of Health, Education and Welfare (Jackson, 2010).

segregated given that each school would automatically reflect the demographics of the wider district.

Together, the *Keyes* and *Miliken* decisions meant that some northern cities faced desegregation requirements over the 1970s, while their neighboring suburbs did not. Before these desegregation orders took hold in the North, school assignments tended to follow neighborhood lines and so the typical white student shared a neighborhood school with predominately white peers. Following a desegregation order, many urban students were exposed to cross-race peers for the first time, often by being reassigned to a school outside of their immediate neighborhood.

To assess the effect of desegregation orders on the demand for suburban residence, I use the methods outlined above to compare the prices of housing units on either side of city-suburban borders as the city district fell under court order.[70] 29 borders in the sample had one district that fell under court-order to desegregate during the 1970s. 52 borders escaped court scrutiny during this period.[71] The remaining 21 borders divide municipalities that share a school district and thus are not included in this analysis. Data on desegregation court orders by school district are collected from the *State of Public School Integration* website. I construct a dummy variable indicating whether the court required the district to engage in at least one remedial step over the 1970s; remedial steps include actions like redistricting school attendance areas, mandatory busing of students between schools, and the creation of magnet schools.[72]

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[70] For earlier work using housing prices to assess willingness to pay to avoid school desegregation, see Clotfelter (1975). Collins and Margo (2007) use housing prices to study the effect of the race-related riots of the 1960s on urban areas.

[71] Of these control borders, seven contain districts that were *both* required to desegregate over the 1970s; five faced an early desegregation court-order on at least one side in the 1960s; and the remaining 40 avoided any court action before 1980.

[72] I associate each plan with the date of the court order, even if the case was later appealed to a higher court. For example, the Denver plan is coded as being handed down in 1969, even though the Supreme Court ruled on the case in 1973.

Before examining the effect of desegregation plans on housing prices, I first investigate whether these court-orders were enforced (at least to some degree), leading to some change in school-level racial composition. If these orders were not enforced, we would not expect them to have an effect on housing prices. In particular, I compare changes in the black enrollment share at the average white student's school in urban districts that fell under court-order during the 1970s and those that did not. In 1970, before the orders were passed, the black enrollment share experienced by the average white student in both types of districts was nearly identical. Over the next decade, average white exposure to black peers increased by 20 percentage points in cities under court-order but only by six points in cities that did not fall under court supervision. By 1980, the black enrollment share faced by the typical white student in a district under court-order was nearly equivalent to the black share of the total student body in those areas, suggesting that desegregation plans managed to achieve "full integration," in the sense that each school reflected the demographics of the district as a whole.[73]

Given that desegregation plans were well-enforced, it is reasonable to expect that court orders would have had effects on local housing prices. If residents do not like living in a racially-integrated school system, either because of direct concerns about mixed-race classrooms or because the enforcement of desegregation plans often required that children be sent to non-neighborhood schools, we would expect housing prices in treated districts to fall relative to their neighboring suburbs.

Figure 4 explores the effect of desegregation on the value of owner-occupied housing. The underlying estimating equations are explained in detail in the Appendix (equations 3-4). I

[73] The findings reported in this paragraph are based on Table 4 of Boustan (2012). Results in this sample are consistent with Reber (2005), who demonstrates that the average desegregation plan successfully increased white exposure to black peers nationwide.

begin by considering the dark bars, which represent the estimated housing price gap across "treatment" borders whose central city received a court order to desegregate during the 1970s. In 1970, the price for units on the city side of these borders was already five percent lower than their suburban neighbors (column 1). This initial gap in housing prices could be due to pre-existing disparities in school quality or could be related to other municipal services that vary across the border. The presence of initial differences in housing prices underscores the importance of being able to measure housing prices before and after the policy change. By 1980, after the imposition of court-ordered desegregation, the housing price gap across these borders widened from five to 10 percent (column 2). Column 3 estimates the change in housing prices from 1970 to 1980 associated with the advent of a school desegregation plan.[74]

Other factors may have led the "civic value" of living in a central city to decline over the 1970s (e.g., fiscal mismanagement). To assess this possibility, I use borders that avoided court supervision as a control group. It is reassuring that there is no such change in the suburban housing price premium along the 52 control borders, represented by the gray bars. The city-suburban housing price gap of two percent measured along these borders in 1970 is still in place by 1980.

A remaining concern is that central cities facing desegregation may have been on a stronger downward trajectory over the 1970s than those that escaped court scrutiny. In this case, we would expect to see larger housing price declines in these cities over the long run, both before desegregation (say, in the 1960s) and afterwards. The final set of columns in Figure 4 examines

[74] The estimates in column 3 pool data from 1970 and 1980 to estimate changes over time in the housing price gap at city-suburban borders. Because I am able to control for additional aspects of the neighborhood, the estimated price change is slightly larger than the difference between the estimates in columns 1 and 2 (six percentage points rather than five); see equation 3b in the Appendix for details.

changes in the suburban housing price premium in the decade prior to the desegregation court-orders (1960 to 1970). Over the 1960s, suburban price premia expanded by two percentage points across both treatment and control borders. The difference between these two categories is negligible and not statistically significant. Therefore, it is unlikely that the estimated change in housing prices is simply picking up long-run trends in urban demand.[75]

Figure 4 convincingly demonstrates that housing prices along city-suburban borders responded adversely to court-ordered school desegregation, which is a strong indication of falling demand for urban residence. Objections to racially-integrated schools may be rooted in fears about mixed-race classrooms and their association with peer quality but may also reflect concerns about the loss of neighborhood schools. In order to comply with desegregation orders, school districts could no longer place all students in the nearest school but rather needed to assign some white students to distant schools in black neighborhoods and vice versa. I use estimates from the literature to assess the contribution of each factor to the overall aversion to desegregation.

Kane, Riegg and Staiger (2006) estimate the willingness to pay for a school with a lower black enrollment share by comparing housing prices across attendance area boundaries in Charlotte-Mecklenberg, NC, while controlling for distance to school. According to their estimate, the increase in black enrollment experienced by the typical white student in a district undergoing desegregation in my sample would have reduced housing prices by four percent. By this measure, two-thirds of the estimated housing price response to school desegregation at the city border can be attributed to concerns about mixed-race classrooms and the associated change in peer quality (= 4 percent decline due to mixed-race classrooms/6 percent decline overall).

[75] I limit my attention here to the 56 borders for which block-level data is available in 1960. The results presented in columns 1-3 are similar for this subsample.

The remainder of the estimated price response is likely due to concerns about school re-assignment. Bogart and Cromwell (2000) find that assignment to a non-neighborhood school reduces housing prices by 7.5 percent. The residual change in housing prices would therefore imply that around 30 percent of sample households faced school re-assignment, a value consistent with the share of students that would need to change schools in order to achieve complete desegregation (= 2 percent "residual" decline in housing prices/7.5 percent decline if all residents lost their neighborhood school).

VI. Conclusion

More than two white residents left northern cities for each black southern arrival in the mid-twentieth century. Yet many urban whites lived in predominately white neighborhoods far from expanding black enclaves. These distant neighborhoods experienced little racial change, suggesting that concerns about local social interactions with new black neighbors cannot fully explain the phenomenon of white flight.

This chapter proposes that some white households left central cities to avoid "civic interactions" with black arrivals through shared municipal elections and public schools. I measure the role of civic interactions by comparing the trajectory of prices for adjacent housing units along city-suburban borders as the city became more racially diverse. I find that home buyers and renters were willing to pay two percent less for a similar unit located in a city whose black population share was 15 percentage points higher than the neighboring suburb. Yet, this price gap can be entirely explained by differences in income levels between blacks and whites. Cities with a lower median income or higher poverty rate also had higher property taxes and lower quality schools, two factors that repelled housing demand. After school desegregation

plans were implemented in the 1970s, race became more salient to these civic interactions. Housing prices fell by six percent in cities under court-order to desegregate their schools due to a combination of aversion to mixed-race classrooms and to concerns about school reassignment.

Appendix to Chapter 5

I. Description of border sample

Appendix Table 1: Border sample by metropolitan area, 1960-80

		Number of borders			
Region	Metropolitan area	Sample, 1960-80	Added to sample, 1970-80	Sample, total	Excluded
North	Allentown-Bethlehem, PA		2	2	
	Boston, MA	2	1	3	4
	Hartford, CT		3	3	2
	New York, NY-NJ†	10		10	3
	Pittsburgh, PA	3		3	
	Providence, RI	3	1	4	
	Scranton, PA		1	1	
	Springfield, MA		1	1	1
Midwest	Akron, OH		2	2	2
	Canton, OH		1	1	
	Chicago, IL†	5	2	7	6
	Cleveland, OH	2		2	
	Dayton, OH	1		1	
	Des Moines, IA		2	2	
	Detroit, MI	1	6	7	
	Grand Rapids, MI		4	4	
	Indianapolis, IN		1	1	3
	Kansas City, KS-MO	2	2	4	3
	Madison, WI		1	1	
	Minneapolis/St. Paul, MN	1	1	2	3
	Moline-Davenport, IL-IA	1	1	2	
	South Bend, IN		1	1	
	St. Louis, MO	1		**1**	4
West	Denver, CO	1	2	3	
	Las Vegas, NV		1	1	
	Los Angeles, CA†	17	5	22	7
	Phoenix, AZ		1	1	1
	Portland, OR		2	2	1
	San Bern.-Riverside, CA		1	1	3
	San Francisco, CA†	2	1	3	
	San Jose, CA	4		4	
	TOTAL:	**56**	**46**	**102**	**44**

Notes: Metropolitan areas marked with † contained secondary central cities in 1960 that are now considered by the Census Bureau to anchor their own, independent metropolitan areas. These are: Newark, NJ; Jersey City, NJ; and Clifton, NJ (New York); Gary, IN (Chicago); Anaheim, CA (Los Angeles); and Oakland, CA (San Francisco).

Appendix Table 2: Summary statistics, Jurisdiction-level variables

	1970		1970-80
Mean (S.D.)	All jurisdictions	Difference across borders	Change in cross-border difference over time
Median family income *($ 2000)*	$49,980 ($10,227)	$9,926 ($8,918)	$2,880 ($2,181)
Share black	0.086 (0.142)	0.151 (0.145)	0.055 (0.068)
Share college graduate	0.123 (0.081)	0.068 (0.071)	0.027 (0.030)
Property tax rate, % of sale price	2.535 (1.115)	0.723 (0.482)	
In $1,000 ($2000):			
Instruction $ per pupil	3.001 (0.652)	0.512 (0.473)	
Non-education $ per capita	0.736 (0.424)	0.493 (0.431)	
Police $ per capita	0.114 (0.053)	0.066 (0.045)	

Notes: Demographic and socio-economic variables are available for 102 city-suburban borders. Expenditure variables are available for 97 borders and property tax rates for 65 borders.

Appendix Table 3: Summary statistics, Block-level variables

	1960	1970	1980
Average value, owned	$101,681	$102,651	$157,690
	(53,358)	(41,524)	(91,863)
Number units	42.689	39.347	41.954
	(43.783)	(39.122)	(58.118)
Mean # rooms, owned	5.713	5.736	5.478
	(0.933)	(1.083)	(1.022)
Share single family	0.735	0.796	0.839
	(0.227)	(0.265)	(0.229)
Share black on block	0.027	0.064	0.124
	(0.112)	(0.201)	(0.287)
Average contract rent	$457.90	$519.13	$575.80
	(143.23)	(169.23)	(183.77)

Notes: Cells contain means and standard deviations of block-level variables in the border area sample. Means are reported for the sub-sample of blocks that have at least five owner-occupied units and that are not missing information on housing values. The one exception is average contract rent, which is reported for the sub-sample of blocks with at least five rental units.

II. Estimating equations

A. Race and income

The first set of estimations in this chapter (Section IV, sub-section *iii* and *iv*) relate differences in jurisdiction-level attributes, including the black population share, to the housing price gap at city-suburban borders. We would expect to find a larger suburban premium at a border separating two jurisdictions with a larger difference in racial composition.

The results in Figures 2 and 3 are based on the following model:

$$\ln(\text{PRICE}_{ijbt}) = \beta \text{ SHARE BLACK}_{jt} + \Phi'(\text{block})_{it} + \Psi' d_{bt} + \varepsilon_{ijbt} \quad \textbf{(1)}$$

where *i* indexes Census blocks, *j* jurisdictions, *b* border areas, and *t* Census years. A border area consists of a pair of jurisdictions, one of which is a city and the other a suburb. PRICE measures the average value of owner-occupied units on a block *i*. SHARE BLACK measures black population share of whole town *j*. Some specifications also add available block-level housing and neighborhood quality controls (block_{it}).[76]

Central to identification in the cross-section is the vector of indicator variables (d_{bt}), one for each border area *b* in Census year *t*. This vector captures unobserved neighborhood characteristics that are accessible to residents on either side of a border at a point in time – for example, the presence of a nearby park, bus line, or commercial strip. These fixed effects also control for common aspects of the housing stock, such as the age and architectural style of the units. The effect of town-level racial composition is thus identified by comparing the prices of neighboring housing units located in either the poorer or the richer municipality within a border area. A negative β implies that houses located in a racially diverse city command systematically lower prices than their cross-border neighbors.[77]

B. Desegregation

[76] Regressions are weighted by the number of relevant housing units on the block and standard errors are clustered by border area.

[77] For a thorough discussion of a related econometric framework, see Turner, Haughwout and van der Klaauw (2011). This paper moves beyond their outlined framework by adding a panel dimension.

The second set of estimations in this chapter (Section V) relate the advent of a court-ordered desegregation remedy in an urban school district to the housing price gap at city-suburban borders. We would expect to find the suburban price premium to increase over the 1970s at borders along which the city was required to undergo school desegregation.

The black bars in Figure 4 represent the sub-sample of metropolitan areas whose central city were required to desegregate in the 1970s, which I index with the sub-script PLAN. I estimate three equations, one for 1970 (3a), one for 1980 (3a), and the third pooling data from 1970 and 1980 together (3b):

$$\ln(\text{PRICE})_{isbt} = \beta_{\text{PLAN}}(\text{CITY}) + \Psi' d_{bt} + \varepsilon_{isbt} \quad \textbf{(2a)}$$

$$\ln(\text{PRICE})_{isbt} = \beta_{\text{PLAN}}(\text{CITY} \times \text{T}) + \Omega' d_{bs} + \text{T} + (d_{bt} \times \text{T}) + \varepsilon_{isbt} \quad \textbf{(2b)}$$

for Census block *i*, school district *s*, border area *b*, and Census year *t*. As above, border area fixed effects (d_{bt}) capture neighborhood attributes that are shared by houses on either side of the border. The coefficient of interest in equation 3a, β_{PLAN}, reveals the mean difference in housing prices between the city and suburban side of these borders, where CITY is an indicator for blocks on the city side. These coefficients are represented in the first two columns of Figure 4.[78]

Equation 3b pools data from 1970 and 1980. This added variation allows the inclusion of side-of-the-border fixed effects (d_{bs}), interactions between border area *b* and school district *s*. The vector d_{bs} absorbs long-standing differences in school quality or housing attributes across borders. Although the main effect of the border area fixed effects are subsumed by the side of the border indicators, I include an interaction between the border area fixed effects and a dummy variable for the 1980 Census year ($d_{bt} \times \text{T}$). This interaction allows a common neighborhood trend as the border area gentrifies or deteriorates over time.

The variable of interest in equation 3b is the interaction between CITY, an indicator for blocks on the city side of the border, and the 1980 Census year. Here, the coefficient β_{PLAN} identifies how the difference in housing prices between the city and suburban side of the typical border changed with the implementation of a desegregation plan. My hypothesis is that $\beta_{\text{PLAN}} < 0$, or that the price of city housing declined over the 1970s relative to its neighboring suburb as

[78] In all regressions, standard errors are clustered by school district and observations are weighted by the number of owner-occupied (or rental) units on the block.

the city underwent a process of school desegregation. This coefficient is represented in column 3 of Figure 4.

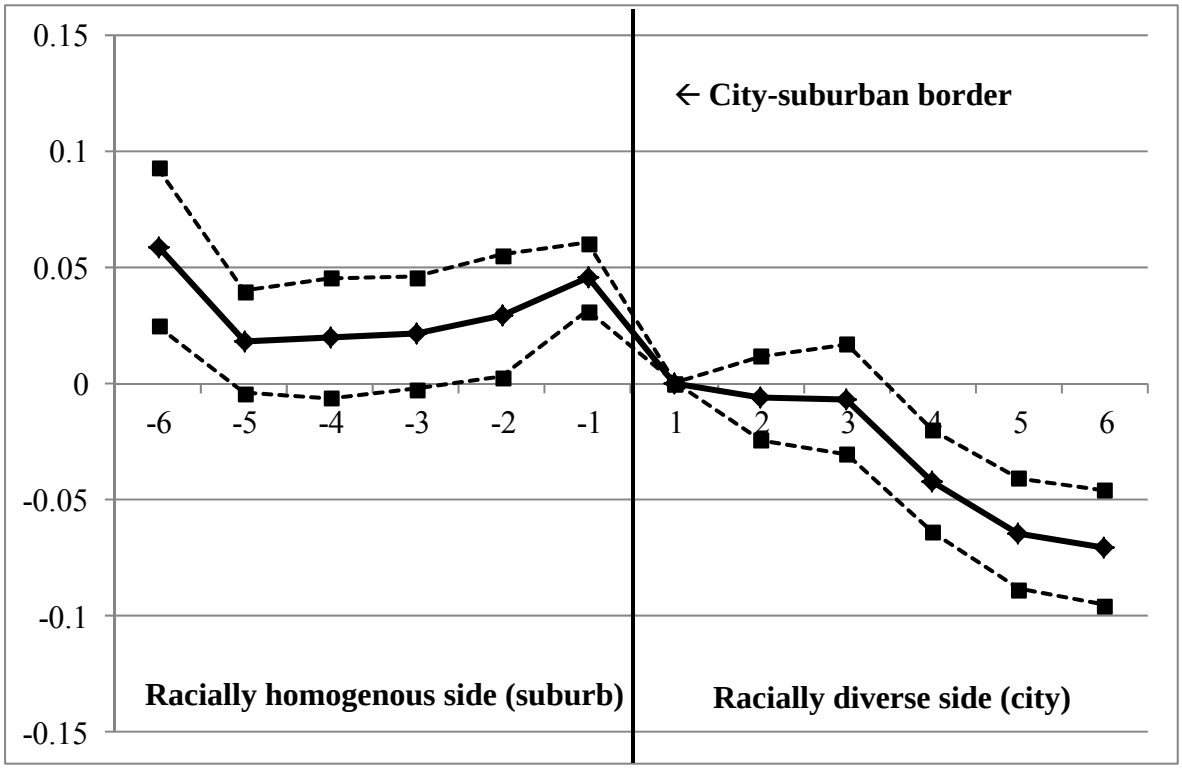
For comparison, I estimate a corresponding equation for the portion of the sample in which the city did not undergo court-ordered desegregation over the 1970s (or, both the city and suburb underwent desegregation). I estimate:

$$\ln(\text{PRICE})_{isbt} = \beta_{\text{NOPLAN}} (\text{CITY}) + \Psi' d_{bt} + \varepsilon_{isbt} \quad \textbf{(3a)}$$

$$\ln(\text{PRICE})_{isbt} = \beta_{\text{NOPLAN}} (\text{CITY} \times \text{T}) + \Omega' d_{bs} + \text{T} + (d_{bt} \times \text{T}) + \varepsilon_{isbt} \quad \textbf{(3b)}$$

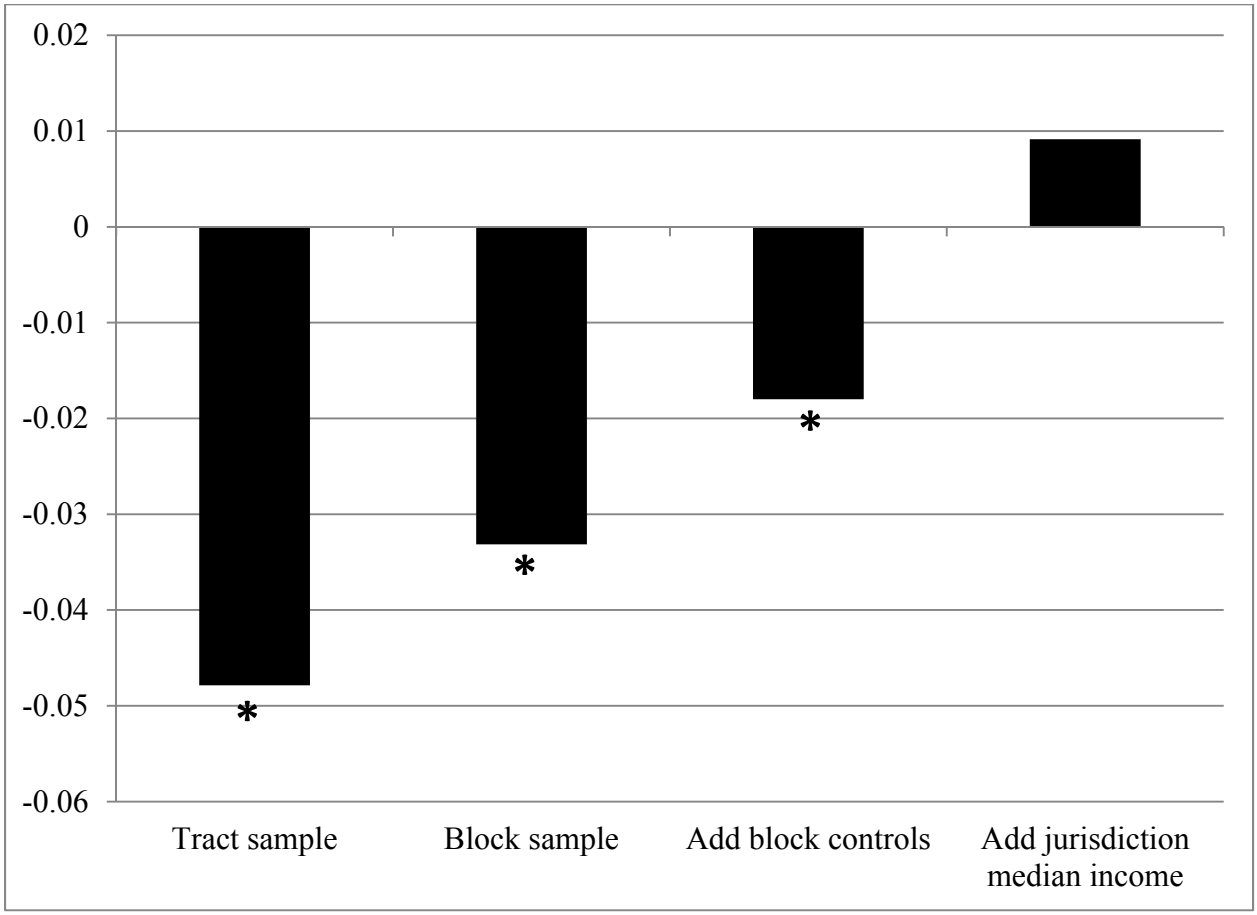
Although I do not have a strong prediction about the sign of β_{NOPLAN}, the coefficient will be less than zero if other policy changes or events reduced the value of central city residence over the 1970s.

Figure 1: Housing values by distance to city-suburban border, Racially homogeneous versus diverse side. Pooled data, 1960-80



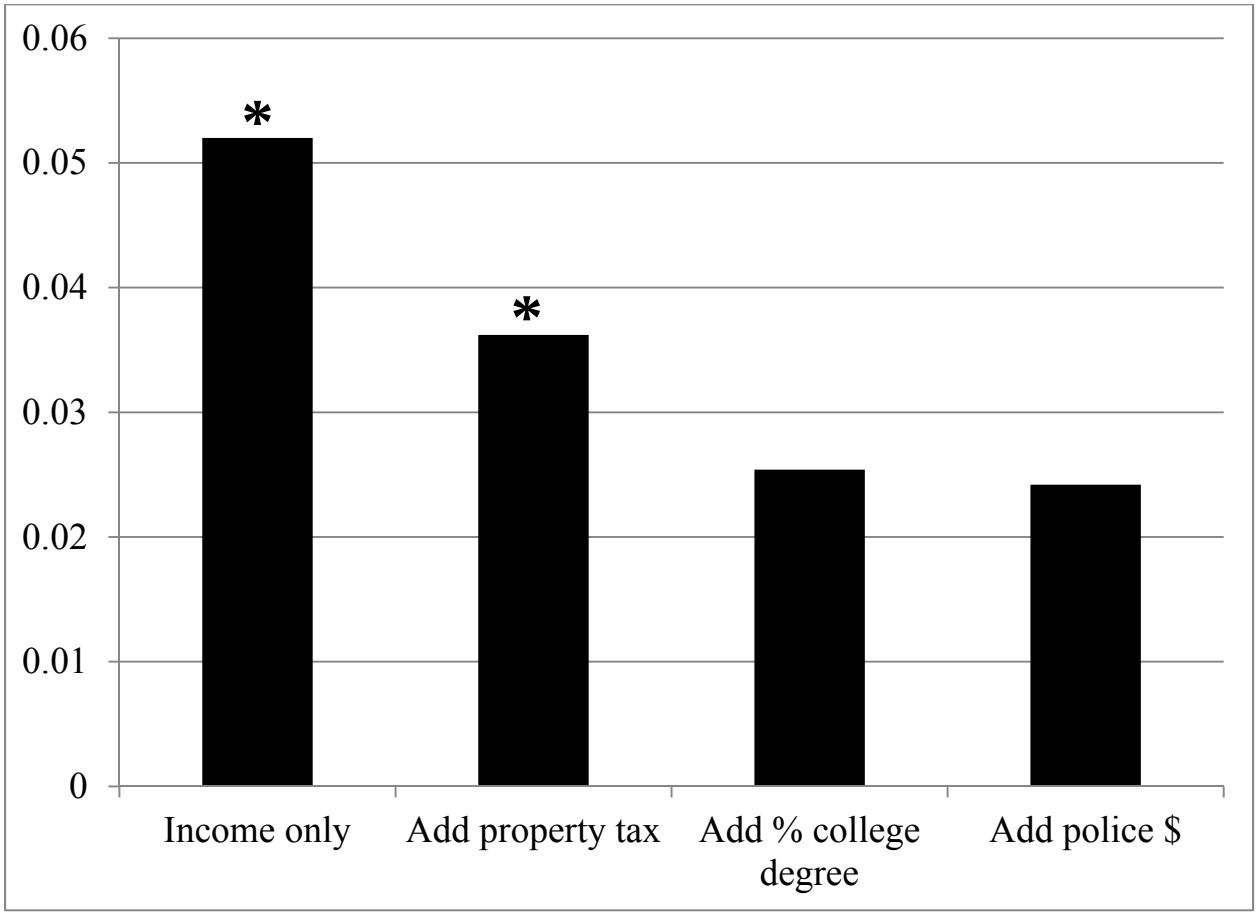
Notes: Each dot is a coefficient from a version of Appendix Equation 1 that replaces the jurisdiction-level black population share with a vector of dummy variables for block tiers, coded by distance from the municipal border. I classify the jurisdiction pairs in each border area as either "racially homogeneous" or "racially diverse." Tier numbers range between 6 and -6 with positive numbers falling on the racially diverse side of the border and higher numbers (in absolute value) indicating distances further from the border. Estimates are relative to the first block tier on the diverse side of the border. Dotted lines indicate 95 percent confidence intervals.

Figure 2: Implied effect of 15 percentage point increase in city's black population share on housing prices at city-suburban borders. Pooled data, 1960-80



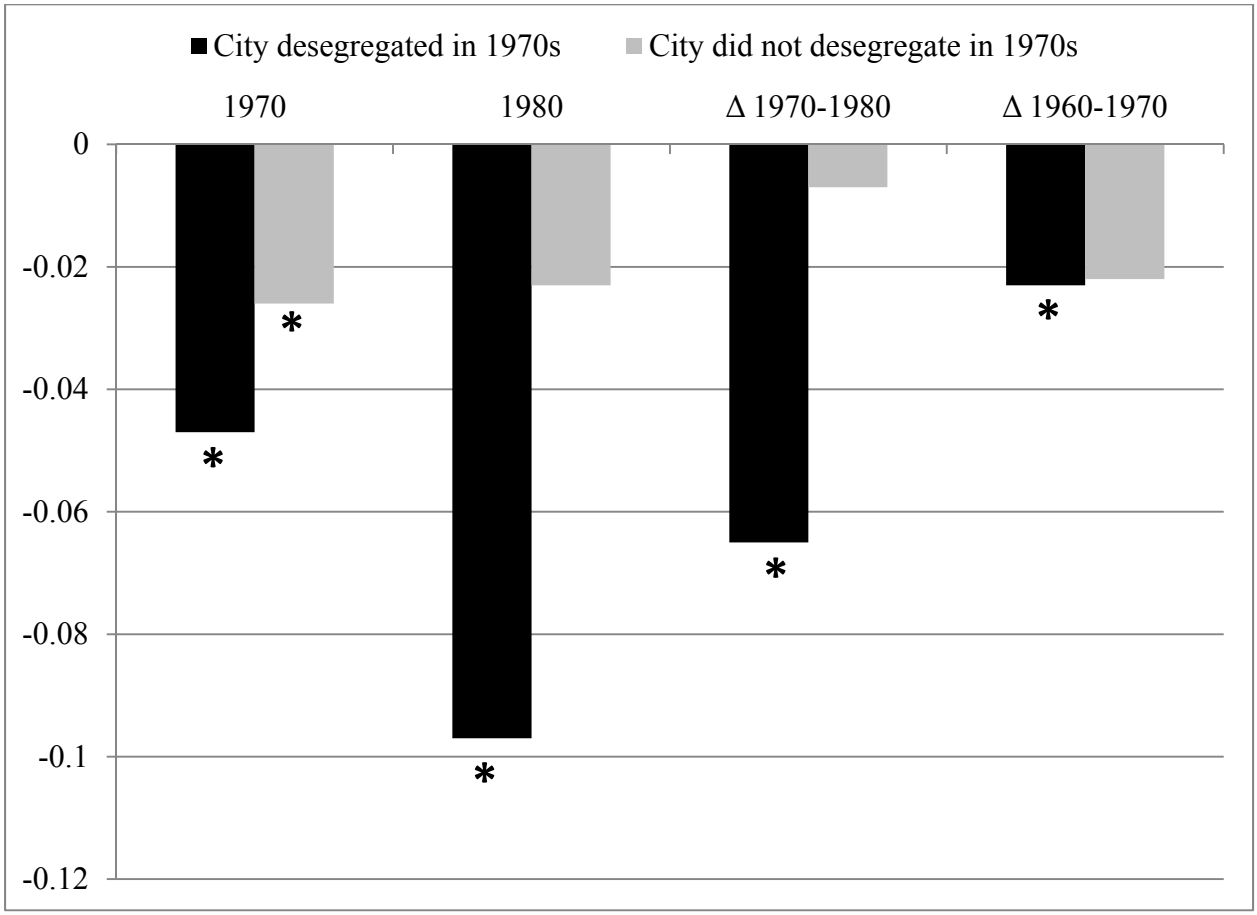
Notes: Each column represents a coefficient from an estimate of Appendix Equation 1. Coefficients that are significantly different from zero at the five percent level are marked with a *. The regression underlying the first column (marked "tract") contains blocks in the first six tiers on either side of the border, while the regression underlying the second column (marked "block") contain only blocks adjacent to the border. Block-level control variables in third column include: number of housing units on block; share of units that are single-family structures; average number of rooms; and black population share. The fourth column also includes the logarithm of median income at the jurisdiction level.

Figure 3: Implied effect of 20 percent increase in suburban median income on housing prices at city-suburban borders, 1970



Notes: Each column represents a coefficient from regressions of housing prices on jurisdiction-level income (a modified version of Appendix Equation 1). Coefficients that are significantly different from zero at the five percent level are marked with a *. The sample includes the 61 borders in 1970 with information on all local policy variables. The regression includes median income as the only jurisdiction-level regressor. The remaining columns cumulatively add local policy variables, starting with the effective property tax rate.

Figure 4: Effect of court-ordered school desegregation on housing prices at city-suburban borders



Notes: Each column represents a coefficient from estimates of Appendix Equation 2 (black bars) or Appendix Equation 3 (grey bars). Coefficients that are significantly different from zero at the five percent level are marked with a *. Column 1 considers data from 1970 before the advent of court-ordered desegregation. Column 2 considers data from 1980 after the "treatment" borders were placed under court-order to desegregate. Column 3 reports coefficients from equations 3b and 4b of changes in housing prices from 1970 to 1980 on the interaction between being in the central city and in the 1980 Census year. Column 4 conducts the same regression for the previous decade (1960 to 1970). Note that the coefficients in row 3 are not exactly equal to the difference between the coefficients in rows 1 and 2 because the regressions underlying row 3 also include side-of-the-border fixed effects.

Table 1: Location of white households in central city by distance from an historical black enclave

	Distance from 1940 black enclave					
	< 0.1 miles	0.1-0.5 miles	0.5-1 miles	1.0-2.0 miles	2.0-4.0 miles	> 4.0 miles
A. Share of white city population living within *X* miles of historic black enclave						
1940	0.02	0.07	0.12	0.22	0.31	0.27
1970	0.00	0.04	0.07	0.17	0.32	0.39
2000	0.00	0.04	0.06	0.15	0.29	0.46
B. Black population share *X* miles from historic black enclave						
1940	0.74	0.09	0.07	0.04	0.02	0.02
1970	0.88	0.59	0.45	0.33	0.17	0.08
2000	0.84	0.63	0.56	0.44	0.32	0.19

Notes: Panel A reports the share of white residents in the central city living within *X* miles of a historical black enclave, defined as a Census tract with 50 percent or more black population in 1940. For cities in which no Census tracts reached the 50 percent black threshold in 1940, the historic enclave is instead defined as the tract with the highest black population share. Panel B indicates the black population share of areas in the central city according to distance from the historical black enclave.