WORKING PAPER

Racial prejudice and neighborhood change in the shrinking city

Author:

Jason Hackworth Professor of Geography and Planning University of Toronto Toronto, ON M5S 3G3

jason.hackworth@utoronto.ca

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Abstract:

Despite a clear empirical association between the most African-American neighborhoods and overall population shrinkage in large Rust Belt cities, few have explored the theoretical challenges that this poses. First, if racial prejudice is the key ingredient for this relationship, why would this result in overall population loss and not simply a reduction of white residents? Second, why if stigmatization generates the pre-conditions for in-migration and investment—as the gentrification and urban ecologies literatures suggest—why would black neighborhoods not be the epicenter of population growth? This paper explores these questions through a theoretical synthesis of the residential choice, shrinking cities, and racial prejudice literatures. Empirically, I rely on an intra-city examination of neighborhood change in Cleveland, Detroit and Pittsburgh. I argue that three factors in shrinking Rust Belt cities limit the application of more general neighborhood change paradigms: 1) the persistence of racial prejudice, 2) abundant housing supply; and 3) housing stock characteristics. These variables are so sufficiently different in Rust Belt cities to make the application of gentrification change.

Introduction

In the American Rust Belt, there is considerable overlap between the duration and concentration of African-American populations on the one hand, and conventional indicators of urban decline (population and capital flight) on the other. Neighborhoods that have been black majorities or super-majorities (>80% black) for the longest durations in the Rust Belt have experienced a disproportionate amount of population and investment flight during the past 50 years. Despite this pattern, few urban theorists have fully explored the role that racial prejudice in particular, or racialization in general, has in causing, facilitating or exacerbating urban shrinkage. This study explores the causal connection between racial prejudice and urban shrinkage. Theoretically, the paper is built upon a critical synthesis of the housing choice, racial prejudice, and neighborhood change literatures. Empirically, it is organized around a comparative spatial examination of intra-city population change in Cleveland, Detroit, and Pittsburgh between 1970 and present.

My argument is that theories of neighborhood change theories fail to capture the prevailing pattern in shrinking cities because they frequently omit consideration of three factors that vary considerably between and within cities. These factors significantly influence which black spaces become the epicenter of urban shrinkage and which become the targets of gentrification and immigration. First, black people and spaces are severely stigmatized—this prejudice is widespread, ongoing, and impactful in every city, but its influence on population flight is contingent on other factors. Chief amongst these factors is the relative size of the black population. Second, housing supply varies considerably between and within cities. In cities with low overall vacancy rates, investors and immigrants have many opportunities to act prejudicially by choosing neighborhoods without black majorities. In cities, by contrast,

where housing opportunities are more scarce, black neighborhoods are often the only affordable abundant housing unit possibilities so they are subject to more investment pressure. Third, housing stock characteristics vary considerably between and within cities. The cities of the Rust Belt tend to be composed of more single-family, wood-frame, massproduced housing that has deteriorated quickly than those of the older cities of the Northeast where gentrification has been more common. Housing *and* land vacancy thus prevails in the disinvested neighborhoods of Cleveland and Detroit, whereas housing unit vacancy was more common in older coastal cities that eventually experienced gentrification. Combined, these factors limit the investor and immigrant interest in the most African-American spaces of the Rust Belt. Those spaces have, therefore, become the epicenter to urban shrinkage and disinvestment, even while they possess similar racial characteristics of neighborhoods that have experienced major gentrification and immigration in other cities.

Race, racism, and urban decline

Almost all of the causal literature on urban shrinkage emphasizes conventionallyeconomic causes. Scholars have, for example, emphasized how deindustrialization and globalization undermined local economies and led to mass depopulation and shrinkage (Bluestone and Harrison, 1982; Cowell, 1993; Friedrichs, 1993; Martinez-Fernandez et al., 2012; Reckien and Martinez-Fernandez, 2011; Teaford, 1994). Others have emphasized the combination of over-building on the suburban fringe and housing deterioration (or social obsolescence) in the older urban core (Breger, 1967; Downs, 1973; Hoover and Vernon, 1959). Still others, public choice theorists in particular, have emphasized the role of taxes, regulation, and poor (or corrupt) governmental decisions as reasons for population flight

(Peterson, 1981; Tiebout, 1956). According to much of the urban decline literature, one or more of these forces promote the flow of capital and people from urban space—sometimes to the suburbs of the same region, sometimes to other regions entirely. The causes are conventionally-economic insofar as they emphasize cost, housing supply, broader employment conditions and the like.

These are compelling arguments to be sure, but they have limitations. First, government profligacy, deindustrialization, and housing obsolescence do not neatly map onto the experience of urban decline in the American Rust Belt. Using a sample of 151 cities in the American Rust Belt for example, Hackworth (2018) found little correlation between any of these factors and the experience of extreme land abandonment (see also: Downs, 1999). Over-building in the suburbs, housing deterioration in the inner core, higher taxes in the principal city of a region, and overall deindustrialization are relatively ubiquitous throughout the Rust Belt while the experience of major population and capital flight are more concentrated. The second deficiency of viewing urban decline exclusively through these economic lenses is that they often elide any serious consideration of the role of racial prejudice in the facilitation of capital and population loss. This is a considerable oversight given the observable empirical overlap between majority black neighborhoods and the experience of urban decline in the American Rust Belt. Table 1 illustrates this overlap. By dividing the region's major cities¹ into neighborhood units and tracing their population change over time, it is evident that population and capital flight are most extreme in the neighborhoods that have been majority black for the longest duration. The same general pattern-over-concentration in the most African-American spaces-holds for low house values and incomes (see Hackworth, 2019).

Table 1: Neighborhood population change, 1970 to 2010, cross-tabulated by percent black in selected Rust Belt cities (source: US Census and American Community Survey Estimates, 2012-2016, through the Social Explorer Longitudinal Tract Database).

	Black	Populati	on, 1970	Black Population, 2010			
Population Change 1970-2010 ^a	Median ^b	Total ^c	Black Maj. ^d	Median	Total	Black Maj.	
Extreme Shrinkage (n=1,249)	28.7%	46.7%	548	77.9%	60.8%	808	
Mild Shrinkage (n=1,250)	0.3%	7.4%	68	18.8%	32.5%	353	
Mild Growth (n=402)	0.2%	3.4%	12	8.8%	16.6%	36	
Extreme Growth (n=401)	0.5%	4.4%	9	13.0%	20.8%	55	

NOTES

^a Tracts were divided into growing and shrinking based on their population changes between 1970 and 2010. The growing tracts (n=809) and the shrinking tracts (n=2,497) were then halved to derive "extreme" and "mild" categories. Note: some census tracts were removed for incomplete data for one or both years.

^b Median percent black figure of all census tracts in given population change category.

^c Total aggregated black population in all census tracts in given population change category.

^d Number of tracts that have >50% black populations in given population change category.

Few have fully considered the connection between blackness and urban decline, but a variety of scholars have provided fragments that can be synthesized into an explanation. Some scholars suggest that the impact of deindustrialization simply fell disproportionately on black people in the industrial Midwest, and that this factor explains the extreme decline of the most African-American residential spaces. But this explanation belies the fact that black people were largely excluded from the manufacturing employment largesse of the region to begin with (Sugrue, 2005). Why deindustrialization would disproportionately impact a population that was disproportionately-excluded from industrial employment is not clear. This explanation also fails to explore the dynamics of neighborhood change—the scale at which decisions about investment or exit from the city are made.

Neoclassical economics do engage with the mechanics of residential and neighborhoods choice, but have an inconsistent record of taking white racial prejudice seriously as a causal factor. Economists tend to see housing and neighborhood selection through the prism of individual choice. Consumers consider their housing options and make the choice that best suits their needs. Distance to work, and various neighborhood amenities and disamenities are the most important determinants of housing price across the surface of a region. With some notable exceptions (Galster, 1990; Galster, 1992; Galster, 2014; Yinger, 1995), institutionally and interpersonally-racist obstacles to housing choice and racial prejudice in guiding residential decisions are rarely considered or invoked in a robust way. Some economists do not even acknowledge the existence, much less importance, of housing discrimination and its role in neighborhood decline. Some have even suggested that black people themselves are to blame for the flight of white people and the overall decline of cities. In a short reflection piece on the topic in the economics magazine, *The New Guard*, for

example Nobel Laureate George Stigler mused on why the flight of white people from black neighborhoods was so extreme (Stigler, 1965, p. 12). "Consider the Negro as a neighbor," wrote Stigler,

He is frequently repelled and avoided by the white man, but is it only color prejudice? On the contrary, it is because the Negro family is, on average, a loose, morally lax,

group, and brings with its presence a rapid rise in crime and vandalism.

Stigler's viewpoint is neither alone nor solely a product of its time. Forty years after Stigler wrote those words Harvard economists Edward Glaeser and Andrei Shleifer (2005) mused about the role that Detroit's first black mayor had on the cities fortunes. They concluded that Coleman Young deliberately drove out white residents as a form of racial patronage designed to enhance his standing in the city's black community. "In his 24 years as mayor," they wrote, "Detroit's Coleman Young drove white residents and businesses out of the city, [similar to how] Zimbabwe's President Robert Mugabe abused white farmers after his country's independence, openly encouraging their emigration even at a huge cost to the economy." It might be tempting to dismiss such comments as fringe, or out of context, were they not written by major figures in the field, and that their assumptions dovetail perfectly with that of more scholars who actively deny the role of white racial animus as a cause of neighborhood flight.

The most developed version of this line of thought is called racial proxy theory (RPT). While it avoids the direct language of Stigler and Glaeser, it similarly denies the role that white racial prejudice has in facilitating neighborhood decline. According to racial proxy theory, white people do indeed move when "too many" black people move to their neighborhood, but RPT insists that this act has nothing to do with racism. To RPT, such acts

are merely economically-rational judgments about the future of their neighborhood (Ellen, 2000; Harris, 1999; Harris, 2001). Within RPT, black people are a "proxy" for future population flight and economic value decline. White people are simply making the economically-rational choice of avoiding residence near black people to preserve the value of their property. Scholars (mostly sociologists) have critiqued RPT on a number of grounds. First, some have questioned why is there such a desire to suggest that racial prejudice is not present or that it is merely a function of class, when its takes such an interpretive leap (and narrow definition of racial prejudice) to assume that whites are *not* acting on racial prejudice. Kye (2018) has questioned the central assumption of RPT—that the flight of white people is simply the rational expectation that black people are poorer and will lead to overall declineby showing that the flight of white people is actually more abrupt and widespread in higher income environments. That is, white residents flee black in-movers more frequently when the latter are wealthy than when they are poorer. Thus either white residents are acting on racial prejudice or their "proxy detector" for urban decline is very inefficient, as it seems to be provoked by upper income in-migrants even more than lower income in-migrants.

Other sociologists and psychologists, have provided compelling evidence that racial prejudice influences how white people view black spaces independent of the objective characteristics of that space. Following the work of Farley, sociologists have employed a variety of experimental techniques to gauge the willingness or unwillingness of respondents to live in neighborhoods of different hypothetical racial compositions (Bobo and Zubrinsky, 1996; Charles, 2000; Charles, 2003; Farley et al., 1978; Farley et al., 1994). Such preferences were then tabulated and associated against the ethno-racial identity of the respondent and their scale answers to a series of underlying racial prejudice questions. In other experiments,

respondents are shown videos or images of urban street scenes and neighborhoods (Bonam, Bergsieker, and Eberhardt, 2016; Krysan, Farley, and Couper, 2008; Sampson and Raudenbush, 2004). In some of the images, black people are present, while in others white people are present (in still others a mix of ethno-racial groups is pictured), but the background image remains the same. The respondents are then asked to make judgments about the perceived safety, future growth and value of the neighborhood (or house) in question, then asked a series of questions to gauge their level of underlying racial prejudice. There is considerable methodological variation in these studies but there are also common findings. First, respondents from all groups indicate a preference for substantially-integrated environments, but also display a desire to have their own group be the majority. The desire to be in the majority was most significant amongst white respondents (Charles, 2000; Charles, 2003). Moreover, the stated preferences are often more integrated than the actual lived experience of respondents (especially amongst white respondents). That is, white respondents indicate that they are willing to live in integrated environments more often than they actually do, likely because of social desirability bias (Krysan, Farley, and Couper, 2008). Second, black people are consistently the least-preferred, most-stigmatized neighbors in these studies. The desire to avoid co-residence with black people spans several ethnoracial groups, but is strongest amongst white respondents (Charles, 2000; Charles, 2003). White respondents consistently rate images of the same street scene or house as more dangerous and less valuable if a black person (or family) is present in the image than if a white person depicted (Bonam, Bergsieker, and Eberhardt, 2016; Sampson and Raudenbush, 2004). The unwillingness to have black neighbors was strongly correlated with agreement with anti-black stereotypes (Bobo and Zubrinsky, 1996; Farley et al., 1994). Finally, black

respondents in such studies are most open to living in integrated environments (Charles, 2000; Farley et al., 1978). These findings are fairly consistent across studies and they indicate a strong role for racial prejudice in residential decision making, with white residents the most-desired neighbors and black people the least.

Finally, and related even if one assumes that fleeing whites are racially innocent, it is difficult to see how these acts described in RPT are not self-fulfilling manifestations of racism themselves—white people judging the movement of black people to be a signal of coming decline, then fleeing in droves, creating a collapse of demand that disproportionately affects black homeowners. Racial proxy and the family of innocent-choice-based residential preference theories thus lack a strong empirical record on their face, blame the victims of flight, and provide a socially-acceptable cover for racial prejudice. In particular, they fail to fully consider racial prejudice as a factor driving neighborhood growth and decline. Some strenuously deny its existence or even blame the victims of it. Others merely fail to explain how and why it would be a factor.

To be sure, there are literatures that *do* take into account the role of racial prejudice in neighborhood dynamics. Though these literature are rarely focused on issues of urban decline (at least not in the same way that literatures on globalization and deindustrialization are), they do offer considerable insight that might be adapted to the present set of questions. In particular, this research highlights a range of forces that might limit the pathways toward integration for black home seekers, and/or rationalize or assist white consumers who seek to avoid residence near black people. First, a range of studies have found that black people continue to experience discrimination that limits their income and home buying options. Audit studies are perhaps the most empirically-compelling as they replicate real-world

experiences and, if carefully designed, control for other possible explanations of disparate treatment. Such studies have consistently found that black people are denied mortgages (Pager and Shepherd, 2008; Turner et al., 2000), jobs (Bertrand and Mullainathan, 2004; Pager, 2003; Pager 2007; Quillian et al., 2017), and rental options (Pager and Shepherd, 2008) at far higher rates than similarly-qualified whites. Other work has found that black people are over-policed, over-prosecuted, more likely to be convicted (over-incarcerated), and serve longer average sentences than white people convicted of similar crimes (Lugalia-Hollon and Cooper, 2018; Wagner and Walsh, 2016). Combined, these forces disproportionately undermine the ability of black people to secure formal, sustained, secure employment, and by extension afford to buy and maintain high quality housing.

Second, researchers continue to find evidence of steering, blockbusting, and other organized attempts to facilitate or maintain segregation. The former involves organized attempts to steer black families away from white neighborhoods, and blockbusting involves the exploitation of white racial fear by real estate agents (Massey and Denton, 1993). Korver-Glenn (2018) found, for example, that realtors and white home buyers engage in an intricate, coded exercise to express racial preferences. Because such steering is illegal for realtors, and socially undesirable for some (not all) white people, this exercise is subtle, often indirect, but very clear in intent. Blockbusting also appears to have survived attempts to outlaw it in 1968. The 2014 film *Spanish Lake* featured several former residents of the suburb of St. Louis willing to admit that realtors exploited their fears of racial change by offering very low amounts for their house (then turning around and selling them at higher amounts to black families), as recently as the late 1990s. These acts enable and rationalize the effort of white home buyers to avoid residence near black people, and thwart the effort of black people to

find more integrated neighborhoods. One offshoot of this effort (of white people avoiding residence near black people) is the collapse of demand (and thus price) in the most African-American spaces. A recent Brookings Institute study found that houses in majority black neighborhoods were worth half what similar houses in white neighborhoods within the same region, in part because of these forces (Perry, Rothwell, and Harshbarger, 2018).

Finally, there is compelling evidence that the laws making such discrimination illegal were weak (by design), have become less-enforced over time, and in some cases are invoked in poor faith to perpetuate (rather than ameliorate) further segregation (Prakash, 2013). Massey and Denton (1993) neatly spell out how the 1968 Housing Act was designed in such a way to make it very difficult to prove actual discrimination. In particular, it placed the burden on the victim to prove that they were discriminated against, and did not include a vigorous enforcement apparatus. Since its passage the already weak inclination (and ability) to enforce the Act has been diluted further, particularly by Republican administrations (Charles, 2018). This has included cutting the Justice Department division in charge of these cases, and simply not following through on credible allegations of housing discrimination. The Trump Administration has been even more active in this regard—making it difficult to obtain data on discrimination and increasing the burden of proof, so as to thwart efforts to prove it is occurring (Charles, 2018; NFHA, 2019).

What these studies make clear is that institutional and interpersonal racism are real and ongoing, even if its form is spatially variable. One outcome of this is to impede the efforts of black consumers to actuate their stated desire for integrated neighborhoods. Another is to enable and rationalize the desires of white consumers seeking to avoid exactly those environments. Much less clear however, is how this would relate to overall

neighborhood growth and decline. That is, this research offers a compelling explanation for why black incomes might be suppressed, how segregation gets perpetuated, and how finance capital is not as plentiful in black neighborhoods. But it is not immediately evident why this would translate into *overall* population loss. If it is simply white people seeking to avoid residence with black people, why would it not simply manifest as the replacement of white residents with black residents, and thus no overall population loss?

The second major question left unanswered by the racial discrimination literature is how does the stigmatization of space not lead to the repopulation or reinvestment by other groups? That is, the notion that stigma will lead to (and be an expression of) price suppression is fairly axiomatic in two major urban studies literatures: gentrification and urban ecologies. If stigma suppresses price, then why does it (stigmatization) not lead to more profit opportunities (à la gentrification), or residence opportunities for new immigrants (à la ecological theory)? Why would stigmatized neighborhoods be, and remain, the epicenter for overall population loss and not the center of in-migration and thus population growth? These paradigms (gentrification and urban ecologies) suggest that, all else equal, disinvested spaces will provide opportunities for investors and new residents alike, albeit for different reasons.

Gentrification paradigm

There is considerable variation within the gentrification literature, but most theorizations revolve around two explanatory "camps". "Demand-side" or "consumer choice" theories emphasize factors like the uniqueness of architecture, the draw of heritage, and the rejection of suburban monotony as leading reasons for gentrification (Ley, 1996).

"Supply-side" or "production" theories emphasize the role of surplus real estate capital looking for profitable options. Inner-city real estate can provide such an opportunity if, after years of neglect the actualized ground rent falls beneath the potential ground rent for a given parcel (Hackworth, 2001; Smith, 1982; Smith, 1996). In such conditions, investors can purchase the devalorized property, renovate, and resell, rent (or live in) it at a value that is more commensurate with the potential ground rent. Smith (1982) likened this process to a "seesaw"—as profit opportunities diminish or disappear in the suburbs, capital "seesaws" back to the inner city to take advantage of rent gaps.

But why this general capital switch would skip some houses and neighborhoods, and not others is less clear within this paradigm. If walkable neighborhoods with architecturally distinct housing are the leading edge of gentrification (i.e. demand-sided), why do some neighborhoods with those characteristics gentrify and others do not? If suppressed ground rent is the leading edge, why do some devalorized neighborhoods gentrify and others not? If it is a mix of factors, what are they? In particular, what is the role of race and the racial preferences of home buyers? When does it lead to the avoidance of black neighborhoods (and thus continued devalorization and depopulation) and when does it lead to their gentrification (and thus revalorization and repopulation through displacement)?

The literature on race and gentrification is far from clear on the latter question (Lees, 2016). One group of scholars emphasizes how the residential preferences of white people make it less likely that gentrification will occur, or that it will unfold more slowly, in the most African-American spaces (Charles, 2003; Hwang and Sampson, 2014; Sampson and Sharkey, 2008; Wilson and Grammenos, 2005). Others argue precisely the opposite—that is that gentrification is *more* likely to occur in the most African-American neighborhoods

(Clay, 1979; Helms, 2003; Moore, 2009; Spain, 1980). Still others emphasize more subtle tangential points. Bledsoe and Wright (2018), for example, do not weigh in per se on the statistical likelihood of gentrification of black spaces, but rather argue that the presence of black people is used as justification for the process—i.e. it promotes an anti-black discourse wherein the previous residents were "uncivilized" so gentrification is judged as an improvement no matter what its impact on the original residents. A final group of scholarsagain not weighing in on the statistical likelihood per se-emphasizes how black culture is used as a demand-sided selling point for black gentrifiers in a number of high profile cases in New York (Hyra, 2008; Schaffer and Smith, 1986; Taylor, 2002), Chicago (Anderson and Sternberg, 2013; Boyd, 2008; Hyra, 2008), and Atlanta (Inwood, 2010) among other cities. Again, however, it is unclear under which conditions such processes-either white gentrification of black spaces, or black gentrification of black spaces—would occur, and which they would not. Despite sharing many of the characteristics of the aforementioned cities (a substantial black middle class, an abundance of architecturally interesting housing, etc.), places like Cleveland, Detroit, and Pittsburgh have not seen a widespread gentrification of the most African-American spaces by either the black or the white middle class. To illustrate this, two commonly used proxies for gentrification-education and incomecalculated and cross-tabulated with neighborhood racial characteristics to identify their spatial intensities over time. The location quotients (LQs) were calculated as follows:

*A. Higher education*²

Higher Education
$$LQi = \frac{he^i/p}{HE^i/P}$$

Where: Higher Education LQi = location quotient for the spatial clustering of people who have attended at least some college in a given % black range vis-à-vis the rest of the city.

 $he_i = count of higher education population in all tracts of a given % black range (e.g. 0-20%, 20.1-40%, etc.)$ p = total population in the census tracts of given % black rangeHE_i = count of higher education population in the entire cityP = population for the entire city

B. Income³

Income
$$LQi = \frac{i^i}{l^i}$$

Where: Income LQi = the ratio of the average income in a neighborhood of a given % black range vis-à-vis average income for the rest of the city. $i_i =$ average income in all tracts of a given % black range (e.g. 0-20%, 20.1-40%, etc.) $I_i =$ average income for the entire city

The LQs were then applied to white and black supermajority neighborhoods (over 80% of the neighborhood throughout the duration, 1970-2016) in each city and then plotted their change over time (Table 2). White supermajority neighborhoods either increased or remained at levels of relative high concentration for high income within each respective city. Black supermajority neighborhoods either held constant (at below average levels) or became relatively poorer (than the rest of the city). Education statistics are more mixed. Within Cleveland and Pittsburgh, white supermajority neighborhoods remained above average for their concentration of highly educated residents. Detroit's white supermajority neighborhoods, by contrast, began the span below-average higher education levels but increased over time. However, this is likely because of an overall convergence around the mean in all cities—that is, higher education amongst all groups became more common between 1970 and 2016.

Table 2: Location quotients for concentration of high income and high education populations inneighborhoods of different racial composition, 1970-2016 in Detroit, Cleveland, and Pittsburgh. (Source:US Decennial Census and American Community Survey, via the Social Explorer Longitudinal TractDatabase).

A. Income^a

Category	1970	1980	1990	2000	2010	2016
White Supermajority ^b						
Detroit	0.90	0.98	0.72	0.84	0.98	1.01
Cleveland	1.17	1.14	1.30	1.28	1.41	1.46
Pittsburgh	1.15	1.00	1.09	1.14	1.24	1.22
Black Supermajority ^c						
Detroit	0.81	0.89	0.79	0.83	0.82	0.81
Cleveland	0.86	0.87	0.80	0.85	0.88	0.81
Pittsburgh	0.62	0.61	0.54	0.50	0.45	0.48

B. Education^d

Category	1970	1980	1990	2000	2010	2016
White Supermajority						
Detroit	0.42	0.45	0.51	0.44	0.41	0.43
Cleveland	1.16	1.09	1.19	1.14	1.07	1.07
Pittsburgh	1.32	1.24	1.17	1.14	1.11	1.09
Black Supermajority						
Detroit	0.75	0.81	0.81	0.90	0.95	0.96
Cleveland	0.95	0.95	0.90	0.94	0.93	0.95
Pittsburgh	0.39	0.54	0.67	0.66	0.70	0.77

NOTES

^a Average income in census tracts within a category divided by the average income of the entire city.

^b White supermajority neighborhoods were over 80% white during the entire period, 1970-2016.

^c Black supermajority neighborhoods were over 80% black during the entire period, 1970-2016.

^d This figure calculates the percentage of a tract category with college or more education divided by the percentage of the entire city with college or more education.

There are a variety of ways to interpreted these findings but, it is clear that there was no overwhelming wave or "seesaw" of capital into the most African-American spaces in these cities. Overall there were very low levels of change over time but black supermajority neighborhoods were less likely to show evidence of gentrification than white supermajority neighborhoods. How can we understand this against the backdrop of at least some of the gentrification literature which suggests that the opposite will be true (that they will be targeted), and the more general notion embedded in supply-sided theories that suppressed value will generate profit opportunities? Why, in other words, have Harlem and Bronzeville gentrified, but the east side of Cleveland has not? The pathologization of blackness suppressed value in all of those locations. Why did it create profit opportunities in some environment but not others with a similar racial composition? In these three cities, black supermajority neighborhoods have not only been the epicenter of overall population loss. They have remained so with few credible signs that gentrification will reverse them.

Urban ecology paradigm

The urban ecology paradigm also suggests that stigmatized spaces will eventually be reoccupied, albeit through a different set of mechanisms. This school of thought has its origins in the Chicago School of sociology but has evolved considerably since then. Urban neighborhoods are conceptualized as residence zones (or "ecologies") for different ethnoracial groups. Those groups are hierarchically ranked usually on their degree of similarity to the most dominant group. There is a constant churn of "invasion" and "succession" with an arc toward assimilation. Groups at the bottom of the hierarchy enter the most stigmatized places in the city and work to make their way to the next most desirable neighborhoods.

Though often having little in the way of financial resources, new immigrant groups are often more self-conscious about their own status than other native born groups. This explanatory arc is used frequently to explain the entry, ascent and assimilation of European-origin ethnic groups in the early- to mid- twentieth century, but it is less effective at explaining the experience and stigma of racism in general, and the experience of black Americans in particular.

Some of the original Chicago School theorists directly opined that the experience of post Great Migration black people would follow the same arc as Italians and Irish immigrants. As Robert Park (1950, p. 150) wrote, "interracial adjustments [...] involve racial competition, conflict, accommodation, and eventually assimilation, but all of these diverse processes are to be regarded as merely the efforts of a new social and cultural organism to achieve a new biotic and social equilibrium." So, while "the great influx of southern Negroes into northern cities" initially caused "disturbances to the metabolism" (Park, Burgess, and McKenzie 1925, p. 54), they will eventually become part of the system (i.e. coded a "white" like other initially-marginalized groups before them). This, of course, did not occur as theorized. Park and others identified African Americans as a "shock to the urban metabolism" in the 1930s when they entered the least-desirable neighborhoods in Chicago, but unlike their initially-marginalized white-European counter-parts, they remain heavily concentrated in the same neighborhoods today. There is no discernable "assimilation" occurring in this context—or if there is, it is occurring at a manifestly slower pace than it did for earlier (European-origin) groups. Moreover, unlike earlier conceptions of neighborhood hierarchy, stigmatized black spaces remain avoided by immigrant groups in a number of contexts, and ecology theory is not entirely clear under which conditions that stigma leads to

an opportunity for new groups, and under which conditions it remains a repellant. For example, Charles (2001) discusses the entry of Koreans in black neighborhoods in Los Angeles and describes a scenario that is not unlike that of the original Chicago School theorists—a new group entering the most stigmatized zone of the city, aligning resources, and actively seeking assimilation (both in the form of movement out of that neighborhood and broader acceptance by the in-group). Similar patterns can be found in multi-ethnic cities like New York and Toronto, but this does not capture the experience of neighborhood change in shrinking Rust Belt cities very well at all. Despite overt efforts to attract immigrants (Pottie-Sherman, 2018), Rust Belt cities have very low percentages of new immigrants compared to coastal cities. Of the 82 cities with more than 250,000 residents, Cleveland (rank: 81 at 5.2%), Detroit (rank: 79 at 5.8%), and Pittsburgh (rank: 68 at 8.6%) have among the smallest immigrant populations nationally. This pattern, combined with high vacancy rates means lower overall competition for housing. Within this framework, the prevailing pattern of new groups in such cities is actually avoidance of the most stigmatized neighborhoods rather than attraction to it. The "landing" neighborhoods of new immigrants and migrants in those cities are actually *away* from the most African-American spaces. To illustrate this, location quotients for the spatial intensity of new migrants and immigrants in Detroit, Cleveland, and Pittsburgh were calculated and cross-tabulated with the racial makeup of neighborhoods. Here are the equations used:

A. Foreign Born Population

Foreign Born
$$LQi = \frac{fb^i/p}{FB^i/P}$$

Where: Foreign Born LQi = location quotient for the spatial clustering of foreign born people in a neighborhood of a given % black range vis-à-vis the rest of the city. $fb_i = count$ of foreign born population in all tracts of a given % black range (e.g. 0-20%, 20.1-40%, etc.)

p = total population in the census tracts of given % black range FB_i = count of foreign born population in the entire city <math>P = population for the entire city

*B. In-migrant from outside county*⁵

$$In - Migrant \ LQi = \frac{im^i/p}{IM^i/P}$$

Where: In-Migrant LQi = location quotient for the spatial clustering of people who resided outside of the county in the previous census period in a neighborhood of a given % black range vis-à-vis the rest of the city. $im_i = count of in-migrant population in all tracts of a given % black range (e.g. 0-20%, 20.1-$ 40%, etc.)<math>p = total population in the census tracts of given % black rangeIM_i = count of in-migrant population in the entire city<math>P = population for the entire city

Table 3 illustrates the distribution of new migrant spatial intensity across black and white supermajority neighborhoods. For migrants born in a different country the pattern is very clear, particularly in Detroit. White supermajority neighborhoods are over-represented as zones of entry for new immigrants while black supermajority neighborhoods are the least likely location. The pattern for other migrants is more mixed, across time and space, but the relative differential remains the same: namely that white supermajority spaces are more likely to receive new migrants than black supermajority neighborhoods in most years. In short, black neighborhoods are the least likely to be zones of entry for new immigrants, and the white neighborhoods the most likely.

This leads to several questions that are not easily addressed within the confines of the ecology paradigm. If blackness is stigmatized in Detroit and in Los Angeles, why does it lead to avoidance in the former, and an immigrant landing zone in the latter? When or why the stigma of blackness will create an opportunity for new groups is unclear. Why have black neighborhoods in Los Angeles become populated with Korean immigrants, and yet areas of Detroit not become populated by the substantial Arabic diaspora in the region?

Table 3: Location quotients for concentration of new immigrants and other newcomers inneighborhoods of different racial composition, 1970-2016 in Detroit, Cleveland, and Pittsburgh. (Source:US Decennial Census and American Community Survey, via the Social Explorer Longitudinal TractDatabase).

A. Foreign Born^a

Category	1970	1980	1990	2000	2010	2016
White Supermajority ^b						
Detroit	1.61	2.30	3.49	6.28	6.34	5.58
Cleveland	1.23	1.47	1.48	1.55	1.42	1.31
Pittsburgh	1.30	1.34	1.44	1.46	1.33	1.29
Black Supermajority ^c						
Detroit	0.26	0.26	0.20	0.17	0.20	0.21
Cleveland	0.14	0.17	0.10	0.15	0.25	0.21
Pittsburgh	0.14	0.10	0.08	0.12	0.40	0.43

B. Other newcomers^d

Category	1970	1980	1990	2000	2010	2016
White Supermajority ^e						
Detroit	0.81	0.83		2.53	1.28	0.77
Cleveland	0.87	0.92		1.18	0.99	0.90
Pittsburgh	1.21	1.21		1.28	1.16	1.13
Black Supermajority ^f						
Detroit	0.99	0.65		0.58	0.69	0.69
Cleveland	0.76	0.56		0.50	0.50	0.55
Pittsburgh	0.50	0.37		0.30	0.16	0.38

NOTES

^a Percent of population that was born outside of the United States in census tract category divided by percent of population born outside of the US for the entire city.

^b White supermajority neighborhoods were over 80% white during the entire period, 1970-2016.

^c Black supermajority neighborhoods were over 80% black during the entire period, 1970-2016.

^d The Census and ACS gather various statistics on the number of residents who lived outside of the county in question previously. The time "before" is not always consistent. For the 1970, 1980, and 2000 Censuses, residence 5 years prior was the standard. For the 2010 Census and 2016 ACS, 1 year prior was the standard. Previous residence was not recorded during the 1990 Census.

^e White supermajority neighborhoods were over 80% white during the entire period, 1970-2016.

^f Black supermajority neighborhoods were over 80% black during the entire period, 1970-2016.

Spatial Contingencies

The gentrification and urban ecologies paradigms suggest that the stigmatization of space will eventually lead to a rebound of population. This has generally occurred as theorized in wealthy coastal cities but not in the distressed Rust Belt city. Why? I argue that three spatial contingencies explain why the most stigmatized spaces of the Rust Belt are the epicenter of population loss rather than the focus of gentrifying investors or new immigrants: 1) the malleability of anti-black prejudice; 2) housing supply variation; and 3) housing stock differences.

1. Stigmatization of blackness

Racial prejudice is a significant factor driving residential choice. It guides assumptions about current value and expected return on investment, even when those assumptions are not borne out. Sociologists have convincingly demonstrated that while all groups display a preference for living near co-ethnics, white respondents are particularly inclined to such ethnic homogeneity. Given that white people are the majority in every Rust Belt region, the collective desire to avoid co-residence with black people has a destructive impact on housing demand in the most African-American neighborhoods. Avoiding coresidence with the most stigmatized group, black people, is also active amongst immigrant groups, even (especially) among black immigrant groups (Greer, 2013).

Anti-black prejudices not only drive an initial flight but perhaps more importantly an ongoing refusal to return majority black neighborhoods. It is this refusal rather than the initial flight which drives *overall* population decline. Table 4 illustrates the after-effects of a 500 or more black person entry to neighborhoods in Cleveland, Detroit, and Pittsburgh for each

Table 4: Racial composition and neighborhood change for census tracts that experienced a 500 black person (or more) increase between 1970 and 2016 in Detroit, Cleveland and Pittsburgh (Source: US Decennial Census and American Community Survey, via the Social Explorer Longitudinal Tract Database).

Decade of 500+ Influxª	Ν	% Black 1970	% Pop. Change 70-80	% Black 1980	% Pop. Change 80-90	% Black 1990	% Pop. Change 90-00	% Black 2000	% Pop. Change 00-10	% Black 2010	% Pop. Change 10-16	% Black 2016
1970s	131	19.6%	-4.3%	65.0%	-8.4%	85.8%	-8.5%*	91.4%	-26.5%*	93.1%	-4.7%*	91.9%
1980s	28	-	-	12.8%	-1.5%	44.2%	+4.8%	77.7%	-24.7%	86.3%	-5.6%*	85.1%
1990s	12	-	-	-	-	7.5%	+11.4%	45.5%	-8.9%	71.6%	-1.8%	69.7%
2000s	5	-	-	-	-	-	-	8.4%	+2.4%	48.1%	+6.1%	60.4%
2010s	0	-	-	-	-	-	-	-	-	-	-	-

A. Detroit

B. Cleveland

D. Clevela		1										
Decade of 500 + Influx	Ν	% Black 1970	% Pop. Change 70-80	% Black 1980	% Pop. Change 80-90	% Black 1990	% Pop. Change 90-00	% Black 2000	% Pop. Change 00-10	% Black 2010	% Pop. Change 10-16	% Black 2016
1970s	25	28.8%	-11.1%	65.1%	-11.6%	78.9%	-8.9%*	83.6%	-20.5%*	83.8%	-5.2%*	81.4%
1980s	4	-	-	51.7%	+28.3%	69.7%	+2.6%	84.7%	-26.2%*	86.7%	-6.8%*	85.6%
1990s	16	-	-	-	-	7.8%	+3.8%	42.5%	-23.4%*	61.9%	-3. 6%*	61.9%
2000s	4	-	-	-	-	-	-	31.7%	+3.1%	57.3%	-10.0%*	56.9%
2010s	1	-	-	-	-	-	-	-	-	25.5%	+9.4%	37.0%

C. Pittsburgh

C. FILLSBU												
Decade of 500 + Influx	Ν	% Black 1970	% Pop. Change 70-80	% Black 1980	% Pop. Change 80-90	% Black 1990	% Pop. Change 90-00	% Black 2000	% Pop. Change 00-10	% Black 2010	% Pop. Change 10-16	% Black 2016
1970s	9	26.6%	-4.7%	48.9%	-18.1%*	58.8%	-14.8%*	64.7%	-14.8%*	61.2%	-5.9%*	58.9%
1980s	2	-	-	55.5%	+14.4%	64.2%	-10.2%*	66.0%	-11.5%*	33.5%	+11.2%	26.0%
1990s	3	-	-	-	-	10.0%	-6.2%	24.7%	-12.8%*	39.5%	-1.4%*	39.2%
2000s	1	-	-	-	-	-	-	13.5%	+65.7%	31.2%	-1.7%*	24.2%
2010s	0	-	-	-	-	-	-	-	-	-	-	-

* Rate of population loss is more severe than the rest of the city for the time period in question

NOTES:

^a Census tracts were only counted for the first decade that they experienced a 500 or more black person increase.

decade since 1970.⁶ Several patterns are evident. First, the movement of a substantial number of black people provoked an out-migration of white people but did not generally provoke disproportionate overall population flight, initially at least. During the initial stage, black people were simply replacing white people in the neighborhood for either a net zero, lessdecline than the rest of the city, or even growth. Overall population loss that is more acute than the rest of the city, does not generally occur until several decades after the initial movement of black residents to the neighborhood. It is the refusal to consider residence in already-black neighborhoods that accelerates decline, as black families struggle to sell their holdings. Many cannot find buyers, and simply walk away because a substantial majority of the population will not consider residence there.⁷ This process has worsened, I argue, in recent decades because earlier black homeowners were able to find buyers for housing into the 1970s and 1980s as there were still net increases of black homebuyers (the only group willing to consider residence in black neighborhoods) in such cities. But since the 1980s, there has been a substantial out-flight of black families (particularly the black middle class) as earlier discriminatory obstacles to suburban residence and inner-city school quality erodes. Many black families therefore seek residence either in the suburbs of the same region, or simply move out of the region altogether—something demographers have deemed "the reverse Great Migration". The stigma of the black neighborhood has remained, but its impact on overall population loss has accelerated because there are fewer potential residents to offset it.

2. Housing supply

Housing supply is often not fully considered in either theories of gentrification or urban ecology, despite the fact that vacancy rates differ considerably between and within cities (Table 5). Since 1970, cities in the industrial Midwest have had higher vacancy rates than wealthier coastal cities like New York, Los Angeles, and Washington D.C. This difference widened considerably during and after the Great Recession. Within each city (including wealthier cities), black supermajority neighborhoods had higher vacancy rates than white, and integrated, neighborhoods, but the impact of this pattern is different. In places with tight real estate markets (like New York and Los Angeles) there are fewer or no choices other than residing in or near the most stigmatized neighborhoods. In high vacancy cities, the range of choices is very different. When markets are tight as they are in say Oakland, New York City, and Washington D.C., the gentrification of black spaces is more common (but even then not automatic or the "first wave").

Vacancy rates also, of course, significantly impact house prices. According to the American Community Survey (2012-16 estimates) the median house value in the U.S. is \$184,700. In shrinking cities with struggling housing markets throughout, all housing is less expensive and relatively available. Detroit, Cleveland, and Pittsburgh for example have median house values of 22%, 37%, and 55% of the national level. There are ample, affordable, and potentially-profitable opportunities for gentrifying investors and immigrants alike *outside* of the most stigmatized spaces in those cities. In such environments, the prejudice against living, or investing in, black supermajority neighborhoods is sufficient to dissuade as there are ample alternative residential options. But in wealthier cities with more expensive housing overall, the opportunities are fewer and the prices much higher. New York, Los Angeles, and Oakland have median values that are 276%, 269%, and 271%

Table 5: Vacancy rates in selected cities, 1970-2016 (Source: US Decennial Census and American Community Survey Place Level Data, via the Social Explorer)

			Vacano	cy Rate		
	1970	1980	1990	2000	2010	2016
Cleveland	6.0%	8.8%	10.9%	11.7%	19.3%	21.0%
Detroit	5.9%	8.0%	8.8%	10.3%	22.8%	29.8%
Pittsburgh	6.2%	7.3%	9.8%	12.0%	12.8%	13.6%
Los Angeles	4.6%	4.5%	6.4%	4.7%	6.8%	6.3%
New York	3.0%	5.2%	5.8%	5.6%	7.8%	9.0%

respectively of the national level. The most stigmatized neighborhood in such locales are often the only places that new immigrants can afford residence, and among the only places where rent gaps have not already been closed by investors, so there tends to be more often to be inward population and investment flow. In such cities, white gentrifiers and statusconscious immigrants are more amenable to co-residence with black people. But when given choices, like they are in places like Chicago, white gentrifiers tend to favor white working class spaces close to the city (Hwang and Sampson, 2014). In shrinking cities, where inexpensive housing available almost everywhere in the city, gentrifiers and immigrants can pick and choose. Racial prejudice prevails under such conditions, and has the impact of accelerating decline.

3. Housing stock

Cities have differences in their housing stock which make gentrification and/or in-migration more likely in some cases, and less likely in others. There are two salient dimensions to this. First, cities of the American Midwest are different from both the older coastal cities of the East, and the newer cities of the sunbelt. Places like Detroit, Cleveland and Pittsburgh experienced more substantial (relative) growth spurts after the automobile had been invented, and mass construction techniques perfected. A greater percentage of the housing stock of Detroit, for example, was built in the first half of the twentieth century than say Philadelphia which contains more durably constructed multi-family apartment buildings (Ryan, 2012). Single-family, mass-produced housing deteriorates more quickly than older (but more durably constructed buildings) or newer housing stock in sunbelt cities. It is less

architecturally appealing to gentrifiers and less densely located (because it was built around the automobile) so it is less appealing to tight knit communities seeking a new neighborhood.

Second, and partially related to the first item, much of the housing stock in Rust Belt cities has been removed altogether through demolition (Hackworth, 2016). There are 49 cities with at least one neighborhood where at least 50% of the housing has been demolished (269 total neighborhoods). Vacant lots are the rule, not the exception, in vast sections of Detroit, Cleveland, and Gary. Extreme housing loss neighborhoods are concentrated in the most African-American spaces, because of juridical obstacles to housing investment and the persistent refusal of white residents to consider residence in those spaces (Hackworth, 2018) (see Table 6). Widespread land vacancy thus serves as mark for blackness and decline—one that is easily visible to potential residents, banks, and realtors. It also creates a challenging economic obstacle to future investment. Building new housing for profit in highly-vacated environments is challenging without considerable subsidy. The average cost of building a new home to code in the United States is in excess of \$125,000 (Hackworth, 2014)—and this is likely a very conservative figure because it includes housing that is mass produced in large numbers. In places like Detroit where a "broken teeth" landscape—vacant lots surrounded by some occupied and some unoccupied houses-the cost advantages of mass production are often not possible. Building a single house on a single parcel is certainly much more expensive—likely in excess of \$200,000 to build a house to code. It is difficult to see how such building would take place in highly abandoned neighborhoods in Cleveland or Detroit where the prevailing house value is often under \$20,000. Unless the construction is heavily subsidized, there is little chance that a developer or investor would be able to profitably sell such a house. By contrast, renovating a house to resell, if it is structurally intact, is less

		Det		Cleveland				Pittsburgh				
% Black	# of	% of City	Рор	House unit	# of	% of	Рор	House	# of	% of City	Рор	House
Category	Tracts ^a	Pop ^b	chng ^c	chng ^d	Tracts	City Pop	chng	unit chng	Tracts	Рор	chng	unit chng
0-20%	146	43.3%	-39.1%	-15.9%	101	53.6%	-35.8%	-7.5%	90	70.2%	-30.6%	-7.5%
20.1-40%	25	8.4%	-53.6%	-35.4%	7	4.0%	-39.7%	-14.4%	11	9.6%	-52.2%	-31.5%
40.1-60%	21	6.1%	-50.7%	-32.6%	9	5.8%	-65.1%	-41.6%	6	4.7%	-68.3%	-54.0%
60.1-80%	26	10.5%	-57.7%	-33.4%	10	6.3%	-58.1%	-37.3%	8	6.3%	-56.6%	-35.8%
80.1-100%	74	31.7%	-70.6%	-47.2%	47	30.3%	-62.7%	-38.4%	11	9.2%	-64.0%	-53.1%
Totals	292	100.0%	-54.8%	-30.9%	174	100%	-48.2%	-20.0%	126	100%	-41.3%	-19.0%

Table 6: Population change between 1970 and 2016 in neighborhoods of different racial composition in Detroit, Cleveland, and Pittsburgh (source: US Census and American Community Survey Estimates, 2012-2016, through the Social Explorer Longitudinal Tract Database).

NOTES

^a Only includes tracts that had at least 100 people in each census/ ACS datapoint between 1970 and 2016.

^b This is the calculation of total population in 1970 in the tracts within a given % black threshold divided by the total 1970 population for usable tracts.

^c The city level "total" figure is derived from place level data comparison between 1970 and 2016 (so it may include data that is missing with the use of usable tracts only).

^d The city level "total" figure is derived from place level data comparison between 1970 and 2016 (so it may include data that is missing with the use of usable tracts only).

expensive. Throughout the Lower East Side of New York in the 1970s, for example, many houses and walk-up apartments sat empty, but were structurally sound. When investment started to pour into the neighborhood, the combination of acquiring a building at auction, then renovating its interior, created a profit opportunity for investors. Those opportunities do not exist as frequently in the contemporary east side of Cleveland.

The widespread appearance of land vacancy, its association with black neighborhoods, and the economics of house construction create a very different set of conditions in certain cities than in others. In real estate markets with high housing (but low land) vacancy, gentrification tends to occur more often in even the most-stigmatized neighborhoods. But in places where most of the housing is gone, and that which does remain is not easy to profitably convert, the situation is different. In Bedford Stuyvesant, for example, there are architecturally-distinct brownstones occupied primarily by black people, and gentrification is encroaching more rapidly. In Detroit, there are vacant lots surrounded by deteriorating wood frame, architecturally-indistinct housing occupied primarily by black people. Racial prejudice exists in both places, but in the former it is offset by other factors.

Conclusion

There is a distinct association between the spatialities of blackness and extreme urban shrinkage in the American Rust Belt. Though few have fully addressed this association, fragments of urban theory and research point to some answers. But even these fragments leave as many questions as answers, including two prominent ones. Why, if racial prejudice is the underlying factor, would this translate into overall population loss and not simply the reduction of white residents? Why, moreover, do two dominant theories of neighborhood

change—gentrification and urban ecologies—not capture the pattern in shrinking cities? These theories insist that stigma will generate opportunities and incentives for inward population and investment flows, but the opposite appears to be the case in these cities.

I argue that such questions can be more meaningfully addressed by engaging with three factors of inter- and intra- city difference. First the durability of anti-blackness across space should be acknowledged, but understood as spatially contingent. Anti-black prejudice is relatively common, ongoing, and a major factor in residential preferences (particularly amongst white people), but its impact and form are more spatially-variable, contingent on other factors. The size, history, and existing distribution of the black population varies considerably and in part explains why that stigma is creates an investment opportunity in some cases, and an excuse for further isolation and avoidance in others. Second, and related, housing availability and price varies considerably between and within cities. While black neighborhoods in coastal and Rust Belt cities tend to have higher vacancy rates than whiter spaces, this only tends to matter when alternate (white) spaces are unattainable or unavailable. In wealthier cities with tight real estate markets, black neighborhoods are often the only places available to new immigrants and the only places where the rent gap has not been closed so they are the target of gentrifiers and new immigrants. In places with high overall vacancy rates and low overall prices, many alternate options exist outside of the most stigmatized neighborhoods. Finally, housing stock is a factor that helps explain the absence of inward investment in some cities and its presence in others. The cities of the industrial Midwest are more significantly composed of quickly-built, suburbanized tract housing that has deteriorated quickly to the point of inhabitability. This has provoked mass demolition and a landscape of considerable land vacancy. The "broken teeth" landscape serves as a

mark, one that serves as a proxy for the presence of black populations and is easily visible for prejudicial investors and potential residents alike. These factors vary considerably between cities and serve to limit growth and investment in some, while encouraging it in others. The application of urban ecological and gentrification approaches to shrinking cities would be strengthened by a more complete consideration of these factors.

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ENDNOTES

¹ "Rust Belt" is operationalized as the principal cities of the largest urban areas (over 500,000 people in 2016) in the states bordering the Great Lakes: Indiana, Illinois, Michigan, Minnesota, New York, Ohio, Pennsylvania, and Wisconsin. I eliminate the "Gateway Cities" of New York and Philadelphia because they are much older and exhibit different building stock and migrant histories. I add two cities whose metropolitan areas spill into the aforementioned states—Louisville and St. Louis—because of their functional similarity with the cities in the putative region.

 2 "College educated" was measured here as the percentage of people over the age of 25 who had some college or more education.

³ Income measures were calculated somewhat differently than the LQ model above but with the same basic mathematical approach. A tract average income divided by the city average income was calculated. In 1970, the calculation was based on the Average Family Income. In all other years, it was derived from the Median Household Income measure.

⁴ It should be noted that there were only two census tracts that remained white supermajority throughout the 1970-2016 time span in Detroit, so we should be cautious with the interpretation of these findings.

⁵ The Census provides counts of people who resided outside of the county and recently moved to the tract in question. For 1970, 1980, and 2000, the count is of people (over the age of five) who lived outside of the county five years earlier. For 2010 and 2016, which were derived from the American Community Survey, the measure is of people over the age of five who lived outside of the county one year prior to the Census taking. The Longitudinal Tract Data Base did not contain any "outside of county" figures for the year 1990, so they were omitted.

⁶ This threshold was borrowed from Kye (2018) who used it to study all census tracts experiencing that level of black population in-migration between 2000 and 2010 in the United States.

⁷ In such environments "cash only" investors often swarm a neighborhood with "will buy houses" signs hoping to exploit the desperation of home sellers. This process often hastens the decline of neighborhoods as such investors are squarely focused on return-on-investment and tend, more than owner-occupiers, to neglect upkeep.